Stantec New Zealand
Level 2, 2 Hazeldean Road
Addington, Christchurch 8024
NEW ZEALAND
Mail to: PO Box 13052, Christchurch 8141

18 January 2022

Project/File: 310205006

Tim Carter
Rolleston Industrial Developments Limited

Dear Tim,

We have reviewed the Selwyn District Council Plan Change 82 (PC82) Request for Further Information letter dated 13 December 2021. We have considered the requests under the heading "Transport" (Questions 14 to 26) and provide responses to the questions as follows. The full question is included in bold italics, and the response is provided below that.

14. Please confirm how the plan change will ensure development aligns with the intersection upgrades identified in Section 8.3.2 of the ITA. Further, please confirm how the plan change can respond in the instance that the timing of these upgrades is not brought forward.

The proposed ODP includes an upgrade of the Dunns Crossing Road / Lowes Road intersection and changes to the Dunns Crossing Road / Brookside Road intersection. The Plan Change will directly contribute to the need for those improvements to facilitate safe and efficient access, particularly as the wider site is developed. The SH1 / Dunns Crossing Road intersection is a critical access improvement in relation to safety and efficiency for the southwest part of Rolleston, on which the Plan Change will rely.

As set out at Page 2 of the Application documents a subdivision rule 12.1.3.50(a) is proposed that requires the following intersection and road network changes be completed prior to any house occupation:

i. the completion of the upgrade to the SH1 / Dunns Crossing Road intersection; and
ii. upgrade to the Lowes Road / Dunns Crossing Road intersection; and
iii. realignment of the Brookside Road at Dunns Crossing Road.

The funding of SH1 / Dunns Crossing Road intersection upgrades has been provisioned as part of the NZ Upgrade Programme Rolleston Access Project.

The Lowes Road / Dunns Crossing Road is an arterial v arterial road intersection planned (included in traffic modelling) even without the PC82 development to support future transport network priorities (as described in the ITA at Section 6.1). Long term funding is indicated beyond the next 10 year period. With the Plan Changes sought in the west of Rolleston contributing to a potential bringing forward of the need, funding would be expected to occur through the Long Term Plan process, with development contributions from growth areas including PC82. A new fourth leg to the intersection will become a development related responsibility, and a private development agreement is expected to be entered into between the developer and Council. If the intersection improvement is not able to be achieved though that process, the ODP and rule provisions would not be complied with and detailed transport assessment would be necessary to support subdivision consent.
The realignment of Brookside Road would be a matter to address through subdivision, as subdivision would be the primary driver for the change. It is expected that would be developer

funded through a private developer agreement. If a change to the planned provision for the realignment is necessary, then assessment against subdivision rule assessment matters will be necessary.

For the longer-term upgrades of the Dunns Crossing Road / Burnham School Road and Dunns Crossing Road / Selwyn Road intersections, the improvements have been signalled as necessary by other Plan Changes and included in the Rolleston Transport Model to accommodate general growth. The intersections are arterial route upgrades remote to the PC82 site, and the developer of PC82 land cannot control the delivery or timing of the infrastructure. The most appropriate mechanism will be for the intersections to be incorporated into the Long Term Plan with revised timing as necessary to reflect expected growth. Development contributions can be attributed based on expected contributions of traffic from the new development to the upgrade. As that process sits outside the Plan Change framework, it is not considered appropriate or necessary to tie development timing to the upgrades given the arterial classification of Dunns Crossing Road.

It is considered that other intersections should not be tied to development or development contributions, as they serve other local development access requirements (such as Dunns Crossing Road / PC73 Skellerup Block).

15. Please confirm how the proposed upgrade for the Goulds Road / Dunns Crossing Road / Selwyn Road intersection will be funded and delivered, noting that it is not funded or programmed in Council's Long Term Plan.

With the traffic volumes at the southern end of Dunns Crossing Road and on Selwyn Road in this location being only moderate, it is considered that the increase in traffic resulting from PC82 would not notably bring forward the need for an upgrade.

It is understood from the PC81 RFI response by Novo Group that these intersection upgrades will be carried out by way of developer agreements with the PC70 and PC81 area developers the main contributors given their proximity.

16. Please confirm how development within the plan change will be delayed until the third-party intersection upgrades identified in the ITA, and above, are undertaken.

The proposed rule would require the SH1 / Dunns Crossing Road, Dunns Crossing Road / Brookside Road and Dunns Crossing Road / Lowes Road intersections to be upgraded / altered before occupation of any houses on the site and this is considered appropriate. Where that is not achieved, subdivision assessment matters will need to be considered which could include the staging of development.

It is considered that the other intersection upgrades along the Dunns Crossing Road route (Burnham School Road and Goulds Road / Selwyn Road) do not need to delay development of the site given they are arterial road intersections and some distance from the site.

17. Please provide an assessment of the transport effects of this plan change request on Edwards Road, including the intersection with Ellesmere Junction Road. Where relevant, please also refer to Council Standards and Guidelines in regard to carriageway widths and pavement type.

The ITA included a recommendation that before any houses are occupied on parts of the site with vehicle access to Brookside Road or Edwards Road, the likely use of Edwards Road to the south of the site and the Edwards Road / Ellesmere Junction Road intersection is considered further. It stated that if this route is likely to be an attractive route, it may be necessary to seal the entire length of Edwards Road and to upgrade the Ellesmere Junction Road intersection.

It is expected that Edwards Road will be an attractive route for some traffic to and from the site and therefore it should be sealed along its entire length. The formation of the road, i.e. whether it is sealed to an urban or rural local road standard, would be agreed with SDC at the appropriate subdivision stage. It is considered that this should be determined before any stages with access to Brookside Road or Edwards Road are developed.

At the same time, is it recommended that a minor realignment is carried out at the intersection of Edwards Road and Ellesmere Junction Road. Edwards Road and the adjacent Selwyn Road approach both meet Ellesmere Junction Road at an awkward, combined intersection leg. It would be preferable for these two approaches to meet separate from Ellesmere Junction Road and then meet that road at a 90-degree angle. This may require some land from the corner of the paddock north of the intersection but is owned by a third party so cannot reasonably be a requirement for inclusion at the Plan Change stage. A suitable mechanism could be requirement for assessment of the safety and efficiency of the intersection as part of subdivision.

18. Please confirm if PC80 and PC81 are represented in the Rolleston Paramics model used to support this plan change request (PC82) ITA. If they are not, please provide an updated modelling assessment which includes these plan changes. Further, please provide the Paramics model files for review.

As set out in the ITA, PC80 and PC81 were not Plan Changes included in the modelling. An additional modelled scenario with all Plan Changes including PC80 and 81 (adopting the same model inputs as included in those assessments) has been carried out. The road network around the site was updated in this scenario to better reflect what is proposed through the Plan Change. The main change was that Brookside Road south-west of Dunns Crossing Road was realigned into the Dunns Crossing Road / Lowes Road roundabout. The roundabout has been modelled as a four-legged roundabout with two through lanes on Dunns Crossing Road and with a left turn lane on the western approach.

The following tables summarise forecast intersection performance and detailed outputs are attached to this document.

- Table 1: The ITA reported performance without PC80, PC81, or PC82
- Table 2: The ITA reported performance with PC82, but does not include PC80 or PC81. It then also includes the incremental change of adding PC80 and PC81 as a new modelled scenario.

Discussion is provided on each intersection below the tables.

Intersection	Base Model (No PC80/81/82)	
	AM Peak	PM Peak
Dunns Crossing / Selwyn Roundabout	4s, LOS A	4s, LOS A
Dunns Crossing / PC73 Northern Road Priority Crossroad	28s, LOS D	20s, LOS C
Dunns Crossing / Boulez Priority Crossroad		
Dunns Crossing / Lowes Roundabout (3-Legged)	11s, LOS B	11s, LOS B
Dunns Crossing / Brookside Priority Crossroad	29s, LOS D	38s, LOS E
Dunns Crossing / Burnham School Signals	15s, LOS B	10s, LOS A
Dunns Crossing / SH1 Roundabout	20s, LOS B	9s, LOS A
Lowes / Tennyson Signals	22s, LOS C	32s, LOS C

Table 1: Base model intersection performance without PC80, PC81, or PC82 (from ITA)

Intersection	With Plan Change (ITA (No PC 80 or 81))		With PC80+81+82 (Additional Model Scenario)	
	AM Peak	PM Peak	AM Peak	PM Peak
Dunns Crossing / Selwyn Roundabout	4s, LOS A	4s, LOS A	4s, LOS A	4s, LOS A
Dunns Crossing / PC73 Northern Road Priority Crossroad	21s, LOS C	19s, LOS C	20s, LOS C	23s, LOS C
Dunns Crossing / Boulez Priority Crossroad	15s, LOS B	12s, LOS B	14s, LOS B	12s, LOS B
Dunns Crossing / Lowes Roundabout (4-legged)	41s, LOS D	15s, LOS B	21s, LOS C	9s, LOS A
Dunns Crossing / Brookside Priority Crossroad	>120s, LOS F	29s, LOS C		
Dunns Crossing / Brookside Priority T-Intersection			30s, LOS D	18s, LOS C
Dunns Crossing / Burnham School Signals	26s, LOS C	10s, LOS A	38s, LOS D	10s, LOS A
Dunns Crossing / Newman Priority			>120s, LOS F	59s, LOS F
Dunns Crossing / SH1 Roundabout	24s, LOS C	9s, LOS A	37s, LOS D	11s, LOS B
Lowes / Tennyson Signals	21s, LOS C	29s, LOS C	31s, LOS C	29s, LOS C
Lowes / Broadlands			>120s, LOS F	59s, LOS F

Table 2: With PC 82 Intersection Performance Scenarios

The Dunns Crossing Road / Selwyn Road roundabout is forecast to operate efficiently in all scenarios given the moderate traffic volumes forecast in that corner of Rolleston.

There is minimal change to the performance of both the PC73 and Boulez Mews priority intersections on Dunns Crossing Road. It should be reiterated that the model includes a crossroad intersection at Boulez Mews but it is proposed that the subdivision road meets Dunns Crossing Road off-set from Boulez Mews which will be a safer and more efficient layout.

Without PC80/PC81 the Dunns Crossing Road / Lowes Road intersection was modelled as a single lane roundabout and without the Brookside Road realignment. With PC80 and PC81 added, the Dunns Crossing Road / Lowes Road roundabout has been modified to include the Brookside Road realignment, dual through lanes on Dunns Crossing Road, a separate left turn lane on the western leg. With these additional changes the intersection is forecast to operate efficiently. There is an acceptable LOS D forecast on the western approach during the morning peak period and on the eastern approach during the evening peak period, with all other approaches having good LOS A, B or C during peak times. The appropriate form of the intersection can be considered further at the subdivision stage and it would be expected that enough land for a dual-lane roundabout is protected through subdivision boundaries. Depending on actual and forecasts development patterns a single lane roundabout may possibly be deemed appropriate initially.

A relatively high volume of traffic is forecast to turn right into Brookside Road from the south during the morning peak period. This is the critical movement for the performance of the intersection with a LOS D. A right turn bay may be appropriate to accommodate this movement and this should be considered during the design of works at the Brookside Road intersection by the site developers. Low delays are forecast for drivers turning out of Brookside Road during both peak periods. It should be reiterated that the recommended removal of the south-western leg of the intersection is a good outcome for the safety and efficiency of the intersection.

The performance of the Dunns Crossing Road / SH1 roundabout deteriorates in the morning peak in particular, with LOS F forecast on the southern approach. The addition of the Plan Change area on the northern side of SH1 results in an increased right turn from SH1 into Walkers Road which opposes the high volume of traffic exiting Dunns Crossing Road. A reduction of approximately 100vph can be seen on the southern approach compared to the analysis presented in the ITA without PC80 and PC81. This will be from traffic re-routing and is likely contributing to the increased right turn demand into Brookside Road reported earlier. The SH1 approaches are both forecast to operate efficiently with LOS A/B. During the evening peak, the roundabout is forecast to operate efficiently on all approaches. It is considered that the SH1 roundabout is a major piece of infrastructure which needs to be designed with enough capacity to accommodate reasonably foreseeable development in Rolleston which is a high growth area.

The performance of the southern approach to the SH1 roundabout in the morning peak is forecast to affect the performance of the Dunns Crossing Road / Burnham School Road intersection. The northbound through traffic on Dunns Crossing Road is forecast to experience LOS D and this deterioration appears to be due to queuing extending back from the SH1 roundabout as there is no increase in the total traffic volume using the signalised intersection (compared to the earlier modelled scenario). The queuing on Dunns Crossing Road would not need to extend all the way back to the Burnham School Road intersection to have an effect on model outputs as the ‘vehicle paths’ used for measuring performance in the model extend beyond intersections to the next node along the road. In other words, the reported delay for the northbound through movements on Dunns Crossing Road is likely worse than that which would actually be experienced specifically at the intersection.

19. Please provide the Sidra model files for the SH1 / Dunns Crossing Road / Walkers Road intersection that have been used for the assessment included in the ITA. Further, please confirm that the Sidra model includes traffic generated by PC80 and PC81.

The SH1 roundabout has not been modelled in Sidra for this assessment. The Paramics outputs reported in the ITA indicate that the new roundabout will operate efficiently. The additional tests with PC80 and PC81 are reported above and the Paramics model files are supplied.

20. Please provide an assessment of the Dunns Crossing Road / Brookside Road (east) intersection, including any interaction (e.g. queuing effects) between this intersection and the proposed Dunns Crossing Road / Lowes Road roundabout. Please also consider and clarify how existing property access on the northern side would be provided. It is noted in the Urban Design Statement that the termination of part of Brookside Road would allow the existing small enclave to the north to be directly connected to the residential development within the plan change area. As the proposed realignment will have a direct impact on land owners in the vicinity, it is not considered appropriate that this be considered at subdivision stage, as suggested in Section 8.3.2 of the ITA, where opportunity for engagement by and with these property owners is not provided for.

The northern Dunns Crossing Road approach to Lowes Road roundabout is forecast to operate well, with LOS A in both the AM and PM peak in the latest modelled scenario. There will be approximately 100m between the two intersections in question and therefore the queue north of the Lowes Road roundabout would not be expected to interact with the Brookside Road intersection. The design of the Brookside Road T-intersection should consider whether a right turn bay would be warranted at the intersection to minimise impacts on through traffic.

It will be best for the safety and efficiency of the Dunns Crossing Road / Brookside Road intersection if the south-western leg is severed at the intersection, as indicated below. Some form of vertical obstruction to stop the ‘see-through’ effect would likely be warranted opposite the intersection. The existing section of road to the south-west which serves 5-6 properties could be stopped at the last driveway, possibly with a turning head as indicated below. The design of this would be considered further at the subdivision stage. It is considered that where and how exactly the cul-de-sac joins the realigned Brookside Road could also be consider at the subdivision stage. The affected residents could be informed that their properties will be served by a low volume local road and they will have safe and convenient access to Dunns Crossing Road via a new roundabout at the Lowes Road intersection.

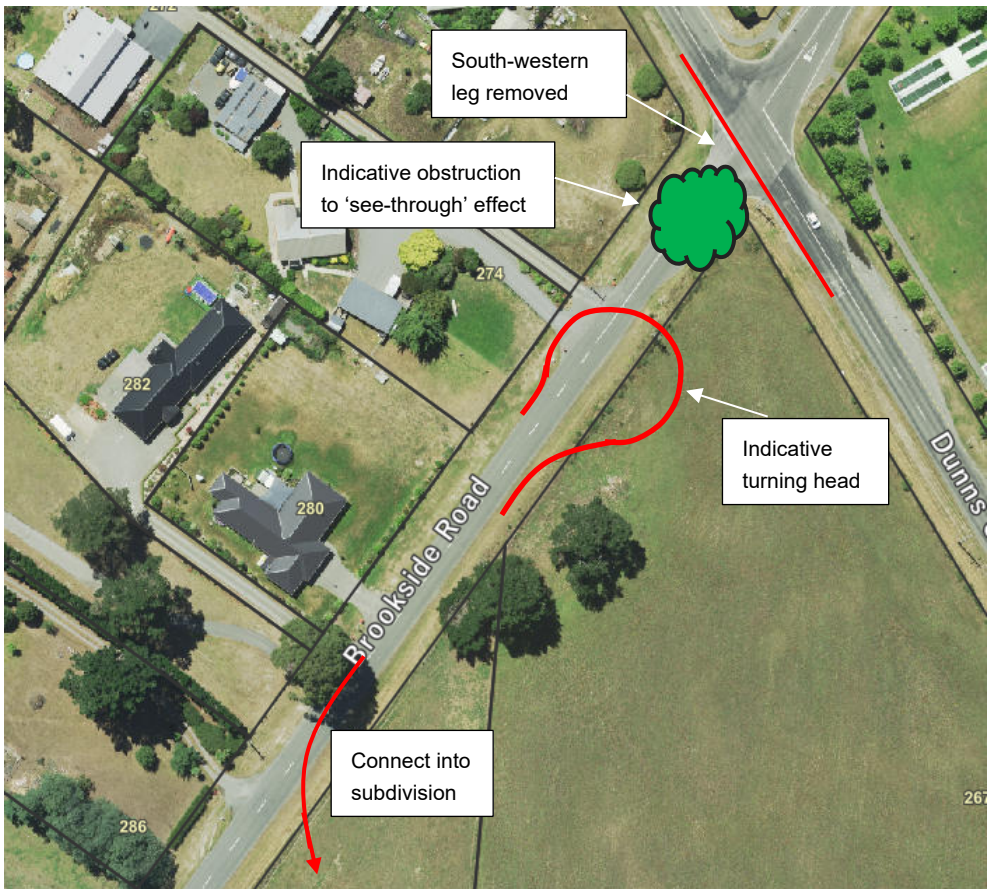

Figure 1: Indicative Sketch of Turning Head and Closure of Brookside Road west at Dunns Crossing Road

21. Please comment on how this plan change request may affect the future performance of Dunns Crossing Road / Newmans Road and Lowes Road / Broadlands Drive

Newman Road and Granite Drive are two priority-controlled T-intersections on Dunns Crossing Road between SH1 and Burnham School Road. PC82 will contribute traffic volume increases to Dunns Crossing Road, possibly in the order of 200vph. Other developments in the south and west of Rolleston will also add to traffic volumes on this road as will the SH1 intersection upgrade which will release supressed demand. Given the arterial road status of Dunns Crossing Road, which means its primary function is to carry traffic, and the distance to the Newman Road and Granite Drive intersections from the site, these local road intersections were not included in the ITA traffic modelling assessment.

As reported in the earlier table, the Newman Road intersection was included in the newly modelled scenario. The queuing back from the SH1 roundabout during the morning peak is forecast to extend through the Newman Road intersection, causing delays for northbound traffic and affecting the ability of traffic to turn out of Newman Road. As Dunns Crossing Road becomes busier, levels of service will deteriorate at these local road intersections and that will be up to the road controlling authority to respond to over time. There are alternative access routes from those roads to other classified roads if turning restrictions are put in place.

Lowes Road / Broadlands Drive is an intersection of two classified roads approximately 2km from the site and it is therefore not considered overly relevant to this assessment. The Lowes Road / Tennyson Street intersection was included in the analysis reported in the ITA to show that PC82 will not have a noticeable effect that far into Rolleston. The performance of the Lowes Road / Broadlands Road intersection was included in the outputs for the latest modelled scenario presented earlier. It shows that the intersection will be performing poorly, particularly during the morning peak period, in the future as Rolleston continues to develop and it will likely need to be upgraded.

22. To assist Council to ensure that the transport network indicated in the plan change request aligns with adjacent future developments being proposed via other plan change requests, please provide an overlay of the ODPs for PC70, PC73 (as modified during the hearing) and this plan change. Please comment on the degree to which the transport network proposed by this plan change request aligns with adjacent future development.

The below image shows the three ODPs as requested. The ODP for PC82 has been developed to tie in with the PC73 ODP and it can be seen below that the indicative primary and secondary roads line up between the two sites. The PC82 site does not connect with the PC70 site so the PC70 ODP is not considered particularly relevant although the overlay does show the CRETS collector road through PC70 lined up with a primary road within PC73.

Figure 2: Overlay of Plan Change ODPs

23. Please comment on whether a concept design for the Dunns Crossing Road / Lowes Road / Brookside Road intersection has been developed which reflects the assumed form adopted in the Sidra model, and whether the ODP should identify the need to allow for land protection / vesting to enable this intersection to be formed.

A concept roundabout design was not carried out as part of the ITA. The roundabout was modelled as a single lane roundabout in the Sidra modelling reported on in the ITA.

The latest simulation modelling carried out with PC80 and PC81 included indicates that dual through lanes may be required on Dunns Crossing Road at some stage if a good level of service for vehicles is desired representative of the arterial intersection classification. A left turn lane was also included on the western leg.

The following concept sketch shows an indicative roundabout centred to the south-west of Dunns Crossing Road so that it does not impact existing property boundaries owned by third parties. A 20m diameter island has been adopted based on Austroads standards for a dual-lane, arterial road roundabout although that could be reviewed based on the type of heavy vehicles that would use it. Lane configurations would be determined based on detailed assessments at the time if intersection design, and the modelled left turn lane from the west could readily be included as required. The intersection control type would also be subject to road controlling authority investigation noting the roundabout was adopted as the intersection control because it was included in the supplied model, whereas traffic signals could be feasible.

Figure 3: Concept for Lowes Road / Dunns Crossing Road Demonstrating Feasibility

It will be a requirement at the subdivision stage that the proposed boundaries allow for the future intersection form and a refined concept roundabout design will need to be produced at this stage to ensure design requirements such as entry path radii, driver and pedestrian sightlines etc. are achievable. It may be that land requirements for the larger roundabout are protected at the subdivision stage but a smaller roundabout could be constructed initially.

24. Please explain why cycle facilities are not proposed on Brookside Road and Edwards Road along the site frontage, referring to relevant Selwyn District Council cycle facility standards and guideline.

We presume this query is referencing the fact that the internal roads and the Dunns Crossing Road frontage on the ODP are shown with the green 'pedestrian and cycle network' lines whereas the other two frontage roads are not. The intention of this was not to say that there would not be cycle facilities on these frontage roads. We expect that these two frontage roads would be upgraded to an urban standard and whether that includes specific cycle facilities would be a matter for subdivision design. We note that cyclists will be able to connect through the subdivision on local roads and off-road links so cycling volumes on these two frontage roads would be expected to be very low.

25. There appears to be a conflict in Section 8.2 of the ITA and the ODP in terms of the number of location of roading connections between the area of the plan change and the adjoining road network. For example, three connections are referenced in the ITA to Edwards Road while only two are shown on the ODP and one connection is mentioned to Brookside Road, while the ODP shows two connections. Please clarify and confirm that the modelling undertaken aligns with the ODP proposed.

The traffic modelling was undertaken based on an earlier version of the ODP. As noted, there are minor differences between the local road network adopted in the traffic modelling and that indicated in the ODP. However, it is considered that number of connections to Edwards Road and Brookside Road are not critical to the traffic modelling exercise, with most traffic in the modelling exercise still able to find its way to the main intersections that have been assessed. As described in the ITA, Brookside Road was not realigned in the simulation model and hence the additional modelling of the Lowes Road roundabout by way of Sidra was carried out. The revised modelling scenario that includes PC80 and PC81 has included the Brookside Road realignment.

26. Please clarify if direct vehicle access is to be provided for along Dunns Crossing Road. The ODP identifies road frontage upgrades along this road, however Section 9.1.2, paragraph 2, of the ITA, states direct access "could also be provided along the (western) site frontage, however this would need to be considered further at the subdivision stage".

We would expect the Dunns Crossing Road frontage to be upgraded to an SDC arterial road standard regardless of whether direct property access is provided. Our view is that direct property access could be provided as has been done on the other side of the road. A benefit of direct property access is that it provides some level of traffic calming. However, we stopped short of stating that direct property access would be provided as we thought this could be considered further at the subdivision stage in conjunction with SDC.

Reference: Plan Change 82 - RFI Response

We trust these responses address the matters raised. We would be pleased to discuss them further as required.

Regards,

Andrew Metherell
Traffic Engineering Team Leader
andrew.metherell@stantec.com

Attachments: Attachment A- 2022 Modelling Scenario Detailed Outputs

Reference: **Plan Change 82 - RFI Response**

Attachment A: Table 2 Additional Modelling Scenario Detailed Outputs (including PC80, PC81 and PC82)

AM Peak Outputs

Intersection	Approach	Mvt	Movement			Approach			Intersection		
			Vol	Delay	LoS	Vol	Delay	LoS	Vol	Delay	LoS
Selwyn Rd / Dunns Crossing Rd	North	L	225	3.9	A	280	3.7	A	891	3.7	A
Selwyn Rd / Dunns Crossing Rd	North	T	48	3.0	A						
Selwyn Rd / Dunns Crossing Rd	North	R	7	2.9	A						
Selwyn Rd / Dunns Crossing Rd	East	L	6	2.3	A	253	2.8	A			
Selwyn Rd / Dunns Crossing Rd	East	T	185	2.7	A						
Selwyn Rd / Dunns Crossing Rd	East	R	63	3.1	A						
Selwyn Rd / Dunns Crossing Rd	South	L	7	9.6	-	87	11.3	B			
Selwyn Rd / Dunns Crossing Rd	South	T	75	11.2	B						
Selwyn Rd / Dunns Crossing Rd	South	R	5	14.3	B						
Selwyn Rd / Dunns Crossing Rd	West	L	49	2.1	A	271	2.2	A			
Selwyn Rd / Dunns Crossing Rd	West	T	217	2.2	A						
Selwyn Rd / Dunns Crossing Rd	West	R	5	1.4	-						
Dunns Crossing Rd / PC73 Road	North	L	45	2.4	A	359	6.9	A	972	20.1	C
Dunns Crossing Rd / PC73 Road	North	T	274	1.8	A						
Dunns Crossing Rd / PC73 Road	North	R	40	6.9	A						
Dunns Crossing Rd / PC73 Road	East	L	3	10.8	B	71	20.1	C			
Dunns Crossing Rd / PC73 Road	East	T	18	15.4	B						
Dunns Crossing Rd / PC73 Road	East	R	51	20.1	C						
Dunns Crossing Rd / PC73 Road	South	L	21	1.2	A	392	7.9	A			
Dunns Crossing Rd / PC73 Road	South	T	348	1.9	A						
Dunns Crossing Rd / PC73 Road	South	R	24	7.9	A						
Dunns Crossing Rd / PC73 Road	West	L	94	8.6	A	149	15.6	C			
Dunns Crossing Rd / PC73 Road	West	T	35	15.2	B						
Dunns Crossing Rd / PC73 Road	West	R	20	15.6	C						
Dunns Crossing Rd / Boulez Mews	North	L	2	1.4	A	313	5.7	A	1068	14.1	B
Dunns Crossing Rd / Boulez Mews	North	T	311	2.0	A						
Dunns Crossing Rd / Boulez Mews	North	R	1	5.7	A						
Dunns Crossing Rd / Boulez Mews	East	L	2	6.0	A	7	11.0	B			
Dunns Crossing Rd / Boulez Mews	East	T	1	8.1	A						
Dunns Crossing Rd / Boulez Mews	East	R	4	11.0	B						
Dunns Crossing Rd / Boulez Mews	South	L	43	2.1	A	553	2.5	A			
Dunns Crossing Rd / Boulez Mews	South	T	509	2.5	A						
Dunns Crossing Rd / Boulez Mews	South	R	1	2.1	A						
Dunns Crossing Rd / Boulez Mews	West	L	135	14.1	B	194	14.1	B			
Dunns Crossing Rd / Boulez Mews	West	T	1	13.6	B						
Dunns Crossing Rd / Boulez Mews	West	R	59	13.0	B						
Dunns Crossing Rd / Lowes Rd	North	L	209	1.6	A	653	3.9	A	2014	21.2	C
Dunns Crossing Rd / Lowes Rd	North	T	289	4.2	A						
Dunns Crossing Rd / Lowes Rd	North	R	155	6.6	A						
Dunns Crossing Rd / Lowes Rd	East	L	27	17.8	B	169	26.3	C			
Dunns Crossing Rd / Lowes Rd	East	T	55	21.0	C						
Dunns Crossing Rd / Lowes Rd	East	R	87	32.3	C						
Dunns Crossing Rd / Lowes Rd	South	L	0	-	-	685	18.0	B			
Dunns Crossing Rd / Lowes Rd	South	T	549	19.7	B						
Dunns Crossing Rd / Lowes Rd	South	R	136	11.3	B						
Dunns Crossing Rd / Lowes Rd	West	L	329	47.2	D	509	46.1	D			
Dunns Crossing Rd / Lowes Rd	West	T	179	44.1	D						
Dunns Crossing Rd / Lowes Rd	West	R	0	14.7	-						

Reference: **Plan Change 82 - RFI Response**

Dunns Crossing Rd / Burmham School Rd	North	L	2	3.9	A	257	14.0	B	1342	38.2	D
Dunns Crossing Rd / Burmham School Rd	North	T	242	13.5	B						
Dunns Crossing Rd / Burmham School Rd	North	R	13	24.6	C						
Dunns Crossing Rd / Burmham School Rd	East	L	0	-	-	25	21.4	C			
Dunns Crossing Rd / Burmham School Rd	East	T	17	19.7	B						
Dunns Crossing Rd / Burmham School Rd	East	R	8	25.0	C						
Dunns Crossing Rd / Burmham School Rd	South	L	216	40.0	D	708	43.7	D			
Dunns Crossing Rd / Burmham School Rd	South	T	487	45.5	D						
Dunns Crossing Rd / Burmham School Rd	South	R	5	29.9	C						
Dunns Crossing Rd / Burmham School Rd	West	L	52	35.0	C	352	46.0	D			
Dunns Crossing Rd / Burmham School Rd	West	T	15	31.4	C						
Dunns Crossing Rd / Burmham School Rd	West	R	286	48.8	D						
Dunns Crossing Rd / SH1	North	L	123	9.5	A	211	11.9	B	2896	36.9	D
Dunns Crossing Rd / SH1	North	T	71	14.9	B						
Dunns Crossing Rd / SH1	North	R	17	16.6	B						
Dunns Crossing Rd / SH1	East	L	99	4.8	A	1122	6.9	A			
Dunns Crossing Rd / SH1	East	T	812	7.3	A						
Dunns Crossing Rd / SH1	East	R	212	6.3	A						
Dunns Crossing Rd / SH1	South	L	133	152.7	F	845	103.5	F			
Dunns Crossing Rd / SH1	South	T	160	146.8	F						
Dunns Crossing Rd / SH1	South	R	552	79.0	E						
Dunns Crossing Rd / SH1	West	L	68	10.5	A	718	12.9	B			
Dunns Crossing Rd / SH1	West	T	561	12.8	B						
Dunns Crossing Rd / SH1	West	R	89	15.4	B						
Lowes Rd / Tennyson St	North	L	25	18.9	B	356	17.3	B	2032	30.7	C
Lowes Rd / Tennyson St	North	T	307	17.5	B						
Lowes Rd / Tennyson St	North	R	24	12.3	B						
Lowes Rd / Tennyson St	East	L	107	11.0	B	201	16.8	B			
Lowes Rd / Tennyson St	East	T	78	20.9	C						
Lowes Rd / Tennyson St	East	R	16	36.1	D						
Lowes Rd / Tennyson St	South	L	42	20.6	C	928	26.9	C			
Lowes Rd / Tennyson St	South	T	658	28.8	C						
Lowes Rd / Tennyson St	South	R	229	22.5	C						
Lowes Rd / Tennyson St	West	L	141	44.5	D	548	51.1	D			
Lowes Rd / Tennyson St	West	T	333	54.1	D						
Lowes Rd / Tennyson St	West	R	74	50.1	D						
Dunns Crossing Rd / Brookside Rd	North	L	49	2.8	A	569	2.8	A	1685	29.7	D
Dunns Crossing Rd / Brookside Rd	North	T	520	2.2	A						
Dunns Crossing Rd / Brookside Rd	East	L	130	5.9	A	146	20.7	C			
Dunns Crossing Rd / Brookside Rd	East	R	15	20.7	C						
Dunns Crossing Rd / Brookside Rd	South	T	686	22.8	C	971	29.7	D			
Dunns Crossing Rd / Brookside Rd	South	R	285	29.7	D						
Dunns Crossing Rd / Newman Rd	North	L	34	2.3	A	258	19.3	C	1064	596.5	F
Dunns Crossing Rd / Newman Rd	North	T	199	1.1	A						
Dunns Crossing Rd / Newman Rd	North	R	25	19.3	C						
Dunns Crossing Rd / Newman Rd	East	L	1	358.6	F	51	596.5	F			
Dunns Crossing Rd / Newman Rd	East	T	2	596.5	F						
Dunns Crossing Rd / Newman Rd	East	R	48	467.2	F						
Dunns Crossing Rd / Newman Rd	South	L	13	62.1	F	731	91.7	F			
Dunns Crossing Rd / Newman Rd	South	T	708	91.7	F						
Dunns Crossing Rd / Newman Rd	South	R	11	49.8	E						
Dunns Crossing Rd / Newman Rd	West	L	22	279.9	F	24	279.9	F			
Dunns Crossing Rd / Newman Rd	West	T	0	156.9	F						
Dunns Crossing Rd / Newman Rd	West	R	2	170.3	F						
Lowes Rd / Broadlands Dr	East	L	63	3.1	A	181	70.0	F	1012	188.7	F
Lowes Rd / Broadlands Dr	East	T	119	70.0	F						
Lowes Rd / Broadlands Dr	South	L	39	188.7	F	218	188.7	F			
Lowes Rd / Broadlands Dr	South	R	179	135.2	F						
Lowes Rd / Broadlands Dr	West	T	507	6.7	A	612	10.2	A			
Lowes Rd / Broadlands Dr	West	R	105	10.2	A						

Reference: **Plan Change 82 - RFI Response**

PM Peak Outputs

Intersection	Approach	Mvt	Movement			Approach			Intersection		
			Vol	Delay	LoS	Vol	Delay	LoS	Vol	Delay	LoS
Selwyn Rd / Dunns Crossing Rd	North	L	116	2.5	A	202	2.3	A	976	4.1	A
Selwyn Rd / Dunns Crossing Rd	North	T	82	2.0	A						
Selwyn Rd / Dunns Crossing Rd	North	R	4	1.2	A						
Selwyn Rd / Dunns Crossing Rd	East	L	6	2.8	A	461	4.2	A			
Selwyn Rd / Dunns Crossing Rd	East	T	256	4.2	A						
Selwyn Rd / Dunns Crossing Rd	East	R	199	4.3	A						
Selwyn Rd / Dunns Crossing Rd	South	L	5	13.9	-	79	13.7	B			
Selwyn Rd / Dunns Crossing Rd	South	T	68	13.5	B						
Selwyn Rd / Dunns Crossing Rd	South	R	6	15.6	B						
Selwyn Rd / Dunns Crossing Rd	West	L	75	2.0	A	234	2.3	A			
Selwyn Rd / Dunns Crossing Rd	West	T	155	2.4	A						
Selwyn Rd / Dunns Crossing Rd	West	R	5	2.4	-						
Dunns Crossing Rd / PC73 Road	North	L	66	3.3	A	606	8.0	A	1133	23.0	C
Dunns Crossing Rd / PC73 Road	North	T	419	2.0	A						
Dunns Crossing Rd / PC73 Road	North	R	122	8.0	A						
Dunns Crossing Rd / PC73 Road	East	L	4	18.1	C	87	23.0	C			
Dunns Crossing Rd / PC73 Road	East	T	24	20.5	C						
Dunns Crossing Rd / PC73 Road	East	R	59	23.0	C						
Dunns Crossing Rd / PC73 Road	South	L	28	0.9	A	379	9.3	A			
Dunns Crossing Rd / PC73 Road	South	T	339	2.0	A						
Dunns Crossing Rd / PC73 Road	South	R	11	9.3	A						
Dunns Crossing Rd / PC73 Road	West	L	33	6.6	A	61	20.7	C			
Dunns Crossing Rd / PC73 Road	West	T	19	20.7	C						
Dunns Crossing Rd / PC73 Road	West	R	9	20.6	C						
Dunns Crossing Rd / Boulez Mews	North	L	5	1.6	A	622	6.3	A	1145	12.3	B
Dunns Crossing Rd / Boulez Mews	North	T	617	2.0	A						
Dunns Crossing Rd / Boulez Mews	North	R	1	6.3	A						
Dunns Crossing Rd / Boulez Mews	East	L	1	6.3	A	3	6.8	A			
Dunns Crossing Rd / Boulez Mews	East	T	0	6.8	A						
Dunns Crossing Rd / Boulez Mews	East	R	1	6.4	A						
Dunns Crossing Rd / Boulez Mews	South	L	53	2.6	A	453	3.9	A			
Dunns Crossing Rd / Boulez Mews	South	T	398	2.8	A						
Dunns Crossing Rd / Boulez Mews	South	R	2	3.9	A						
Dunns Crossing Rd / Boulez Mews	West	L	17	12.0	B	67	12.3	B			
Dunns Crossing Rd / Boulez Mews	West	T	1	12.3	B						
Dunns Crossing Rd / Boulez Mews	West	R	49	12.1	B						
Dunns Crossing Rd / Lowes Rd	North	L	200	2.0	A	1136	4.5	A	2120	9.2	A
Dunns Crossing Rd / Lowes Rd	North	T	581	4.5	A						
Dunns Crossing Rd / Lowes Rd	North	R	355	5.9	A						
Dunns Crossing Rd / Lowes Rd	East	L	43	40.7	D	236	44.5	D			
Dunns Crossing Rd / Lowes Rd	East	T	103	44.2	D						
Dunns Crossing Rd / Lowes Rd	East	R	91	46.7	D						
Dunns Crossing Rd / Lowes Rd	South	L	0	-	-	432	6.1	A			
Dunns Crossing Rd / Lowes Rd	South	T	396	6.1	A						
Dunns Crossing Rd / Lowes Rd	South	R	36	6.0	A						
Dunns Crossing Rd / Lowes Rd	West	L	229	3.3	A	316	3.9	A			
Dunns Crossing Rd / Lowes Rd	West	T	86	5.3	A						
Dunns Crossing Rd / Lowes Rd	West	R	0	5.7	-						

Reference: Plan Change 82 - RFI Response

Dunns Crossing Rd / Burmham School Rd	North	L	4	2.5	A	725	7.0	A	1474	10.4	A
Dunns Crossing Rd / Burmham School Rd	North	T	710	7.0	A						
Dunns Crossing Rd / Burmham School Rd	North	R	12	12.4	B						
Dunns Crossing Rd / Burmham School Rd	East	L	0	-	-	3	21.3	C			
Dunns Crossing Rd / Burmham School Rd	East	T	2	20.1	B						
Dunns Crossing Rd / Burmham School Rd	East	R	1	25.0	C						
Dunns Crossing Rd / Burmham School Rd	South	L	218	9.6	A	546	10.6	B			
Dunns Crossing Rd / Burmham School Rd	South	T	326	11.3	B						
Dunns Crossing Rd / Burmham School Rd	South	R	3	22.7	C						
Dunns Crossing Rd / Burmham School Rd	West	L	10	15.9	B	201	22.1	C			
Dunns Crossing Rd / Burmham School Rd	West	T	2	16.0	B						
Dunns Crossing Rd / Burmham School Rd	West	R	188	22.4	C						
Dunns Crossing Rd / SH1	North	L	205	13.6	B	437	15.4	B	3307	10.9	B
Dunns Crossing Rd / SH1	North	T	193	16.0	B						
Dunns Crossing Rd / SH1	North	R	39	22.0	C						
Dunns Crossing Rd / SH1	East	L	794	12.1	B	1631	12.3	B			
Dunns Crossing Rd / SH1	East	T	733	12.7	B						
Dunns Crossing Rd / SH1	East	R	105	11.6	B						
Dunns Crossing Rd / SH1	South	L	86	6.1	A	393	6.5	A			
Dunns Crossing Rd / SH1	South	T	111	6.3	A						
Dunns Crossing Rd / SH1	South	R	196	6.8	A						
Dunns Crossing Rd / SH1	West	L	29	6.5	A	848	8.0	A			
Dunns Crossing Rd / SH1	West	T	664	8.0	A						
Dunns Crossing Rd / SH1	West	R	155	8.1	A						
Lowes Rd / Tennyson St	North	L	26	49.6	D	689	51.9	D	2198	29.2	C
Lowes Rd / Tennyson St	North	T	597	53.2	D						
Lowes Rd / Tennyson St	North	R	66	41.1	D						
Lowes Rd / Tennyson St	East	L	291	14.3	B	551	20.9	C			
Lowes Rd / Tennyson St	East	T	226	27.8	C						
Lowes Rd / Tennyson St	East	R	34	32.0	C						
Lowes Rd / Tennyson St	South	L	53	9.5	A	720	15.3	B			
Lowes Rd / Tennyson St	South	T	498	16.4	B						
Lowes Rd / Tennyson St	South	R	169	14.0	B						
Lowes Rd / Tennyson St	West	L	31	17.6	B	237	24.8	C			
Lowes Rd / Tennyson St	West	T	168	24.4	C						
Lowes Rd / Tennyson St	West	R	39	32.4	C						
Dunns Crossing Rd / Brookside Rd	North	L	14	2.5	A	908	3.0	A	1885	17.8	C
Dunns Crossing Rd / Brookside Rd	North	T	894	3.0	A						
Dunns Crossing Rd / Brookside Rd	East	L	244	17.8	C	259	17.8	C			
Dunns Crossing Rd / Brookside Rd	East	R	15	12.4	B						
Dunns Crossing Rd / Brookside Rd	South	T	530	6.7	A	718	12.0	B			
Dunns Crossing Rd / Brookside Rd	South	R	188	12.0	B						
Dunns Crossing Rd / Newman Road	North	L	154	2.7	A	1136	7.5	A	1568	46.2	E
Dunns Crossing Rd / Newman Road	North	T	892	1.5	A						
Dunns Crossing Rd / Newman Road	North	R	91	7.5	A						
Dunns Crossing Rd / Newman Road	East	L	7	29.5	D	38	46.2	E			
Dunns Crossing Rd / Newman Road	East	T	1	46.2	E						
Dunns Crossing Rd / Newman Road	East	R	30	36.1	E						
Dunns Crossing Rd / Newman Road	South	L	39	1.7	A	380	28.5	D			
Dunns Crossing Rd / Newman Road	South	T	318	1.5	A						
Dunns Crossing Rd / Newman Road	South	R	23	28.5	D						
Dunns Crossing Rd / Newman Road	West	L	11	13.8	B	14	40.9	E			
Dunns Crossing Rd / Newman Road	West	T	1	36.3	E						
Dunns Crossing Rd / Newman Road	West	R	2	40.9	E						
Lowes Rd / Broadlands Dr	East	L	233	3.8	A	566	4.0	A	1022	59.1	F
Lowes Rd / Broadlands Dr	East	T	333	4.0	A						
Lowes Rd / Broadlands Dr	South	L	120	11.1	B	194	24.9	C			
Lowes Rd / Broadlands Dr	South	R	74	24.9	C						
Lowes Rd / Broadlands Dr	West	T	174	43.3	E	261	59.1	F			
Lowes Rd / Broadlands Dr	West	R	87	59.1	F						