Christchurch City Council

City Services Team

Planning & Delivery (Transport)

Memorandum

Date: **15th May 2019**

From: **Mark Gregory**, Transport Network Planner

To: **Brendan Bisley, Project Manager**

CC:

Re: **Harewood / Breens / Gardiners Scheme options:**
Modelled implications on Cotswold Avenue, by option

1. SUMMARY

The modelled traffic passing Cotswold School includes an increase under both scheme options, during the morning and afternoon school rush periods.

Figure 1 shows the outcome:

- Morning school rush – overall equal impact
- Afternoon school rush – greater impact of signals
- Evening peak hour – greater impact of left in-left out.

Period / Scheme option	***No scheme***	**Signals**		**Left in - left out**	
	traffic demands	*traffic demands*	change (%)	*traffic demands*	change (%)
Morning rush	*226*	*248*	*10%*	*248*	*10%*
Afternoon rush	*164*	*259*	*58%*	*186*	*13%*
Evening rush	*166*	*196*	*18%*	*253*	*52%*
Whole day	*2096*	*2960*	*41%*	*2490*	*19%*

Figure 1: Changes in traffic passing school (bi-directional), by time-period and option

The detailed breakdown of information are presented in Figure 3.

It is not expected that the change in traffic demands in the immediate vicinity of the school will have a noticeable impact. The average difference in traffic amounts to one extra vehicle per 100 seconds or so, and neither scheme is expected to have a noticeable impact on school operations.

2. FORECAST CHANGES TO TRAFFIC DEMANDS

A. The data

Changes in forecast traffic flows passing the school (see Figure 2) have been extracted from the forecasting tools. The outcomes are shown in Figure 3

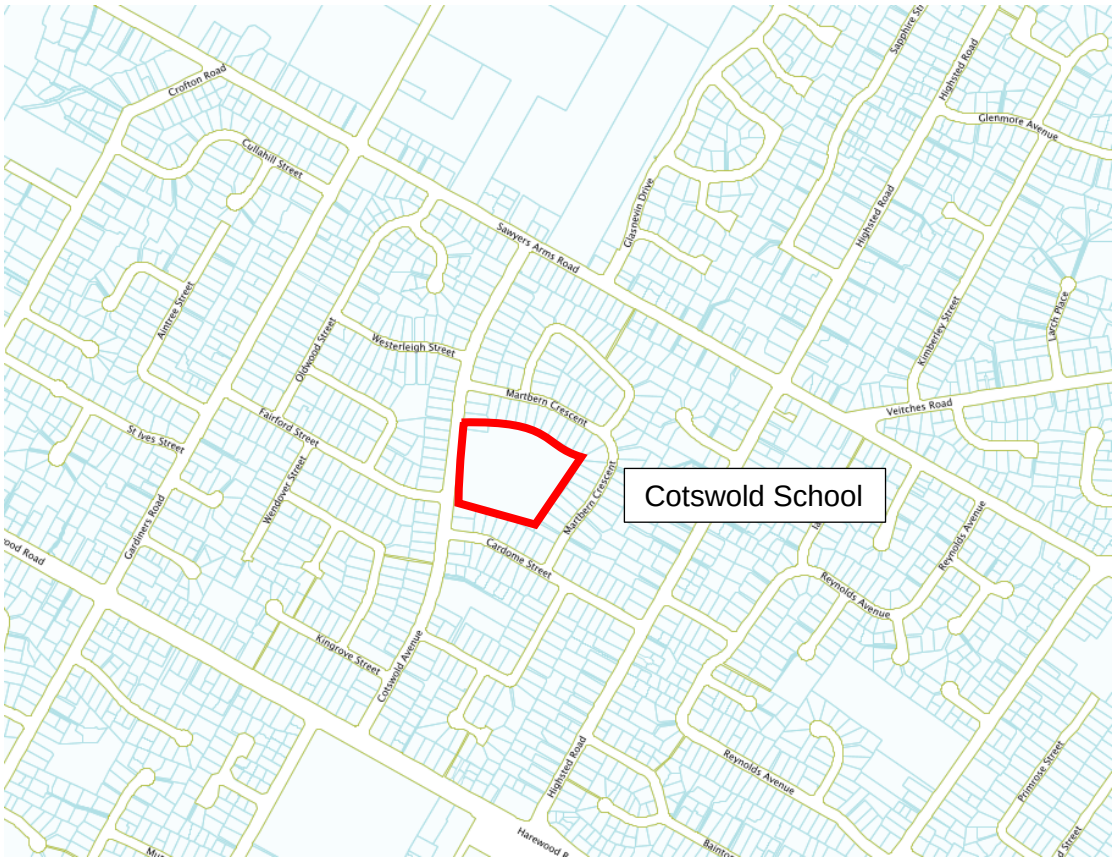

Figure 2: Location of Cotswold School, Cotswold Avenue

Figure 3 shows a breakdown of forecast traffic demands, by time of day, and then across the whole of the day, at the bottom. The columns show the flows (vehicles per hour) for northbound and southbound movements, and for each available option.

The percentage change in flow for each option is then benchmarked against the 'no scheme' outcome.

Morning rush hour	***No scheme***	**Signals**		**Left in - left out**	
	traffic demands	*traffic demands*	change (%)	*traffic demands*	change (%)
Northbound	*87*	76	-13%	108	24%
Southbound	*139*	172	24%	140	1%
Combined	*226*	*248*	*10%*	*248*	*10%*
Afternoon hour	***No scheme***	**Signals**		**Left in - left out**	
	traffic demands	*traffic demands*	change (%)	*traffic demands*	change (%)
Northbound	*107*	139	30%	127	19%
Southbound	*57*	120	111%	59	4%
Combined	*164*	*259*	*58%*	*186*	*13%*
Evening rush hour	***No scheme***	**Signals**		**Left in - left out**	
	traffic demands	*traffic demands*	change (%)	*traffic demands*	change (%)
Northbound	*120*	145	21%	206	72%
Southbound	*46*	51	11%	47	2%
Combined	*166*	*196*	*18%*	*253*	*52%*
ALL day	***No scheme***	**Signals**		**Left in - left out**	
	traffic demands	*traffic demands*	change (%)	*traffic demands*	change (%)
Northbound	*1270*	*1554*	22%	*1644*	29%
Southbound	*826*	*1406*	70%	*846*	2%
Combined	*2096*	*2960*	*41%*	*2490*	*19%*

Figure 3: Modelled traffic passing Cotswold School, by Scheme option

The results of Figure 3 are that both scheme options will generate some increases in traffic, but over the whole of the day the signals option would result in a 41% increase compared to a 19% increase for the Left in – left out option.

B. The reasons

Under the Left in – left out option, northbound traffic increases on Cotswold Avenue because drivers cannot turn right or continue straight into Gardiners Road, and so some would route via Cotswold Avenue instead.

Under the signals option, southbound traffic increases on Cotswold Avenue because the traffic lights would increase the delays for those turning left from Gardiners Road to Harewood Road. Turning left from Gardiners Road to Harewood Road is not

presently a difficult movement. The inclusion of lights would increase the delay for turning left, so drivers would reroute via Cotswold Avenue to avoid.

There is a trend towards increasing southbound movements during the morning – afternoon and northbound during the afternoon – evening, which follows the traffic patterns at Harewood / Breens / Gardiners, where the peak southbound low occurs in the morning, and northbound during the evening.

The actual values of the increases are not especially high, given that the majority of the traffic affected is local.

3. CONCLUSION

Neither option forecasting suggests an adverse effect on school access operations, although there will be a greater impact resulting from the signals scheme.