

Appendix B.2
Pritchard Road Traffic Operations
Memo



Memorandum

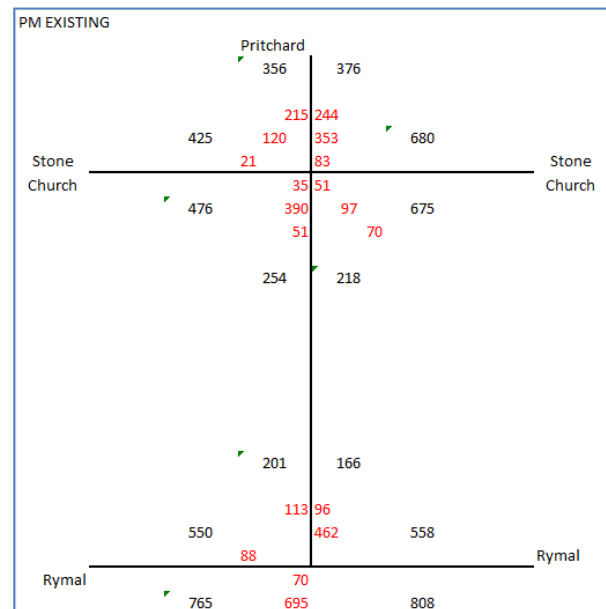
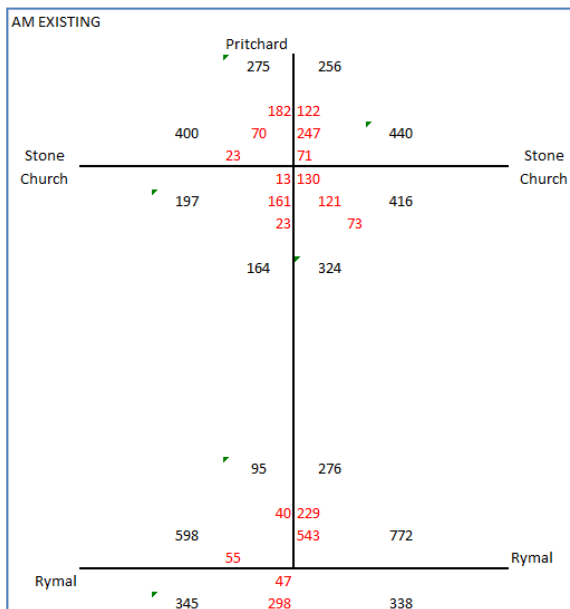
To: Mohan Philip, City of Hamilton
Cc:
From: Stephen Keen, Andrew Evans
Date: March 11, 2013
Re: **Pritchard Road Traffic Operations Memo, ROPA**

This memo briefly outlines the results of Synchro 8 analysis for the intersections of Rymal Road at Pritchard Road and Stone Church Road at Pritchard Road in the City of Hamilton.

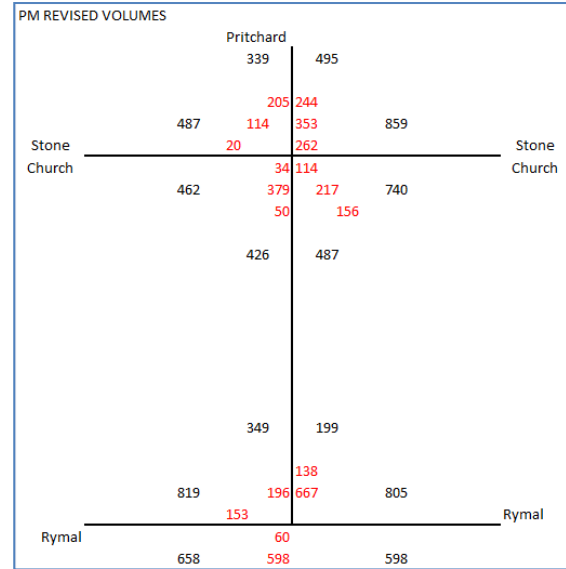
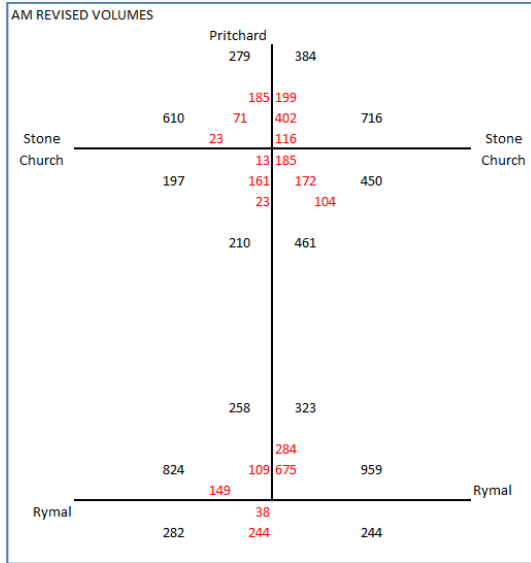
Table 1 summarizes the results of AM peak hour traffic volumes whereas

Table 2 summarizes the results of PM peak hour traffic volumes.

Existing – Based on current lane configuration and turning movement counts. The signal timings are based on the existing signal timings of Stone Church Road and Pritchard Road intersection provided by the City of Hamilton.



Revised – Revised AM and PM peak hour traffic volumes based on model output with Upper Mount Albion closed. Model outputs were for the AM peak hour. The model outputs were reversed to get the PM peak hour difference. The signal timings are based on the existing signal timings of Stone Church Road and Pritchard Road intersection provided by the City of Hamilton.



Revised with Imp. – Revised AM and PM traffic volumes as above but with a traffic signal at the intersection of Rymal Road and Pritchard Road; and with a revised signal timings for the intersection of Stone Church Road and Pritchard Road (the EB advanced left turn was removed and a SB and WB advanced left turns were added).

Table 1: AM Peak Hour Traffic Operations

Intersection and Movement	Existing			Revised			Revised with Imp.		
	LOS	v/c	D	LOS	v/c	D	LOS	v/c	D
Rymal at Pritchard	C		2.2	F		23.8	C	0.85	20.5
Eastbound left	A	0.06	9.8	B	0.06	10.8	B	0.29	10.7
Eastbound through	A	0.19	0.0	A	0.16	0.0	A	0.22	5.7
Westbound through-right	A	0.49	0.0	A	0.61	0.0	B	0.87	19.5
Southbound left-right	C	0.35	23.5	F	1.12	136.4	D	0.75	39.8
Stone Church at Pritchard	B	0.50	18.9	C	0.74	23.2	C	0.74	26.5
Eastbound left	A	0.03	8.5	B	0.06	11.5	C	0.10	23.7
Eastbound through	A	0.19	9.3	B	0.19	10.3	C	0.38	26.3
Westbound left	B	0.13	10.9	B	0.21	12.8	B	0.24	15.0
Westbound through-right	B	0.42	13.9	C	0.71	21.5	C	0.83	31.0
Northbound left	C	0.39	24.5	C	0.53	25.7	C	0.61	30.3
Northbound through-right	C	0.38	24.1	C	0.52	25.3	C	0.61	29.4
Southbound left	C	0.66	31.0	D	0.80	43.7	B	0.50	17.5
Southbound through-right	C	0.17	22.3	C	0.16	21.7	B	0.12	14.9

'LOS' – level of service; 'v/c' – volume to capacity ratio; 'D' – control delay in seconds

Table 2: PM Peak Hour Traffic Operations

Intersection and Movement	Existing			Revised			Revised with Imp.		
	LOS	v/c	D	LOS	v/c	D	LOS	v/c	D
Rymal at Pritchard	F		20.3	F		131.6	C	0.84	20.7
Eastbound left	A	0.08	9.0	B	0.08	10.1	B	0.40	15.1
Eastbound through	A	0.44	0.0	A	0.38	0.0	B	0.61	12.1
Westbound through-right	A	0.36	0.0	A	0.51	0.0	B	0.84	19.6
Southbound left-right	F	1.12	150.5	F	2.37	681.7	D	0.84	38.8
Stone Church at Pritchard	C	0.72	20.8	C	0.88	32.1	C	0.88	34.5
Eastbound left	B	0.14	11.3	B	0.17	15.1	C	0.20	24.5
Eastbound through	B	0.46	12.6	B	0.49	16.5	D	0.78	37.1
Westbound left	B	0.21	13.7	D	0.76	35.2	C	0.83	33.4
Westbound through-right	C	0.75	23.6	C	0.82	31.9	C	0.76	26.1
Northbound left	C	0.16	21.6	C	0.29	21.1	C	0.42	29.2
Northbound through-right	C	0.30	22.7	C	0.63	26.0	D	0.90	54.6
Southbound left	C	0.69	31.6	F	1.00	89.1	C	0.79	34.2
Southbound through-right	C	0.28	22.5	C	0.22	20.4	B	0.20	18.0

'LOS' – level of service; 'v/c' – volume to capacity ratio; 'D' – control delay in seconds

The critical turning movement was found to be the southbound left turning movement at the intersection of Stone Church Road and Pritchard Road:

- With existing signal timings at AM Peak hour, it will operate with LOS C with existing traffic volumes and with LOS D with revised traffic volumes.
- With existing signal timings at PM Peak hour, it will operate with LOS C with existing traffic volumes and with LOS F with revised traffic volumes.
- With revised signal timings and with revised traffic volumes, it will operate with LOS B at AM Peak hour and LOS C at PM Peak hour.

Anticipated queue lengths for the AM and PM peak hours are summarized in **Table 3** and **Table 4** respectively (based on Synchro Analysis).

Table 3: AM Queue Length

Intersection and Movement	Existing		Revised		Revised with Imp.	
	Average	95 th	Average	95 th	Average	95 th
Rymal at Pritchard*						
Eastbound left		1.6		1.5	2.2	8.7
Eastbound through		0.0		0.0	13.7	23.0
Westbound through-right		0.0		0.0	102.0	202.0
Southbound left-right		11.5		93.8	26.7	61.9
Stone Church at Pritchard						
Eastbound left	0.7	3.9	0.9	3.9	1.6	6.9
Eastbound through	12.0	30.6	14.4	30.6	23.4	47.2
Westbound left	4.7	17.8	9.6	27.7	10.4	23.8
Westbound through-right	26.7	76.1	66.1	167.0	81.0	165.0
Northbound left	16.9	31.4	25.5	44.7	28.0	49.0
Northbound through-right	20.5	37.3	33.1	55.3	37.1	61.6
Southbound left	25.9	46.6	28.3	56.2	18.7	31.7
Southbound through-right	8.9	19.2	9.0	19.4	7.3	16.0

Table 4: PM Queue Length

Intersection and Movement	Existing		Revised		Revised with Imp.	
	Average	95 th	Average	95 th	Average	95 th
Rymal at Pritchard*						
Eastbound left		1.9		2.1	4.1	14.7
Eastbound through		0.0		0.0	48.2	78.0
Westbound through-right		0.0		0.0	78.1	153.2
Southbound left-right		80.8		242.4	35.7	78.1
Stone Church at Pritchard						
Eastbound left	2.0	7.6	3.0	7.4	4.6	12.5
Eastbound through	37.1	81.0	51.7	78.3	71.3	117.0
Westbound left	7.6	22.1	43.7	91.1	28.0	57.1
Westbound through-right	71.8	168.5	97.5	168.1	83.4	128.0
Northbound left	6.1	14.0	14.7	28.0	17.9	34.1
Northbound through-right	15.6	30.4	49.6	79.5	61.9	114.0
Southbound left	31.2	54.4	36.6	80.5	24.4	49.5
Southbound through-right	16.4	30.0	15.6	28.7	14.8	27.4

The available storage length for the WBLT on Stone Church Road and SBLT on Pritchard Road (at the intersection with Stone Church Road) appears to be in the region of 40m to 50m. Although the left turning queuing is increasing slightly above what is provided, this is not considered an issue since the queue does not block any through traffic as tested in simtraffic.

Southbound queuing on Pritchard Road for traffic making a left turn onto Rymal Road is not considered to be an issue as this is the main movement and would result in delays to

the SB right turning traffic only (there is no through movement). Given the temporary nature of this plan, the queues for SB right turning traffic would be acceptable.

It should be noted that the revised turning movements are based on EMME/2 modelling results which are not necessarily accurate giving the coarseness of the model in the study area. However, at the moment, the above results reflect our best estimation of the traffic volumes and resulting queue lengths.

Att.