TRAFFIC PLANNING CONSULTANTS LTD

Ref: 20506-r1v2
10 September 2020

Silk Road Management Limited
360 Dominion Road/88 Prospect Terrace/113 Grange Road, Mt Eden
Proposed residential, supermarket and retail development

Preliminary Traffic Modelling

1. Introduction

This preliminary report summarises the traffic assessment and modelling that has been undertaken for a proposal by Silk Road Management Limited to establish a mixed use development comprising residential apartments, a New World supermarket, and additional retail tenancies.

The final details of the proposal are still being refined, but the various characteristics of the development on which the modelling to date has been based are as follows:

- a New World supermarket with a gross floor area (GFA) of 2718m^2;
- retail tenancies together totalling 1465m^2 GFA;
- 117 residential apartments;
- co-working spaces totalling 1194m^2 GFA;
- a total of 280 on-site car parking spaces to serve all proposed activities; and
- vehicle access to the supermarket and retail parking spaces from both Prospect Terrace and Grange Road, with all residential parking being accessed from Prospect Terrace. Trucks servicing the site will enter from Prospect Terrace and exit onto Grange Road.

The site is located within the Business – Mixed Use Zone, adjacent to the Business – Local Centre Zone of the Eden Valley commercial centre.

The location of the site is shown in ***Figure 1.***

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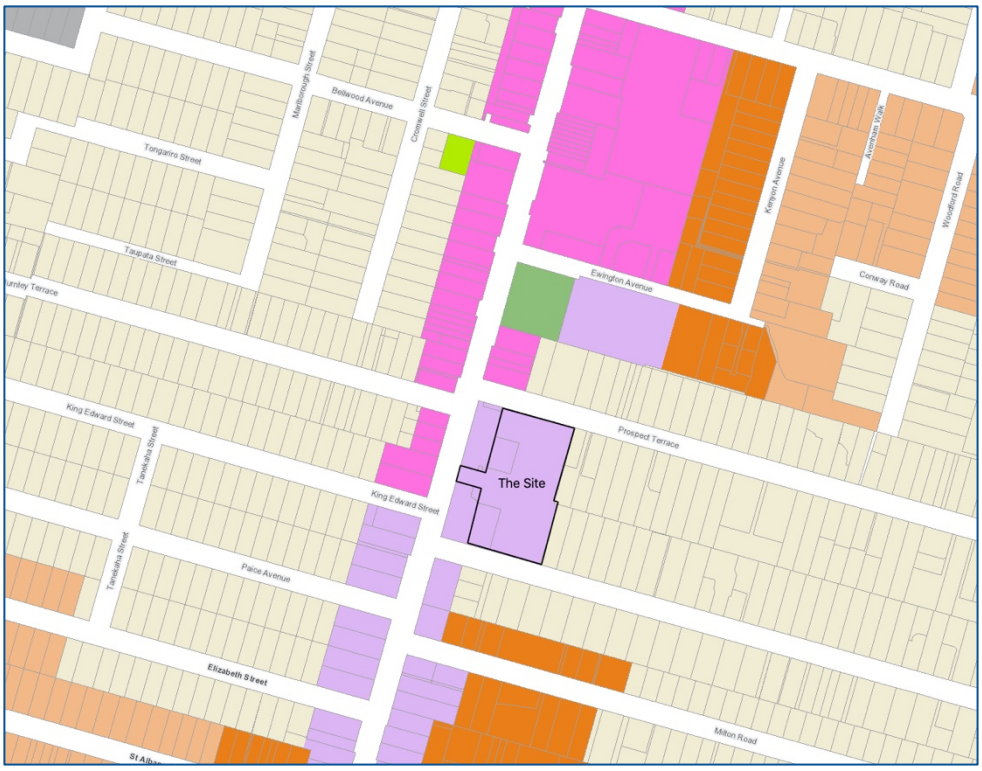

Figure 1
Site location and Auckland Unitary Plan zoning

2. Existing traffic flows

Traffic surveys were undertaken at the following locations, and are summarised in the tables in ***Appendix A***.

- Dominion Road/Prospect Terrace/Burnley Terrace intersection
- Dominion Road/King Edward Street intersection
- Dominion Road/Grange Road intersection
- Existing site accesses on Prospect Terrace and Grange Road

The surveys were conducted on Thursday 5 March 2020 during the 07:00-09:00 AM peak period and the 15:00-18:00 PM peak period, and on Saturday 7 March 2020 during the 15:00-17:00 period.

3. Trip generation predictions

The traffic predictions are presented in ***Attachment B***.

Trip generation rates for the New World supermarket have been based on customer transaction records for a number of existing New World stores throughout the Auckland area, and the rates adopted are as follows:

- 2 vehicle movements/hour (vph) per 100m^2 GFA during the weekday AM peak period;
- 15 vph per 100m^2 during the weekday PM peak period; and
- 15 vph per 100m^2 GFA during the Saturday PM period.

The trip distribution shown in the spreadsheets for the supermarket have been derived from a customer catchment analysis provided by Foodstuffs North Island Limited, and the trip assignments have been based on the most direct routes likely to be used to access the site.

Trip generation rates adopted for the other activities are as follows:

	AM peak	PM peak	Saturday
Retail (per 100m^2)	2	5	5
Workspace (per 100 m^2)	2	2	0
Residential (per unit)	0.5	0.5	0.5

4. Traffic modelling

Traffic modelling has been undertaken using the SIDRA-9 software. The results for the two main intersections of Dominion Road/Prospect Terrace and Dominion Road/Grange Road are presented in ***Appendix C*** and are summarised in ***Appendix D***.

The key aspects of the modelling are as follows:

- The traffic distribution is based on the assumption that all supermarket and retail customers are able to access and leave the site via either Prospect Terrace or Grange Road, thereby providing maximum flexibility and "spreading of the load" on the road network. For example, customers approaching from the south along Dominion Road will tend to access via Grange Road, whilst customers approaching from the north will tend to use Prospect Terrace. The results of the traffic modelling clearly indicate that this full flexibility will be important to ensure that the road network can accommodate the generated traffic.

- All residential traffic is assumed to access and leave the site via Prospect Terrace.

- During the weekday AM peak period when supermarket/retail activity is low, the generated traffic will have minimal effect on the road network. Although this is not a key period for the supermarket and retail activities, the traffic assessment is necessary to demonstrate that the road network is able to accommodate generated traffic (particularly residential traffic) during that critical AM peak period.

- During the weekday PM peak period, which generally coincides with the busy periods for the supermarket, the effects on the road network are greater. As expected, the right turn into Dominion Road from both Prospect Terrace and Grange Road becomes more difficult, with average delays to right turning traffic increasing and the level of service reducing to F. Queue lengths also increase, with a 95%-ile queue on Grange Road predicted to be 37 metres.

- The table in ***Appendix D*** also shows model results for a scenario where a double exit lane is provided on both Prospect Terrace and Grange Road, separating out the left and right turning traffic into Dominion Road, and both intersections are seen to improve significantly in terms of queueing and delay. However, no detailed investigation has at this stage been made in terms of the feasibility and acceptability of providing these additional approach lanes.

- During the Saturday midday periods, which also coincides with busy periods for the supermarket, the effects on the road network are much less. Again, the right turn movements into Dominion Road from both Prospect Terrace and Grange Road become more difficult, but both intersections will continue to operate satisfactorily.

- In considering the modelled effects shown in ***Appendix D***, the following should be noted:

    - The peak period trip rates for the New World supermarket have been determined from a range of existing stores, and this provides a level of conservatism in terms of traffic predictions. In reality, the location of the proposed store within the Business – Mixed Use Zone and immediately adjacent to the Business – Local Centre Zone means that the proposal will function as an integral part of the Eden Valley commercial centre, and higher proportions of trips are likely to be "shared" trips where customers visit more than one activity in the single trip. Consequently, trip rates are likely to be somewhat lower than those adopted for the traffic modelling.

    - Being located on a major arterial corridor (Dominion Road), it can be expected that a greater portion of supermarket and retail customers might come from people already passing the centre by private vehicle, particularly during the busiest weekday PM peak periods, again reducing the amount of additional traffic that will be generated on Dominion Road.

    - The location within the Eden Valley commercial centre, which is surrounded by residential development (that is responding to the intensification of development that is being promoted through the Auckland Unitary Plan), means that a higher percentage of customers are likely to choose to walk or cycle from the local residential areas.

    - The general congestion along parts of Dominion Road and on the wider road network during peak periods will be a deterrent to some customers, and the number of customers choosing to make a specific "primary" trip to the supermarket during that PM peak period to do their grocery shopping will tend to reduce, again reducing the peak period trip rates.

    - Dominion Road is a main transportation corridor that provides strong public transport links between the CBD and areas in the southern Isthmus. The importance of this route as a public transport artery is reflected in the proposals for Light Rail to be provided, irrespective of whether such a proposal eventuates in the future.

5. Conclusions

The initial SIDRA-9 models indicate that the proposed development can be accommodated in this location, with the greatest effects understandably being on the right turn exit movements into Dominion Road from both Prospect Terrace and Grange Road during the weekday PM peak periods. Taking account of the locational characteristics of the site and the potential effects on travel modes and peak period trip rates, the results indicate that the proposed development would be acceptable from an overall transportation point of view.

John Burgess
Director

APPENDIX A

Existing traffic flows – March 2020

Table 1
Dominion Road/Prospect Terrace/Burnley Terrace intersection
Traffic Survey - Thursday/Saturday, 5/7 March 2020

THURSDAY

Time	Prospect Terrace (E)			Dominion (N)					Burnley (W)			Dominion (S)				
	Left	Through	Right	Left	Through			Right	Left	Through	Right	Left	Through			Right
					car	truck	bus						car	truck	bus	
07:00	3	3	3	6	80	3	3	3	4	3	6	1	196	3	38	5
07:15		1	2	4	60	1	2	2	9	2	5	1	174	2	5	1
07:30	5	1	1	1	75	4	4	2	7	2	4	3	209	3	7	2
07:45	6	1	2	5	88	6	4		5	3	7	2	262	3	7	3
08:00	8		5	6	92	7	2	1	8	4	5	2	273	1	9	2
08:15	10	1		7	93	2	4	3	9	1	4	5	244	2	4	8
08:30	8	1		3	70	2	3	3	8	6	1	2	174	3	5	7
08:45	11		3	2	93	4	4	4	7	5	4	4	253	5		14
08:00-09:00	37	2	8	18	348	15	13	11	32	16	14	13	944	11	18	31

THURSDAY

Time	Prospect Terrace (E)			Dominion (N)					Burnley (W)			Dominion (S)				
	Left	Through	Right	Left	Through			Right	Left	Through	Right	Left	Through			Right
					car	truck	bus						car	truck	bus	
15:00	15	3	3	7	172	3	4	9	8	2	3	9	123	4	4	7
15:15	7	1	8	5	179	1	5	8	10	3	5	9	134	2	3	7
15:30	5	5	2	9	176	1	5	9	3	2	3	7	116	3	5	6
15:45	7	2	2	12	179	7	5	11	3	3	5	5	142	1	5	6
16:00	15	4	1	5	210	2	5	8	5	3	3	6	167	4	7	5
16:15	13		6	8	205	2	6	5	3	1	4	6	144	3	6	7
16:30	13		4	11	228	7	5	10	8	5	4	8	126	1	4	5
16:45	12	5	5	13	214	3	5	9	4	3	6	4	169	2	5	8
17:00	16	1	2	9	282	5	4	11	9	1	4	2	139	2	8	12
17:15	14	4	7	9	210	5	5	10	6	3	3	6	146		7	8
17:30	17		3	3	186	2	8	15	2	2	5	6	159		5	6
17:45	16	4	5	9	157	5	6	9	5	1	6	7	142		4	7
16:00-17:00	53	9	16	37	857	14	21	32	20	12	17	24	606	10	22	25

SATURDAY

Time	Prospect Terrace (E)			Dominion (N)					Burnley (W)			Dominion (S)				
	Left	Through	Right	Left	Through			Right	Left	Through	Right	Left	Through			Right
					car	truck	bus						car	truck	bus	
15:00	6			6	186	1	4	9	11	3	4	1	152	1	4	7
15:15	10		1	13	183		3	8	7	1	4	14	130	1	2	10
15:30	9		6	7	176	1	1	9	3	2	3	5	167	1	4	5
15:45	6	1	2	7	172	1	5	9	9	2	7	8	162		2	7
16:00	15		1	6	170	4	1	10	5	2	5	10	162	2	2	10
16:15	9	2	2	12	182		4	12	5		1	6	145	1	4	13
16:30	7		6	10	155		2	7	4	1	4	3	148		3	9
16:45	10	3	3	8	143	1	4	6	5	2	2	5	152	2	2	6
16:00-17:00	41	5	12	36	650	5	11	35	19	5	12	24	607	5	11	38

Table 2
Traffic Survey - Thursday/Saturday, 5/7 March 2020

Dominion Road/King Edward Street intersection

THURSDAY

Time	Dominion (S)	King Edward (W)		Dominion (N)
	Left	Right	Left	Right
07:00	2	2	5	1
07:15	2	2	8	4
07:30	2	1	15	3
07:45	2		10	2
08:00	1	1	35	1
08:15	3	3	38	2
08:30	1	1	30	3
08:45	4	3	19	3
08:00-09:00	9	8	122	9

THURSDAY

Time	Dominion (S)	King Edward (W)		Dominion (N)
	Left	Right	Left	Right
15:00	13	4	10	6
15:15	14	3	12	6
15:30	4	3	6	5
15:45	11	5	7	6
16:00	6	3	3	11
16:15	7	3	8	6
16:30	4	2	9	11
16:45	4	8	12	13
17:00	3	1	6	9
17:15	5	1	6	17
17:30	1	3	10	10
17:45	1	4	3	4
16:00-17:00	21	16	32	41

SATURDAY

Time	Dominion (S)	King Edward (W)		Dominion (N)
	Left	Right	Left	Right
15:00	5	5	11	7
15:15	2	4	4	7
15:30		2	4	5
15:45	3		6	2
16:00	5	4	5	4
16:15	6	4	4	6
16:30	3	2	4	2
16:45	2	4	7	5
16:00-17:00	16	14	20	17

Dominion Road/Grange Road intersection

THURSDAY

Time	Dominion (S)	Dominion (N)	Grange (E)	
	Right	Left	Right	Left
07:00	16	8	1	5
07:15	14	4	3	3
07:30	19	11	3	7
07:45	27	14	6	8
08:00	37	15	2	9
08:15	27	13	2	8
08:30	13	8	12	11
08:45	20	9	7	7
08:00-09:00	97	45	23	35

THURSDAY

Time	Dominion (S)	Dominion (N)	Grange (E)	
	Right	Left	Right	Left
3:00	10	11	5	15
3:15	12	15	11	16
3:30	13	17	9	9
3:45	15	12	9	31
4:00	7	8	5	18
4:15	13	10	8	18
4:30	11	11	7	22
4:45	16	13	19	20
5:00	10	8	8	11
5:15	9	10	5	12
5:30	13	12	4	26
5:45	7	12	10	20
16:00-17:00	47	42	39	78

THURSDAY

Time	Dominion (S)	Dominion (N)	Grange (E)	
	Right	Left	Right	Left
3:00	9	14	7	8
3:15	12	11	5	11
3:30	11	7	12	11
3:45	7	3	2	10
4:00	9	7	6	10
4:15	5	4	5	14
4:30	7	10	5	10
4:45	3	3	5	6
16:00-17:00	24	24	21	40

Table A3
Existing traffic generation of subject site
Thursday/Saturday, 8/10 September 2016

THURSDAY

Time	Grange Road western access				Grange Road eastern access				Prospect Terrace western access				Prospect Terrace eastern access				TOTAL IN			TOTAL OUT			TOTAL		
	Grange (W)	Access		Grange (E)	Grange (W)	Access		Grange (E)	Prospect (W)	Prospect (E)	Site		Prospect (W)	Prospect (E)	Site										
	Left In	right out	left out	Right in	left in	right out	left out	right in	right in	left in	left out	right out	right in	left in	left out	right out	West	East	Total	West	East	Total	West	East	Total
07:00	1				4			1	2			1					7	1	8	0	1	1	7	2	9
07:15	2				2				1								5	0	5	0	0	0	5	0	5
07:30	1				3			2							1		4	2	6	1	0	1	5	2	7
07:45	3			1	8	1		1	1			1				1	12	2	14	1	2	3	13	4	17
08:00	6				6	1		2	1	1			1		3		14	3	17	4	0	4	18	3	21
08:15	2				6			2	2	1					1	1	10	3	13	1	1	2	11	4	15
08:30	2				5			4							2	1	7	4	11	2	1	3	9	5	14
08:45	1				2			4	2						1		5	4	9	1	0	1	6	4	10
08:00-09:00	11	0	0	0	19	1	0	12	5	2	0	0	1	0	7	2	36	14	50	8	2	10	44	16	60

THURSDAY

Time	Grange Road western access				Grange Road eastern access				Prospect Terrace western access				Prospect Terrace eastern access				TOTAL IN			TOTAL OUT			TOTAL		
	Grange (W)	Access		Grange (E)	Grange (W)	Access		Grange (E)	Prospect (W)	Prospect (E)	Site		Prospect (W)	Prospect (E)	Site										
	Left In	right out	left out	Right in	left in	right out	left out	right in	right in	left in	left out	right out	right in	left in	left out	right out	West	East	Total	West	East	Total	West	East	Total
15:00	1					1			3		1				2		4	0	4	4	0	4	8	0	8
15:15	1	2				1		1	1		3				2		2	1	3	8	0	8	10	1	11
15:30					1						2				2		1	0	1	4	0	4	5	0	5
15:45	1	2			3						1						4	0	4	3	0	3	7	0	7
16:00		1			2	1	1			1							2	1	3	2	1	3	4	2	6
16:15			1		1										4	2	1	0	1	4	3	7	5	3	8
16:30															1	1	0	0	0	1	1	2	1	1	2
16:45		4					1					1			1		0	0	0	5	2	7	5	2	7
17:00		3	2	1	1		1		1						2		2	1	3	5	3	8	7	4	11
17:15		5							1						2		1	0	1	7	0	7	8	0	8
17:30	1	2			2							1	1		2	1	4	0	4	4	2	6	8	2	10
17:45		1				1									4	1	0	0	0	6	1	7	6	1	7
16:00-17:00	0	5	1	0	3	1	2	0	0	1	0	1	0	0	6	3	3	1	4	12	7	19	15	8	23

SATURDAY

Time	Grange Road western access				Grange Road eastern access				Prospect Terrace western access				Prospect Terrace eastern access				TOTAL IN			TOTAL OUT			TOTAL		
	Grange (W)	Access		Grange (E)	Grange (W)	Access		Grange (E)	Prospect (W)	Prospect (E)	Site		Prospect (W)	Prospect (E)	Site										
	Left In	right out	left out	Right in	left in	right out	left out	right in	right in	left in	left out	right out	right in	left in	left out	right out	West	East	Total	West	East	Total	West	East	Total
15:00	1														1		1	0	1	1	0	1	2	0	2
15:15		1															0	0	0	1	0	1	1	0	1
15:30			1						1							1	1	0	1	0	2	2	1	2	3
15:45	1				1												2	0	2	0	0	0	2	0	2
16:00	1	1													1		1	0	1	2	0	2	3	0	3
16:15		1							2								2	0	2	1	0	1	3	0	3
16:30			1		1				2		1						3	0	3	1	1	2	4	1	5
16:45																	0	0	0	0	0	0	0	0	0
16:00-17:00	1	2	1	0	1	0	0	0	4	0	1	0	0	0	1	0	6	0	6	4	1	5	10	1	11

APPENDIX B

Traffic predictions

ABC194
WEEKDAY AM PEAK

Option 1 - 2020 FLOWS
Supermarket/retail 50%/50% split Prospect/Grange, residential 100% Prospect
FSNI catchment

	Size	Rate	Trips	Pass-by %	Percentage		Primary		Pass-by	
					IN	OUT	IN	OUT	IN	OUT
Supermarket	2718	2	54	20%	50%	50%	22	22	5	5
Retail	1465	2	29	20%	50%	50%	12	12	3	3
Residential	117	0.5	59	0%	20%	80%	12	47	0	0
Co-working space	1194	2	24	0%	80%	20%	19	5	0	0
Subtotal			**166**				**64**	**85**	**8**	**8**

TRIP DISTRIBUTION		Trips	% Prospect / Grange	PROSPECT TERRACE ACCESS				GRANGE ROAD ACCESS				DOMINION/PROSPECT/BURNLEY												DOMINION/KING EDWARD						DOMINION/GRANGE					
				IN		OUT		IN		OUT		Prospect (E)			Dominion (N)			Burnley (W)			Dominion (S)			Dominion (S)		Dominion (N)		K Edward (W)		Grange (E)		Dominion (N)		Dominion (S)	
				L	R	L	R	L	R	L	R	L	T	R	L	T	R	L	T	R	L	T	R	L	T	T	R	L	R	L	R	L	T	T	R
SUPERMARKET PRIMARY IN																																			
DR(S)	36%	8						8																											8
DR(N)	17%	4			4										4																				
GR (E)	14%	3							3																										
PT(E)	23%	5		5																															
KES(W)	4%	1			1																		1				1								
BT(W)	6%	1			1														1																
SUPERMARKET PRIMARY OUT																																			
DR(S)	36%	8									8																				8				
DR(N)	17%	4				4								4																					
GR (E)	14%	3								3																									
PT(E)	23%	5					5																												
KES(W)	4%	1				1						1														1									
BT(W)	6%	1				1							1																						
SUPERMARKET PASS-BY IN																																			
DR(S)	40%	2						2																											-2	2
DR(N)	60%	3			3										3	-3																			
GR (E)		0																																	
PT(E)		0																																	
KES(W)		0																																	
BT(W)		0																																	
SUPERMARKET PASS-BY OUT																																			
DR(S)	60%	3									3																				3				
DR(N)	40%	2				2								2																					
GR (E)		0																																	
PT(E)		0																																	
KES(W)		0																																	
BT(W)		0																																	
RETAIL PRIMARY IN																																			
DR(S)	36%	4						4																											4
DR(N)	17%	2			2										2																				
GR (E)	14%	2							2																										
PT(E)	23%	3		3																															
KES(W)	4%	0			0																		0				0								
BT(W)	6%	1			1														1																
RETAIL PRIMARY OUT																																			
DR(S)	36%	4									4																				4				
DR(N)	17%	2				2								2																					
GR (E)	14%	2								2																									
PT(E)	23%	3					3																												
KES(W)	4%	0				0						0														0									
BT(W)	6%	1				1							1																						
RETAIL PASS-BY IN																																			
DR(S)	40%	1						1																											-1	1
DR(N)	60%	2			2										2	-2																			
GR (E)		0																																	
PT(E)		0																																	
KES(W)		0																																	
BT(W)		0																																	
RETAIL PASS-BY OUT																																			
DR(S)	60%	2									2																				2				
DR(N)	40%	1				1								1																					
GR (E)		0																																	
PT(E)		0																																	
KES(W)		0																																	
BT(W)		0																																	
RESIDENTIAL IN																																			
DR(S)	36%	4			4																		4		4										4
DR(N)	17%	2			2										2																				
GR (E)	14%	2		2																															
PT(E)	23%	3		3																															
KES(W)	4%	0			0																		0				0								
BT(W)	6%	1			1														1																
RESIDENTIAL OUT																																			
DR(S)	36%	17				17						17													17								17		
DR(N)	17%	8				8								8																					
GR (E)	14%	7					7																												
PT(E)	23%	11					11																												
KES(W)	4%	2				2						2														2									
BT(W)	6%	3				3							3																						
OFFICE IN																																			
DR(S)	36%	7						7																											7
DR(N)	17%	3			3										3																				
GR (E)	14%	3							3																										
PT(E)	23%	4		4																															
KES(W)	4%	1			1																		1				1								
BT(W)	6%	1			1														1																
OFFICE OUT																																			
DR(S)	36%	2									2																				2				
DR(N)	17%	1				1								1																					
GR (E)	14%	1								1																									
PT(E)	23%	1					1																												
KES(W)	4%	0				0						0														0									
BT(W)	6%	0				0							0																						
TOTALS				16	27	43	26	22	7	5	19	20	5	18	16	-5	0	0	4	0	0	0	7	0	4	17	3	3	0	19	0	0	17	1	22
EXISTING FLOWS (2020)				2	6	7	2	30	12	0	1	37	2	8	18	376	11	32	16	14	13	973	31	9	895	418	9	122	8	35	23	45	381	881	97
NEW FLOWS				16	27	43	26	22	7	5	19	57	7	26	34	371	11	32	20	14	13	973	38	9	899	435	12	125	8	54	23	45	398	882	119

ABC194
WEEKDAY PM PEAK

Option 1 - 2020 FLOWS
Supermarket/retail 50%/50% split Prospect/Grange, residential 100% Prospect
FSNI catchment

	Size	Rate	Trips	Pass-by %	Percentage		Primary		Pass-by	
					IN	OUT	IN	OUT	IN	OUT
Supermarket	2718	15	408	20%	50%	50%	163	163	41	41
Retail	1465	5	73	20%	50%	50%	29	29	7	7
Residential	117	0.5	59	0%	80%	20%	47	12	0	0
Co-working space	1194	2	24	0%	20%	80%	5	19	0	0
Subtotal			**563**				**244**	**223**	**48**	**48**

TRIP DISTRIBUTION		Trips	% Prospect / Grange	PROSPECT TERRACE ACCESS				GRANGE ROAD ACCESS				DOMINION/PROSPECT/BURNLEY												DOMINION/KING EDWARD						DOMINION/GRANGE					
				IN		OUT		IN		OUT		Prospect (E)			Dominion (N)			Burnley (W)			Dominion (S)			Dominion (S)		Dominion (N)		K Edward (W)		Grange (E)		Dominion (N)		Dominion (S)	
				L	R	L	R	L	R	L	R	L	T	R	L	T	R	L	T	R	L	T	R	L	T	T	R	L	R	L	R	L	T	T	R
SUPERMARKET PRIMARY IN																																			
DR(S)	36%	59						59																											59
DR(N)	17%	28			28										28																				
GR (E)	14%	23							23																										
PT(E)	23%	38		38																															
KES(W)	4%	7			7																		7				7								
BT(W)	6%	10			10														10																
SUPERMARKET PRIMARY OUT																																			
DR(S)	36%	59									59																				59				
DR(N)	17%	28				28								28																					
GR (E)	14%	23								23																									
PT(E)	23%	38					38																												
KES(W)	4%	7				7						7																							
BT(W)	6%	10				10							10																						
SUPERMARKET PASS-BY IN																																			
DR(S)	40%	16						16																											-16	16
DR(N)	60%	24			24										24	-24																			
GR (E)		0																																	
PT(E)		0																																	
KES(W)		0																																	
BT(W)		0																																	
SUPERMARKET PASS-BY OUT																																			
DR(S)	60%	24									24																				24				
DR(N)	40%	16				16								16																					
GR (E)		0																																	
PT(E)		0																																	
KES(W)		0																																	
BT(W)		0																																	
RETAIL PRIMARY IN																																			
DR(S)	36%	11						11																											11
DR(N)	17%	5			5										5																				
GR (E)	14%	4							4																										
PT(E)	23%	7		7																															
KES(W)	4%	1			1																		1				1								
BT(W)	6%	2			2														2																
RETAIL PRIMARY OUT																																			
DR(S)	36%	11									11																				11				
DR(N)	17%	5				5								5																					
GR (E)	14%	4								4																									
PT(E)	23%	7					7																												
KES(W)	4%	1				1						1																							
BT(W)	6%	2				2							2																						
RETAIL PASS-BY IN																																			
DR(S)	40%	3						3																											-3	3
DR(N)	60%	4			4										4	-4																			
GR (E)		0																																	
PT(E)		0																																	
KES(W)		0																																	
BT(W)		0																																	
RETAIL PASS-BY OUT																																			
DR(S)	60%	4									4																				4				
DR(N)	40%	3				3								3																					
GR (E)		0																																	
PT(E)		0																																	
KES(W)		0																																	
BT(W)		0																																	
RESIDENTIAL IN																																			
DR(S)	36%	17			17																		17		17										17
DR(N)	17%	8			8										8																				
GR (E)	14%	7		7																															
PT(E)	23%	11		11																															
KES(W)	4%	2			2																		2				2								
BT(W)	6%	3			3														3																
RESIDENTIAL OUT																																			
DR(S)	36%	4				4						4													4									4	
DR(N)	17%	2				2								2																					
GR (E)	14%	2					2																												
PT(E)	23%	3					3																												
KES(W)	4%	0				0						0															0								
BT(W)	6%	1				1							1																						
OFFICE IN																																			
DR(S)	36%	2						2																											2
DR(N)	17%	1			1										1																				
GR (E)	14%	1							1																										
PT(E)	23%	1		1																															
KES(W)	4%	0			0																		0				0								
BT(W)	6%	0			0														0																
OFFICE OUT																																			
DR(S)	36%	7									7																				7				
DR(N)	17%	3				3								3																					
GR (E)	14%	3								3																									
PT(E)	23%	4					4																												
KES(W)	4%	1				1						1															1								
BT(W)	6%	1				1							1																						
TOTALS				63	112	84	53	90	28	30	105	13	13	57	70	-29	0	0	15	0	0	0	27	0	17	4	9	10	0	105	0	0	4	-2	90
EXISTING FLOWS (2020)				1	0	6	4	3	0	3	6	53	9	16	37	892	32	20	12	17	24	638	25	21	655	1021	41	32	16	78	39	42	995	637	47
NEW FLOWS				63	112	84	53	90	28	30	105	66	22	73	107	863	32	20	27	17	24	638	52	21	672	1025	50	42	16	183	39	42	999	635	137

ABC194
SATURDAY PEAK

Option 1 - 2020 FLOWS
Supermarket/retail 50%/50% split Prospect/Grange, residential 100% Prospect
FSNI catchment

	Size	Rate	Trips	Pass-by %	Percentage		Primary		Pass-by	
					IN	OUT	IN	OUT	IN	OUT
Supermarket	2718	15	408	20%	50%	50%	163	163	41	41
Retail	1465	5	73	20%	50%	50%	29	29	7	7
Residential	117	0.5	59	0%	50%	50%	29	29	0	0
Co-working space	1194	0	0	0%	50%	50%	0	0	0	0
Subtotal			**539**				**222**	**222**	**48**	**48**

TRIP DISTRIBUTION		Trips	% Prospect / Grange	PROSPECT TERRACE ACCESS				GRANGE ROAD ACCESS				DOMINION/PROSPECT/BURNLEY												DOMINION/KING EDWARD						DOMINION/GRANGE					
				IN		OUT		IN		OUT		Prospect (E)			Dominion (N)			Burnley (W)			Dominion (S)			Dominion (S)		Dominion (N)		K Edward (W)		Grange (E)		Dominion (N)		Dominion (S)	
				L	R	L	R	L	R	L	R	L	T	R	L	T	R	L	T	R	L	T	R	L	R	T	R	L	R	L	R	L	T	T	R
SUPERMARKET PRIMARY IN																																			
DR(S)	36%	59						59																											59
DR(N)	17%	28			28										28																				
GR (E)	14%	23							23																										
PT(E)	23%	38		38																															
KES(W)	4%	7			7																		7				7								
BT(W)	6%	10			10														10																
SUPERMARKET PRIMARY OUT																																			
DR(S)	36%	59									59																								
DR(N)	17%	28				28								28																					
GR (E)	14%	23								23																									
PT(E)	23%	38					38																												
KES(W)	4%	7				7						7														7									
BT(W)	6%	10				10							10																						
SUPERMARKET PASS-BY IN																																			
DR(S)	40%	16						16																											-16	16
DR(N)	60%	24			24										24	-24																			
GR (E)		0																																	
PT(E)		0																																	
KES(W)		0																																	
BT(W)		0																																	
SUPERMARKET PASS-BY OUT																																			
DR(S)	60%	24									24																								
DR(N)	40%	16				16								16																					
GR (E)		0																																	
PT(E)		0																																	
KES(W)		0																																	
BT(W)		0																																	
RETAIL PRIMARY IN																																			
DR(S)	36%	11						11																											11
DR(N)	17%	5			5										5																				
GR (E)	14%	4							4																										
PT(E)	23%	7		7																															
KES(W)	4%	1			1																		1				1								
BT(W)	6%	2			2														2																
RETAIL PRIMARY OUT																																			
DR(S)	36%	11									11																								
DR(N)	17%	5				5								5																					
GR (E)	14%	4								4																									
PT(E)	23%	7					7																												
KES(W)	4%	1				1						1														1									
BT(W)	6%	2				2							2																						
RETAIL PASS-BY IN																																			
DR(S)	40%	3						3																											-3	3
DR(N)	60%	4			4										4	-4																			
GR (E)		0																																	
PT(E)		0																																	
KES(W)		0																																	
BT(W)		0																																	
RETAIL PASS-BY OUT																																			
DR(S)	60%	4									4																								
DR(N)	40%	3				3								3																					
GR (E)		0																																	
PT(E)		0																																	
KES(W)		0																																	
BT(W)		0																																	
RESIDENTIAL IN																																			
DR(S)	36%	11			11																	11			11									11	
DR(N)	17%	5			5										5																				
GR (E)	14%	4		4																															
PT(E)	23%	7		7																															
KES(W)	4%	1			1																	1				1									
BT(W)	6%	2			2														2																
RESIDENTIAL OUT																																			
DR(S)	36%	11				11						11													11								11		
DR(N)	17%	5				5								5																					
GR (E)	14%	4					4																												
PT(E)	23%	7					7																												
KES(W)	4%	1				1						1														1									
BT(W)	6%	2				2							2																						
OFFICE IN																																			
DR(S)	36%	0						0																											0
DR(N)	17%	0			0										0																				
GR (E)	14%	0							0																										
PT(E)	23%	0		0																															
KES(W)	4%	0			0																		0				0								
BT(W)	6%	0			0														0																
OFFICE OUT																																			
DR(S)	36%	0									0																								
DR(N)	17%	0				0								0																					
GR (E)	14%	0								0																									
PT(E)	23%	0					0																												
KES(W)	4%	0				0						0														0									
BT(W)	6%	0				0							0																						
TOTALS				55	99	90	55	88	27	27	98	19	13	57	67	-29	0	0	13	0	0	0	19	0	11	11	9	9	0	98	0	0	11	-9	88
EXISTING FLOWS (2020)				0	4	2	0	2	0	1	2	41	5	12	36	666	35	19	5	12	24	623	38	16	665	702	17	20	14	40	21	24	692	660	24
NEW FLOWS				55	99	90	55	88	27	27	98	60	18	69	103	637	35	19	18	12	24	623	57	16	676	713	26	29	14	138	21	24	703	651	112

APPENDIX C

SIDRA-9 model results

MOVEMENT SUMMARY

Site: 101 [AM existing]

Dominion/Grange
Site Category: (None)
Stop (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total 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	Aver. No. Cycles	Average Speed km/h
South: Dominion (S)												
2	T1	881	3.3	0.465	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
3	R2	97	0.0	0.083	7.1	LOS A	0.4	2.5	0.48	0.67	0.48	51.8
Approach		978	3.0	0.465	0.8	NA	0.4	2.5	0.05	0.07	0.05	59.0
East: Grange (E)												
4	L2	35	0.0	0.121	9.9	LOS A	0.3	2.4	0.53	0.94	0.53	49.0
6	R2	23	0.0	0.121	17.6	LOS C	0.3	2.4	0.53	0.94	0.53	48.6
Approach		58	0.0	0.121	12.9	LOS B	0.3	2.4	0.53	0.94	0.53	48.9
North: Dominion (N)												
7	L2	45	0.0	0.229	5.6	LOS A	0.0	0.0	0.00	0.06	0.00	57.7
8	T1	381	7.3	0.229	0.0	LOS A	0.0	0.0	0.00	0.06	0.00	59.3
Approach		426	6.6	0.229	0.6	NA	0.0	0.0	0.00	0.06	0.00	59.2
All Vehicles		1462	3.9	0.465	1.2	NA	0.4	2.5	0.05	0.10	0.05	58.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [PM existing]

Dominion/Grange
Site Category: (None)
Stop (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total 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	Aver. No. Cycles	Average Speed km/h
South: Dominion (S)												
2	T1	637	5.0	0.340	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
3	R2	47	0.0	0.112	13.7	LOS B	0.4	2.7	0.79	0.92	0.79	47.4
Approach		684	4.7	0.340	1.0	NA	0.4	2.7	0.05	0.06	0.05	58.8
East: Grange (E)												
4	L2	78	0.0	0.487	23.6	LOS C	1.7	12.0	0.89	1.08	1.22	42.0
6	R2	39	0.0	0.487	31.1	LOS D	1.7	12.0	0.89	1.08	1.22	41.7
Approach		117	0.0	0.487	26.1	LOS D	1.7	12.0	0.89	1.08	1.22	41.9
North: Dominion (N)												
7	L2	42	0.0	0.545	5.6	LOS A	0.0	0.0	0.00	0.02	0.00	58.0
8	T1	995	3.5	0.545	0.1	LOS A	0.0	0.0	0.00	0.02	0.00	59.6
Approach		1037	3.4	0.545	0.3	NA	0.0	0.0	0.00	0.02	0.00	59.5
All Vehicles		1838	3.6	0.545	2.2	NA	1.7	12.0	0.08	0.11	0.10	57.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [SAT existing]

Dominion/Grange
Site Category: (None)
Stop (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total 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	Aver. No. Cycles	Average Speed km/h
South: Dominion (S)												
2	T1	660	2.4	0.345	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
3	R2	24	0.0	0.030	8.9	LOS A	0.1	0.8	0.59	0.74	0.59	50.6
Approach		684	2.3	0.345	0.4	NA	0.1	0.8	0.02	0.03	0.02	59.5
East: Grange (E)												
4	L2	40	0.0	0.138	12.6	LOS B	0.4	2.9	0.67	1.00	0.67	48.5
6	R2	21	0.0	0.138	16.8	LOS C	0.4	2.9	0.67	1.00	0.67	48.1
Approach		61	0.0	0.138	14.1	LOS B	0.4	2.9	0.67	1.00	0.67	48.3
North: Dominion (N)												
7	L2	24	0.0	0.373	5.6	LOS A	0.0	0.0	0.00	0.02	0.00	58.1
8	T1	692	2.3	0.373	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	59.7
Approach		716	2.2	0.373	0.2	NA	0.0	0.0	0.00	0.02	0.00	59.7
All Vehicles		1461	2.2	0.373	0.9	NA	0.4	2.9	0.04	0.06	0.04	59.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [AM + retail split 50/50, residential 100% Prospect - FSNI distribution]

Dominion/Grange
Site Category: (None)
Stop (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total 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	Aver. No. Cycles	Average Speed km/h
South: Dominion (S)												
2	T1	882	3.3	0.466	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
3	R2	119	0.0	0.104	7.2	LOS A	0.5	3.2	0.49	0.69	0.49	51.8
Approach		1001	2.9	0.466	0.9	NA	0.5	3.2	0.06	0.08	0.06	58.8
East: Grange (E)												
4	L2	54	0.0	0.146	10.0	LOS B	0.4	3.1	0.51	0.94	0.51	49.3
6	R2	23	0.0	0.146	18.4	LOS C	0.4	3.1	0.51	0.94	0.51	48.9
Approach		77	0.0	0.146	12.5	LOS B	0.4	3.1	0.51	0.94	0.51	49.2
North: Dominion (N)												
7	L2	45	0.0	0.238	5.6	LOS A	0.0	0.0	0.00	0.06	0.00	57.8
8	T1	398	7.0	0.238	0.0	LOS A	0.0	0.0	0.00	0.06	0.00	59.4
Approach		443	6.3	0.238	0.6	NA	0.0	0.0	0.00	0.06	0.00	59.2
All Vehicles		1521	3.7	0.466	1.4	NA	0.5	3.2	0.06	0.12	0.06	58.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [AM + retail split 50/50, residential 100% Prospect - FSNI distribution - 2 lanes]

Dominion/Grange

Site Category: (None)
Stop (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total 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	Aver. No. Cycles	Average Speed km/h
South: Dominion (S)												
2	T1	882	3.3	0.466	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
3	R2	119	0.0	0.104	7.3	LOS A	0.5	3.2	0.49	0.68	0.49	52.0
Approach		1001	2.9	0.466	0.9	NA	0.5	3.2	0.06	0.08	0.06	58.8
East: Grange (E)												
4	L2	54	0.0	0.058	10.0	LOS A	0.2	1.5	0.45	0.89	0.45	51.0
6	R2	23	0.0	0.088	17.7	LOS C	0.2	1.5	0.78	1.00	0.78	45.9
Approach		77	0.0	0.088	12.3	LOS B	0.2	1.5	0.55	0.92	0.55	49.4
North: Dominion (N)												
7	L2	45	0.0	0.238	5.6	LOS A	0.0	0.0	0.00	0.06	0.00	57.8
8	T1	398	7.0	0.238	0.0	LOS A	0.0	0.0	0.00	0.06	0.00	59.4
Approach		443	6.3	0.238	0.6	NA	0.0	0.0	0.00	0.06	0.00	59.2
All Vehicles		1521	3.7	0.466	1.4	NA	0.5	3.2	0.07	0.12	0.07	58.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [PM + retail split 50/50, residential 100% Prospect - FSNI distribution]

Dominion/Grange
Site Category: (None)
Stop (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total 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	Aver. No. Cycles	Average Speed km/h
South: Dominion (S)												
2	T1	635	5.0	0.338	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
3	R2	137	0.0	0.329	15.9	LOS C	1.3	9.4	0.83	0.98	1.01	46.1
Approach		772	4.1	0.338	2.9	NA	1.3	9.4	0.15	0.17	0.18	56.9
East: Grange (E)												
4	L2	183	0.0	0.853	41.2	LOS E	5.3	37.4	0.96	1.41	2.59	35.2
6	R2	39	0.0	0.853	52.2	LOS F	5.3	37.4	0.96	1.41	2.59	35.0
Approach		222	0.0	0.853	43.1	LOS E	5.3	37.4	0.96	1.41	2.59	35.2
North: Dominion (N)												
7	L2	42	0.0	0.547	5.6	LOS A	0.0	0.0	0.00	0.02	0.00	58.0
8	T1	999	3.5	0.547	0.1	LOS A	0.0	0.0	0.00	0.02	0.00	59.6
Approach		1041	3.4	0.547	0.3	NA	0.0	0.0	0.00	0.02	0.00	59.5
All Vehicles		2035	3.3	0.853	6.0	NA	5.3	37.4	0.16	0.23	0.35	54.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [PM + retail split 50/50, residential 100% Prospect - FSNI distribution - 2 lanes]

Dominion/Grange
Site Category: (None)
Stop (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total 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	Aver. No. Cycles	Average Speed km/h
South: Dominion (S)												
2	T1	635	5.0	0.338	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
3	R2	137	0.0	0.329	15.9	LOS C	1.3	9.4	0.83	0.98	1.01	46.3
Approach		772	4.1	0.338	2.9	NA	1.3	9.4	0.15	0.17	0.18	57.0
East: Grange (E)												
4	L2	183	0.0	0.586	25.8	LOS D	2.7	18.9	0.90	1.14	1.43	42.3
6	R2	39	0.0	0.268	29.8	LOS D	0.7	4.7	0.90	1.02	1.00	39.9
Approach		222	0.0	0.586	26.5	LOS D	2.7	18.9	0.90	1.12	1.36	41.8
North: Dominion (N)												
7	L2	42	0.0	0.547	5.6	LOS A	0.0	0.0	0.00	0.02	0.00	58.0
8	T1	999	3.5	0.547	0.1	LOS A	0.0	0.0	0.00	0.02	0.00	59.6
Approach		1041	3.4	0.547	0.3	NA	0.0	0.0	0.00	0.02	0.00	59.5
All Vehicles		2035	3.3	0.586	4.1	NA	2.7	18.9	0.15	0.20	0.22	56.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [SAT + retail split 50/50, residential 100% Prospect - FSNI distribution]

Dominion/Grange
Site Category: (None)
Stop (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total 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	Aver. No. Cycles	Average Speed km/h
South: Dominion (S)												
2	T1	651	2.5	0.342	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
3	R2	112	0.0	0.144	9.3	LOS A	0.6	4.0	0.62	0.84	0.62	50.3
Approach		763	2.1	0.342	1.4	NA	0.6	4.0	0.09	0.12	0.09	58.3
East: Grange (E)												
4	L2	138	0.0	0.312	14.0	LOS B	1.2	8.6	0.69	1.04	0.84	48.1
6	R2	21	0.0	0.312	19.8	LOS C	1.2	8.6	0.69	1.04	0.84	47.7
Approach		159	0.0	0.312	14.8	LOS B	1.2	8.6	0.69	1.04	0.84	48.1
North: Dominion (N)												
7	L2	24	0.0	0.379	5.6	LOS A	0.0	0.0	0.00	0.02	0.00	58.1
8	T1	703	2.3	0.379	0.1	LOS A	0.0	0.0	0.00	0.02	0.00	59.7
Approach		727	2.2	0.379	0.2	NA	0.0	0.0	0.00	0.02	0.00	59.7
All Vehicles		1649	1.9	0.379	2.2	NA	1.2	8.6	0.11	0.17	0.12	57.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [SAT + retail split 50/50, residential 100% Prospect - FSNI distribution - 2 lanes]

Dominion/Grange
Site Category: (None)
Stop (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total 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	Aver. No. Cycles	Average Speed km/h
South: Dominion (S)												
2	T1	651	2.5	0.342	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
3	R2	112	0.0	0.144	9.3	LOS A	0.6	4.0	0.62	0.83	0.62	50.6
Approach		763	2.1	0.342	1.4	NA	0.6	4.0	0.09	0.12	0.09	58.3
East: Grange (E)												
4	L2	138	0.0	0.233	13.3	LOS B	0.9	6.3	0.65	1.01	0.69	49.0
6	R2	21	0.0	0.079	17.5	LOS C	0.2	1.3	0.77	1.00	0.77	46.0
Approach		159	0.0	0.233	13.9	LOS B	0.9	6.3	0.67	1.01	0.70	48.6
North: Dominion (N)												
7	L2	24	0.0	0.379	5.6	LOS A	0.0	0.0	0.00	0.02	0.00	58.1
8	T1	703	2.3	0.379	0.1	LOS A	0.0	0.0	0.00	0.02	0.00	59.7
Approach		727	2.2	0.379	0.2	NA	0.0	0.0	0.00	0.02	0.00	59.7
All Vehicles		1649	1.9	0.379	2.1	NA	0.9	6.3	0.11	0.16	0.11	57.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [AM existing]

Dominion/Prospect
Site Category: (None)
Stop (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total 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	Aver. No. Cycles	Average Speed km/h
South: Dominion (S)												
2	T1	1005	2.9	0.529	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
3	R2	47	0.0	0.051	7.4	LOS A	0.2	1.3	0.45	0.67	0.45	51.7
Approach		1052	2.8	0.529	0.4	NA	0.2	1.3	0.02	0.03	0.02	59.4
East: Prospect (E)												
4	L2	39	0.0	0.100	10.4	LOS B	0.3	2.1	0.51	0.93	0.51	49.0
6	R2	8	0.0	0.100	25.9	LOS D	0.3	2.1	0.51	0.93	0.51	48.8
Approach		47	0.0	0.100	13.0	LOS B	0.3	2.1	0.51	0.93	0.51	49.0
North: Dominion (N)												
7	L2	18	0.0	0.010	5.5	LOS A	0.0	0.0	0.00	0.58	0.00	53.6
8	T1	387	7.2	0.208	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach		405	6.9	0.208	0.3	NA	0.0	0.0	0.00	0.03	0.00	59.6
All Vehicles		1504	3.8	0.529	0.8	NA	0.3	2.1	0.03	0.06	0.03	59.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [PM existing]

Dominion/Prospect
Site Category: (None)
Stop (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total 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	Aver. No. Cycles	Average Speed km/h
South: Dominion (S)												
2	T1	658	4.9	0.351	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
3	R2	37	0.0	0.099	14.1	LOS B	0.3	2.3	0.76	0.90	0.76	47.2
Approach		695	4.6	0.351	0.8	NA	0.3	2.3	0.04	0.05	0.04	59.1
East: Prospect (E)												
4	L2	62	0.0	0.355	23.1	LOS C	1.2	8.1	0.86	1.05	1.05	42.3
6	R2	16	0.0	0.355	35.3	LOS E	1.2	8.1	0.86	1.05	1.05	42.1
Approach		78	0.0	0.355	25.6	LOS D	1.2	8.1	0.86	1.05	1.05	42.2
North: Dominion (N)												
7	L2	37	0.0	0.020	5.5	LOS A	0.0	0.0	0.00	0.58	0.00	53.6
8	T1	924	3.8	0.486	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
Approach		961	3.6	0.486	0.3	NA	0.0	0.0	0.00	0.02	0.00	59.6
All Vehicles		1734	3.9	0.486	1.6	NA	1.2	8.1	0.05	0.08	0.06	58.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [SAT existing]

Dominion/Prospect
Site Category: (None)
Stop (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total 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	Aver. No. Cycles	Average Speed km/h
South: Dominion (S)												
2	T1	642	2.5	0.336	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
3	R2	43	0.0	0.074	10.3	LOS B	0.3	1.8	0.61	0.83	0.61	49.7
Approach		685	2.3	0.336	0.7	NA	0.3	1.8	0.04	0.05	0.04	59.1
East: Prospect (E)												
4	L2	46	0.0	0.158	14.3	LOS B	0.5	3.4	0.70	1.00	0.70	47.5
6	R2	12	0.0	0.158	21.7	LOS C	0.5	3.4	0.70	1.00	0.70	47.3
Approach		58	0.0	0.158	15.8	LOS C	0.5	3.4	0.70	1.00	0.70	47.4
North: Dominion (N)												
7	L2	36	0.0	0.019	5.5	LOS A	0.0	0.0	0.00	0.58	0.00	53.6
8	T1	701	2.3	0.365	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach		737	2.2	0.365	0.3	NA	0.0	0.0	0.00	0.03	0.00	59.6
All Vehicles		1480	2.2	0.365	1.1	NA	0.5	3.4	0.05	0.08	0.05	58.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [AM + retail split 50/50, residential via Prospect - FSNI distribution]

Dominion/Prospect
Site Category: (None)
Stop (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total 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	Aver. No. Cycles	Average Speed km/h
South: Dominion (S)												
2	T1	1005	2.9	0.529	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
3	R2	47	0.0	0.051	7.4	LOS A	0.2	1.3	0.45	0.67	0.45	51.7
Approach		1052	2.8	0.529	0.4	NA	0.2	1.3	0.02	0.03	0.02	59.4
East: Prospect (E)												
4	L2	64	0.0	0.242	10.9	LOS B	0.8	5.3	0.59	0.98	0.64	47.4
6	R2	26	0.0	0.242	27.4	LOS D	0.8	5.3	0.59	0.98	0.64	47.2
Approach		90	0.0	0.242	15.7	LOS C	0.8	5.3	0.59	0.98	0.64	47.4
North: Dominion (N)												
7	L2	18	0.0	0.010	5.5	LOS A	0.0	0.0	0.00	0.58	0.00	53.6
8	T1	387	7.2	0.208	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach		405	6.9	0.208	0.3	NA	0.0	0.0	0.00	0.03	0.00	59.6
All Vehicles		1547	3.7	0.529	1.3	NA	0.8	5.3	0.05	0.08	0.05	58.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [PM + retail split 50/50, residential via Prospect - FSNI distribution]

Dominion/Prospect
Site Category: (None)
Stop (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total 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	Aver. No. Cycles	Average Speed km/h
South: Dominion (S)												
2	T1	658	4.9	0.351	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
3	R2	37	0.0	0.102	14.6	LOS B	0.3	2.4	0.77	0.91	0.77	46.9
Approach		695	4.6	0.351	0.8	NA	0.3	2.4	0.04	0.05	0.04	59.0
East: Prospect (E)												
4	L2	88	0.0	0.868	47.1	LOS E	4.7	32.9	0.96	1.38	2.56	32.0
6	R2	73	0.0	0.868	61.6	LOS F	4.7	32.9	0.96	1.38	2.56	31.9
Approach		161	0.0	0.868	53.7	LOS F	4.7	32.9	0.96	1.38	2.56	31.9
North: Dominion (N)												
7	L2	107	0.0	0.058	5.5	LOS A	0.0	0.0	0.00	0.58	0.00	53.6
8	T1	895	3.9	0.471	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach		1002	3.5	0.471	0.7	NA	0.0	0.0	0.00	0.06	0.00	59.1
All Vehicles		1858	3.6	0.868	5.3	NA	4.7	32.9	0.10	0.17	0.24	55.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [PM + retail split 50/50, residential via Prospect - FSNI distribution - 2 lanes]

Dominion/Prospect
Site Category: (None)
Stop (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total 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	Aver. No. Cycles	Average Speed km/h
South: Dominion (S)												
2	T1	658	4.9	0.351	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
3	R2	37	0.0	0.102	14.6	LOS B	0.3	2.4	0.77	0.90	0.77	47.1
Approach		695	4.6	0.351	0.8	NA	0.3	2.4	0.04	0.05	0.04	59.1
East: Prospect (E)												
4	L2	88	0.0	0.303	21.1	LOS C	1.1	7.5	0.82	1.04	0.97	44.6
6	R2	73	0.0	0.566	41.0	LOS E	1.7	11.7	0.94	1.08	1.30	35.8
Approach		161	0.0	0.566	30.1	LOS D	1.7	11.7	0.87	1.06	1.12	40.1
North: Dominion (N)												
7	L2	107	0.0	0.058	5.5	LOS A	0.0	0.0	0.00	0.58	0.00	53.6
8	T1	895	3.9	0.471	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach		1002	3.5	0.471	0.7	NA	0.0	0.0	0.00	0.06	0.00	59.1
All Vehicles		1858	3.6	0.566	3.3	NA	1.7	11.7	0.09	0.14	0.11	56.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [SAT + retail split 50/50, residential via Prospect - FSNI distribution]

Dominion/Prospect
Site Category: (None)
Stop (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total 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	Aver. No. Cycles	Average Speed km/h
South: Dominion (S)												
2	T1	642	2.5	0.336	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
3	R2	43	0.0	0.077	10.6	LOS B	0.3	1.9	0.63	0.84	0.63	49.4
Approach		685	2.3	0.336	0.7	NA	0.3	1.9	0.04	0.05	0.04	59.1
East: Prospect (E)												
4	L2	78	0.0	0.486	17.3	LOS C	1.8	12.7	0.81	1.09	1.16	44.3
6	R2	69	0.0	0.486	26.1	LOS D	1.8	12.7	0.81	1.09	1.16	44.2
Approach		147	0.0	0.486	21.4	LOS C	1.8	12.7	0.81	1.09	1.16	44.3
North: Dominion (N)												
7	L2	103	0.0	0.055	5.5	LOS A	0.0	0.0	0.00	0.58	0.00	53.6
8	T1	672	2.4	0.350	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach		775	2.1	0.350	0.8	NA	0.0	0.0	0.00	0.08	0.00	59.0
All Vehicles		1607	2.0	0.486	2.6	NA	1.8	12.7	0.09	0.16	0.12	57.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [SAT + retail split 50/50, residential via Prospect - FSNI distribution - 2 lanes]

Dominion/Prospect
Site Category: (None)
Stop (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total 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	Aver. No. Cycles	Average Speed km/h
South: Dominion (S)												
2	T1	642	2.5	0.336	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
3	R2	43	0.0	0.077	10.6	LOS B	0.3	1.9	0.63	0.84	0.63	49.7
Approach		685	2.3	0.336	0.7	NA	0.3	1.9	0.04	0.05	0.04	59.2
East: Prospect (E)												
4	L2	78	0.0	0.163	13.9	LOS B	0.6	3.9	0.64	1.00	0.64	48.6
6	R2	69	0.0	0.323	23.6	LOS C	0.9	6.4	0.84	1.04	1.00	43.1
Approach		147	0.0	0.323	18.5	LOS C	0.9	6.4	0.74	1.02	0.81	45.8
North: Dominion (N)												
7	L2	103	0.0	0.055	5.5	LOS A	0.0	0.0	0.00	0.58	0.00	53.6
8	T1	672	2.4	0.350	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach		775	2.1	0.350	0.8	NA	0.0	0.0	0.00	0.08	0.00	59.0
All Vehicles		1607	2.0	0.350	2.4	NA	0.9	6.4	0.08	0.15	0.09	57.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

APPENDIX D

SIDRA-9 Model – Summary of results

SIDRA SUMMARIES - 2020 TRAFFIC FLOWS

DEVELOPMENT WAM Option 1 - supermarkt/retail 50%/50% Prospect/Grange, residential 100% Prospect, FSNI catchment

	DOMINION/PROSPECT						
	Dominion (S)		Prospect (E)		Dominion (N)		INTERSECTION
	Through	Right	Left	Right	Left	Through	
AM PEAK							
EXISTING							
Flow (vph)	1005	47	39	8	18	387	1504
degree of Saturation	0.529	0.051	0.100	0.100	0.010	0.208	0.529
average delay (secs/veh)	0.1	7.4	10.4	25.9	5.5	0	0.8
LOS	A	A	B	D	A	A	
95% Queue (m)	0	1	2	2	0	0	
WITH DEVELOPMENT							
Flow (vph)	1005	47	64	26	18	387	1547
degree of Saturation	0.529	0.051	0.242	0.242	0.010	0.208	0.529
average delay (secs/veh)	0.1	7.4	10.9	27.4	5.5	0.0	1.3
LOS	A	A	B	D	A	A	
95% Queue (m)	0	1	5	5	0	0	
WITH DEVELOPMENT							
2 lanes on exit							
Flow (vph)							
degree of Saturation							
average delay (secs/veh)							
LOS							
95% Queue (m)							
PM PEAK							
EXISTING							
Flow (vph)	658	37	62	16	37	924	1734
degree of Saturation	0.351	0.099	0.355	0.355	0.020	0.486	0.486
average delay (secs/veh)	0.0	14.1	23.1	35.3	5.5	0.1	1.6
LOS	A	B	C	E	A	A	
95% Queue (m)	0	2	8	8	0	0	
WITH DEVELOPMENT							
Flow (vph)	658	37	88	73	107	895	1858
degree of Saturation	0.351	0.102	0.868	0.868	0.058	0.471	0.868
average delay (secs/veh)	0.0	14.6	47.1	61.6	5.5	0.1	5.3
LOS	A	B	E	F	A	A	
95% Queue (m)	0.0	2	33	33	0	0	
WITH DEVELOPMENT							
2 lanes on exit							
Flow (vph)	658	37	88	73	107	895	1858
degree of Saturation	0.351	0.102	0.303	0.566	0.058	0.471	0.566
average delay (secs/veh)	0.0	14.6	21.1	41.0	5.5	0.1	3.3
LOS	A	B	C	E	A	A	
95% Queue (m)	0	2	8	12	0	0	
SATURDAY PEAK							
EXISTING							
Flow (vph)	642	43	46	12	36	701	1480
degree of Saturation	0.336	0.074	0.158	0.158	0.019	0.365	0.365
average delay (secs/veh)	0.0	10.3	14.3	21.7	5.5	0.0	1.1
LOS	A	B	B	C	A	A	
95% Queue (m)	0	2	3	3	0	0	
WITH DEVELOPMENT							
Flow (vph)	642	43	78	69	103	672	1607
degree of Saturation	0.336	0.077	0.486	0.486	0.055	0.350	0.486
average delay (secs/veh)	0.0	10.6	17.3	26.1	5.5	0.0	2.6
LOS	A	B	C	D	A	A	
95% Queue (m)	0	2	13	13	0	0	
WITH DEVELOPMENT							
2 lanes on exit							
Flow (vph)	642	43	78	69	103	672	1607
degree of Saturation	0.336	0.077	0.163	0.323	0.055	0.350	0.350
average delay (secs/veh)	0.0	10.6	13.9	23.6	5.5	0.0	2.4
LOS	A	B	B	C	A	A	
95% Queue (m)	0	2	4	6	0	0	

	DOMINION/GRANGE						
	Dominion (S)		Grange (E)		Dominion (N)		INTERSECTION
	Through	Right	Left	Right	Left	Through	
	881	97	35	23	45	381	1462
	0.465	0.083	0.121	0.121	0.229	0.229	0.465
	0.1	7.1	9.9	17.6	5.6	0.0	1.2
	A	A	A	C	A	A	
	0	3	2	2	0	0	
	882	119	54	23	45	398	1521
	0.466	0.104	0.146	0.146	0.238	0.238	0.466
	0.1	7.2	10.0	18.4	5.6	0.0	1.4
	A	A	B	C	A	A	
	0	3	3	3	0	0	
	882	119	54	23	45	398	1521
	0.466	0.104	0.058	0.088	0.238	0.238	0.466
	0.1	7.2	10.0	18.4	5.6	0.0	1.4
	A	A	A	C	A	A	
	0	3	2	2	0	0	
	637	47	78	39	42	995	1838
	0.34	0.112	0.487	0.487	0.545	0.545	0.545
	0.0	13.7	23.6	31.1	5.6	0.0	2.2
	A	B	C	D	A	A	
	0	3	12	12	0	0	
	635	137	183	39	42	999	2035
	0.338	0.329	0.853	0.853	0.547	0.547	0.853
	0.0	15.9	41.2	52.2	5.6	0.1	6.0
	A	C	E	F	A	A	
	0	9	37	37	0	0	
	635	137	183	39	42	999	2035
	0.338	0.329	0.586	0.268	0.547	0.547	0.586
	0.0	15.9	25.8	29.8	5.6	0.1	4.1
	A	C	D	D	A	A	
	0	9	19	5	0	0	
	660	24	40	21	24	692	1461
	0.345	0.03	0.138	0.138	0.373	0.373	0.373
	0.0	8.9	12.6	16.8	5.6	0.0	0.9
	A	A	B	C	A	A	
	0	1	3	3	0	0	
	651	112	138	21	24	703	1649
	0.342	0.144	0.312	0.312	0.379	0.379	0.379
	0.0	9.3	14.0	19.8	5.6	0.1	2.2
	A	A	B	C	A	A	
	0	4	9	9	0	0	
	651	112	138	21	24	703	1649
	0.342	0.144	0.233	0.079	0.379	0.379	0.379
	0.0	9.3	13.3	17.5	5.6	0.1	2.1
	A	A	B	C	A	A	
	0	4	6	1	0	0	