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18 June 2025

Enquiries: Andrew Leckie
Project No: 310206381

Cashmere Park Limited
319 Worsleys Road, Cashmere

Attention: Warren Lewis

Dear Warren

Reference: Cashmere Fields Plan Change- RFI Transport Responses

This letter provides responses to the transport-related requests from the Christchurch City Council Request for Further Information received 18 May 2025.

1 SIDRA Intersection Modelling

Request 1: *Please provide additional SIDRA modelling outputs at two arterial intersections: Hoon Hay Road / Cashmere Road and Sparks Road / Hoon Hay Road (Existing and Proposed).*

Response 1: We have modelled the two signalised intersections using SIDRA Intersection 9.1. Modelled scenarios are 2038 without and with the additional residential development that will be enabled by the Plan Change. Intersection turning volumes are those from the CAST modelling exercise presented in the ITA.

Signal phasing and cycle times have been based on data provided by the CCC Real Time Operations Team, reflecting the existing operation of the intersections.

The following tables provide summaries of the forecast intersection performance and SIDRA output summaries are presented in Attachment 1.

Reference: Cashmere Fields Plan Change- RFI Transport Responses

Table 1: Sparks Road / Hoon Hay Road Intersection Performance Summary

Approach	AM Peak		PM Peak	
	Base	With Development	Base	With Development
Hoon Hay Road South	60s / LOS E	66s / LOS E	55s / LOS D	58s / LOS E
Sparks Road East	21s / LOS C	23s / LOS C	114s / LOS F	114s / LOS F
Hoon Hay Road North	51s / LOS D	48s / LOS D	98s / LOS F	98s / LOS F
Sparks Road West	47s / LOS D	53s / LOS D	22s / LOS C	22s / LOS C
All Vehicles	45s / LOS D	49s / LOS D	79s / LOS E	80s / LOS E

Table 2: Cashmere Road / Hoon Hay Road Intersection Performance Summary

Approach	AM Peak		PM Peak	
	Base	With Development	Base	With Development
Worsleys Road South	59s / LOS E	59s / LOS E	38s / LOS D	38s / LOS D
Cashmere Road East	14s / LOS B	15s / LOS B	15s / LOS B	15s / LOS B
Hoon Hay Road North	63s / LOS E	63s / LOS E	41s / LOS D	41s / LOS D
Cashmere Road West	55s / LOS E	53s / LOS D	32s / LOS C	32s / LOS C
All Vehicles	42s / LOS D	41s / LOS D	25s / LOS C	25s / LOS C

To summarise, the intersections are forecast to operate with satisfactory overall average delays into the future. Some movements face high delay, as they do currently, which is to be expected at arterial road intersections during peak times. The small changes in traffic volumes forecast as a result of development of the Plan Change area will not noticeably affect intersection performance.

2 CAST Model Outputs

Request 2: Please provide additional CAST model outputs of volume and delay difference plots between the existing and rezoning scenarios.

Response 2: These are provided in Attachment 2.

Request 3: Please provide additional modelling scenario in CAST for the vehicle access onto Cashmere Road to be connected at Penruddock Rise intersection through the proposed roundabout, as this may highlight further adverse increases in vehicle movements on existing and proposed residential roads.

Response 3: We understand that this request relates to the location of the western Cashmere Road intersection within the ODP area (circled below). As shown, the ODP has this intersection to the east of

Reference: Cashmere Fields Plan Change- RFI Transport Responses

Penruddock Road, whereas the request suggests that this road may be constructed opposite Penruddock Rise along with a roundabout on Cashmere Road.

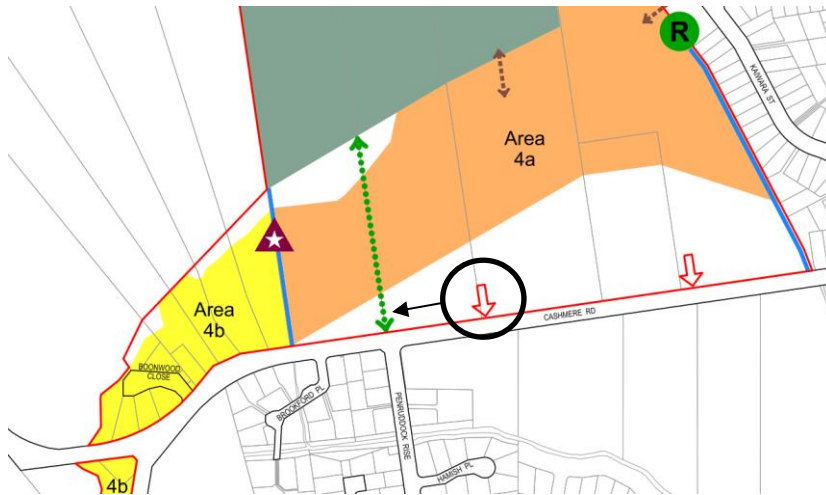


Figure 1: ODP Western Cashmere Road Intersection Location

Regardless of the position of this intersection, development of the site will only contribute low traffic volumes to this new local road. The CAST outputs, shown below, suggest the additional development that would be enabled through the proposed Plan Change could contribute approximately 20 – 30 vehicle movements per hour to the new road. This is a low traffic volume which would readily be accommodated on the local road network. The forecast increased use of Cashmere Road as a result of additional development enabled by the Plan Change is modest and would not impact the arterial road network. Accordingly, we are of the view that further CAST modelling with respect to this intersection location is not required and will not be of benefit.



Figure 2: CAST Change in Flow with Development Forecasts, AM Peak (Left) and PM Peak

Reference: Cashmere Fields Plan Change- RFI Transport Responses

3 Cashmere Road Access

Request 4: *The Operative Hendersons Outline Development Plan (East) in Appendix 8.10.18 shows two access points onto Cashmere Road. Considering the construction of a roundabout at the intersection of Penruddock Rise/Cashmere Road along with the existing access from Leistrella Road, Council requests further information on any potential effects that may arise from the construction of an additional access onto Cashmere Road.*

Response 4: Section 11.3 of the ITA addresses the proposed new Cashmere Road intersection. This is proposed to provide local access and connectivity within the new residential area.

The intersection is proposed approximately 150m west of Leistrella Road. We have assessed in the ITA that this separation will be adequate to ensure that vehicle movements at the intersections and conflict points are suitably separated. The design of the intersection and associated upgrades to Cashmere Road can be considered at the subdivision stage to ensure the safety of all road users.

We note that the proposed intersection location is approximately 190m from the western Cashmere Road intersection location shown on the proposed ODP. If the western Cashmere Road connection shifts to opposite Penruddock Rise, this separation will increase to approximately 290m. This is more than adequate in the urban speed environment.

4 Network Interventions at Arterial Road Intersections

Request 5: *Please clarify when interventions will be needed at Cashmere Road/Hoon Hay Road intersection and Sparks Road/Hoon Hay Road intersection, as development progresses northward from Cashmere Road toward Hoon Hay and Sparks Roads.*

Response 5: The traffic effects assessment presented in the ITA and the further information provided in this letter confirm that the additional development enabled through the proposed Plan Change will not have a noticeable effect on the performance of these two major, arterial road intersections. Accordingly, no interventions to accommodate additional traffic volumes need to be contemplated.

5 Public Transport

Request 6: *The Integrated Transport Assessment notes that the nearest public transport bus route/stop is between 600m-800m from the central and northern blocks of the site and thus the site would be 'relatively well served by public transport'. It is outlined in Council's Infrastructure Design Standards at Figure 4 that 90% of all residential development shall be located within 500m of a bus route. The Council requests further information on the potential effects of the greater distances to public transport proposed by the request.*

Response 6: Section 8.2 of the ITA provides assessment of the accessibility of the site by public transport.

The southern portion of additional residential land is very well located for public transport uptake, being within a short distance of Cashmere Road where there is the existing Westmorland / Shirley bus service.

The central block is similar to the surrounding zoned residential land in terms of accessibility for public transport. It is approximately 400m from Cashmere Road and 600m from Hoon Hay Road via the Kaiwara Street reserve and Blakiston Street. The high-frequency Orbiter service as well as the Westmorland / Shirley service run along this part of Hoon Hay Road.

The northern block is similar to the existing Leistrella Road / Rydal Street residential catchment in terms of accessibility for public transport. The northern part of the block will be approximately 600m from the Hoon Hay Road / Sparks Road intersection, through which the Hillmorton / Southshore service runs. The southern part of the block will be approximately 600m from Rose Street, along which both the Orbiter and Westmorland / Shirley services run.

Almost all, if not all, of the site will be within 800m of the Orbiter bus stops on Rose Street or Hoon Hay Road.

As outlined in the ITA, it is considered that the 600m – 800m distances from the central and northern blocks to the nearest existing bus stops are acceptable. While they may be at the higher end of walking distances to bus stops that people are prepared to take, residents would have options of using other modes, for example, bicycle or scooter, to connect to the bus routes.

Further to the assessment provided in the ITA and the above, NZTA public transport guidance¹ suggests that up to an 800m walking distance is suitable for accessing high frequency public transport

¹ <https://www.nzta.govt.nz/walking-cycling-and-public-transport/public-transport/public-transport-framework/integrated-planning-and-design/public-transport-design-guidance/>

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stops. In this location, the Orbiter is a high frequency service and as above, almost all, if not all, of the site will be within 800m of the Orbiter bus stops on Rose Street or Hoon Hay Road.

As concluded in the ITA, we consider that development of the site will be relatively well served by public transport when compared to many parts of the city. Also, we note that bus routes are regularly reviewed and additional bus services can be expected in the south-west of the city given the level of development that has been and still is occurring. The South-West Area Plan anticipated a bus route on Sparks Road and such a service would offer improved public transport accessibility to the site as well as existing residential areas north of Sparks Road.

Please do not hesitate to contact the undersigned if you have any queries.

Yours sincerely

Stantec New Zealand



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Encl Attachment 1 SIDRA Modelling Summaries
 Attachment 2 CAST Outputs

Reference: Cashmere Fields Plan Change- RFI Transport Responses

Attachment 1: SIDRA Modelling Summaries

Cashmere Road / Hoon Hay Road - 2038 AM Peak Without Development:

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows [Total HV]		Arrival Flows [Total HV]		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			veh/h	%	veh/h	%	v/c	sec		[Veh. veh	Dist] m				km/h
SouthEast: Worsleys Road															
21a	L1	All MCs	1	2.0	1	2.0	0.243	61.3	LOS E	2.7	19.4	0.95	0.72	0.95	28.2
22	T1	All MCs	48	2.0	48	2.0	0.243	54.2	LOS D	2.7	19.4	0.95	0.72	0.95	28.6
23b	R3	All MCs	21	2.0	21	2.0	0.269	69.8	LOS E	1.3	9.2	1.00	0.70	1.00	25.2
Approach			71	2.0	71	2.0	0.269	58.9	LOS E	2.7	19.4	0.97	0.71	0.97	27.5
East: Cashmere Road (East)															
4b	L3	All MCs	19	2.0	19	2.0	0.278	7.9	LOS A	6.2	44.1	0.29	0.28	0.29	49.9
5	T1	All MCs	394	2.0	394	2.0	0.278	5.7	LOS A	6.2	44.1	0.29	0.28	0.29	51.4
6a	R1	All MCs	191	2.0	191	2.0	* 0.429	32.5	LOS C	8.3	59.4	0.82	0.78	0.82	36.7
Approach			603	2.0	603	2.0	0.429	14.2	LOS B	8.3	59.4	0.46	0.44	0.46	44.5
NorthWest: Hoon Hay Road															
27a	L1	All MCs	93	2.0	93	2.0	* 0.599	64.3	LOS E	5.5	39.3	1.00	0.80	1.03	27.2
28	T1	All MCs	13	2.0	13	2.0	0.062	52.5	LOS D	0.7	4.8	0.93	0.64	0.93	30.4
29b	R3	All MCs	27	2.0	27	2.0	0.210	63.2	LOS E	1.6	11.2	0.97	0.72	0.97	27.4
Approach			133	2.0	133	2.0	0.599	62.9	LOS E	5.5	39.3	0.99	0.77	1.01	27.5
West: Cashmere Road (West)															
10b	L3	All MCs	219	2.0	219	2.0	0.921	46.1	LOS D	60.6	431.5	0.97	1.00	1.10	34.0
11	T1	All MCs	771	2.0	771	2.0	* 0.921	57.9	LOS E	60.6	431.5	0.97	1.00	1.10	34.7
12a	R1	All MCs	1	2.0	1	2.0	0.002	31.7	LOS C	0.0	0.2	0.43	0.52	0.43	43.8
Approach			991	2.0	991	2.0	0.921	55.3	LOS E	60.6	431.5	0.97	1.00	1.10	29.7
All Vehicles			1797	2.0	1797	2.0	0.921	42.2	LOS D	60.6	431.5	0.80	0.78	0.87	33.1

Cashmere Road / Hoon Hay Road - 2038 AM Peak With Development:

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m				km/h
SouthEast: Worsleys Road															
21a	L1	All MCs	1	2.0	1	2.0	0.237	61.3	LOS E	2.7	19.0	0.95	0.72	0.95	28.2
22	T1	All MCs	47	2.0	47	2.0	0.237	54.1	LOS D	2.7	19.0	0.95	0.72	0.95	28.6
23b	R3	All MCs	22	2.0	22	2.0	0.285	69.9	LOS E	1.4	9.6	1.00	0.70	1.00	25.1
Approach			71	2.0	71	2.0	0.285	59.2	LOS E	2.7	19.0	0.97	0.71	0.97	27.4
East: Cashmere Road (East)															
4b	L3	All MCs	20	2.0	20	2.0	0.283	7.9	LOS A	6.3	44.9	0.29	0.28	0.29	49.9
5	T1	All MCs	399	2.0	399	2.0	0.283	5.8	LOS A	6.3	44.9	0.29	0.28	0.29	51.4
6a	R1	All MCs	195	2.0	195	2.0	* 0.434	33.4	LOS C	8.7	61.9	0.84	0.78	0.84	36.4
Approach			614	2.0	614	2.0	0.434	14.6	LOS B	8.7	61.9	0.46	0.44	0.46	44.3
NorthWest: Hoon Hay Road															
27a	L1	All MCs	94	2.0	94	2.0	* 0.606	64.4	LOS E	5.6	39.8	1.00	0.80	1.03	27.1
28	T1	All MCs	13	2.0	13	2.0	0.062	52.5	LOS D	0.7	4.8	0.93	0.64	0.93	30.4
29b	R3	All MCs	29	2.0	29	2.0	0.225	63.3	LOS E	1.7	12.0	0.97	0.73	0.97	27.4
Approach			136	2.0	136	2.0	0.606	63.0	LOS E	5.6	39.8	0.99	0.77	1.01	27.5
West: Cashmere Road (West)															
10b	L3	All MCs	194	2.0	194	2.0	0.913	43.2	LOS D	57.7	410.6	0.95	0.97	1.07	34.8
11	T1	All MCs	782	2.0	782	2.0	* 0.913	54.9	LOS D	57.7	410.6	0.95	0.97	1.07	35.5
12a	R1	All MCs	1	2.0	1	2.0	0.002	31.7	LOS C	0.0	0.2	0.44	0.52	0.44	43.5
Approach			977	2.0	977	2.0	0.913	52.5	LOS D	57.7	410.6	0.95	0.97	1.07	30.4
All Vehicles			1797	2.0	1797	2.0	0.913	40.6	LOS D	57.7	410.6	0.79	0.77	0.85	33.6

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Attention: Warren Lewis

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Cashmere Road / Hoon Hay Road - 2038 PM Peak Without Development:

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total v/h]	[HV %]	[Total v/h]	[HV %]				[Veh. veh]	[Dist m]				
SouthEast: Worsleys Road															
21a	L1	All MCs	1	2.0	1	2.0	0.073	37.7	LOS D	0.9	6.1	0.86	0.63	0.86	34.1
22	T1	All MCs	23	2.0	23	2.0	0.073	31.8	LOS C	0.9	6.1	0.86	0.63	0.86	34.7
23b	R3	All MCs	22	2.0	22	2.0	0.131	44.2	LOS D	0.9	6.2	0.94	0.71	0.94	30.5
Approach			46	2.0	46	2.0	0.131	37.9	LOS D	0.9	6.2	0.90	0.67	0.90	32.6
East: Cashmere Road (East)															
4b	L3	All MCs	43	2.0	43	2.0	0.747	10.0	LOS B	20.1	143.2	0.70	0.66	0.70	46.1
5	T1	All MCs	718	2.0	718	2.0	0.747	13.2	LOS B	20.1	143.2	0.70	0.66	0.70	47.3
6a	R1	All MCs	179	2.0	179	2.0	* 0.370	24.3	LOS C	5.3	37.5	0.79	0.75	0.79	40.5
Approach			940	2.0	940	2.0	0.747	15.2	LOS B	20.1	143.2	0.72	0.67	0.72	44.0
NorthWest: Hoon Hay Road															
27a	L1	All MCs	108	2.0	108	2.0	0.382	40.2	LOS D	4.2	29.9	0.94	0.77	0.94	33.1
28	T1	All MCs	64	2.0	64	2.0	0.192	32.9	LOS C	2.3	16.5	0.89	0.68	0.89	36.4
29b	R3	All MCs	152	2.0	152	2.0	* 0.654	44.5	LOS D	6.4	45.2	0.99	0.84	1.06	31.8
Approach			324	2.0	324	2.0	0.654	40.8	LOS D	6.4	45.2	0.95	0.79	0.99	33.1
West: Cashmere Road (West)															
10b	L3	All MCs	86	2.0	86	2.0	0.734	20.9	LOS C	21.4	152.2	0.86	0.79	0.86	41.1
11	T1	All MCs	565	2.0	565	2.0	* 0.734	33.3	LOS C	21.4	152.2	0.86	0.79	0.86	42.1
12a	R1	All MCs	2	2.0	2	2.0	0.012	46.8	LOS D	0.1	0.5	0.83	0.61	0.83	35.2
Approach			654	2.0	654	2.0	0.734	31.7	LOS C	21.4	152.2	0.86	0.79	0.86	36.8
All Vehicles			1964	2.0	1964	2.0	0.747	25.4	LOS C	21.4	152.2	0.81	0.73	0.81	39.0

Cashmere Road / Hoon Hay Road - 2038 PM Peak With Development:

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh. veh]	Dist] m				
SouthEast: Worsleys Road															
21a	L1	All MCs	1	2.0	1	2.0	0.073	37.7	LOS D	0.9	6.1	0.86	0.63	0.86	34.1
22	T1	All MCs	23	2.0	23	2.0	0.073	31.8	LOS C	0.9	6.1	0.86	0.63	0.86	34.7
23b	R3	All MCs	22	2.0	22	2.0	0.131	44.2	LOS D	0.9	6.2	0.94	0.71	0.94	30.5
Approach			46	2.0	46	2.0	0.131	37.9	LOS D	0.9	6.2	0.90	0.67	0.90	32.6
East: Cashmere Road (East)															
4b	L3	All MCs	44	2.0	44	2.0	0.752	10.0	LOS B	20.3	144.4	0.70	0.66	0.70	46.0
5	T1	All MCs	718	2.0	718	2.0	0.752	13.3	LOS B	20.3	144.4	0.70	0.66	0.70	47.3
6a	R1	All MCs	182	2.0	182	2.0	* 0.378	24.4	LOS C	5.4	38.4	0.79	0.76	0.79	40.4
Approach			944	2.0	944	2.0	0.752	15.3	LOS B	20.3	144.4	0.72	0.68	0.72	44.0
NorthWest: Hoon Hay Road															
27a	L1	All MCs	107	2.0	107	2.0	0.378	40.2	LOS D	4.2	29.6	0.94	0.77	0.94	33.1
28	T1	All MCs	63	2.0	63	2.0	0.189	32.8	LOS C	2.3	16.3	0.89	0.68	0.89	36.4
29b	R3	All MCs	146	2.0	146	2.0	* 0.631	44.1	LOS D	6.1	43.3	0.99	0.83	1.04	31.9
Approach			317	2.0	317	2.0	0.631	40.6	LOS D	6.1	43.3	0.95	0.78	0.98	33.2
West: Cashmere Road (West)															
10b	L3	All MCs	83	2.0	83	2.0	0.731	21.2	LOS C	21.3	151.9	0.86	0.79	0.86	41.2
11	T1	All MCs	568	2.0	568	2.0	* 0.731	33.1	LOS C	21.3	151.9	0.86	0.79	0.86	42.2
12a	R1	All MCs	2	2.0	2	2.0	0.013	47.6	LOS D	0.1	0.5	0.84	0.61	0.84	34.9
Approach			654	2.0	654	2.0	0.731	31.6	LOS C	21.3	151.9	0.86	0.79	0.86	36.8
All Vehicles			1961	2.0	1961	2.0	0.752	25.4	LOS C	21.3	151.9	0.81	0.73	0.81	39.1

Reference: Cashmere Fields Plan Change- RFI Transport Responses

Sparks Road / Hoon Hay Road - 2038 AM Peak Without Development:

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh. veh]	Dist]				km/h
South: Hoon Hay Road (South)															
1	L2	All MCs	84	2.0	84	2.0	0.903	66.7	LOS E	28.6	203.8	1.00	1.10	1.27	33.1
2	T1	All MCs	459	2.0	459	2.0	* 0.903	59.1	LOS E	28.6	203.8	1.00	1.10	1.27	34.0
3	R2	All MCs	22	2.0	22	2.0	0.179	64.0	LOS E	1.0	7.0	0.96	0.71	0.96	32.0
Approach			565	2.0	565	2.0	0.903	60.4	LOS E	28.6	203.8	1.00	1.09	1.26	30.0
East: Sparks Road (East)															
4	L2	All MCs	19	2.0	19	2.0	0.493	24.1	LOS C	13.6	97.0	0.67	0.60	0.67	46.9
5	T1	All MCs	472	2.0	472	2.0	0.493	15.1	LOS B	13.6	97.0	0.67	0.60	0.67	48.6
6	R2	All MCs	84	2.0	84	2.0	0.696	55.0	LOS E	4.1	29.2	1.00	0.87	1.19	31.0
Approach			575	2.0	575	2.0	0.696	21.2	LOS C	13.6	97.0	0.72	0.64	0.75	44.2
North: Hoon Hay Road (North)															
7	L2	All MCs	220	2.0	220	2.0	0.821	54.8	LOS D	21.6	153.8	0.99	0.95	1.11	35.7
8	T1	All MCs	252	2.0	252	2.0	0.821	47.3	LOS D	21.6	153.8	0.99	0.95	1.11	36.7
9	R2	All MCs	20	2.0	20	2.0	0.212	66.2	LOS E	0.9	6.6	0.99	0.70	0.99	31.0
Approach			492	2.0	492	2.0	0.821	51.4	LOS D	21.6	153.8	0.99	0.94	1.11	32.1
West: Sparks Road (West)															
10	L2	All MCs	1	2.0	1	2.0	0.899	54.8	LOS D	39.5	281.5	0.97	1.03	1.15	37.6
11	T1	All MCs	796	2.0	796	2.0	* 0.899	47.3	LOS D	39.5	281.5	0.97	1.03	1.15	38.7
12	R2	All MCs	83	2.0	83	2.0	0.233	40.7	LOS D	2.6	18.5	0.72	0.75	0.72	40.2
Approach			880	2.0	880	2.0	0.899	46.7	LOS D	39.5	281.5	0.94	1.00	1.11	33.8
All Vehicles			2512	2.0	2512	2.0	0.903	44.9	LOS D	39.5	281.5	0.91	0.93	1.06	34.3

Sparks Road / Hoon Hay Road - 2038 AM Peak With Development:

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh. veh]	Dist]				km/h
South: Hoon Hay Road (South)															
1	L2	All MCs	88	2.0	88	2.0	0.931	73.0	LOS E	32.5	231.4	1.00	1.17	1.34	31.6
2	T1	All MCs	489	2.0	489	2.0	* 0.931	65.4	LOS E	32.5	231.4	1.00	1.17	1.34	32.4
3	R2	All MCs	22	2.0	22	2.0	0.162	63.7	LOS E	1.0	6.9	0.95	0.71	0.95	32.3
Approach			600	2.0	600	2.0	0.931	66.4	LOS E	32.5	231.4	1.00	1.15	1.32	28.6
East: Sparks Road (East)															
4	L2	All MCs	22	2.0	22	2.0	0.520	25.9	LOS C	14.5	103.3	0.69	0.62	0.69	46.4
5	T1	All MCs	481	2.0	481	2.0	0.520	16.7	LOS B	14.5	103.3	0.69	0.62	0.69	48.1
6	R2	All MCs	82	2.0	82	2.0	0.760	59.0	LOS E	4.1	29.4	1.00	0.90	1.29	30.2
Approach			585	2.0	585	2.0	0.760	23.0	LOS C	14.5	103.3	0.74	0.66	0.78	43.3
North: Hoon Hay Road (North)															
7	L2	All MCs	219	2.0	219	2.0	0.793	51.4	LOS D	20.7	147.4	0.97	0.91	1.06	36.7
8	T1	All MCs	254	2.0	254	2.0	0.793	43.9	LOS D	20.7	147.4	0.97	0.91	1.06	37.8
9	R2	All MCs	19	2.0	19	2.0	0.219	66.7	LOS E	0.9	6.4	0.99	0.69	0.99	30.7
Approach			492	2.0	492	2.0	0.793	48.1	LOS D	20.7	147.4	0.97	0.90	1.05	33.1
West: Sparks Road (West)															
10	L2	All MCs	1	2.0	1	2.0	0.922	61.9	LOS E	43.4	309.2	0.99	1.10	1.24	35.4
11	T1	All MCs	808	2.0	808	2.0	* 0.922	54.3	LOS D	43.4	309.2	0.99	1.10	1.24	36.4
12	R2	All MCs	77	2.0	77	2.0	0.230	43.2	LOS D	2.5	17.6	0.74	0.75	0.74	39.6
Approach			886	2.0	886	2.0	0.922	53.3	LOS D	43.4	309.2	0.97	1.07	1.20	31.9
All Vehicles			2563	2.0	2563	2.0	0.931	48.5	LOS D	43.4	309.2	0.92	0.97	1.10	33.2

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Reference: Cashmere Fields Plan Change- RFI Transport Responses

Sparks Road / Hoon Hay Road - 2038 PM Peak Without Development:

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist]	m			km/h
South: Hoon Hay Road (South)															
1	L2	All MCs	129	2.0	129	2.0	0.819	59.1	LOS E	20.5	146.0	1.00	0.95	1.13	34.5
2	T1	All MCs	293	2.0	293	2.0	0.819	50.4	LOS D	20.5	146.0	1.00	0.95	1.13	35.5
3	R2	All MCs	32	2.0	32	2.0	0.671	75.1	LOS E	1.7	12.2	1.00	0.78	1.23	28.5
Approach			454	2.0	454	2.0	0.819	54.6	LOS D	20.5	146.0	1.00	0.94	1.14	31.3
East: Sparks Road (East)															
4	L2	All MCs	26	2.0	26	2.0	1.069	139.0	LOS F	79.0	562.8	1.00	1.71	1.91	20.4
5	T1	All MCs	866	2.0	866	2.0	* 1.069	127.8	LOS F	79.0	562.8	1.00	1.71	1.91	20.7
6	R2	All MCs	178	2.0	178	2.0	0.572	43.9	LOS D	6.9	48.9	0.83	0.81	0.83	38.3
Approach			1071	2.0	1071	2.0	1.069	114.2	LOS F	79.0	562.8	0.97	1.56	1.73	20.8
North: Hoon Hay Road (North)															
7	L2	All MCs	154	2.0	154	2.0	0.998	107.0	LOS F	34.9	248.2	1.00	1.36	1.62	24.9
8	T1	All MCs	334	2.0	334	2.0	* 0.998	98.1	LOS F	34.9	248.2	1.00	1.36	1.62	25.3
9	R2	All MCs	45	2.0	45	2.0	0.361	71.8	LOS E	2.2	15.5	0.98	0.74	0.98	30.9
Approach			533	2.0	533	2.0	0.998	98.4	LOS F	34.9	248.2	1.00	1.31	1.57	22.8
West: Sparks Road (West)															
10	L2	All MCs	12	2.0	12	2.0	0.564	27.9	LOS C	17.8	126.9	0.67	0.60	0.67	47.5
11	T1	All MCs	605	2.0	605	2.0	0.564	20.3	LOS C	17.8	126.9	0.67	0.60	0.67	49.3
12	R2	All MCs	24	2.0	24	2.0	0.299	66.5	LOS E	1.2	8.7	1.00	0.70	1.00	29.6
Approach			641	2.0	641	2.0	0.564	22.2	LOS C	17.8	126.9	0.68	0.61	0.68	43.8
All Vehicles			2698	2.0	2698	2.0	1.069	79.2	LOS E	79.0	562.8	0.91	1.18	1.35	25.9

Sparks Road / Hoon Hay Road - 2038 PM Peak With Development:

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh. veh	Dist]				
South: Hoon Hay Road (South)															
1	L2	All MCs	132	2.0	132	2.0	0.849	62.7	LOS E	22.0	156.9	1.00	1.00	1.17	33.7
2	T1	All MCs	304	2.0	304	2.0	0.849	54.0	LOS D	22.0	156.9	1.00	1.00	1.17	34.6
3	R2	All MCs	37	2.0	37	2.0	0.806	77.8	LOS E	2.0	14.5	1.00	0.84	1.45	28.1
Approach			473	2.0	473	2.0	0.849	58.3	LOS E	22.0	156.9	1.00	0.98	1.20	30.4
East: Sparks Road (East)															
4	L2	All MCs	26	2.0	26	2.0	1.069	139.3	LOS F	79.3	564.5	1.00	1.71	1.91	20.3
5	T1	All MCs	868	2.0	868	2.0	* 1.069	128.1	LOS F	79.3	564.5	1.00	1.71	1.91	20.6
6	R2	All MCs	180	2.0	180	2.0	0.583	44.8	LOS D	7.0	50.2	0.85	0.82	0.85	38.0
Approach			1075	2.0	1075	2.0	1.069	114.4	LOS F	79.3	564.5	0.97	1.56	1.73	20.7
North: Hoon Hay Road (North)															
7	L2	All MCs	154	2.0	154	2.0	0.999	107.3	LOS F	34.4	244.6	1.00	1.36	1.63	24.7
8	T1	All MCs	324	2.0	324	2.0	* 0.999	98.5	LOS F	34.4	244.6	1.00	1.36	1.63	25.2
9	R2	All MCs	65	2.0	65	2.0	0.566	73.8	LOS E	3.2	23.1	1.00	0.78	1.05	30.3
Approach			543	2.0	543	2.0	0.999	98.0	LOS F	34.4	244.6	1.00	1.29	1.56	22.8
West: Sparks Road (West)															
10	L2	All MCs	16	2.0	16	2.0	0.568	28.0	LOS C	18.0	128.0	0.67	0.61	0.67	47.4
11	T1	All MCs	604	2.0	604	2.0	0.568	20.4	LOS C	18.0	128.0	0.67	0.61	0.67	49.2
12	R2	All MCs	25	2.0	25	2.0	0.312	66.6	LOS E	1.3	9.1	1.00	0.70	1.00	29.6
Approach			645	2.0	645	2.0	0.568	22.4	LOS C	18.0	128.0	0.68	0.61	0.68	43.7
All Vehicles			2736	2.0	2736	2.0	1.069	79.8	LOS E	79.3	564.5	0.91	1.18	1.36	25.8

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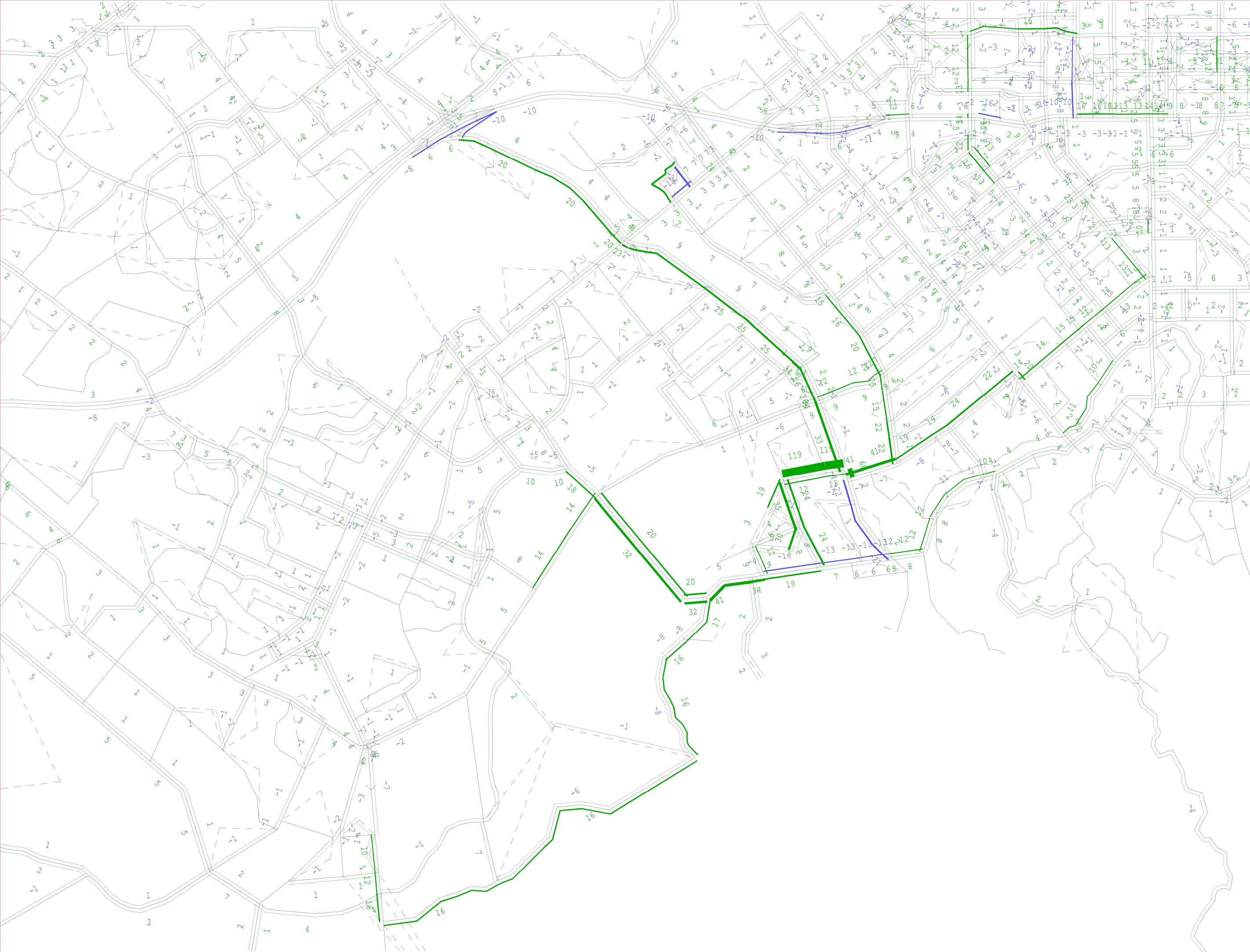
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Reference: Cashmere Fields Plan Change- RFI Transport Responses

Attachment 2: CAST Outputs

AM Peak Flow Difference Plot- 2038 'With Development' minus 2038 'Without Development'



SATURN

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ario2\v21a_3
8_AM_00C.UFS
1a_38_AM_00C

Scale 22409

Link Annot:

+ Actual flo
- Actual flo

Differ: 1-2

Bandwidths =
50.00/mm

17/04/23
STANTEC UK L

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Reference: Cashmere Fields Plan Change- RFI Transport Responses

AM Peak Delay Difference Plot- 2038 'With Development' minus 2038 'Without Development'



SATURN

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ario2\v21a_3
8_AM_00C.UFS
1a_38_AM_00C

Scale 22409

Link Annot:

+ Delay sec
- Delay sec

Differ: 1-2

Bandwidths =
50.00/mm

17/04/23
STANTEC UK L

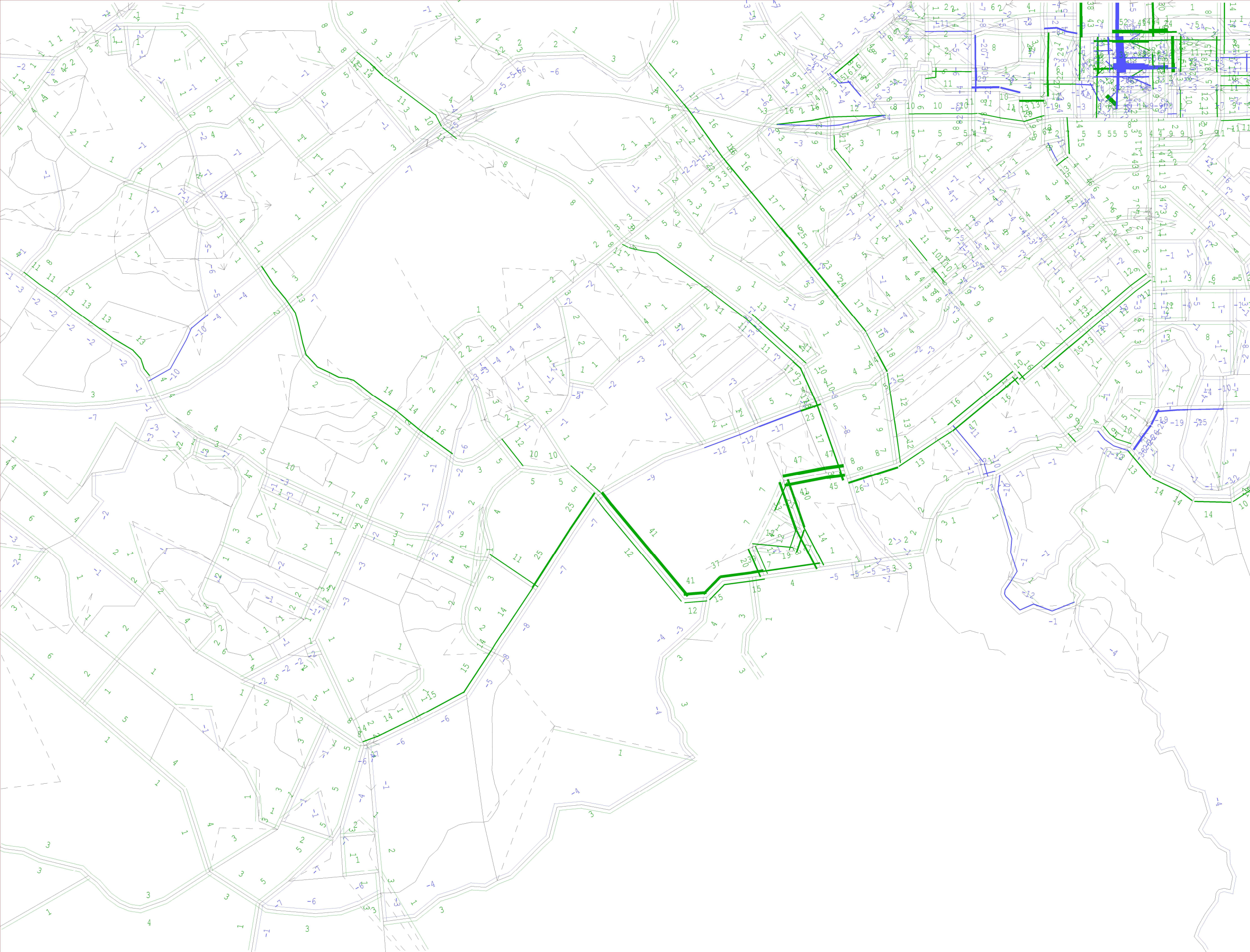
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Reference: Cashmere Fields Plan Change- RFI Transport Responses

PM Peak Flow Difference Plot- 2038 'With Development' minus 2038 'Without Development'



SATURN

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ario2\v21a_3
8_PM_00B.UFS
1a_38_PM_00B

Scale 22409

Link Annot:

+ Actual flo
- Actual flo

Differ: 1-2

Bandwidths =
50.00/mm

17/04/23
STANTEC UK L

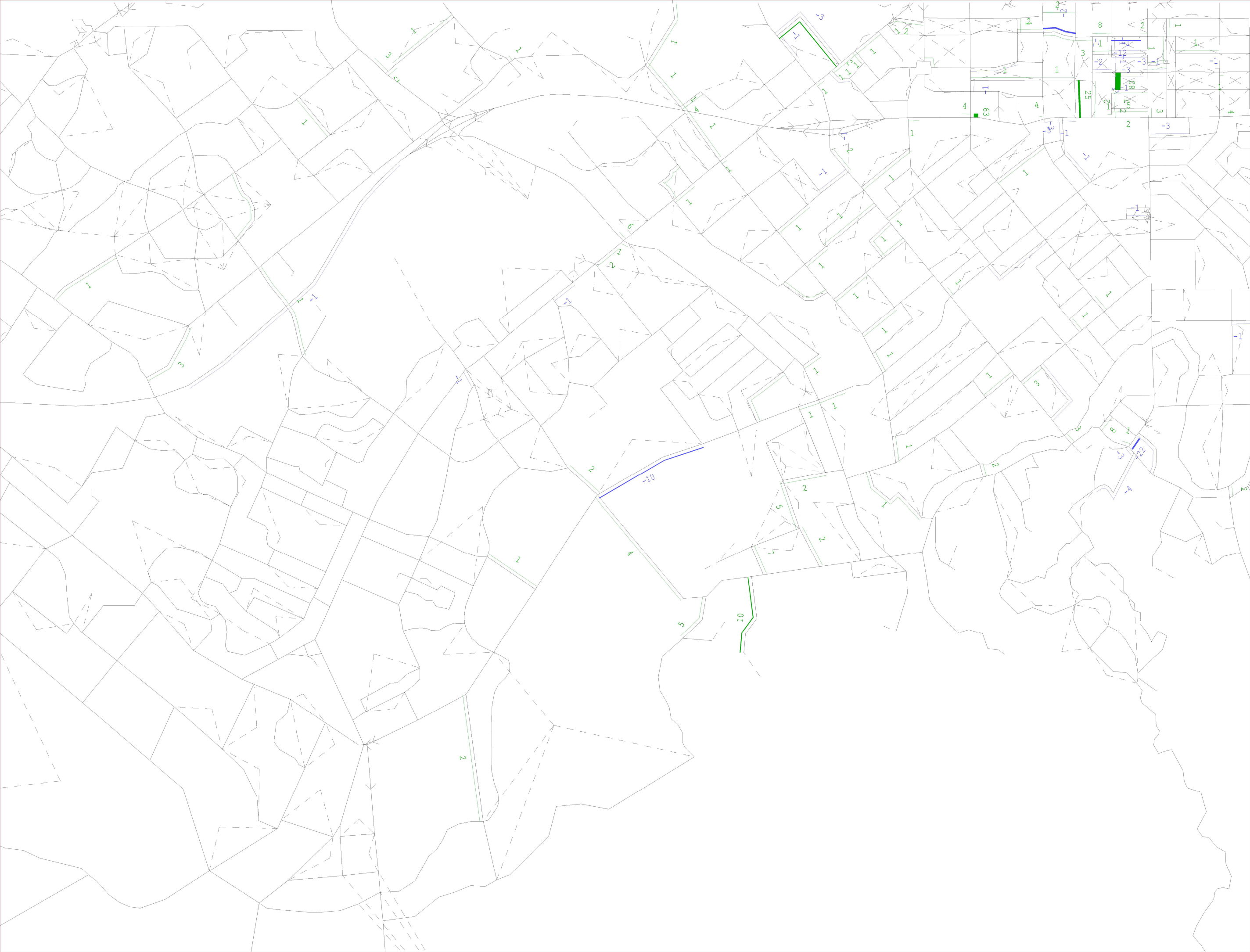
18 June 2025

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Reference: Cashmere Fields Plan Change- RFI Transport Responses

PM Peak Delay Difference Plot- 2038 'With Development' minus 2038 'Without Development'



SATURN

Atkins Ltd /
DVV / ITS

ario2\v21a_3
8_PM_00B.UFS
1a_38_PM_00B

Scale 22409

Link Annot:

+ Delay sec
- Delay sec

Differ: 1-2

Bandwidths =
50.00/mm

17/04/23
STANTEC UK L