

Intersection

Int Delay, s/veh 1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	0	3	20	0	8	0	205	17	32	202	3
Future Vol, veh/h	5	0	3	20	0	8	0	205	17	32	202	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	20	0	0	0	0	0	0	7	0	0	6	0
Mvmt Flow	5	0	3	21	0	9	0	218	18	34	215	3

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	517	521	217	513	513	227	218	0	0	236	0	0
Stage 1	285	285	-	227	227	-	-	-	-	-	-	-
Stage 2	232	236	-	286	286	-	-	-	-	-	-	-
Critical Hdwy	7.3	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.3	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.3	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.68	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	441	463	828	475	468	817	1364	-	-	1343	-	-
Stage 1	685	679	-	780	720	-	-	-	-	-	-	-
Stage 2	732	713	-	726	679	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	427	450	828	463	454	817	1364	-	-	1343	-	-
Mov Cap-2 Maneuver	427	450	-	463	454	-	-	-	-	-	-	-
Stage 1	685	659	-	780	720	-	-	-	-	-	-	-
Stage 2	724	713	-	702	659	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	12	12.2	0	1
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1364	-	-	522 528	1343	-	-
HCM Lane V/C Ratio	-	-	-	0.016 0.056	0.025	-	-
HCM Ctrl Dly (s/v)	0	-	-	12 12.2	7.8	0	-
HCM Lane LOS	A	-	-	B B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1 0.2	0.1	-	-

Intersection

Int Delay, s/veh 3.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	0	6	38	0	56	1	159	26	26	101	5
Future Vol, veh/h	1	0	6	38	0	56	1	159	26	26	101	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	0	0	0	0	0	0	0	6	0	0	4	0
Mvmt Flow	1	0	7	45	0	66	1	187	31	31	119	6

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	422	404	122	393	392	203	125	0	0	218	0	0
Stage 1	184	184	-	205	205	-	-	-	-	-	-	-
Stage 2	238	220	-	188	187	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	546	539	935	570	547	843	1474	-	-	1364	-	-
Stage 1	822	751	-	802	736	-	-	-	-	-	-	-
Stage 2	770	725	-	818	749	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	494	526	935	555	533	843	1474	-	-	1364	-	-
Mov Cap-2 Maneuver	494	526	-	555	533	-	-	-	-	-	-	-
Stage 1	821	733	-	801	735	-	-	-	-	-	-	-
Stage 2	709	724	-	792	731	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Ctrl Dly, s/v	9.4		11.1		0		1.5	
HCM LOS	A		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1474	-	-	829 697	1364	-	-
HCM Lane V/C Ratio	0.001	-	-	0.01 0.159	0.022	-	-
HCM Ctrl Dly (s/v)	7.4	0	-	9.4 11.1	7.7	0	-
HCM Lane LOS	A	A	-	A B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0 0.6	0.1	-	-

Intersection

Int Delay, s/veh 3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	0	3	61	0	18	0	169	38	57	168	3
Future Vol, veh/h	5	0	3	61	0	18	0	169	38	57	168	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	20	0	0	0	0	0	0	7	0	0	6	0
Mvmt Flow	5	0	3	65	0	19	0	180	40	61	179	3

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	513	523	181	504	504	200	182	0	0	220	0	0
Stage 1	303	303	-	200	200	-	-	-	-	-	-	-
Stage 2	210	220	-	304	304	-	-	-	-	-	-	-
Critical Hdwy	7.3	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.3	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.3	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.68	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	444	462	867	482	473	846	1405	-	-	1361	-	-
Stage 1	669	667	-	806	739	-	-	-	-	-	-	-
Stage 2	753	725	-	710	667	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	417	439	867	462	449	846	1405	-	-	1361	-	-
Mov Cap-2 Maneuver	417	439	-	462	449	-	-	-	-	-	-	-
Stage 1	669	634	-	806	739	-	-	-	-	-	-	-
Stage 2	736	725	-	672	634	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	12.1	13.3	0	1.9
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1405	-	-	518 515	1361	-	-
HCM Lane V/C Ratio	-	-	-	0.016 0.163	0.045	-	-
HCM Ctrl Dly (s/v)	0	-	-	12.1 13.3	7.8	0	-
HCM Lane LOS	A	-	-	B B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1 0.6	0.1	-	-

Intersection

Int Delay, s/veh 3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	0	6	38	0	56	1	174	26	26	111	5
Future Vol, veh/h	1	0	6	38	0	56	1	174	26	26	111	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	0	0	0	0	0	0	0	6	0	0	4	0
Mvmt Flow	1	0	7	45	0	66	1	205	31	31	131	6

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	452	434	134	423	422	221	137	0	0	236	0	0
Stage 1	196	196	-	223	223	-	-	-	-	-	-	-
Stage 2	256	238	-	200	199	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	521	518	920	545	526	824	1459	-	-	1343	-	-
Stage 1	810	742	-	784	723	-	-	-	-	-	-	-
Stage 2	753	712	-	806	740	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	470	505	920	530	512	824	1459	-	-	1343	-	-
Mov Cap-2 Maneuver	470	505	-	530	512	-	-	-	-	-	-	-
Stage 1	809	723	-	783	722	-	-	-	-	-	-	-
Stage 2	692	711	-	780	722	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Ctrl Dly, s/v	9.5		11.4		0		1.4	
HCM LOS	A		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1459	-	-	809 673	1343	-	-
HCM Lane V/C Ratio	0.001	-	-	0.01 0.164	0.023	-	-
HCM Ctrl Dly (s/v)	7.5	0	-	9.5 11.4	7.7	0	-
HCM Lane LOS	A	A	-	A B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0 0.6	0.1	-	-

Intersection

Int Delay, s/veh 2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	0	3	61	0	18	0	186	38	57	184	3
Future Vol, veh/h	5	0	3	61	0	18	0	186	38	57	184	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	20	0	0	0	0	0	0	7	0	0	6	0
Mvmt Flow	5	0	3	65	0	19	0	198	40	61	196	3

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	548	558	198	539	539	218	199	0	0	238	0	0
Stage 1	320	320	-	218	218	-	-	-	-	-	-	-
Stage 2	228	238	-	321	321	-	-	-	-	-	-	-
Critical Hdwy	7.3	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.3	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.3	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.68	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	421	441	848	456	452	827	1385	-	-	1341	-	-
Stage 1	655	656	-	789	726	-	-	-	-	-	-	-
Stage 2	736	712	-	695	655	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	395	419	848	436	429	827	1385	-	-	1341	-	-
Mov Cap-2 Maneuver	395	419	-	436	429	-	-	-	-	-	-	-
Stage 1	655	623	-	789	726	-	-	-	-	-	-	-
Stage 2	719	712	-	657	622	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Ctrl Dly, s/v	12.4		13.9		0		1.8	
HCM LOS	B		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1385	-	-	494 489	1341	-	-
HCM Lane V/C Ratio	-	-	-	0.017 0.172	0.045	-	-
HCM Ctrl Dly (s/v)	0	-	-	12.4 13.9	7.8	0	-
HCM Lane LOS	A	-	-	B B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1 0.6	0.1	-	-

Intersection

Int Delay, s/veh 2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	0	6	38	0	56	1	190	26	26	122	5
Future Vol, veh/h	1	0	6	38	0	56	1	190	26	26	122	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	0	0	0	0	0	0	0	6	0	0	4	0
Mvmt Flow	1	0	7	45	0	66	1	224	31	31	144	6

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	484	466	147	455	454	240	150	0	0	255	0	0
Stage 1	209	209	-	242	242	-	-	-	-	-	-	-
Stage 2	275	257	-	213	212	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	496	497	905	519	505	804	1444	-	-	1322	-	-
Stage 1	798	733	-	766	709	-	-	-	-	-	-	-
Stage 2	736	699	-	794	731	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	446	484	905	504	491	804	1444	-	-	1322	-	-
Mov Cap-2 Maneuver	446	484	-	504	491	-	-	-	-	-	-	-
Stage 1	797	714	-	765	708	-	-	-	-	-	-	-
Stage 2	675	698	-	767	712	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Ctrl Dly, s/v	9.6		11.7		0		1.3	
HCM LOS	A		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1444	-	-	789 648	1322	-	-
HCM Lane V/C Ratio	0.001	-	-	0.01 0.171	0.023	-	-
HCM Ctrl Dly (s/v)	7.5	0	-	9.6 11.7	7.8	0	-
HCM Lane LOS	A	A	-	A B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0 0.6	0.1	-	-

Intersection

Int Delay, s/veh 2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	0	3	61	0	18	0	205	38	57	202	3
Future Vol, veh/h	5	0	3	61	0	18	0	205	38	57	202	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	20	0	0	0	0	0	0	7	0	0	6	0
Mvmt Flow	5	0	3	65	0	19	0	218	40	61	215	3

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	587	597	217	578	578	238	218	0	0	258	0	0
Stage 1	339	339	-	238	238	-	-	-	-	-	-	-
Stage 2	248	258	-	340	340	-	-	-	-	-	-	-
Critical Hdwy	7.3	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.3	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.3	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.68	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	396	419	828	430	430	806	1364	-	-	1318	-	-
Stage 1	640	643	-	770	712	-	-	-	-	-	-	-
Stage 2	718	698	-	679	643	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	371	397	828	411	407	806	1364	-	-	1318	-	-
Mov Cap-2 Maneuver	371	397	-	411	407	-	-	-	-	-	-	-
Stage 1	640	609	-	770	712	-	-	-	-	-	-	-
Stage 2	701	698	-	641	609	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	12.8	14.5	0	1.7
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1364	-	-	468 463	1318	-	-
HCM Lane V/C Ratio	-	-	-	0.018 0.182	0.046	-	-
HCM Ctrl Dly (s/v)	0	-	-	12.8 14.5	7.9	0	-
HCM Lane LOS	A	-	-	B B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1 0.7	0.1	-	-

APPENDIX E

Home Farm TIS Excerpts

TRAFFIC IMPACT STUDY
HOME FARM RESIDENTIAL DEVELOPMENT
MACPHERSON BUILDERS LIMITED

COUNTY OF GREY

PREPARED BY:
C.F. CROZIER & ASSOCIATES INC.
40 HURON STREET
COLLINGWOOD, ONTARIO
L9Y 4R3

DECEMBER 2013

CFCA FILE NO. 721-3464

The material in this report reflects best judgment in light of the information available at the time of preparation. Any use which a third party makes of this report, or any reliance on or decisions made based on it, are the responsibilities of such third parties. C.F. Crozier & Associates Inc. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

The intersection of Grey Road 19 and Birches Boulevard will function at a LOS "B" in the a.m. and p.m. peak periods in the 2028 horizon year. The intersection will experience minor delays and a low volume-to-capacity ratio. The 95th percentile queue length is a maximum of one vehicle.

The intersection of Grey Road 19 and Helen Street will function at a LOS "B" in the a.m. and p.m. peak periods through the 2028 horizon year. The intersection will experience minor delays and a low volume-to-capacity ratio. The 95th percentile queue length is a maximum of one vehicle. The relatively low delays forecast at the intersections are indicative of operations with significant reserve capacity for growth.

6.0 Site Generated Traffic

6.1 Trip Generation

The proposed development will result in additional vehicles on the boundary road network that previously did not exist. The proposed development will also result in additional turning movements at the boundary road intersections.

The trip generation of the single family housing units and townhouse units were forecast using the rates provided in the Institute of Transportation Engineers (ITE) Trip Generation Manual, 8th Edition.

Land use Category 210 "Single Family Detached Housing" and Category 230 "Residential Condominium/Townhouse" were used to forecast the trips generated by the 151 single detached units and the 132 townhouse units in the a.m. and p.m. peak periods.

It is noted that the ITE trip generations are based on surveys undertaken in primarily urban and suburban areas with full time occupancy. As the subject development is expected to attract a proportion of seasonal, part-time residents, the site trip generation volumes forecast with the ITE methodology may not be realized.

The forecasted trips are tabulated in Table 5.

Table 5
Trip Generation

Use	Roadway Peak Hour	Number of Trips		
		Inbound	Outbound	Total
Single Family Detached Housing (151 Units)	Weekday A.M.	29	86	115
	Weekday P.M.	96	56	152
Residential Condominium/ Townhouse (132 Units)	Weekday A.M.	11	54	65
	Weekday P.M.	57	19	76
Total	Weekday A.M.	40	140	180
	Weekday P.M.	153	75	228

6.2 Trip Distribution and Assignment

The trips generated by the development were distributed to the boundary roadways based on the directional distribution noted at the Orchard development. The single access to Grey Road 19 at Birches Boulevard allowed for the measurement of the proportion of vehicles arriving from/ departing to the north and south. The distribution of trips at the development accesses was based on the site layout and the ease of access to and from the roadway system. The a.m. and p.m. peak hour trip distribution is illustrated in Figure 7.

The trips generated by the proposed development were assigned to the boundary road network as per the distributions. The trip assignment is illustrated in Figure 8.

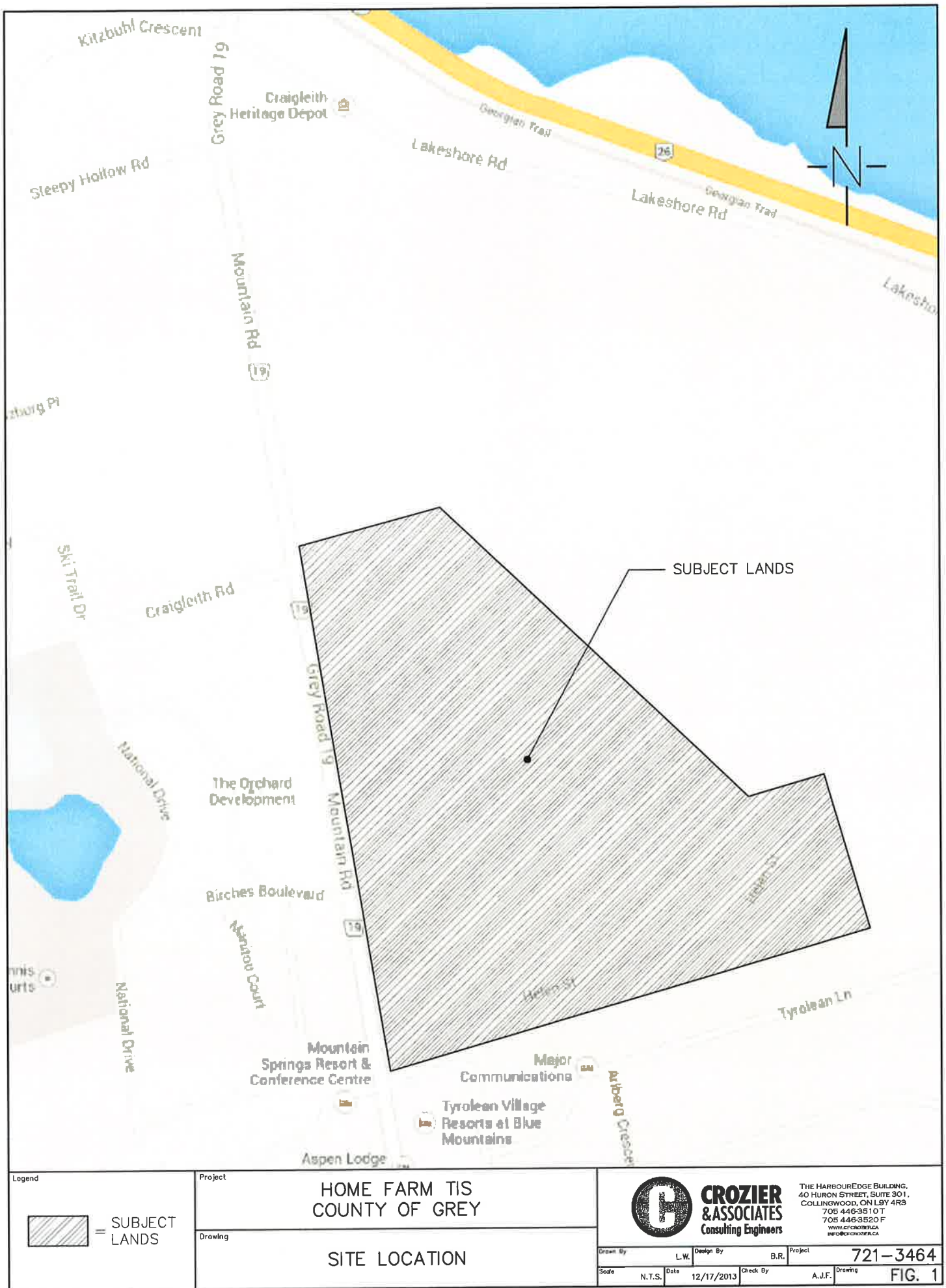
7.0 Total Future Conditions

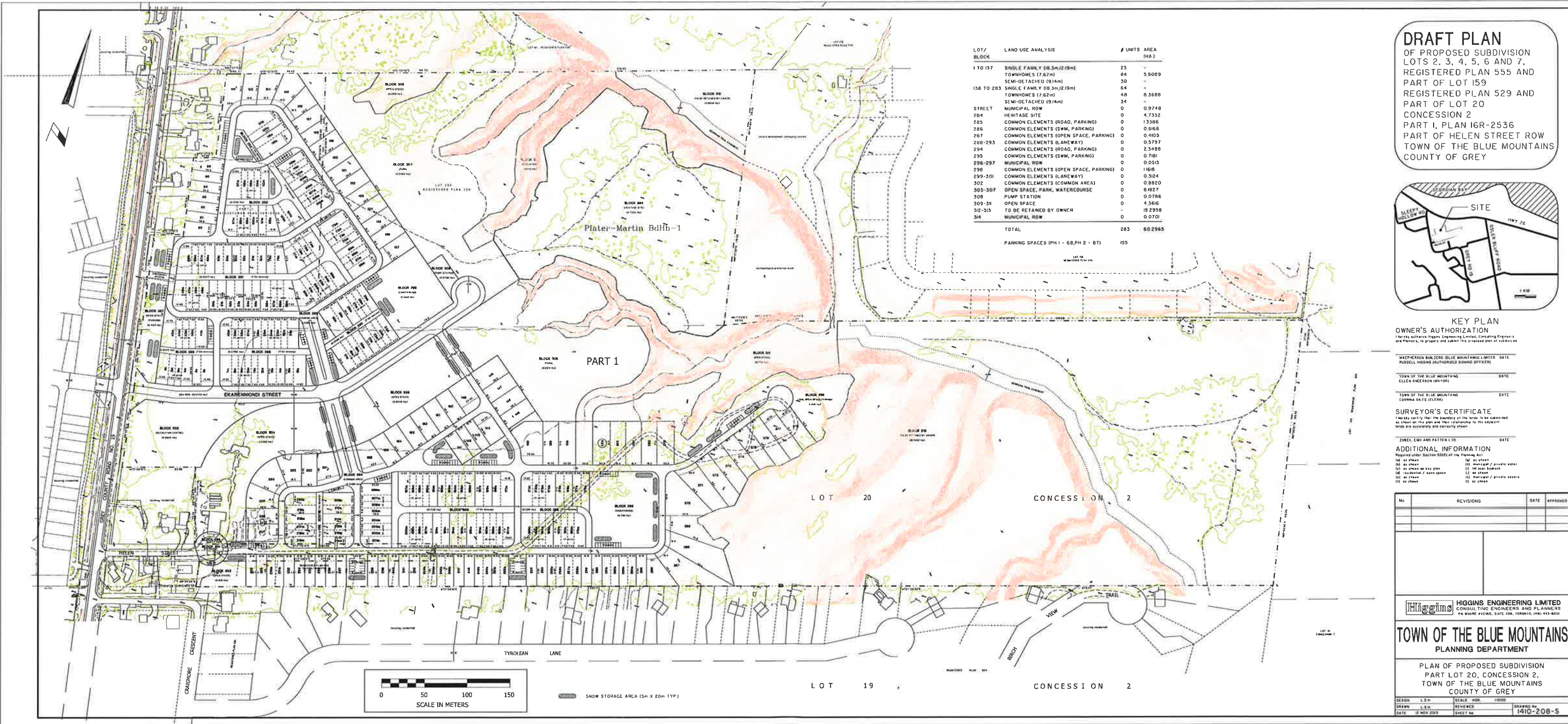
7.1 Basis of Assessment

The traffic impacts arising from the proposed development were assessed on the basis of the site generated traffic illustrated in Figure 8 being superimposed on the future background traffic volumes in Figures 4, 5 and 6. The resulting total traffic volumes for the weekday a.m. and p.m. peak hours are illustrated in Figures 9, 10 and 11 for the 2018, 2023 and 2028 horizon years, respectively.

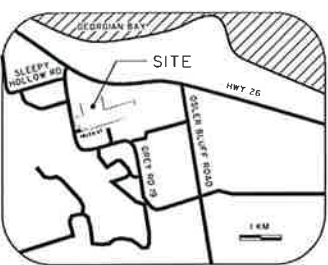
7.2 Auxiliary Lane Analysis

A left-turn lane warrant was undertaken for the intersections of Grey Road 19 at Birches Boulevard/ Ekarenniondi Street and Helen Street using the Ontario Ministry of Transportation (MTO) Geometric Design Standards for Ontario Highways (GDSOH) during both a.m. and p.m. peak periods. The left-turn lane warrants are included in Appendix E.





DRAFT PLAN
OF PROPOSED SUBDIVISION
LOTS 2, 3, 4, 5, 6 AND 7,
REGISTERED PLAN 555 AND
PART OF LOT 159
REGISTERED PLAN 529 AND
PART OF LOT 20
CONCESSION 2
PART 1, PLAN I6R-2536
PART OF HELEN STREET ROW
TOWN OF THE BLUE MOUNTAINS
COUNTY OF GREY



KEY PLAN
OWNER'S AUTHORIZATION
I hereby authorize Higgins Engineering Limited, Consulting Engineers and Planners, to prepare and submit the proposed plan of subdivision.
MURPHY HIGGINS (AUTHORIZED SIGNING OFFICER) DATE
TOWN OF THE BLUE MOUNTAINS (CLERK) DATE
TOWN OF THE BLUE MOUNTAINS (CLERK) DATE
SURVEYOR'S CERTIFICATE
I hereby certify that the boundary of the lands to be subdivided as shown on this plan and their relationship to the adjacent lands are accurately and correctly shown.

ADDITIONAL INFORMATION
Required under Section 50(2) of the Planning Act
(a) as shown (b) as shown (c) as shown (d) as shown
(e) as shown (f) as shown (g) as shown (h) as shown
(i) as shown (j) as shown (k) as shown (l) as shown
(m) as shown (n) as shown (o) as shown (p) as shown
(q) as shown (r) as shown (s) as shown (t) as shown
(u) as shown (v) as shown (w) as shown (x) as shown
(y) as shown (z) as shown

No.	REVISIONS	DATE	APPROVED

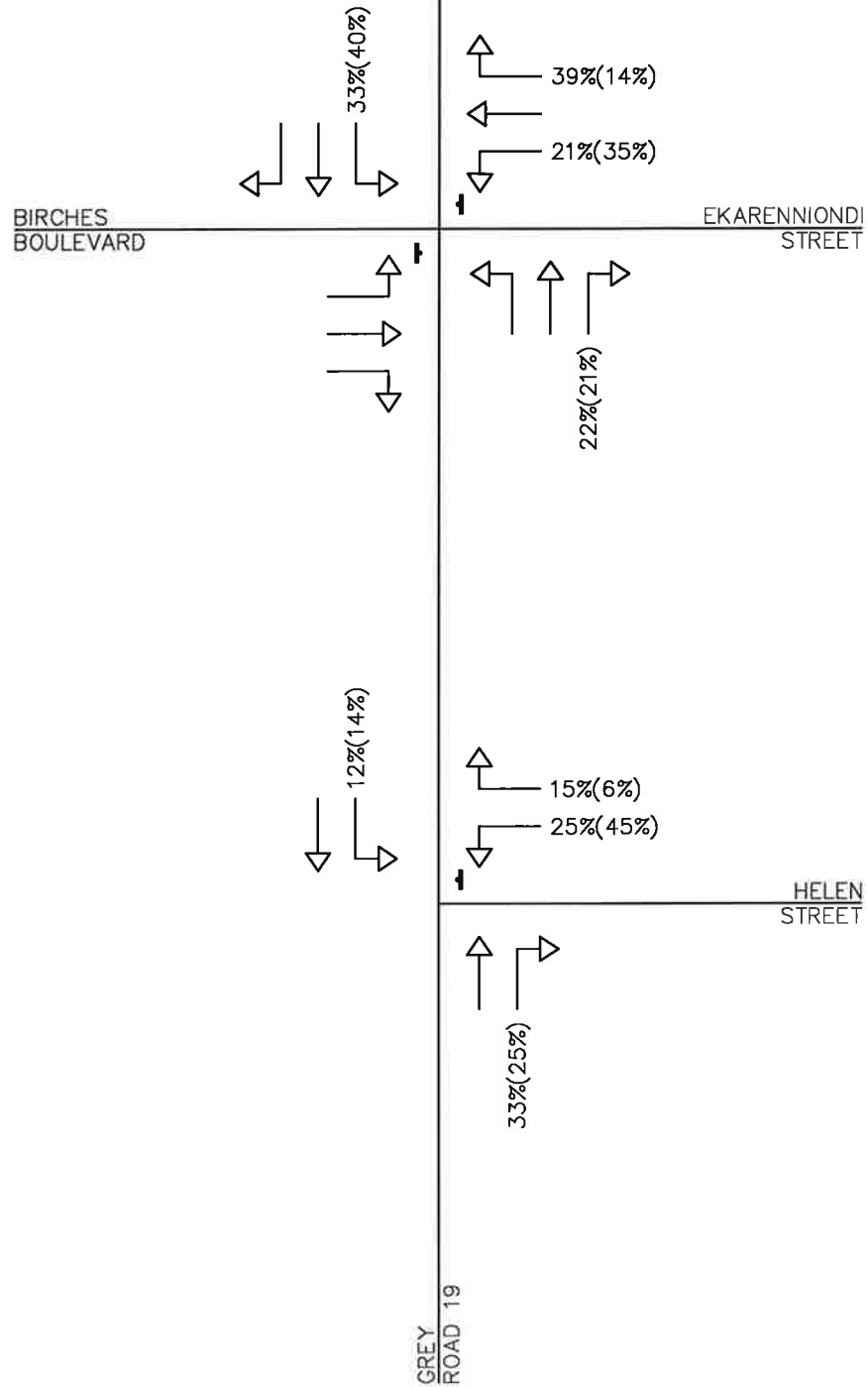
HIGGINS ENGINEERING LIMITED
CONSULTING ENGINEERS AND PLANNERS
44 MOORE AVENUE, SUITE 206, TORONTO, ONTARIO M4M 1B1

TOWN OF THE BLUE MOUNTAINS
PLANNING DEPARTMENT

PLAN OF PROPOSED SUBDIVISION
PART LOT 20, CONCESSION 2,
TOWN OF THE BLUE MOUNTAINS
COUNTY OF GREY

DESIGN: S.E.H. SCALE: HON. 1:1000
DRAWN: S.E.H. REVIEWED: DATE: 18 MAY 2014 SHEET NO. 1410-208-S

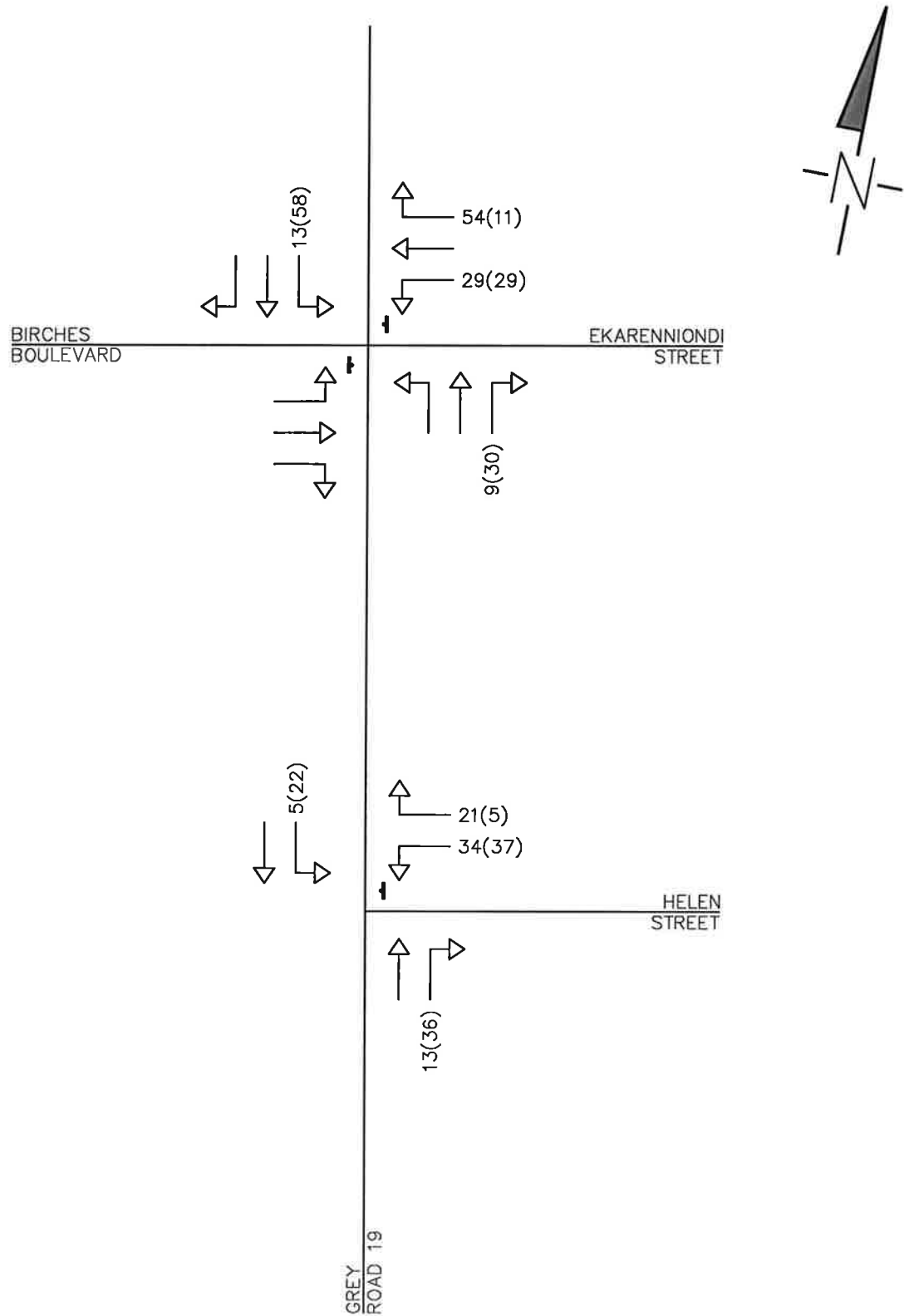
FIGURE 2



NOTE:

1. ROUNDING OF TRAFFIC VOLUME CALCULATIONS MAY RESULT IN SLIGHT DIFFERENCES IN VOLUMES SHOWN.
2. DRAWING IS FOR SCHEMATIC PURPOSES ONLY AND IS NOT TO BE SCALED.

Legend		Project		 CROZIER & ASSOCIATES Consulting Engineers THE HARBOUREDGE BUILDING, 40 HURON STREET, SUITE 301, COLLINGWOOD, ON L9Y 4R3 705 446-3510 T 705 446-3520 F www.crozier.ca info@crozier.ca					
 STOP CONTROL		HOME FARM TIS COUNTY OF GREY							
 SIGNAL CONTROL		Drawing							
XX(YY) A.M. (P.M.) PEAK HOUR TRAFFIC VOLUMES		TRIP DISTRIBUTION							
		Drawn By	L.W.	Design By	B.R.	Project	721-3464		
		Scale	N.T.S.	Date	12/17/2013	Check By	A.J.F.	Drawing	FIG. 7



NOTE:

1. ROUNDING OF TRAFFIC VOLUME CALCULATIONS MAY RESULT IN SLIGHT DIFFERENCES IN VOLUMES SHOWN.
2. DRAWING IS FOR SCHEMATIC PURPOSES ONLY AND IS NOT TO BE SCALED.

Legend STOP CONTROL SIGNAL CONTROL XX(YY) A.M. (P.M.) PEAK HOUR TRAFFIC VOLUMES	Project HOME FARM TIS COUNTY OF GREY Drawing TRIP ASSIGNMENT	CROZIER & ASSOCIATES Consulting Engineers THE HARBOUREDGE BUILDING, 40 HURON STREET, SUITE 301, COLLINGWOOD, ON L9Y 4R3 705 446-3510 T 705 446-3520 F WWW.CROZIER-CA.COM Drawn By L.W. Design By B.R. Project 721-3464 Scale N.T.S. Date 12/17/2013 Check By A.J.F. Drawing FIG. 8
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APPENDIX F

ITE Trip Generation Manual Excerpts

Land Use: 210

Single-Family Detached Housing

Description

A single-family detached housing site includes any single-family detached home on an individual lot. A typical site surveyed is a suburban subdivision.

Specialized Land Use

Data have been submitted for several single-family detached housing developments with homes that are commonly referred to as patio homes. A patio home is a detached housing unit that is located on a small lot with little (or no) front or back yard. In some subdivisions, communal maintenance of outside grounds is provided for the patio homes. The three patio home sites total 299 dwelling units with overall weighted average trip generation rates of 5.35 vehicle trips per dwelling unit for weekday, 0.26 for the AM adjacent street peak hour, and 0.47 for the PM adjacent street peak hour. These patio home rates, based on a small sample of sites, are lower than those for single-family detached housing (Land Use 210), lower than those for single-family attached housing (Land Use 215), and higher than those for senior adult housing—single-family (Land Use 251). (Source 1008)

Additional Data

The sites were surveyed in the 1990s, the 2000s, the 2010s, and the 2020s in Alabama, Arizona, British Columbia (CAN), California, Delaware, Illinois, Kentucky, Massachusetts, Minnesota, Montana, New Jersey, New York, North Carolina, Ontario (CAN), Oregon, Pennsylvania, South Carolina, South Dakota, Vermont, and West Virginia.

Source Numbers

356, 357, 367, 384, 387, 407, 435, 522, 550, 552, 579, 598, 601, 603, 614, 637, 711, 716, 720, 728, 735, 868, 869, 903, 925, 936, 1005, 1007, 1008, 1010, 1033, 1066, 1077, 1078, 1079, 1204, 1221, 1225, 1236, 1251, 1265, 1267

Single-Family Detached Housing (210)

Vehicle Trip Ends vs: Dwelling Units
On a: Weekday

Setting/Location: General Urban/Suburban

Number of Studies: 155

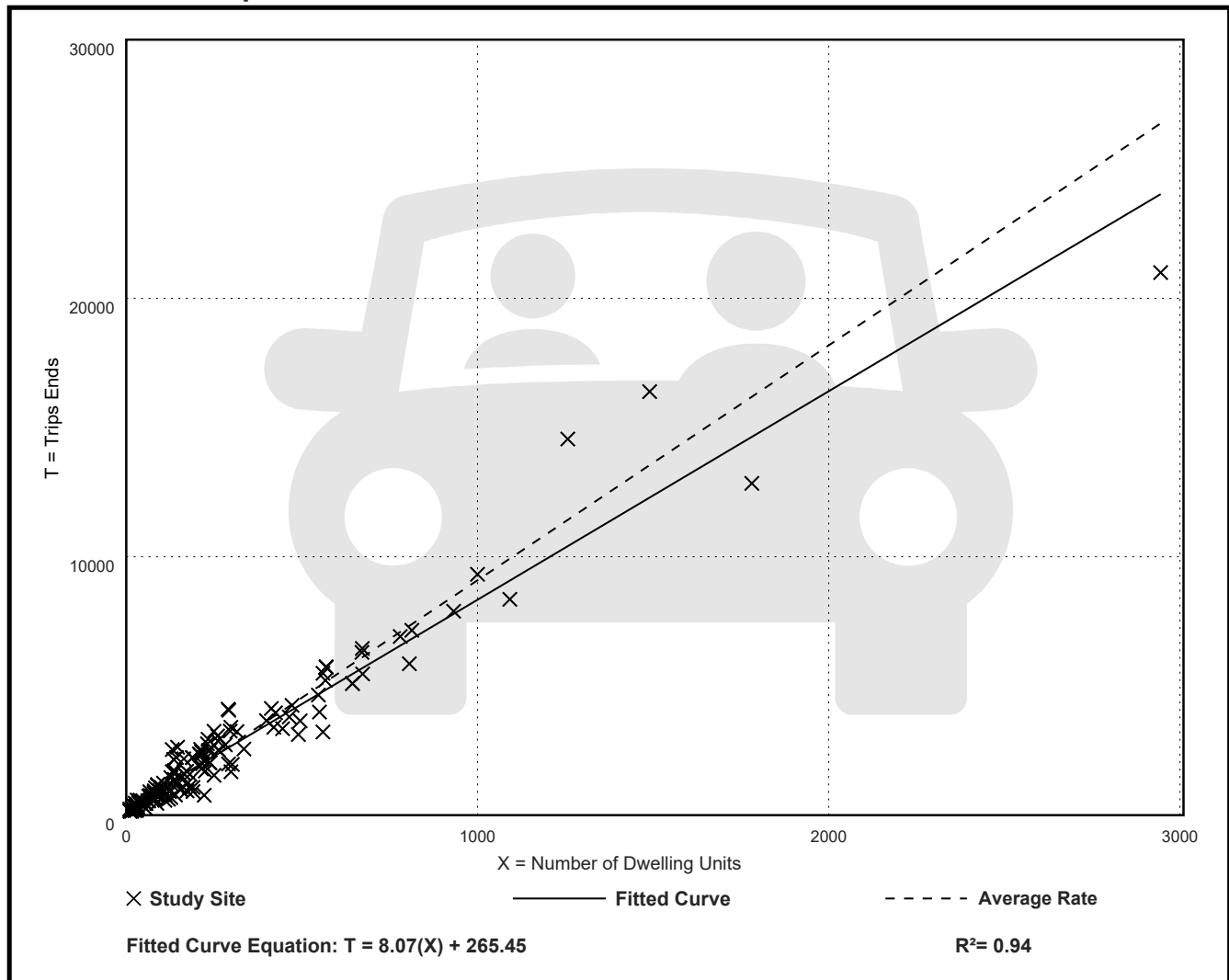
Avg. Num. of Dwelling Units: 261

Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
9.09	3.47 - 23.80	2.29

Data Plot and Equation



Single-Family Detached Housing (210)

Vehicle Trip Ends vs: Dwelling Units

On a: Weekday,

Peak Hour of Adjacent Street Traffic,

One Hour Between 7 and 9 a.m.

Setting/Location: General Urban/Suburban

Number of Studies: 153

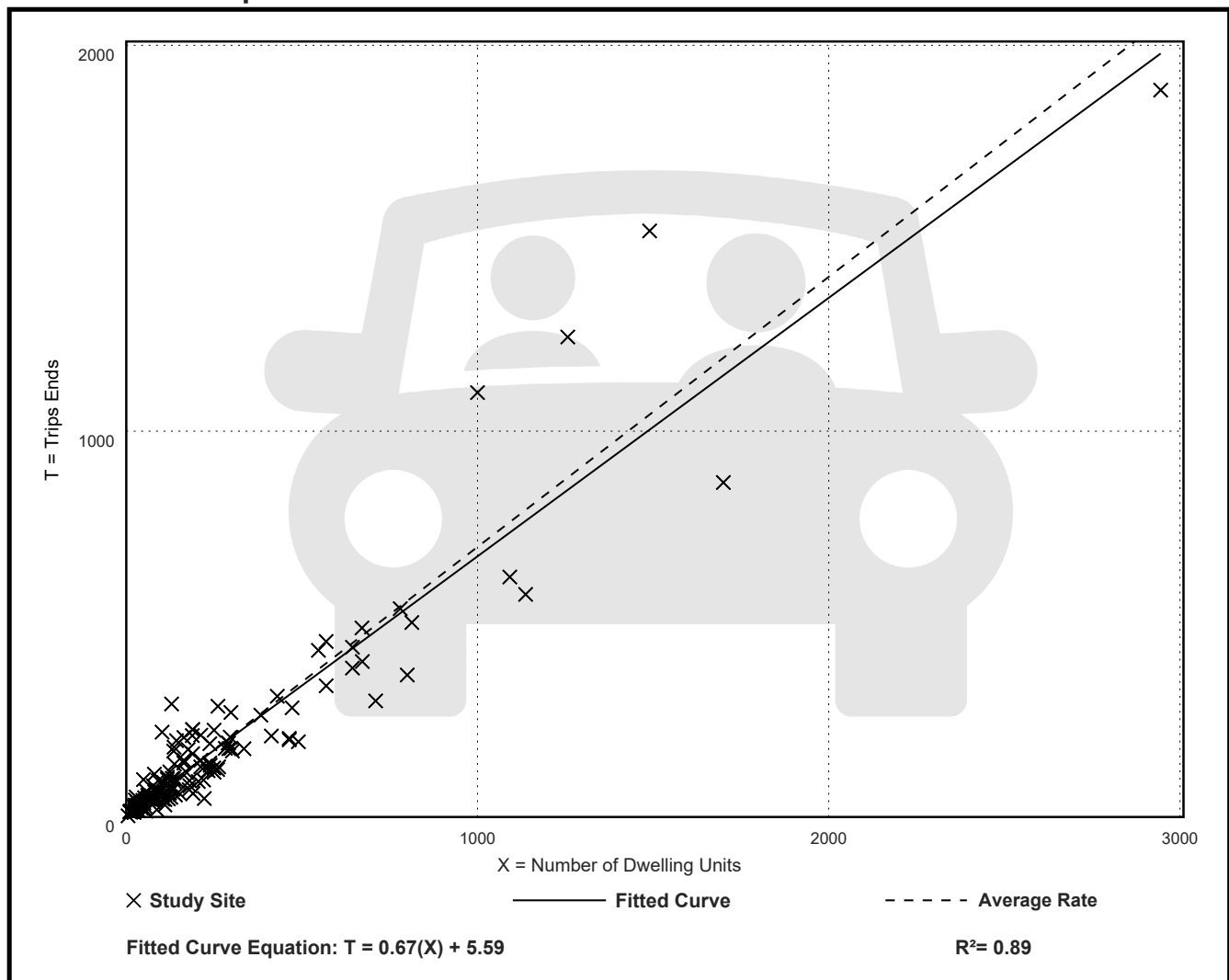
Avg. Num. of Dwelling Units: 239

Directional Distribution: 27% entering, 73% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.70	0.22 - 2.27	0.26

Data Plot and Equation



Land Use: 215

Single-Family Attached Housing

Description

Single-family attached housing includes any single-family housing unit that shares a wall with an adjoining dwelling unit, whether the walls are for living space, a vehicle garage, or storage space. This land use includes duplexes (defined as a single structure with two distinct dwelling units, typically joined side-by-side and each with at least one outside entrance) and townhouses/rowhouses (defined as a single structure with three or more distinct dwelling units, joined side-by-side in a row and each with an outside entrance).

Additional Data

The sites were surveyed in the 1990s, the 2000s, and the 2010s in British Columbia (CAN), California, Georgia, Massachusetts, Minnesota, New Jersey, Ontario (CAN), Oregon, Pennsylvania, South Dakota, Utah, and Wisconsin.

Source Numbers

357, 390, 418, 525, 571, 583, 638, 868, 869, 870, 896, 912, 959, 1009, 1046, 1056, 1058, 1077

Single-Family Attached Housing (215)

Vehicle Trip Ends vs: Dwelling Units

On a: Weekday,

Peak Hour of Adjacent Street Traffic,

One Hour Between 7 and 9 a.m.

Setting/Location: General Urban/Suburban

Number of Studies: 26

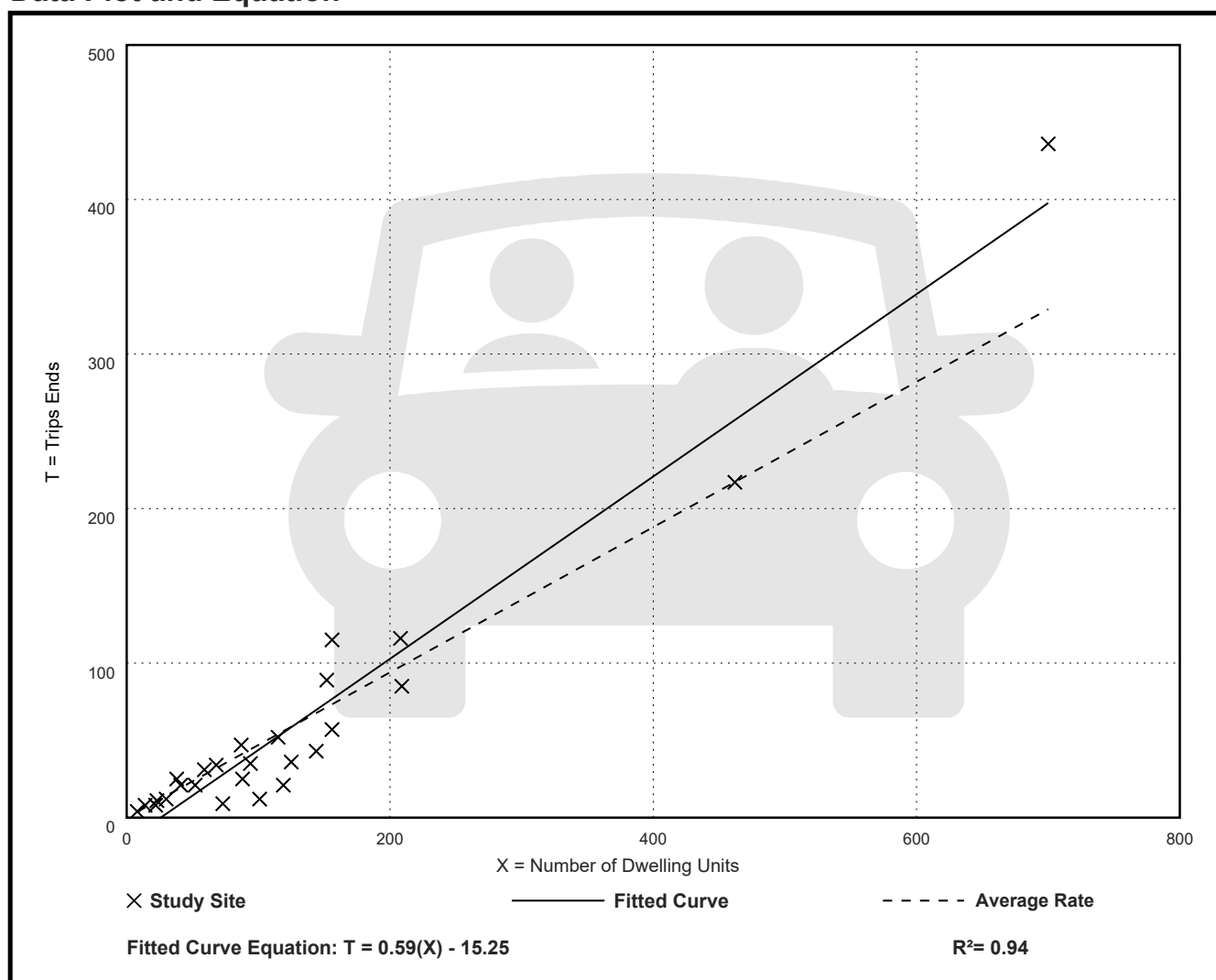
Avg. Num. of Dwelling Units: 129

Directional Distribution: 25% entering, 75% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.47	0.12 - 0.74	0.16

Data Plot and Equation



Single-Family Attached Housing (215)

Vehicle Trip Ends vs: Dwelling Units

On a: Weekday,

Peak Hour of Adjacent Street Traffic,

One Hour Between 4 and 6 p.m.

Setting/Location: General Urban/Suburban

Number of Studies: 31

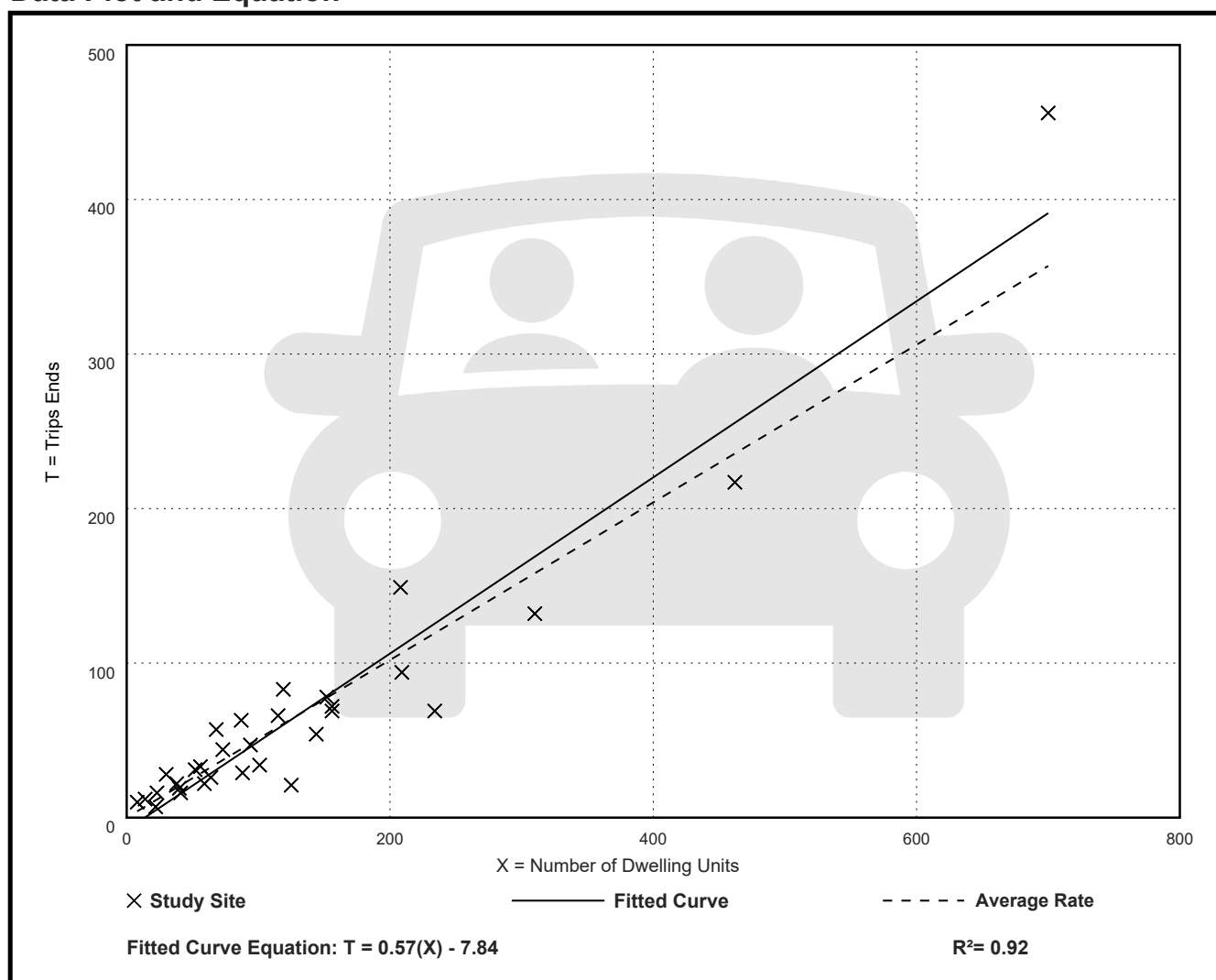
Avg. Num. of Dwelling Units: 131

Directional Distribution: 57% entering, 43% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.51	0.17 - 1.25	0.16

Data Plot and Equation



Land Use: 223

Affordable Housing

Description

Affordable housing includes all multifamily housing that is rented at below market rate. Facilities that are subject to income limitations must also include at least one employed member. Facilities with age restrictions or residents with special needs may not have any employed household members. Eligibility to live in affordable housing can be a function of limited household income, resident age, or special needs.

Land Use Subcategory

Data are presented for three subcategories for this land use: (1) sites with income limitations for its tenants (denoted as income limits in the data plots), (2) sites with both minimum age thresholds and income limitations for its tenants (denoted as senior in the data plots), and (3) sites designed for and occupied by residents with special needs, such as persons with physical and mental impairments, single mothers, recovering addicts and others living in a group setting (denoted as special needs in the data plots).

Additional Data

For most study sites contained in this land use, all dwelling units in the development are classified as affordable units. For residential study sites that provide a mix of market value and affordable units, the study sites with at least 75 percent of the dwelling units designated as affordable are also included in this land use database.

It is expected that the number of bedrooms and number of residents are likely correlated to the trips generated by a residential site. To assist in future analysis, trip generation studies of all multifamily housing should attempt to obtain information on occupancy rate and on the mix of residential unit sizes (i.e., number of units by number of bedrooms at the site complex).

The sites were surveyed in the 1990s and the 2010s in California, Florida, Illinois, New Hampshire, and New Jersey.

Source Numbers

436, 501, 918, 934, 1003, 1004, 1046, 1057

Affordable Housing - Income Limits (223)

Vehicle Trip Ends vs: Dwelling Units

On a: Weekday,

Peak Hour of Adjacent Street Traffic,

One Hour Between 7 and 9 a.m.

Setting/Location: General Urban/Suburban

Number of Studies: 6

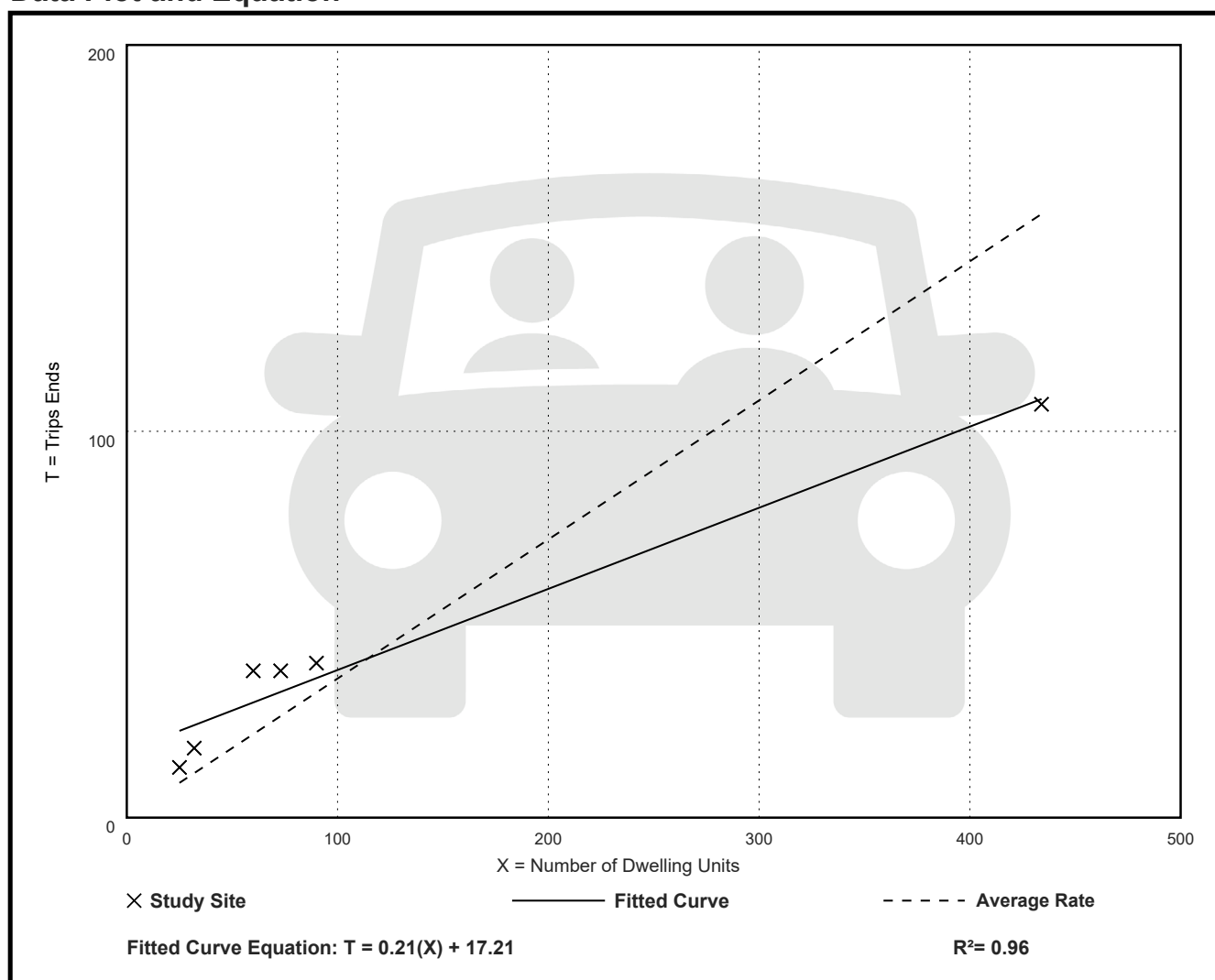
Avg. Num. of Dwelling Units: 119

Directional Distribution: 29% entering, 71% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.36	0.25 - 0.63	0.16

Data Plot and Equation



Affordable Housing - Income Limits (223)

Vehicle Trip Ends vs: Dwelling Units

On a: Weekday,

Peak Hour of Adjacent Street Traffic,

One Hour Between 4 and 6 p.m.

Setting/Location: General Urban/Suburban

Number of Studies: 8

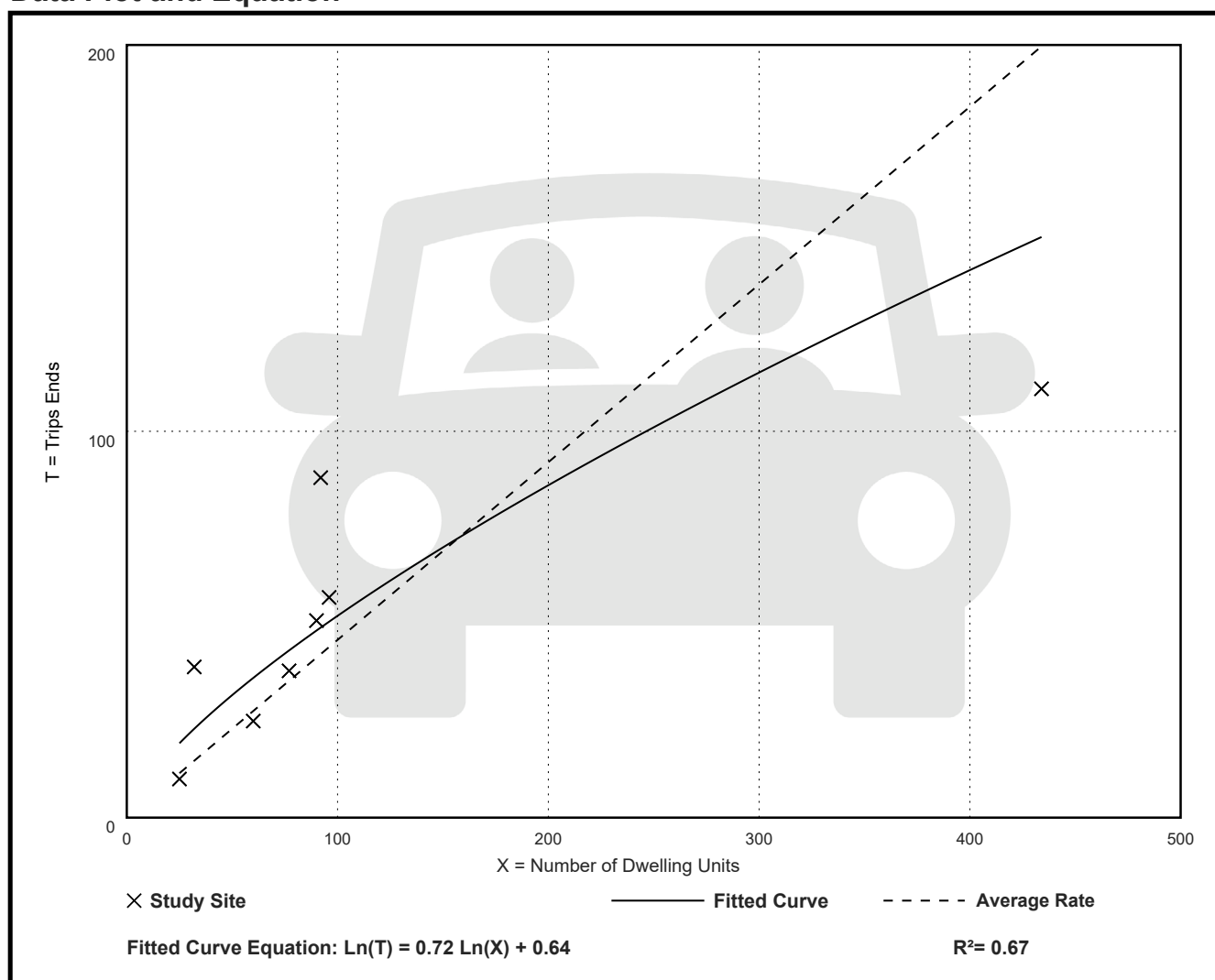
Avg. Num. of Dwelling Units: 113

Directional Distribution: 59% entering, 41% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.46	0.26 - 1.22	0.28

Data Plot and Equation



Land Use: 620

Nursing Home

Description

A nursing home is a facility whose primary function is to provide care for persons who are unable to care for themselves. Examples include rest homes, chronic care homes, and convalescent homes. Skilled nurses and nursing aides are present 24 hours a day at these sites. Residents often require treatment from a registered healthcare professional for ongoing medical issues. Nursing home residents are not capable of operating vehicles. Traffic is entirely generated by employees, visitors, and deliveries. Assisted living (Land Use 254) and continuing care retirement community (Land Use 255) are related uses.

Additional Data

The sites were surveyed in the 1990s, the 2000s, and the 2010s in Alberta (CAN), Florida, New Hampshire, New Jersey, New York, and Texas.

Source Numbers

436, 502, 598, 734, 878, 971, 972

Nursing Home (620)

Vehicle Trip Ends vs: Beds

On a: Weekday,

Peak Hour of Adjacent Street Traffic,

One Hour Between 7 and 9 a.m.

Setting/Location: General Urban/Suburban

Number of Studies: 3

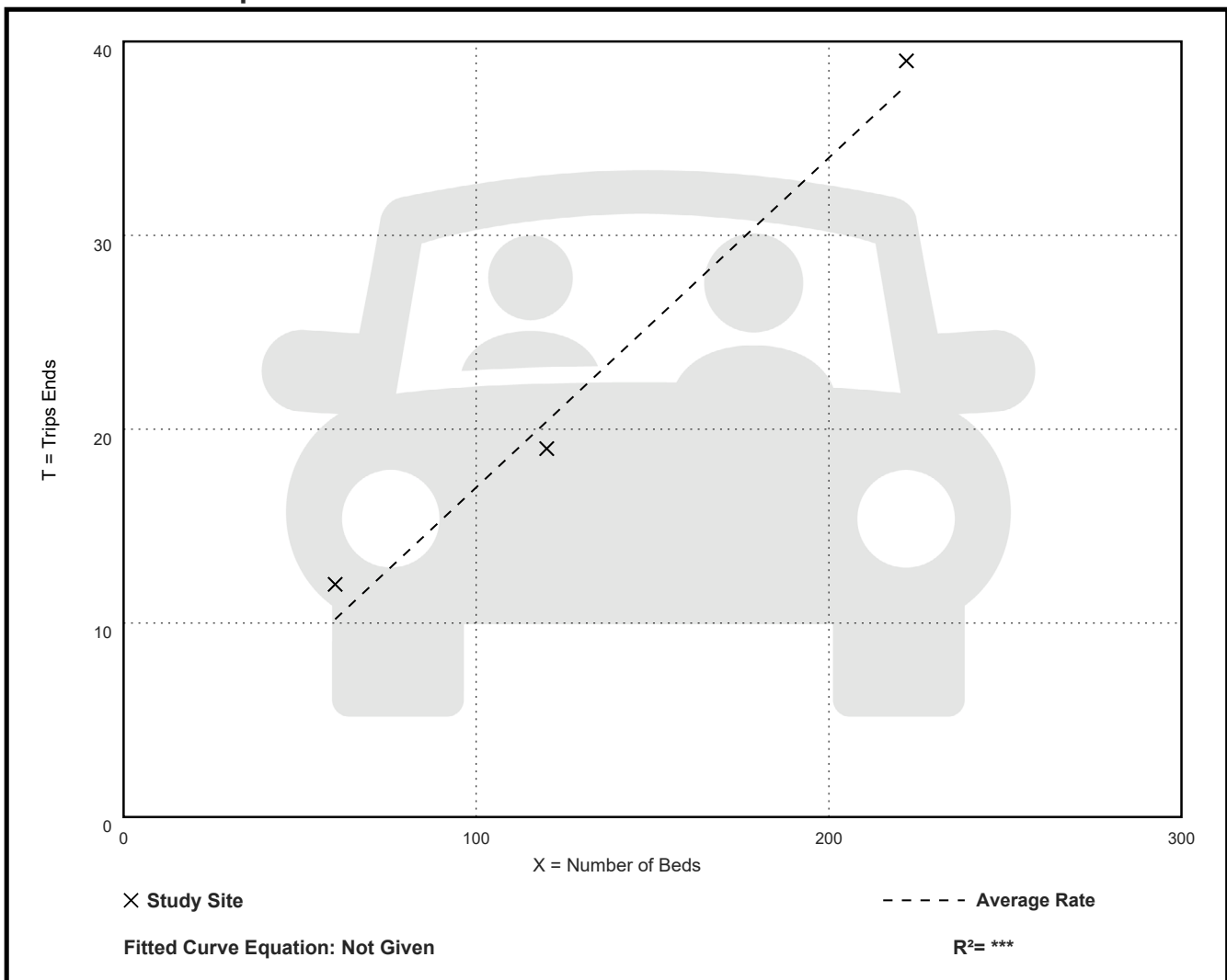
Avg. Num. of Beds: 134

Directional Distribution: 72% entering, 28% exiting

Vehicle Trip Generation per Bed

Average Rate	Range of Rates	Standard Deviation
0.17	0.16 - 0.20	0.02

Data Plot and Equation



Nursing Home (620)

Vehicle Trip Ends vs: Beds

On a: Weekday,

Peak Hour of Adjacent Street Traffic,

One Hour Between 4 and 6 p.m.

Setting/Location: General Urban/Suburban

Number of Studies: 3

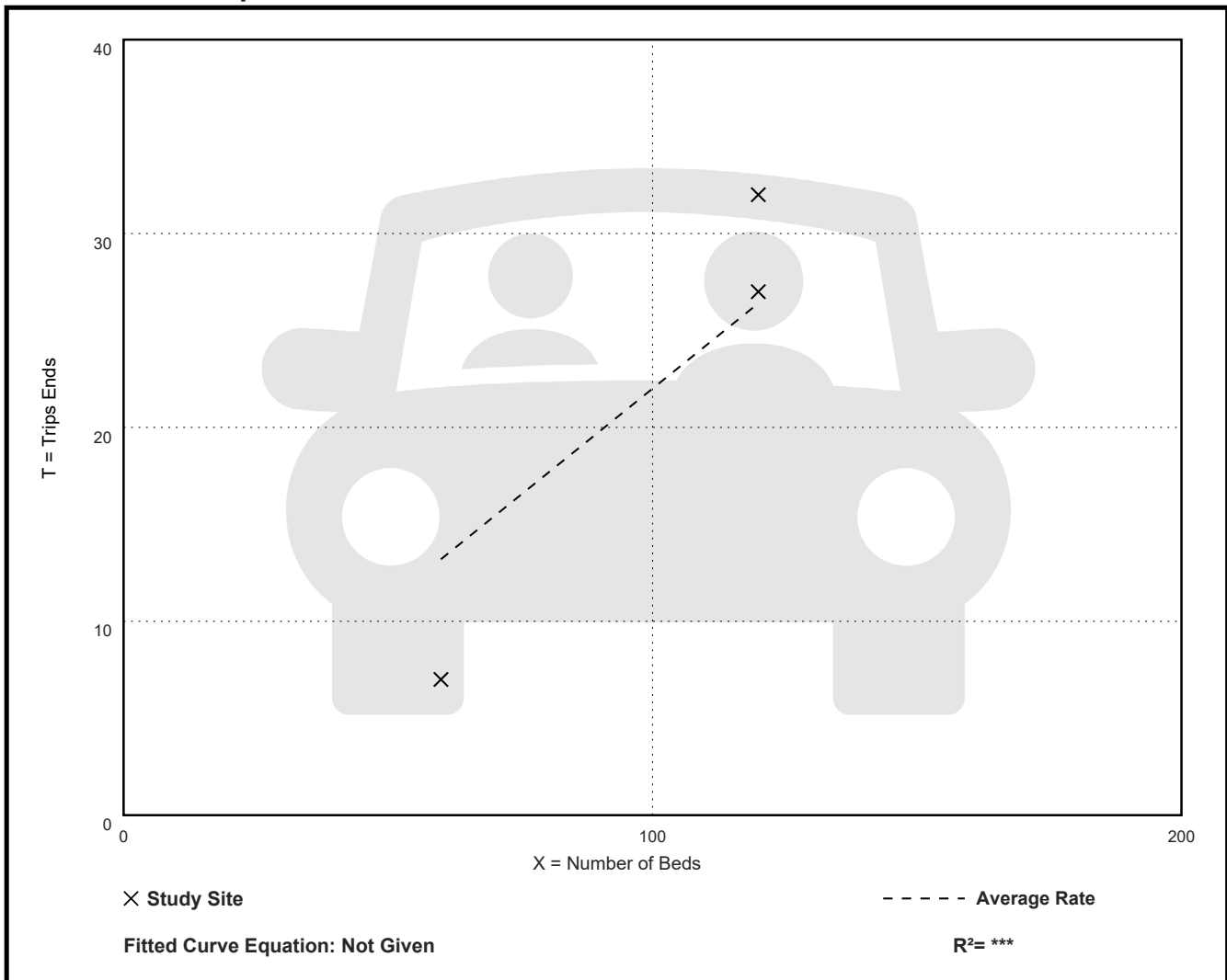
Avg. Num. of Beds: 100

Directional Distribution: 33% entering, 67% exiting

Vehicle Trip Generation per Bed

Average Rate	Range of Rates	Standard Deviation
0.22	0.12 - 0.27	0.07

Data Plot and Equation



APPENDIX G

Signal Warrant Sheets



TRAFFIC SIGNAL WARRANTS - JUSTIFICATION 7 (PROJECTED VOLUMES) PER OTM BOOK 12

Project and Scenario Summary

Project	Home Farm Rentals	Project Number	0721-3464
Horizon	2040	Date	2026-06-24
		Analyst	KH

Study Intersection Summary

Major Street	Grey Road 19	Direction	North/South
Minor Street	Birches Blvd./ Street B	Direction	East/West

Intersection Details for Warrant Parameters

Flow Conditions	Restricted Flow (Urban)	Number of Lanes	1
T-Intersection?	No	Intersection Type	New

Notes: Free Flow (Rural) is used when the operating speed is greater than or equal to 70km/h. Restricted Flow (Urban) is used otherwise.
The Number of Lanes greater than 1 only needs to be for one direction along the major road.
An intersection is considered New if at least 1-leg is added to an existing intersection.

Input Volumes and Average Hourly Volume Determination

Peak Hour	Major: Grey Road 19						Minor: Birches Blvd./ Street B						Pedestrians Crossing Major Street
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	
AM	1	190	26	26	122	5	1	0	6	38	0	56	0
PM	0	205	38	57	202	3	5	0	3	61	0	18	0
AHV	0	99	16	21	81	2	2	0	2	25	0	19	0

The AHV is determined by the availability of the peak hour estimates. If both Peak 1 and Peak 2 Peak Hour Volume estimates are available then $AHV = (Peak1phv + Peak2phv)/4$. In only the case that one estimate is available then $AHV = Peak1phv/2$ or $Peak2phv/2$.

Justification 7 - OTM Book 12

JUSTIFICATION	DESCRIPTION	MINIMUM REQUIREMENT 1 LANE HIGHWAYS		MINIMUM REQUIREMENT 2 OR MORE LANE HIGHWAYS		COMPLIANCE		
		Free Flow	Restricted Flow	Free Flow	Restricted Flow	Sectional		Entire Percentage
						Numerical	Percentage	
1. Minimum Vehicular Volume	A. Vehicle Volume, All Approaches (Avg. Hour)	480	720	600	900	267	37.1%	28.2%
	B. Vehicle Volume, Along Minor Streets (Avg. Hour)	120	170	120	170	48	28.2%	
2. Delay to Cross Traffic	A. Vehicle Volume, Major Street (Avg. Hour)	480	720	600	900	219	30.4%	30.4%
	B. Combined Vehicle and Pedestrian Volume Crossing Artery From Minor Streets (Avg. Hour)	50	75	50	75	27	36.0%	
Applicable Threshold			X					

Note: For T-intersections the thresholds for 1B have been increased by 50% per OTM Book 12.
Existing Intersections Require 120% Justification
New/Proposed Intersections Require 150% Justification

Percent Compliance: 30.4%
Percentage Required to be Undoubtedly Warranted: 200%

Signal Justification 7 Met:

☐ Yes

☐ May Be

☒ No

APPENDIX H

Left-Turn Lane Warrants

MTO DESIGN SUPPLEMENT

FOR

TAC GEOMETRIC DESIGN GUIDE (GDG) FOR CANADIAN ROADS - 2017

OCTOBER 2023

STANDARDS and CONTRACTS BRANCH
HIGHWAY DESIGN OFFICE

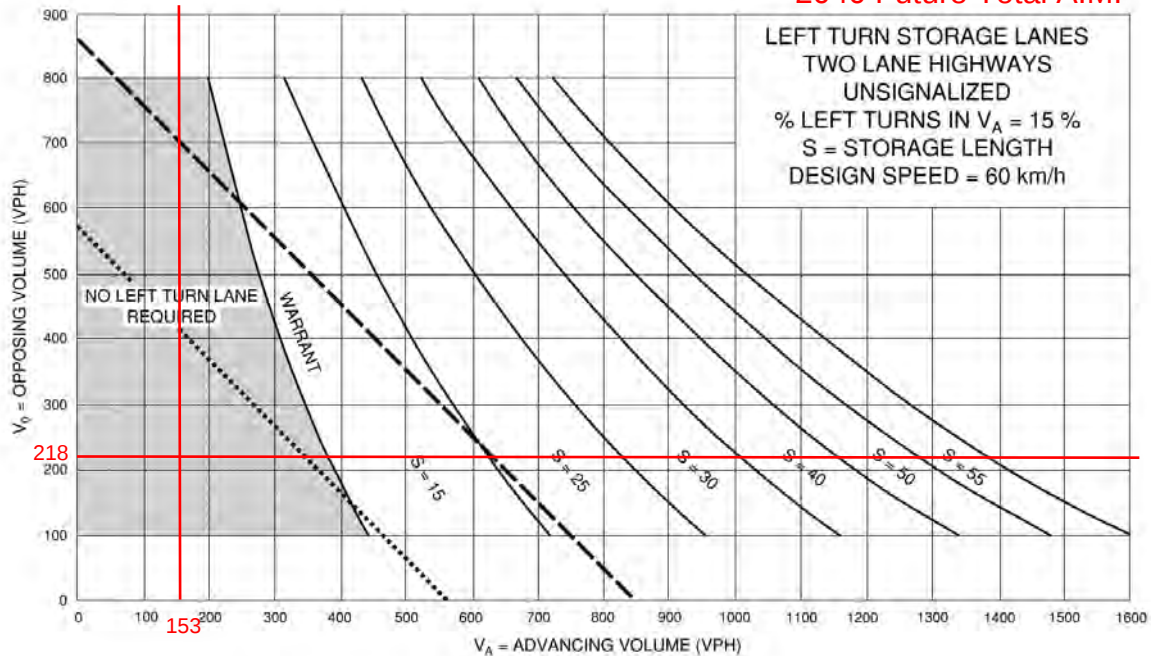
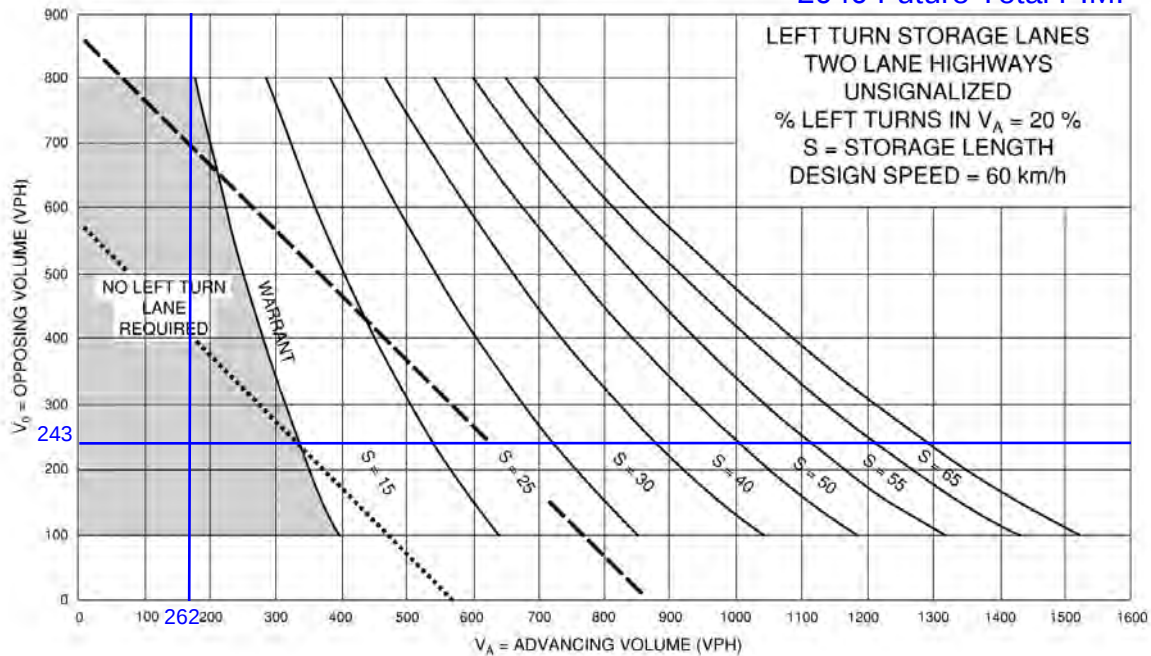
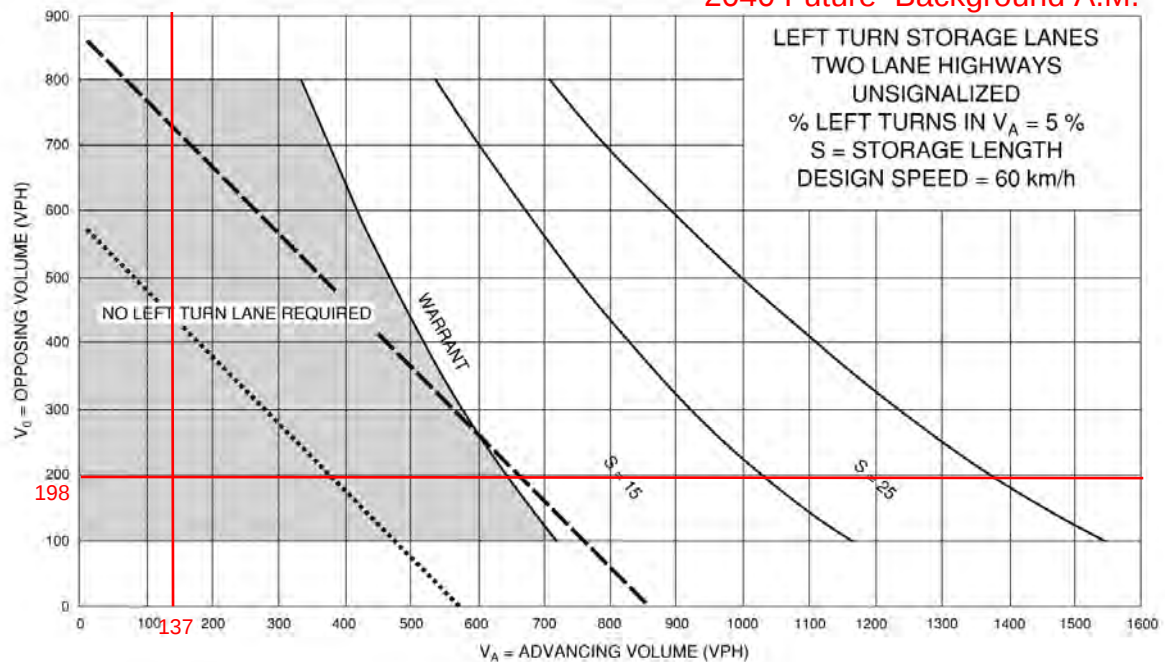
Exhibit-9A-8**2040 Future Total A.M.****2040 Future Total P.M.**

Exhibit-9A-7**2040 Future Background A.M.**

- TRAFFIC SIGNALS MAY BE WARRANTED IN RURAL AREAS OR URBAN AREAS WITH RESTRICTED FLOW
- TRAFFIC SIGNALS MAY BE WARRANTED IN "FREE FLOW" URBAN AREAS

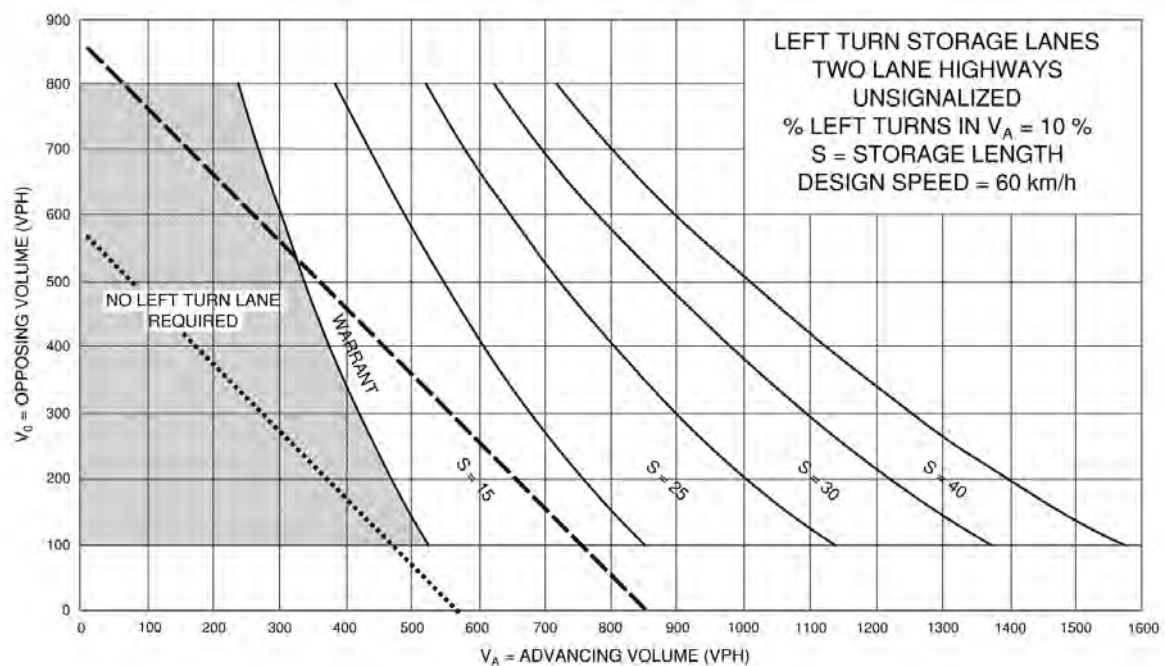
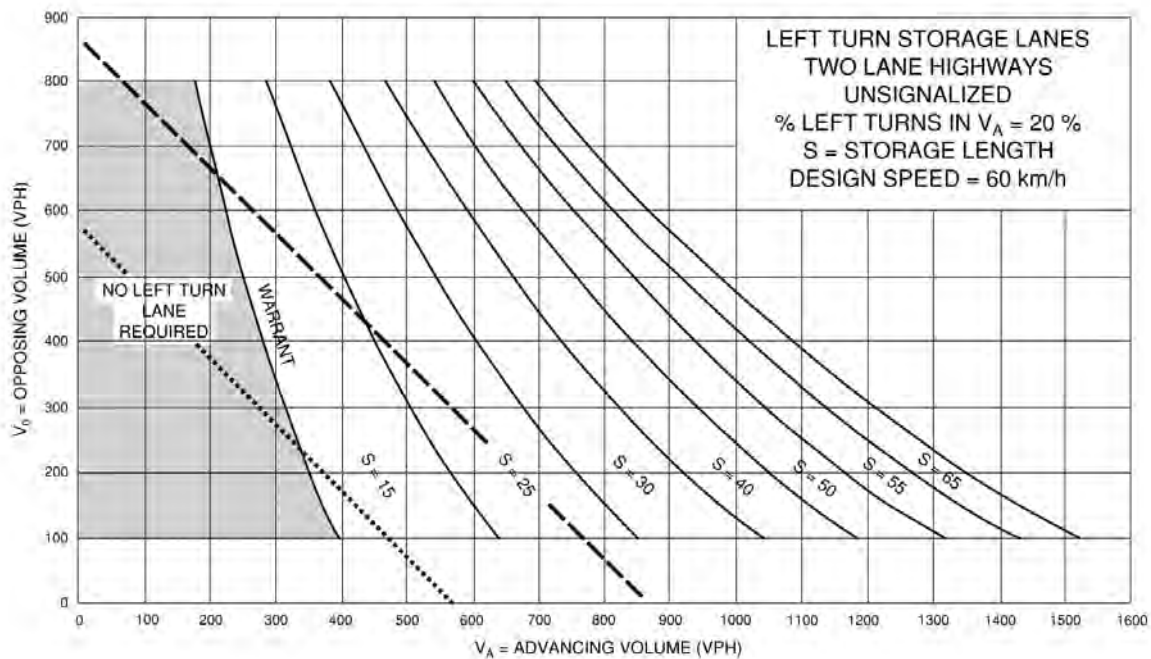
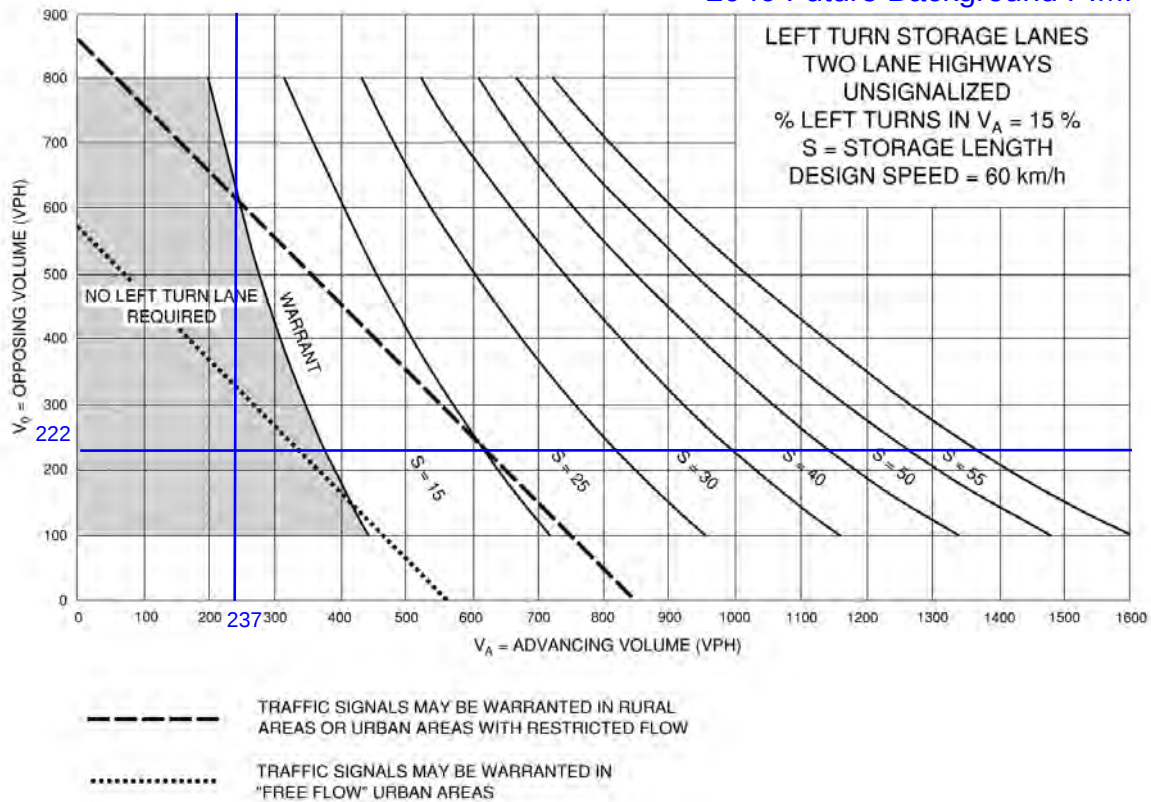


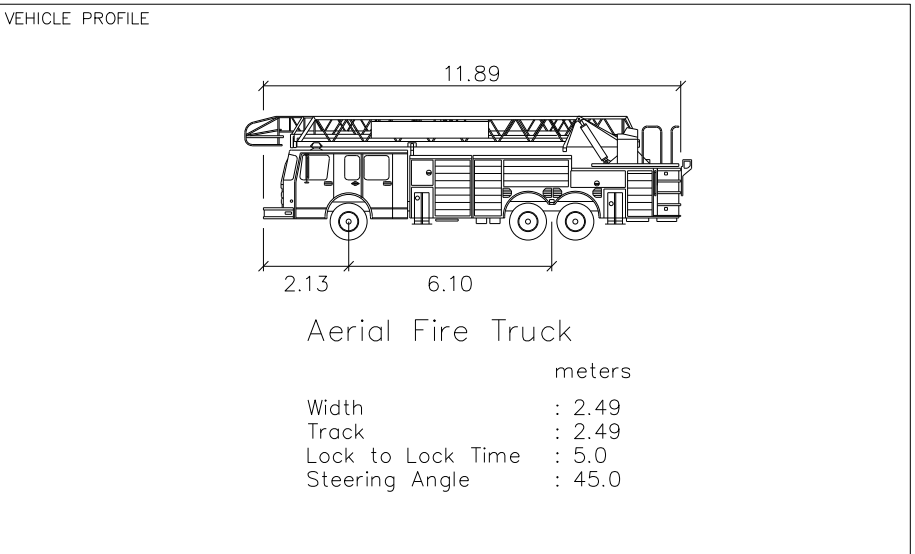
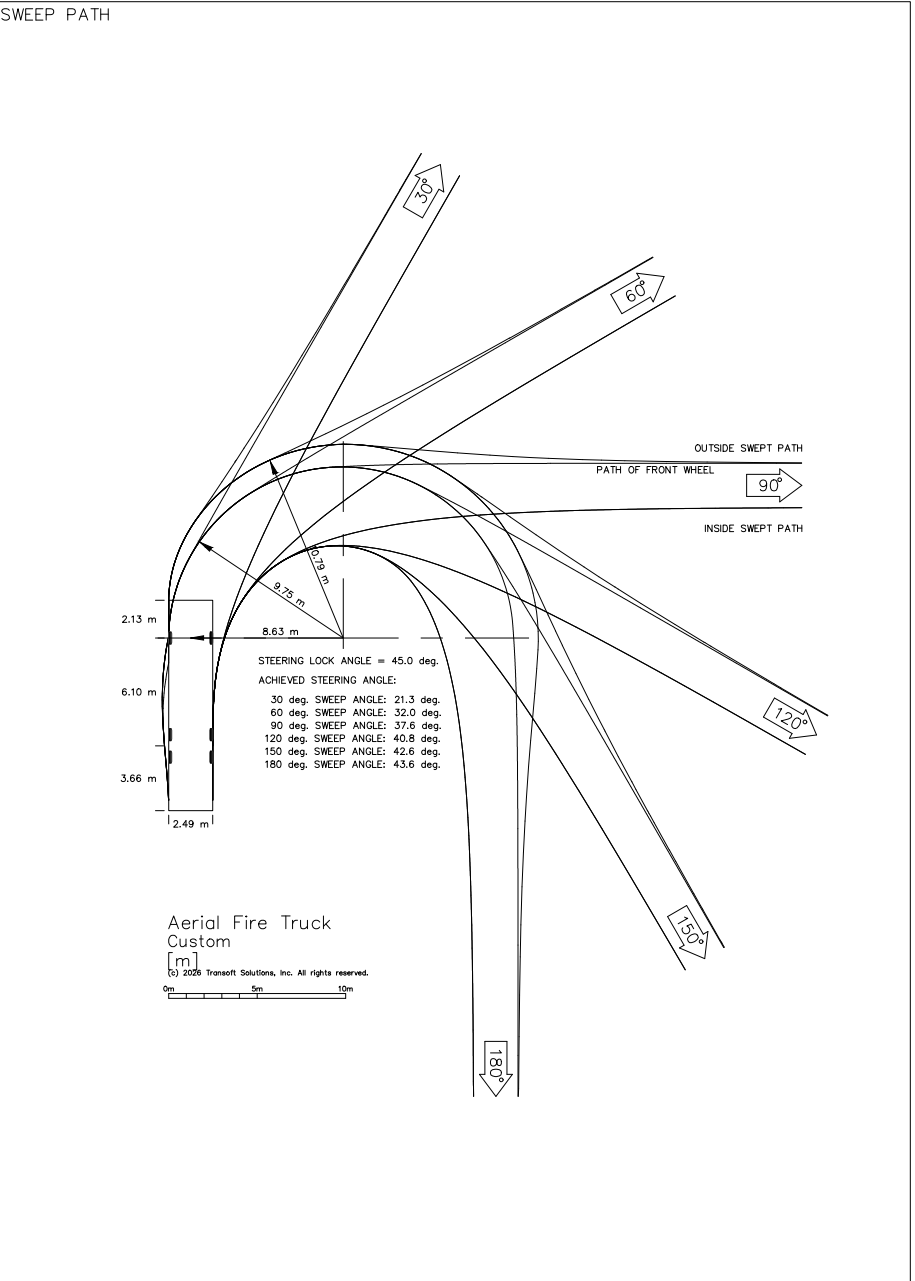
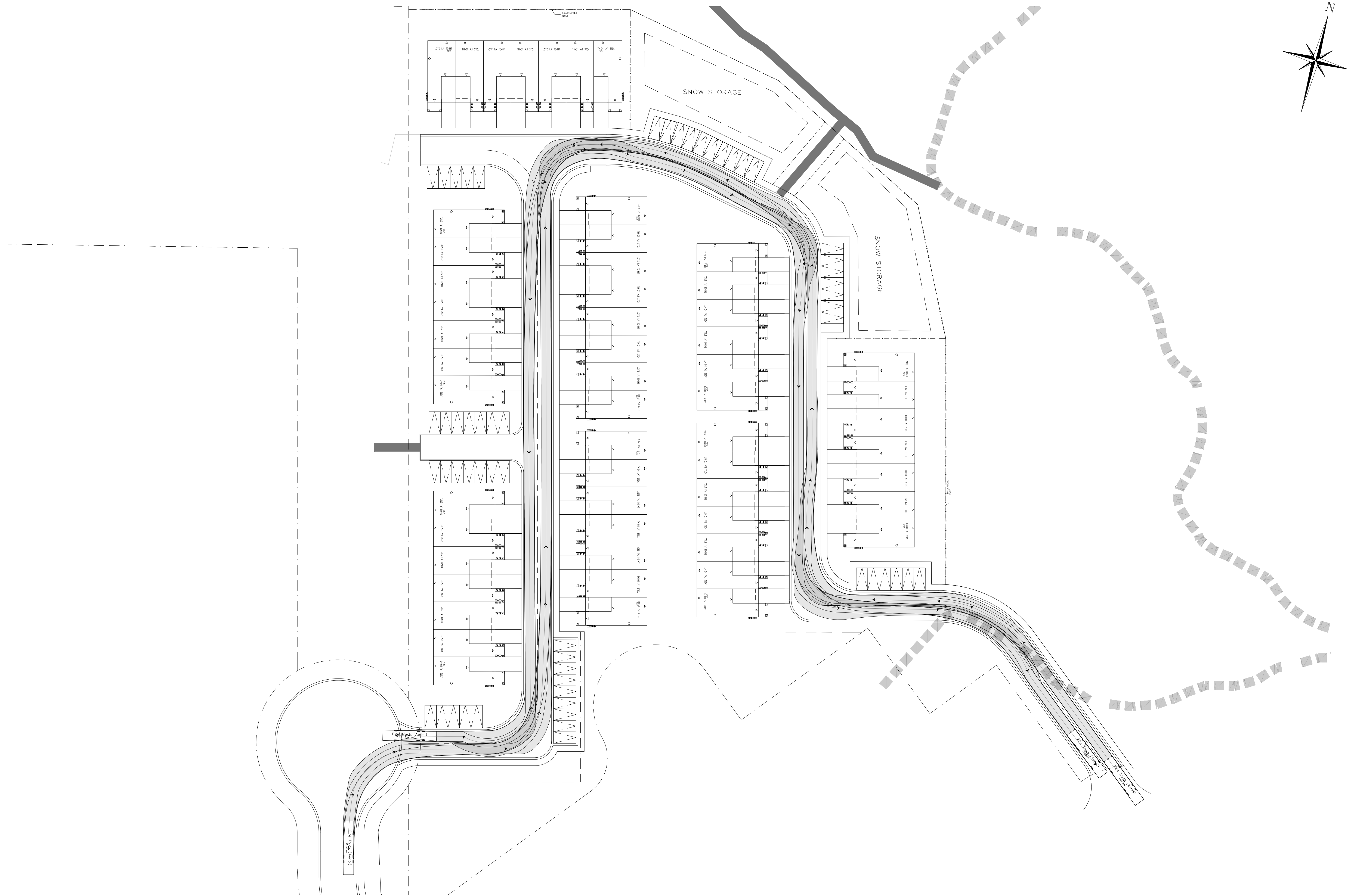
Exhibit-9A-8

2040 Future Background P.M.



APPENDIX I

Vehicle Maneuverability Diagrams



1. THIS DRAWING IS THE EXCLUSIVE PROPERTY OF C.F. CROZIER & ASSOCIATES INC. AND THE MODIFICATION AND/OR REPRODUCTION OF ANY PART OF THIS DRAWING IS STRICTLY PROHIBITED WITHOUT WRITTEN AUTHORIZATION FROM THIS OFFICE.
2. THE DIGITAL FILES CONTAIN INTELLECTUAL AND DIGITAL DATA PROPERTY THAT IS THE EXCLUSIVE PROPERTY OF C.F. CROZIER & ASSOCIATES INC. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, LEVELS, AND DATUMS ON SITE AND REPORT ANY DISCREPANCIES OR OMISSIONS TO C.F. CROZIER & ASSOCIATES INC. PRIOR TO CONSTRUCTION.
3. THIS DRAWING IS TO BE READ AND UNDERSTOOD IN CONJUNCTION WITH ALL OTHER PLANS AND DOCUMENTS APPLICABLE TO THIS PROJECT.
4. ALL EXISTING UNDERGROUND UTILITIES TO BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO CONSTRUCTION.
5. DO NOT SCALE DRAWINGS.

Town

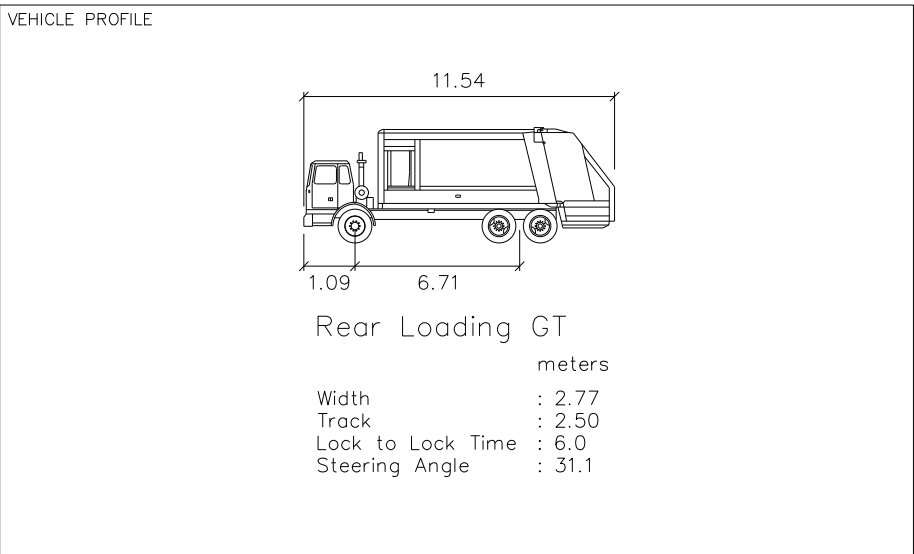
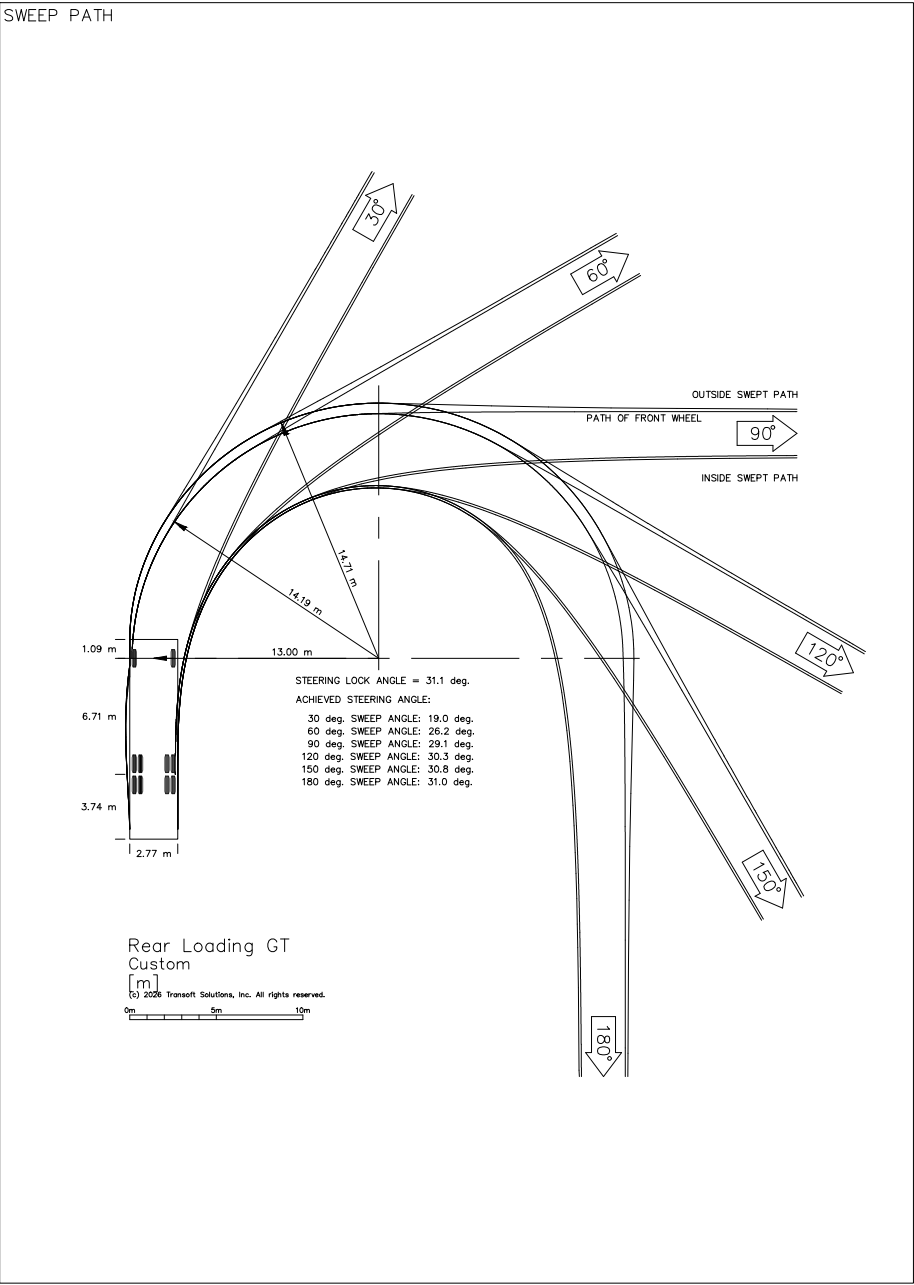
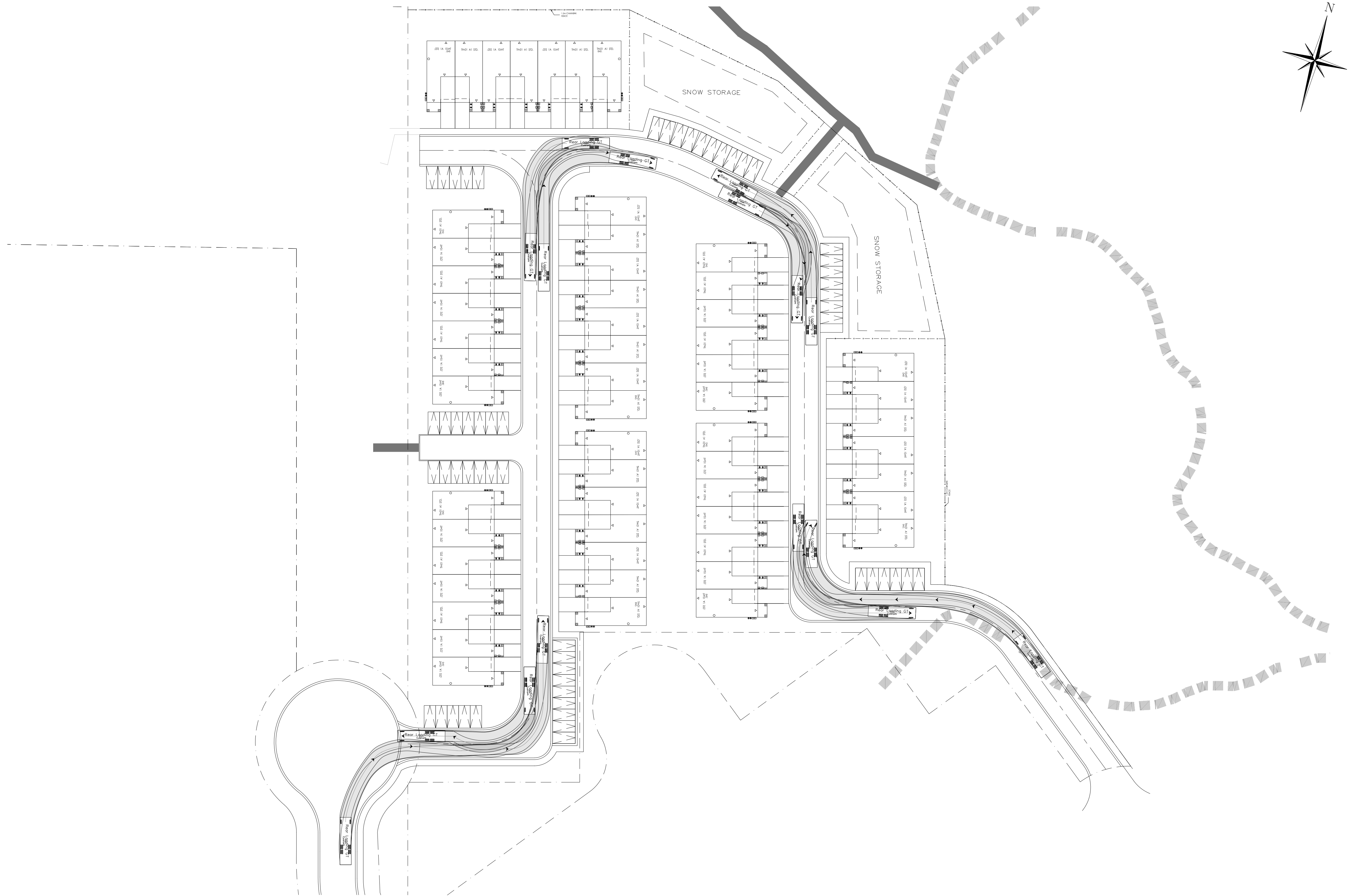
No.	ISSUE	DATE: YYYY/MM/DD
0	ISSUED FOR REVIEW	2026/06/26

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Project	HOME FARM RENTAL DEVELOPMENT TOWN OF BLUE MOUNTAINS
Drawing	VEHICLE MANEUVERING DIAGRAM – FIRE TRUCK



Drawn By	B.R.	Design By	B.R.	Project	721-3464
Check By	K.H.	Check By	K.H.	Drawing	T100



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Town

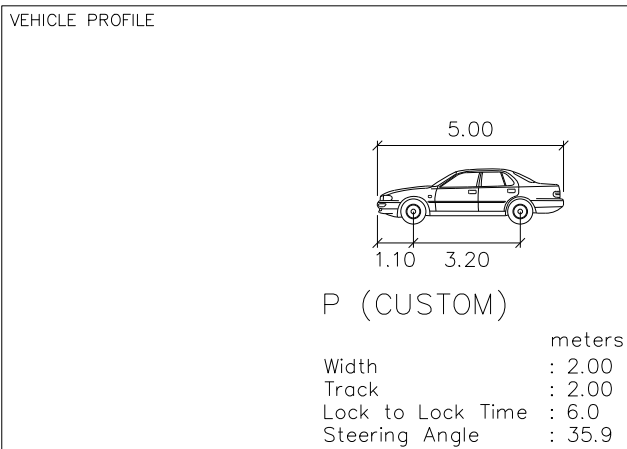
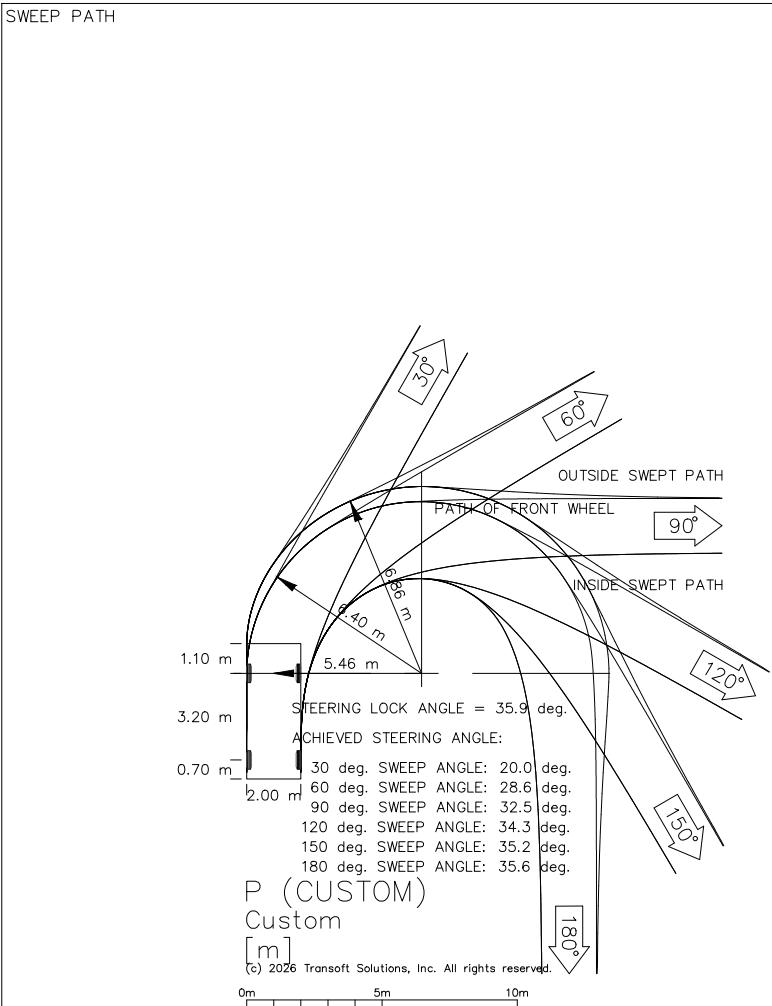
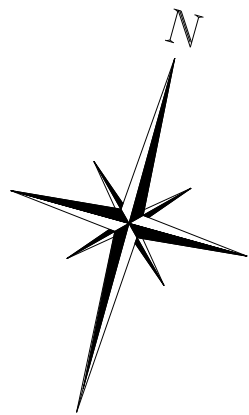
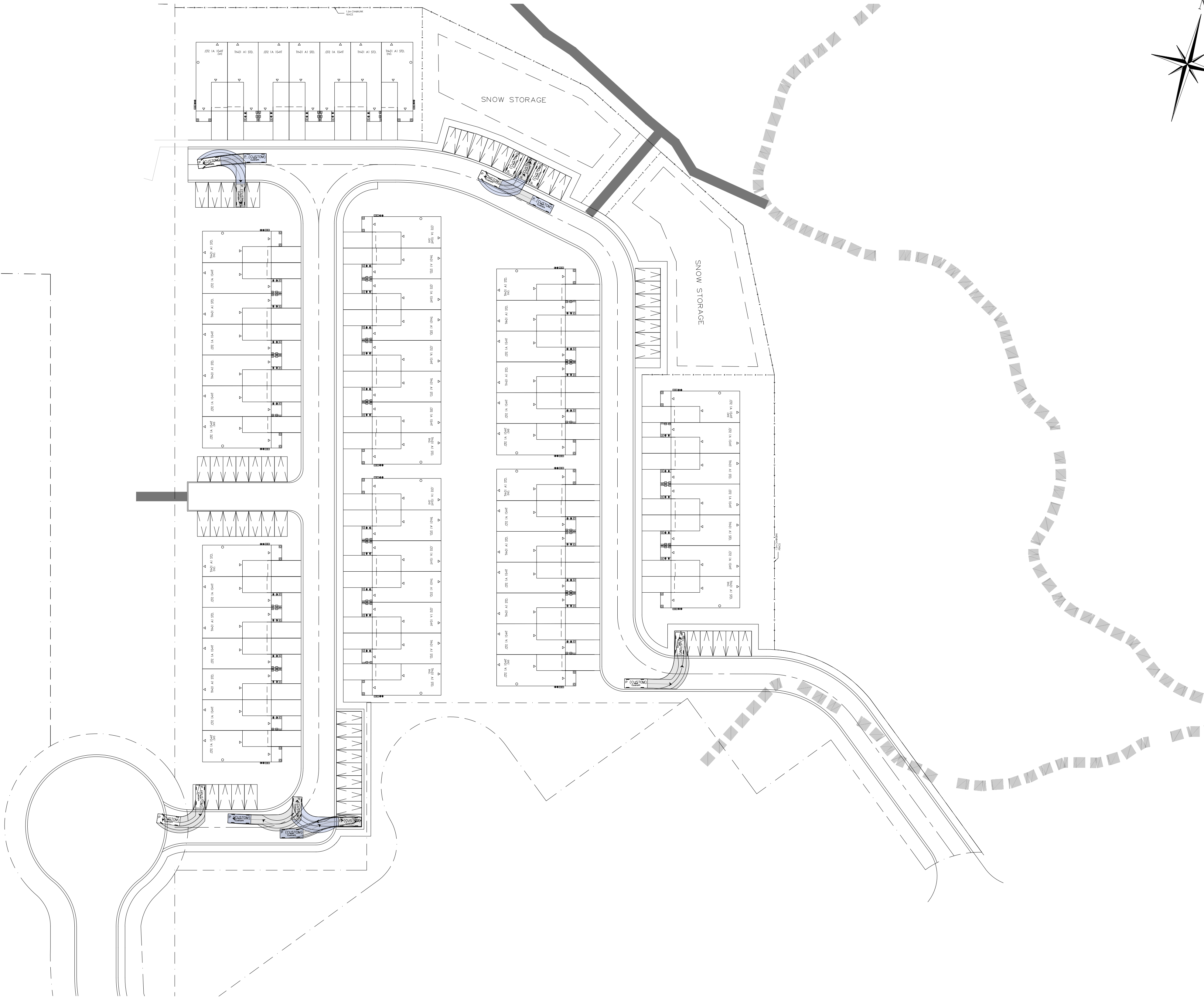
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Project
HOME FARM RENTAL DEVELOPMENT
TOWN OF BLUE MOUNTAINS
Drawing
VEHICLE MANEUVERING DIAGRAM –
GARBAGE TRUCK



Drawn By	B.R.	Design By	B.R.	Project	721-3464
Check By	K.H.	Check By	K.H.	Drawing	T101



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Town

No. ISSUE

DATE: YYYY/MM/DD

Engineer

Engineer

Project

HOME FARM RENTAL DEVELOPMENT
TOWN OF BLUE MOUNTAINS

Drawing

VEHICLE MANEUVERING DIAGRAM –
PASSENGER CAR



Drawn By	Design By	Project
B.R.	B.R.	721-3464
Check By	Drawing	
K.H.	K.H.	T103