

APPENDICES

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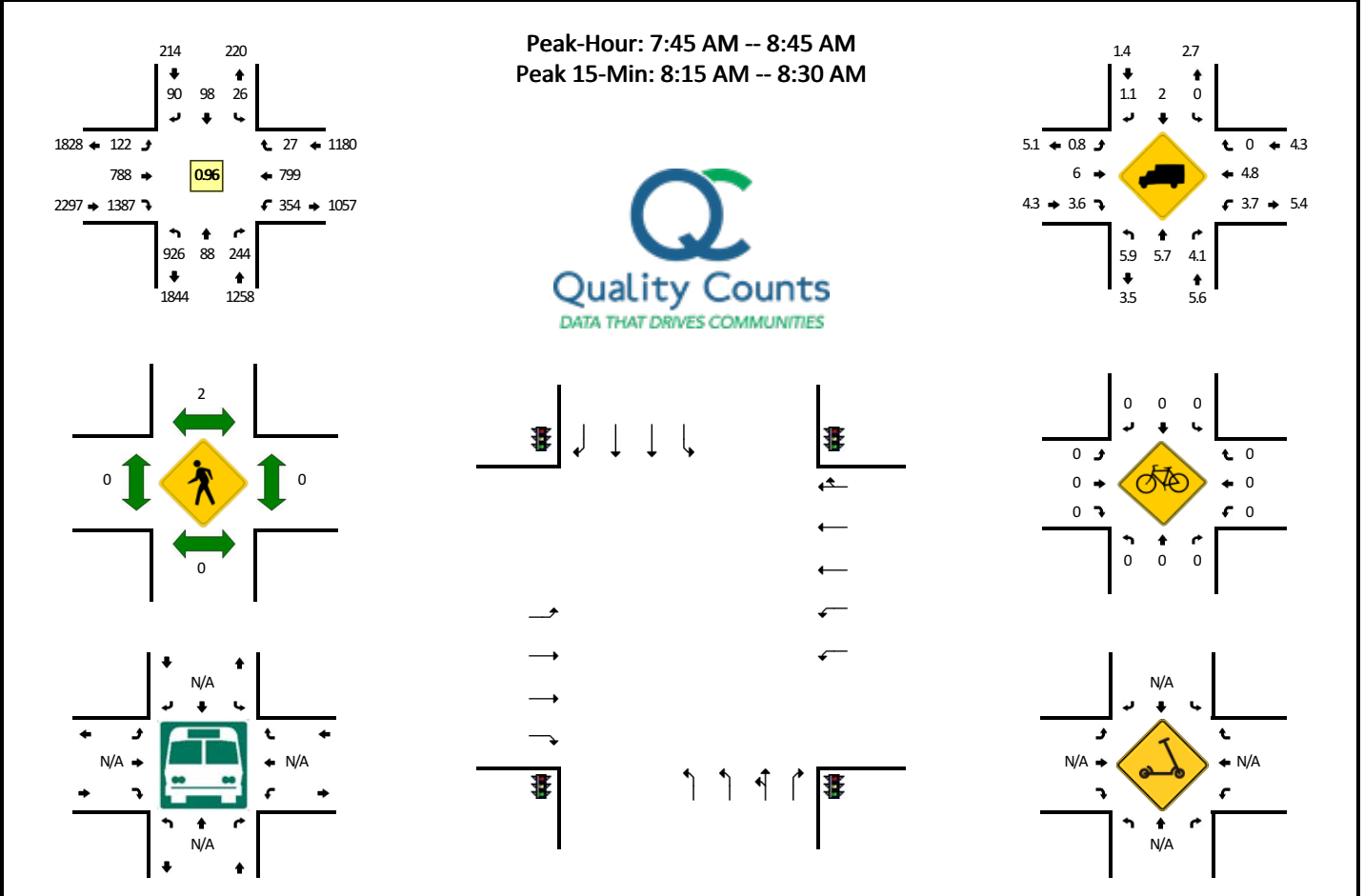
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Appendix A: Existing Intersection Counts

LOCATION: Touchstone Cir/Prince William Pkwy -- Prince William Pkwy/Old Bridge Rd
CITY/STATE: Woodbridge, VA

QC JOB #: 15745501
DATE: Thu, May 26 2022

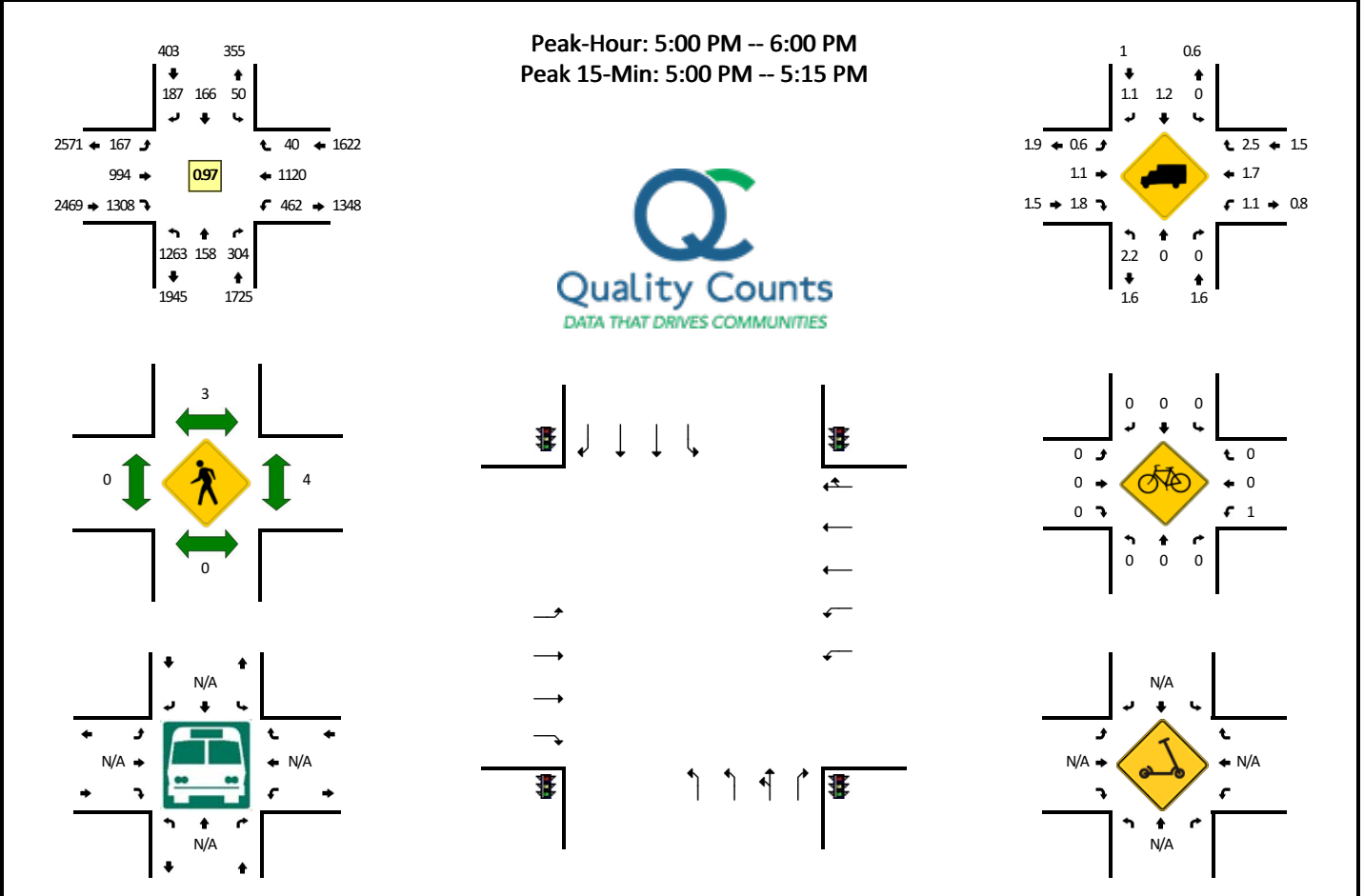


15-Min Count Period Beginning At	Touchstone Cir/Prince William Pkwy (Northbound)				Touchstone Cir/Prince William Pkwy (Southbound)				Prince William Pkwy/Old Bridge Rd (Eastbound)				Prince William Pkwy/Old Bridge Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	220	13	37	2	4	19	20	0	18	133	321	0	88	162	4	0	1041	
7:15 AM	211	16	41	1	6	23	24	0	11	130	368	8	76	145	7	0	1067	
7:30 AM	200	23	33	0	6	24	22	0	19	200	351	4	105	215	3	0	1205	
7:45 AM	216	21	64	2	8	33	21	0	30	178	367	4	114	212	6	0	1276	4589
8:00 AM	214	24	57	1	6	24	25	1	19	182	324	4	71	172	6	0	1130	4678
8:15 AM	236	21	57	2	5	24	19	0	28	224	333	6	92	234	6	0	1287	4898
8:30 AM	255	22	66	0	6	17	25	0	27	204	363	4	77	181	9	0	1256	4949
8:45 AM	180	20	41	4	14	29	17	0	15	210	326	7	105	220	12	0	1200	4873
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	944	84	228	8	20	96	76	0	112	896	1332	24	368	936	24	0	5148	
Heavy Trucks	76	0	8		0	4	0		4	44	40		12	60	0		248	
Buses																		
Pedestrians		0				4				0				0			4	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

Comments:

LOCATION: Touchstone Cir/Prince William Pkwy -- Prince William Pkwy/Old Bridge Rd
CITY/STATE: Woodbridge, VA

QC JOB #: 15745502
DATE: Thu, May 26 2022

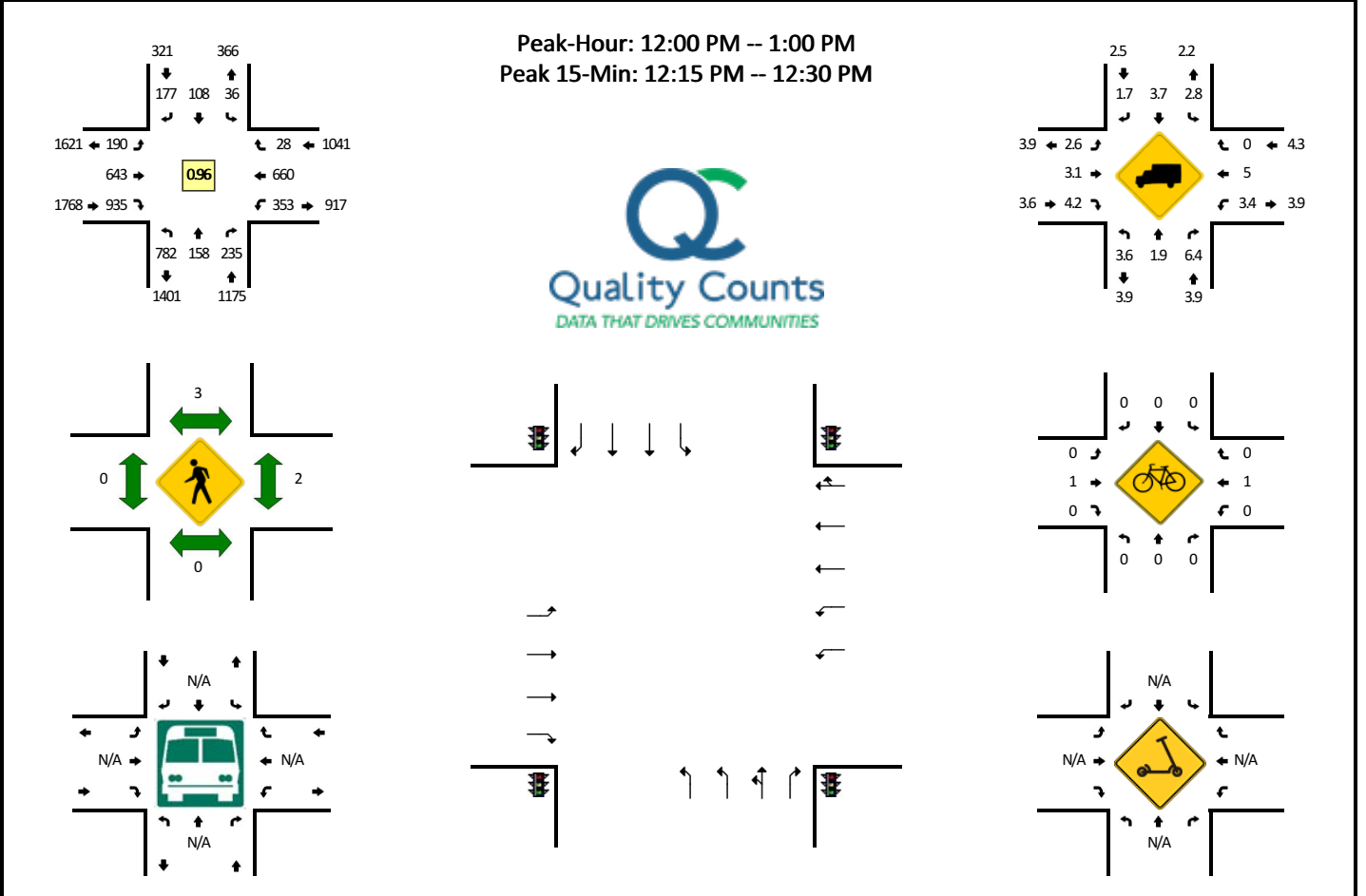


15-Min Count Period Beginning At	Touchstone Cir/Prince William Pkwy (Northbound)				Touchstone Cir/Prince William Pkwy (Southbound)				Prince William Pkwy/Old Bridge Rd (Eastbound)				Prince William Pkwy/Old Bridge Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:30 PM	255	43	81	4	12	33	43	0	39	274	341	3	98	309	13	1	1549	
4:45 PM	339	33	90	4	6	28	38	0	43	228	324	3	113	261	7	1	1518	
5:00 PM	304	24	74	4	19	38	38	1	35	277	346	4	106	325	9	1	1605	
5:15 PM	339	44	80	3	7	30	61	0	45	229	315	3	120	251	7	1	1535	6207
5:30 PM	285	36	70	3	12	57	40	0	33	257	337	3	109	300	15	0	1557	6215
5:45 PM	324	54	80	1	10	41	48	1	42	231	310	2	125	244	9	0	1522	6219
6:00 PM	241	35	63	3	12	60	46	0	31	295	321	1	105	298	11	0	1522	6136
6:15 PM	323	50	84	9	13	44	44	1	44	211	299	1	113	223	7	0	1466	6067
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	1216	96	296	16	76	152	152	4	140	1108	1384	16	424	1300	36	4	6420	
Heavy Trucks	32	0	0		0	0	0		4	12	16		8	32	0		104	
Buses																		
Pedestrians	0	0	0		0	0	0		0	0	0		0	0	0		0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

Comments:

LOCATION: Touchstone Cir/Prince William Pkwy -- Prince William Pkwy/Old Bridge Rd
CITY/STATE: Woodbridge, VA

QC JOB #: 15745503
DATE: Thu, May 26 2022

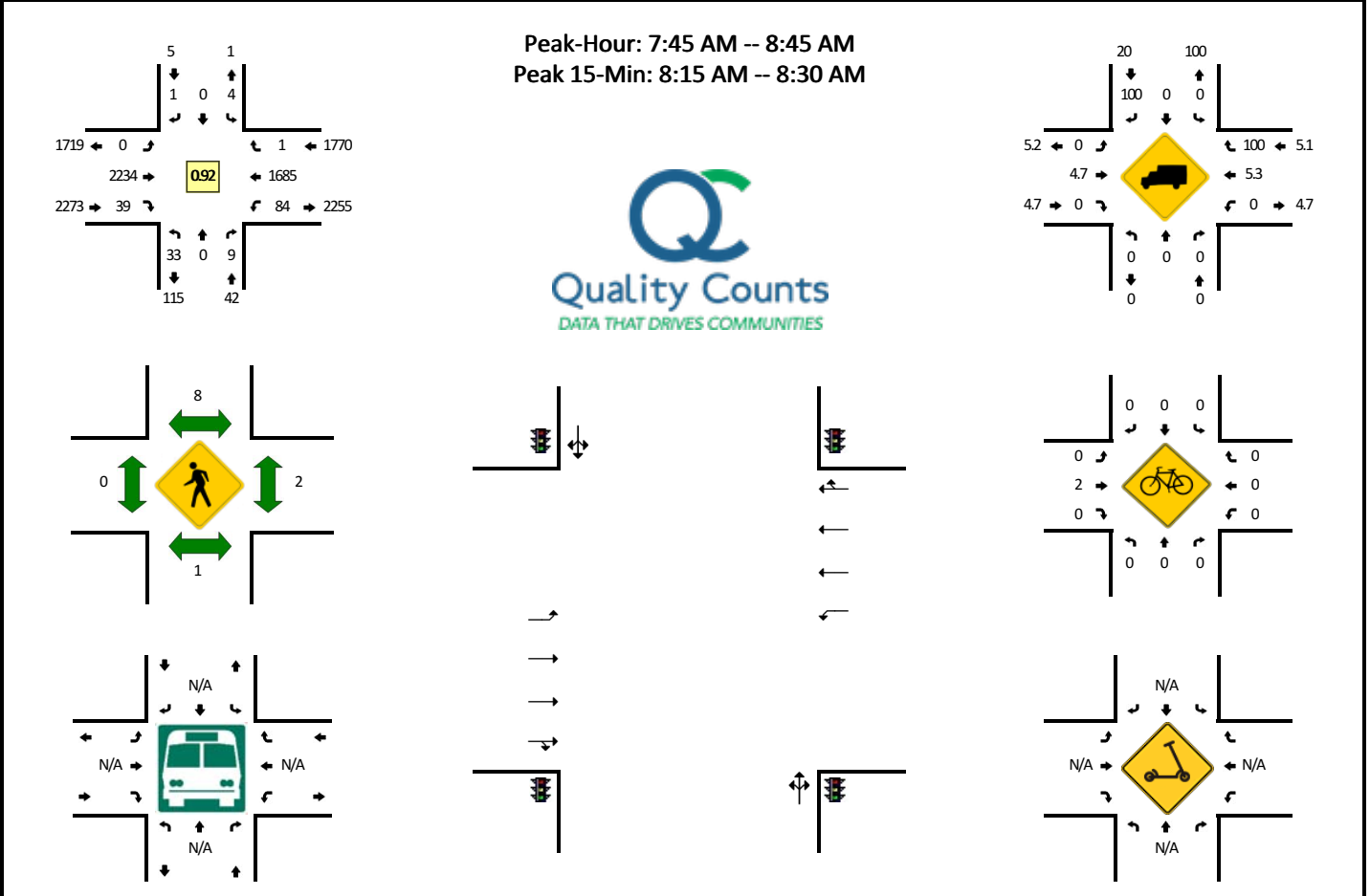


15-Min Count Period Beginning At	Touchstone Cir/Prince William Pkwy (Northbound)				Touchstone Cir/Prince William Pkwy (Southbound)				Prince William Pkwy/Old Bridge Rd (Eastbound)				Prince William Pkwy/Old Bridge Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
11:00 AM	152	18	52	1	3	19	23	0	25	146	238	4	71	145	7	1	905	
11:15 AM	157	26	56	4	7	25	25	1	25	149	217	2	76	120	7	0	897	
11:30 AM	185	29	31	6	10	28	30	0	33	134	223	2	85	138	10	0	944	
11:45 AM	173	23	48	2	10	21	34	0	40	164	233	1	82	171	8	0	1010	3756
12:00 PM	217	37	66	2	4	29	33	0	42	133	237	3	84	150	7	1	1045	3896
12:15 PM	193	34	52	2	13	22	44	0	41	192	243	1	100	181	6	2	1126	4125
12:30 PM	168	46	61	3	8	27	38	0	48	154	247	2	79	149	8	0	1038	4219
12:45 PM	196	41	56	1	11	30	62	0	49	164	208	4	87	180	7	0	1096	4305
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	772	136	208	8	52	88	176	0	164	768	972	4	400	724	24	8	4504	
Heavy Trucks	24	4	8		0	4	0		0	36	32		8	20	0		136	
Buses																		
Pedestrians	0	0	0		0	0			0	0			0	0	0		0	
Bicycles	0	0	0		0	0	0		0	4	0		0	0	0		4	
Scooters																		

Comments:

LOCATION: Laurel Hills Dr -- Prince William Pkwy
CITY/STATE: Woodbridge, VA

QC JOB #: 15745504
DATE: Thu, May 26 2022

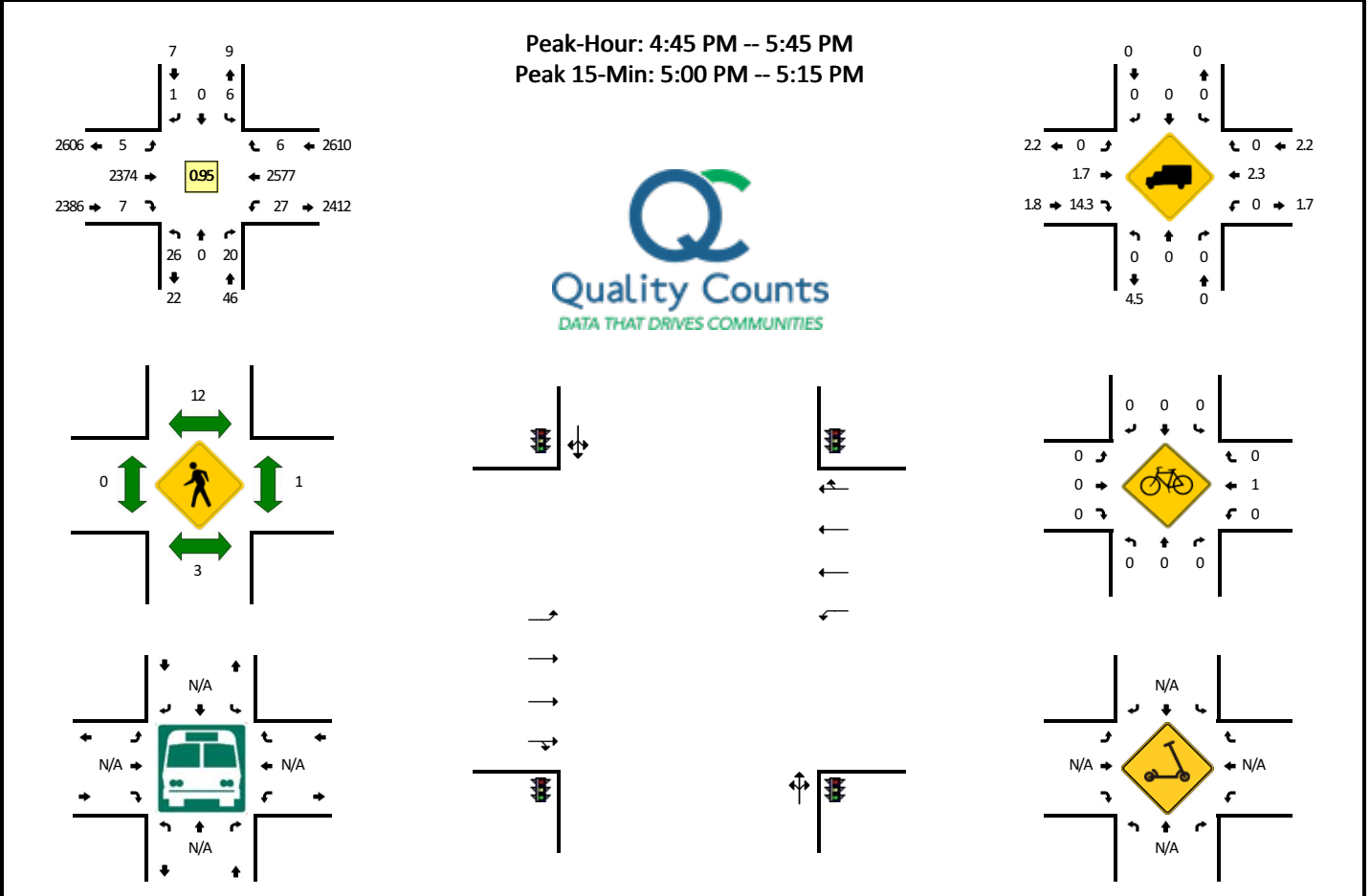


15-Min Count Period Beginning At	Laurel Hills Dr (Northbound)				Laurel Hills Dr (Southbound)				Prince William Pkwy (Eastbound)				Prince William Pkwy (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	2	0	0	0	0	0	0	491	12	0	5	371	0	1	882	
7:15 AM	1	0	1	0	1	0	0	0	0	520	13	0	15	367	0	1	919	
7:30 AM	0	0	0	0	4	0	0	0	0	554	10	1	11	431	1	1	1013	
7:45 AM	4	0	2	0	1	0	0	0	0	576	11	0	12	421	0	2	1029	3843
8:00 AM	9	0	0	0	0	0	1	0	0	483	10	0	15	370	1	1	890	3851
8:15 AM	12	0	2	0	2	0	0	0	0	603	11	0	20	456	0	3	1109	4041
8:30 AM	8	0	5	0	1	0	0	0	0	572	7	0	29	438	0	2	1062	4090
8:45 AM	2	0	0	0	3	0	0	0	1	520	12	1	6	387	0	8	940	4001
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	48	0	8	0	8	0	0	0	0	2412	44	0	80	1824	0	12	4436	
Heavy Trucks	0	0	0		0	0	0		0	112	0		0	132	0		244	
Buses																		
Pedestrians		0				4				0				0			4	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

Comments:

LOCATION: Laurel Hills Dr -- Prince William Pkwy
CITY/STATE: Woodbridge, VA

QC JOB #: 15745505
DATE: Thu, May 26 2022

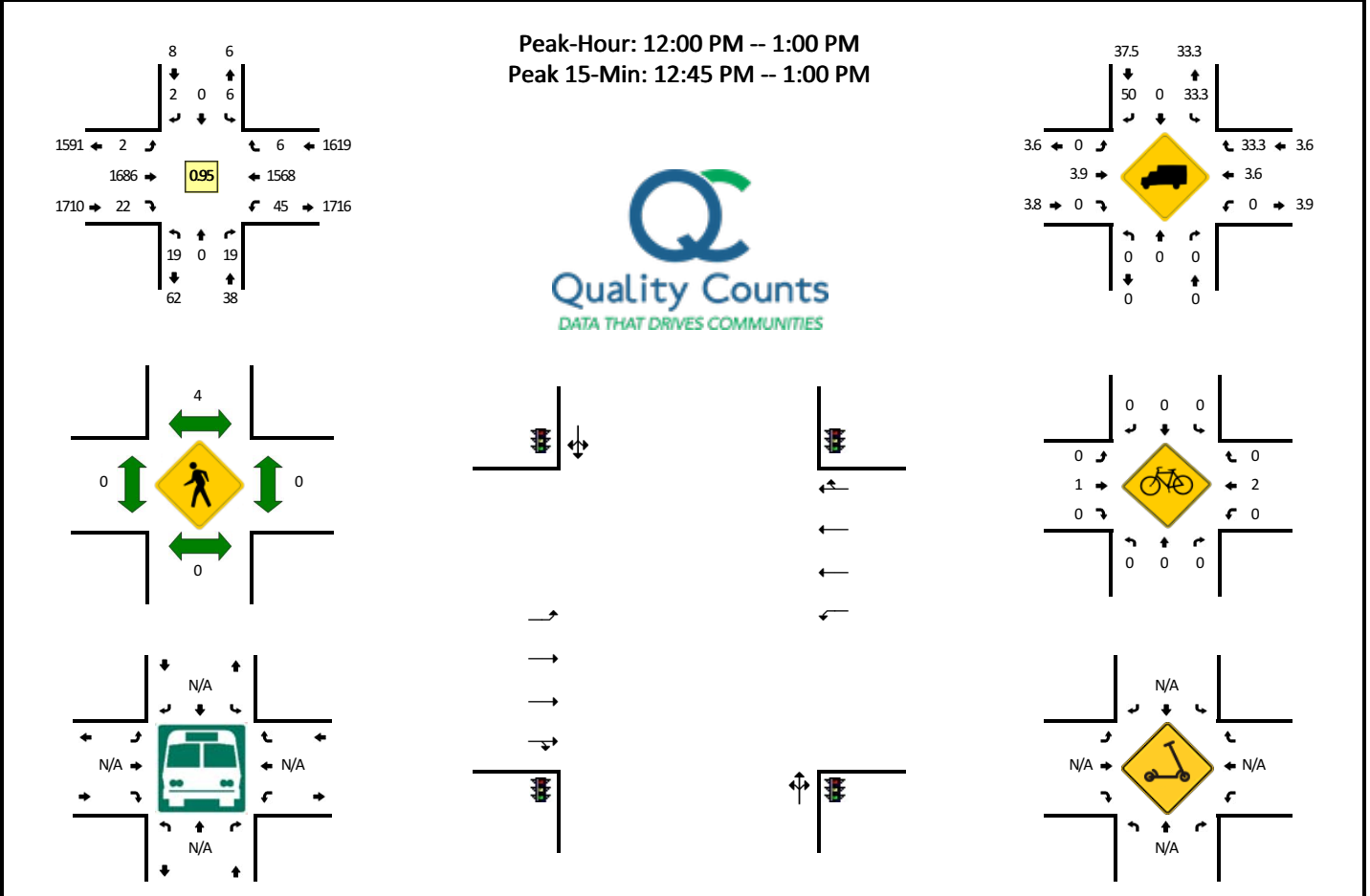


15-Min Count Period Beginning At	Laurel Hills Dr (Northbound)				Laurel Hills Dr (Southbound)				Prince William Pkwy (Eastbound)				Prince William Pkwy (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:30 PM	8	0	2	0	0	0	1	0	0	573	4	0	9	608	0	1	1206	
4:45 PM	8	0	5	0	1	0	0	0	1	593	2	0	5	633	2	4	1254	
5:00 PM	3	0	3	0	0	0	0	0	0	649	2	0	4	669	1	2	1333	
5:15 PM	8	0	7	0	2	0	1	0	1	556	0	1	3	647	2	5	1233	5026
5:30 PM	7	0	5	0	3	0	0	0	1	576	3	1	3	628	1	1	1229	5049
5:45 PM	4	0	8	0	3	0	0	0	0	606	2	0	3	619	1	2	1248	5043
6:00 PM	5	0	2	0	2	0	0	0	1	596	2	0	1	575	3	2	1189	4899
6:15 PM	2	0	2	0	0	0	1	0	0	554	1	2	2	594	1	2	1161	4827
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	12	0	12	0	0	0	0	0	0	2596	8	0	16	2676	4	8	5332	
Heavy Trucks	0	0	0		0	0	0		0	40	0		0	64	0		104	
Buses																		
Pedestrians		4				16				0				0			20	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

Comments:

LOCATION: Laurel Hills Dr -- Prince William Pkwy
CITY/STATE: Woodbridge, VA

QC JOB #: 15745506
DATE: Thu, May 26 2022



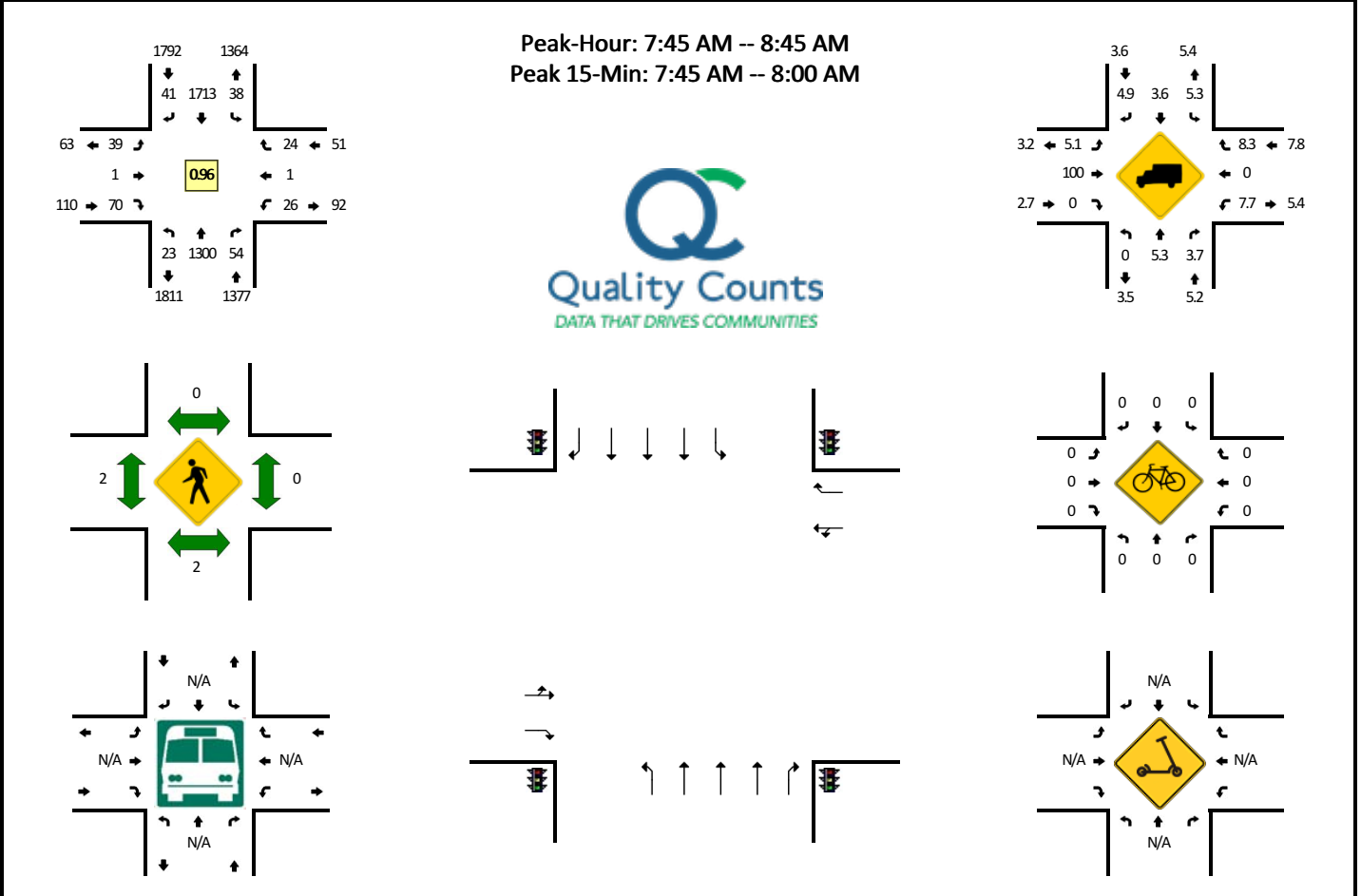
15-Min Count Period Beginning At	Laurel Hills Dr (Northbound)				Laurel Hills Dr (Southbound)				Prince William Pkwy (Eastbound)				Prince William Pkwy (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
11:00 AM	3	0	3	0	0	0	0	0	1	406	5	0	17	317	1	1	754	
11:15 AM	6	0	4	0	1	0	0	0	0	380	0	0	6	313	3	2	715	
11:30 AM	5	0	6	0	2	0	1	0	0	394	1	0	9	351	0	4	773	
11:45 AM	6	0	5	0	3	0	0	0	0	411	3	0	8	359	2	5	802	3044
12:00 PM	6	0	9	0	2	0	0	0	0	389	3	0	5	392	2	0	808	3098
12:15 PM	8	0	1	0	1	0	1	0	0	450	3	1	18	398	3	2	886	3269
12:30 PM	2	0	5	0	2	0	1	0	0	432	4	1	7	337	1	2	794	3290
12:45 PM	3	0	4	0	1	0	0	0	0	415	12	0	10	441	0	1	887	3375

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	12	0	16	0	4	0	0	0	0	1660	48	0	40	1764	0	4	3548
Heavy Trucks	0	0	0		0	0	0		0	68	0		0	68	0		136
Buses																	
Pedestrians		0				4				0				0			4
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scoters																	

Comments:

LOCATION: Prince William Pkwy -- Kenwood Dr/Jenkins Elementary School Dwy
CITY/STATE: Woodbridge, VA

QC JOB #: 15745507
DATE: Thu, May 26 2022

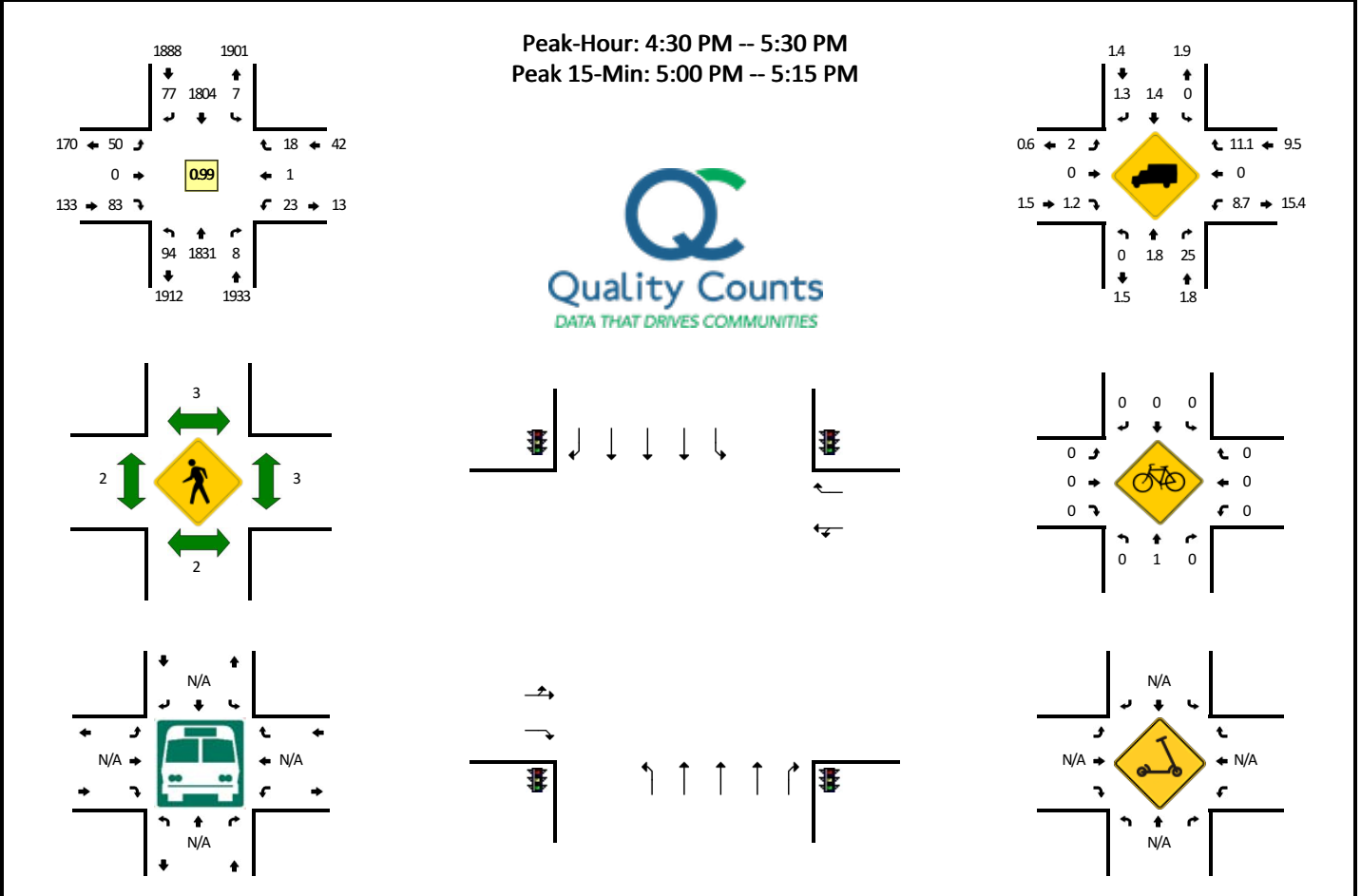


15-Min Count Period Beginning At	Prince William Pkwy (Northbound)				Prince William Pkwy (Southbound)				Kenwood Dr/Jenkins Elementary School Dwy (Eastbound)				Kenwood Dr/Jenkins Elementary School Dwy (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	7	255	1	1	2	424	6	0	15	0	41	0	1	0	0	0	753	
7:15 AM	9	251	3	1	3	461	8	0	21	0	29	0	1	0	1	0	788	
7:30 AM	11	272	7	0	5	465	13	1	16	1	19	0	2	0	4	0	816	
7:45 AM	5	311	7	1	0	492	13	1	10	1	18	0	4	1	3	0	867	3224
8:00 AM	5	348	20	0	6	364	9	0	6	0	16	0	0	0	3	0	777	3248
8:15 AM	3	309	19	0	18	425	8	0	9	0	19	0	18	0	18	0	846	3306
8:30 AM	8	332	8	1	13	432	11	0	14	0	17	0	4	0	0	0	840	3330
8:45 AM	4	294	43	1	13	427	8	1	10	0	28	0	6	0	0	0	835	3298
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	20	1244	28	4	0	1968	52	4	40	4	72	0	16	4	12	0	3468	
Heavy Trucks	0	52	4		0	76	4		0	4	0		0	0	8		148	
Buses																		
Pedestrians		0				0				0				0				0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0			0
Scoters																		0

Comments:

LOCATION: Prince William Pkwy -- Kenwood Dr/Jenkins Elementary School Dwy
CITY/STATE: Woodbridge, VA

QC JOB #: 15745508
DATE: Thu, May 26 2022

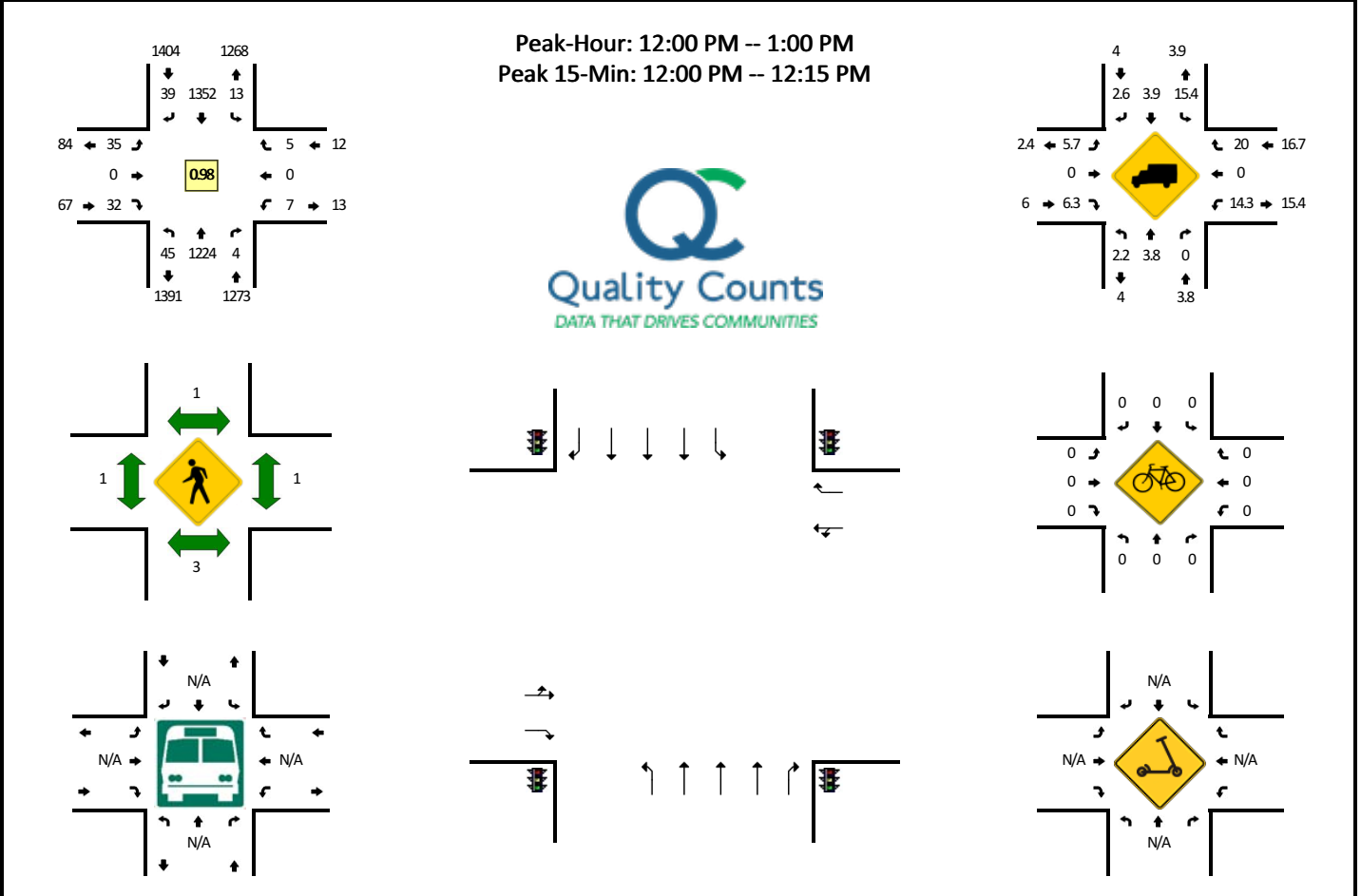


15-Min Count Period Beginning At	Prince William Pkwy (Northbound)				Prince William Pkwy (Southbound)				Kenwood Dr/Jenkins Elementary School Dwy (Eastbound)				Kenwood Dr/Jenkins Elementary School Dwy (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:30 PM	24	454	3	1	3	453	18	1	11	0	19	0	11	0	8	0	1006	
4:45 PM	20	460	1	0	2	442	22	1	14	0	22	0	7	0	7	0	998	
5:00 PM	19	474	1	0	0	468	15	0	10	0	17	0	3	1	0	0	1008	
5:15 PM	29	443	3	1	0	441	22	0	15	0	25	0	2	0	3	0	984	3996
5:30 PM	22	459	5	1	2	443	30	2	10	0	24	0	2	0	0	0	1000	3990
5:45 PM	24	427	12	0	0	386	19	2	12	1	29	0	4	0	4	0	920	3912
6:00 PM	20	424	20	7	5	501	26	0	11	0	12	0	7	0	1	0	1034	3938
6:15 PM	27	410	17	2	5	465	25	2	17	0	7	0	6	0	3	0	986	3940
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	76	1896	4	0	0	1872	60	0	40	0	68	0	12	4	0	0	4032	
Heavy Trucks	0	48	0		0	20	0		0	0	0		0	0	0		68	
Buses																		
Pedestrians		0				0				4				4			8	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scooters																	0	

Comments:

LOCATION: Prince William Pkwy -- Kenwood Dr/Jenkins Elementary School Dwy
CITY/STATE: Woodbridge, VA

QC JOB #: 15745509
DATE: Thu, May 26 2022

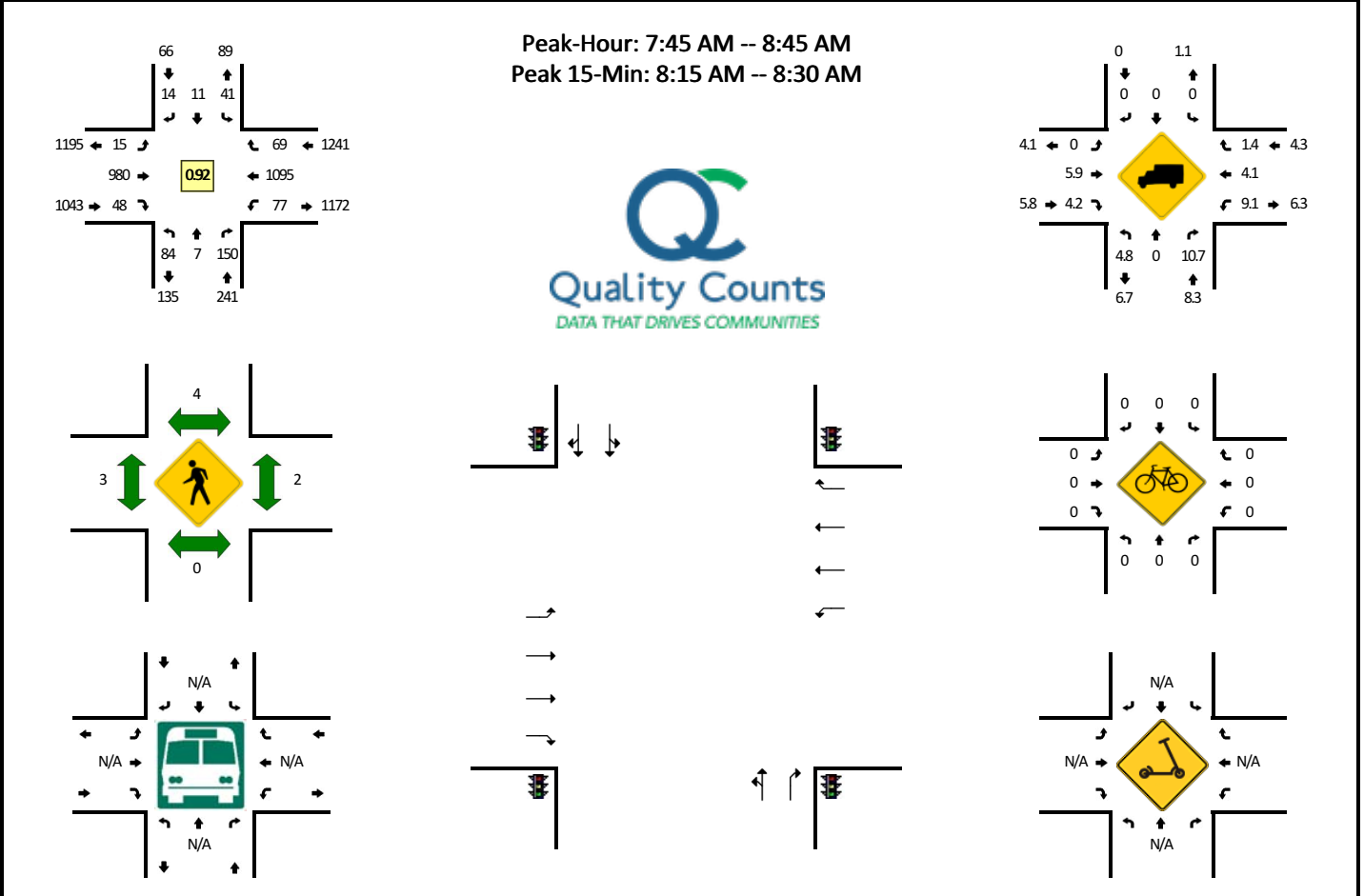


15-Min Count Period Beginning At	Prince William Pkwy (Northbound)				Prince William Pkwy (Southbound)				Kenwood Dr/Jenkins Elementary School Dwy (Eastbound)				Kenwood Dr/Jenkins Elementary School Dwy (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
11:00 AM	5	241	2	0	0	327	9	1	5	0	11	0	0	0	1	0	602	
11:15 AM	11	267	2	0	0	302	4	0	12	0	8	0	1	0	2	0	609	
11:30 AM	5	251	2	0	0	354	11	1	3	1	14	0	0	0	0	0	642	
11:45 AM	8	270	1	0	0	326	5	0	9	0	11	0	2	0	0	0	632	2485
12:00 PM	7	323	1	0	4	335	11	2	9	0	6	0	1	0	1	0	700	2583
12:15 PM	12	305	2	0	0	350	9	1	9	0	10	0	0	0	1	0	699	2673
12:30 PM	12	275	1	0	4	344	6	1	7	0	6	0	3	0	2	0	661	2692
12:45 PM	14	321	0	0	1	323	13	0	10	0	10	0	3	0	1	0	696	2756
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	28	1292	4	0	16	1340	44	8	36	0	24	0	4	0	4	0	2800	
Heavy Trucks	0	56	0	0	0	56	0	0	0	0	0	0	0	0	0	0	112	
Buses																		
Pedestrians		0				4				0				0			4	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

Comments:

LOCATION: Merchant Plaza/Troupe st -- Old Bridge Rd
CITY/STATE: Woodbridge, VA

QC JOB #: 15745510
DATE: Thu, May 26 2022

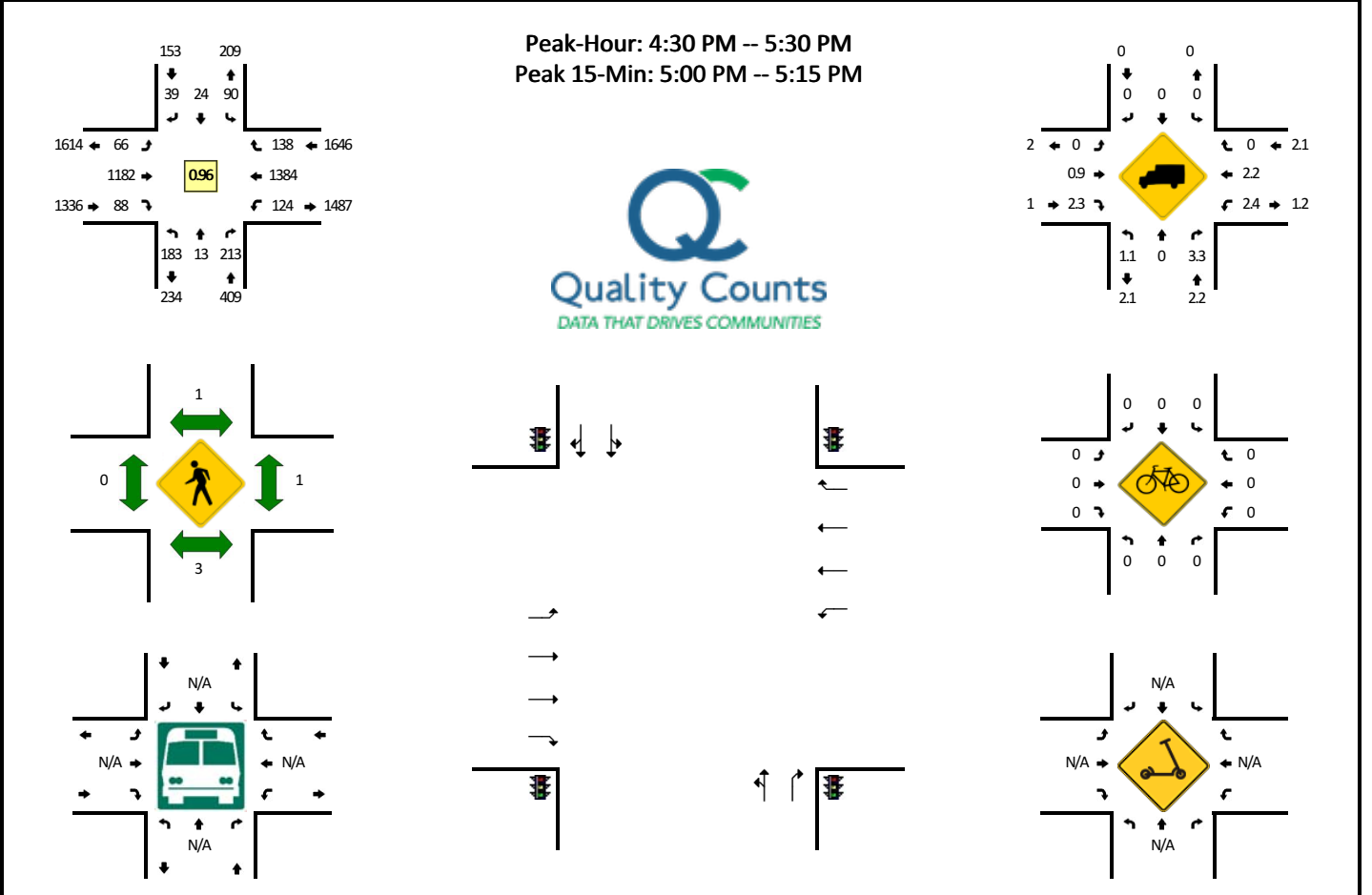


15-Min Count Period Beginning At	Merchant Plaza/Troupe st (Northbound)				Merchant Plaza/Troupe st (Southbound)				Old Bridge Rd (Eastbound)				Old Bridge Rd (Westbound)				Total	Hourly Totals	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U			
7:00 AM	14	3	33	0	4	1	1	0	1	159	7	4	10	236	16	0	489		
7:15 AM	20	2	25	0	9	1	7	0	4	158	10	1	16	224	22	0	499		
7:30 AM	15	1	31	0	6	4	3	0	2	205	5	1	8	285	13	0	579		
7:45 AM	20	1	42	0	9	3	1	0	2	259	9	0	16	312	13	1	688	2255	
8:00 AM	15	2	39	0	4	2	2	0	4	193	13	0	22	232	14	0	542	2308	
8:15 AM	17	3	40	0	13	4	2	0	5	267	12	2	16	302	22	0	705	2514	
8:30 AM	32	1	29	0	15	2	9	0	2	261	14	0	22	249	20	0	656	2591	
8:45 AM	27	1	29	0	14	3	2	0	1	237	11	0	21	291	21	0	658	2561	
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total		
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U			
All Vehicles	68	12	160	0	52	16	8	0	20	1068	48	8	64	1208	88	0	2820		
Heavy Trucks	4	0	8		0	0	0		0	60	0		8	72	0		152		
Buses																			
Pedestrians		0				4				0				0			4		
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0		
Scoters																			

Comments:

LOCATION: Merchant Plaza/Troupe st -- Old Bridge Rd
CITY/STATE: Woodbridge, VA

QC JOB #: 15745511
DATE: Thu, May 26 2022

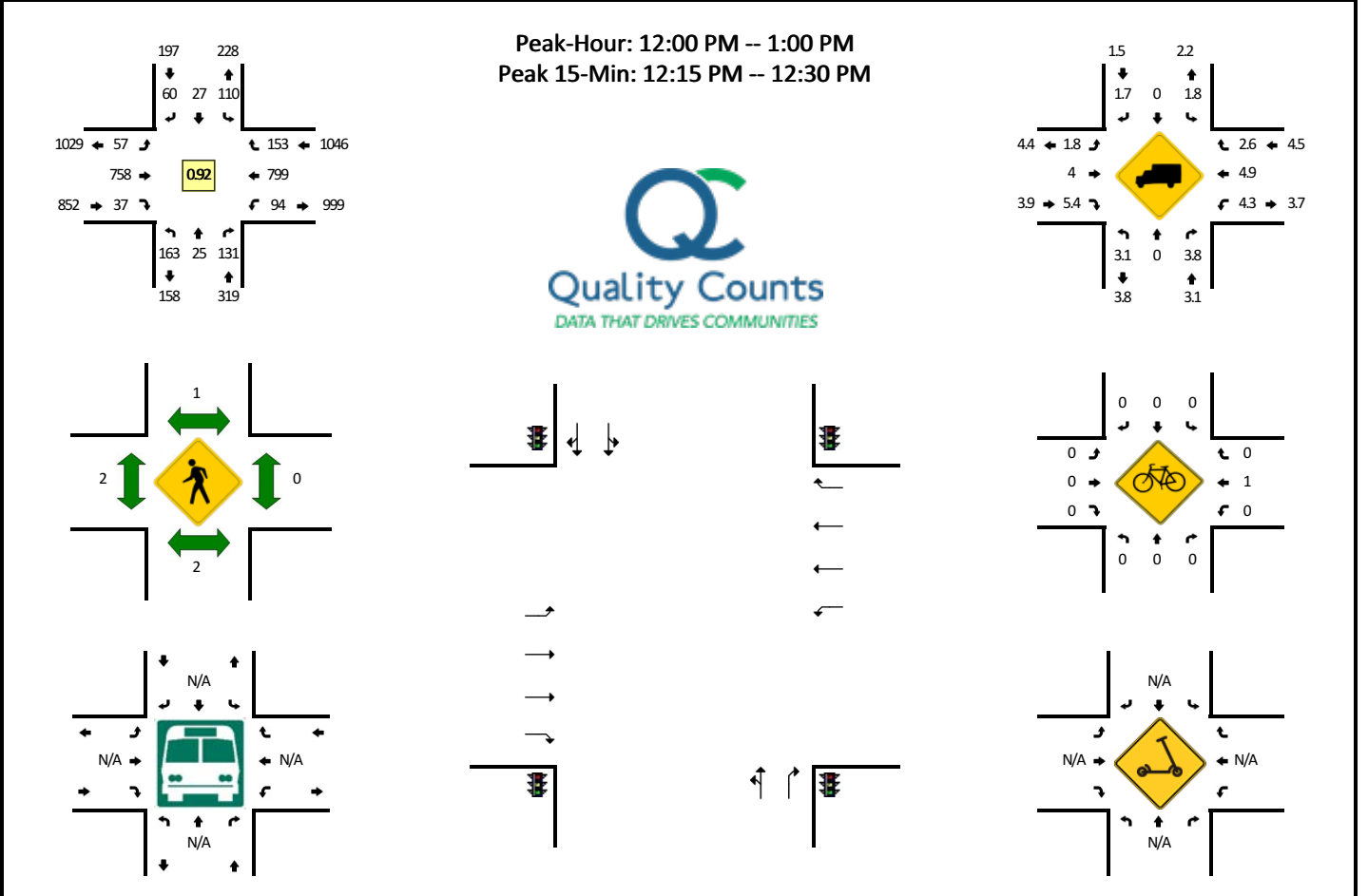


15-Min Count Period Beginning At	Merchant Plaza/Troupe st (Northbound)				Merchant Plaza/Troupe st (Southbound)				Old Bridge Rd (Eastbound)				Old Bridge Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:30 PM	48	2	51	0	25	5	9	0	13	317	23	1	23	366	34	1	918	
4:45 PM	50	5	52	0	23	4	8	0	16	270	24	2	42	300	31	1	828	
5:00 PM	48	4	53	0	16	8	5	0	9	318	22	0	22	384	31	0	920	
5:15 PM	37	2	57	0	26	7	17	0	20	277	19	5	35	334	42	0	878	3544
5:30 PM	39	3	51	0	23	2	9	1	7	293	21	2	22	374	40	0	887	3513
5:45 PM	44	8	65	0	34	6	12	0	16	263	11	6	27	307	45	0	844	3529
6:00 PM	23	5	40	0	24	4	11	0	13	336	19	1	36	340	37	1	890	3499
6:15 PM	51	5	54	0	25	7	18	0	11	274	18	2	31	275	55	0	826	3447
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	192	16	212	0	64	32	20	0	36	1272	88	0	88	1536	124	0	3680	
Heavy Trucks	4	0	16		0	0	0		0	8	4		8	28	0		68	
Buses																		
Pedestrians		0				0				0				4			4	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

Comments:

LOCATION: Merchant Plaza/Troupe st -- Old Bridge Rd
CITY/STATE: Woodbridge, VA

QC JOB #: 15745512
DATE: Thu, May 26 2022

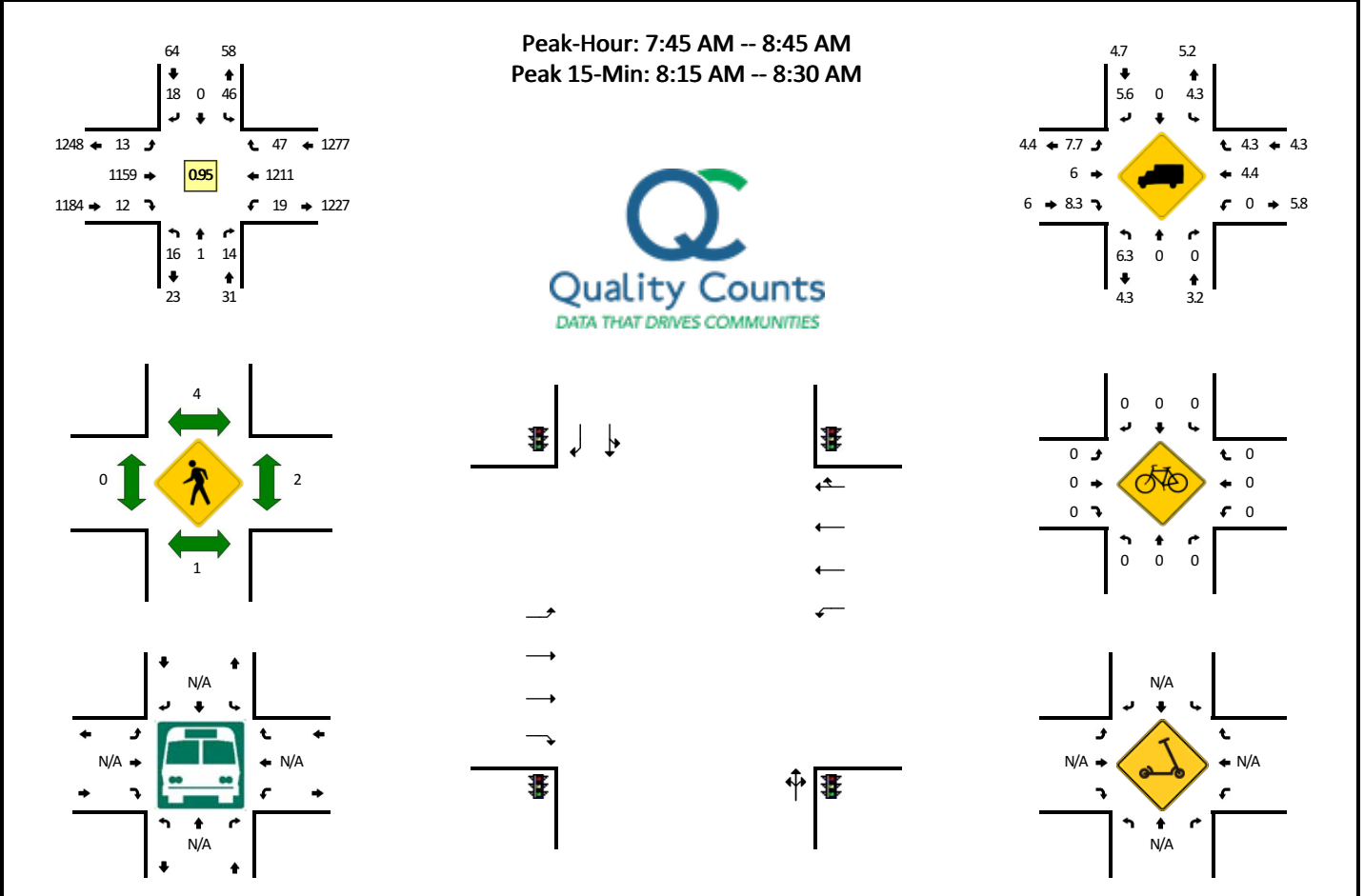


15-Min Count Period Beginning At	Merchant Plaza/Troupe st (Northbound)				Merchant Plaza/Troupe st (Southbound)				Old Bridge Rd (Eastbound)				Old Bridge Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
11:00 AM	31	4	27	0	10	4	5	0	3	179	6	0	12	182	27	0	490	
11:15 AM	23	3	21	0	18	7	13	0	11	177	8	4	13	171	29	0	498	
11:30 AM	33	5	31	0	22	2	9	0	14	146	9	5	24	194	32	0	526	
11:45 AM	29	6	35	0	14	5	14	0	5	182	13	3	19	209	28	0	562	2076
12:00 PM	40	9	46	0	28	5	15	0	9	164	8	3	23	183	39	0	572	2158
12:15 PM	42	4	34	0	29	5	17	0	12	220	9	2	18	221	40	0	653	2313
12:30 PM	44	8	24	0	24	9	15	0	14	177	11	0	25	180	39	0	570	2357
12:45 PM	37	4	27	0	29	8	13	0	15	197	9	2	28	215	35	0	619	2414
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	168	16	136	0	116	20	68	0	48	880	36	8	72	884	160	0	2612	
Heavy Trucks	0	0	8		0	0	0		4	36	4		8	32	8		100	
Buses																		
Pedestrians		0				0				4				0			4	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

Comments:

LOCATION: Touchstone Cir/Titania Wy -- Old Bridge Rd
CITY/STATE: Woodbridge, VA

QC JOB #: 15745513
DATE: Thu, May 26 2022



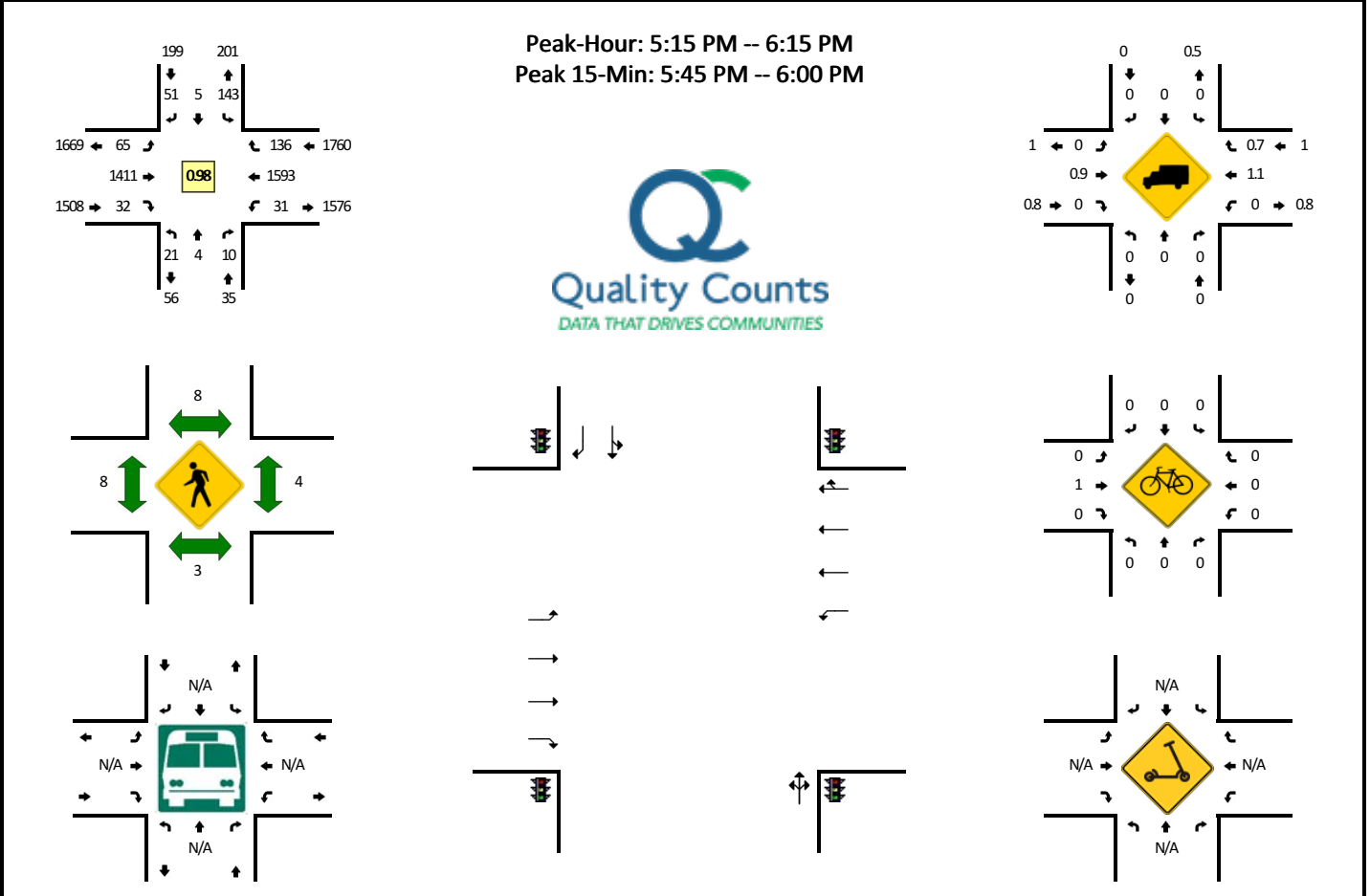
15-Min Count Period Beginning At	Touchstone Cir/Titania Wy (Northbound)				Touchstone Cir/Titania Wy (Southbound)				Old Bridge Rd (Eastbound)				Old Bridge Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	4	0	3	0	8	0	1	0	2	203	2	0	0	241	3	4	471	
7:15 AM	5	0	5	0	11	0	1	0	4	178	3	1	3	247	9	2	469	
7:30 AM	6	0	4	0	11	1	3	0	2	227	4	1	0	301	10	0	570	
7:45 AM	7	0	2	0	15	0	3	0	2	299	2	1	5	321	15	1	673	2183
8:00 AM	4	0	5	0	10	0	4	0	3	233	3	0	2	292	7	2	565	2277
8:15 AM	4	0	3	0	11	0	6	0	2	310	3	2	4	315	14	2	676	2484
8:30 AM	1	1	4	0	10	0	5	0	3	317	4	0	0	283	11	3	642	2556
8:45 AM	7	1	9	0	12	1	4	0	4	268	6	1	1	345	11	2	672	2555

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	16	0	12	0	44	0	24	0	8	1240	12	8	16	1260	56	8	2704
Heavy Trucks	0	0	0		4	0	0		4	64	0		0	76	4		152
Buses																	
Pedestrians		0				4				0				4			8
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scoters																	

Comments:

LOCATION: Touchstone Cir/Titania Wy -- Old Bridge Rd
CITY/STATE: Woodbridge, VA

QC JOB #: 15745514
DATE: Thu, May 26 2022



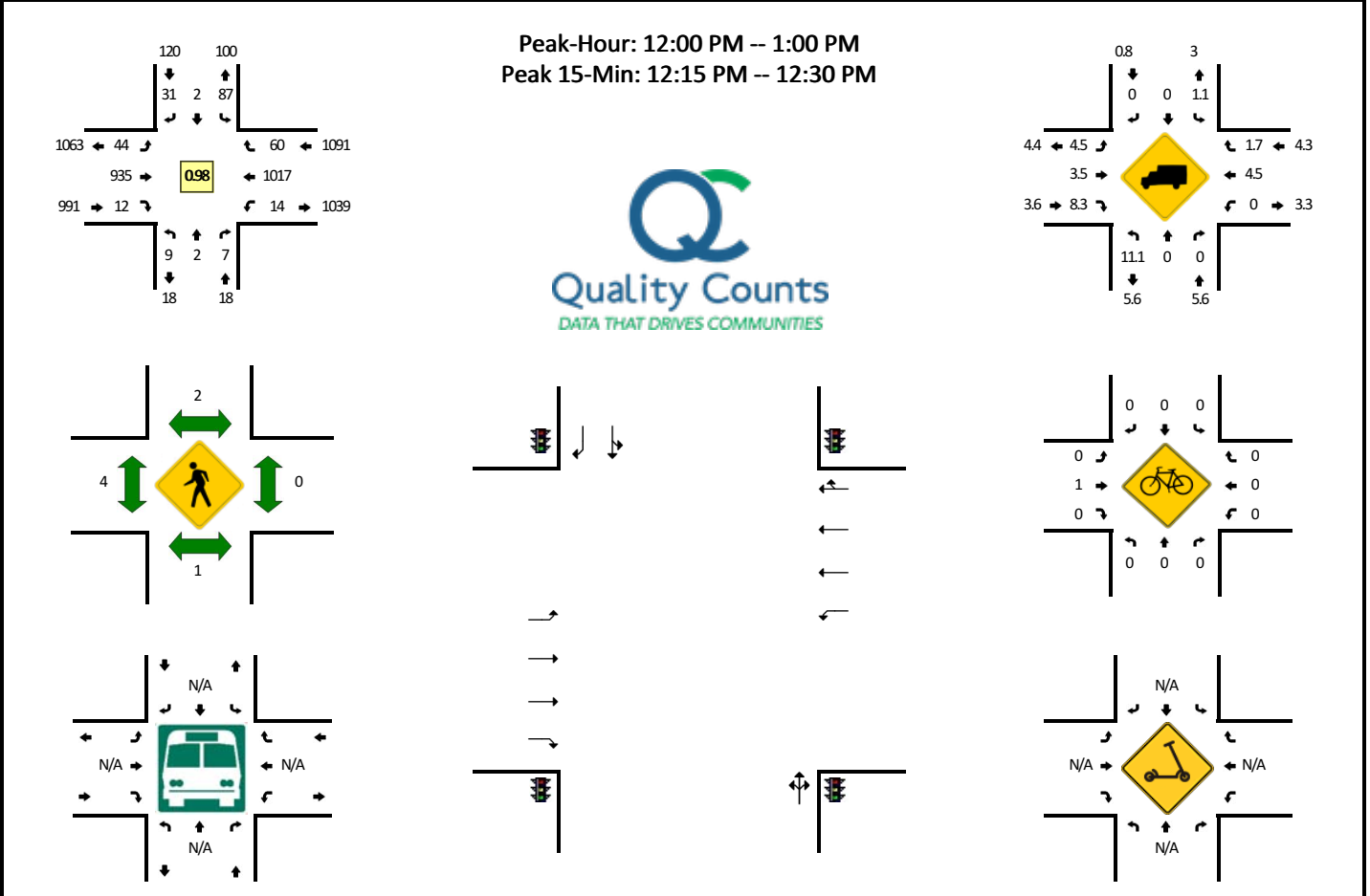
15-Min Count Period Beginning At	Touchstone Cir/Titania Wy (Northbound)				Touchstone Cir/Titania Wy (Southbound)				Old Bridge Rd (Eastbound)				Old Bridge Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:30 PM	2	1	3	0	34	1	6	0	10	354	8	0	4	381	27	1	832	
4:45 PM	7	1	3	0	29	1	12	1	17	346	4	1	3	397	20	2	844	
5:00 PM	4	0	7	0	28	2	8	0	13	338	5	0	4	410	27	2	848	
5:15 PM	4	1	3	0	28	2	16	0	21	358	10	0	3	391	26	2	865	3389
5:30 PM	5	0	4	0	35	1	16	0	13	337	10	1	4	420	41	5	892	3449
5:45 PM	7	0	3	0	46	1	11	0	17	373	5	1	4	395	32	1	896	3501
6:00 PM	5	3	0	0	34	1	8	0	10	343	7	2	8	387	37	4	849	3502
6:15 PM	3	0	4	0	48	2	5	0	18	383	2	0	4	356	36	0	861	3498

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	28	0	12	0	184	4	44	0	68	1492	20	4	16	1580	128	4	3584
Heavy Trucks	0	0	0		0	0	0		0	24	0		0	12	0		36
Buses																	
Pedestrians		8				0				0				0			8
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scoters																	

Comments:

LOCATION: Touchstone Cir/Titania Wy -- Old Bridge Rd
CITY/STATE: Woodbridge, VA

QC JOB #: 15745515
DATE: Thu, May 26 2022

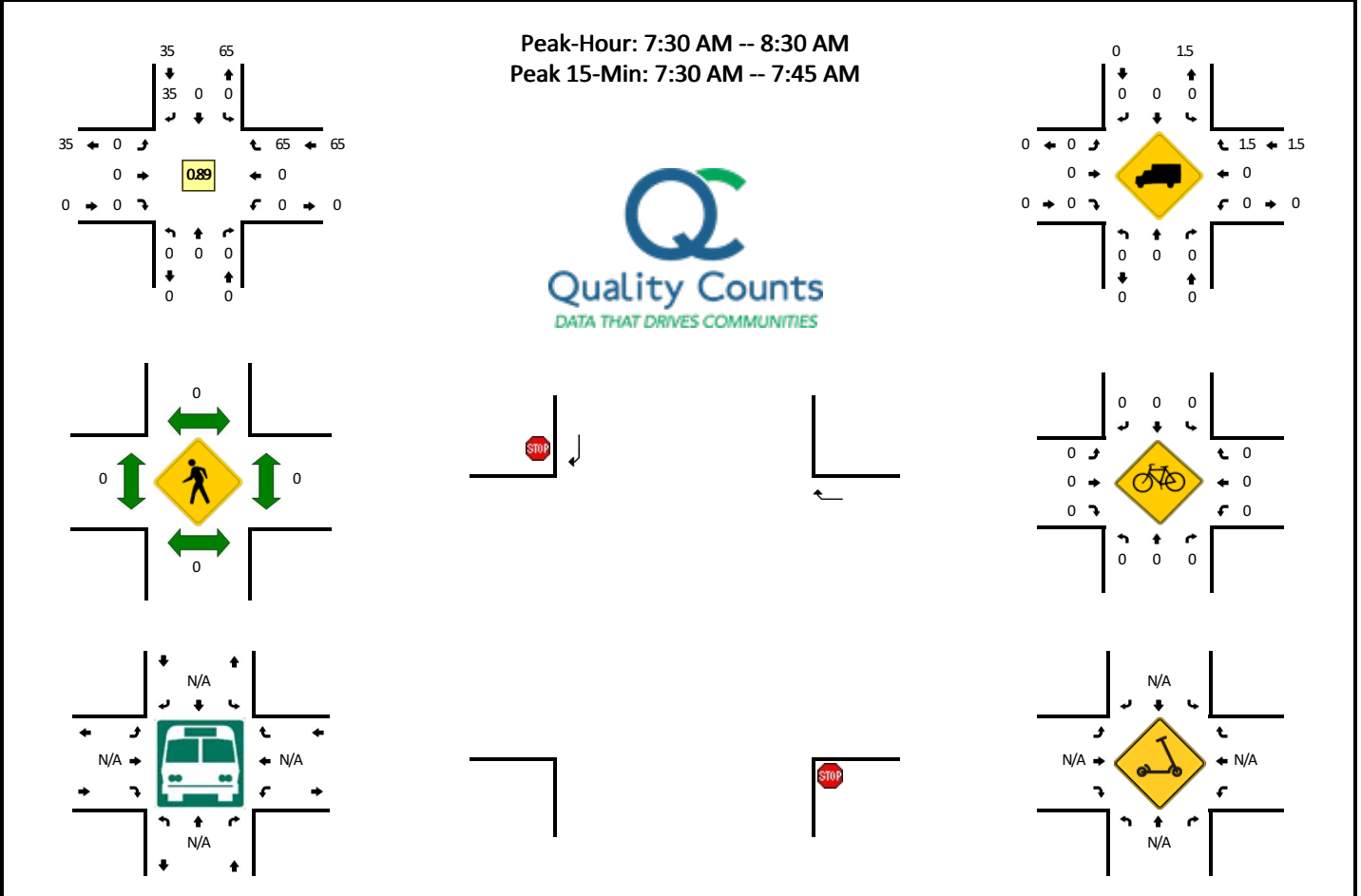


15-Min Count Period Beginning At	Touchstone Cir/Titania Wy (Northbound)				Touchstone Cir/Titania Wy (Southbound)				Old Bridge Rd (Eastbound)				Old Bridge Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
11:00 AM	1	1	2	0	16	0	1	1	9	227	3	2	0	203	13	1	480	
11:15 AM	1	0	1	0	13	0	6	0	5	200	0	0	0	209	15	0	450	
11:30 AM	1	0	3	0	23	0	7	0	9	194	3	2	0	239	20	2	503	
11:45 AM	0	1	3	0	28	1	3	0	3	211	1	1	1	254	23	2	532	1965
12:00 PM	1	1	1	0	20	0	9	0	12	232	3	0	0	258	11	3	551	2036
12:15 PM	4	0	2	0	20	2	8	0	8	246	6	3	3	247	13	2	564	2150
12:30 PM	4	0	3	0	27	0	7	0	7	216	2	0	1	263	13	4	547	2194
12:45 PM	0	1	1	0	20	0	7	0	11	241	1	3	0	249	23	1	558	2220
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	16	0	8	0	80	8	32	0	32	984	24	12	12	988	52	8	2256	
Heavy Trucks	0	0	0		0	0	0		0	32	4		0	40	0		76	
Buses																	0	
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	4	0		0	0	0		4	
Scoters																		

Comments:

LOCATION: Seeton Sq -- Prince William Pkwy WB
CITY/STATE: Lake Ridge, VA

QC JOB #: 15745520
DATE: Thu, May 26 2022

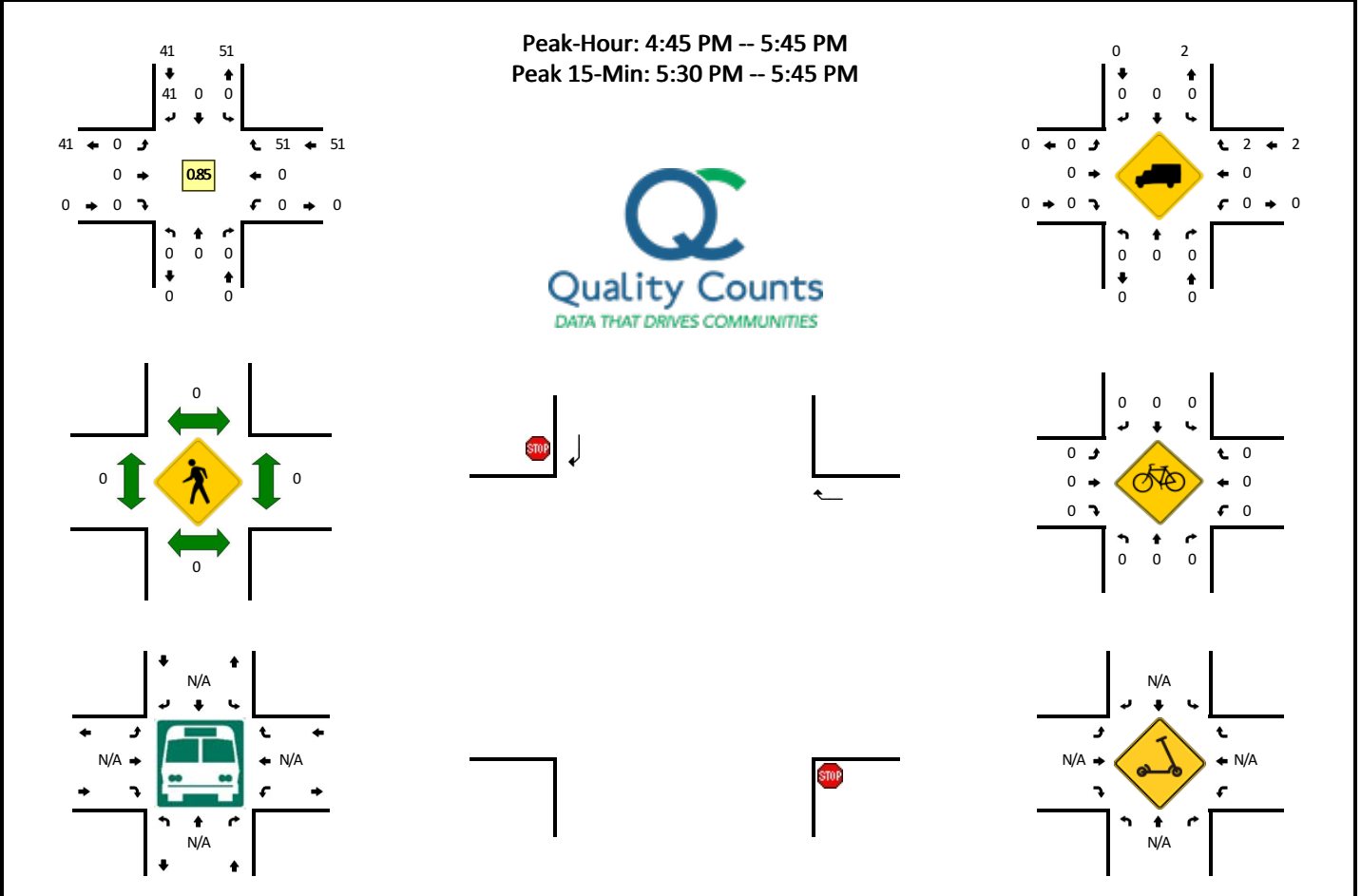


15-Min Count Period Beginning At	Seeton Sq (Northbound)				Seeton Sq (Southbound)				Prince William Pkwy WB (Eastbound)				Prince William Pkwy WB (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	0	0	6	0	0	0	0	0	0	0	8	0	14	
7:15 AM	0	0	0	0	0	0	5	0	0	0	0	0	0	0	16	0	21	
7:30 AM	0	0	0	0	0	0	8	0	0	0	0	0	0	0	20	0	28	
7:45 AM	0	0	0	0	0	0	11	0	0	0	0	0	0	0	17	0	28	91
8:00 AM	0	0	0	0	0	0	10	0	0	0	0	0	0	0	12	0	22	99
8:15 AM	0	0	0	0	0	0	6	0	0	0	0	0	0	0	16	0	22	100
8:30 AM	0	0	0	0	0	0	10	0	0	0	0	0	0	0	14	0	24	96
8:45 AM	0	0	0	0	0	0	6	0	0	0	0	0	0	0	14	0	20	88
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	0	0	32	0	0	0	0	0	0	0	80	0	112	
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

Comments:

LOCATION: Seeton Sq -- Prince William Pkwy WB
CITY/STATE: Lake Ridge, VA

QC JOB #: 15745521
DATE: Thu, May 26 2022

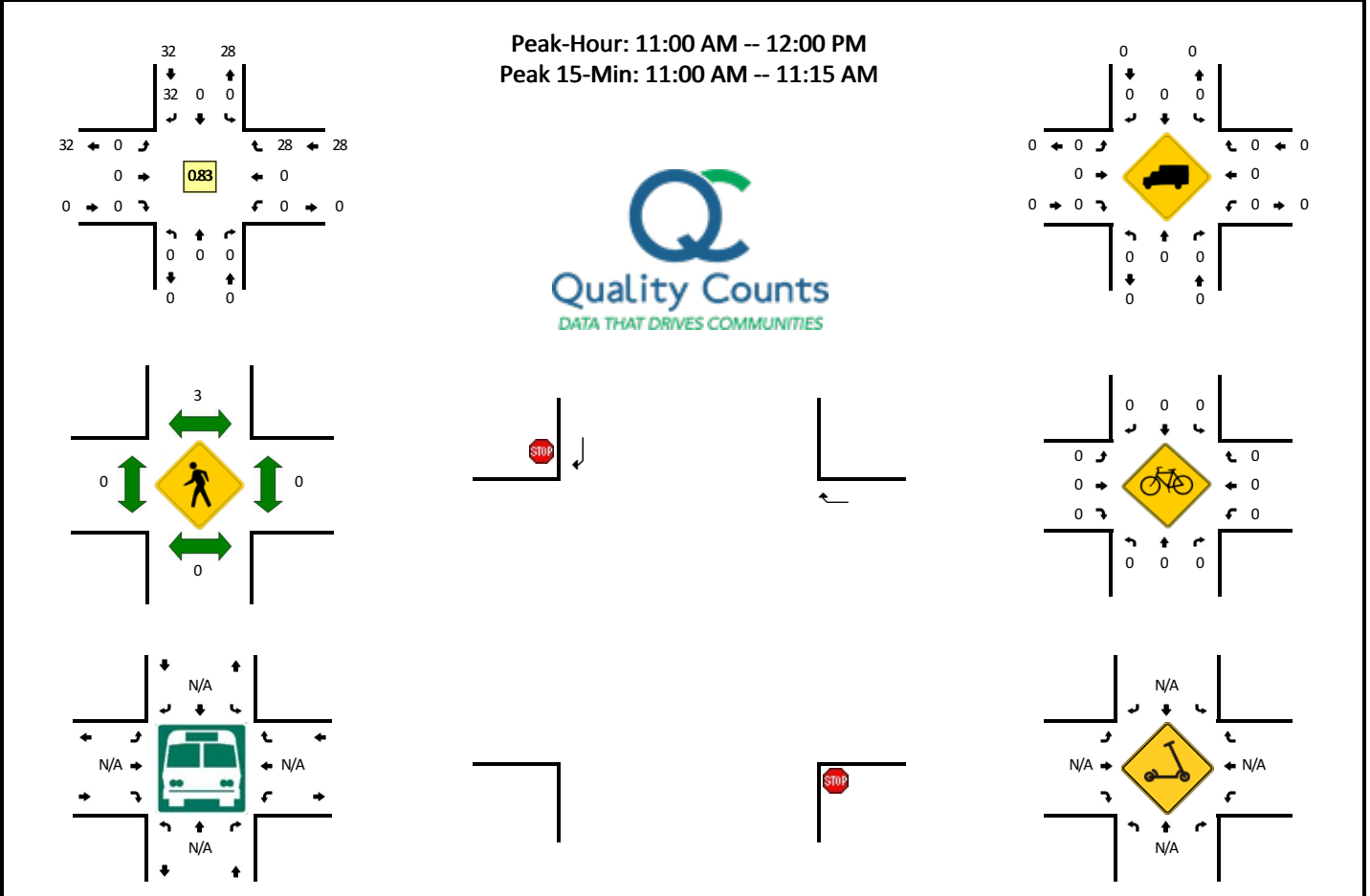


15-Min Count Period Beginning At	Seeton Sq (Northbound)				Seeton Sq (Southbound)				Prince William Pkwy WB (Eastbound)				Prince William Pkwy WB (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:30 PM	0	0	0	0	0	0	8	0	0	0	0	0	0	0	14	0	22	
4:45 PM	0	0	0	0	0	0	11	0	0	0	0	0	0	0	12	0	23	
5:00 PM	0	0	0	0	0	0	9	0	0	0	0	0	0	0	13	0	22	
5:15 PM	0	0	0	0	0	0	10	0	0	0	0	0	0	0	10	0	20	87
5:30 PM	0	0	0	0	0	0	11	0	0	0	0	0	0	0	16	0	27	92
5:45 PM	0	0	0	0	0	0	6	0	0	0	0	0	0	0	10	0	16	85
6:00 PM	0	0	0	0	0	0	7	0	0	0	0	0	0	0	7	0	14	77
6:15 PM	0	0	0	0	0	0	9	0	0	0	0	0	0	0	8	0	17	74
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	0	0	44	0	0	0	0	0	0	0	64	0	108	
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	4	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scooters																		

Comments:

LOCATION: Seeton Sq -- Prince William Pkwy WB
CITY/STATE: Lake Ridge, VA

QC JOB #: 15745522
DATE: Thu, May 26 2022

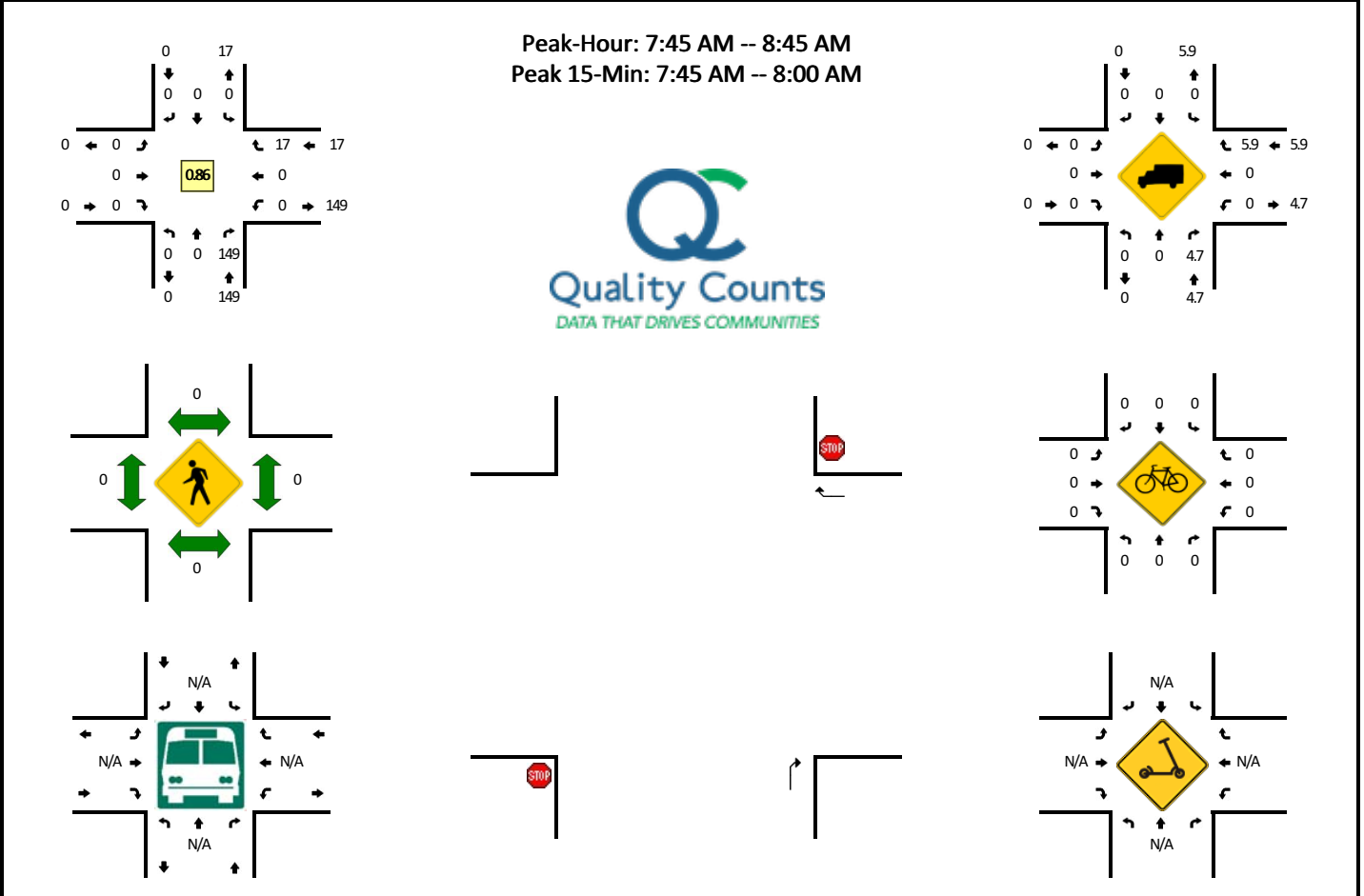


15-Min Count Period Beginning At	Seeton Sq (Northbound)				Seeton Sq (Southbound)				Prince William Pkwy WB (Eastbound)				Prince William Pkwy WB (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
11:00 AM	0	0	0	0	0	0	7	0	0	0	0	0	0	0	11	0	18	
11:15 AM	0	0	0	0	0	0	10	0	0	0	0	0	0	0	5	0	15	
11:30 AM	0	0	0	0	0	0	5	0	0	0	0	0	0	0	6	0	11	
11:45 AM	0	0	0	0	0	0	10	0	0	0	0	0	0	0	6	0	16	60
12:00 PM	0	0	0	0	0	0	6	0	0	0	0	0	0	0	6	0	12	54
12:15 PM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	5	0	7	46
12:30 PM	0	0	0	0	0	0	6	0	0	0	0	0	0	0	7	0	13	48
12:45 PM	0	0	0	0	0	0	7	0	0	0	0	0	0	0	9	0	16	48
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	0	0	28	0	0	0	0	0	0	0	44	0	72	
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Buses																		
Pedestrians		0				8				0				0			8	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

Comments:

LOCATION: Prince William Pkwy NB -- Chinn Park Dr
CITY/STATE: Lake Ridge, VA

QC JOB #: 15745523
DATE: Thu, May 26 2022

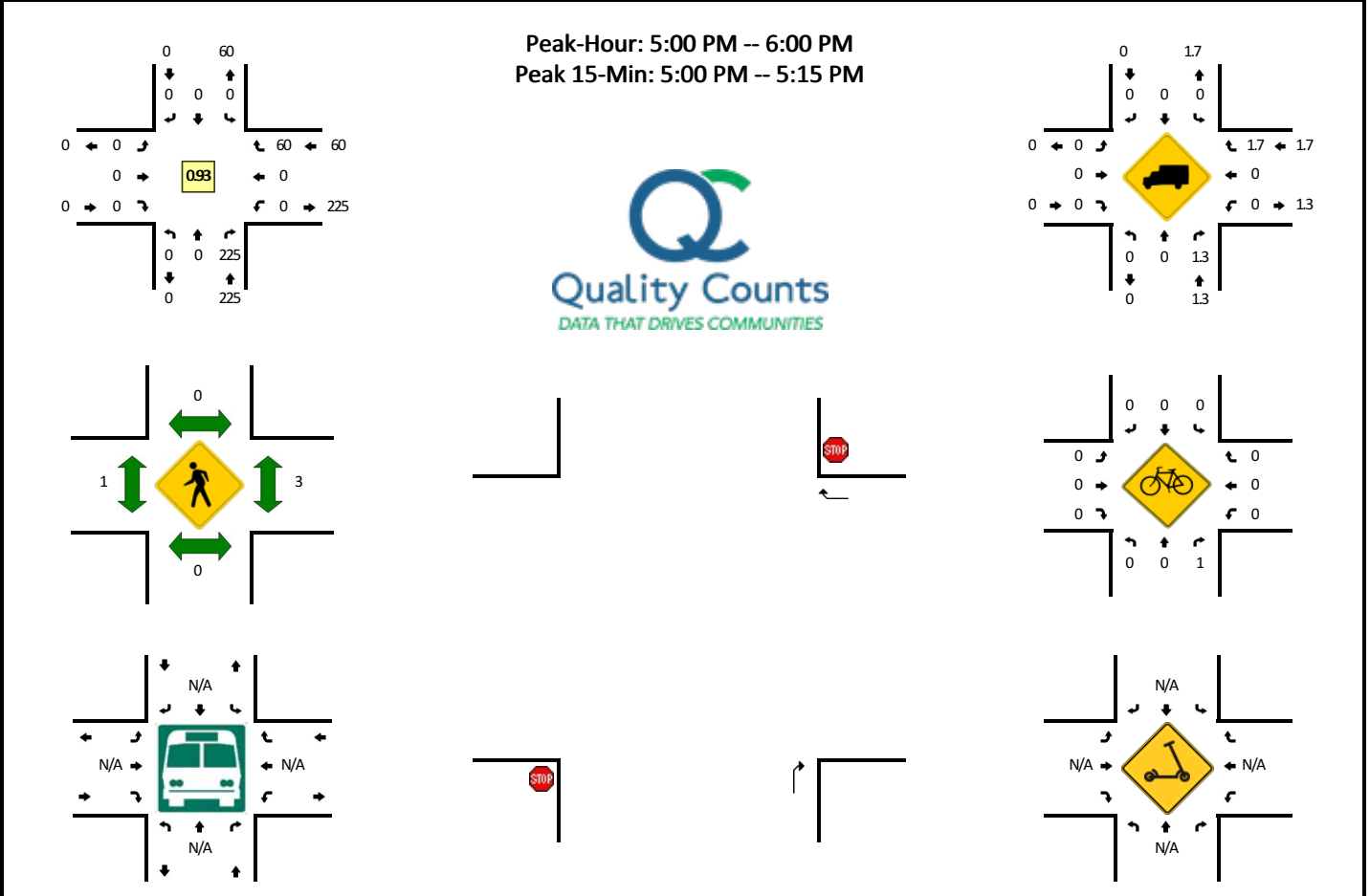


15-Min Count Period Beginning At	Prince William Pkwy NB (Northbound)				Prince William Pkwy NB (Southbound)				Chinn Park Dr (Eastbound)				Chinn Park Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	29	0	0	0	0	0	0	0	0	0	0	0	3	0	32	
7:15 AM	0	0	20	0	0	0	0	0	0	0	0	0	0	0	4	0	24	
7:30 AM	0	0	33	0	0	0	0	0	0	0	0	0	0	0	2	0	35	
7:45 AM	0	0	41	0	0	0	0	0	0	0	0	0	0	0	7	0	48	139
8:00 AM	0	0	39	0	0	0	0	0	0	0	0	0	0	0	4	0	43	150
8:15 AM	0	0	34	0	0	0	0	0	0	0	0	0	0	0	4	0	38	164
8:30 AM	0	0	35	0	0	0	0	0	0	0	0	0	0	0	2	0	37	166
8:45 AM	0	0	33	0	0	0	0	0	0	0	0	0	0	0	11	0	44	162
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	164	0	0	0	0	0	0	0	0	0	0	0	28	0	192	
Heavy Trucks	0	0	8		0	0	0		0	0	0		0	0	0		8	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

Comments:

LOCATION: Prince William Pkwy NB -- Chinn Park Dr
CITY/STATE: Lake Ridge, VA

QC JOB #: 15745524
DATE: Thu, May 26 2022

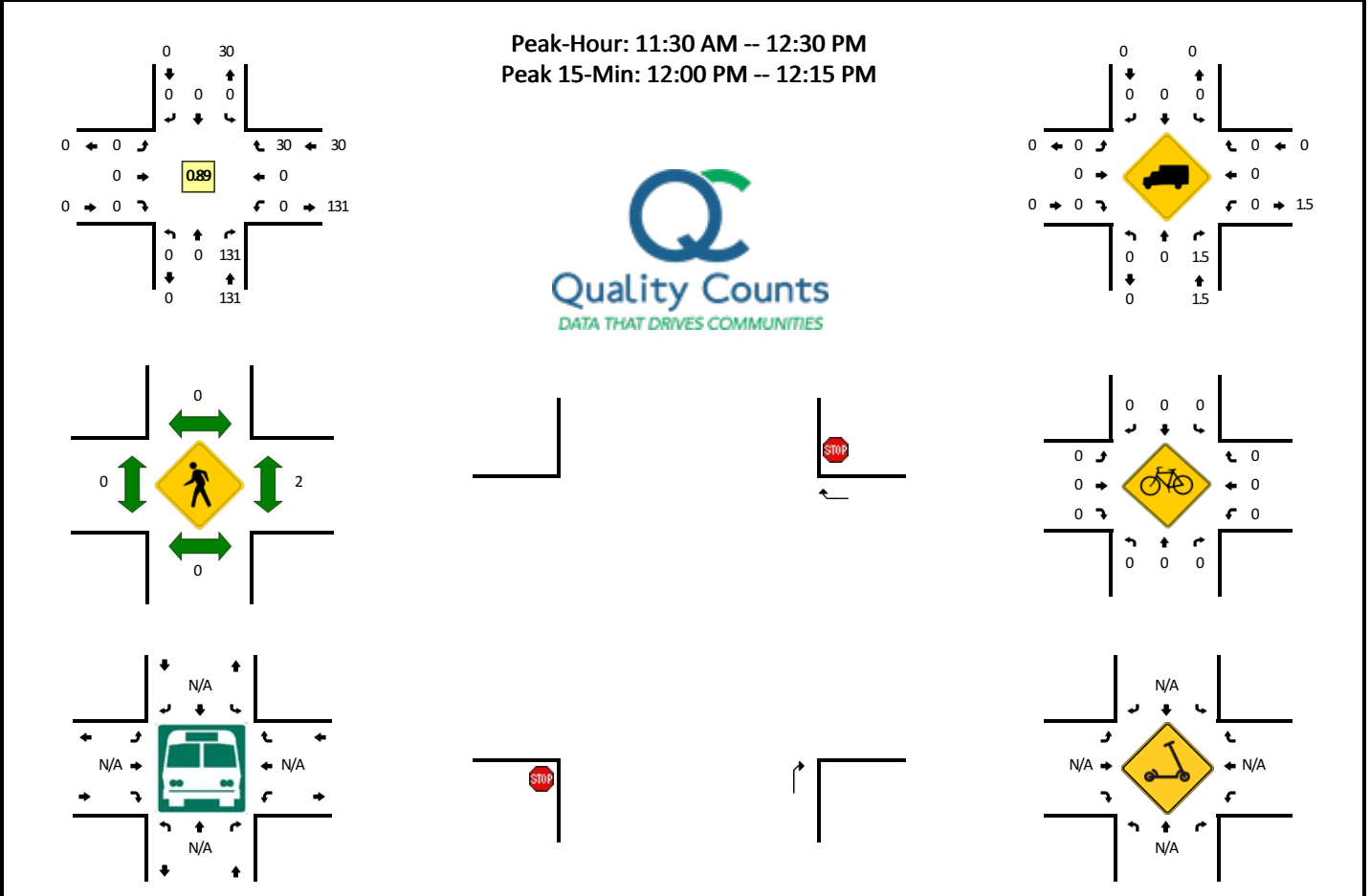


15-Min Count Period Beginning At	Prince William Pkwy NB (Northbound)				Prince William Pkwy NB (Southbound)				Chinn Park Dr (Eastbound)				Chinn Park Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:30 PM	0	0	54	0	0	0	0	0	0	0	0	0	0	0	13	0	67	
4:45 PM	0	0	56	0	0	0	0	0	0	0	0	0	0	0	13	0	69	
5:00 PM	0	0	59	0	0	0	0	0	0	0	0	0	0	0	18	0	77	
5:15 PM	0	0	54	0	0	0	0	0	0	0	0	0	0	0	16	0	70	283
5:30 PM	0	0	54	0	0	0	0	0	0	0	0	0	0	0	8	0	62	278
5:45 PM	0	0	58	0	0	0	0	0	0	0	0	0	0	0	18	0	76	285
6:00 PM	0	0	45	0	0	0	0	0	0	0	0	0	0	0	10	0	55	263
6:15 PM	0	0	53	0	0	0	0	0	0	0	0	0	0	0	23	0	76	269
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	236	0	0	0	0	0	0	0	0	0	0	0	72	0	308	
Heavy Trucks	0	0	4		0	0	0		0	0	0		0	0	0		4	
Buses																		
Pedestrians		0				0				4				0			4	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

Comments:

LOCATION: Prince William Pkwy NB -- Chinn Park Dr
CITY/STATE: Lake Ridge, VA

QC JOB #: 15745525
DATE: Thu, May 26 2022

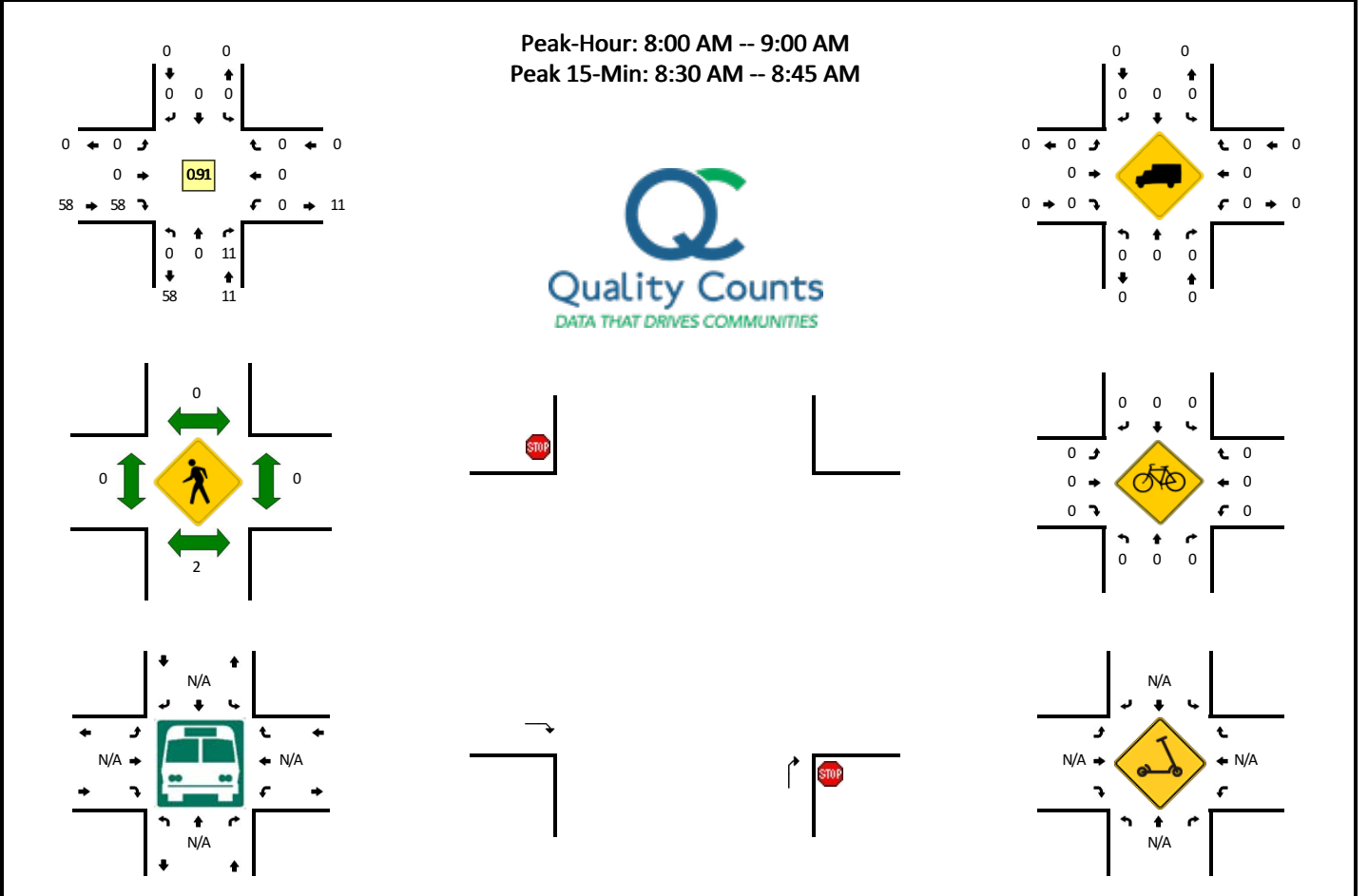


15-Min Count Period Beginning At	Prince William Pkwy NB (Northbound)				Prince William Pkwy NB (Southbound)				Chinn Park Dr (Eastbound)				Chinn Park Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
11:00 AM	0	0	25	0	0	0	0	0	0	0	0	0	0	0	3	0	28	
11:15 AM	0	0	23	0	0	0	0	0	0	0	0	0	0	0	6	0	29	
11:30 AM	0	0	30	0	0	0	0	0	0	0	0	0	0	0	10	0	40	
11:45 AM	0	0	27	0	0	0	0	0	0	0	0	0	0	0	10	0	37	134
12:00 PM	0	0	39	0	0	0	0	0	0	0	0	0	0	0	6	0	45	151
12:15 PM	0	0	35	0	0	0	0	0	0	0	0	0	0	0	4	0	39	161
12:30 PM	0	0	20	0	0	0	0	0	0	0	0	0	0	0	7	0	27	148
12:45 PM	0	0	32	0	0	0	0	0	0	0	0	0	0	0	13	0	45	156
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	156	0	0	0	0	0	0	0	0	0	0	0	24	0	180	
Heavy Trucks	0	0	4		0	0	0		0	0	0		0	0	0		4	
Buses																		
Pedestrians		0				0				0				4			4	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

Comments:

LOCATION: Tribute at the Glen Dwy -- Old Bridge Rd EB
CITY/STATE: Lake Ridge, VA

QC JOB #: 15745526
DATE: Thu, May 26 2022

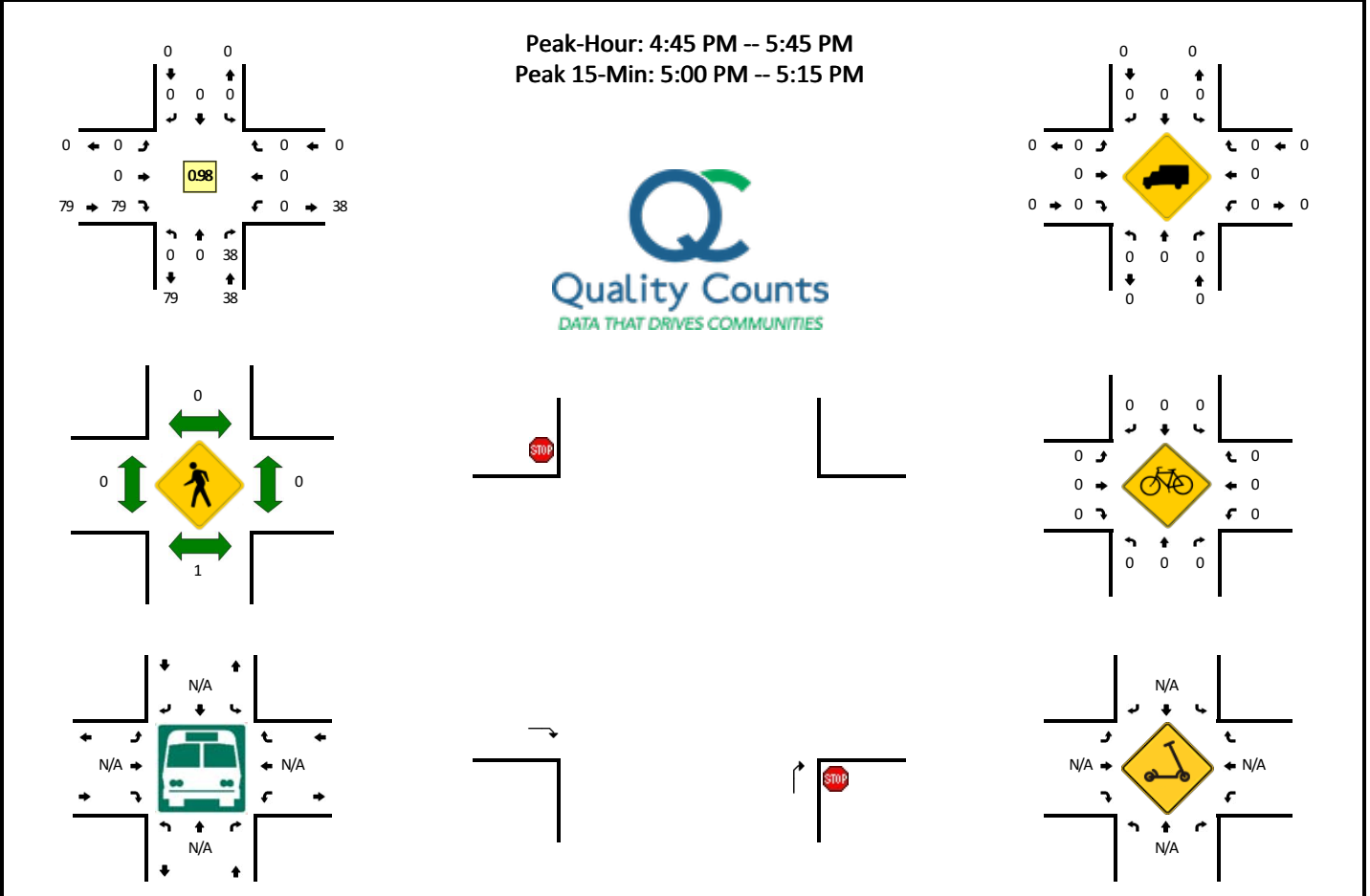


15-Min Count Period Beginning At	Tribute at the Glen Dwy (Northbound)				Tribute at the Glen Dwy (Southbound)				Old Bridge Rd EB (Eastbound)				Old Bridge Rd EB (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	2	0	0	0	0	0	0	0	8	0	0	0	0	0	10	
7:15 AM	0	0	1	0	0	0	0	0	0	0	11	0	0	0	0	0	12	
7:30 AM	0	0	1	0	0	0	0	0	0	0	13	0	0	0	0	0	14	
7:45 AM	0	0	3	0	0	0	0	0	0	0	9	0	0	0	0	0	12	48
8:00 AM	0	0	2	0	0	0	0	0	0	0	15	0	0	0	0	0	17	55
8:15 AM	0	0	3	0	0	0	0	0	0	0	12	0	0	0	0	0	15	58
8:30 AM	0	0	5	0	0	0	0	0	0	0	14	0	0	0	0	0	19	63
8:45 AM	0	0	1	0	0	0	0	0	0	0	17	0	0	0	0	0	18	69
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	20	0	0	0	0	0	0	0	56	0	0	0	0	0	76	
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	0	0		0	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

Comments:

LOCATION: Tribute at the Glen Dwy -- Old Bridge Rd EB
CITY/STATE: Lake Ridge, VA

QC JOB #: 15745527
DATE: Thu, May 26 2022

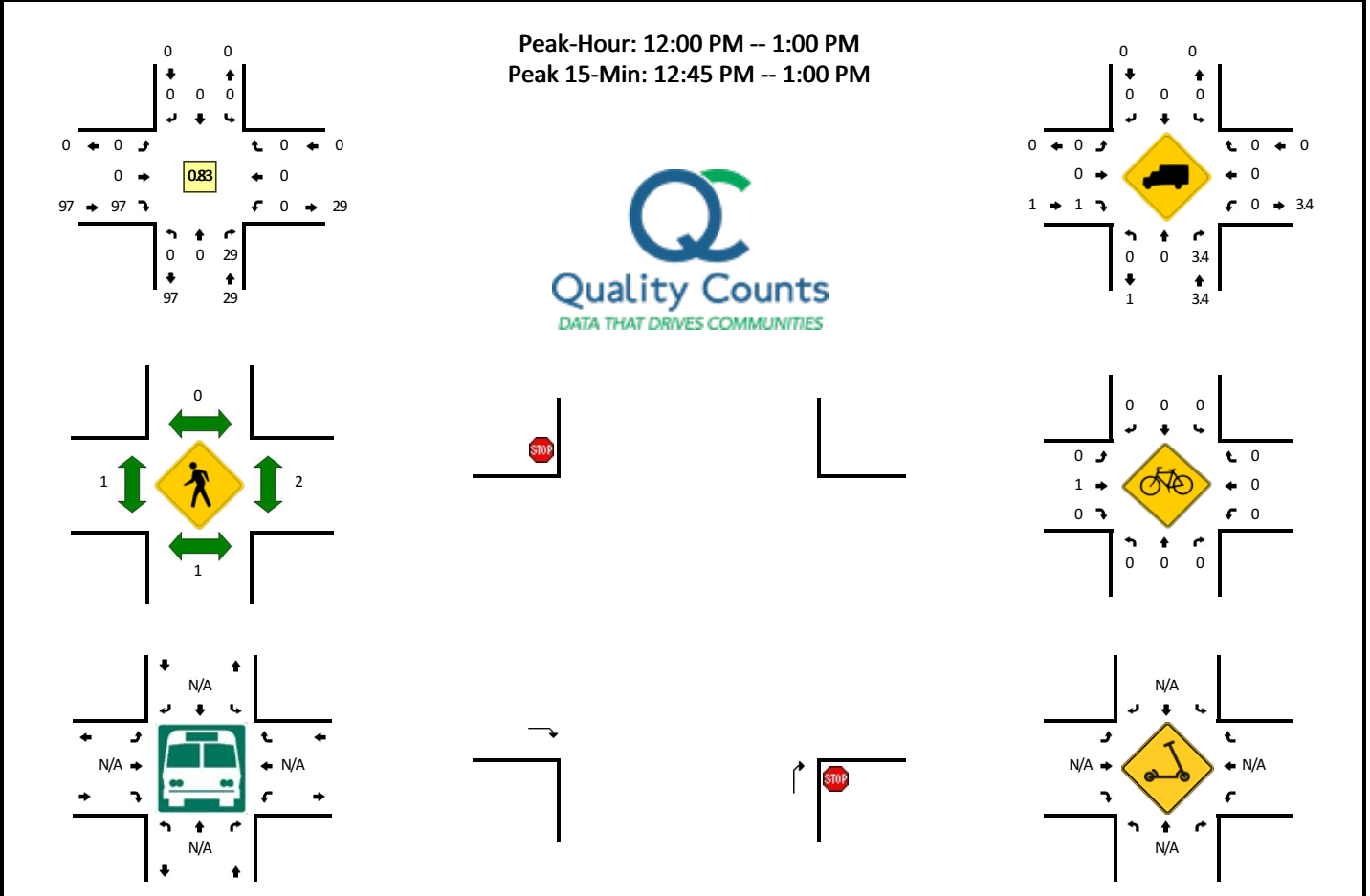


15-Min Count Period Beginning At	Tribute at the Glen Dwy (Northbound)				Tribute at the Glen Dwy (Southbound)				Old Bridge Rd EB (Eastbound)				Old Bridge Rd EB (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:30 PM	0	0	8	0	0	0	0	0	0	0	18	0	0	0	0	0	26	
4:45 PM	0	0	5	0	0	0	0	0	0	0	22	0	0	0	0	0	27	
5:00 PM	0	0	6	0	0	0	0	0	0	0	24	0	0	0	0	0	30	
5:15 PM	0	0	15	0	0	0	0	0	0	0	15	0	0	0	0	0	30	113
5:30 PM	0	0	12	0	0	0	0	0	0	0	18	0	0	0	0	0	30	117
5:45 PM	0	0	7	0	0	0	0	0	0	0	19	0	0	0	0	0	26	116
6:00 PM	0	0	3	0	0	0	0	0	0	0	10	0	0	0	0	0	13	99
6:15 PM	0	0	8	0	0	0	0	0	0	0	19	0	0	0	0	0	27	96
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	24	0	0	0	0	0	0	0	96	0	0	0	0	0	120	
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	0	0		0	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

Comments:

LOCATION: Tribute at the Glen Dwy -- Old Bridge Rd EB
CITY/STATE: Lake Ridge, VA

QC JOB #: 15745528
DATE: Thu, May 26 2022



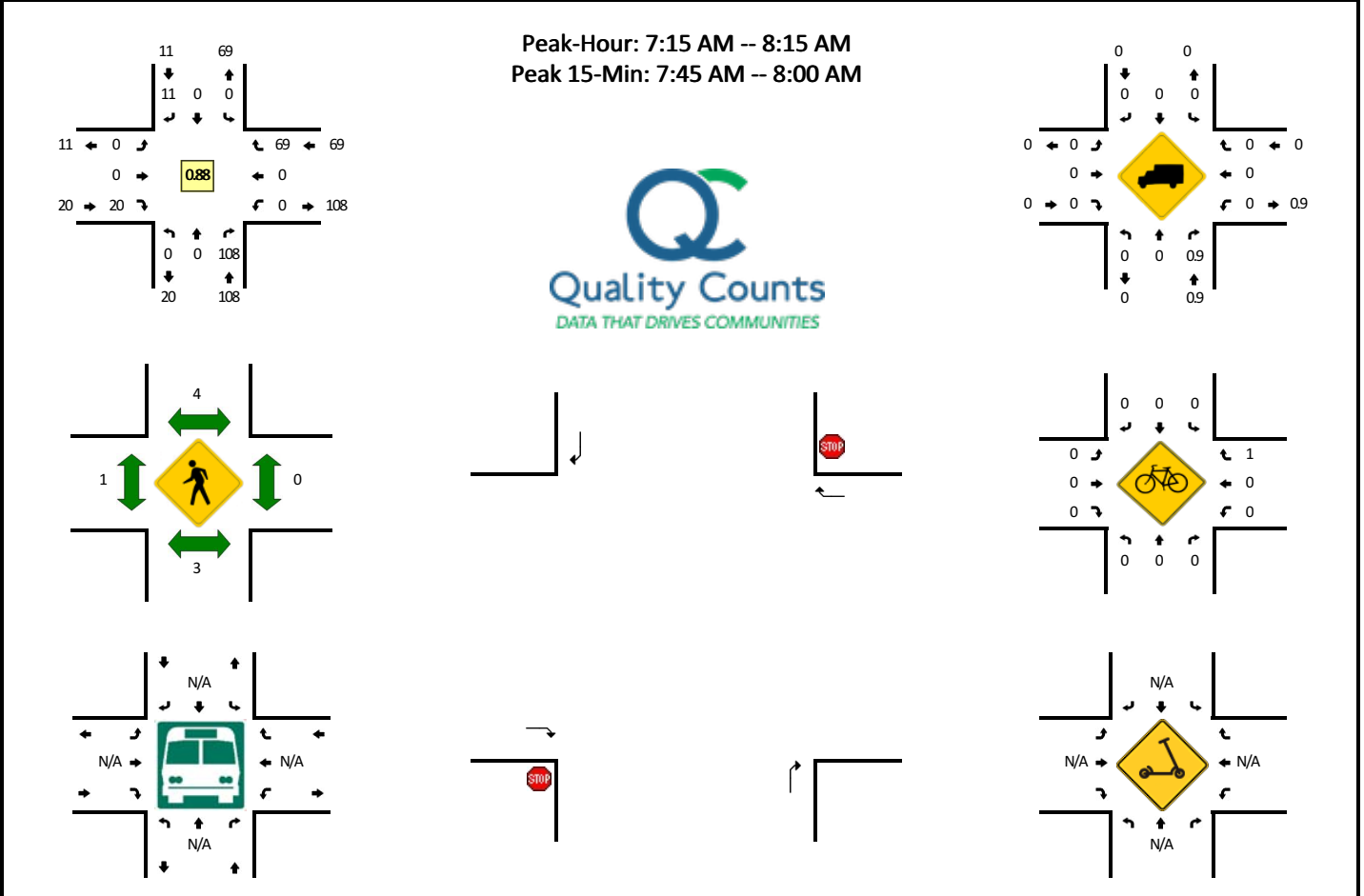
15-Min Count Period Beginning At	Tribute at the Glen Dwy (Northbound)				Tribute at the Glen Dwy (Southbound)				Old Bridge Rd EB (Eastbound)				Old Bridge Rd EB (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
11:00 AM	0	0	0	0	0	0	0	0	0	0	12	0	0	0	0	0	12	
11:15 AM	0	0	7	0	0	0	0	0	0	0	18	0	0	0	0	0	25	
11:30 AM	0	0	4	0	0	0	0	0	0	0	14	0	0	0	0	0	18	
11:45 AM	0	0	3	0	0	0	0	0	0	0	19	0	0	0	0	0	22	77
12:00 PM	0	0	6	0	0	0	0	0	0	0	22	0	0	0	0	0	28	93
12:15 PM	0	0	7	0	0	0	0	0	0	0	28	0	0	0	0	0	35	103
12:30 PM	0	0	6	0	0	0	0	0	0	0	19	0	0	0	0	0	25	110
12:45 PM	0	0	10	0	0	0	0	0	0	0	28	0	0	0	0	0	38	126

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	40	0	0	0	0	0	0	0	112	0	0	0	0	0	152
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	0	0		0
Buses																	
Pedestrians		4				0				0				4			8
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

LOCATION: Touchstone Cir -- Exxon Dwy/S Safeway Dwy
CITY/STATE: Lake Ridge, VA

QC JOB #: 15745529
DATE: Thu, May 26 2022

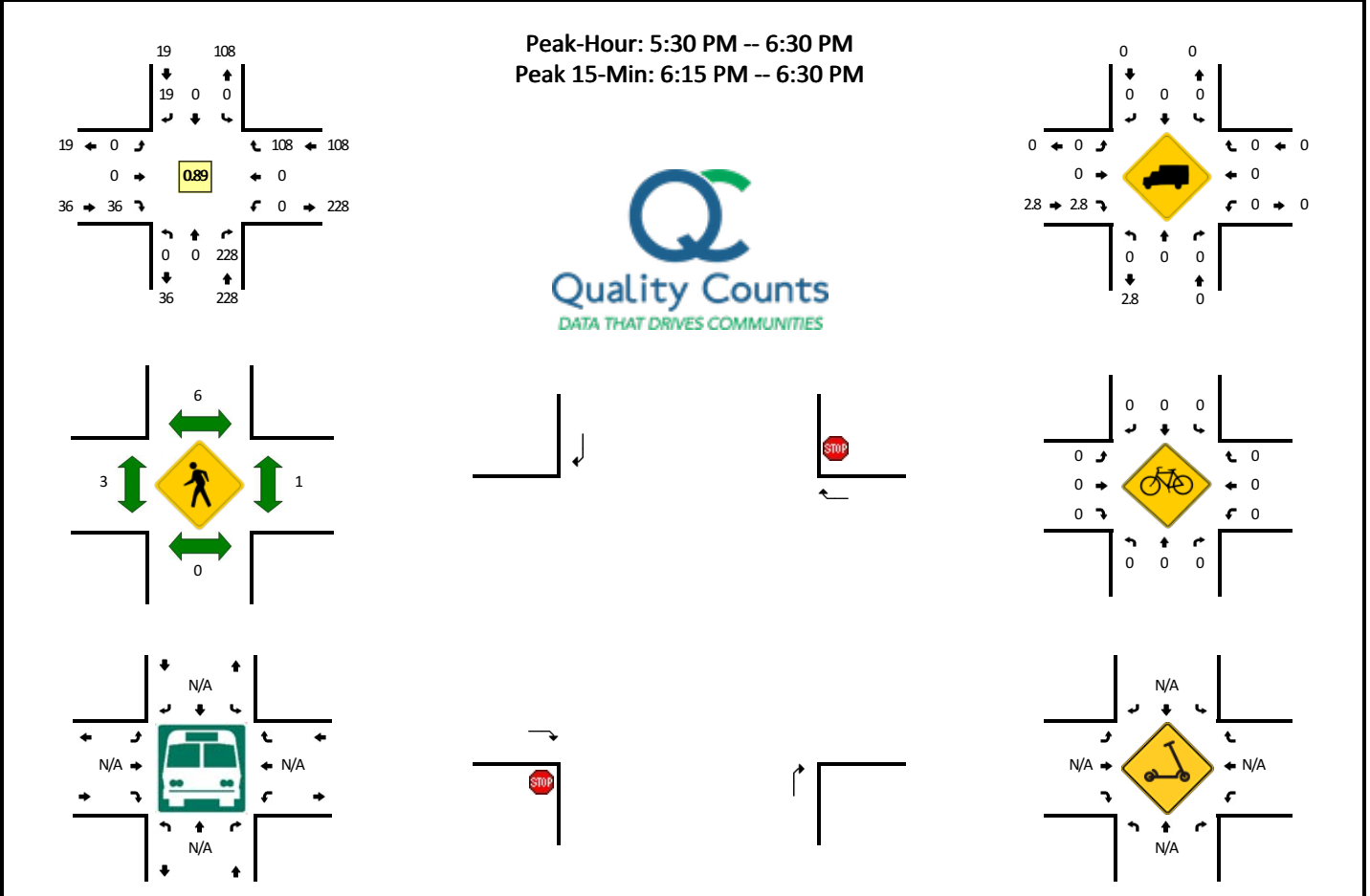


15-Min Count Period Beginning At	Touchstone Cir (Northbound)				Touchstone Cir (Southbound)				Exxon Dwy/S Safeway Dwy (Eastbound)				Exxon Dwy/S Safeway Dwy (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	19	0	0	0	5	0	0	0	5	0	0	0	15	0	44	
7:15 AM	0	0	22	0	0	0	3	0	0	0	4	0	0	0	17	0	46	
7:30 AM	0	0	29	0	0	0	2	0	0	0	6	0	0	0	18	0	55	
7:45 AM	0	0	32	0	0	0	3	0	0	0	8	0	0	0	16	0	59	204
8:00 AM	0	0	25	0	0	0	3	0	0	0	2	0	0	0	18	0	48	208
8:15 AM	0	0	26	0	0	0	3	0	0	0	4	0	0	0	8	0	41	203
8:30 AM	0	0	24	0	0	0	8	0	0	0	4	0	0	0	17	0	53	201
8:45 AM	0	0	27	0	0	0	3	0	0	0	4	0	0	0	13	0	47	189
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	128	0	0	0	12	0	0	0	32	0	0	0	64	0	236	
Heavy Trucks	0	0	4		0	0	0		0	0	0		0	0	0		4	
Buses																		
Pedestrians		4				4				0				0			8	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	4		4	
Scoters																		

Comments:

LOCATION: Touchstone Cir -- Exxon Dwy/S Safeway Dwy
CITY/STATE: Lake Ridge, VA

QC JOB #: 15745530
DATE: Thu, May 26 2022



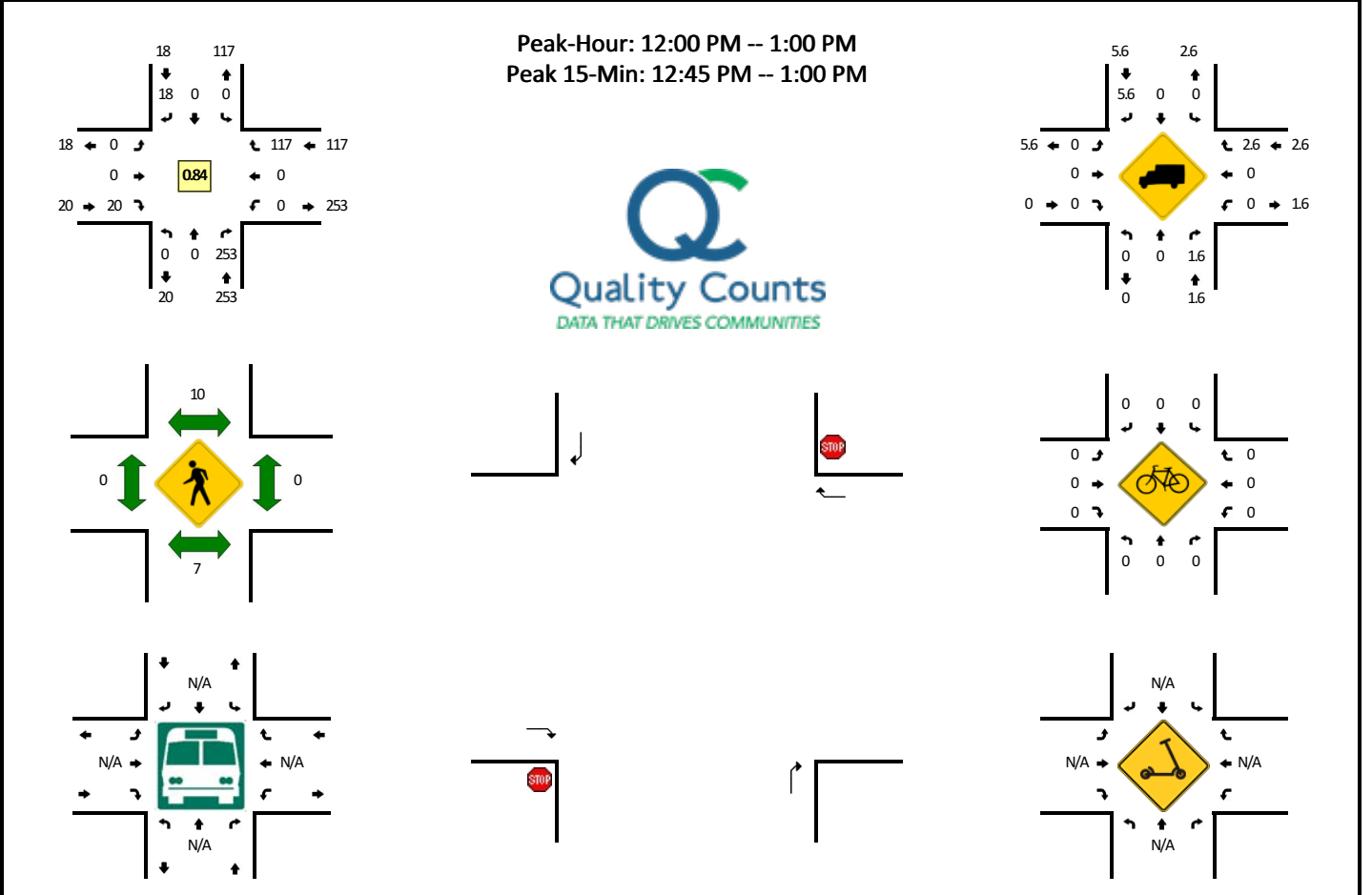
15-Min Count Period Beginning At	Touchstone Cir (Northbound)				Touchstone Cir (Southbound)				Exxon Dwy/S Safeway Dwy (Eastbound)				Exxon Dwy/S Safeway Dwy (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:30 PM	0	0	55	0	0	0	4	0	0	0	8	0	0	0	22	0	89	
4:45 PM	0	0	49	0	0	0	5	0	0	0	8	0	0	0	26	0	88	
5:00 PM	0	0	41	0	0	0	3	0	0	0	8	0	0	0	30	0	82	
5:15 PM	0	0	58	0	0	0	5	0	0	0	6	0	0	0	27	0	96	355
5:30 PM	0	0	49	0	0	0	5	0	0	0	11	0	0	0	29	0	94	360
5:45 PM	0	0	66	0	0	0	6	0	0	0	6	0	0	0	24	0	102	374
6:00 PM	0	0	48	0	0	0	2	0	0	0	9	0	0	0	26	0	85	377
6:15 PM	0	0	65	0	0	0	6	0	0	0	10	0	0	0	29	0	110	391

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	260	0	0	0	24	0	0	0	40	0	0	0	116	0	440
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	0	0		0
Buses																	
Pedestrians		0				4				4				0			8
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

LOCATION: Touchstone Cir -- Exxon Dwy/S Safeway Dwy
CITY/STATE: Lake Ridge, VA

QC JOB #: 15745531
DATE: Thu, May 26 2022



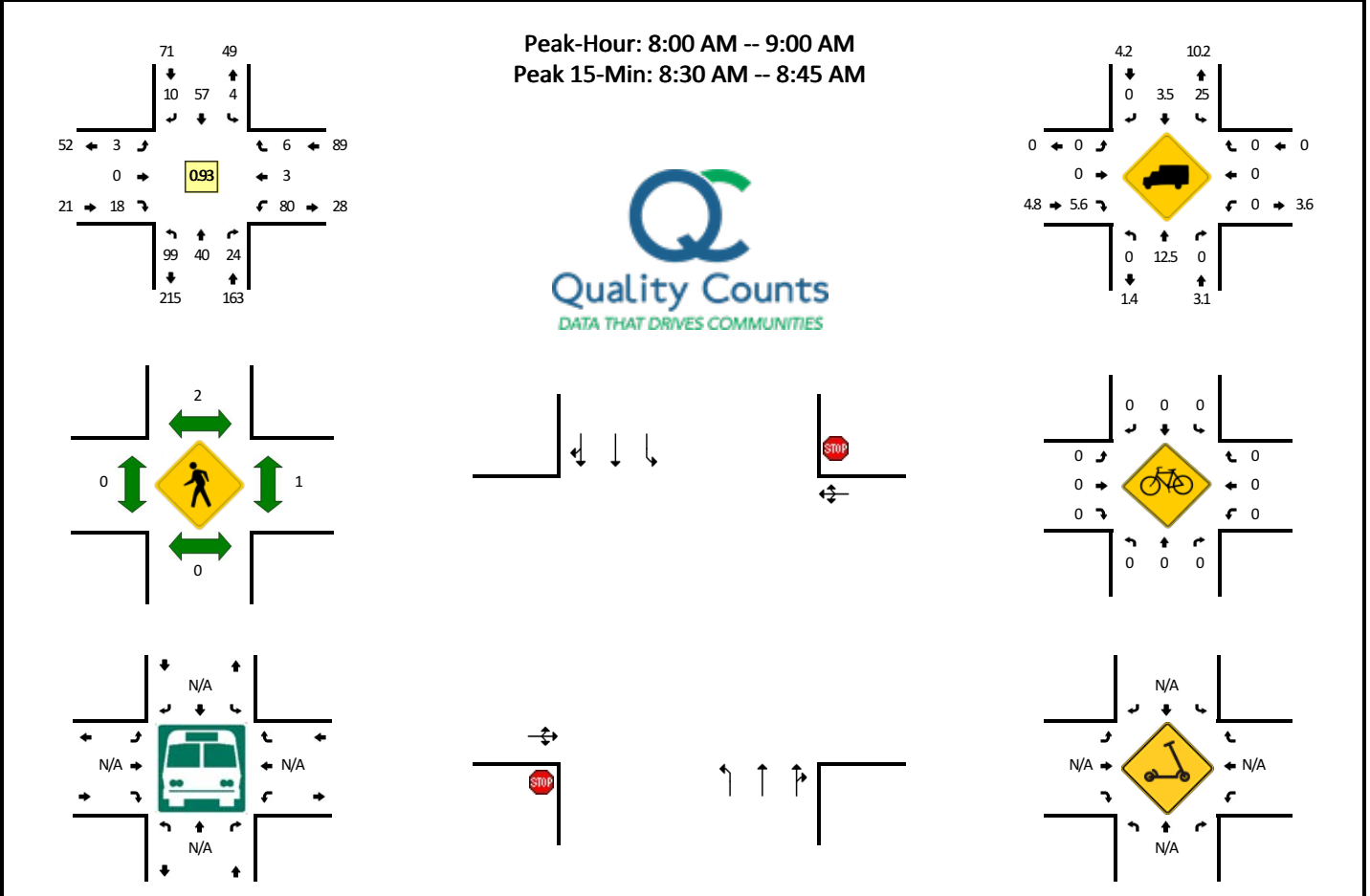
15-Min Count Period Beginning At	Touchstone Cir (Northbound)				Touchstone Cir (Southbound)				Exxon Dwy/S Safeway Dwy (Eastbound)				Exxon Dwy/S Safeway Dwy (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
11:00 AM	0	0	34	0	0	0	2	0	0	0	4	0	0	0	14	0	54	
11:15 AM	0	0	39	0	0	0	4	0	0	0	3	0	0	0	14	0	60	
11:30 AM	0	0	44	0	0	0	6	0	0	0	2	0	0	0	22	0	74	
11:45 AM	0	0	55	0	0	0	2	0	0	0	4	0	0	0	22	0	83	271
12:00 PM	0	0	61	0	0	0	3	0	0	0	4	0	0	0	22	0	90	307
12:15 PM	0	0	55	0	0	0	3	0	0	0	2	0	0	0	28	0	88	335
12:30 PM	0	0	68	0	0	0	8	0	0	0	8	0	0	0	25	0	109	370
12:45 PM	0	0	69	0	0	0	4	0	0	0	6	0	0	0	42	0	121	408

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	276	0	0	0	16	0	0	0	24	0	0	0	168	0	484
Heavy Trucks	0	0	4		0	0	0		0	0	0		0	0	0		4
Buses																	
Pedestrians		4				16				0				0			20
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

LOCATION: Touchstone Cir -- Seeton Sq/N Safeway Dwy
CITY/STATE: Lake Ridge, VA

QC JOB #: 15745532
DATE: Thu, May 26 2022

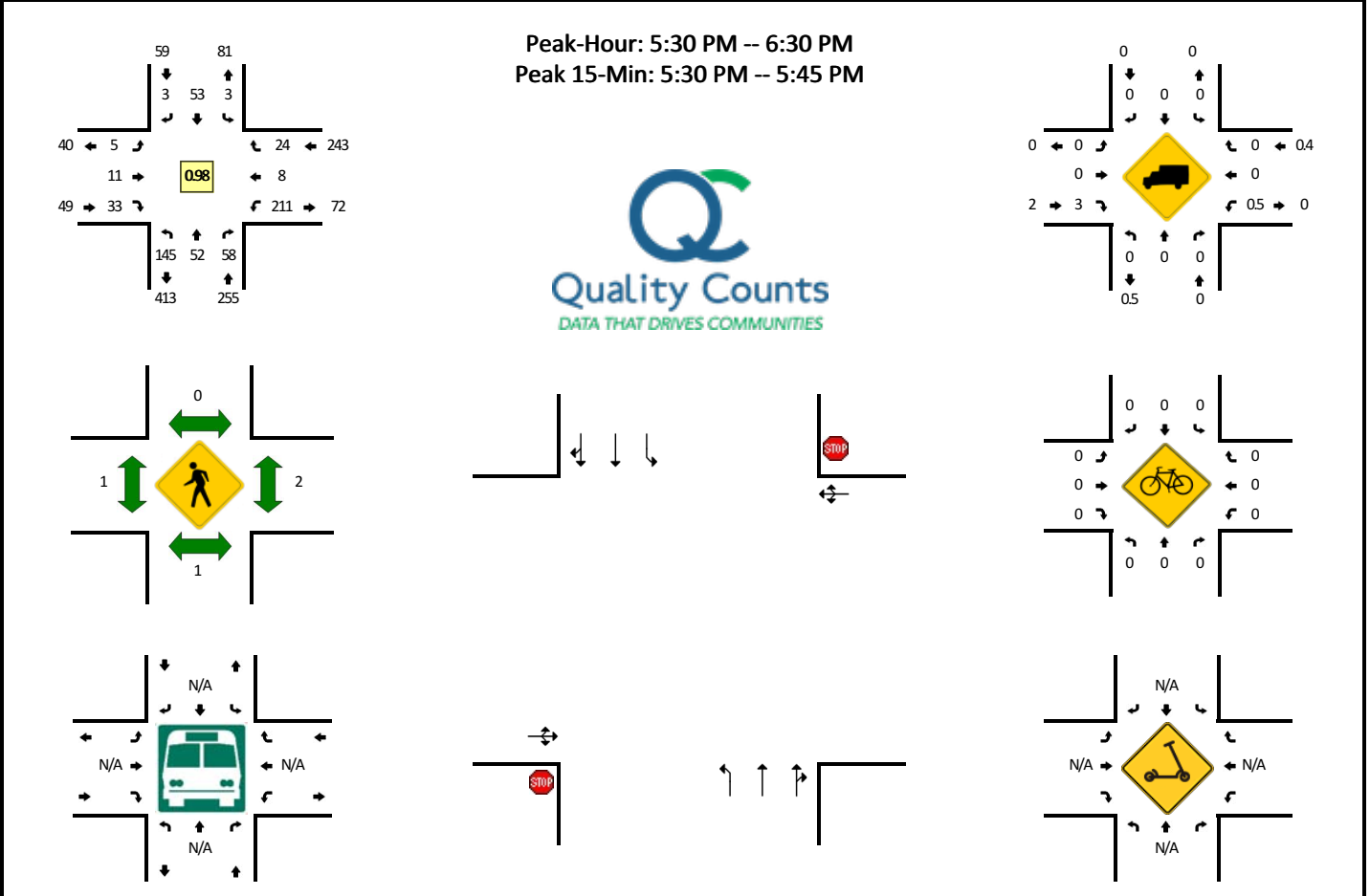


15-Min Count Period Beginning At	Touchstone Cir (Northbound)				Touchstone Cir (Southbound)				Seeton Sq/N Safeway Dwy (Eastbound)				Seeton Sq/N Safeway Dwy (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	4	7	3	16	1	14	1	0	0	1	2	0	13	0	2	0	64	
7:15 AM	4	4	3	16	1	8	1	0	1	3	6	0	22	1	0	0	70	
7:30 AM	6	6	6	17	4	11	1	0	0	0	6	0	15	1	0	0	73	
7:45 AM	9	4	7	19	2	13	1	0	1	1	3	0	19	2	0	0	81	288
8:00 AM	8	11	6	19	1	10	0	0	1	0	3	0	27	0	0	0	86	310
8:15 AM	14	11	4	6	1	14	3	0	0	0	6	0	22	1	0	0	82	322
8:30 AM	11	13	6	21	1	13	6	0	0	0	3	0	14	1	3	0	92	341
8:45 AM	6	5	8	14	1	20	1	0	2	0	6	0	17	1	3	0	84	344
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	44	52	24	84	4	52	24	0	0	0	12	0	56	4	12	0	368	
Heavy Trucks	0	12	0		4	0	0		0	0	0		0	0	0		16	
Buses																	0	
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																	0	

Comments:

LOCATION: Touchstone Cir -- Seeton Sq/N Safeway Dwy
CITY/STATE: Lake Ridge, VA

QC JOB #: 15745533
DATE: Thu, May 26 2022



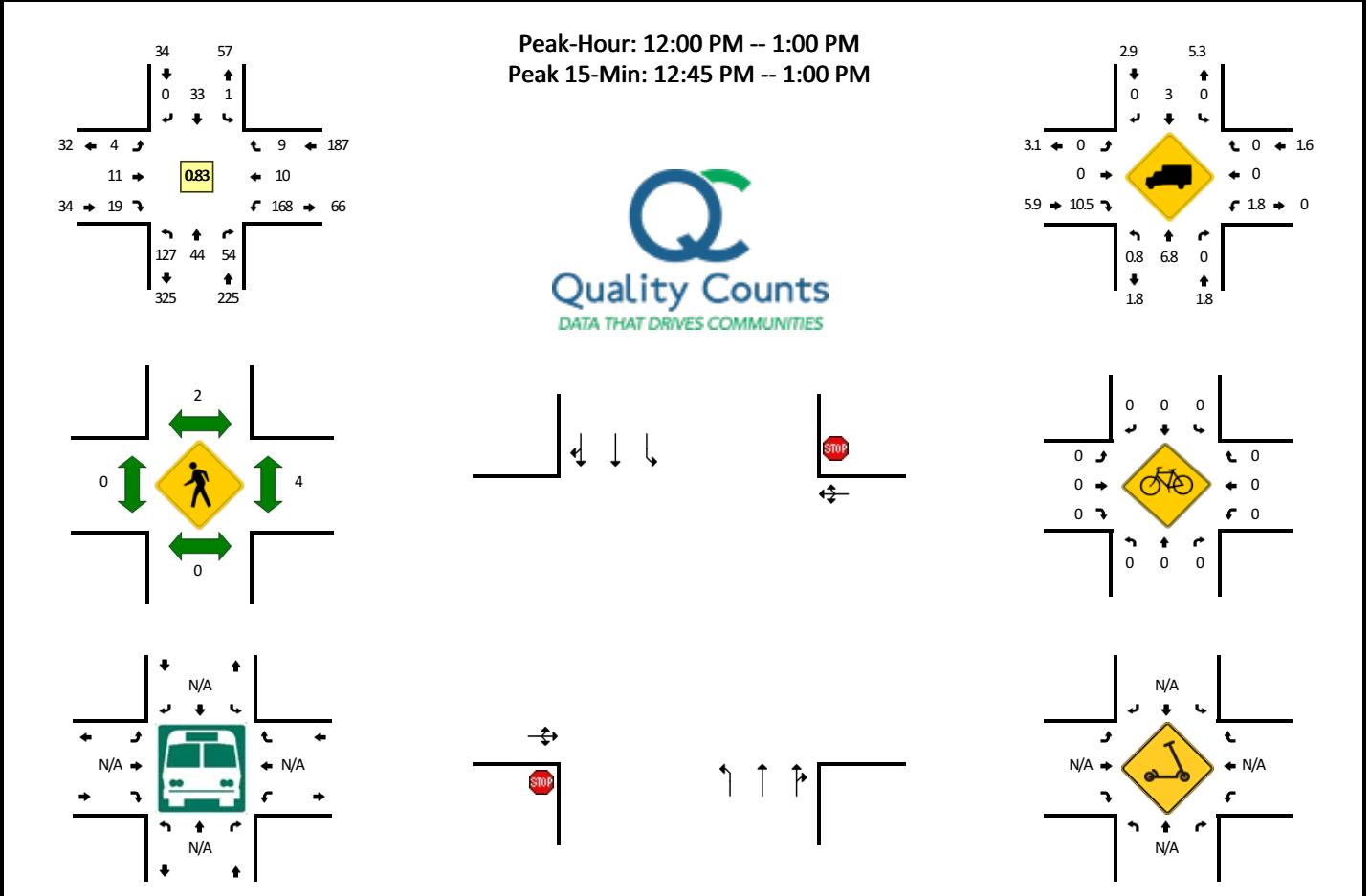
15-Min Count Period Beginning At	Touchstone Cir (Northbound)				Touchstone Cir (Southbound)				Seeton Sq/N Safeway Dwy (Eastbound)				Seeton Sq/N Safeway Dwy (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:30 PM	6	10	20	27	4	10	1	0	0	2	6	0	32	0	1	0	119	
4:45 PM	8	12	16	23	1	11	3	0	0	0	1	0	43	2	3	0	123	
5:00 PM	11	10	8	26	2	13	1	0	0	0	9	0	32	5	4	0	121	
5:15 PM	5	8	17	28	2	14	0	1	2	1	4	0	52	4	3	0	141	504
5:30 PM	9	17	16	30	2	14	2	0	4	2	14	0	42	0	3	0	155	540
5:45 PM	9	12	9	30	1	15	0	0	0	4	11	0	49	1	9	0	150	567
6:00 PM	6	12	13	27	0	10	0	0	0	3	4	0	66	3	8	0	152	598
6:15 PM	5	11	20	29	0	14	1	0	1	2	4	0	54	4	4	0	149	606

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	36	68	64	120	8	56	8	0	16	8	56	0	168	0	12	0	620
Heavy Trucks	0	0	0		0	0	0		0	0	4		0	0	0		4
Buses																	
Pedestrians		4				0				0				4			8
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scoters																	

Comments:

LOCATION: Touchstone Cir -- Seeton Sq/N Safeway Dwy
CITY/STATE: Lake Ridge, VA

QC JOB #: 15745534
DATE: Thu, May 26 2022



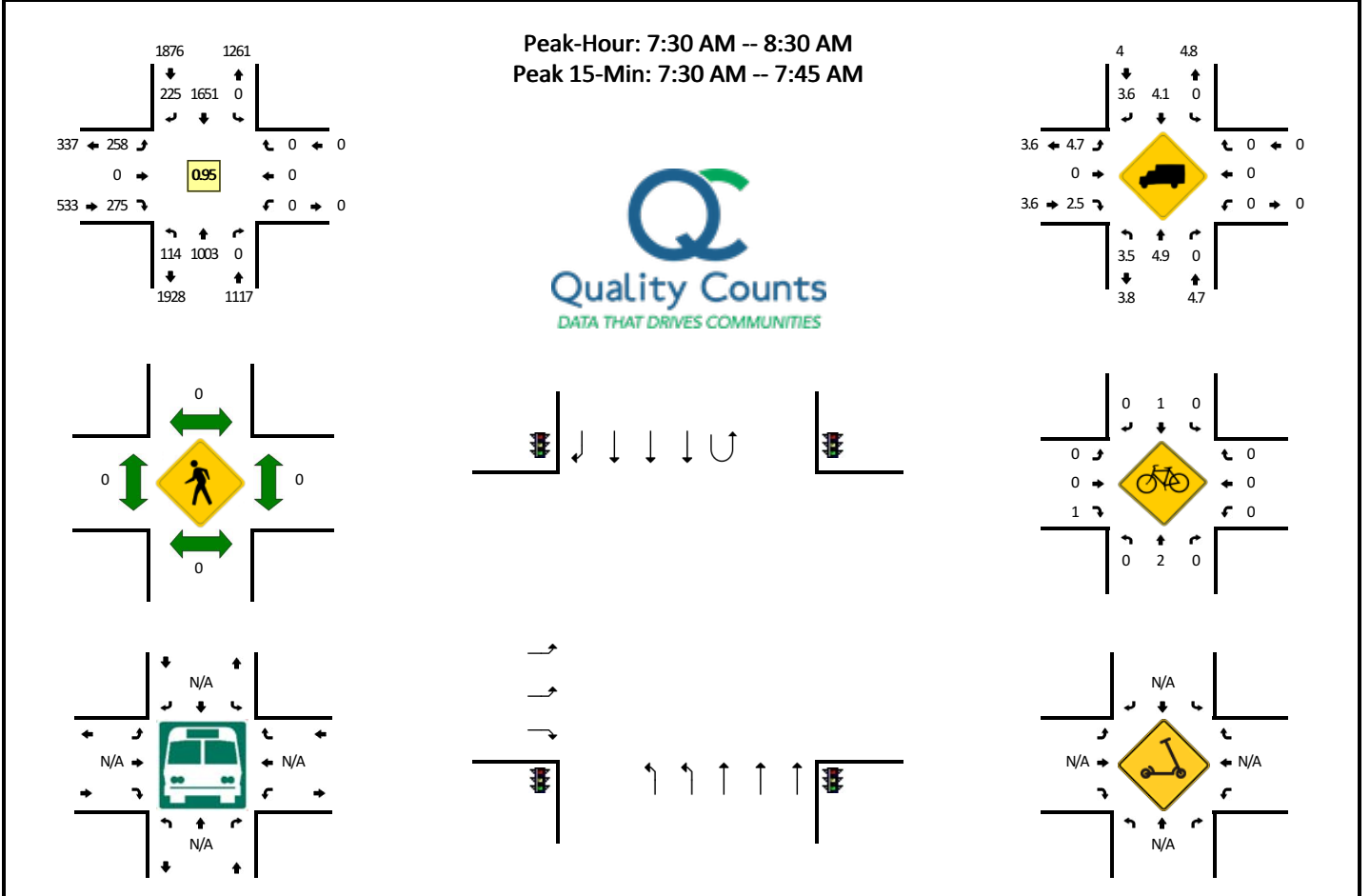
15-Min Count Period Beginning At	Touchstone Cir (Northbound)				Touchstone Cir (Southbound)				Seeton Sq/N Safeway Dwy (Eastbound)				Seeton Sq/N Safeway Dwy (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
11:00 AM	3	7	7	12	0	7	1	0	1	1	5	0	26	3	1	0	74	
11:15 AM	12	4	6	16	1	11	3	0	2	2	3	0	23	5	3	0	91	
11:30 AM	5	3	15	24	4	10	0	0	1	4	4	0	32	8	3	0	113	
11:45 AM	6	8	8	15	1	6	3	0	2	2	7	0	34	5	0	0	97	375
12:00 PM	7	13	7	19	0	5	0	0	1	2	7	0	37	4	2	0	104	405
12:15 PM	5	10	16	22	1	8	0	0	0	5	4	0	45	1	1	0	118	432
12:30 PM	8	5	18	26	0	12	0	0	2	1	2	0	35	2	3	0	114	433
12:45 PM	2	16	13	38	0	8	0	0	1	3	6	0	51	3	3	0	144	480

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	8	64	52	152	0	32	0	0	4	12	24	0	204	12	12	0	576
Heavy Trucks	0	8	0		0	4	0		0	0	0		0	0	0		12
Buses																	
Pedestrians		0				8				0				0			8
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

LOCATION: Prince William Pkwy -- Hillendale Dr
CITY/STATE: Dale City, VA

QC JOB #: 15961201
DATE: Tue, Sep 27 2022

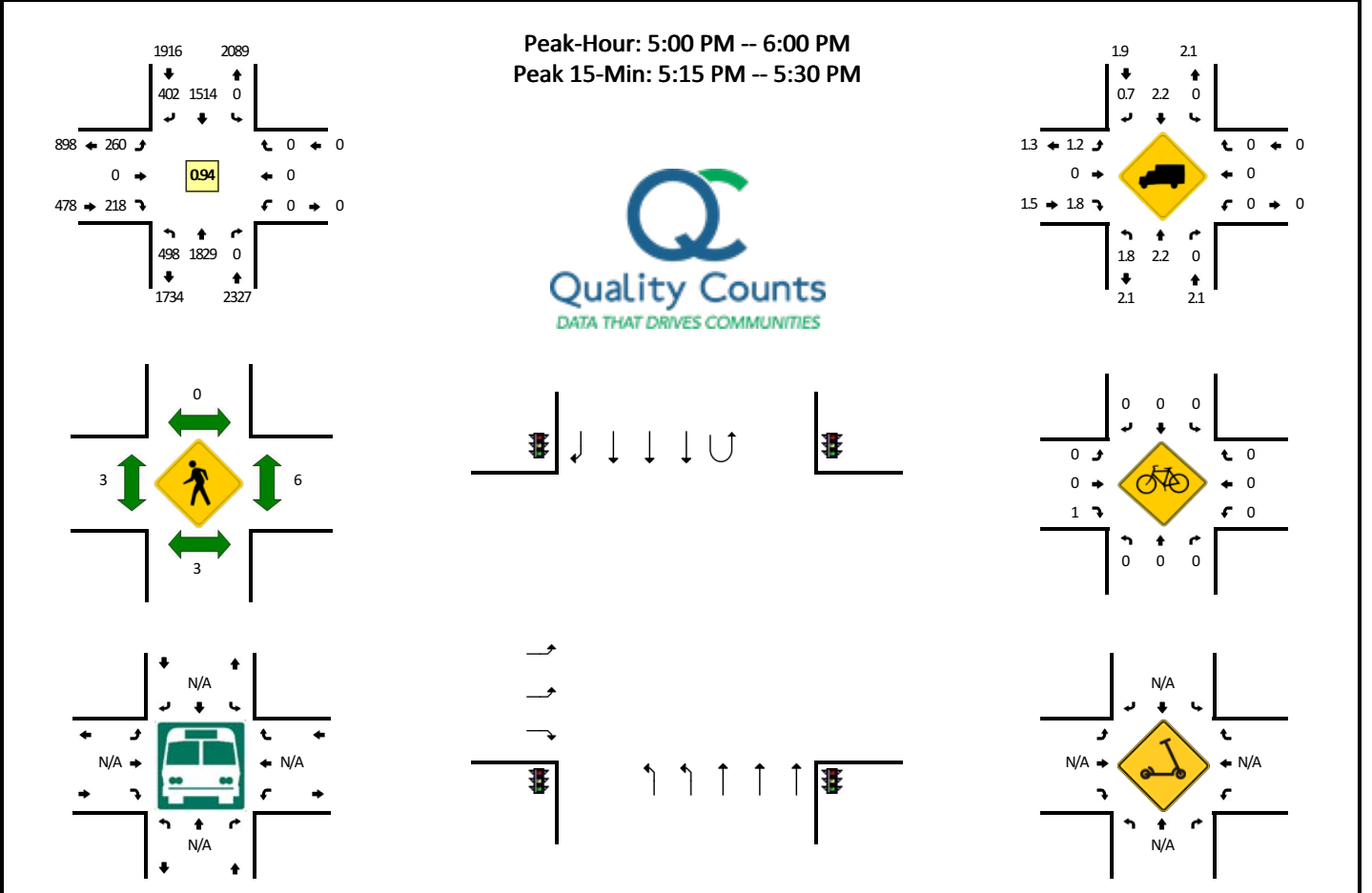


15-Min Count Period Beginning At	Prince William Pkwy (Northbound)				Prince William Pkwy (Southbound)				Hillendale Dr (Eastbound)				Hillendale Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	17	173	0	0	0	426	39	0	49	0	96	0	0	0	0	0	800	
7:15 AM	17	213	0	1	0	416	36	0	50	0	74	0	0	0	0	0	807	
7:30 AM	32	264	0	1	0	440	71	0	55	0	65	0	0	0	0	0	928	
7:45 AM	34	250	0	0	0	399	39	0	88	0	86	0	0	0	0	0	896	3431
8:00 AM	21	242	0	1	0	415	61	0	56	0	66	0	0	0	0	0	862	3493
8:15 AM	25	247	0	0	0	397	54	0	59	0	58	0	0	0	0	0	840	3526
8:30 AM	36	263	0	1	0	324	48	0	62	0	60	0	0	0	0	0	794	3392
8:45 AM	27	262	0	0	0	365	51	0	61	0	66	0	0	0	0	0	832	3328
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	128	1056	0	4	0	1760	284	0	220	0	260	0	0	0	0	0	3712	
Heavy Trucks	12	40	0		0	80	16		28	0	4		0	0	0		180	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scooters																	0	

Comments:

LOCATION: Prince William Pkwy -- Hillendale Dr
CITY/STATE: Dale City, VA

QC JOB #: 15961202
DATE: Tue, Sep 27 2022

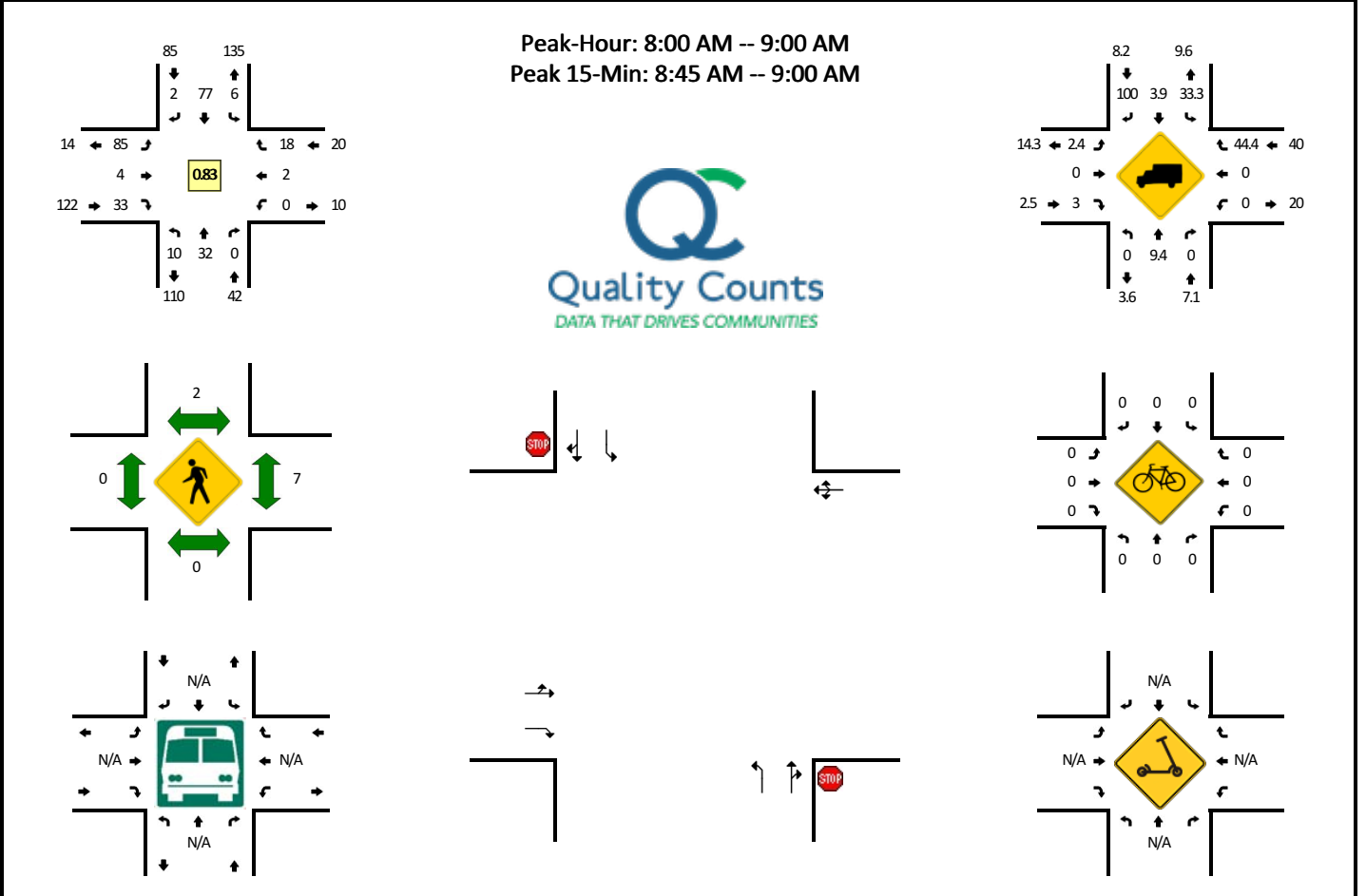


15-Min Count Period Beginning At	Prince William Pkwy (Northbound)				Prince William Pkwy (Southbound)				Hillendale Dr (Eastbound)				Hillendale Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	67	375	0	1	0	375	103	0	59	0	58	0	0	0	0	0	1038	
4:15 PM	110	429	0	1	0	341	87	0	55	0	49	0	0	0	0	0	1072	
4:30 PM	103	428	0	0	0	371	92	0	62	0	58	0	0	0	0	0	1114	
4:45 PM	116	415	0	0	0	399	80	0	54	0	40	0	0	0	0	0	1104	4328
5:00 PM	132	426	0	2	0	382	113	0	76	0	58	0	0	0	0	0	1189	4479
5:15 PM	137	500	0	0	0	433	93	0	55	0	44	0	0	0	0	0	1262	4669
5:30 PM	96	435	0	0	0	335	102	0	74	0	65	0	0	0	0	0	1107	4662
5:45 PM	131	468	0	0	0	364	94	0	55	0	51	0	0	0	0	0	1163	4721
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	548	2000	0	0	0	1732	372	0	220	0	176	0	0	0	0	0	5048	
Heavy Trucks	20	44	0		0	44	8		0	0	0		0	0	0		116	
Buses																		
Pedestrians		4				0				4				12			20	
Bicycles	0	0	0		0	0	0		0	0	4		0	0	0		4	
Scoters																		

Comments:

LOCATION: Troupe St -- Chinn Park Dr
CITY/STATE: Lake Ridge, VA

QC JOB #: 15961203
DATE: Tue, Sep 27 2022



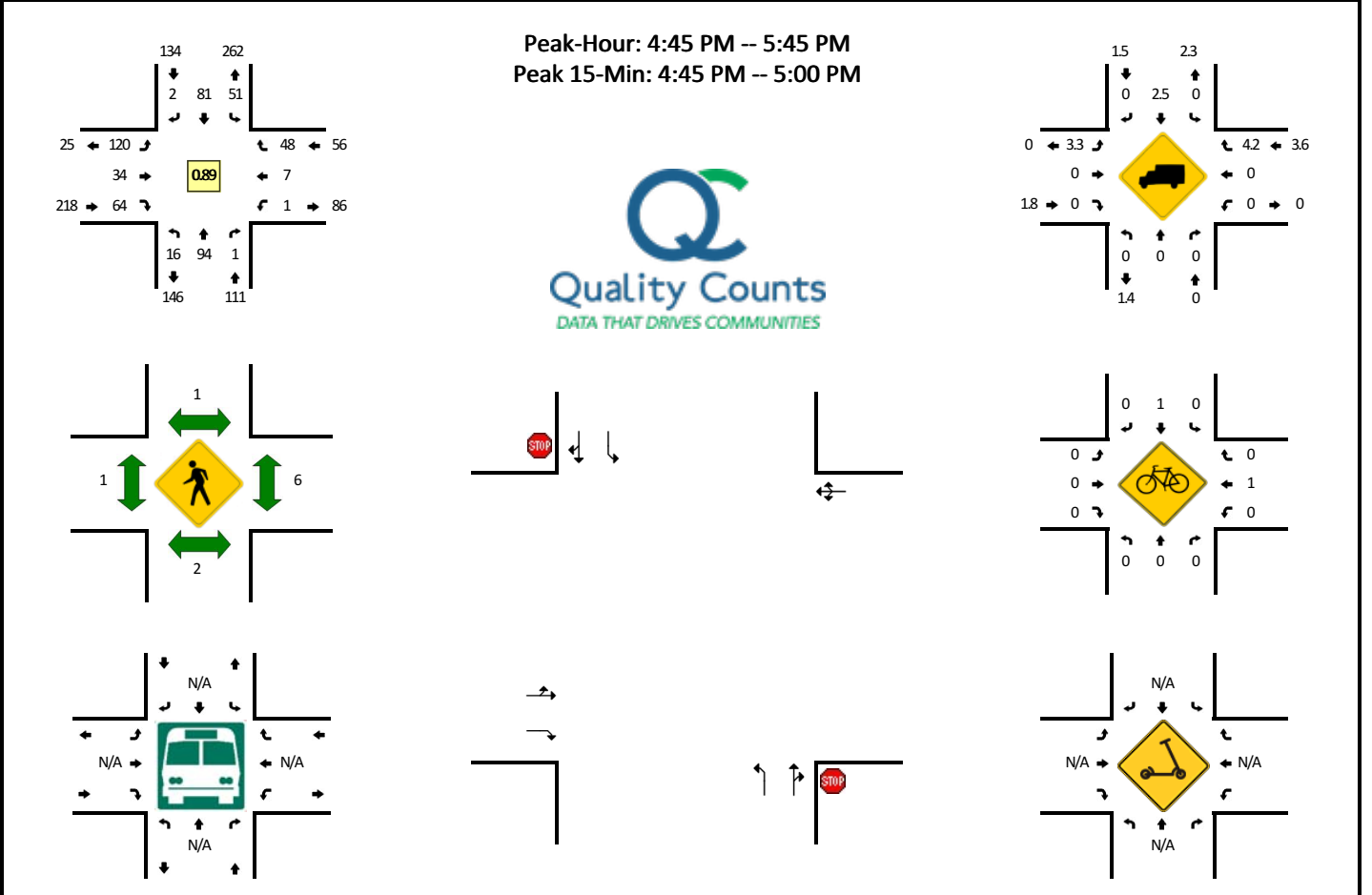
15-Min Count Period Beginning At	Troupe St (Northbound)				Troupe St (Southbound)				Chinn Park Dr (Eastbound)				Chinn Park Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	1	7	0	0	4	8	1	0	7	0	3	0	0	1	6	0	38	
7:15 AM	0	3	0	0	2	8	1	0	10	1	4	0	0	5	1	0	35	
7:30 AM	3	5	0	0	2	7	0	0	7	0	3	0	0	0	9	0	36	
7:45 AM	0	3	0	0	3	14	2	0	24	1	2	0	1	0	2	0	52	161
8:00 AM	3	9	0	0	2	20	1	0	23	2	6	0	0	1	4	0	71	194
8:15 AM	3	6	0	0	1	15	1	0	14	2	10	0	0	1	7	0	60	219
8:30 AM	3	5	0	0	2	12	0	0	25	0	6	0	0	0	4	0	57	240
8:45 AM	1	12	0	0	1	30	0	0	23	0	11	0	0	0	3	0	81	269

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	4	48	0	0	4	120	0	0	92	0	44	0	0	0	12	0	324
Heavy Trucks	0	0	0	0	4	4	0	0	4	0	0	0	0	0	8	0	20
Buses																	
Pedestrians		0				4				0				12			16
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scoters																	

Comments:

LOCATION: Troupe St -- Chinn Park Dr
CITY/STATE: Lake Ridge, VA

QC JOB #: 15961204
DATE: Tue, Sep 27 2022

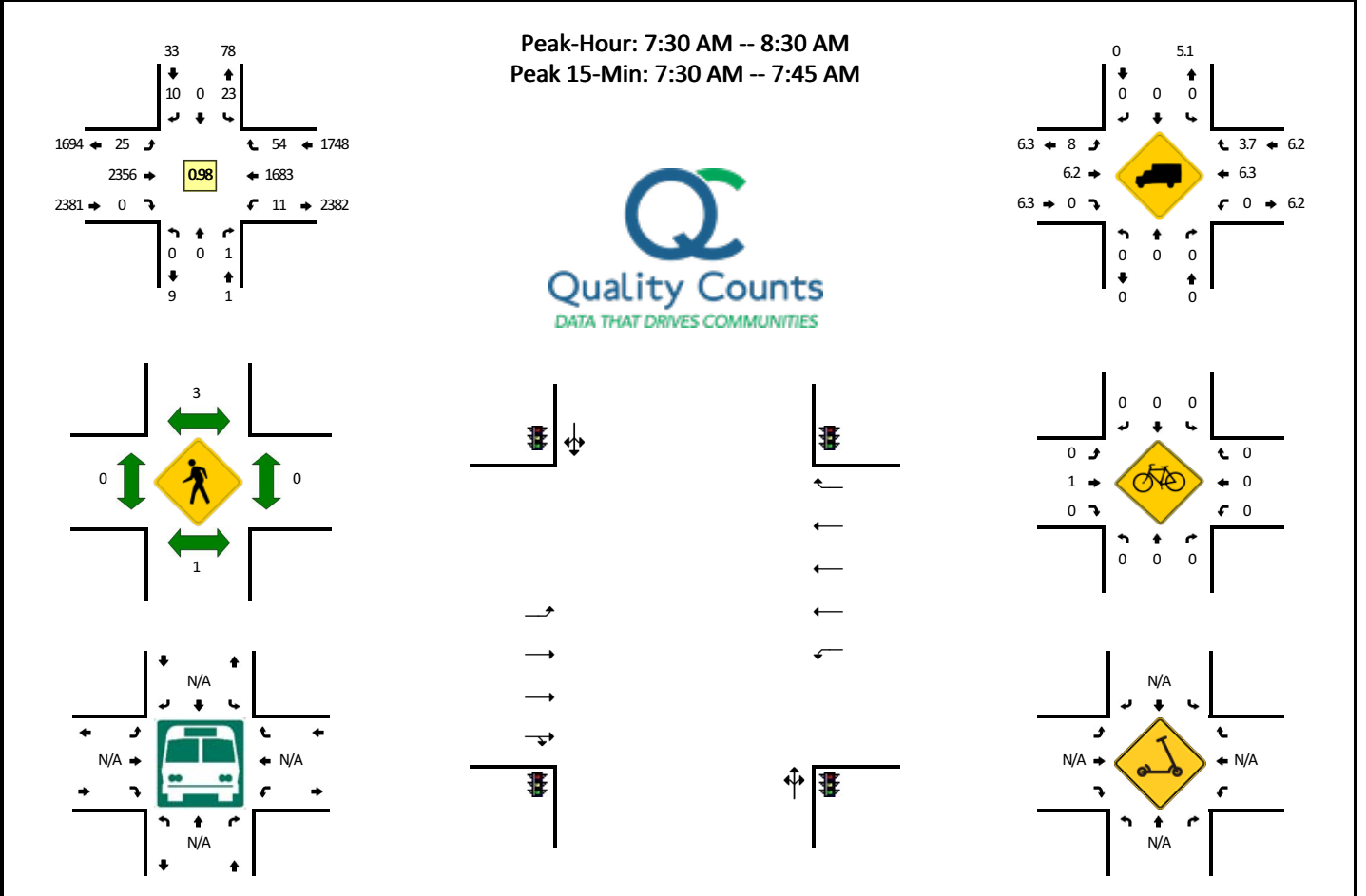


15-Min Count Period Beginning At	Troupe St (Northbound)				Troupe St (Southbound)				Chinn Park Dr (Eastbound)				Chinn Park Dr (Westbound)				Total	Hourly Totals	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U			
4:00 PM	1	25	0	0	6	26	0	0	34	1	6	0	0	0	0	4	0	103	
4:15 PM	2	14	0	0	3	15	1	0	33	3	9	0	0	0	0	7	0	87	
4:30 PM	6	26	3	0	8	26	1	0	22	4	9	0	0	3	9	0	0	117	
4:45 PM	5	24	0	0	11	27	1	0	24	14	17	0	0	3	19	0	0	145	452
5:00 PM	6	26	0	0	20	14	1	0	27	13	14	0	0	1	9	0	0	131	480
5:15 PM	3	19	0	0	14	21	0	0	28	4	18	0	1	1	11	0	0	120	513
5:30 PM	2	25	1	0	6	19	0	0	41	3	15	0	0	2	9	0	0	123	519
5:45 PM	2	24	0	0	7	25	0	0	24	11	10	0	0	2	7	0	0	112	486
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total		
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U			
All Vehicles	20	96	0	0	44	108	4	0	96	56	68	0	0	12	76	0	0	580	
Heavy Trucks	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	4	
Buses																			
Pedestrians		8				0				0				8				16	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0			0	
Scoters																			

Comments:

LOCATION: Reids Prospect Dr/Black Forest Ln -- Prince William Pkwy
CITY/STATE: Dale City, VA

QC JOB #: 15961205
DATE: Tue, Sep 27 2022

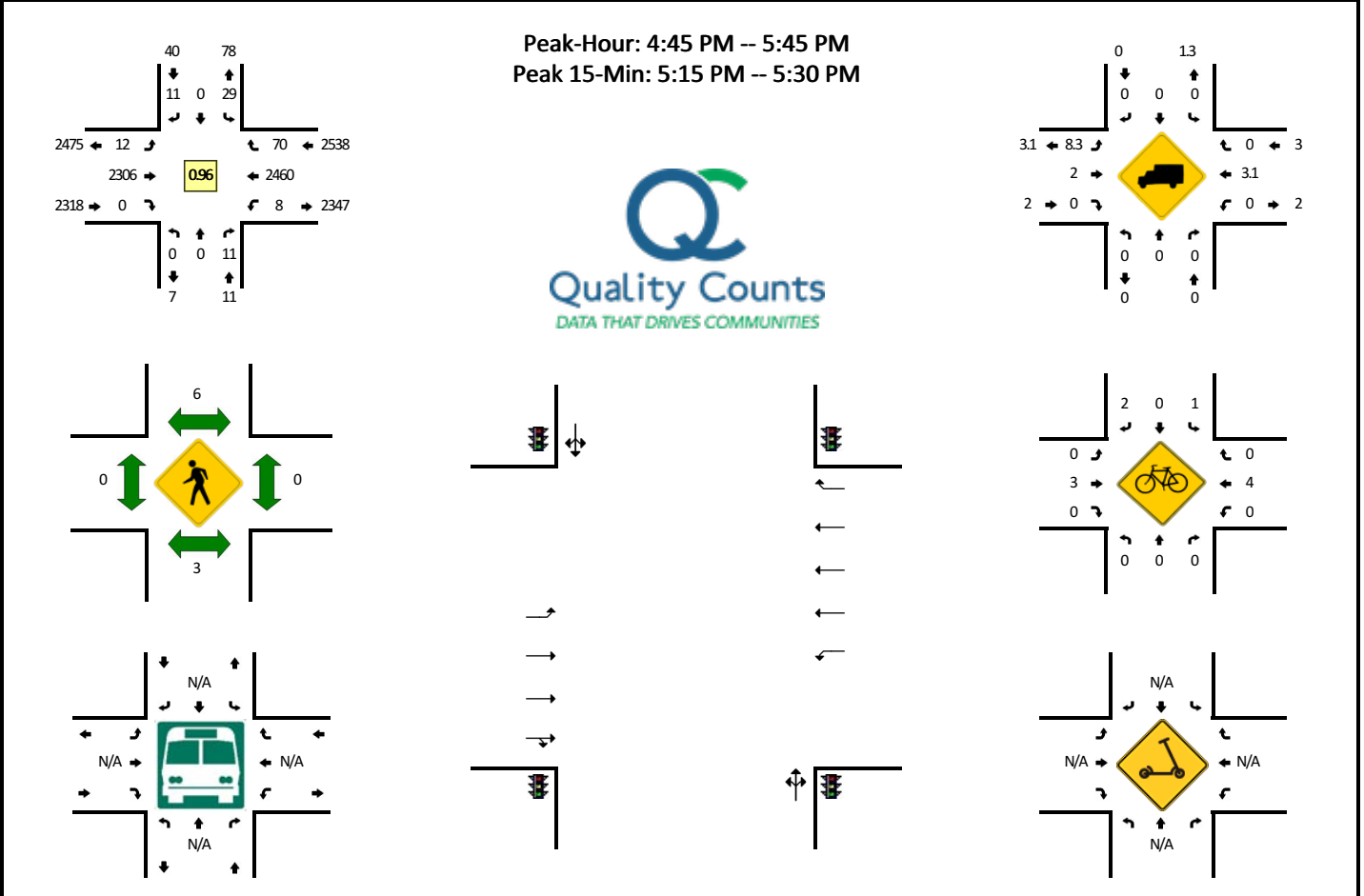


15-Min Count Period Beginning At	Reids Prospect Dr/Black Forest Ln (Northbound)				Reids Prospect Dr/Black Forest Ln (Southbound)				Prince William Pkwy (Eastbound)				Prince William Pkwy (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	2	0	5	0	2	0	3	498	0	0	0	306	5	0	821	
7:15 AM	0	0	0	0	10	0	2	0	0	535	0	0	2	336	10	0	895	
7:30 AM	0	0	0	0	3	0	1	0	6	615	0	0	2	424	10	1	1062	
7:45 AM	0	0	1	0	9	0	2	0	2	592	0	1	1	406	16	0	1030	3808
8:00 AM	0	0	0	0	4	0	7	0	7	614	0	0	3	410	10	1	1056	4043
8:15 AM	0	0	0	0	7	0	0	0	9	535	0	0	3	443	18	0	1015	4163
8:30 AM	0	0	0	0	8	0	1	0	2	490	0	1	0	439	9	0	950	4051
8:45 AM	0	0	0	0	5	0	2	0	2	550	0	2	5	357	11	1	935	3956
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	12	0	4	0	24	2460	0	0	8	1696	40	4	4248	
Heavy Trucks	0	0	0	0	0	0	0	0	4	140	0	0	0	124	0	0	268	
Buses																		
Pedestrians		0				4				0				0			4	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scooters																		

Comments:

LOCATION: Reids Prospect Dr/Black Forest Ln -- Prince William Pkwy
CITY/STATE: Dale City, VA

QC JOB #: 15961206
DATE: Tue, Sep 27 2022

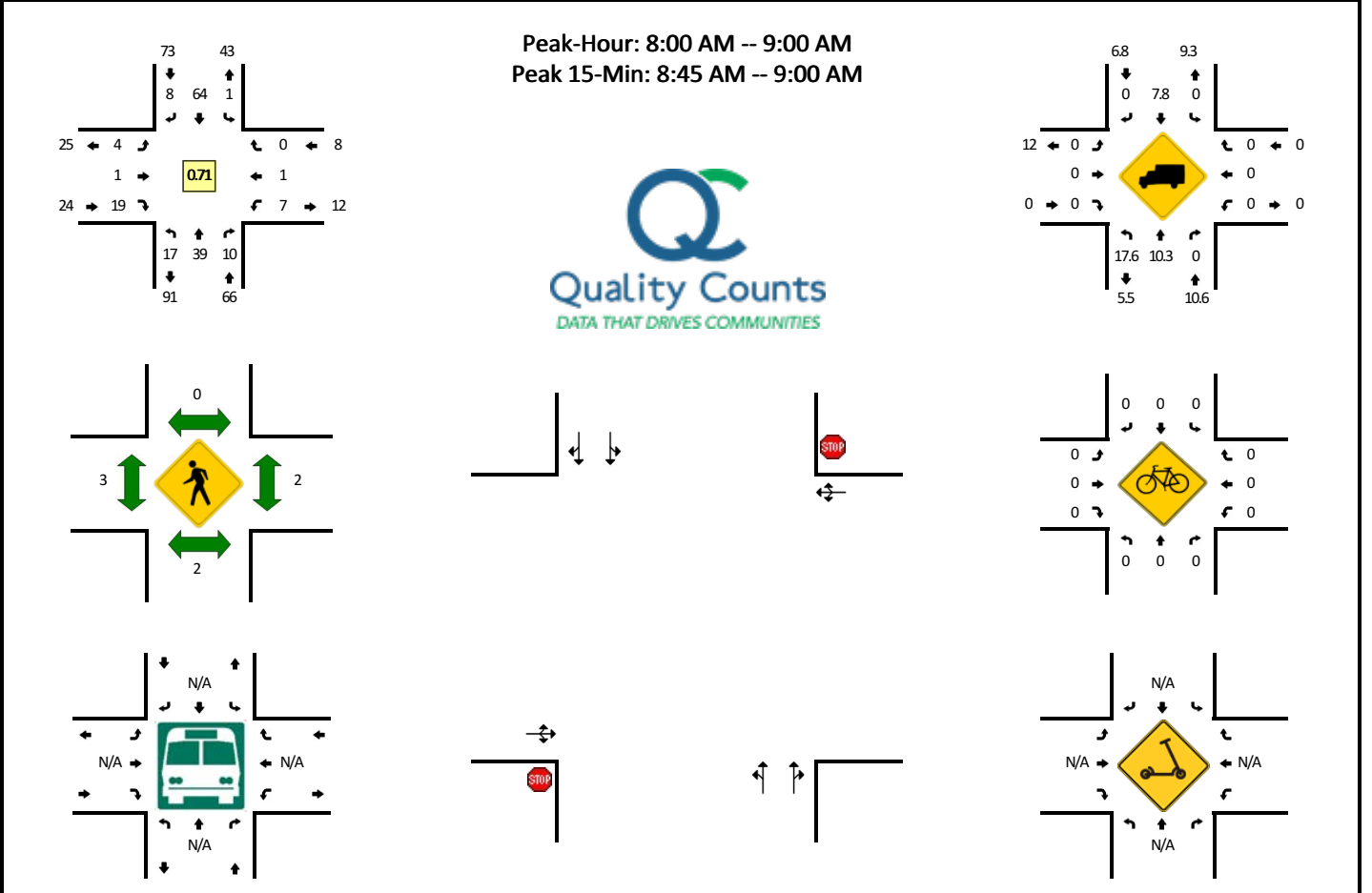


15-Min Count Period Beginning At	Reids Prospect Dr/Black Forest Ln (Northbound)				Reids Prospect Dr/Black Forest Ln (Southbound)				Prince William Pkwy (Eastbound)				Prince William Pkwy (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	2	1	13	0	5	1	4	556	0	0	2	558	10	0	1152	
4:15 PM	0	0	2	0	9	0	4	0	0	553	0	2	4	611	13	0	1198	
4:30 PM	0	0	0	0	4	0	3	1	3	535	0	0	1	667	14	0	1228	
4:45 PM	0	0	0	0	11	0	2	0	2	561	0	1	0	569	23	0	1169	4747
5:00 PM	0	0	1	0	6	0	3	0	1	615	0	0	2	580	15	0	1223	4818
5:15 PM	0	0	5	0	5	0	2	0	4	591	0	1	4	645	15	0	1272	4892
5:30 PM	0	0	5	0	7	0	4	0	1	539	0	2	1	666	17	1	1243	4907
5:45 PM	1	0	0	0	7	0	3	0	0	551	0	0	1	557	23	1	1144	4882
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	20	0	20	0	8	0	16	2364	0	4	16	2580	60	0	5088	
Heavy Trucks	0	0	0		0	0	0		0	60	0		0	72	0		132	
Buses																		
Pedestrians		0				12				0				0			12	
Bicycles	0	0	0		4	0	0		0	0	0		0	4	0		8	
Scoters																		

Comments:

LOCATION: Touchstone Cir -- Merchant Plaza/CVS Dwy
CITY/STATE: Lake Ridge, VA

QC JOB #: 15961207
DATE: Tue, Sep 27 2022



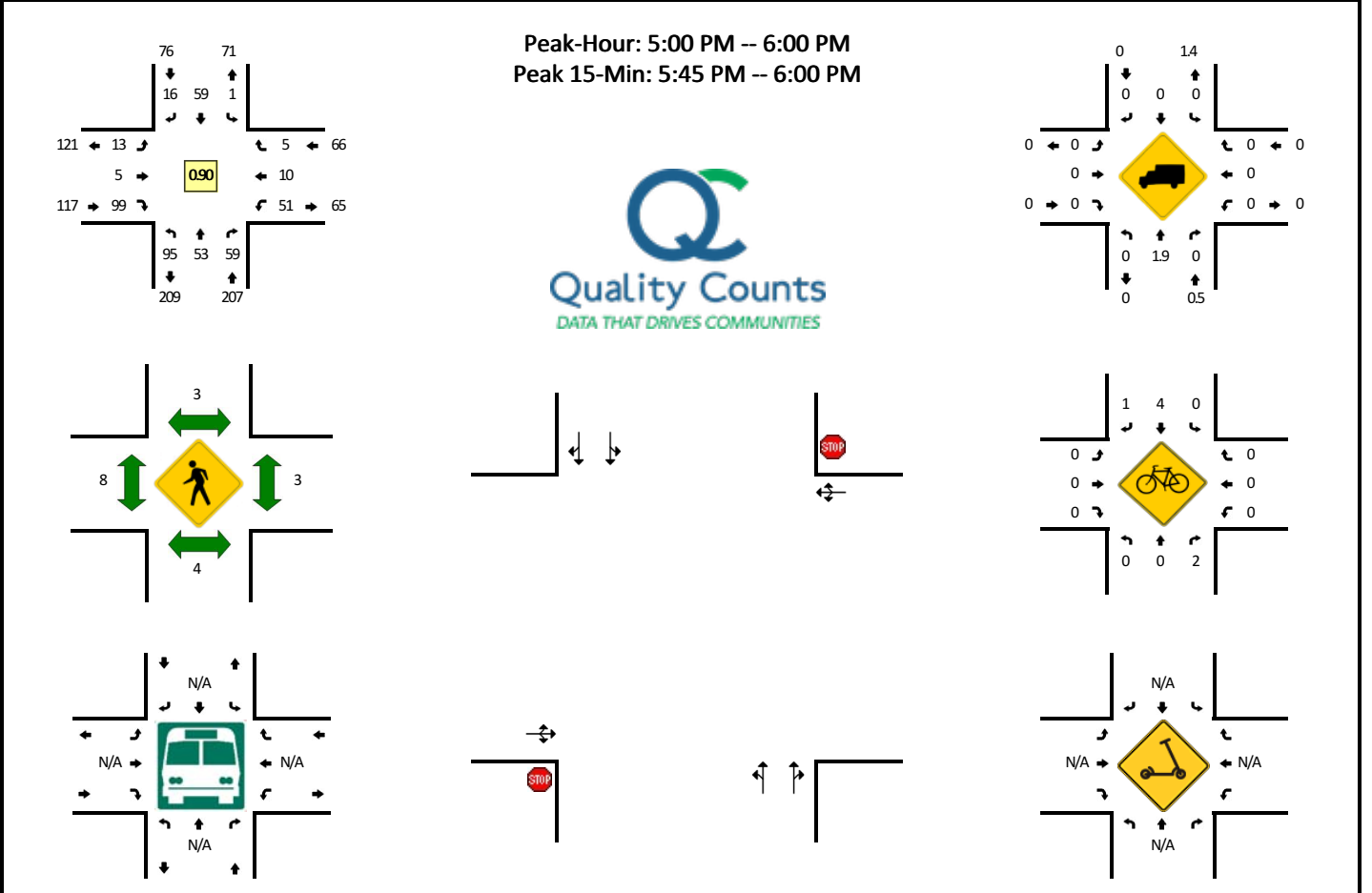
15-Min Count Period Beginning At	Touchstone Cir (Northbound)				Touchstone Cir (Southbound)				Merchant Plaza/CVS Dwy (Eastbound)				Merchant Plaza/CVS Dwy (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	1	1	0	0	0	10	0	0	0	0	5	0	0	0	0	0	17	
7:15 AM	1	6	1	0	0	7	2	0	2	1	6	0	1	0	0	0	27	
7:30 AM	3	17	0	0	0	10	0	0	0	0	4	0	1	0	1	0	36	
7:45 AM	6	6	0	0	0	18	0	0	0	1	3	0	0	0	0	0	34	114
8:00 AM	5	8	1	1	0	8	1	0	1	0	2	0	2	0	0	0	29	126
8:15 AM	4	8	0	0	0	17	6	0	2	0	6	0	0	0	0	0	43	142
8:30 AM	3	8	4	0	0	13	0	0	1	0	7	0	2	1	0	0	39	145
8:45 AM	4	15	5	0	1	26	1	0	0	1	4	0	3	0	0	0	60	171

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	16	60	20	0	4	104	4	0	0	4	16	0	12	0	0	0	240
Heavy Trucks	4	16	0	0	0	12	0	0	0	0	0	0	0	0	0	0	32
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

LOCATION: Touchstone Cir -- Merchant Plaza/CVS Dwy
CITY/STATE: Lake Ridge, VA

QC JOB #: 15961208
DATE: Tue, Sep 27 2022



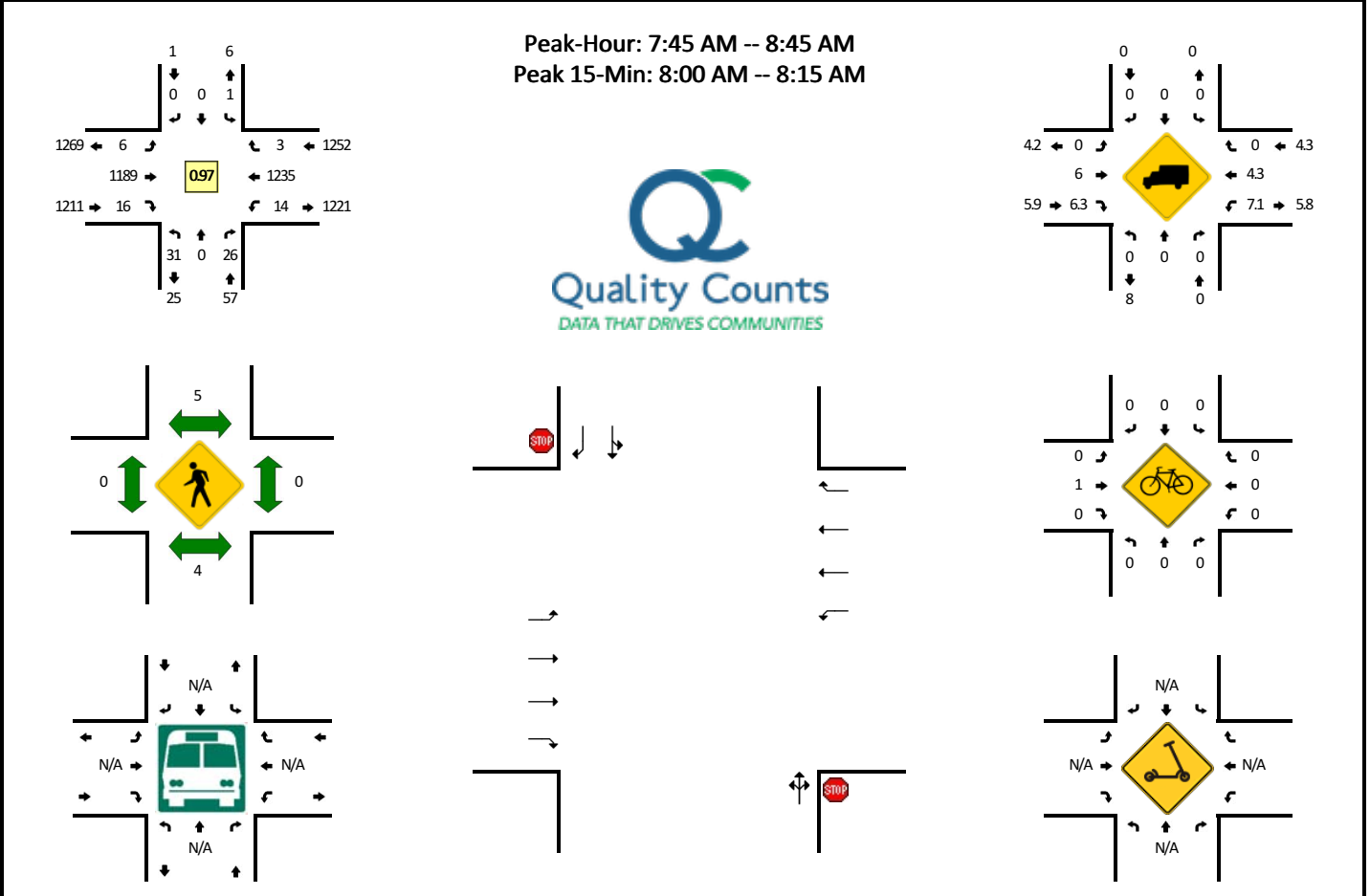
15-Min Count Period Beginning At	Touchstone Cir (Northbound)				Touchstone Cir (Southbound)				Merchant Plaza/CVS Dwy (Eastbound)				Merchant Plaza/CVS Dwy (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	20	21	21	0	0	6	3	0	2	1	12	0	13	1	2	0	102	
4:15 PM	14	12	11	0	2	9	2	0	1	2	13	0	21	3	2	0	92	
4:30 PM	17	11	11	0	1	15	5	0	1	2	25	0	7	2	1	0	98	
4:45 PM	15	18	12	0	0	14	3	0	0	3	13	0	7	1	1	0	87	379
5:00 PM	18	17	18	0	0	18	4	0	2	0	22	0	17	3	0	0	119	396
5:15 PM	20	10	9	0	0	18	6	0	3	1	17	0	12	1	0	0	97	401
5:30 PM	25	13	15	0	0	14	4	0	4	2	26	0	11	4	2	0	120	423
5:45 PM	32	13	17	0	1	9	2	0	4	2	34	0	11	2	3	0	130	466

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	128	52	68	0	4	36	8	0	16	8	136	0	44	8	12	0	520
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	0	0		0
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	8		0	0	0		0	0	0		0	0	0		8
Scooters																	

Comments:

LOCATION: Church Dwy -- Old Bridge Rd
CITY/STATE: Lake Ridge, VA

QC JOB #: 15961209
DATE: Tue, Sep 27 2022



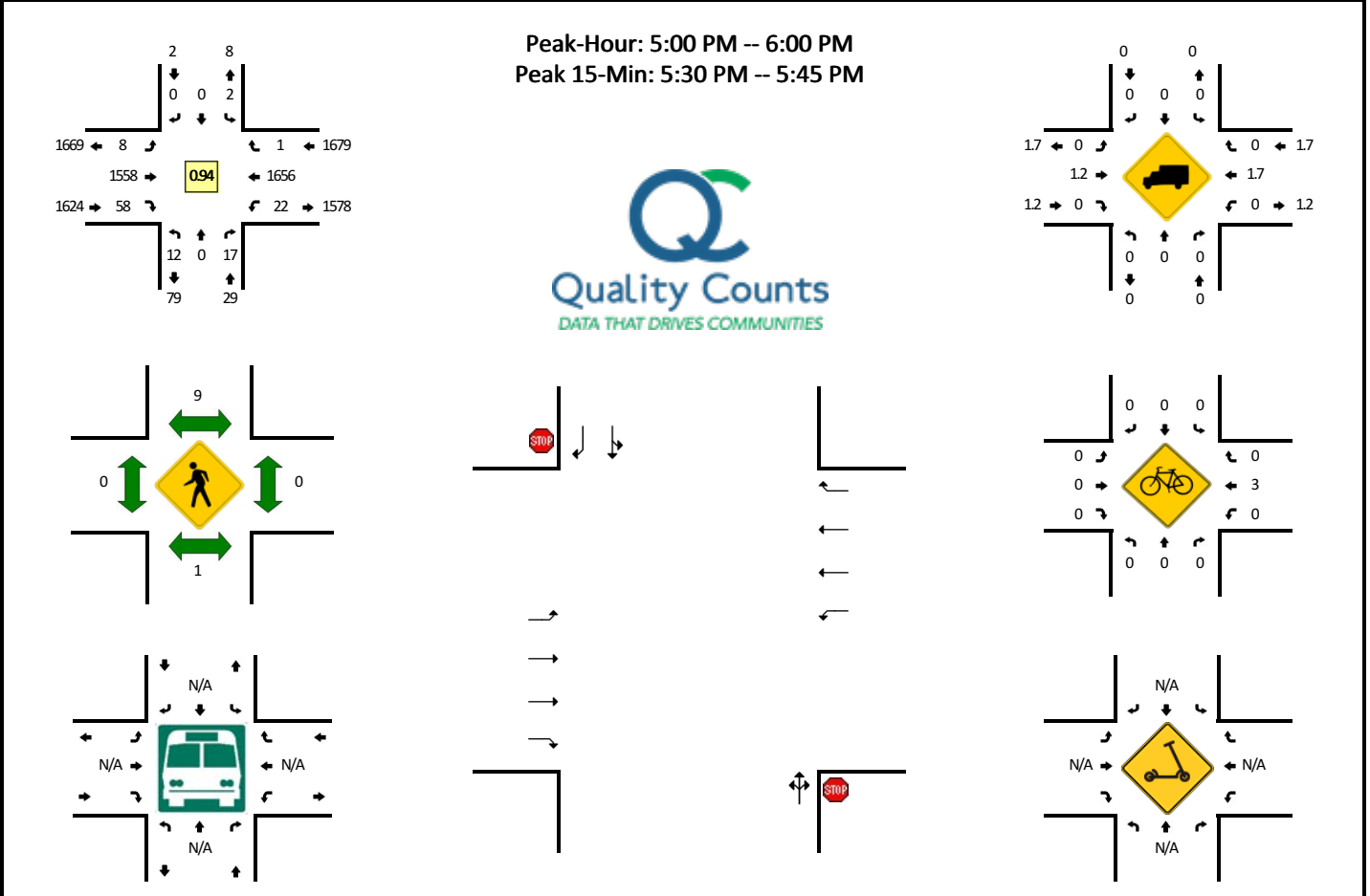
15-Min Count Period Beginning At	Church Dwy (Northbound)				Church Dwy (Southbound)				Old Bridge Rd (Eastbound)				Old Bridge Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	8	0	5	0	0	0	0	0	0	219	2	0	4	209	0	3	450	
7:15 AM	8	0	3	0	0	0	0	0	0	212	5	0	5	254	0	1	488	
7:30 AM	5	0	9	0	0	0	0	0	0	228	4	0	2	304	0	1	553	
7:45 AM	10	0	6	0	0	0	0	0	1	308	2	0	2	306	0	4	639	2130
8:00 AM	9	0	6	0	0	0	0	0	1	300	6	1	4	322	1	0	650	2330
8:15 AM	6	0	7	0	0	0	0	0	0	285	4	2	2	322	0	1	629	2471
8:30 AM	6	0	7	0	1	0	0	0	1	296	4	0	1	285	2	0	603	2521
8:45 AM	5	0	3	0	0	0	0	0	4	303	2	0	3	276	11	1	608	2490

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	36	0	24	0	0	0	0	0	4	1200	24	4	16	1288	4	0	2600
Heavy Trucks	0	0	0		0	0	0		0	48	0		0	52	0		100
Buses																	
Pedestrians		0				12				0				0			12
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scoters																	

Comments:

LOCATION: Church Dwy -- Old Bridge Rd
CITY/STATE: Lake Ridge, VA

QC JOB #: 15961210
DATE: Tue, Sep 27 2022



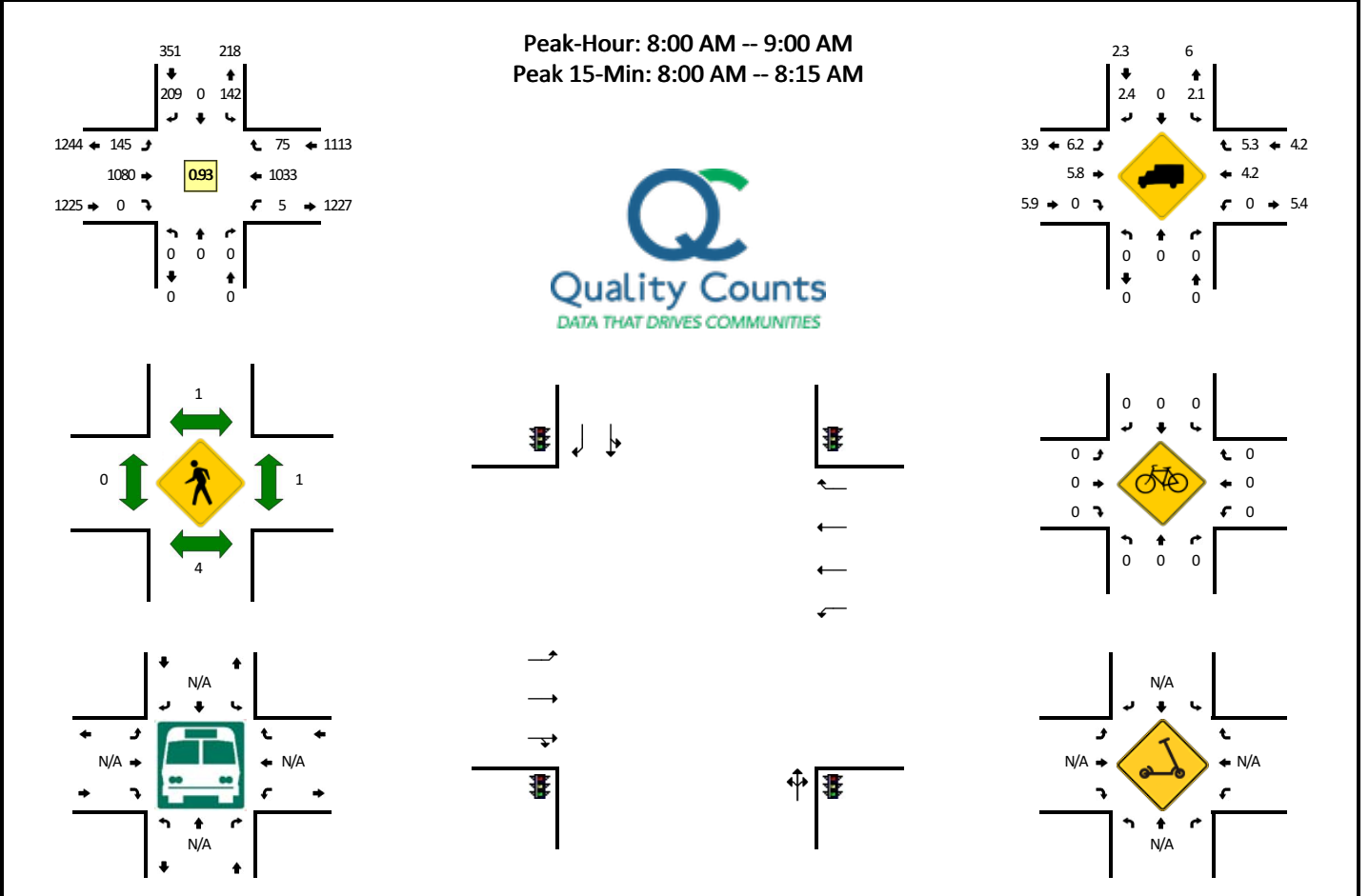
15-Min Count Period Beginning At	Church Dwy (Northbound)				Church Dwy (Southbound)				Old Bridge Rd (Eastbound)				Old Bridge Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	3	0	4	0	0	0	0	0	0	329	17	0	11	437	1	0	802	
4:15 PM	3	0	3	0	0	0	1	0	1	369	13	2	5	421	0	0	818	
4:30 PM	1	0	2	0	1	0	1	0	3	369	12	0	8	447	2	0	846	
4:45 PM	4	0	9	0	0	0	0	0	2	346	18	1	7	380	0	1	768	3234
5:00 PM	3	0	3	0	0	0	0	0	2	376	15	0	3	380	0	0	782	3214
5:15 PM	2	0	6	0	0	0	0	0	3	388	17	0	4	443	0	1	864	3260
5:30 PM	4	0	4	0	2	0	0	0	2	411	11	1	7	441	1	0	884	3298
5:45 PM	3	0	4	0	0	0	0	0	0	383	15	0	7	392	0	0	804	3334

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	16	0	16	0	8	0	0	0	8	1644	44	4	28	1764	4	0	3536
Heavy Trucks	0	0	0		0	0	0		0	16	0		0	32	0		48
Buses																	
Pedestrians		0				8				0				0			8
Bicycles	0	0	0		0	0	0		0	0	0		0	4	0		4
Scoters																	

Comments:

LOCATION: Westridge Dr/Rockwood Ln -- Old Bridge Rd
CITY/STATE: Lake Ridge, VA

QC JOB #: 15961211
DATE: Tue, Sep 27 2022



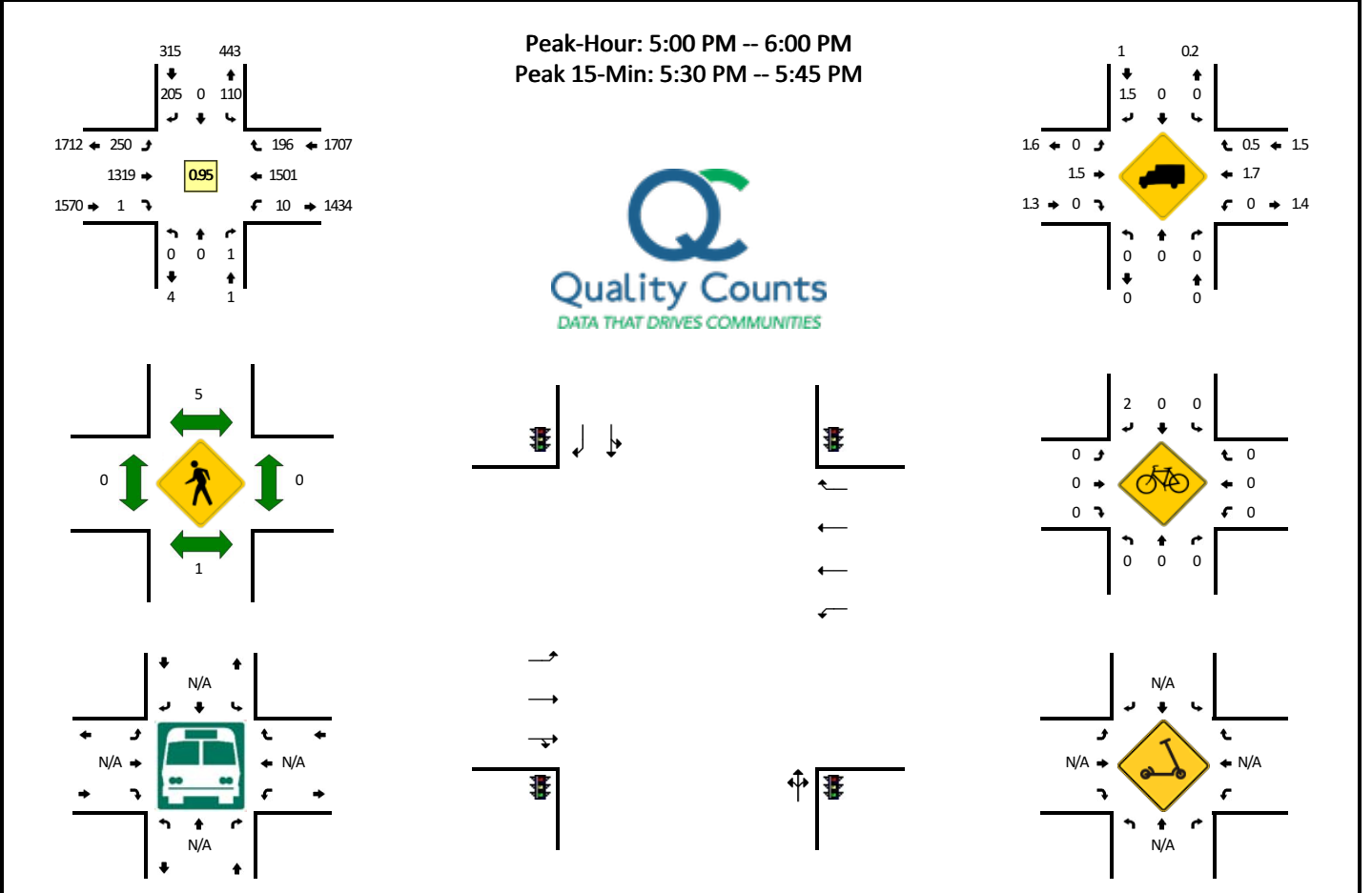
15-Min Count Period Beginning At	Westridge Dr/Rockwood Ln (Northbound)				Westridge Dr/Rockwood Ln (Southbound)				Old Bridge Rd (Eastbound)				Old Bridge Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	47	0	57	2	9	200	0	0	0	145	10	0	470	
7:15 AM	1	0	0	0	41	0	48	0	10	205	0	0	0	242	12	0	559	
7:30 AM	0	0	0	0	37	0	63	1	25	238	0	0	0	234	23	1	622	
7:45 AM	0	0	0	0	42	0	58	0	27	255	0	1	0	245	20	3	651	2302
8:00 AM	0	0	0	0	42	0	54	0	27	287	0	2	0	287	21	1	721	2553
8:15 AM	0	0	0	0	28	0	56	0	35	264	0	0	0	254	14	0	651	2645
8:30 AM	0	0	0	0	29	0	42	0	36	247	0	0	0	250	17	3	624	2647
8:45 AM	0	0	0	0	43	0	57	0	45	282	0	0	0	242	23	1	693	2689

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	168	0	216	0	108	1148	0	8	0	1148	84	4	2884
Heavy Trucks	0	0	0	0	4	0	4	0	0	44	0	0	0	44	0	0	96
Buses																	
Pedestrians		0				4				0				0			4
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scoters																	

Comments:

LOCATION: Westridge Dr/Rockwood Ln -- Old Bridge Rd
CITY/STATE: Lake Ridge, VA

QC JOB #: 15961212
DATE: Tue, Sep 27 2022

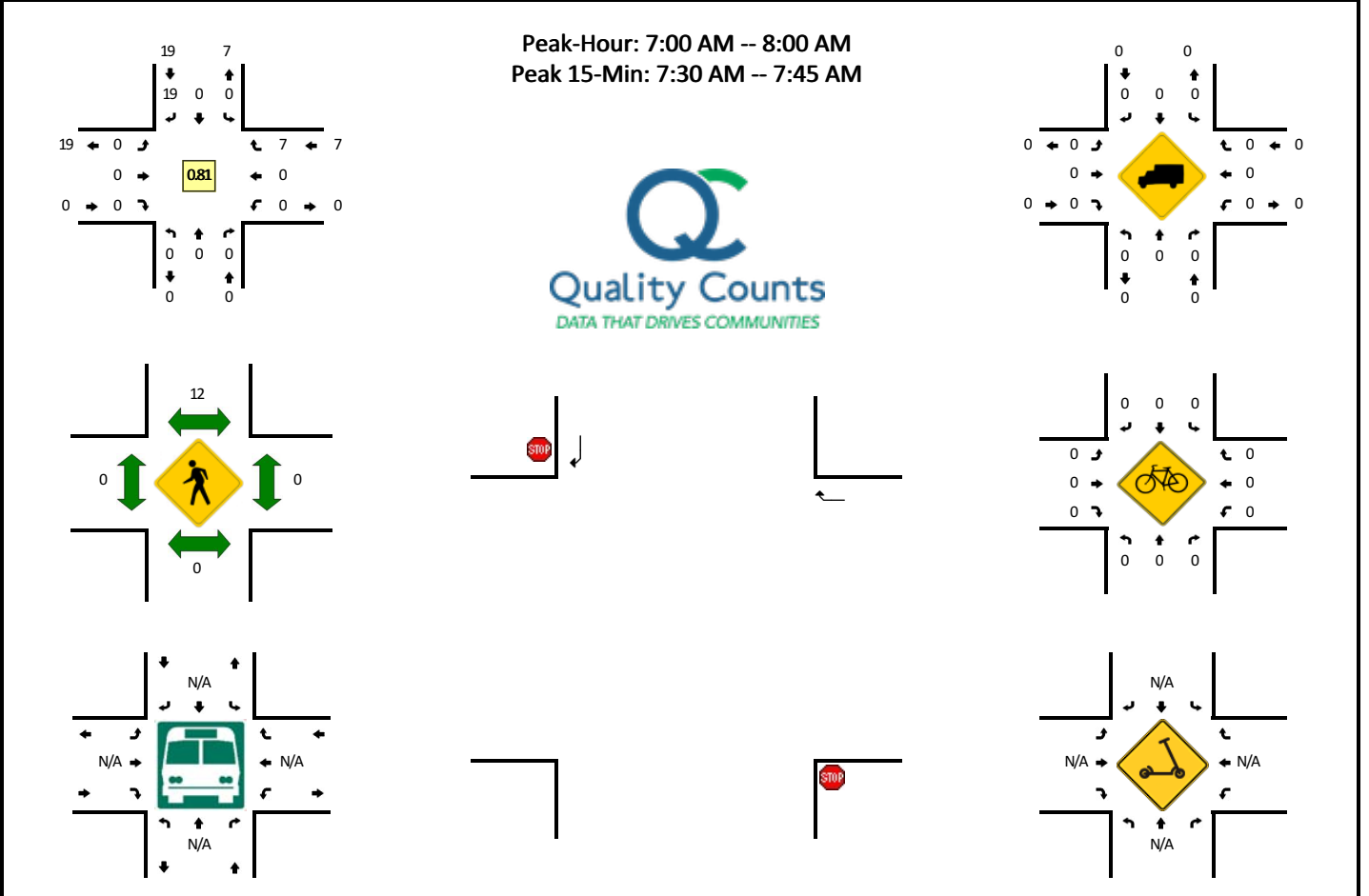


15-Min Count Period Beginning At	Westridge Dr/Rockwood Ln (Northbound)				Westridge Dr/Rockwood Ln (Southbound)				Old Bridge Rd (Eastbound)				Old Bridge Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	1	0	0	0	39	1	65	0	71	277	0	1	0	349	47	1	852	
4:15 PM	0	0	0	0	22	0	48	1	57	313	0	3	2	401	36	4	887	
4:30 PM	0	0	0	0	34	0	63	0	65	311	0	1	0	366	34	1	875	
4:45 PM	1	0	0	0	26	0	64	0	65	267	0	3	0	327	40	0	793	3407
5:00 PM	0	0	0	0	33	0	61	1	65	332	0	0	0	340	39	0	871	3426
5:15 PM	0	0	1	0	25	0	47	1	58	311	0	2	0	406	57	2	910	3449
5:30 PM	0	0	0	0	24	0	55	0	62	378	1	2	1	371	52	1	947	3521
5:45 PM	0	0	0	0	25	0	42	1	59	298	0	2	2	384	48	4	865	3593
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	96	0	220	0	248	1512	4	8	4	1484	208	4	3788	
Heavy Trucks	0	0	0	0	0	0	0	0	0	24	0	0	0	28	0	0	52	
Buses																		
Pedestrians		0				4				0				0			4	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

Comments:

LOCATION: Brussels Wy -- Old Bridge Rd
CITY/STATE: Lake Ridge, VA

QC JOB #: 15961213
DATE: Tue, Sep 27 2022

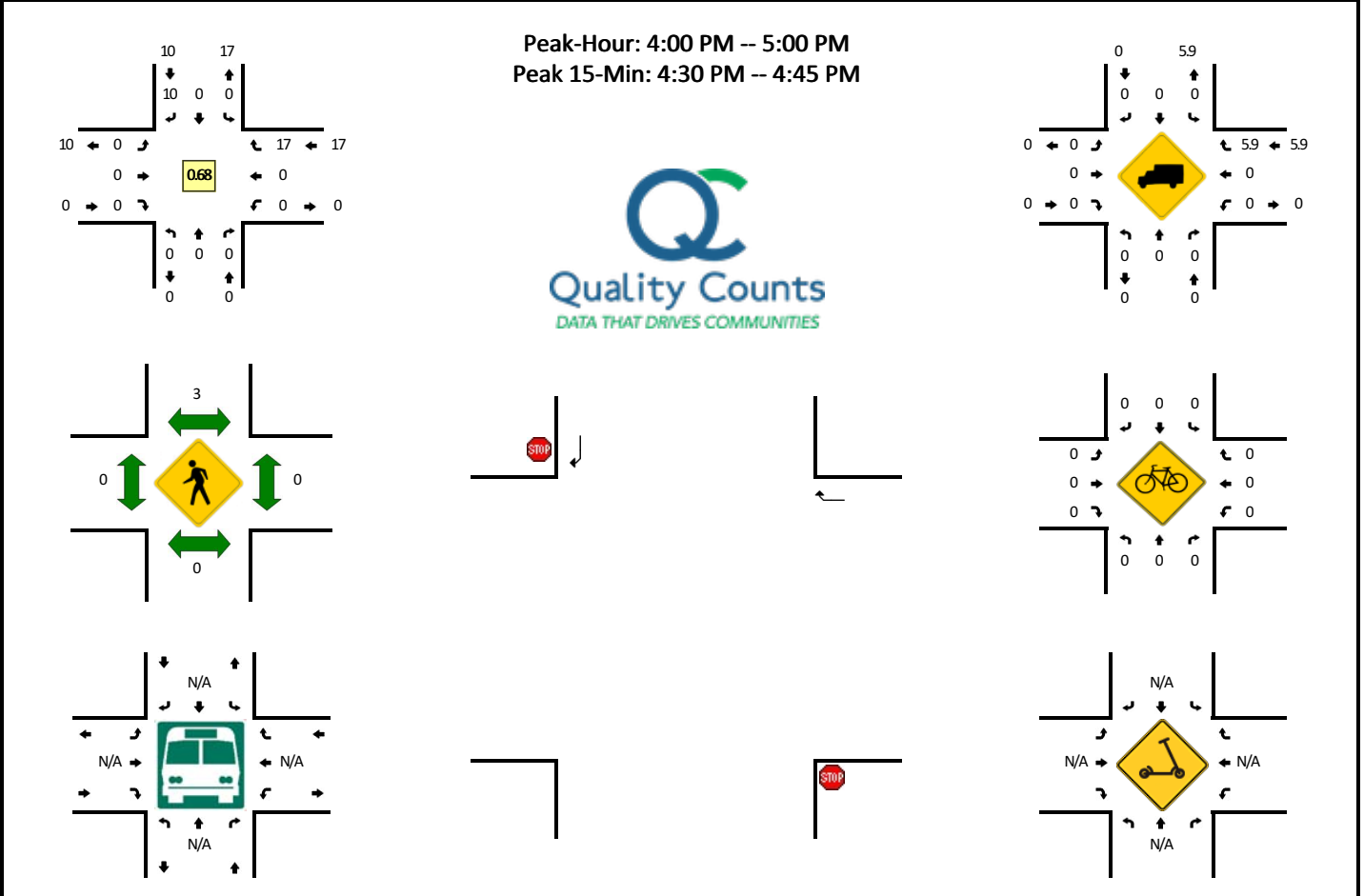


15-Min Count Period Beginning At	Brussels Wy (Northbound)				Brussels Wy (Southbound)				Old Bridge Rd (Eastbound)				Old Bridge Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	0	0	6	0	0	0	0	0	0	0	1	0	7	
7:15 AM	0	0	0	0	0	0	4	0	0	0	0	0	0	0	1	0	5	
7:30 AM	0	0	0	0	0	0	7	0	0	0	0	0	0	0	1	0	8	
7:45 AM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	4	0	6	26
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	21
8:15 AM	0	0	0	0	0	0	6	0	0	0	0	0	0	0	1	0	7	23
8:30 AM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0	4	19
8:45 AM	0	0	0	0	0	0	5	0	0	0	0	0	0	0	2	0	7	20
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	0	0	28	0	0	0	0	0	0	0	4	0	32	
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Buses																		
Pedestrians		0				8				0				0			8	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

Comments:

LOCATION: Brussels Wy -- Old Bridge Rd
CITY/STATE: Lake Ridge, VA

QC JOB #: 15961214
DATE: Tue, Sep 27 2022



15-Min Count Period Beginning At	Brussels Wy (Northbound)				Brussels Wy (Southbound)				Old Bridge Rd (Eastbound)				Old Bridge Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	6	0	7	
4:15 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	4	0	5	
4:30 PM	0	0	0	0	0	0	3	0	0	0	0	0	0	0	7	0	10	
4:45 PM	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	5	27
5:00 PM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	3	0	5	25
5:15 PM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	5	0	7	27
5:30 PM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	6	0	8	25
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	7	27
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	0	0	12	0	0	0	0	0	0	0	28	0	40	
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scooters																		

Comments:

Appendix B: Scoping Meeting Documents



TOSAM Project Scoping Meeting Preparation Form Traffic and Safety Analysis Considerations

In preparation for the project scoping meeting, enter the relevant information associated with traffic and safety analysis considerations, as outlined in TOSAM Section 9.1 - Before the Project Scoping Meeting. Submit the form to VDOT and the locality, if applicable, no less than five business days prior to the meeting. If a form is not received by this deadline, the project scoping meeting may be postponed.

Part I: Traffic Operations and Safety Analysis Assumptions

CONTACT INFORMATION			
Refer to TOSAM Section 9.1.1 – Roles and Responsibilities for guidance			
Project Manager (Administering Agency)	Name, Organization	Rami Bazlamit, Prince William County DOT	
	Phone	703-792-8164	
	Email	RBazlamit@pwcgov.org	
Project Manager (Delivering Agency)	Name, Organization	William Wentzien, RDA	
	Phone	571-719-6463	
	Email	wwentzien@RDACIVIL.com	
Project Stakeholders	Name, Role	Sofia Pinedo, VDOT Project Manger	
	Name, Role	Mark Gunn, RDA Project Manager, EOR	
	Name, Role		
	Name, Role		
	Name, Role		
	Name, Role		
PROJECT INFORMATION			
Refer to TOSAM Section 9.1.2 – Project Purpose and Need and Section 9.1.3 – Study Limits for guidance			
Project Name	Route 294 & Old Bridge Road Intersection Improvements	Locality/County	Prince William County
Project Description / Purpose and Need	<p>The project will realign the Prince William Parkway (Rte. 294) from 0.12 miles south of Laurel Hills Drive (Rte. 2242) to Chinn Park Drive (Rte. 2221). The Project will include the realignment of Old Bridge Road (Rte. 641) to a “T” intersection at Rte. 294 Prince William Parkway. Access Management improvements will be included along Touchstone Circle (Rte. 2243) to connect to Old Bridge Road and a service road along Rte. 294 will be provided to reduce driveway accesses. To provide bicycle and pedestrian connectivity the Project will include concrete sidewalk along the southbound lanes of Rte. 294 and an asphalt shared use path along the northbound lanes of Rte. 294. The Project will also include intersection safety improvements, right and left turn lanes, and a signal modification at the Rte. 294 intersection.</p>		
	Project Location and Study Area, Intersections	See Attachment 1.	

Study Limits	Temporal Limits, if known	Existing Year: 2022 Build-out Year: 2026 Design Year: 2045 Peak Period(s) for Study: AM, PM
External Factors that could affect the project (Programmed, proffered and planned road improvements, and other nearby developments; assumed background conditions for future analyses)	1) Adjacent Developer Projects – Plans/Studies to be provided by PWCDOT.	
Consistency with VTRANS	This project location falls under the VTrans 2021 Mid-term needs for intersection safety improvement and is consistent with Prince William County’s Comprehensive Plan.	

PRELIMINARY DATA REVIEW		
Refer to TOSAM Section 9.1.4 – Preliminary Data Review for guidance		
Background Traffic Studies Considered (if applicable)	Will also use adjacent developer traffic studies, to be provided by PWCDOT.	
Existing Traffic Operations Data	Historical Traffic Counts X K-Factors X D-Factors X Truck Percentages X Site Observations X INRIX Speeds <input type="checkbox"/>	
Future Traffic Operations Data	Forecasts from Previous Studies X Planning Forecasts X	
Safety Analysis Data	Crash Reports <input type="checkbox"/> PSAP <input type="checkbox"/> PSI <input type="checkbox"/> VDOT Crash Data X	
Data Collection Plan <small>(Indicate the location and type of data to be collected, and any applicable sources)</small>	Attach project map indicating: <input type="checkbox"/> Maximum Queue Location(s) <input checked="" type="checkbox"/> TMC Location(s) <input type="checkbox"/> Travel Time Segment(s) <input type="checkbox"/> Other	
PRELIMINARY ALTERNATIVE IDENTIFICATION		
Refer to TOSAM Section 9.1.5 – Preliminary Alternative Identification for guidance		
Potential Alternatives that could be Considered <small>(at-grade vs grade-separated options, roundabouts vs RCUTs vs MUTs)</small>	The STARS study was completed by ATCS dated 8/17/2020 and utilized Synchro for the analysis. Four potential alternatives were evaluated in the study – Minor improvements including signal timings, reconfiguring to a traditional “T” intersection, Converting to a “Thru-Cut” intersection, constructing a flyover or interchange. A traditional “T” intersection design was selected, and further alternatives will not be studied as a part of this report. This report will be to work the schematics and specifics of the “T” intersection concept.	
INITIAL MOE SELECTION		
Refer to TOSAM Section 9.1.6 – Initial MOE Selection for guidance		
Traffic Operations MOEs	95th Percentile Queue Length X Control Delay X Density <input type="checkbox"/> ETT <input type="checkbox"/> Maximum Queue Length <input type="checkbox"/> Microsimulation Delay <input type="checkbox"/> Percent of Free-Flow Speed <input type="checkbox"/> Percent Time Spent Following <input type="checkbox"/> Space Mean Speed <input type="checkbox"/> Reliability: 95th% TTI <input type="checkbox"/> 80th% TTI <input type="checkbox"/> 50th% TTI <input type="checkbox"/> LOTTR <input type="checkbox"/> Time Mean Speed <input type="checkbox"/> Travel Time <input type="checkbox"/> V/C Ratio <input type="checkbox"/>	
Safety MOEs	Weighted Total Conflict Points <input type="checkbox"/> Predicted Average Crash Frequency X Expected Average Crash Frequency <input type="checkbox"/>	
ANALYSIS TOOL CONSIDERATION		
Reference outputs from the VDOT Software Selection Tool. Refer to TOSAM Section 9.1.7 – Analysis Tool Consideration for guidance		
Traffic Operations Software Tools <small>(Select all tools under consideration)</small>	FREEVAL <input type="checkbox"/> HCS <input type="checkbox"/> SIDRA <input type="checkbox"/> SimTraffic <input type="checkbox"/> Synchro X VDOT Work Zone Tools <input type="checkbox"/> VJuST <input type="checkbox"/> VISSIM <input type="checkbox"/> Other <input type="checkbox"/> -	
Safety Analysis Software Tools	IHSDM <input type="checkbox"/> ISATe <input type="checkbox"/> VDOT Extended HSM Spreadsheets <input type="checkbox"/> Other X – Qualitative analysis only.	
Microsimulation (if applicable)	Calibration measures to be met <small>(Refer to TOSAM - Chapter 5)</small>	Simulated Traffic Volume <input type="checkbox"/> Simulated Travel Time <input type="checkbox"/> Simulated Queue Length X
	Critical link(s) for calibration	N/A

TRAFFIC FORECASTING

Refer to the VDOT Traffic Forecasting Guidebook

Traffic Forecasting Methodology

(Indicate which travel demand model will be used, if applicable. Refer to the VDOT Traffic Forecasting Guidebook for guidance)

See Assumptions below.

NOTES ON ASSUMPTIONS

Analysis Tool Selection: Synchro 11 will be utilized for the traffic analysis as conformed through the VDOT software selection tool for undersaturated conditions. Should oversaturated conditions be determined, Sim-Traffic will be utilized and calibrated as described below.

Measures of Effectiveness: The following MOEs will be evaluated:

Study Intersections (AM & PM Peak Hours).

- Control Delay (sec./veh) – HCM 6th Edition, as appropriate, or Synchro equivalent as necessary
 - Signalized Intersections: Analyzed by both approach and lane movements and overall intersection.
 - Unsignalized Intersections: Analyzed by approach movements.

For turn lane lengths and thru lane queue review for access management consideration: (AM & PM Peak Hours, Existing & Horizon Year 2045 only).

- 95th Percentile Queues per HCM 2010 (as output by Synchro 11).
- No Sim-Traffic Model runs are required.

Traffic Growth Rates: Growth rates will be tiered. Rates will be developed utilizing TIAs and other studies. A memo will be developed and submitted for concurrence.

Trip Distribution: Trips to and from adjacent intersections and shopping centers will be distributed based on the realigned Prince William Parkway and Old Bridge Road.

Output/Reporting/Documentation: Standard traffic analysis charts/tables and layout graphics depicting control delay will be provided in the technical report.

Model Calibration: If SimTraffic is found necessary to be used, model calibration following TOSAM will be conducted. This will involve making adjustments to the following parameters to calibrate simulated queue length.

- Volumes
- Turn lanes
- Turning speeds
- Enter blocked intersection
- Lane alignment
- Crosswalk width
- Median width

If necessary, additional adjustments will be made to other simulation settings within Synchro and SimTraffic.

NOTES ON ASSUMPTIONS

Other:

- Access Management considerations are not scoped within this traffic analysis.
- Left Turn Phase Analysis will be performed for the updated alignment.
- Formal Highway Safety Analysis is not scoped.
- A qualitative Crash Analysis will be provided for the existing conditions only.
- A signal warrant analysis will be performed for the existing flashing signal at Prince William Parkway and Reids Prospect Dr

Part II: Traffic Impact Analysis Base Assumptions (Not applicable)

TRAFFIC IMPACT ANALYSIS ASSUMPTIONS			
Submission Type	Comp Plan <input type="checkbox"/> Rezoning <input type="checkbox"/> Site Plan <input type="checkbox"/> Subdivision Plat <input type="checkbox"/>		
Consistency with Comprehensive Plan (Land use, transportation plan)			
Proposed Use(s)	Residential <input type="checkbox"/> Commercial <input type="checkbox"/> Mixed Use <input type="checkbox"/> Other <input type="checkbox"/>		
	Residential Uses Number of Units: ITE LU Code(s): Commercial Uses ITE LU Code(s): Square Ft or Other Variable:	Other Uses ITE LU Code(s): Independent Variables:	
Total Peak Hour Trip Projection	Less than 100 <input type="checkbox"/> 100-499 <input type="checkbox"/> 500-999 <input type="checkbox"/> 1,000 or more <input type="checkbox"/>	Annual Vehicle Trip Growth Rate (if different rate used by link/area, provide map or description summarizing growth rates)	
Peak Period for Study (Check all that apply)	AM <input type="checkbox"/> PM <input type="checkbox"/> SAT <input type="checkbox"/>	Peak Period of the Generator	
Trip Distribution (Attach sketch and indicate source)	Road Name: Road Name: Road Name: Road Name:		
Trip Adjustment Factors	Internal Allowance: Reduction:	Pass-by allowance: Reduction:	
Plan Submission	Master Development Plan <input type="checkbox"/> Generalized Development Plan <input type="checkbox"/> Preliminary/Sketch Plan <input type="checkbox"/> Other Plan Type <input type="checkbox"/> -		

APPROVAL

Project Manager (Administering Agency)

Signed: _____

Date: _____

Print Name: _____

Project Manager (Delivering Agency)

Signed: _____

Date: _____

Print Name: _____

VDOT District Traffic Engineer (if required)

Signed: _____

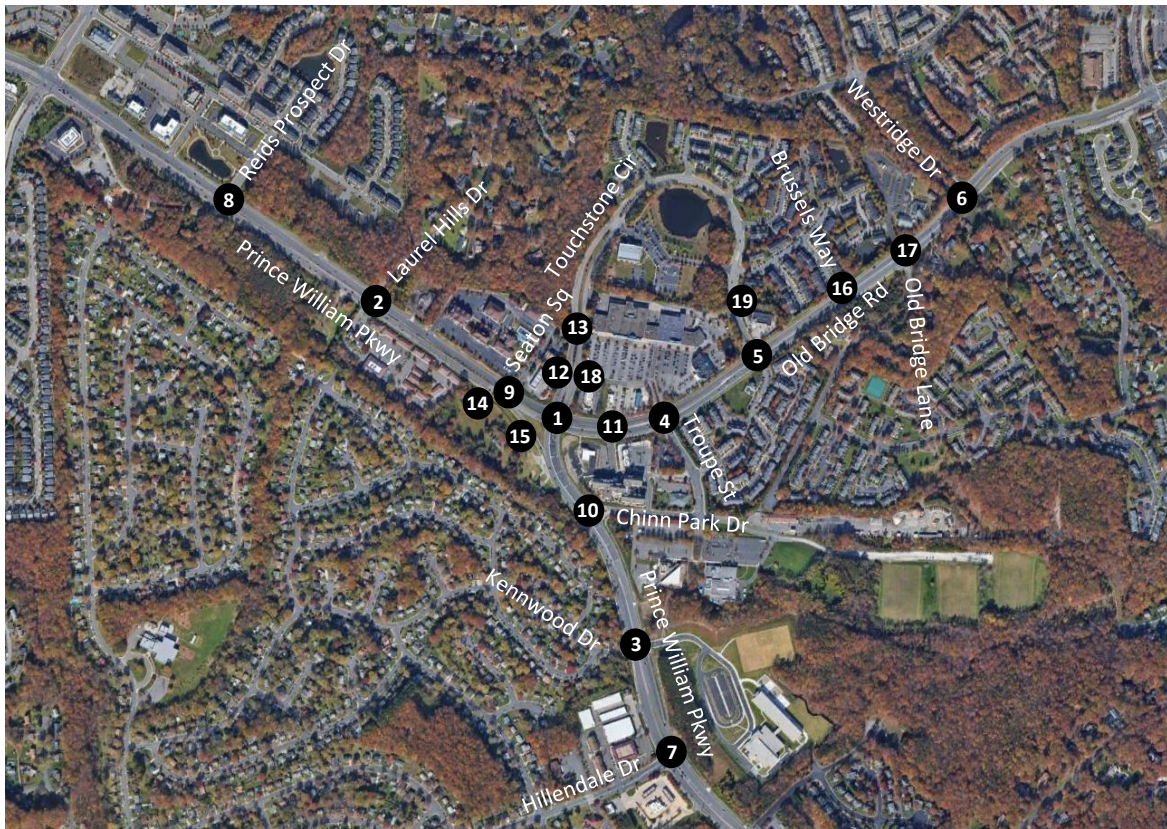
Date: _____

Print Name: _____

Attachment 1: Project Limits Map



Study Intersection(s)



Signalized:

- 1) Route 294 (Prince William Parkway) and Old Bridge Road
- 2) Route 294 (Prince William Parkway) and Laurel Hills Drive
- 3) Route 294 (Prince William Parkway) & Kenwood Drive
- 4) Old Bridge Road & Troupe Street
- 5) Old Bridge Road & Touchstone Circle/Titania Way
- 6) Old Bridge Road & Westridge Drive/Rockwood Lane
- 7) Prince William Parkway & Hillendale Drive
- 8) Prince William Parkway & Black Forest Lane/Reids Prospect Drive

Unsignalized:

- 9) Route 294 (Prince William Parkway) and Seaton Square
- 10) Route 294 (Prince William Parkway) and Chinn Park Drive
- 11) Old Bridge Road and Tribe at the Glen Entrance
- 12) Touchstone Circle at Driveway to Exxon
- 13) Touchstone Circle and Seaton Square
- 14) Mohammadia Center Right-In
- 15) Mohammadia Center Right-Out
- 16) Old Bridge Road & Brussels Way
- 17) Old Bridge Road & Old Bridge Lane
- 18) Touchstone Circle at the Glen Shopping Centre Driveway
- 19) Touchstone Circle at Merchants Plaza

Proposed:

- 20) Touchstone Square and Old Bridge Road (Proposed new intersection with project and realignment of the intersection)

Appendix C: STARS Report

ATCS[®]

Prince William Parkway and Old Bridge Road

*Strategically Targeted Affordable Roadway Solutions
(STARS) Project Report*

Prepared for:

Prince William County

VDOT Northern Virginia District

5 County Complex Court

4975 Alliance Drive

Prince William, VA 22192

Fairfax, VA 22030



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Introduction

As part of the VDOT Strategically Targeted and Affordable Roadway Solutions (STARS) Program, the area surrounding the Prince William Parkway and Old Bridge Road intersection was selected for in depth study and review. The intersection is a major crossroad of local and regional significance within Prince William County as Old Bridge Road is a major local connecting route that serves daily commuter traffic and provides access to residential and commercial land uses. Prince William Parkway is a major intra-county connection serving commuter traffic and providing retail business and residential access throughout the county.

A corridor study was prepared for the full Old Bridge Road Corridor by Prince William County in 2018. This study identified intersection improvements along the corridor, including preferred improvements at the intersection of Old Bridge Road with Prince William Parkway (specifically, realignment of the intersection to make Prince William Parkway the through movement). This study serves as a key baseline for the continued work under the STARS program.

Study Area

The study area for this project is shown in **Figure 1**.

Prince William Parkway and Old Bridge Road/Touchstone Circle SMART SCALE Application Memo

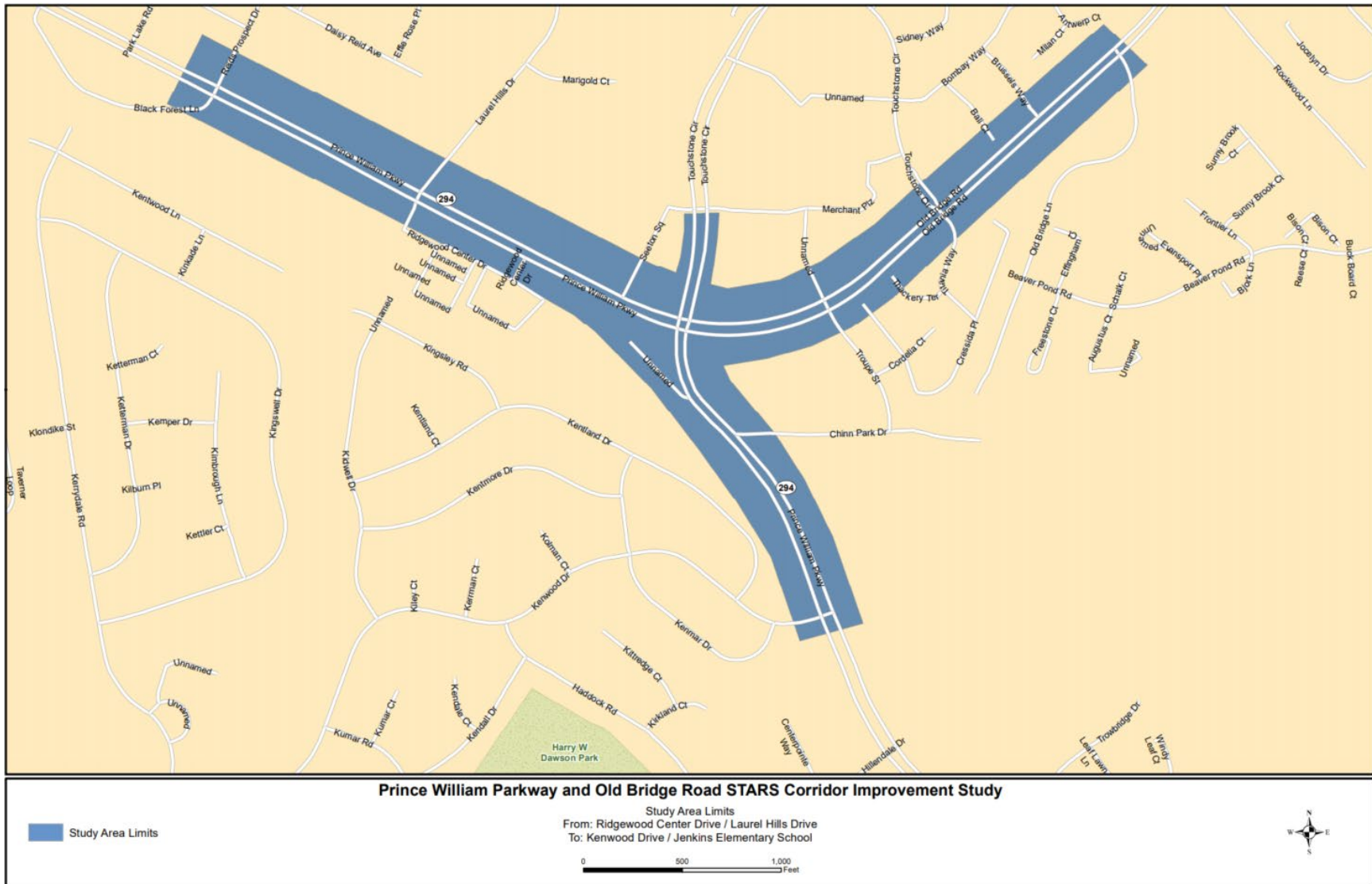


Figure 1: Prince William Parkway at Old Bridge Road Study Limits

The study area focuses on the intersection of Old Bridge Road and Prince William Parkway. The study area extends from Prince William Parkway to Jayhawk Road/Old Bridge Lane on Old Bridge Road, and from Black Forest Lane/Reids Prospect Drive to Kenwood Drive on Prince William Parkway. The study area includes the following signalized intersections:

1. Prince William Parkway and Old Bridge Road/Touchstone Circle
2. Prince William Parkway and Ridgewood Center Drive/Laurel Drive
3. Old Bridge Road and Troupe Street/Glen Shopping Center
4. Old Bridge Road Parkway and Titania Way/Touchstone Circle
5. Prince William Parkway and Kenwood Drive/Jenkins Elementary School

The signalized intersections are shown in **Figure 2**.

Prince William Parkway and Old Bridge Road/Touchstone Circle SMART SCALE Application Memo

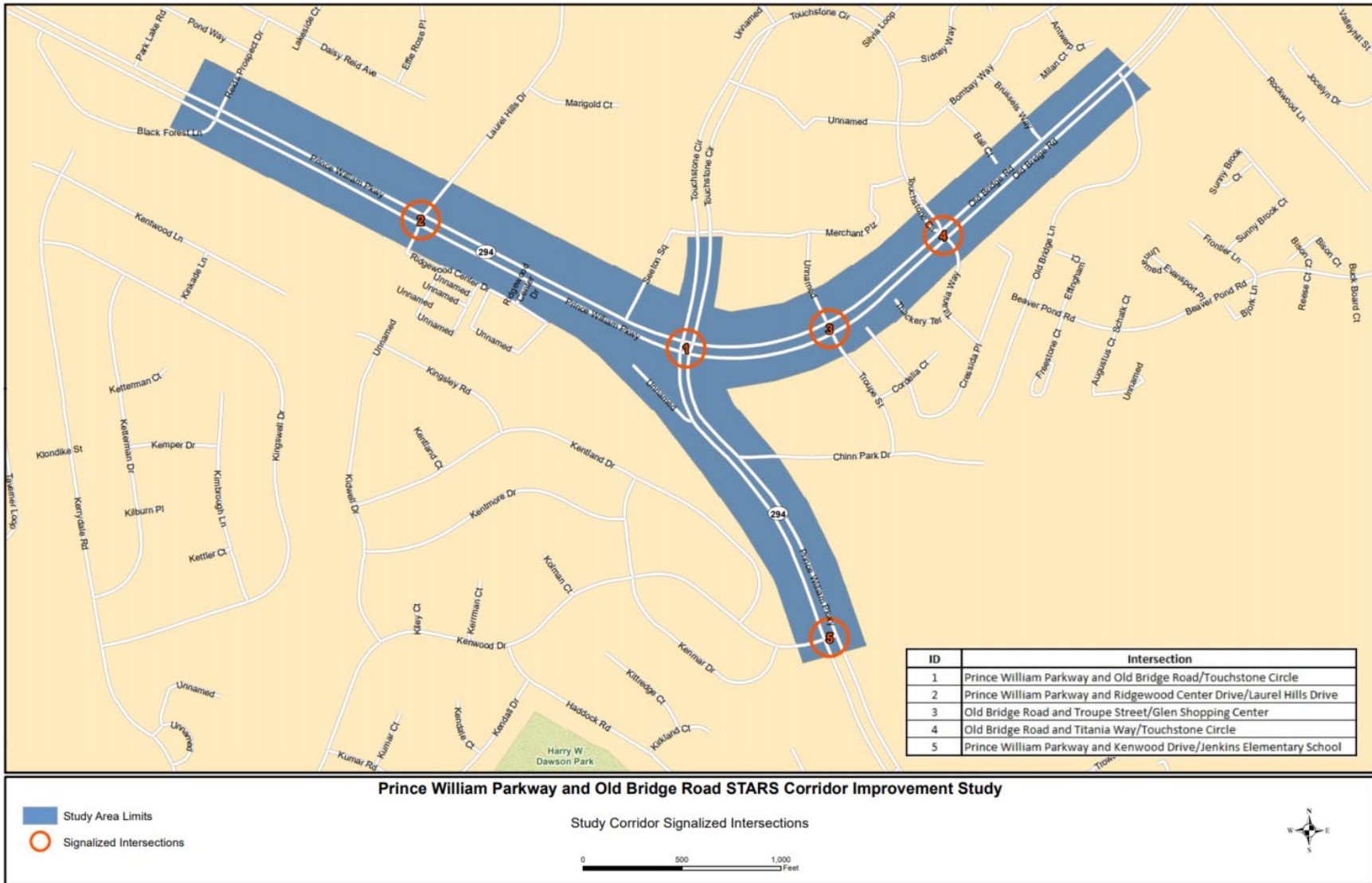


Figure 2: Signalized Intersection in the Study Area

Purpose and Need

The intersection of Prince William Parkway and Old Bridge Road presents significant operational and safety issues due to heavy traffic volumes during the peak periods and the intersection configuration requires a right or left turn to continue along the major road, Prince William Parkway. Projection of future traffic growth and review of the Regional Travel Demand Model show that further traffic increases are anticipated based on surrounding land uses and functionality of the routes as major commuter corridors. Therefore, a significant need for future alternatives and improvements is evident.

The purpose of this STARS study is to provide an evaluation of existing operational and safety conditions in the study area, review of previously developed intersection improvements, consider modifications or alternatives from the 2018 County study, and refine concepts and cost estimates for the alternatives that were developed as outlined in this report. A primary goal is to identify improvements that can be programmed into the Virginia Department of Transportation's (VDOT) Six-Year Improvement Program (SYIP).

Executive Summary

The Old Bridge Road at Prince William Parkway corridor faces traffic congestion and safety challenges at several locations. There are currently high levels of delay on all left turn movements, northbound through movements, and southbound through movements during both peak hours. The main movements on Prince William Parkway, the northbound left turn and eastbound right turn, experiences significant queues in the peak directions. The eastbound right turn lane is approximately 17% over capacity in the AM peak hour, which undermines the effectiveness of the "free" right turn arrangement.

The main goal of the project is to improve the operation along Prince William Parkway and make this movement the primary movement at the intersection. The new, improved design should meet specific cost-benefits criteria to be pursued for funding. The following concepts were developed at the intersection of Prince William Parkway and Old Bridge Road:

1. Traditional T Intersection
2. Through-Cut
3. Roundabout
4. Grade Separation

The revised concepts provide for generally increased throughput at various intersections in both directions during the AM and PM peak hours.

Existing Conditions

Existing Traffic Conditions

Existing conditions of the study area on Prince William Parkway and Old Bridge Road were evaluated for the year 2019. Field data was collected as part of this study on Wednesday, May 29, 2019. Intersection turning movement counts were collected for the AM and PM peak period, defined as 6:00 AM – 10:00 AM and 2:00 PM – 8:00 PM. The peak hours were determined as 7:30 – 8:30 AM and 5:00 – 6:00 PM. Arterial counts were also collected for the full 24-hour period.

The data collection plan prepared by Kimley-Horn Associates for the initial study is shown below in **Figure 3**.

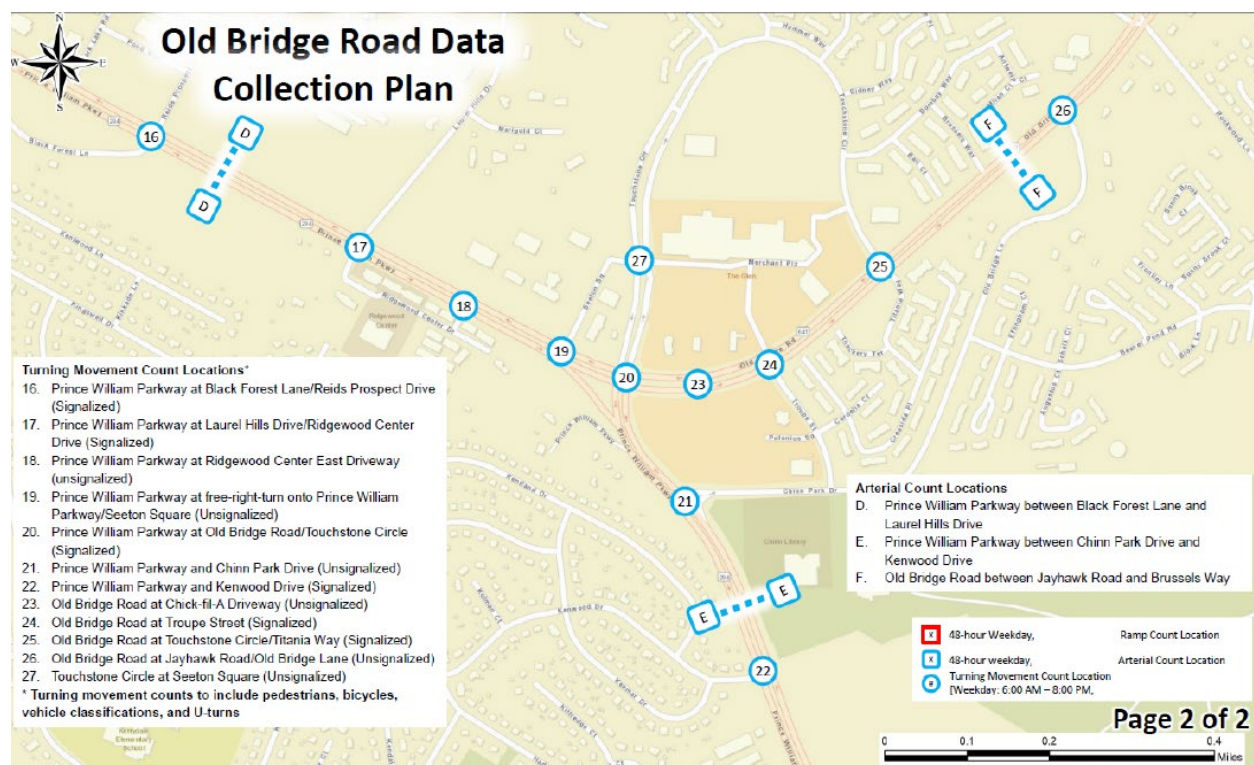


Figure 3: Traffic Data Collection Plan – Source: Kimley-Horn Associates

AM and PM Synchro models were developed utilizing existing timing models received from VDOT’s NOVA District. The collected turning movement counts were input into the models to perform the existing conditions analysis.

Prince William Parkway Corridor

The Prince William Parkway corridor through the study area is a four-lane to six-lane divided principal arterial with a speed limit of 45 miles per hour (MPH). The cross-section consists of two to three through lanes in each direction with left and right turn lanes at each of the signalized intersections. There are two unsignalized right-in/right-out intersections and four unsignalized

right-in/right-out driveways on Prince William Parkway within the study area. The two unsignalized intersections are as follows:

1. Prince William Parkway and Chinn Park Drive
2. Prince William Parkway and Seeton Square

Average daily traffic through the corridor is 45,000-51,000 vehicles per day, with approximately 2.3% heavy vehicles. Flow through the corridor is directional to and from I-95 to the east, with heavier eastbound flows in the AM peak period and heavier westbound flows in the PM peak period.

The hourly arterial counts collected for Prince William Parkway at tube count locations “D” and “E” are shown below in **Figure 4** and **Figure 5**, respectively.

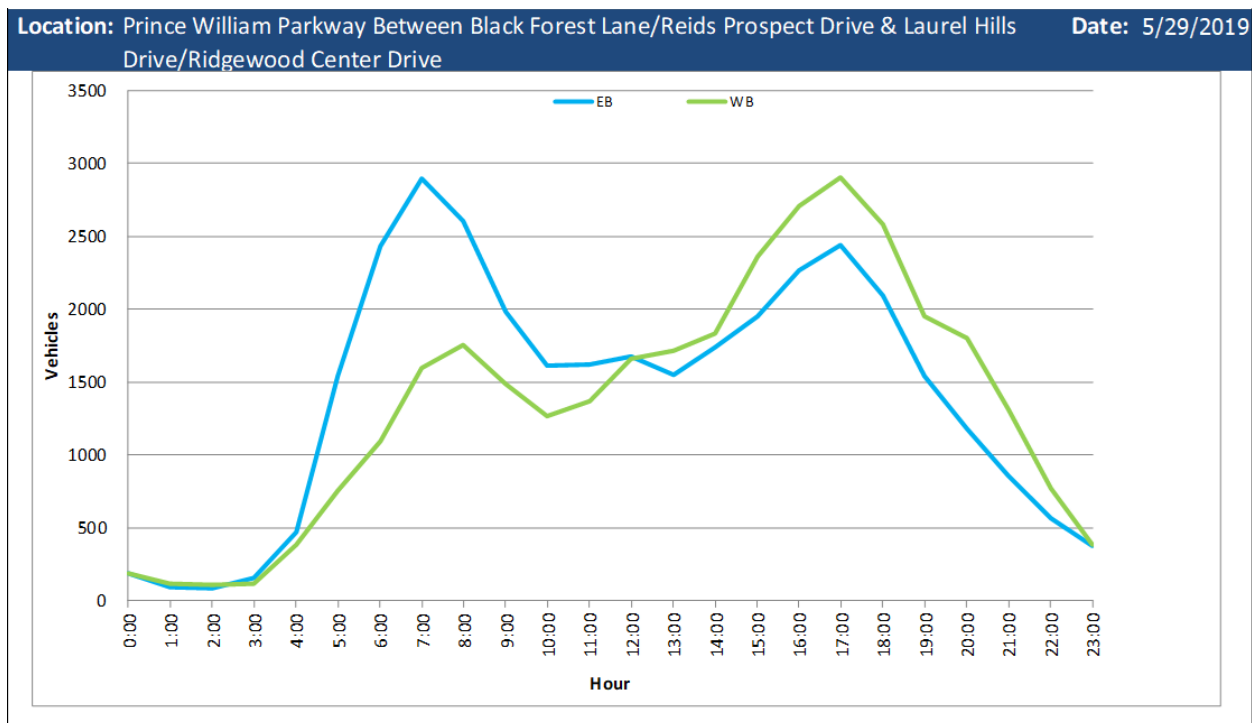


Figure 4: Tube Count Location “D” Hourly Arterial Vehicle Counts

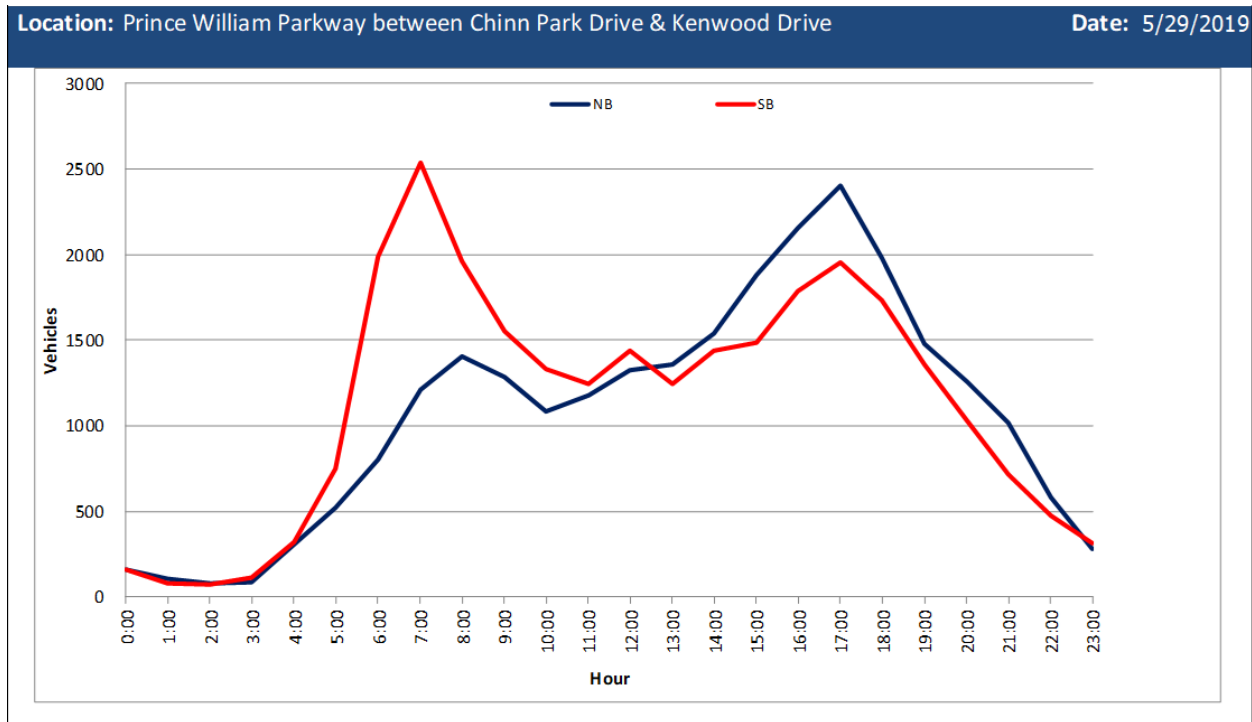


Figure 5: Tube Count Location “E” Hourly Arterial Vehicle Counts

Evaluation of the hourly corridor counts on Prince William Parkway shows a distinct increase in traffic during the peak periods and confirms the expected highly directional flows.

Travel time data for the Prince William Parkway corridor was collected via INRIX data sources for the year 2019. The average weekday eastbound and westbound travel time for the corridor between Hoadly Road and Minnieville Road is shown below in **Figure 6** and **Figure 7**.

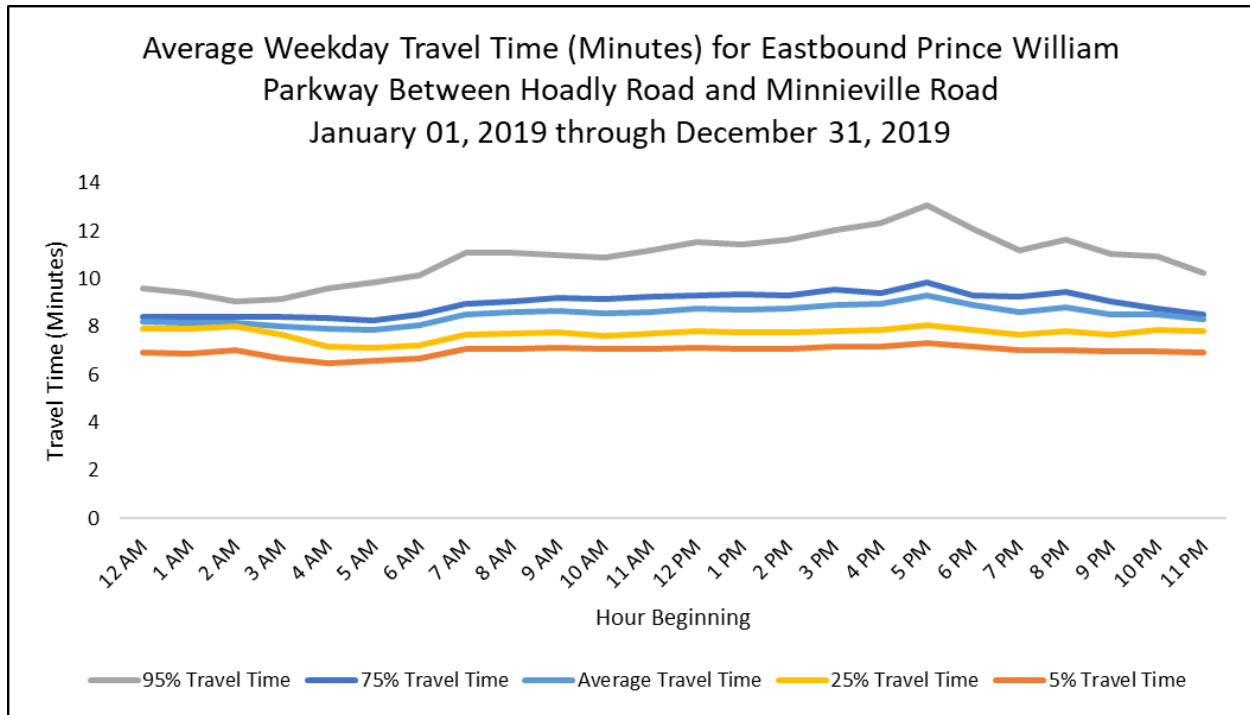


Figure 6: Average Weekday Travel Time for Eastbound Prince William Parkway

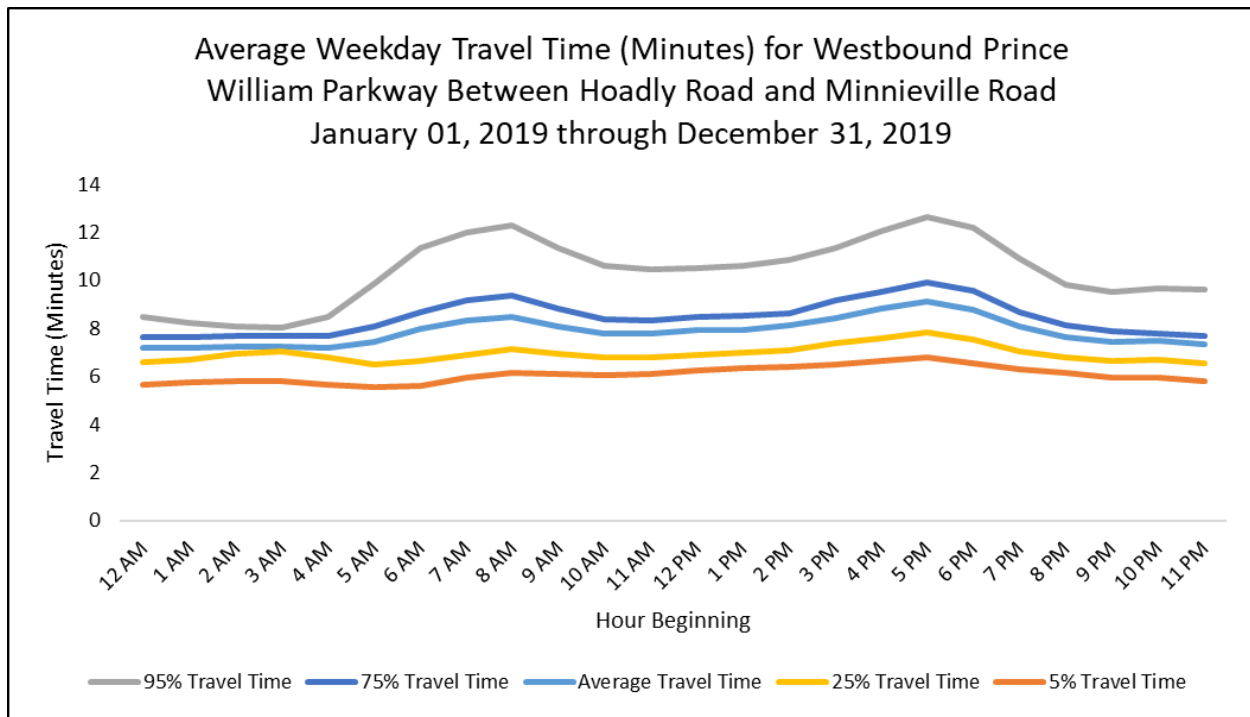


Figure 7: Average Weekday Travel Time for Westbound Prince William Parkway

Evaluation of corridor travel time shows distinct peak periods with elevated travel time. This is particularly well-defined in the westbound direction.

Old Bridge Road Corridor

The Old Bridge Road corridor through the study area is a four-lane to five-lane divided minor arterial with a speed limit of 45 miles per hour (MPH). The cross-section consists of two to three through lanes in each direction with left and right turn lanes at each of the signalized intersections and a raised median. There is a single unsignalized right-in/right-out driveway on Old Bridge Road within the study area.

Average daily traffic through the corridor is 36,000 vehicles per day, with approximately 1.8% heavy vehicles. Flow through the corridor is consistent between both directions of travel and is not considered directional.

The hourly arterial counts collected for Old Bridge Road at tube count location “F” are shown below in **Figure 8**.

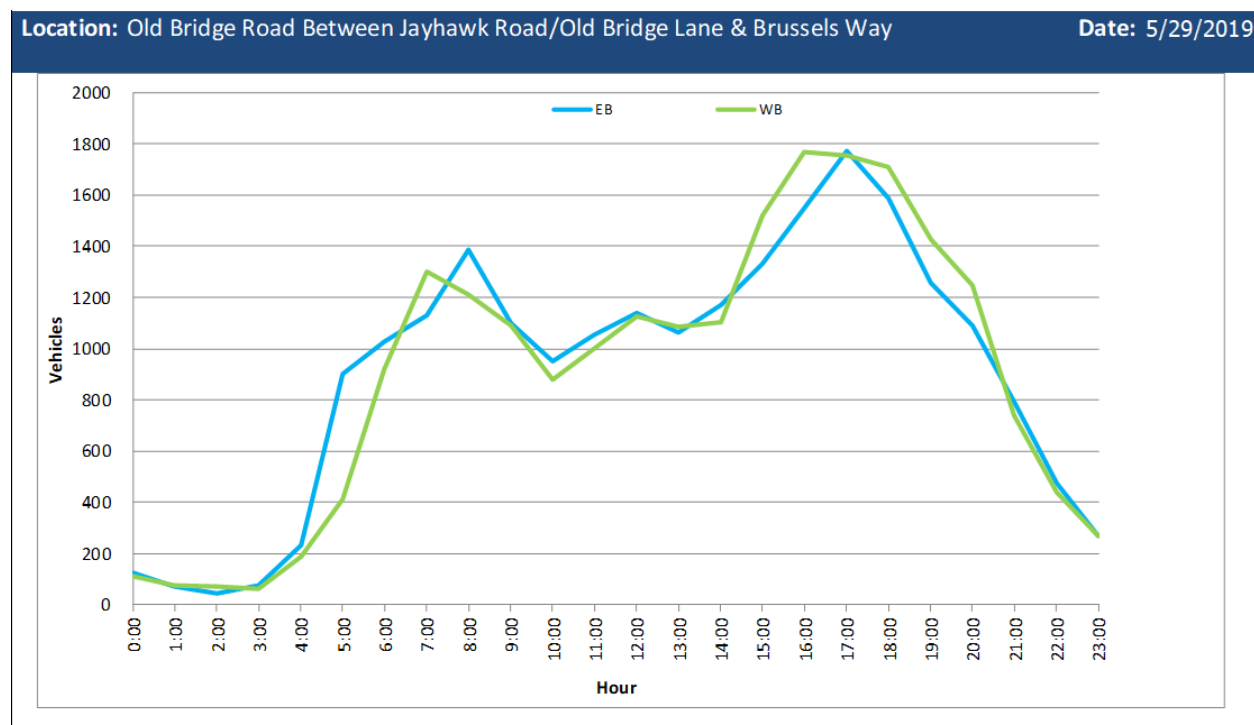


Figure 8: Tube Count Location “F” Hourly Arterial Vehicle Counts

Evaluation of the hourly corridor counts confirms the noticeable increase in traffic during the peak periods and lack of directionality of the flow.

Multimodal Transportation within the Study Corridor

The Prince William Parkway and Old Bridge Road corridors are currently serviced by the OmniRide bus system. There are two existing bus stops within the study area. The first is located on eastbound Prince William Parkway adjacent to the intersection at Ridgewood Center

Drive/Laurel Drive and the second is located on eastbound Old Bridge Road adjacent to the intersection at Troupe Street/Glen Shopping Center.

Existing pedestrian facilities are located throughout the study area, with sidewalk or multi-use paths along both sides of the two corridors and signalized pedestrian crossings at each of the five signalized intersections.

Study Intersection Turning Movement Counts

The existing turning movement counts for the five signalized study intersections are shown below in **Figure 9** and **Figure 10**.

Prince William Parkway and Old Bridge Road/Touchstone Circle SMART SCALE Application Memo

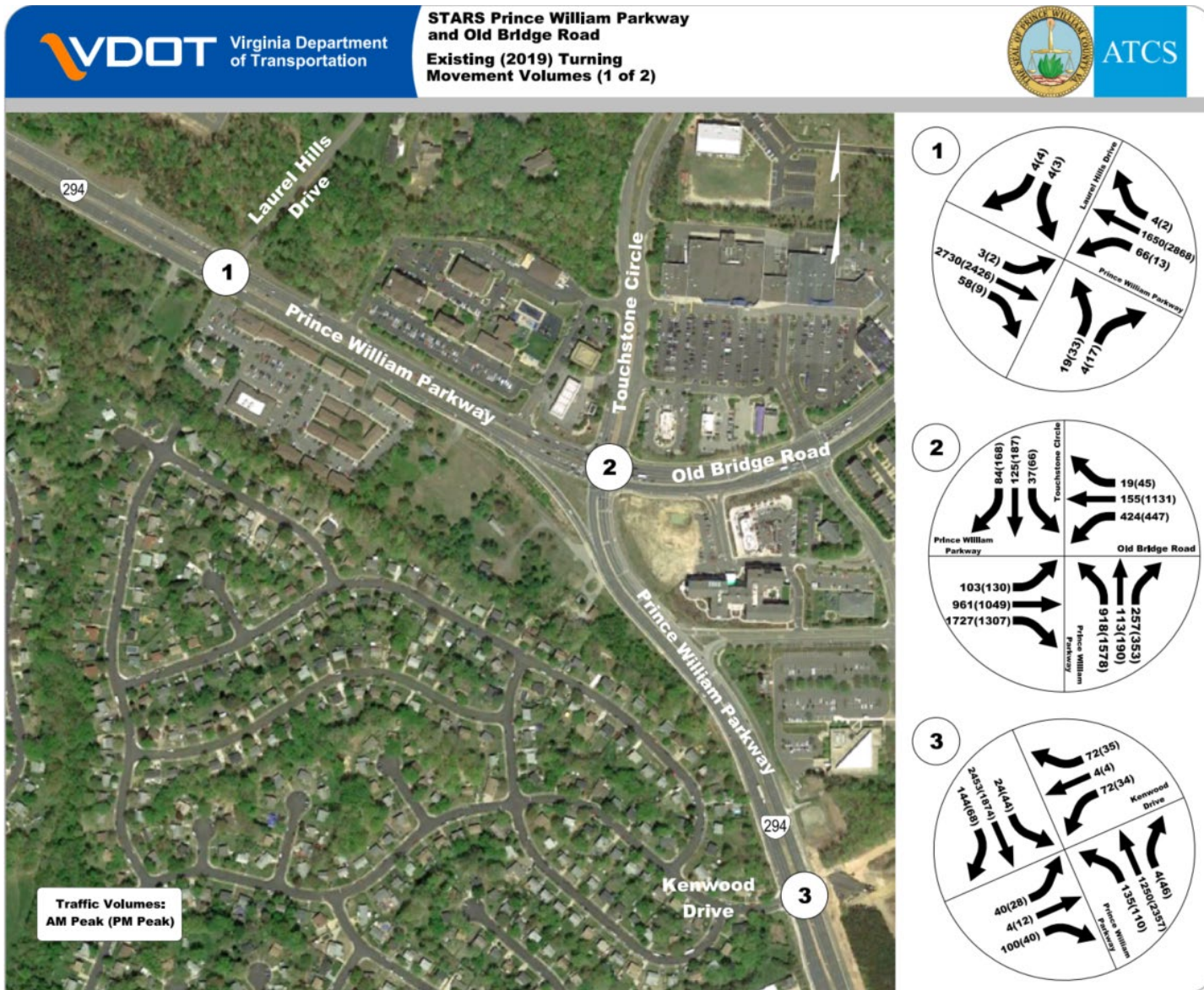


Figure 9: 2019 Intersection Turning Movement Counts – Prince William Parkway

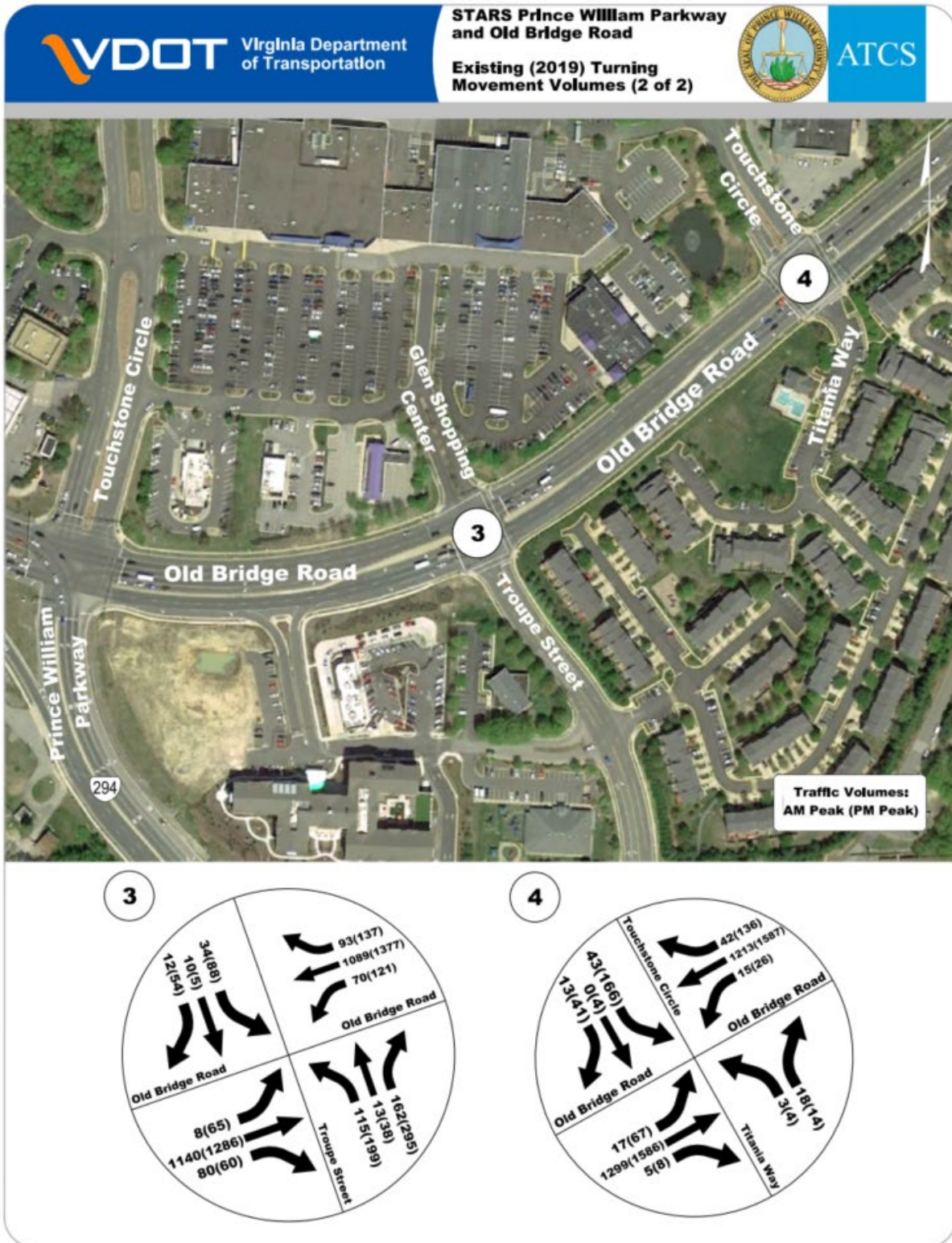


Figure 10: 2019 Intersection Turning Movement Counts – Old Bridge Road

Intersection Analysis Methodology

Traffic operations analysis and simulation was performed using Synchro 10 software for all the study intersections along the arterial corridor. Inputs and analysis methodologies are consistent with VDOT's Traffic Operations and Safety Analysis Manual (TOSAM). Measures of effectiveness (MOEs) for intersections include Synchro output for HCM 2000 Edition control delay (sec/veh) and 50th and 95th percentile queue length (ft). HCM 6th Edition control delay was unavailable for the signalized intersections in this study due to the presence of upstream loop detectors included as part of the received files.

Roundabout analysis was performed using SIDRA 6 software. Inputs and analysis methodologies are consistent with VDOT's TOSAM. MOEs for roundabouts include SIDRA output for HCM 2010 Edition control delay (sec/veh) and 95th percentile queue length (ft).

AM and PM peak hour analyses were performed for the peak hours of 7:30 – 8:30 AM and 5:00 – 6:00 PM. For the purposes of this report, traffic analysis and future alternative design has only been performed at the main study intersection at Prince William Parkway and Old Bridge Road/Touchstone Circle. The existing traffic and geometric conditions at this intersection are discussed in the following sections.

Existing Conditions – Prince William Parkway and Old Bridge Road/Touchstone Circle

The intersection of Prince William Parkway and Old Bridge Road/Touchstone Circle is an existing six phase signalized intersection in the center of the study area. The western and eastern approaches to the intersection operate with protected left turn phases. The northern and southern approaches to the intersection operate with split phasing.

Prince William Parkway is located on the western and southern legs of the intersection. Due to this geometric alignment, the major “through” movements on Prince William Parkway are located on the eastbound right turn and northbound left turn movements. The eastbound right turn movement is currently unsignalized and operates as a free movement, with an added lane for merging traffic on southbound Prince William Parkway. The existing geometry at the intersection is shown in **Figure 11**.



Figure 11: Prince William Parkway and Old Bridge Road/Touchstone Circle Existing Geometry

Existing Synchro analysis results for the intersection for the AM and PM peak hour is shown below in **Table 1**.

Table 1: 2019 Existing Geometry Traffic Analysis Results

2019 Existing Peak Hour Delay, LOS, and Queue Summary										
Intersection	Roadway	Lane Group	AM				PM			
			Delay (Sec/Veh.)	LOS	50% Queue (Feet)	95% Queue (Feet)	Delay (Sec/Veh.)	LOS	50% Queue (Feet)	95% Queue (Feet)
Prince William Parkway and Old Bridge Road/Touchstone Circle	Prince William Parkway	EBL	108.3	F	124	142	128.9	F	177	322
		EBT	27.6	C	502	536	63.9	E	757	931
		EBR	171.1	F	2430	2369	6.8	A	1302	1533
	Old Bridge Road	WBL	88.6	F	230	360	133.1	F	292	387
		WBTR	24.7	C	309	216	21.8	C	280	330
	Prince William Parkway	NBL	115.2	F	505	650	199.3	F	1200	1347
		NBT	130.9	F	527	773	207.9	F	1245	1531
		NBR	16.1	B	35	53	36.8	D	385	461
	Touchstone Circle	SBL	81.9	F	46	90	93.4	F	101	157
		SBT	84.0	F	82	120	104.0	F	152	193
SBR		64.2	E	8	38	75.4	E	53	90	
Overall			97.1	F	-	-	89.3	F	-	-

The majority of movements operate at subpar levels of delay. The 95th percentile queues for the eastbound right in the AM peak hour extend beyond the intersection at Ridgewood Center Drive/Laurel Hills Drive, despite operating as a free movement. This movement is approximately 17% over capacity in the AM peak hour.

Existing Safety Conditions

For safety analysis, the VDOT Crash Database Tableau Tool was utilized to determine the crash history at the 12 study intersections and on the roadway between them. Crash data was collected and analyzed for a five-year period spanning from 2015 through 2019. The study team analyzed the available data to determine specific trends and “hot spot” areas for consideration in developing alternative improvement concepts. As part of the crash data review, all crashes were mapped by crash type and severity. For the purposes of this analysis, total injury crashes are defined as the sum of type A (severe injury), B (visible injury), and C (non-visible injury) crashes. A summary of the yearly crash totals by severity for the study area is shown below in **Table 2**.

Table 2: Study Area Crash Severity by Year

Study Area Crash Summary						
Year	Total	K	A	B	C	PDO
2015	69	0	1	25	1	27
2016	54	0	2	17	4	23
2017	72	0	2	14	2	18
2018	66	0	0	20	5	25
2019	60	0	0	12	1	13

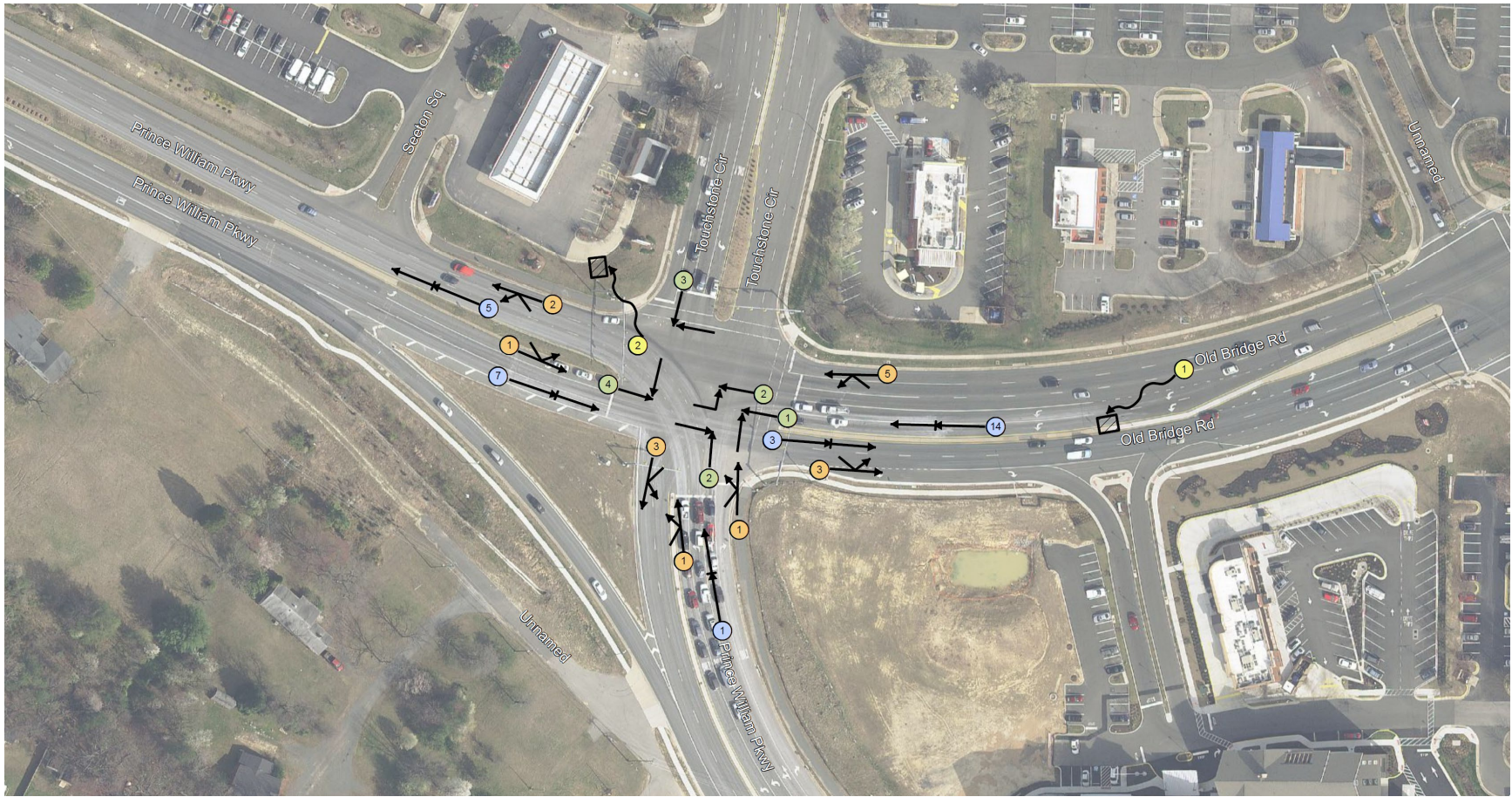
The most significant concentration of crashes occurs at the intersection of Prince William Parkway at Old Bridge Road/Touchstone Circle with a total of 62 crashes during the 5-year study period. A summary of the crashes at the intersection by type and severity is shown below in **Table 3**. **Figure 12** shows an aerial diagram of the crashes.

Table 3: Prince William Parkway and Old Bridge Road/Touchstone Circle Crash Type Summary

Prince William Parkway and Old Bridge Road/Touchstone Circle Crashes					
Crash Type	Total	A	B	C	PDO
Angle	12	1	3	0	8
Rear-end	30	0	11	2	17
Sideswipe	17	0	4	1	12
Fixed Object - Off Road	3	0	0	0	3

The majority of the crashes at the intersection are rear-end, sideswipe, and angle crashes. Approximately 35% of the crashes resulted in an injury.

Prince William Parkway and Old Bridge Road/Touchstone Circle SMART SCALE Application Memo



Crash Types

- | | | | |
|--|--------------------|--|---------------------------|
| | Angle Crash | | Collision with Deer |
| | Rear-end Crash | | Collision with Pedestrian |
| | Sideswipe Crash | | Head On Crash |
| | Fixed Object Crash | | |

Figure 12: Prince William Parkway and Old Bridge Road/Touchstone Circle Aerial Crash Diagram

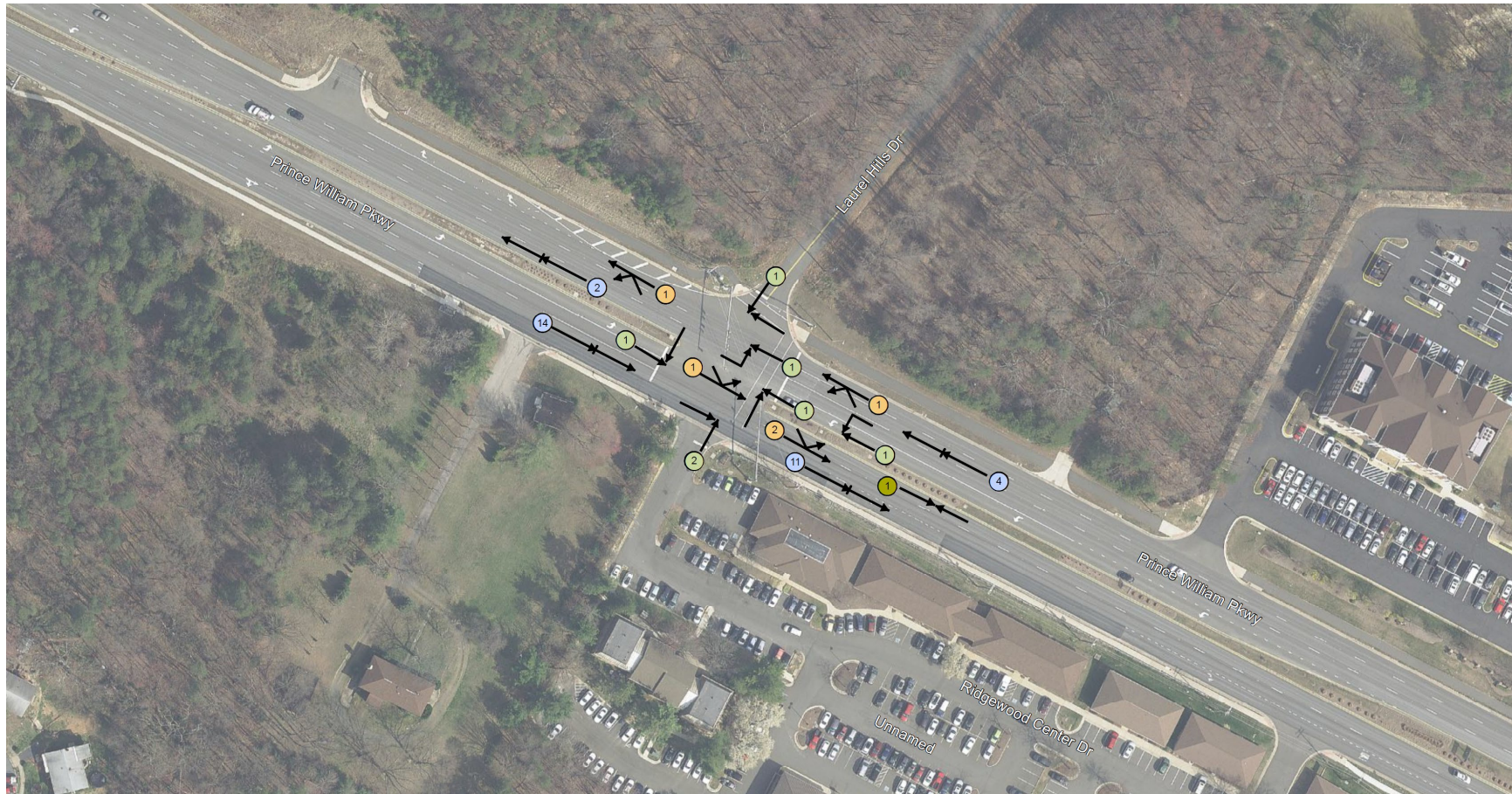
Table 4 below provide a summary of the crashes at the intersection of Prince William Parkway at Laurel Hills Drive/Ridgewood Center Drive. **Figure 13** displays an aerial crash diagram for the intersection.

Table 4: Prince William Parkway and Ridgewood Center Drive/Laurel Hills Drive Crash Summary

Prince William Parkway and Ridgewood Center Drive/Laurel Hills Drive				
Crash Type	Total	B	C	PDO
Angle	7	5	0	2
Rear-end	31	7	2	22
Head On	1	0	1	0
Sideswipe	5	1	0	4

The majority of the crashes at the intersection are rear-end crashes. Of the 31 rear-end crashes, 81% of the crashes were along eastbound Prince William Parkway. Approximately 36% of the crashes resulted in an injury.

Prince William Parkway and Old Bridge Road/Touchstone Circle SMART SCALE Application Memo



Crash Types

- | | | | |
|--|--------------------|--|---------------------------|
| | Angle Crash | | Collision with Deer |
| | Rear-end Crash | | Collision with Pedestrian |
| | Sideswipe Crash | | Head On Crash |
| | Fixed Object Crash | | |

Figure 13: Prince William Parkway and Ridgewood Center Drive/Laurel Hills Drive Aerial Crash Diagram

Table 5 below provide a summary of the crashes at the intersection of Prince William Parkway at Kenwood Drive. Figure 14 displays an aerial crash diagram for the intersection.

Table 5. Prince William Parkway and Kenwood Drive/Jenkins Elementary School Crash Summary

Prince William Parkway and Kenwood Drive/Jenkins Elementary School				
Crash Type	Total	B	C	PDO
Angle	7	5	0	2
Rear-end	31	7	2	22
Head On	1	0	1	0
Sideswipe	5	1	0	4

The majority of the crashes at the intersection are rear-end crashes. Approximately 32% of the crashes resulted in an injury.

Prince William Parkway and Old Bridge Road/Touchstone Circle SMART SCALE Application Memo



Crash Types

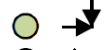
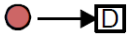
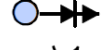
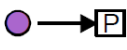



- | | | | |
|---|--------------------|---|---------------------------|
|  | Angle Crash |  | Collision with Deer |
|  | Rear-end Crash |  | Collision with Pedestrian |
|  | Sideswipe Crash |  | Head On Crash |
|  | Fixed Object Crash | | |

Figure 14: Prince William Parkway and Kenwood Drive/Jenkins Elementary School Aerial Crash Diagram

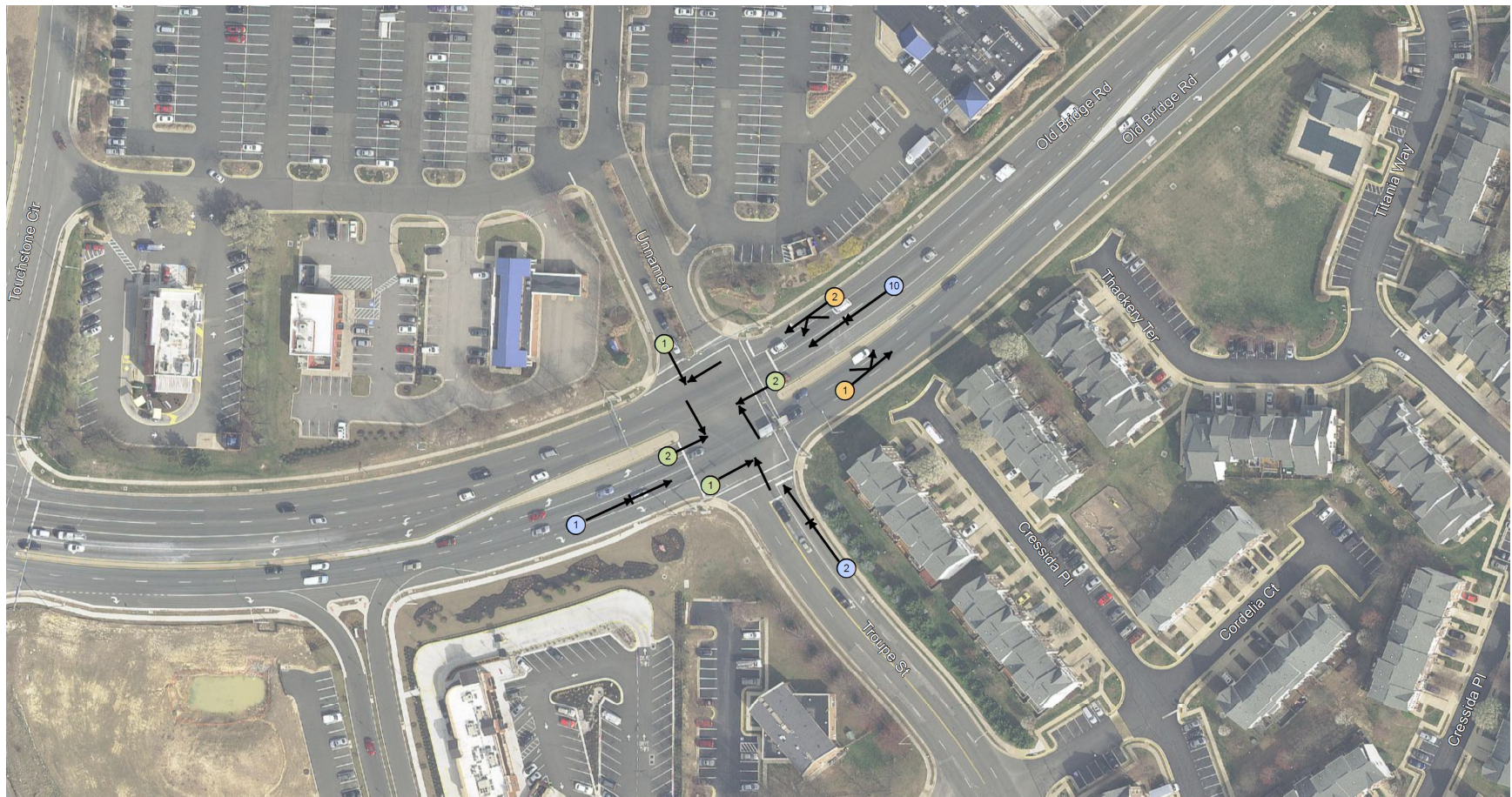
Table 6 below provide a summary of the crashes at the intersection of Old Bridge Road at Troupe Street. **Figure 15** displays an aerial crash diagram for the intersection.

Table 6: Old Bridge Road and Troupe Street/Glen Shopping Center Crash Summary

Old Bridge Road and Troupe Street/Glen Shopping Center			
Crash Type	Total	B	PDO
Angle	6	2	4
Rear-end	13	2	11
Sideswipe	3	0	3

The majority of the crashes at the intersection of Old Bridge Road and Troupe Street are rear-end crashes. Of the 13 rear-end crashes, 77% occurred along westbound Old Bridge Road. Approximately 18% of the crashes resulted in an injury.

Prince William Parkway and Old Bridge Road/Touchstone Circle SMART SCALE Application Memo



Crash Types

- | | | | |
|--|--------------------|--|---------------------------|
| | Angle Crash | | Collision with Deer |
| | Rear-end Crash | | Collision with Pedestrian |
| | Sideswipe Crash | | Head On Crash |
| | Fixed Object Crash | | |

Figure 15: Old Bridge Road and Troupe Street/Glen Shopping Center Aerial Crash Diagram

Table 7 below provide a summary of the crashes at the intersection of Old Bridge Road at Touchstone Circle/Titania Way. **Figure 16** displays an aerial crash diagram for the intersection.

Table 7: Old Bridge Road and Titania Way/Touchstone Circle Crash Summary

Old Bridge Road and Titania Way/Touchstone Circle			
Crash Type	Total	B	PDO
Angle	2	1	1
Rear-end	17	3	14
Pedestrian	1	1	0

The majority of the crashes at the intersection of Old Bridge Road and Touchstone Circle/Titania Way are rear-end crashes. Of the 17 rear-end crashes, 76% occurred along westbound Old Bridge Road. Approximately 25% of the crashes resulted in an injury.

Prince William Parkway and Old Bridge Road/Touchstone Circle SMART SCALE Application Memo



Crash Types

- | | | | |
|--|--------------------|--|---------------------------|
| | Angle Crash | | Collision with Deer |
| | Rear-end Crash | | Collision with Pedestrian |
| | Sideswipe Crash | | Head On Crash |
| | Fixed Object Crash | | |

Figure 16: Old Bridge Road and Titania Way/Touchstone Circle Aerial Crash Diagram

Improvement Alternatives

Summary and Development of Alternatives

As the intersection of Prince William Parkway and Old Bridge Road/Touchstone Circle is considered the focus of the study, alternative designs were targeted at this intersection. In developing alternative scenarios, a thorough review of the existing conditions data and results of the public survey were considered.

The goal of the study team was to develop multiple options that would address the highest priority concerns for further consideration and feedback. Options were developed at different levels of construction and implementation cost for the corridor. The goal of each option was to find new or innovative ways to improve the efficiency of the intersection and corridor through application of multiple approaches including:

1. Simplification or reduction of signal phase
2. Minor operational improvements or geometrics to expand capacity
3. Alternative or innovative intersections

Due to the elevated delay and relative lack of safety issues, it was determined that the focus of the alternatives would be to improve operational conditions. After a review of multiple options, the study team developed several alternative scenarios for further analysis and subsequent concept development. These scenarios were carried forward to solicit public input via the public involvement survey. Those scenarios are as follows:

1. Alternative 1 – Conventional T Intersection
2. Alternative 2 – Through-Cut
3. Alternative 3 – Roundabout
4. Alternative 4 – Grade Separation

Geometric alternative concepts will be henceforth referred to as “Alternative #”. Alternatives are discussed in greater detail in the sections that follow.

Additional Synchro analysis was performed for Alternatives 1, 2, and 3 utilizing existing traffic data to develop a 2019 comparison of existing conditions and the alternatives.

Alternative 1 – Conventional T Intersection

In the initial evaluation of this corridor, Prince William County demonstrated a desire to realign Prince William Parkway to a standard configuration, removing the main flow of traffic from the eastbound right turn and northbound left turn to and routing it to through movements. Old Bridge Road would then be connected to the intersection in a T configuration.

A design sketch of Alternative 1 is shown below in **Figure 17**.



Figure 17: Alternative 1 Design Sketch

In order to continue to provide access to Touchstone Circle, the connection has been reconfigured as an unsignalized right-in/right-out movement. The preliminary cost estimate for Alternative 1 is approximately \$29,110,000.

Synchro analysis results for Alternative 1 utilizing existing traffic volumes are shown below in **Table 8**.

Table 8: 2019 Alternative 1 Traffic Analysis Results

2019 Alternative 1 Peak Hour Delay, LOS, and Queue Summary										
Intersection	Roadway	Lane Group	AM				PM			
			Delay (Sec/Veh.)	LOS	50% Queue (Feet)	95% Queue (Feet)	Delay (Sec/Veh.)	LOS	50% Queue (Feet)	95% Queue (Feet)
Prince William Parkway and Old Bridge Road	Old Bridge Road	WBL	68.6	E	340	404	105.4	F	465	603
		WBR	11.2	B	136	103	18.2	B	272	311
	Prince William Parkway	NBT	51.8	D	193	806	52.9	D	836	1037
		NBR	31.6	C	93	479	4.6	A	81	13
	Prince William Parkway	SBL	58.1	E	712	336	72.5	E	915	921
		SBT	8.4	A	321	185	2.4	A	10	16
	Overall			33.4	C	-	-	40.4	D	-

Compared to the existing configuration, Alternative 1 provides for a significant reduction in overall delay and queues. Notably, the existing eastbound right turn movement, which has been rerouted to the southbound through movement, operates at LOS A with minimal queueing during both peak hours. The northbound left turn, which has been rerouted to the northbound through movement, also sees an approximately 73% reduction in delay.

The southbound and westbound left turn movements experience elevated levels of delay, operating at LOS E to F.

Alternative 2 – Through-Cut

Alternative 2 seeks to maintain the existing geometry of the intersection while dedicating more signal timing split to the main movements. The through-cut alternative intersection accomplishes this by removing the northbound and southbound through movements. These movements would be redirected to the adjacent signals at Ridgewood Center Drive/Laurel Drive and Troupe Street/Glen Shopping Center as U-turns.

The elimination of the side street through movements allows for the removal of the existing side street split phasing. Concurrent side street operations offer a greater allotment of green time to the remaining movements at the intersection within the existing corridor cycle length.

A design sketch of Alternative 2 is shown below in **Figure 18**.



Figure 18: Alternative 2 Design Sketch

Geometric improvements to the existing intersection are also proposed as part of this alternative. Dual left turn lanes are proposed on the eastbound approach to allow for a shorter protected left turn phase on that approach.

Additionally, dual right turn lanes are proposed on the southbound and eastbound approaches. This modification to a dual right turn lane on the eastbound approach will require that the right turn movement be placed under signal control. This signal will only require a red indication during the westbound left turn movement and otherwise will operate with no restrictions during a majority of the cycle length. The preliminary cost estimate for Alternative 2 is approximately \$8,420,000.

Synchro analysis results for Alternative 2 utilizing existing traffic volumes are shown below in **Table 9**.

Table 9: 2019 Alternative 2 Traffic Analysis Results

2019 Alternative 2 Peak Hour Delay, LOS, and Queue Summary										
Intersection	Roadway	Lane Group	AM				PM			
			Delay (Sec/Veh.)	LOS	50% Queue (Feet)	95% Queue (Feet)	Delay (Sec/Veh.)	LOS	50% Queue (Feet)	95% Queue (Feet)
Prince William Parkway and Old Bridge Road/Touchstone Circle	Prince William Parkway	EBL	29.7	C	47	28	54.5	D	62	51
		EBT	18.2	B	348	18	30.0	C	616	548
		EBR	59.6	E	1140	422	11.3	B	138	94
	Old Bridge Road	WBL	100.9	F	217	344	58.7	E	238	323
		WBT	30.4	C	143	223	16.8	B	238	243
		WBR	26.4	C	0	10	3.9	A	3	4
	Prince William Parkway	NBL	17.4	B	121	98	38.4	D	634	709
		NBR	2.7	A	3	8	17.7	B	251	230
	Touchstone Circle	SBL	29.5	C	25	52	32.1	C	51	85
		SBR	25.1	C	77	131	31.9	C	218	274
Overall			38.8	C	-	-	27.1	C	-	-

Similar to Alternative 1, Alternative 2 provides for a substantial reduction in overall intersection delay and a reduction in queue on critical movements. Despite the addition of signalization to the eastbound right turn movement, delay is still reduced by approximately 65% in the AM peak hour. Queues for that movement also reduce to less than half as compared to existing conditions. The northbound left turn movement in the PM peak hour improves from LOS F to LOS D with an 80% reduction in delay. The westbound left turn shows similar delay issues to Alternative 1, operating at LOS F in the AM peak hour and LOS E in the PM peak hour.

Alternative 3 – Roundabout

Alternative 3 was developed as a request by a member of the Virginia State Legislature to evaluate the feasibility of a roundabout at the intersection. After evaluation of traffic volumes, a dual lane roundabout was determined to include the minimum number of circulating lanes. The installation of a roundabout at this location would necessitate the realignment of Prince William Parkway as in Alternative 1. Due to the fact that this Alternative was introduced late in the project, it was not available for evaluation by the public during the public involvement phase.

A design sketch of Alternative 3 is shown below in **Figure 19**.



Figure 19: Alternative 3 Design Sketch

In order to best accommodate the significant eastbound flow on Prince William Parkway, a bypass lane has been provided for that movement to remove a portion of that traffic from the circulating lanes within the roundabout. This alternative is expected to cost between \$35,000,000 and \$40,000,000.

SIDRA analysis results by approach for Alternative 3 are shown below in **Table 10**.

Table 10: 2019 Alternative 3 Traffic Analysis Results

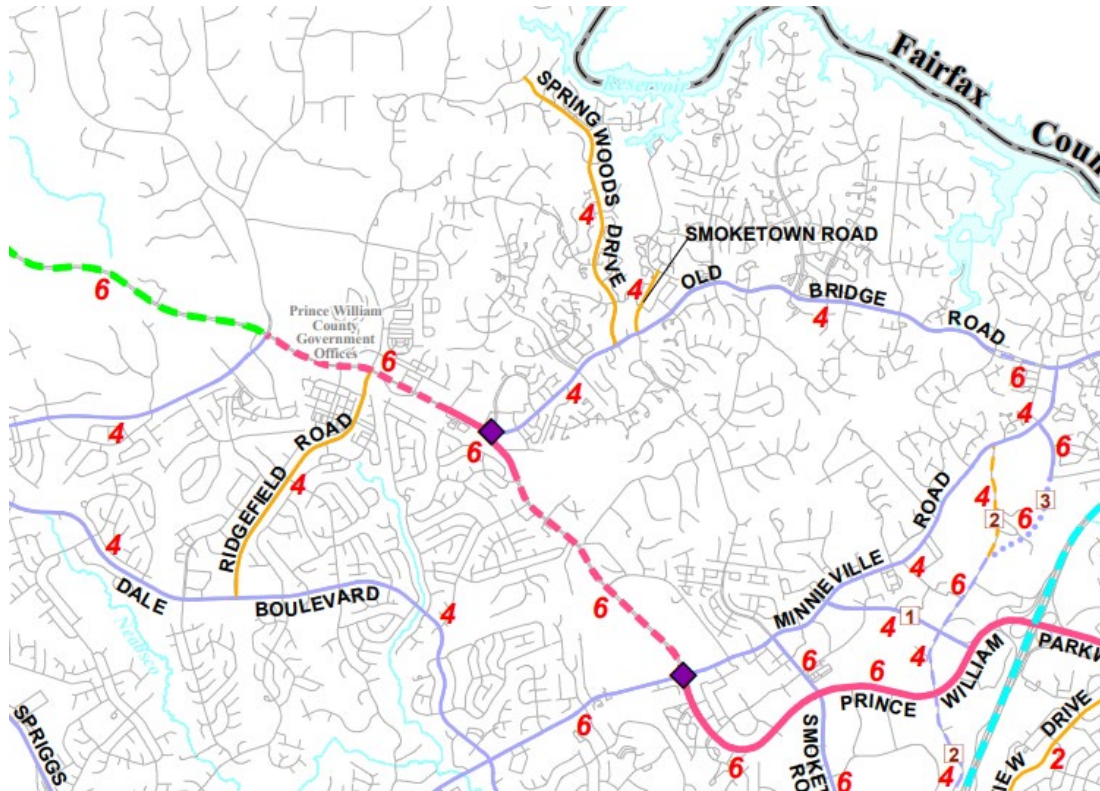
2019 Alternative 3 Peak Hour Delay, LOS, and Queue Summary								
Intersection	Roadway	Approach	AM			PM		
			Delay (Sec/Veh.)	LOS	95% Queue (Feet)	Delay (Sec/Veh.)	LOS	95% Queue (Feet)
Prince William Parkway and Old Bridge Road	Prince William Parkway	SB	7.4	A	162	6.4	A	125
	Old Bridge Road	WB	2.9	A	41	6.4	A	106
	Prince William Parkway	NB	14.7	B	107	55.1	E	643
	Overall			8.0	A	-	22.2	C

In existing conditions, the dual lane roundabout is under capacity on all approaches. Though the northbound approach in the PM peak hour does experience an elevated level of delay, the 95th percentile queue is noted as only extending 643 feet upstream. This expected queue is less than the queue for both Alternatives 1 and 2.

Alternative 4 – Grade Separation

The Prince William Parkway and Old Bridge Road intersection is cited in the Prince William County Comprehensive Plan as a likely location for grade separation in the future. A map of the plan, most recently updated in 2016, is shown in **Figure 20**. As such, the feasibility of grade separation was evaluated at this intersection. Various alternatives, including a flyover ramp for the northbound left turn, an echelon, and a single-point urban interchange, were evaluated at a high level.

No traffic analysis was performed on any evaluated alternatives due to the expected cost, which would likely exceed \$100,000,000. Additionally, the benefits of a single grade separated interchange in the center of the corridor may be substantially reduced due to the continued presence of signals in the immediate vicinity. While no analysis was performed on a grade separated alternative, this Alternative was available for review during the public involvement phase to gauge the reaction to potential grade separation.



Road Classifications

	<u>Completed</u>	<u>Not Completed</u>	<u>Planned</u>
Interstate			
Parkway			
Principal Arterial			
Minor Arterial			
Major Collector			
		Proposed Interchange	
		Projected Number of Lanes	

Figure 20: Prince William County Comprehensive Plan Proposed Interchange Locations

2019 Results Summary

A comparison of the traffic operations for existing conditions and Alternatives 1, 2, and 3, utilizing existing traffic volumes, is shown below in **Table 11**.

Table 11: 2019 Traffic Analysis Results Comparison

2019 Peak Hour Delay, LOS, and Queue Summary					
Intersection	Approach	AM Existing	AM Alternative 1	AM Alternative 2	AM Alternative 3
		LOS (Delay (s/veh))	LOS (Delay (s/veh))	LOS (Delay (s/veh))	LOS (Delay (s/veh))
Prince William Parkway and Old Bridge Road	Prince William Parkway (EB/SB)	F (119.4)	C (27.3)	D (44.9)	A (7.4)
	Old Bridge Road (WB)	D (47.4)	C (33.9)	E (55.3)	A (2.9)
	Prince William Parkway (NB)	F (99.7)	D (46.0)	B (13.1)	B (14.7)
	Touchstone Circle (SB)	F (76.9)	N/A	C (25.8)	N/A
	Overall	F (97.1)	C (33.4)	D (38.8)	A (8.0)
Intersection	Approach	PM Existing	PM Alternative 1	PM Alternative 2	PM Alternative 3
		LOS (Delay (s/veh))	LOS (Delay (s/veh))	LOS (Delay (s/veh))	LOS (Delay (s/veh))
Prince William Parkway and Old Bridge Road	Prince William Parkway (EB/SB)	D (37.3)	D (35.6)	C (20.9)	A (6.4)
	Old Bridge Road (WB)	D (52.5)	D (46.8)	C (28.0)	A (6.4)
	Prince William Parkway (NB)	F (174.7)	D (40.5)	C (33.1)	E (55.1)
	Touchstone Circle (SB)	F (90.9)	N/A	C (32.0)	N/A
	Overall	F (89.3)	D (40.4)	C (27.1)	C (22.2)

Compared to the existing configurations, all alternatives provide for significant improvement to approach and overall intersection delay.

Future Traffic Forecasting and Modeling

Traffic Forecasting and Methodology

The background growth rate was developed utilizing data from the Prince William County traffic demand model (TDM), as well as local traffic and development information, to recommend a future growth rate for the corridor study.

In order to evaluate projected future year 2040 corridor conditions for the No-Build and proposed alternative scenarios, a 1% background growth rate for the time period between the existing and future year was determined and approved by VDOT. All movements associated with Touchstone Circle were grown by 0% as the area surrounding the road is considered built out and the road’s geometric layout as a loop does not afford opportunities for additional through traffic. It was noted that the AADT on Touchstone Circle has remained stagnant for all reviewed years.

The future year 2040 turning movement counts for the study intersections are shown below in **Figure 21** and **Figure 22**.

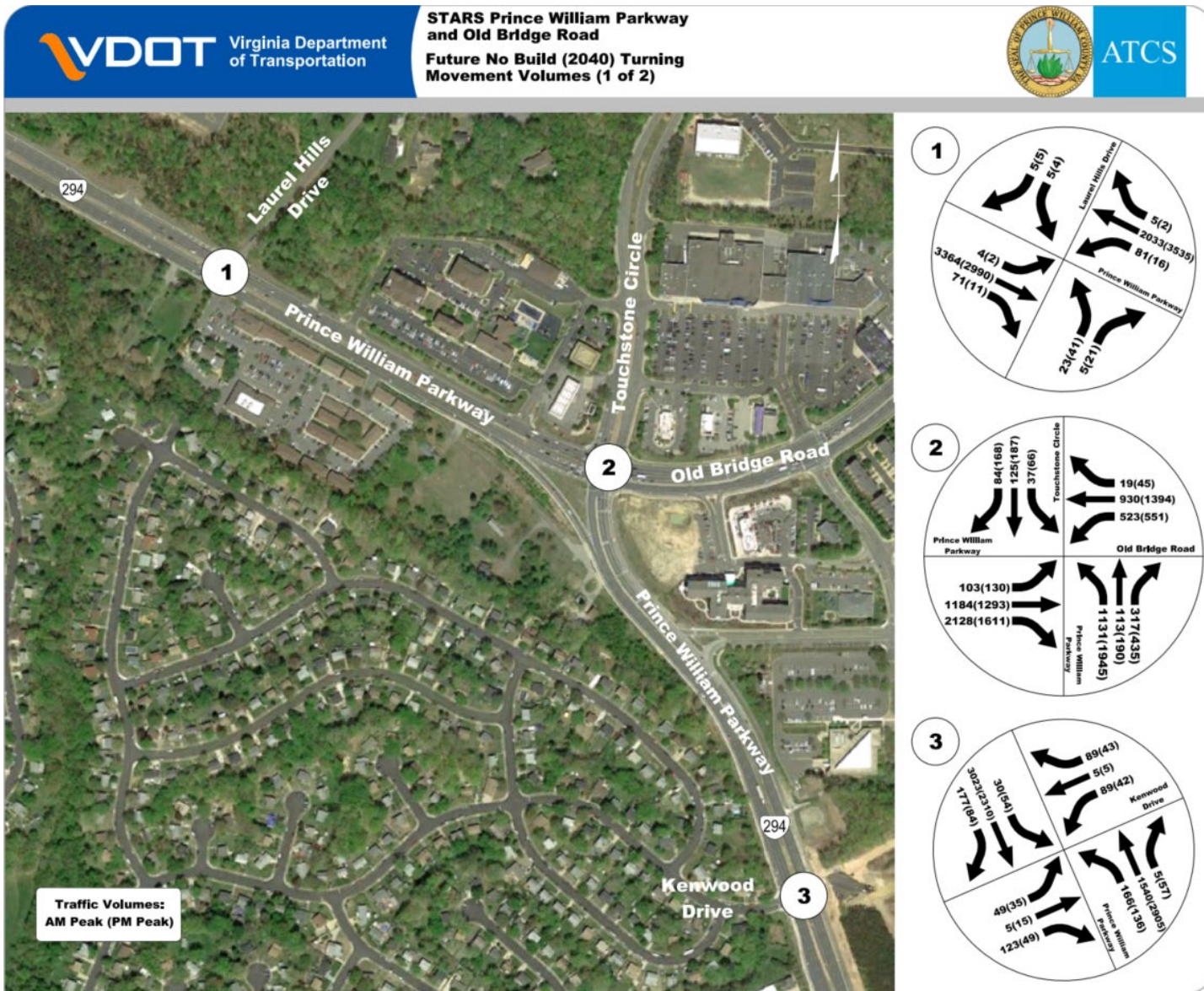


Figure 21: 2040 Intersection Turning Movement Counts – Prince William Parkway

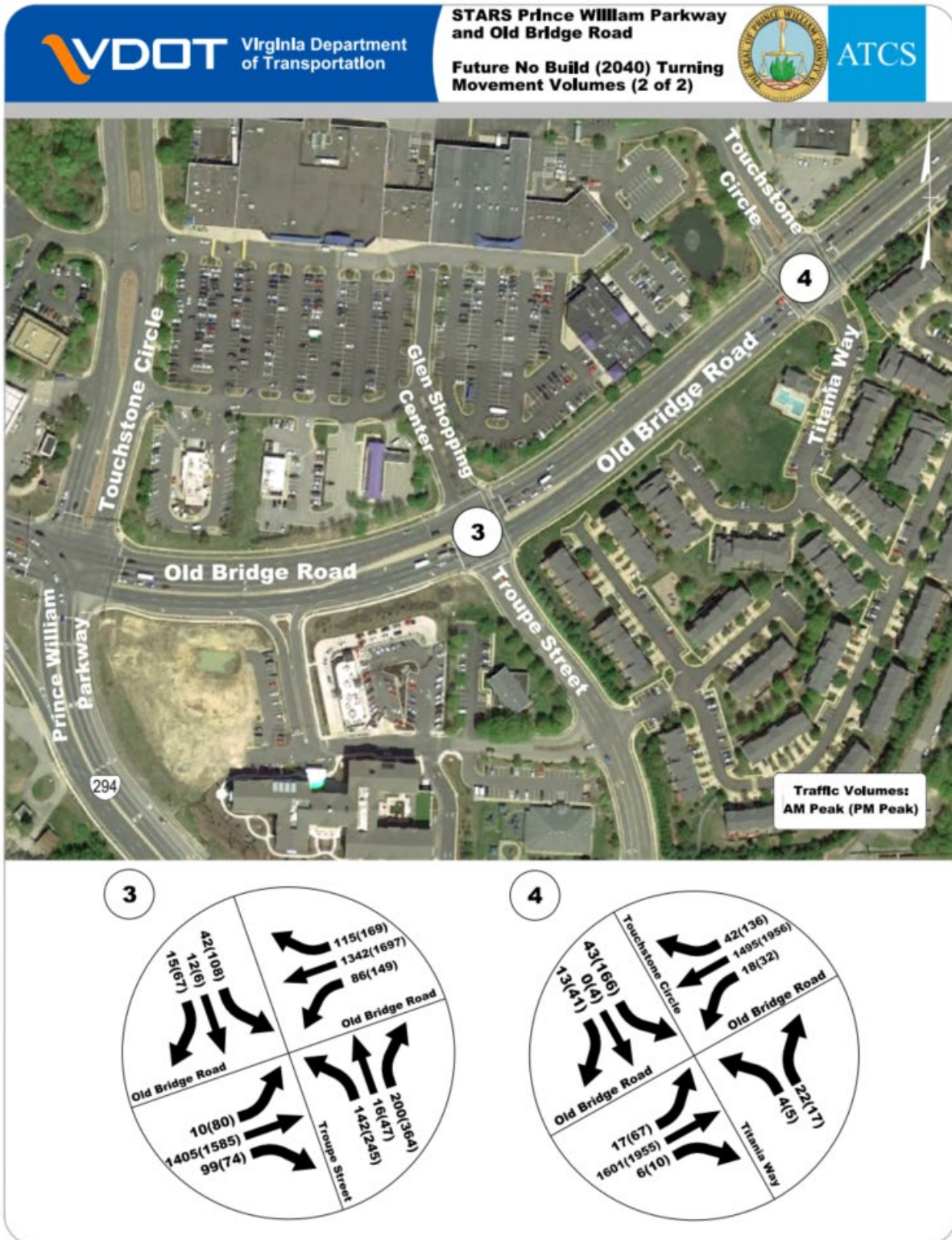


Figure 22: 2040 Intersection Turning Movement Counts – Old Bridge Road

Future Year 2040 Traffic Model Results

Modifications to 2040 Model

In addition to the geometric modifications for each proposed alternative, corridor cycle lengths, splits, and offsets were optimized to best accommodate traffic flow through the revised geometric conditions. No other modifications were made to the models.

2040 Analysis Results

2040 analysis results for the No-Build scenario are shown in **Table 12**.

Table 12: 2040 No-Build Traffic Analysis Results

2040 No-Build Peak Hour Delay, LOS, and Queue Summary										
Intersection	Roadway	Lane Group	AM				PM			
			Delay (Sec/Veh.)	LOS	50% Queue (Feet)	95% Queue (Feet)	Delay (Sec/Veh.)	LOS	50% Queue (Feet)	95% Queue (Feet)
Prince William Parkway and Old Bridge Road/Touchstone Circle	Prince William Parkway	EBL	115.0	F	159	168	126.6	F	204	326
		EBT	68.1	E	995	1139	206.0	F	1348	1483
		EBR	315.6	F	4603	4741	164.5	F	2364	2086
	Old Bridge Road	WBL	125.2	F	420	570	257.8	F	529	621
		WBTR	33.0	C	423	314	45.7	D	630	729
	Prince William Parkway	NBL	101.3	F	610	895	161.3	F	1533	1648
		NBT	111.3	F	608	1026	160.9	F	1537	1729
		NBR	28.2	C	137	182	31.0	A	506	342
	Touchstone Circle	SBL	118.0	F	61	117	135.2	F	106	205
		SBT	154.5	F	108	187	198.9	F	174	276
		SBR	87.8	F	0	31	91.7	F	88	149
Overall		153.1	F	-	-	147.1	F	-	-	

Compared to existing conditions, operations experience a degradation in performance in all movements. The AM eastbound right turn queue is expected to extend approximately one mile upstream, beyond the intersection at Ridgefield Road/Greatbridge Road. Eastbound and northbound queues are expected to extend approximately 0.25 to 0.5 miles in the PM peak hour.

2040 analysis results for Alternative 1 are shown in **Table 13**.

Table 13: 2040 Alternative 1 Traffic Analysis Results

2040 Alternative 1 Peak Hour Delay, LOS, and Queue Summary										
Intersection	Roadway	Lane Group	AM				PM			
			Delay (Sec/Veh.)	LOS	50% Queue (Feet)	95% Queue (Feet)	Delay (Sec/Veh.)	LOS	50% Queue (Feet)	95% Queue (Feet)
Prince William Parkway and Old Bridge Road	Old Bridge Road	WBL	104.4	F	526	621	182.9	F	786	918
		WBR	14.1	B	260	123	16.2	B	363	377
	Prince William Parkway	NBT	70.3	E	673	1071	129.4	F	1502	1690
		NBR	28.5	C	131	9	12.2	B	235	67
	Prince William Parkway	SBL	53.0	D	1044	647	166.2	F	1571	1548
		SBT	3.9	A	413	157	4.8	A	328	64
	Overall		37.6	D	-	-	84.3	F	-	-

There is a minimal increase in overall intersection delay for Alternative 1 in the AM peak hour due to the continued near-free flow operations of the southbound through movement. In the PM peak hour, the conflicting southbound left and northbound through movements operate at LOS F with delays of 166.2 and 129.4 seconds/vehicle, respectively. The westbound left turn movement is expected to operate at LOS F in both peak hours.

2040 analysis results for Alternative 2 are shown below in **Table 14**.

Table 14: 2040 Alternative 2 Traffic Analysis Results

2040 Alternative 2 Peak Hour Delay, LOS, and Queue Summary										
Intersection	Roadway	Lane Group	AM				PM			
			Delay (Sec/Veh.)	LOS	50% Queue (Feet)	95% Queue (Feet)	Delay (Sec/Veh.)	LOS	50% Queue (Feet)	95% Queue (Feet)
Prince William Parkway and Old Bridge Road/Touchstone Circle	Prince William Parkway	EBL	107.1	F	72	82	67.1	E	92	126
		EBT	90.3	F	954	1084	147.1	F	1147	1286
		EBR	63.1	E	1925	2018	21.4	C	615	765
	Old Bridge Road	WBL	146.0	F	545	680	153.2	F	613	718
		WBT	27.1	C	349	186	20.6	C	388	403
		WBR	2.1	A	0	1	1.0	A	1	0
	Prince William Parkway	NBL	35.5	D	435	228	106.3	F	1151	1192
		NBR	18.4	B	160	201	9.2	A	291	77
	Touchstone Circle	SBL	40.6	D	34	66	41.3	D	62	105
		SBR	33.4	C	24	60	33.3	C	99	155
Overall			63.2	E	-	-	74.5	E	-	-

Overall intersection delay in the AM peak hour sees a higher increase from 2019 to 2040 than in Alternative 1. The most significant operational deficiencies are concentrated on the eastbound left turn, eastbound through, and westbound left turn movements, all operating with LOS E or F. The majority of westbound, northbound, and southbound movements still operate with an effective reduction in delay.

The eastbound right turn movement shows substantial improvement compared to the No-Build despite the presence of signalization on the movement in Alternative 2. Despite this reduction in delay, the queue for the eastbound right turn is still expected to extend approximately 2,000 feet upstream in the AM peak hour.

While the northbound left turn movement performs at a substandard level of service in the PM peak hour, these vehicles are serviced with less delay than in Alternative 1.

2040 analysis results for Alternative 3 are shown below in **Table 15**. These results are summarized by approach.

Table 15: 2040 Alternative 3 Traffic Analysis Results

2040 Alternative 3 Peak Hour Delay, LOS, and Queue Summary								
Intersection	Roadway	Approach	AM			PM		
			Delay (Sec/Veh.)	LOS	95% Queue (Feet)	Delay (Sec/Veh.)	LOS	95% Queue (Feet)
Prince William Parkway and Old Bridge Road	Prince William Parkway	SB	14.7	B	342	9.9	A	212
	Old Bridge Road	WB	4.8	A	75	5.4	A	95
	Prince William Parkway	NB	49.9	E	374	248.2	F	3581
	Overall		20.5	C	-	86.1	F	-

While a majority of movements are expected to operate with a delay of less than 50 seconds/vehicle, the northbound approach is expected to operate with nearly 250 seconds of delay/vehicle and a 95th percentile queue nearing 0.70 miles upstream in the PM peak hour.

2040 Results Summary

A comparison of the 2040 analysis results for the No-Build scenario and the three analyzed scenarios is shown below in Table 16.

Table 16: 2040 Traffic Analysis Results Comparison

2040 Peak Hour Delay, LOS, and Queue Summary					
Intersection	Approach	AM No-Build	AM Alternative 1	AM Alternative 2	AM Alternative 3
		LOS (Delay (s/veh))	LOS (Delay (s/veh))	LOS (Delay (s/veh))	LOS (Delay (s/veh))
Prince William Parkway and Old Bridge Road	Prince William Parkway (EB/SB)	F (223.8)	C (22.4)	E (73.9)	B (14.7)
	Old Bridge Road (WB)	E (65.7)	D (49.3)	E (75.1)	A (4.8)
	Prince William Parkway (NB)	F (89.1)	D (58.8)	C (30.8)	E (49.9)
	Touchstone Circle (SB)	F (126.2)	N/A	D (35.6)	N/A
	Overall	F (153.1)	D (37.6)	E (63.2)	C (20.5)
Intersection	Approach	PM No-Build	PM Alternative 1	PM Alternative 2	PM Alternative 3
		LOS (Delay (s/veh))	LOS (Delay (s/veh))	LOS (Delay (s/veh))	LOS (Delay (s/veh))
Prince William Parkway and Old Bridge Road	Prince William Parkway (EB/SB)	F (180.5)	F (80.5)	E (76.9)	A (9.9)
	Old Bridge Road (WB)	F (104.40)	E (69.7)	E (65.1)	A (5.4)
	Prince William Parkway (NB)	F (139.1)	F (100.9)	F (82.7)	F (248.2)
	Touchstone Circle (SB)	F (146.0)	N/A	D (35.6)	N/A
	Overall	F (147.1)	F (84.3)	E (74.5)	F (86.1)

All three alternatives continue to provide for a significant improve to overall intersection delay as compared to the No-Build scenario. While Alternative 1 provides for better operations in the AM peak hour, Alternative 2 provides for more consistent intersection operations across both peak hours and outperforms Alternative 1 in the PM peak hour. While Alternative 3 does perform well in the AM peak hour, the negative impacts to the northbound approach in the PM peak hour significantly reduce the overall performance of the roundabout.

Public Involvement

Public Involvement / Survey Results

Following the development and analysis of the alternatives, a public involvement survey was developed to determine the public’s response to the alternatives and investigate their demographics and what they perceived as the relevant issues within the study area. This survey

was available online for the entire period of time between June 29, 2020 and July 17, 2020. In addition to providing answers to questions, participants were asked to rank grouped alternatives at sections of the study area to determine the alternatives with the highest public approval. 1,287 people responded to the survey.

This survey was primarily designed to test the reception to the No-Build scenario and Alternatives 1, 2, and 4. As Alternative 3 was developed as part of a request received near the start date of the survey, it was not included for response. A summary of the key takeaways from the public involvement survey is as follows:

1. Respondents value traffic congestion, signal timing and phasing, vehicular safety, and travel time reliability over all other metrics, including multimodal options and property access.
2. Grade separation alternatives proposed in Alternative 4 were the most well received.
3. Both Alternative 1 and Alternative 2 were preferred over the No-Build scenario, which received the lowest level of support.
4. 76% of the respondents intend to drive through the corridor in their own vehicle.
5. A combined 16% of the respondents walk or cycle through the corridor.

Conclusions and Recommendations

A thorough review was conducted as part of the Prince William Parkway and Old Bridge STARS Program Study. Extensive stakeholder input was received throughout the process and public outreach provided key insights to the team. Study and modeling efforts show deficient operations under existing conditions that will continue to deteriorate based on historical and projected growth trends. Improvements in the study area are critical to long term operational and safety aspects of the corridors.

Several of the options considered meet various goals and objectives of the STARS program. The Thru-Cut option provides a low-cost and high impact alternative that meets general STARS program goals and could be implemented quickly to address current congestion issues. The Conventional T meets the County goal of making Prince William Parkway the through movement while providing similar operational benefits. And ultimately, the analysis shows grade-separation may be a necessary implementation in the longer term future horizon if growth trends in the area continue to follow the travel demand models of the region.

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Appendix D: Level of Service Descriptions

Highway Capacity Manual (HCM) 2000

All capacity analyses are based on the procedures specified by the Transportation Research Board Special Report: *Highway Capacity Manual (HCM)*, Levels of services (LOS) range from A to F. A brief description of level of service for signalized intersections is provided below.

Signalized Intersections: Level of service is based on the traffic volumes present in each lane on the roadway, the capacity of each lane at the intersection and the delay associated with each directional movement. The levels of service for signalized intersections are defined below:

Level of Service A: Describes operations with very low average delay per vehicle, i.e. equal to or less than 10 seconds. This occurs when the progression is extremely favorable, and most vehicles arrive during the green phase. Most vehicles do not stop, and short cycle lengths may also contribute to low delay.

Level of Service B: Describes operations with average delay in the range of 10.1 to 20.0 seconds per vehicle. This generally occurs with good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing a higher levels of average delay.

Level of Service C: Describes operations with delay in the range of 20.1 to 35.0 seconds per vehicle. These higher delays may result from moderate progression and/ or longer cycle lengths. The number of vehicles stopping is significant, however many may pass through the intersection during the first cycle phase. This is generally considered the lower end of the range of the acceptable level of service in rural areas.

Level of Service D: Describes operations with delay in the range of 35.1 to 55.0 seconds per vehicle. At LOS D, the influence of congestion becomes more noticeable. Longer delays may result from: unfavorable progression, long cycle lengths, and/or high volumes compared to physical capacity of the roadway. Many vehicles are required to stop, and many do not pass through the intersection during the first cycle phase. This is generally considered the lower end of the range of the acceptable level of service in urban areas.

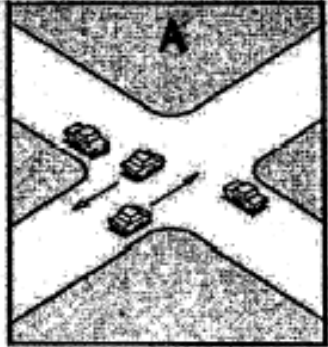
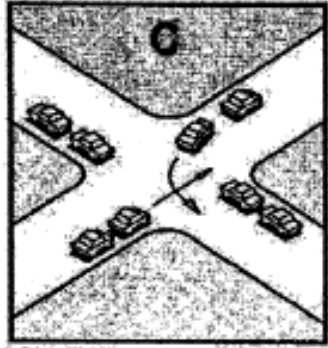
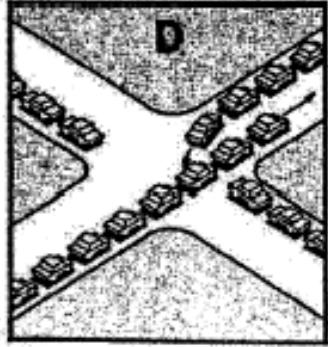
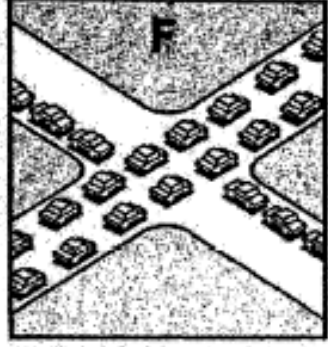
Level of Service E: Describes operations with delay in the range of 55.1 to 80.0 seconds per vehicle. These higher delays generally indicate poor progression, long cycle lengths, and high traffic volumes.

Level of Service F: Describes operations with delay in the range of 81.0 (+) seconds per vehicle. This is considered to be unacceptable by most drivers. This condition often occurs with over-saturation (when traffic arrives at a flow rate that exceeds the capacity of the intersection).

See Figure C-1 showing graphical explanation of the levels of service descriptions.

Highway Capacity Manual (HCM) 6th Edition

All capacity analyses are based on the procedures specified by the Transportation Research Board Special Report: *Highway Capacity Manual (HCM)*, Levels of services (LOS) range from A to F. A brief description of level of service for signalized intersections is the same as provided above, except if the intersection has a volume to capacity ratio greater than 1, then the LOS is automatically LOS F.

<u>LOS</u>	<u>Roadway Segments or Controlled Access Highways</u>	<u>Intersections</u>	
A	Free flow, low traffic density	No vehicle waits longer than one signal indication.	
B	Delay is not unreasonable, stable traffic flow	On a rare occasion, motorists wait through more than one signal indication	
C	Stable condition, movements somewhat restricted due to higher volumes, but not objectionable for motorists.	Intermittently, drivers wait through more than one signal indication and occasionally backups may develop behind left turning vehicles, traffic flow still stable and acceptable.	
D	Movements more restricted queues and delays may occur during short peaks, but lower demands occur often enough to permit clearing, thus preventing excessive backups.	Delays at intersections may become extensive with some, especially left-turning vehicles waiting two or more signal indications, but enough cycles with lower demand occur to permit periodic clearance, thus preventing excessive backups.	
E	Actual capacity of the roadway involves delay to all motorists due to congestion.	Very long queues may create lengthy delays, especially for left turning vehicles.	
F	Forced flow with demand volumes greater than capacity resulting in complete congestion. Volumes drop to zero in extreme cases.	Backups from locations downstream restrict or prevent movement of vehicles out of approach, creating a storage area during part or all of an hour.	

SOURCE: A Policy on Design of Design of Urban Highways and Arterial Streets - A material published in Highway Capacity Manual, National Academy of Sciences, 1965.

Figure C-1: Level of Service Definitions

**LEVEL OF SERVICE (LOS) DESCRIPTION
UNIGNALIZED INTERSECTIONS WITH TWO-WAY STOP CONTROL (TWSC)**

TWSC intersections are widely used and stop signs are used to control vehicle movements at such intersections. At TWSC intersections, the stop-controlled approaches are referred to as the minor street approaches; they can be either public streets or private driveways. The intersection approaches that are not controlled by stop signs are referred to as the major street approaches. A three-leg intersection is considered to be a standard type of TWSC intersection if the single minor street approach (i.e. the stem of the T configuration) is controlled by a stop sign. Three-leg intersections where two of the three approaches are controlled by stop signs are a special form of unsignalized intersection control.

At TWSC intersections, drivers on the controlled approaches are required to select gaps in the major street flow through which to execute crossing or turning maneuvers on the basis of judgment. In the presence of a queue, each driver on the controlled approach must use some time to move into the front-of-queue position and prepare to evaluate gaps in the major street flow. Capacity analysis at TWSC intersections depends on a clear description and understanding of the interaction of drivers on the minor or stop-controlled approach with drivers on the major street. Both gap acceptance and empirical models have been developed to describe this interaction.

Thus, the capacity of the controlled legs is based on three factors:

- the distribution of gaps in the major street traffic stream;
- driver judgment in selecting gaps through which to execute the desired maneuvers; and
- the follow-up time required by each driver in a queue.

The delay experienced by a motorist is made up of a number of factors that relate to control, geometrics, traffic and incidents. Total delay is the difference between the travel time actually experienced and the reference travel time that would result during base conditions, in the absence of incident, control, traffic or geometric delay. Average control delay for any particular minor movement is a function of the capacity of the approach and the degree of saturation and referred to as level of service.

**LEVEL OF SERVICE (LOS) CRITERIA FOR TWSC INTERSECTIONS
(Reference 2010 Highway Capacity Manual)**

Level of Service	Control Delay (seconds / vehicle)
A	0 - 10
B	>10 - 15
C	>15 - 25
D	>25 - 35
E	>35 - 50
F	>50

**LEVEL OF SERVICE (LOS) DESCRIPTION
UNIGNALIZED INTERSECTIONS WITH ALL-WAY STOP CONTROL (AWSC)**

AWSC intersections require every vehicle to stop at the intersection before proceeding. Since each driver must stop, the judgement as to whether to proceed into the intersection is a function of traffic conditions on the other approaches. While giving priority to the driver on the right is a recognized rule in some areas, it is not a good descriptor of actual intersection operations. What happens is the development of a consensus of right-of-way that alternates between the drivers on the intersection approaches, a consensus that depends primarily on the intersection geometry and the arrival patterns at the stop line.

If no traffic is present on the other approaches, a driver can proceed immediately after the stop is made. If there is traffic on one or more of the other approaches, a driver proceeds only after determining that there are no vehicles currently in the intersection and that it is the driver's turn to proceed. Since no traffic signal controls the stream movement or allocates the right-of-way to each conflicting stream, the rate of departure is controlled by the interaction between the traffic streams themselves.

For AWSC intersections, the average control delay (in seconds per vehicle) is used as the primary measure of performance. Control delay is the increased time of travel for a vehicle approaching and passing through an AWSC intersection, compared with a free-flow vehicle if it were not required to slow down or stop at the intersection.

The criteria for AWSC intersections have different threshold values than do those for signalized intersections, primarily because drivers expect different levels of performance from different kinds of traffic control devices (i.e traffic signals, two way stop or all way stop, etc.). The expectation is that a signalized intersection is designed to carry higher traffic volumes than an AWSC intersection and a higher level of control delay is acceptable at a signalized intersection for the same LOS.

For AWSC analysis using the HCM 2010 method, the LOS shown reflects the weighted average of the delay on each of the approaches.

**LEVEL OF SERVICE (LOS) CRITERIA FOR AWSC INTERSECTIONS
(Reference 2010 Highway Capacity Manual)**

Level of Service	Control Delay (seconds / vehicle)
A	0 - 10
B	>10 - 15
C	>15 - 25
D	>25 - 35
E	>35 - 50
F	>50

Appendix E: Hawthorn Retirement Residence Rezoning Documents

MOTION:

**November 19, 2019
Regular Meeting**

SECOND:

Ord. No. 19-

RE:

**PROFFER AMENDMENT #REZ2019-00024, HAWTHORN RETIREMENT RESIDENCE
AT REID'S PROSPECT – OCCOQUAN MAGISTERIAL DISTRICT**

ACTION:

WHEREAS, this is a request to amend the proffers associated with REZ #PLN2000-00041 to change the use designation in a portion of Land Bay I from OC-2 (now O(H), Office High-Rise) to O(H), Office High-Rise / B-1, General Business, to permit an assisted living facility, along with associated modifications, to include signage, building height, and floor area ratio (FAR) increases; and

WHEREAS, the ±5.41-acre site is located north of Prince William Parkway, west of Laurel Hills Drive, and south of the terminus of Effie Rose Place; and

WHEREAS, the site is designated CEC, Community Employment Center, in the Comprehensive Plan, and is located with the Government Center Sector Plan special planning area; and

WHEREAS, the site is currently zoned PMD, Planned Mixed Use District, and is located within the Prince William Parkway Highway Corridor Overlay District; and

WHEREAS, staff has reviewed the subject application and recommends approval, as stated in the staff report; and

WHEREAS, the Planning Commission, at its public hearing on October 16, 2019, recommended approval, as stated in Resolution Number (Res. No.) 19-118; and

WHEREAS, a Board of County Supervisors' public hearing, duly advertised in a local newspaper for a period of two weeks, was held on November 19, 2019, and interested citizens were heard; and

WHEREAS, the Prince William Board of County Supervisors finds that public necessity, convenience, general welfare, and good zoning practice are served by the approval of the request;

NOW, THEREFORE, BE IT ORDAINED that the Prince William Board of County Supervisors hereby approves Proffer Amendment #REZ2019-00024, Hawthorn Retirement Residence at Reid's Prospect, subject to the proffers dated October 25, 2019, and with the removal of Proffer #34 (modification to allow overhead utility lines and pole to remain aboveground);

November 19, 2019
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Page Two

BE IT FURTHER ORDAINED that the Prince William Board of County Supervisors' approval and adoption of any proffered conditions does not relieve the applicant and/or subsequent owners from compliance with the provisions of any applicable ordinances, regulations, or adopted standards.

ATTACHMENT: Proffer Statement, dated October 25, 2019

Votes:

Ayes:

Nays:

Absent from Vote:

Absent from Meeting:

For information:

Planning Director

Ms. Jonelle Cameron
Walsh, Colucci, Lubeley & Walsh, P.C.
4310 Prince William Parkway, Suite 300
Woodbridge, VA 22192

ATTEST: _____
Clerk to the Board

PROFFER STATEMENT

RE: REZ2019-00024, Hawthorn Retirement Residence at Reid's Prospect
Record Owner: Plaza Land Holdings L.P.
Applicant: Lenity Architecture on behalf of Hawthorn Development LLC
Developer: Hawthorn Development LLC
Property: G.P.I.N. 8193-31-4635 (part)
Occoquan Magisterial District
Approximately ± 5.41 acres
Zoned PMD, Planned Mixed Development

Date: October 25, 2019

The undersigned hereby proffers that the use and development of the subject Property shall be in strict conformance with the following conditions, which shall supersede all other proffers made prior hereto (including the proffers approved with Rezoning #PLN2000-00041, Reid's Prospect). In the event the above-referenced proffer amendment is not granted as applied for by the Applicant, these proffers shall be withdrawn and are null and void and the proffers approved with REZ #PLN2000-00041 will remain in full force and effect.

The headings of the proffers set forth below have been prepared for convenience or reference only and shall not control or affect the meaning or be taken as an interpretation of any provision of the proffers. Any improvements proffered herein below shall be provided at the time of development of the portion of the site served by the improvement, unless otherwise specified. The terms "Applicant" and "Developer" shall include all future owners and successors in interest.

For purposes of reference in this Proffer Statement, references to plans and exhibits shall include the following:

1. "Master Zoning Plan for Reid's Prospect" prepared by Timmons Group, Inc. and dated July 8, 2019 consisting of the following sheets:
 - a. Master Zoning Plan ("MZP")
 - b. Transportation and Utilities Plan ("Transportation Plan")
 - c. Open Space & Buffer Plan "Design Guidelines - Reid's Prospect" dated September 2004.
2. "Design Guidelines - Reid's Prospect," dated September 2004;
3. "Illustrative Site Package," prepared by Lenity Architecture, dated July 8, 2019, consisting of the following sheets:

PROFFER AMENDMENT STATEMENT
REZ2019-00024, Hawthorn Retirement Residence at Reid's Prospect
Plaza Land L.P.
October 25, 2019
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- a. Illustrative Variable Width Buffer (Sheet 2)
- b. Illustrative Entry Feature (Sheet 3)
- c. Illustrative Building Perspectives (Sheets 4 through 7)

TRANSPORTATION

4. Site Access
 - a. The maximum number of entrances to the Property on the Prince William Parkway and locations of said entrances shall be generally as shown on the Transportation Plan, subject to modifications required at site plan based on final engineering.
 - b. As depicted on the Transportation Plan, there shall be a minimum of one (1) inter-parcel access on the Property.
5. In the event a hotel use is located on the Property and if requested by the Prince William County Department of Transportation ("PWCDOT"), the Applicant shall provide an updated Traffic Impact Analysis (TIA) to determine impacts, if any, associated with such use and shall provide, in consultation with the PWCDOT, measures to mitigate such impacts.

USES AND SITE DEVELOPMENT

6. Development of the Property will be in substantial conformance with the Master Zoning Plan. The exact boundaries and acreage of each Land Bay within the respective zoning districts may be increased or decreased at the time of site plan/subdivision, not to exceed ten percent (10%) of the gross area of the larger Land Bay impacted by each such change.
7. The uses located in Land Bay J shall be limited to primarily employment and office uses. For purposes of this proffer, employment uses in Land Bay J shall include the following: assisted living, data and computer services; medical and dental offices or clinics; offices; brokerages; professional services such as lawyers, engineers, accountants; financial institutions, research and development (non-hazmat); business, professional and trade schools, colleges and university; trade or convention center, business equipment sales and servicing; packaging center; artist and photographer studios; art galleries; civic clubs; governmental agencies; and other uses as determined by the Planning Director and the Director of Economic Development to be bona fide employment uses and/or whose primary customers are businesses, consistent with the goals of the Economic Development Plan. This restriction shall not preclude first floor secondary retail uses in multi-story buildings, with the primary uses being employment related.

PROFFER AMENDMENT STATEMENT
REZ2019-00024, Hawthorn Retirement Residence at Reid's Prospect
Plaza Land L.P.
October 25, 2019
Page 3 of 8

8. Notwithstanding the use restrictions set forth in Proffer 7 above, the Applicant shall also have the right to construct a hotel and related ancillary and accessory uses and a maximum of two (2) freestanding full service restaurants in Land Bays J.
9. All buildings located in Land Bay J shall be a minimum of two (2) stories in height with the exception of any freestanding full service restaurant(s) located in said land bays. In addition, the buildings constructed in the corners of Land Bay J along the Prince William Parkway frontage of said Land Bay shall be a minimum of three (3) stories in height, with a maximum height of 60 feet.

COMMUNITY DESIGN

10. All development on the Property shall be in substantial conformance with the design concepts and details set forth in the Design Guidelines. Modifications to the Concept Plan shall be permitted at the time of final engineering and design as required by the US Army Corp of Engineers ("USACE") and Department of Environmental Quality ("DEQ") in connection with the issuance of required permits by said agencies. Such changes shall be coordinated with the Planning Director, or his designee, to ensure that the integrity of the overall site design is not compromised. Compliance with the architectural, design and building material controls identified in proffer #11 shall be demonstrated with the submission to the Planning Office of building elevations prior to the issuance of the building permit release letter by the Planning Office for the affected buildings.
11. A coordinated architectural design theme shall be utilized in the development of Land Bays J. The exterior of all structures shall be composed primarily of brick, glass, architectural pre-cast concrete, hardi-type siding or panels, job-cast architectural concrete or stone. Other similar materials may be used as approved by the Planning Director, or his designee, but in no event shall buildings with metal channel siding be allowed.
 - a. If the Property is developed for an assisted living use, as defined in the Prince William County Zoning Ordinance, the building shall be in substantial conformance with the building elevations shown on Illustrative Building Perspectives. Modifications shall be permitted to the building features such as, but not limited to, the number, location and dimensions of windows, doors, number of building stories and other architectural features and details provided the overall design concept is maintained. Significant changes to the architecture and/or materials must be approved by the Planning Director prior to the issuance of the building permit release letter. Compliance with this proffer shall be evidenced with the submission to the Planning Office of

architectural construction plan drawings at least two weeks prior to the issuance of the building permit release letter.

12. In the event a hotel is constructed in Land Bay J, such use shall utilize materials and a design characteristic of a hotel, however, the design shall incorporate common elements of design and features utilized in other buildings within Reid's Prospect.
13. A uniform sign program shall be implemented for the Property and shall be in substantial conformance with the parameters set forth in the Design Guidelines and as set forth below. Comprehensive sign plans for the residential and non-residential components of the project shall be submitted to the County with the first final plan for each such use.
 - a. In the event an assisted living facility is constructed on the Property, the freestanding sign shall be in general conformance with signage shown on the Illustrative Entry Feature. Said sign shall not exceed twelve feet (12') in height.
 - b. Project identification signs, which include the commercial and residential development, may be incorporated into a landscape/entrance feature at the entrances to the Property on Prince William Parkway.
14. Applicant shall provide a pedestrian network linking the residential uses with the nonresidential uses constructed on the Property in general conformance with the pedestrian network as shown on the Transportation Plan. The pedestrian connections may vary in size but shall be a minimum of four feet in width. All pedestrian links shall consist of materials appropriate to serve their function and the character of the area, and shall be designed and shown on the final site plan for each phase or section, and shall be constructed at the time the respective land bay is developed.
15. The Applicant shall provide a streetscape along the Prince William Parkway frontage of the Property, said streetscape to be in general conformance with the Open Space & Buffer Plan. The streetscape shall be shown on the final site plan for the Property.
 - a. In the event an assisted living facility is constructed on the Property, landscaping shall be in general conformance with the Illustrative Variable Width Buffer exhibit.
16. Landscaping provided on the Property shall emphasize, but not be limited to, native and indigenous species appropriate to the location and climate of the area.
17. All freestanding parking lot lights located in Land Bay J shall have a maximum height of twenty-

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REZ2019-00024, Hawthorn Retirement Residence at Reid's Prospect
Plaza Land L.P.
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four feet (24') and shall have fixtures which direct light downward and inward, all such lighting to be shown on final plans. In addition, all building-mounted lighting, if any, shall be directed or shielded in such a manner to prevent glare from projecting onto adjacent properties or public rights of way.

18. All existing and new utilities on the Property, including the existing overhead utilities within the right-of-way of Prince William Parkway along the frontage of the Property, if any, shall be placed underground. However, the utility pole closest to the intersection of Prince William Parkway and Laurel Hills Drive shall remain above ground.
19. The Applicant shall construct a ten foot (10') high non-white vinyl fence within the 75 ft. buffer area located along the eastern boundary adjacent to the Laurel Hills residential uses. Said fence shall be constructed in the general area as shown on the MZP.

ENVIRONMENTAL

20. The Applicant shall make a monetary contribution to the Prince William Board of County Supervisors in the amount of \$75.00 per acre for water quality studies. Said contribution shall be paid prior to and as a condition of the approval of each final site/subdivision plan and shall be based on the acreage reflected on each such approved plan.
21. Conservation Areas. Within those portions of the Property identified as "Conservation Area" on the Open Space & Buffer Plan, vegetation shall be preserved, subject to disturbance for: (a) the installation and maintenance of water line crossings, sanitary sewer crossings, drainage crossings, other utility crossings and pedestrian trail(s); (b) the installation of fencing; (c) the installation of such additional landscaping as may be approved by the County; and (d) the removal of noxious vegetation, such as poison ivy, poison oak, etc., as well as dead, dying, or hazardous trees or dead or dying shrubbery, at the option of the landowners.

FIRE & RESCUE

22. The Applicant shall make a monetary contribution to the Prince William Board of County Supervisors in the amount of \$0.61 per square foot of gross floor area of nonresidential space constructed on the Property to be used for fire and rescue services and facilities. Said contribution shall be paid prior to and as a condition of the issuance of a building permit for nonresidential uses constructed on the Property.
23. Sprinkler System: In the event an assisted living facility is constructed on the Property, the building shall be fully fire sprinklered including a dry system in the attic.

PROFFER AMENDMENT STATEMENT
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WATER AND SEWER

24. The Property shall be served by public sanitary sewer and water and the Applicant shall be responsible for the costs and construction of those on and off-site improvements required in order to provide such service for the demand generated by the development on the Property.
25. Acceptance and approval of this rezoning application by the Board of County Supervisors authorizes the location and provision of those public uses and facilities specifically referenced on the Master Plan, Transportation Plan, in this proffer statement, and the extension and construction of water and sewer lines and facilities and roads necessary to serve this property pursuant to the Virginia Code Section 15.2-2232 and the Prince William County Code Section 32-201.13.1. The general area of location of these uses and facilities are as shown on the Transportation Plan with the exact locations to be determined based on final engineering and as approved by Prince William County.

MISCELLANEOUS

26. In the event the monetary contributions set forth in this Proffer Amendment Statement are paid to the Prince William County Board of County Supervisors ("Board") within eighteen (18) months of the approval of this rezoning, as applied for by the Applicant, said contributions shall be in the amounts as stated herein. Any monetary contributions set forth in this Proffer Statement which are paid to the Board after eighteen (18) months following the approval of this rezoning shall be adjusted in accordance with the Urban Consumer Price Index ("CPI-U") published by the United States Department of Labor, such that at the time contributions are paid they shall be adjusted by the percentage change in the CPI-U from that date eighteen (18) months after the approval of this rezoning to the most recently available CPI-U to the date the contributions are paid, subject to a cap of 6 percent (6%) per year, noncompounded.
27. In the event an assisted living facility is constructed on the Property, the Applicant shall notify the Lake Ridge Occoquan Coles Civic Association/Planning, Environment, Land-Use and Transportation Committee (LOCCA/PELT) and Laurel Hills Community (those residents that live off of Laurel Hills Drive) in writing and make itself or a representative available for a joint meeting, in connection with the site plan review. Said meeting shall be for courtesy review purposes only and copies of the correspondence offering to meet and/or the agenda shall be provided to the County prior to site plan approval to evidence compliance with this proffer.
28. In the event an assisted living facility is constructed on the Property, the Applicant shall prepare an Emergency Response Plan for the facility and provide a copy to the Prince William County Department of Social Services prior to issuance of an occupancy permit.

WAIVERS/MODIFICATIONS

29. In accordance with Section 32-250.23 of the Zoning Ordinance, modification of Sections 32-250.24 Schedule B of the Zoning Ordinance to allow for a freestanding monument sign and entry feature as generally shown on Sheet 3 of the "Illustrative Site Package," prepared by Lenity Architects dated July 8, 2019.
30. Modification of Sections 32-250.31, 32-250.32, 32-503.12 and 32-800.11 of the Zoning Ordinance and Sections 802.10, 802.11, 802.12, 802.13, 1003.01 and 1003.02 of the DCSM to waive and modify all internal buffers between uses on the Property, the perimeter buffers and buffers adjacent to roadways along Prince William Parkway and Laurel Hills Drive in accordance with the Design Guidelines and as more particularly described in the Open Space & Buffer Plan; and to modify the planting standards to allow existing vegetation to satisfy the planting standards and to allow utilities, easements, and retaining walls greater than three feet (3') within the buffer areas.
31. Waiver of Section 32-250.72 of the Zoning Ordinance and 601.04.I of the DCSM to waive vehicular interparcel connections with surrounding properties consistent with Proffer 3.b.
32. In accordance with Section 32-300.03.2 of the Zoning Ordinance, modification of Section 32-401.14.5 of the Zoning Ordinance to permit a maximum height of 60 feet as outlined in Proffer 7.
33. In accordance with Section 32-400.04.3 of the Zoning Ordinance, modification of Section 32-401.14.4 to allow for a maximum FAR of .86.
34. Modification of Section 125.01.I.1 of the DCSM to allow the existing overhead utility lines and pole located at the intersection of Prince William Parkway and Laurel Hills Road to remain aboveground as outlined in Proffer 18.

[SIGNATURE PAGE TO FOLLOW]

PROFFER AMENDMENT STATEMENT
REZ2019-00024, Hawthorn Retirement Residence at Reid's Prospect
Plaza Land L.P.
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ATTACHMENT
November 19, 2019
Ord. No. 19
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SIGNATURE PAGE

PLAZA LAND HOLDINGS L.P.

BY: _____

NAME: _____

TITLE: _____



**PRINCE WILLIAM
COUNTY**

Office of Executive Management
Christopher E. Martino, County Executive

The Board of County Supervisors

Corey A. Stewart, Chairman
Maureen S. Caddigan, Vice Chair
Ruth M. Anderson
Victor S. Angry
Pete Candland
Jeanine M. Lawson
Martin E. Nohe
Frank J. Principi

DATE: November 12, 2019

TO: Board of County Supervisors

FROM: Rebecca Horner, AICP, CZA
Director of Planning

THRU: Christopher E. Martino
County Executive

RE: Proffer Amendment #REZ2019-00024, Hawthorn Retirement Residence at Reid’s Prospect
Occoquan Magisterial District

I. Background is as follows:

- A. Request: This is a request to amend the proffers associated with REZ #PLN2000-00041 to change the use designation in a portion of Land Bay I from OC-2 (now O(H), Office High Rise) to O(H), Office High Rise / B-1, General Business, to permit an assisted living facility, along with associated modifications, to include signage, building height, and floor area ratio (FAR) increase.

Uses / Features	Previously Approved per REZ #PLN2000-00041 (PMD zoning)	Proposed (PMD zoning); with Proffer Amendment
Zoning	OC-2 – as proffered now O(H), Office High Rise	O(H), Office High Rise / B-1, General Business
Use(s)	Land Bay I (±11.42 acres) Office/Employment uses	Land Bay J (newly created) (±5.41 acres) Office/Employment/Assisted Living Facility uses
Monument Sign Height	10 feet	12 feet <i>(as modified)</i>
Floor Area Ratio (FAR)	1.25 in O(H); 0.40 in B-1	0.86 <i>(as modified)</i>
Building Height	Up to 100 feet, O(H) zoning Up to 45 feet, B-1 zoning	Up to 100 feet, O(H) zoning Up to 60 feet, B-1 zoning <i>(as modified)</i>

- B. Site Location: The subject ±5.41-acre site is located north of Prince William Parkway, west of Laurel Hills Drive, and south of the terminus of Effie Rose Place. The subject site is identified on County maps as GPIN 8193-31-4635 (portion), and is currently addressed as 4460 Prince William Parkway.
- C. Comprehensive Plan: The site is designated CEC, Community Employment Center, in the Comprehensive Plan, and is located within the Government Center Sector Plan special planning area.
- D. Zoning: The ±5.41-acre site is zoned PMD, Planned Mixed Use District, and is located within the Prince William Parkway Highway Corridor Overlay District. It is currently located in Land Bay I (Office High-Rise), within the Reid's Prospect mixed use development.
- E. Surrounding Land Uses: The subject property is an existing, undeveloped land bay as a part of Reid's Prospect along westbound Prince William Parkway that is intended for Office/Employment and supporting commercial/retail uses. To the north is an undeveloped land bay that is designated for Live/Work units. South and across Prince William Parkway is undeveloped, vacant land and an existing single-family residential property, and the western portion of the Ridgewood Center office complex. To the east and across Laurel Hills Drive is undeveloped, vacant land. West of the site is an undeveloped land bay designated for Office/Employment uses.
- F. Background & Context: The Applicant (Hawthorn Development LLC) is the contract purchaser of a portion of the property identified as GPIN 8193-31-4635, consisting of ±5.41 acres. The Applicant is proposing to change the use designation in a portion of Land Bay I from OC-2 (now O(H), Office High Rise) to O(H), Office High Rise / B-1, General Business, to permit an assisted living facility, along with associated modifications, to include the following: signage, building height increase, and floor area ratio (FAR) increase. A new Land Bay "J" will be created to include the ±5.41 acres, which is subject to this proffer amendment.

The subject property is part of the mixed-use development known as Reid's Prospect; which is zoned PMD, Planned Mixed Use District. The area along the Prince William Parkway (Land Bay I) is planned for employment uses, subject to the proffers approved by the Board of County Supervisors with the approval of Rezoning #PLN2000-00041, on October 26, 2004. If the proffer amendment is approved, it will amend the proffers of REZ #PLN2000-00041 for the ±5.41-acre subject area.

This proposal was initially scheduled and advertised for Planning Commission public hearing on October 2, 2019. However, in order to allow more time to address staff concerns, the Applicant requested deferral to a date-certain of October 16, 2019. The Planning Commission resolutions are attached at the end of this staff report.

II. Current Situation is as follows:

A. Planning Commission Recommendation: At the October 16, 2019 public hearing, the Planning Commission recommended approval of Proffer Amendment #REZ2019-00024, Hawthorn Retirement Residence at Reid's Prospect, subject to the proffers dated August 28, 2019, and with the Applicant to address the following prior to Board consideration:

1. Consider the use of a dry sprinkler system for fire suppression.
2. Explore options for safety improvements with the flashing yellow traffic signal at the Prince William Parkway/Black Forest Lane/Reids Prospect Drive intersection .

B. Staff Follow-up to Planning Commission: Subsequent to the Planning Commission public hearing, County Transportation staff coordinated with VDOT to further assess the flashing yellow traffic signal at the Prince William Parkway/Black Forest Lane/Reids Prospect Drive intersection. As part of this application, the Applicant submitted a memorandum prepared by a traffic engineer to determine if their use triggered the need for this signal to be upgraded to a full signal. The traffic consultant concluded, and both VDOT and the County concurred, that the side street trips were well below the threshold of trips that would warrant a signal, and the traffic generated by the proposed use does not trigger the need for a signal at this intersection. Therefore, a full traffic signal at the Prince William Parkway/Black Forest Lane/Reids Prospect Drive intersection is not warranted at this time. As Reid's Prospect continues to develop, each new use/development would be required to analyze this intersection to see if a traffic signal is warranted by VDOT.

To further address safety concerns, County Transportation has requested that VDOT look into options for enhanced operational signage with driver and pedestrian prompt and/or instructions, as well as the continued need for such flashing traffic signage. In addition, VDOT's traffic engineering section will review the available accident/crash data and other safety matters for this intersection.

C. Applicant Follow-up to Planning Commission: In response to the Planning Commission's recommendation, the Applicant has proffered to install dry sprinklers in the attic portion of the building for enhanced fire suppression. In addition, to address concerns with adjacent property owners in regard to screening, the Applicant has proffered to add an enhanced screening fence along the northeastern corner and eastern property boundary of the site. Furthermore, since the proposed facility will not be licensed, there are staff concerns about the potential impacts of an emergency on County resources. To address these issues and to clarify responsibilities, the Applicant has added a new proffer to prepare an Emergency Response Plan for the facility and to provide a copy to the Prince William County Department of Social Services prior to issuance of an occupancy permit, in the event an assisted living facility is constructed on the subject property, as proposed.

They were also a few minor administrative/grammar edits to the proffers that were requested by staff. The Applicant submitted revised proffers, dated October 25, 2019.

D. Planning Office Recommendation: Staff concurs with the above updates, and continues to recommend approval of Proffer Amendment #REZ2019-00024, Hawthorn Retirement Residence at Reid's Prospect, subject to the proffers dated October 25, 2019, and with the removal of Proffer #34 (modification to allow overhead utility lines and pole to remain aboveground), for the following reasons:

- The proffer amendment allows for the option of developing an assisted living facility in the newly created Land Bay J, while still retaining the previously-proffered allowable office/employment uses.
- An assisted living facility is among the uses specifically shown in the Governmental Center Sector Plan for this general area of Reid's Prospect.
- The proffer amendment retains all prior use mixture and design-related commitments for the Reid's Prospect development, including Design Guidelines.
- As proffered, the new impacts associated with the assisted living facility will be adequately mitigated.

E. Board of County Supervisors Public Hearing: A public hearing before the Board of County Supervisors has been advertised for November 19, 2019.

III. **Issues** in order of importance are as follows:

A. Comprehensive Plan

1. Long-Range Land Use: Is the proposed use consistent with those uses intended by the CEC, Community Employment Center, land-use designation?
2. Level of Service (LOS): How does the proposal address the mitigation of impacts to existing levels of service?

B. Strategic Plan

1. Robust Economy: How does the proposal help to foster a diverse local economy that creates a culture of innovation and achieves more quality jobs, economic opportunities, and an expanded commercial tax base?

C. Community Input: Have members of the community raised any issues?

D. Other Jurisdictional Comments: Have other jurisdictions raised any issues?

- E. Legal Uses of the Property: What uses are allowed on the property? How are legal issues resulting from the Board of County Supervisors action addressed?
- F. Timing: When must the Board of County Supervisors take action on this application?

IV. Alternatives beginning with the staff recommendation are as follows:

A. Approve Proffer Amendment #REZ2019-00024, Hawthorn Retirement Residence at Reid’s Prospect, subject to the proffers dated October 25, 2019, with the removal of Proffer #34 (modification to allow overhead utility lines and pole to remain aboveground).

1. Comprehensive Plan Consistency Analysis:

- a. Long-Range Land Use: Although the use is not anticipated to be a significant employer, the proposed assisted living facility will add to the mixture of uses for the Reid’s Prospect development within the PMD, Planned Mixed Use Development, zoning district. The previous employment/office use options are still being retained in the subject land bay.
- b. Level of Service (LOS): The LOS impacts for the request would be mitigated through monetary contributions by the proffers, as follows:

Water Quality	\$75 per acre	±5.41 acres	\$405.75
Fire & Rescue	\$0.61 per SF of building area (FAR of 0.86)	Up to ±202,668 SF (new building)	\$123,627.48
TOTAL			\$ 124,033.23

2. Strategic Plan:

a. Robust Economy: The proposed proffer amendment to allow for an assisted living facility expands the type of uses within Land Bay I, which is currently planned for Employment/Office uses. Since this type of assisted living facility land bay is more of a residential product, it deviates from the preferred uses, and will not promote many employment opportunities. However, the use and among the mixture of other uses in the area can still positively align with the Strategic Plan goal to increase the commercial tax base as a percentage of overall tax revenue to 35%.

3. Community Input: Due to the proposed height increase as part of this application, notice of the application has been transmitted to property owners within 1,320 feet of the site. As of the date of this staff report, the Planning Office has received two letters of opposition from the neighboring

property owner to the north, dated April 10, 2019 and May 28, 2019. The primary concern referenced was the proposed layout that does not include interparcel connection from the proposed live-work units through the office/commercial area and obstructs accessibility to Prince William Parkway.

A letter of support from the Lake Ridge Occoquan Coles Civic Association (LOCCA) was received on April 2, 2019. LOCCA has indicated its full support of the proposal as an independent living facility, which will serve the surrounding community. During the review, LOCCA had requested, and the Applicant agrees, to a courtesy review for architecture, landscaping, and other design aspects by LOCCA and the adjacent Laurel Hills community.

At the October 16, 2019, Planning Commission public hearing, there were four (4) speakers present, who represented LOCCA, the surrounding Reid's Prospect residential neighborhood, and the Laurel Hills subdivision. Although there was no objection to the proposed use, the following concerns were expressed: safety issues with flashing traffic signal light at Prince William Parkway/Black Forest Lane/Reids Prospect Drive intersection; accident potential; speed issues with internal roads; operational/use details; and impacts of a new traffic pattern in the area.

4. Other Jurisdiction Comments: The subject site is located outside of the required notification area of any jurisdiction.
5. Legal Uses of the Property: If the rezoning is approved, the site could be developed as an assisted living facility with associated modifications, in addition to the other permissible uses in the PMD, Planned Mixed Use District, as proffered. Legal issues resulting from the Board of County Supervisors' action are appropriately addressed by the County Attorney's Office.
6. Timing: The Board of County Supervisors generally has one year from the date of acceptance to take action on a rezoning/proffer amendment request. The one-year timeframe will end on February 15, 2020.

B. Deny Proffer Amendment #REZ2019-00024, Hawthorn Retirement Residence at Reid's Prospect.

1. Comprehensive Plan Consistency Analysis
 - a. Long-Range Land Use: The subject property is designated CEC, Community Employment Center, in the Comprehensive Plan and is currently zoned PMD, Planned Mixed Use Development. As proposed, the assisted living facility does not create significant employment opportunities, which is a weakness of the application. The existing zoning directly implements the land use designation, while encouraging employment-based uses. If the proffers are not

amended to allow for the assisted living facility, the site can still be developed in a manner consistent with the CEC use designation.

- b. Level of Service (LOS): Denial would not have an adverse impact on the existing level of service.

2. Strategic Plan

- a. Robust Economy: If the proposed proffer amendment is denied, Employment/Office uses would continue to be required within Land Bay I. As currently proffered, the allowable uses positively align with the Strategic Plan goal to increase the commercial tax base as a percentage of overall tax revenue to 35%. The office and supporting new commercial/retail uses are considered consistent with Strategic Plan objectives of promoting new employment opportunities and increasing the commercial tax base. Resulting commercial tax revenues and job opportunities will be consistent with the Strategic Plan goal to increase the commercial tax base to 35 percent.

3. Community Input: Due to the proposed height increase as part of this application, notice of the application has been transmitted to property owners within 1,320 feet of the site. As of the date of this staff report, the Planning Office has received two letters of opposition from the neighboring property owner to the north, dated April 10, 2019 and May 28, 2019. The primary concern referenced was the proposed layout that does not include interparcel connection from the proposed live-work units through the office/commercial area and obstructs accessibility to Prince William Parkway.

A letter of support from the Lake Ridge Occoquan Coles Civic Association (LOCCA) was received on April 2, 2019. LOCCA has indicated its full support of the proposal as an independent living facility, which will serve the surrounding community. During the review, LOCCA had requested, and the Applicant agrees, to a courtesy review for architecture, landscaping, and other design aspects by LOCCA and the adjacent Laurel Hills community.

At the October 16, 2019 Planning Commission public hearing, there were four (4) speakers present, who represented LOCCA, the surrounding Reid's Prospect residential neighborhood, and the Laurel Hills subdivision. Although there was no objection to the proposed use, the following concerns were expressed: safety issues with flashing traffic signal light at Prince William Parkway/Black Forest Lane/Reids Prospect Drive intersection; accident potential; speed issues with internal roads; operational/use details; and impacts of a new traffic pattern in the area.

4. Other Jurisdictional Comments: The subject site is located outside of the required notification area of any jurisdiction.

5. Legal Uses of the Property: If the proposed proffer amendment is denied, the site could still be developed with a variety of uses, including office and supporting commercial, as currently proffered with REZ #PLN2000-00041. Legal issues resulting from the Board of County Supervisors' action are appropriately addressed by the County Attorney's Office.
6. Timing: The Board of County Supervisors generally has one year from the date of acceptance to take action on a rezoning/proffer amendment request. The one-year timeframe will end on February 15, 2020.

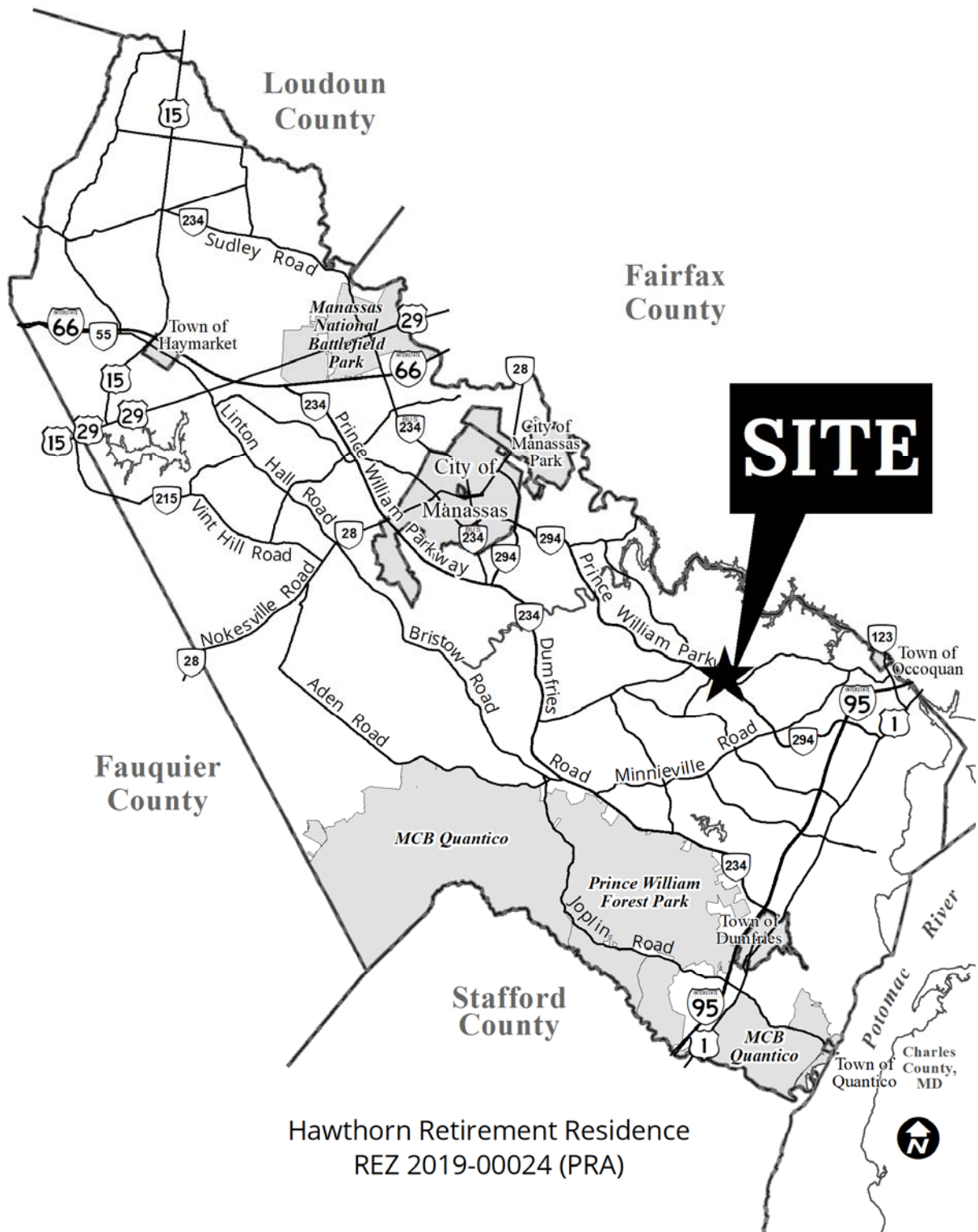
V. **Recommendation** is that the Board of County Supervisors concur with Alternative A and approve the attached Ordinance.

Staff: Scott F. Meyer, x 6876

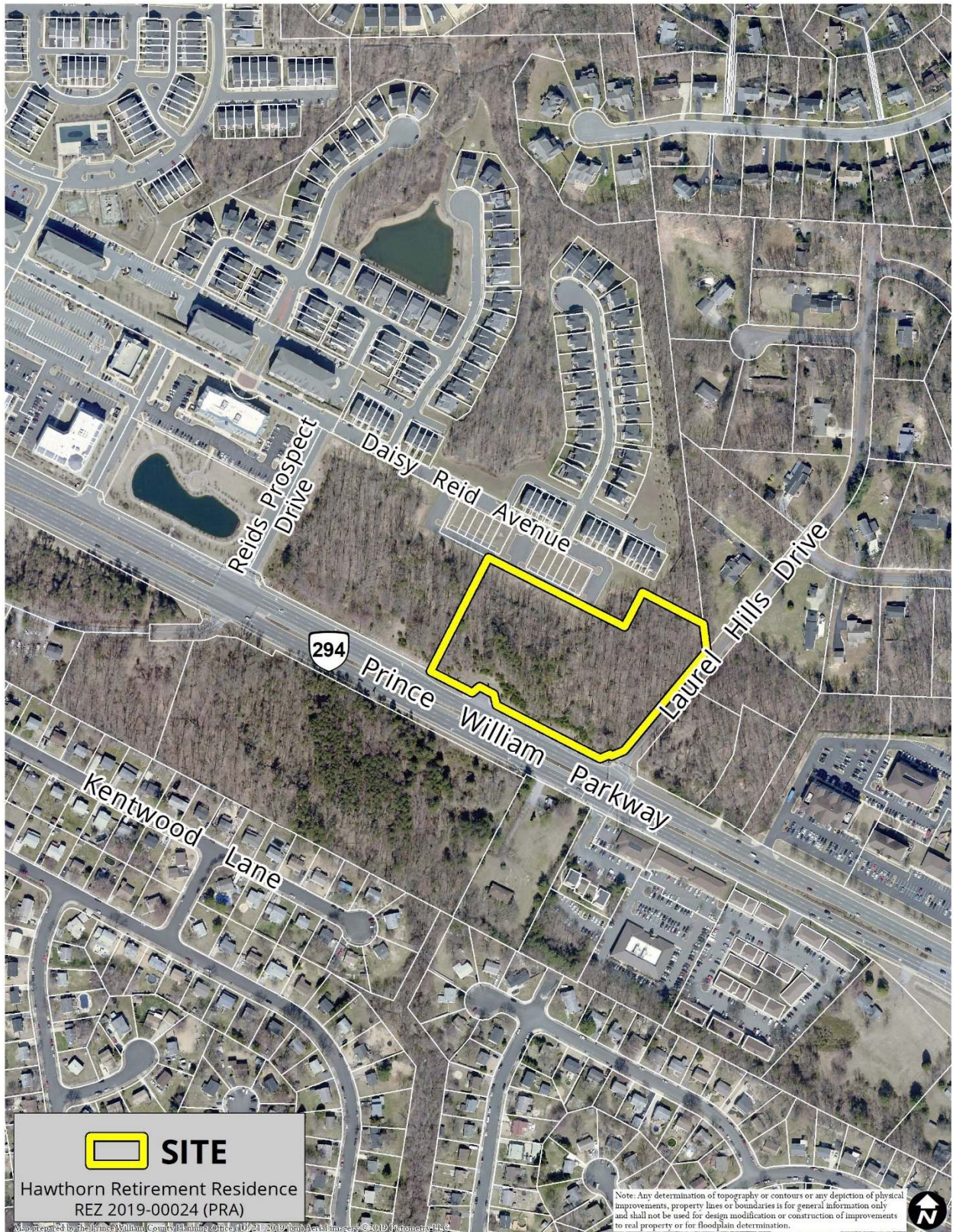
Attachments

Area Maps
Staff Analysis
Mark-up Proffers (showing all changes)
Master Zoning Plan
Illustrative Site Package
Illustrative Line of Sight Exhibits (not proffered)
Design Guidelines for Reid's Prospect (approved)
Planning Commission Resolutions

Vicinity Map



Hawthorn Retirement Residence
REZ 2019-00024 (PRA)

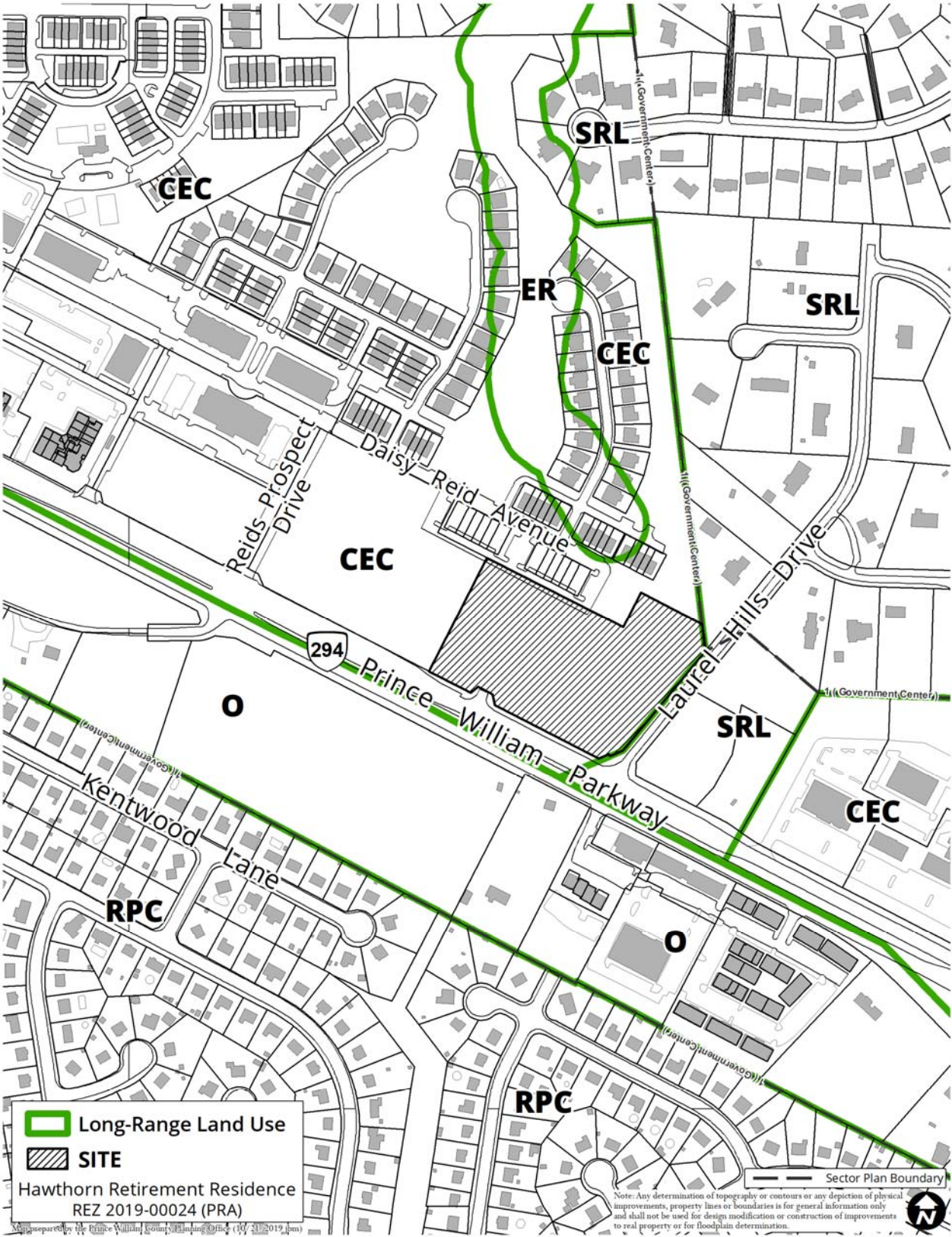


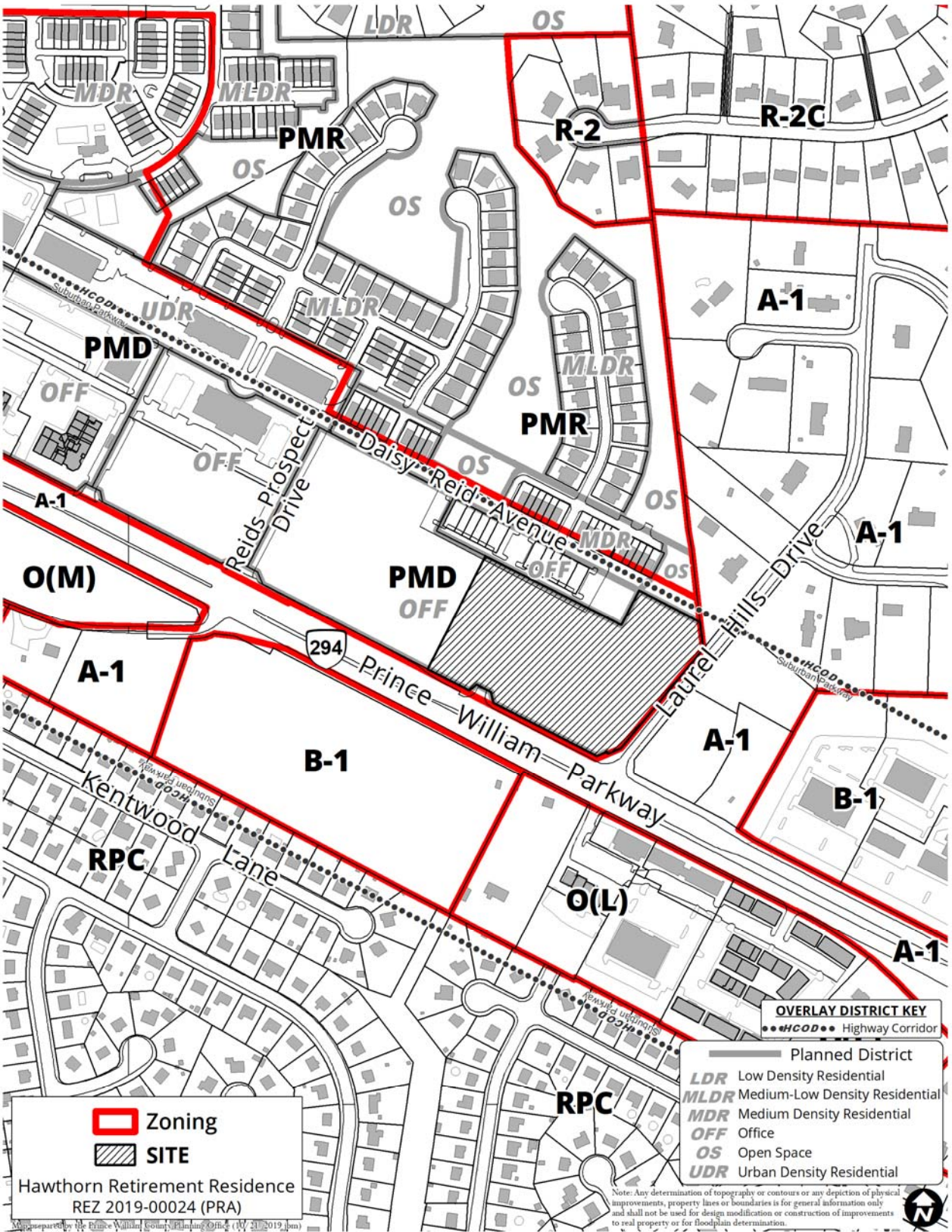
 **SITE**

Hawthorn Retirement Residence
REZ 2019-00024 (PRA)

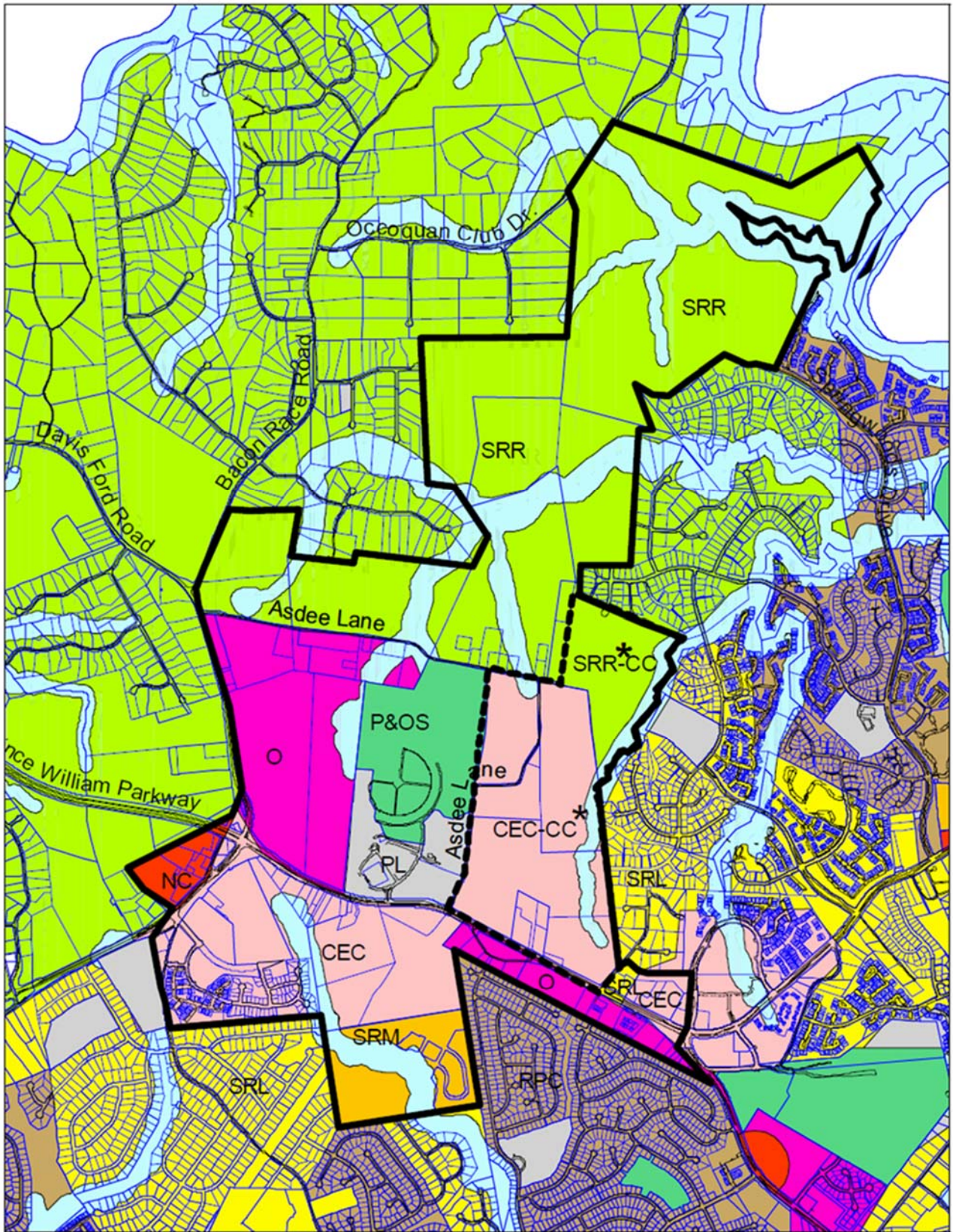
Note: Any determination of topography or contours or any depiction of physical improvements, property lines or boundaries is for general information only and shall not be used for design modification or construction of improvements to real property or for floodplain determination.



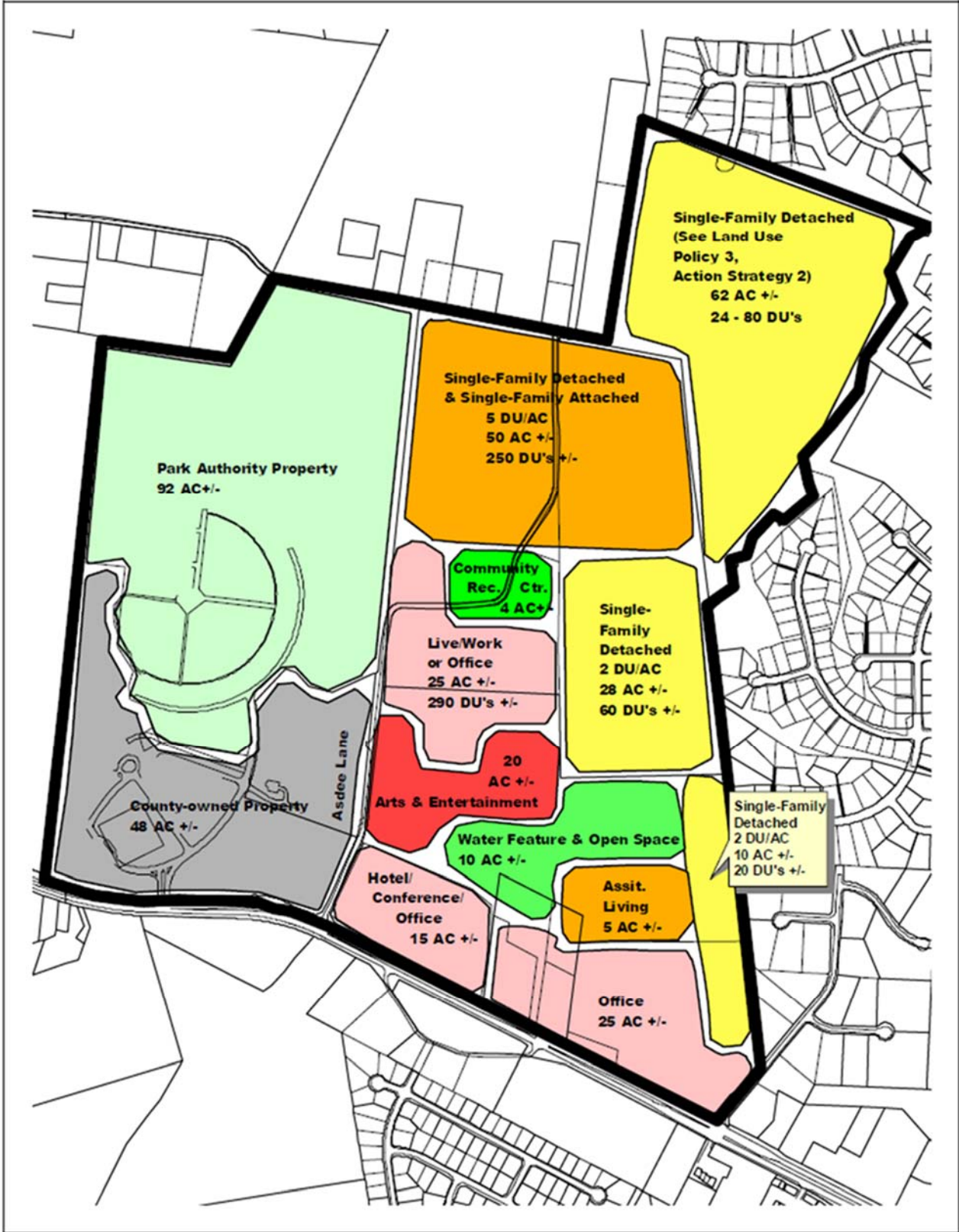




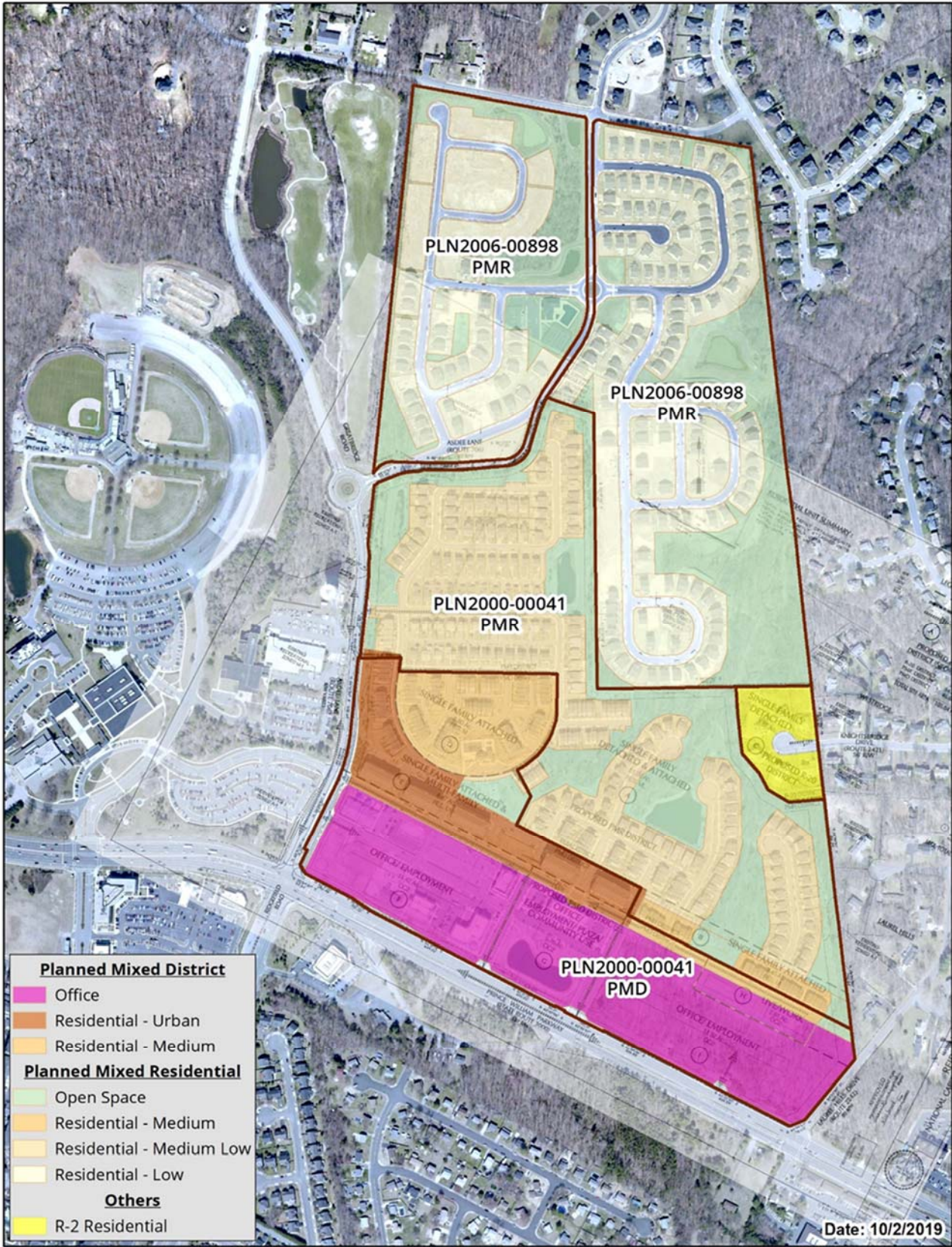
Government Center Sector Plan - Long-Range Land Use Map



Government Center Sector Plan – Land Use and Density Concept Exhibit



Master Zoning Plan - Development / Use Exhibit
(by staff)



Part I. Summary of Comprehensive Plan Consistency

Staff Recommendation: APPROVAL

This summary analysis is based on the relevant Comprehensive Plan action strategies, goals, and policies. A complete analysis is provided in Part II of this report.

Comprehensive Plan Sections	Plan Consistency
Long-Range Land Use	No
Community Design	Yes
Cultural Resources	Yes
Environment	Yes
Fire and Rescue	Yes
Police	Yes
Potable Water	Yes
Sanitary Sewer	Yes
Transportation	Yes

Part II. Comprehensive Plan Consistency Analysis

The following table summarizes the area characteristics (see attached maps):

Direction	Land Use	Long-Range Future Land Use Map Designation	Zoning
North	Undeveloped land bay, designated for Live/Work units; 12 live/work units in townhouses (Reid's Prospect)	CEC	PMD (office; live/work); PMR (medium density residential / open space)
South	Undeveloped, vacant land; Existing single-family residential property; Western portion of Ridgewood Center office complex (County offices)	O	B-1; O(L)
East	Across Laurel Hills Drive; undeveloped, vacant land	SRL	A-1
West	Undeveloped land bay, designated for Office/Employment uses (Reid's Prospect)	CEC	PMD (office)

Long-Range Land Use Plan Analysis

Through wise land use planning, the County ensures that landowners are provided a reasonable use of their land while the County is able to judiciously use its resources to provide the services for residents and employers’ needs. The Long-Range Land Use Plan sets out policies and action strategies that further the County’s goal of concentrating on population, jobs, and infrastructure within vibrant, walkable, mixed-use centers serviced by transit. In addition to delineating land uses on the Long-Range Land Use Map, the Plan includes smart growth principles that promote a countywide pattern of land use that encourages fiscally sound development and achieves a high-quality living environment; promotes distinct centers of commerce and centers of community; complements and respects our cultural and natural resources, and preserves historic landscapes and site-specific cultural resources; provides adequate recreational, park, open space and trail amenities that contribute to a high quality of life for county residents; and revitalizes, protects, and preserves existing neighborhoods.

This site is located within the Development Area of the County and is classified as Community Employment Center, CEC, on the Long-Range Land Use Map within the Comprehensive Plan. The following table summarizes the land uses and densities intended within the CEC use designation.

Long-Range Land Use Map Designation	Intended Uses and Densities
<p>Community Employment Center (CEC)</p>	<p>The purpose of the Community Employment Center classification is to provide for areas of low- to mid-rise offices (including government offices, particularly those for Prince William County agencies), research and development, lodging, and mixed-use projects planned and developed in a comprehensive, coordinated manner. CEC projects shall be located at or near the intersection of principal arterials and major collector roads, or at commuter rail stations. Residential uses shall be considered secondary uses and shall represent no greater than 25 percent of the total CEC gross floor area of the project. Drive-in/drive-through uses are discouraged. Single-family attached or multifamily housing including elderly housing is permitted, at a density of 6-12 units per gross acre, less the ER designated portion of a property. Development in CEC projects shall occur according to an infrastructure implementation plan submitted at the time of rezoning. The intent of this plan is to ensure that critical infrastructure for office, employment, and lodging uses is developed adequately for each phase of the project. Development shall also occur according to a phasing plan that must ensure that office, employment, and lodging uses are always the primary uses within the area rezoned. Office development in CEC areas is encouraged to be in accordance with the Illustrative Guidelines for Office Development, provided as a supplement to the Community Design Plan chapter of the Comprehensive Plan and available from the Planning Office. A minimum office building height of 3-5 stories is preferred.</p>

Government Center Sector Plan

This property is also located within the Government Center Sector Plan special planning area. According to the associated Long-Range Land Use Plan Map, the site is located within the CEC-CC land use classification, which calls for mostly office development and employment-based uses.

- **Purpose and Background:** The Government Center Sector Plan has been prepared to create an outstanding central focal point for the County that will firmly establish a center of activities and further the economic development goals of the County. This Plan is intended to provide opportunities for both expanding the County government and cultural activities, and to plan for the establishment of private commercial and residential uses within two proposed mixed-use communities, one on each side of Prince William Parkway in the vicinity of the existing County administration complex.

Community Employment Center - County Center (CEC-CC) Overlay

The CEC-CC land use classification is expected to develop as one or a series of mixed-use projects with a large-scale, centralized orientation of buildings and activities associated with the administration of the County and Pfitzner Stadium. Drive-in/drive-through uses, in-line or strip shopping centers, other freestanding retail uses, self-storage centers, automotive related uses, and warehousing uses are prohibited. The density for the nonresidential uses is a minimum of 0.50 floor area ratio. Single-family detached, single-family attached, or multifamily housing, particularly age-restricted housing types are permitted at higher densities in the center of the CEC-CC area with a lowering of density as distance from the center increases.

The purpose of the CEC-CC land use classification is to provide for areas of low- to mid-rise office, lodging, and mixed-use projects planned and developed in a comprehensive, coordinated manner, focused on central open space areas. The CEC-CC includes properties north of Prince William Parkway, including those properties to the east of County, Park Authority, and Service Authority properties along the boundary of the Laurel Hills and Westridge subdivisions. Development in the CEC-CC shall occur in substantial accordance with the County Center Design Guidelines and Concept Plan described in more detail as a supplement to the Government Center Sector Plan.

- **LU-POLICY 3:** Maintain an overall objective of achieving higher intensity land uses in the core area (County center and Town center) and appropriate transitioning of development densities throughout the sector plan area.
- **ACTION STRATEGIES:**
 1. Ensure that the developments fronting on Prince William Parkway, extending from the Town Center and County Center areas to The Glen, contain a significant amount of office development. Also, ensure that the easternmost parcel along the north side of the Parkway is mostly office development. Allow some residential development in this parcel that is integrated with development on the adjoining properties.

The Applicant has provided the following description of the project. Below is an extracted portion of from the Applicant's project narrative:

Hawthorn offers a unique assisted living facility that does not yet exist in Prince William County. Hawthorn's assisted living facilities are designed for those who are still ambulatory, but in need of some support. Typically, a majority of the residents are single and range in ages from late 70s and 80s. Private rooms provide the advantages of independence while the services included provide support, security, and friendship. There are two manager couples that live onsite and one of them is available 24 hours a day. All services and utilities (except for telephone services) are included in the rent (month to month rental, and not a "buy-in facility"). Furthermore, the services provided are one level of service and are the same for all residents.

Hawthorn's private suites range in size from studio, one and two bedrooms. The resident suites are accessed from internal corridors with some suites having exterior patios and decks. The two manager units can be accessed from their own private exterior entry doors as well as from the interior corridors. Access to the building requires a key pass and all external doors are locked in the evening. Each resident suite is equipped with emergency call systems (emergency pull cords and voice communication systems) in each bedroom and bathroom. Hawthorn provides three meals per day that are served restaurant style in a central dining hall.

The Applicant has confirmed that this type of proposed assisted living facility will not be licensed, due to its alternative range of services and business operation model. The Zoning Ordinance does not have a licensing requirement for assisted living facilities.

There is a Zoning Determination that designates the proposed use as an assisted living facility. However, based on staff's understanding of the nature of this type of assisted living facility, the use is not anticipated to be a significant employment generator, and resembles a congregate care, independent senior living, or concierge senior living (residential product) – rather than a more typical assisted living facility (commercial product), which the County has seen. Although the proposed new use option is an assisted living facility, as previously mentioned in the above section, it will function more as an independent senior living facility – and less like an office/commercial facility. Based on staff's interpretation, this end-user will be introducing a residential-type use into an area of Reid's Prospect that is targeted for employment uses. Even though other employment use options are being retained, if this use proceeds, the "employment center" will essentially be converted to what will function as "multi-family residential". This is contrary to what has been envisioned for this specific land bay for Reid's Prospect.

In regard to employment and third-party provider information, the Applicant has provided the following, as extracted from an email correspondence:

- **Employees:** *This location will have approximately 35-40 employees with a various range of skills and pay. Some employees will be paid by the hour while other employees will have a salary. The range of annual pay and other compensation is between \$20,000 to \$120,000.*
- **Third Party Companies (Independent Providers):** *Hawthorn has a list of third-party medical companies that they work with frequently in the area and provide this list to its residents as referrals (please note that Hawthorne does not endorse these companies). If a resident hires a*

person/company outside of this list that person/company is screened by Hawthorn prior to beginning any services to ensure that the company is licensed, bonded, etc. On average, approximately 10%-20% of the residents may contract with an independent provider for various reasons. Because the contract is between the independent provider and the resident we do not have cost estimates.

Proposal's Strengths

- **Option for Employment Uses:** As proffered, all previously-proffered employment uses in Land Bay J will still pertain, with the additional option to include an assisted living facility. This restriction shall not preclude first floor secondary retail uses in multi-story buildings, with the primary use being employment related.
- **Compatible Use in Government Center Sector Plan:** This proposal will deliver an assisted living facility, which is among the potential targeted uses for the Government Center Sector Plan. Also, the Land Use and Density Concept Exhibit indicates an assisted living facility for this general area. According to the Applicant, this proposed facility will have approximately 35 to 40 employees, and with a varied range of skills and compensation.

Proposal's Weaknesses

- **Incompatibility of B-1 Zoning with CEC Designation:** As proposed, the use/zoning designation in a portion of the subject land bay is being changed from O(H) to O(H)/B-1 to allow an assisted living facility as a by-right use. A new Land Bay "J" will be created to include the area (±5.41 acres) that is subject to this proffer amendment. Staff notes that the B-1 zoning district is not a zoning district that appropriately implements the CEC use designation. Although the options for office/employment-type uses are still being retained, the introduction of the B-1 zoning district does not directly implement the envisioned uses for this area of the development.
- **Displacement of Office:** As prescribed in the Community Employment Center - County Center (CEC-CC) use designation overlay, in which this site is located, the policy guidance is to ensure that the easternmost parcel along the north side of the Parkway is mostly office development. Furthermore, staff notes that in the development of this portion or Reid's Prospect, the day care facility (Prestige) has maximized secondary uses in this area. Although a new assisted living facility will further add to the mixture of uses, it will not bring employment/office-oriented uses to this land bay along the Prince William Parkway. With an assisted living facility going into an area intended for office-type uses, it will reduce the overall employment potential of Reid's Prospect.

On balance, the application is found to be **inconsistent** with the relevant components of the Long-Range Land Use Plan.

Community Design Plan Analysis

An attractive, well-designed County will attract quality development, instill civic pride, improve the visual character of the community and create a strong, positive image of Prince William County. The Community Design Plan sets out policies and action strategies that further the County's goals of providing quality development and a quality living environment for residents, businesses and visitors, and creating livable and attractive communities. The Plan includes recommendations relating to building design, site layout, circulation, signage, access to transit, landscaping and streetscaping, community open spaces, natural and cultural amenities, stormwater management, and the preservation of environmental features.

This subject proposal contains requests for the following three (3) design modifications: Signage; Height Increase; and Floor Area Ratio (FAR) Increase.

Signage Modification: Section 32-250.23 of the Zoning Ordinance allows the Board of County Supervisors to approve signage that is not consistent with the sign standards within the Zoning Ordinance as part of a rezoning/proffer amendment request.

- As a part of this proffer amendment/rezoning request, the Applicant is requesting the following signage modification: increase in monument sign height (10 feet to 12 feet).

Height Modification: Pursuant to Zoning Ordinance Sections 32-400.03.2 and 32-400.03.5, the Applicant is requesting the maximum height of any building to be constructed on the property, may be up to 60 feet. This deviates from the standard B-1 zoning requirements of 45 feet in height.

- As a part of this proffer amendment/rezoning request, the Applicant is requesting the following height modification: increase allowable height from 45 feet to 60 feet, to accommodate the proposed height for the assisted living facility in the B-1 zoning/designation for Land Bay J.

Floor Area Ratio (FAR) Increase: In accordance with Section 32-400.04.3 of the Zoning Ordinance, the Applicant requests modification of Section 32-401.14.4 to allow for a maximum FAR of 0.86 (from 0.40 in B-1 zoning).

Please refer to the "Waivers and Modifications" section at the end of this staff report for more explanation and analysis for each of the above-listed items.

Proposal's Strengths

- **Design Guidelines:** As part of the original proffers, a Design Review Committee was established for Reid's Prospect that outlines building design, style, landscaping, architectural theme, etc. The proposal will comply with these Design Guidelines.

- Architecture: The Applicant proffers a coordinated architectural design theme in the development of the newly created Land Bay J. If approved, the exterior of all structures shall be composed primarily of brick, glass, architectural pre-cast concrete, hardi-type siding or panels, job-cast architectural concrete or stone. Other similar materials may be used as approved by the Planning Director, or his designee, but in no event shall buildings with metal channel siding be allowed.
- Illustrative Layout/Design: The Applicant has provided an Illustrative Site Plan layout, should the property develop as an assisted living facility. As shown on the illustrative layout, over 50% of the property will have pervious area. Also, an illustrative building elevation for an assisted living facility has been proffered.
- Signage / Entrance Feature: The Applicant is providing signage/gateway details that integrate into the overall community design and architectural themes, which serve as periphery anchor points and focal points.
- Courtesy Review with LOCCA/PELT & Laurel Hills Community: The Applicant proffers a courtesy review prior to final site plan approval.

Proposal's Weaknesses

- Reduced / Modified Landscaping: A 50-foot wide HCOD buffer is required along the frontage of Prince William Parkway. The original rezoning case reduced the buffer to 30-foot and showed an easement parallel and closest to the Parkway. Currently, an overhead electric utility easement runs in this area. The Applicant is proposing a variety of encroachments (utilities, easements, retaining walls, etc.) into the buffer, and is proceeding with a 30-foot buffer. As such, the proposal still does not meet minimum design standards. As proposed, there will be retaining walls, utilities, easements, the entrance signage feature, and variable landscaping, within landscaping buffers/areas that have already been modified from the original rezoning. Although there are onsite limitations due to topography, layout, and access improvements, there will be partial encroachment into buffers that have already been modified and/or reduced.
- Limited Interparcel Access: As proffered, there shall be a minimum of one (1) interparcel access connection for this land bay. This is located on the western side of the development, which will be for vehicular access. In the event that the surrounding development changes, or depending on how the new subject property (Land Bay J) is ultimately developed, there should be an additional full interparcel access to the north, and not just limited to pedestrian movement. The site contains one of the limited points of access from Reid's Prospect to Prince William Parkway.

- Integration with Adjacent Uses: The site is located in an area planned for mixed-use development. The grading, which relies on the use of retaining walls, and site design limit the proposal's integration with surrounding uses within Reid's Prospect.

On balance, this application is found to be consistent with the relevant components of the Community Design Plan.

Cultural Resources Plan Analysis

Prince William County promotes the identification, evaluation, and protection of cultural resource sites throughout the County, as well as the tourism opportunities these sites present. The Cultural Resources Plan recommends identifying, preserving, and protecting Prince William County's significant historical, archaeological, architectural, and other cultural resources – including those significant to the County's minority communities – for the benefit of all of the County's citizens and visitors. To facilitate the identification and protection of known significant properties that have cultural resource values worthy of preservation, the land use classification County Registered Historic Site (CRHS) is used in the Comprehensive Plan. The Plan includes areas of potentially significant known but ill-defined or suspected pre-historic sites, Civil War sites, historic viewsheds, landscapes or areas of potential impact to important historic sites, and encourages the identification, preservation, protection, and maintenance of all cemeteries and/or gravesites located within the County.

Phase I archaeological studies are generally required at submission of rezoning and special use permit applications where significant prehistoric or historic sites and cemeteries are known or suspected. Phase II evaluations and treatment plans studies may also be required. Records research is required of all applicants for rezoning, special use permit, comprehensive plan amendment, and public facility review applications.

The Historical Commission initially reviewed this application during their regularly scheduled meeting on March 12, 2019. The Commission's review action was as follows: "Request details regarding disinterment and reinternment of the remains from the cemetery". The County Archaeologist concurred and requested further clarification of the cemetery extent/location.

Upon further review, the noted Marshall Cemetery is located in this general project area, but is not on the subject site. As requested, a copy of the court Final Order to relocate the graves at the Marshall Family Cemetery to the Clifton Cemetery, and the Certification of proof has been provided by the Applicant that all human remains have been relocated to another appropriate offsite location.

Proposal's Strengths

- No Further Work: The Historical Commission reviewed this proposal at its March 12, 2019 and June 11, 2019 meetings. After receiving clarifying information of the relocation of graves and further confirmation, it and determined that no further work was needed. The County Archaeologist concurs.

Proposal’s Weaknesses

- None identified.

On balance, this application is found to be consistent with the relevant components of the Cultural Resources Plan.

Environment Plan Analysis

Prince William County has a diverse natural environment, extending from sea level to mountain crest. Sound environmental protection strategies will allow the natural environment to co-exist with a vibrant, growing economy. The Environment Plan sets out policies and action strategies that further the County’s goal of preserving, protecting and enhancing significant environmental resources and features. The Plan includes recommendations relating to the incorporation of environmentally sensitive development techniques, improvement of air quality, identification of problematic soil issues, preservation of native vegetation, enhancement of surface and groundwater quality, limitations on impervious surfaces, and the protection of significant viewsheds.

The site is entirely wooded on with steep slopes on highly erodible soils. There is a potential jurisdictional wetland. There are no Resource Protection Area (RPA) or floodplain features. A conservation area and buffers exist along the eastern side of the site.

SUBWATERSHED: Occoquan River subshed 432
 TOTAL SITE AREA/ ER AREA: 5.4 acres / to be provided
 TREE SAVE AREA: Not provided
 UNDISTURBED AREA: Not provided
 IMPERVIOUS/ PERVIOUS: 2.85 acres / 2.55 acres
 AREA OF DISTURBANCE: Not provided
 RARE, THREATENED, AND ENDANGERED SPECIES: No suitable habitat.

SOILS:

No.	Soils Name	Slope	Erodibility
10C	Buckhall Loam	7 - 15 %	Severe
23D	Gaila Sandy Loam	15 - 25 %	Severe
41B	Neabsco Loam	0 - 7 %	Moderate
44D	Occoquan Sandy Loam	7 - 25 %	Severe

This site has frontage on Prince William Parkway, which requires a minimum 50-foot wide Highway Corridor Overlay District buffer. The proffers for the existing Reid’s Prospect development (#REZ2000-00041) allowed for the 50-foot buffer to be modified down to a minimum 30-foot wide buffer. This Applicant is proposing a variable width buffer a minimum of 30-foot in width. Within this 30-foot buffer, there are existing various utility (electric, telecommunication) easements parallel to and abutting the Prince William Parkway. In addition, due to the site topography and the extent of grading that will need to occur, retaining walls are being installed. Some of these will be placed at the edge portions of the perimeter buffer areas.

Proposal's Strengths

- Monetary Contribution for Water Quality: A \$75 per acre (±5.41 acres) monetary contribution for water quality monitoring, stream restoration, and/or drainage improvements has been proffered.
- Preservation of Existing Conservation Areas: As proffered, within those portions of the Property identified as "Conservation Area" on the Open Space & Buffer Plan, vegetation shall be preserved, subject to disturbance for the following: installation and maintenance of water line crossings, sanitary sewer crossings, drainage crossings, other utility crossings and pedestrian trail(s); installation of fencing; installation of such additional landscaping as may be approved by the County; and removal of noxious vegetation.

Proposal's Weaknesses

- Loss of Intact Tree Areas: Currently, the site is entirely wooded with steep slopes and highly erodible soils. With the proposed development, the entire site will change, due to the assisted living facility, parking, drive aisles, and other associated improvements. As a result, there will be a substantial increase in impervious area, loss of existing vegetation, and a need to manage/control new stormwater runoff. The Applicant is required to meet all current stormwater management regulations.

On balance, this application is found to be consistent with the relevant components of the Environment Plan.

Fire and Rescue Plan Analysis

Quality fire and rescue services provide a measure of security and safety that both residents and businesses have come to expect from the County. The Fire and Rescue Plan sets out policies and action strategies that further the County's goal of protecting lives, property, and the environment through timely, professional, humanitarian services essential to the health, safety, and well-being of the community. The Plan includes recommendations relating to siting criteria, appropriate levels of service, and land use compatibility for fire and rescue facilities. The Plan also includes recommendations to supplement response time and reduce risk of injury or death to County residents, establishment of educational programs, such as cardio-pulmonary resuscitation (CPR) training, automatic external defibrillators (AED), and encourage installation of additional fire protection systems – such as sprinklers, smoke detectors, and other architectural modifications.

The first due fire/rescue station is for the subject site is Fire/Rescue Station #26 (Bacon Race). The subject property is inside the 4.0-minute travel time criteria for fire and basic life support and inside the 8.0-minute travel time criteria for advanced support services. Fire/Rescue Station 26 responded to 1,959 incidents in FY18, while the workload capacity is 2,200 incidents.

Staff has had initial concerns about the ability/ease of emergency vehicles to adequately access the site. With a median strip in the middle of this portion of the Prince William Parkway, tight U-turn spacing at the Parkway/Laurel Hills Drive intersection, and minimal interparcel connections,

emergency access to the site is challenging. However, based on further analysis, it has been demonstrated that an emergency vehicle is able to make a U-turn at the intersection of Prince William Parkway and Laurel Hills Drive. By the nature of this type of use (assisted living facility), there can be higher levels of calls for assistance, when compared to other uses.

Fire lanes and interparcel connections will be reassessed at the time of site plan review.

Proposal's Strengths

- Monetary Contribution: As proffered, the Applicant will make a monetary contribution of \$0.61 per square foot of new building area to be constructed prior to issuance of any building permit.
- Inside of 4.0-Minute Travel Time: The site is located within the recommended 4.0-minute travel time for fire suppression and basic life support.
- Inside of 8.0-Minute Travel Time: The site is located within the 8.0-minute travel time for advanced life support services.
- Station Workload: Based on the latest available data, station #25 responded to 1,959 incidents in FY18, while the workload capacity is 2,200 incidents. As such, it is operating within capacity.

Proposal's Weaknesses

- None identified.

On balance, this application is found to be consistent with the relevant components of the Fire and Rescue Plan.

Police Plan Analysis

Residents and businesses expect a high level of police service for their community. This service increases the sense of safety and protects community investments. The Police Plan is designed to promote Prince William County's public safety strategic goal to continue to be a safe community, reduce criminal activity, and prevent personal injury and loss of life and property, as well as to ensure effective and timely responses throughout the County. This Plan encourages funding and locating future police facilities to maximize public accessibility and police visibility as well as to permit effective, timely response to citizen needs and concerns. The Plan recommends educational initiatives, such as Neighborhood and Business Watch, and Crime Prevention through Environmental Design (CPTED), which encourages new development to be designed in a way that enhances crime prevention. The Plan also encourages effective and reliable public safety communications linking emergency responders in the field with the Public Safety Communications Center.

The Police Department does not feel that this proposal will have an overall significant impact on police services at this time. During the site development process, refer to the Crime Prevention Through Environmental Design (CPTED) Manual: "Crime Prevention Through Environmental Design: A guide to safe environments in Prince William County, Virginia", which can be found at the following website: <https://www.pwcgov.org/government/dept/police/Pages/CPTED.aspx>

The Applicant is encouraged to pay particular attention to the CPTED manual and apply design principles during the site development/construction and site plan review phase.

Proposal's Strengths

- **No Significant Impact:** The Police Department has reviewed the proposal and does not believe it will result in a new significant impact on calls for Police service.

Proposal's Weaknesses

- None identified.

On balance, this application is found to be consistent with the relevant components of the Police Plan.

Potable Water Plan Analysis

A safe, dependable drinking water source is a reasonable expectation of County residents and businesses. The Potable Water Plan sets out policies and action strategies that further the County's goal of providing an economically and environmentally sound drinking water system. The Plan includes recommendations relating to system expansion, required connections to public water in the Development Area, and the use of private wells or public water in the Rural Area.

The subject property is within the Development Area of the County and is thereby required to utilize public water to develop. Public water is available onsite from an existing 8-inch stub-out and a 12-inch water main located along the northern property boundary and the northeast corner of the Property, respectively. The developer will be required to provide an onsite looped water main configuration by connecting these water mains for increased reliability and water quality. In addition, appropriate easements and stub-outs shall be provided to allow the future extension of water to the western portion of the site.

Depending on the final configuration of the on-site water mains, additional water main extensions may be required by the Service Authority to provide adequate fire protection or satisfy water quality requirements. The Applicant shall plan, design, and construct all onsite and offsite water utility improvements necessary to develop/utilize the subject property and satisfy requirements in accordance with all applicable Service Authority, County, and State requirements, standards, and regulations.

Proposal's Strengths

- Water Connection: The Applicant is required to comply with Zoning Ordinance Section 32-250.74, which mandates connection of the site to public water service. As proffered, the site shall be connected to public water, with the Applicant bearing all costs associated with providing onsite and offsite facilities to meet the demand generated by its uses.

Proposal's Weaknesses

- None identified.

On balance, this application is found to be consistent with the relevant components of the Potable Water Plan.

Sanitary Sewer Plan Analysis

Appropriate wastewater and sanitary facilities provide needed public health and environmental protections. The Sanitary Sewer Plan sets out policies and action strategies that further the County's goal of providing an economically and environmentally sound sanitary and stormwater sewer system. The Plan includes recommendations relating to system expansion, required connections to public sewer in the Development Area, and the use of either private or public sewer systems in locations classified as Semi-Rural Residential (SRR), as well as the Rural Area.

The subject property is within the Development Area of the County and is thereby required to utilize public sewer to develop. Public sewer is available onsite from an existing 8-inch gravity main located along the northern property boundary.

Grinder pumps and grease traps in the sanitary sewer system may be required. The Applicant shall plan, design, and construct all onsite and offsite water utility improvements necessary to develop/utilize the subject property and satisfy requirements in accordance with all applicable Service Authority, County, and State requirements, standards, and regulations.

Proposal's Strengths

- Sewer Connection: The Applicant is required to comply with Zoning Ordinance Section 32-250.75, which mandates connection of the site to public sewer service. As proffered, the Applicant shall connect to public sewer and is responsible for those onsite and offsite improvements, with the Applicant bearing all costs associated with providing onsite and offsite facilities to meet the demand generated by its uses.

Proposal's Weaknesses

- None identified.

On balance, this application is found to be consistent with the relevant components of the Sanitary Sewer Plan.

Transportation Plan Analysis

By providing a multi-modal approach to traffic circulation Prince William County promotes the safe and efficient movement of goods and people throughout the County and surrounding jurisdictions. The Transportation Plan sets out policies and action strategies that further the County's goal of creating and sustaining an environmentally friendly, multi-modal transportation system that meets the demands for intra- and inter-county trips, is integrated with existing and planned development, and provides a network of safe, efficient, and accessible modes of travel. The Plan includes recommendations addressing safety, minimizing conflicts with environmental and cultural resources, maximizing cost effectiveness, increasing accessibility of all travel modes, minimizing projected trip demand, and providing sufficient network capacity. Projects should include strategies that result in a level of service (LOS) of "D" or better on all roadway corridors and intersections, reduce traffic demand through transportation demand management strategies, dedicate planned rights-of-way, provide and/or fund transit infrastructure, pedestrian and bicycle pathways, and improved and coordinated access to transit facilities.

The following table provides information concerning the most current average daily trips (ADT) in vehicles per day (VPD) and levels of service (LOS) of roadways important to this development:

Roadway Name	Number of Lanes	2018 VDOT Count	2015 Daily LOS
Prince William Parkway (Route 294)	6	51,000 vehicles per day (VPD)	C

A Deferral of Traffic Impact Analysis (TIA) form was signed by County Transportation and is included with the rezoning/proffer amendment application. The proposal is to amend the existing proffers to allow the option to develop an assisted living facility, while retaining the previously-approved employment uses.

The Prince William Parkway/Black Forest Lane/Reids Circle signalized intersection will be impacted by a slight increase in traffic from this proposed development. This signal currently operates in flashing-yellow mode on Prince William Parkway, because VDOT warrants are not currently met for operation. The Applicant was requested to provide a traffic signal warrant study and any needed upgrades to the signal for it to be fully operational, subject to VDOT review and approval. In response, the Applicant's traffic consultant demonstrated that the small amount of traffic from the proposed use would not warrant switching the signal from flashing yellow to full signal operation at the Prince William Parkway/Black Forest Lane/Reid's Prospect Drive intersection. As Reid's Prospect continues to develop, each new use/development would be required to analyze this intersection to see if a traffic signal is warranted by VDOT.

The Applicant has coordinated with the owner, Plaza Land, to determine the appropriate location of the recommended interparcel connection. The Applicant received permission from Plaza Land approving the interparcel connection location. This is shown on the plan.

Proposal's Strengths

- Site Access: As proffered, access will be provided by a right-in/right-out entrance configuration off of westbound Prince William Parkway.
- Contingency for Updated TIA: In the event a hotel use is located on the Property and if requested by the County, the Applicant shall provide an updated Traffic Impact Analysis (TIA) to determine impacts, if any, associated with such use and shall provide, in consultation with the County Transportation and/or VDOT, measures to mitigate such impacts.

Proposal's Weaknesses

- None identified.

On balance, this application is found to be consistent with the relevant components of the Transportation Plan.

Strategic Plan

This section of the report is intended to address the project's alignment with the outcomes provided within the County's Strategic Plan. The Strategic Plan posits that individuals, families and businesses prefer communities with a robust economy; easy access to jobs, services and activities; that support even the most vulnerable in the community; are safe and secure; and provide a quality education that assures lifelong learning and steady employment. From this analysis, the Strategic Plan Team developed five strategic goal areas to guide Board actions: "Robust Economy," "Mobility," "Wellbeing," "Safe and Secure Community," and "Quality Education and Workforce Development." It is important to note that no single area is viewed as more critical than another. Rather, each are interrelated and have direct impact on each other. Collectively, these goal areas impact the quality of life in all facets of the community issues raised during the review of the proposal, which are not directly related to the policies, goals, or action strategies of the Comprehensive Plan, but which are materially relevant to the County's responsibilities in considering land use issues. The aspects of the proposal relative to the Strategic Plan are as follows:

Increase commercial tax base

- Increase commercial tax base as a percentage of overall tax revenue to 35%.

Increase at-place employment

- While employment in the assisted living facility may meet the Strategic Plan Goal of increasing at place employment, these jobs can be lower skilled and lower paying jobs. Despite the fact that all of the previously-proffered employment use options are being retained, with the targeted end user (assisted living facility), the potential office uses will be replaced with a more quasi-residential use.

Staff Analysis

The following table provides an estimated employment generation summary in “Office” planned uses as per the approved Master Zoning Plan. Since the subject site is planned as CEC and zoned PMD (Office/Employment planned uses), staff analyzed the Office scenario and provided for analytical comparison and are based on the maximum and requested Floor Area Ratio (FAR). In summary, it is anticipated that the proposal will yield substantially less employees than what is anticipated in typical Office-type developments.

Approximate CEC – Employment Yield Analysis	
	Office Acreage
Total Acres	5.41
Residential Acres	0.00
Employment Acres	5.41
ER Acres	0.00
FAR	0.70 – 0.86
Total Employees	575 – 708
Total Dwellings	0
Total GFA	164,962 – 202,667
Residents	0
Office Employees	527 – 648
Retail Employees	18 – 22
Industrial Employees	0
Other Employees	30 – 38
Retail GFA	8,248 – 10,133
Office GFA	131,969 – 162,134
Industrial GFA	0
Other GFA	24,744 – 30,400
SFD Units	0
SFA Units	0
MFA Units	0

Based on an assessment of other assisted living/memory care facilities in the surrounding area, such facilities typically have between 75 to 100 employees. This particular facility, as proposed, will generate 35 to 40 permanent employment opportunities, according to the Applicant.

Waivers and Modifications

Pursuant to Section 32-700.25 of the Zoning Ordinance, the following waivers/modifications are being requested through this Proffer Amendment:

- In accordance with Section 32-250.23 of the Zoning Ordinance, modification of Sections 32-250.24 Schedule B of the Zoning Ordinance to allow for a freestanding monument sign and entry feature as generally shown on Sheet 3 of the “Illustrative Site Package,” prepared by Lenity Architects dated July 8, 2019.
 - Staff Response
 - *The Applicant is intending for the L-style monument sign to also be the focal entry feature for the property along this portion of Reid’s Prospect. Also, due to the surrounding site grade, the Applicant is claiming the height of the sign needs to be greater than 10 feet. At an overall proposed height of 12 feet and given the fact that the signage will also serve as an entry/focal feature along this portion the Prince William Parkway. Staff is supportive of this request.*

- Modification of Sections 32-250.31, 32-250.32, 32-503.12 and 32-800.11 of the Zoning Ordinance and Sections 802.10, 802.11, 802.12, 802.13, 1003.01 and 1003.02 of the DCSM to waive and modify all internal buffers between uses on the Property, the perimeter buffers and buffers adjacent to roadways along Prince William Parkway and Laurel Hills Drive in accordance with the Design Guidelines and as more particularly described in the Open Space & Buffer Plan; and to modify the planting standards to allow existing vegetation to satisfy the planting standards and to allow utilities, easements, and retaining walls greater than three feet (3’) within the buffer areas.
 - Staff Response
 - *This waiver was previously approved with REZ #PLN2000-00041, Reid’s Prospect, and will be a continuation of what was previously approved. The proposed streetscape includes an entry feature consistent with the architectural character of the building, 4 story building with 360-degree architecture oriented with the main building entry facing the Parkway, and parking areas and the proposed variable width buffer plantings. According to the Applicant, due to the grade of the site, the retaining wall (greater than 3 feet in height) must be located within the buffer area. The landscaping was modified with the previous rezoning, and the Applicant is proposing a variable width buffer with further encroachment into an already modified/reduced landscaping buffer along the Parkway. Staff is generally supportive of this request.*

Staff Analysis

- Waiver of Section 32-250.72 of the Zoning Ordinance and 601.04.I of the DCSM to waive vehicular interparcel connections with surrounding properties consistent with Proffer 3.b.
 - Staff Response
 - *This waiver was included and approved with REZ #PLN2004-00041. Due to the proposed grading of the site, the Applicant indicates that they are unable to provide more than one interparcel vehicular connection to the adjoining properties. However, the Applicant has provided a pedestrian connection to the property to the north. Staff feels that that Applicant should provide such interparcel access, especially to the north and west. For such an assisted living facility, it is important for residents to be able to walk and easier get from the subject site to other amenities and services within Reid's Prospect. Also, with an overall increased potential need for emergency services for this type of use, it is crucial that the site is well connected to the rest of the development. As proposed, there is only one (1) such vehicular interparcel connection to the west, and one (1) pedestrian access to the north. Staff would have preferred another full interparcel connection to the north as well.*

- In accordance with Section 32-300.03.2 of the Zoning Ordinance, modification of Section 32-401.14.5 of the Zoning Ordinance to permit a maximum height of 60 feet as outlined in Proffer 7.
 - Staff Response
 - *The original proffers contemplated a minimum 3-story building on the property. The Applicant is now proposing a 4-story building, with a maximum height of 60 feet. The maximum height permitted in the O(H) zoning district is 100 feet, while the maximum height permitted in the B-1 zoning district is 45 feet. The proposed height modification request is to allow a height greater than 45 feet, for the proposed assisted living assisted living facility which, if approved, would be allowed in the underlying zoning district of B-1. Staff is supportive of this request.*

- In accordance with Section 32-400.04.3 of the Zoning Ordinance, modification of Section 32-401.14.4 to allow for a maximum FAR of 0.86.
 - Staff Response
 - *The O(H) zoning category permits a maximum floor area ratio (FAR) of 1.25. However, B-1 zoning permits a maximum FAR of 0.40. The Applicant is seeking a greater FAR of up to 0.86 on the site, while reducing the pervious area from what was previously approved. Staff is generally supportive of this request.*

- Modification of Section 125.01.1.1 of the DCSM to allow the existing overhead utility lines and pole located at the intersection of Prince William Parkway and Laurel Hills Road to remain aboveground as outlined in Proffer 18 and 33.
 - Staff Response
 - *The utility lines along the frontage of the property were relocated above-ground as part of the construction of Prince William Parkway in accordance with the approved public improvement plan #SP06-00040R00S05. Due to the new development, existing overhead wire utilities along the frontage should be placed underground. The Planning Office recommends this waiver be deferred to site plan review, where a full and more detailed technical analysis can be considered by the Department of Development Services, as per standard review protocol. As such, staff does not support this waiver, as requested in the proffers.*

Materially Relevant Issues

This section of the report is intended to identify issues raised during the review of the proposal, which are not directly related to the policies, goals, or action strategies of the Comprehensive Plan, but which are materially relevant to the County's responsibilities in considering land use issues. The materially relevant issues in this case are as follows:

- Based on staff's understanding of the nature of this type of assisted living facility, it resembles a congregate care, independent senior living, or concierge senior living (residential product) – rather than a more typical assisted living facility (commercial product). The Applicant has confirmed that this type of facility will not require a licensing, which is unlike all other assisted living facilities through the County. Over the review of this application, the County's Area Agency on Aging has also expressed concerns with this subject facility not being licensed. Although it is acknowledged that the proposed use still meets the Zoning Ordinance definition of an assisted living facility, it does not specifically provide licensing requirements.
- This proposed "assisted living facility" is in relatively close proximity to two (2) other existing "assisted living and memory care" facilities:
 - Tribute at the Glen (±1,900 feet to the east)
 - Harbor Chase (±2.5 miles to the southeast)

Agency Comments

The following agencies have reviewed the proposal and their comments have been summarized in relevant comprehensive plan chapters of this report. Individual comments are in the case file in the Office of Planning:

- PWC Archaeologist
- PWC Area Agency on Aging
- PWC Economic Development
- PWC Fire Marshal Office
- PWC Historical Commission
- PWC Planning Office / Proffer & Zoning Administration
- PWC Police / Crime Prevention
- PWC Public Works – Watershed / Environmental / Arborist
- PWC Service Authority
- PWC Transportation
- Virginia Department of Transportation (VDOT)

Mark-up Proffers (showing all changes)

PROFFER STATEMENT

RE: REZ #PLN2000-00041~~REZ2019-00024~~, Hawthorn Retirement Residence at Reid's Prospect
Record Owner: Stanley F. Reid, Letitia and Robert O. Estes, Agnes L. and Daniel R. Reid, Mary L. Pfitzner and Plaza Land Holdings, L.P.

Applicant: Lenity Architecture on behalf of Hawthorn Development LLC

Contract Purchaser:National Capital Land & Developer: Hawthorn Development
Company, Inc, LLC

Property: G.P.I.N. 8193-31-4635 (part)

Property: G.P.I.N.s 8193-31-5659, 8193-31-0737, 8193-22-7100, 8193-21-5792, 8193-21-8870, 8193-21-9297, 8193-22-8267, and 8193-23-4181

Coles Occoquan Magisterial DistrictsDistrict

Approximately ± 5.41 acres

46.68 Acres A-1 to PMD

54.51 Acres A-1 to PMR

Zoned PMD, Planned Mixed Development

3.85 Acres A-1 to R-20

Date: October 26~~25~~, 2019~~2004~~

The undersigned hereby proffers that the use and development of the subject Property shall be in strict conformance with the following conditions, which shall supersede all other proffers made prior hereto (including the proffers approved with Rezoning #PLN2000-00041, Reid's Prospect). In the event the above referenced rezoning-referenced proffer amendment is not granted as applied for by the Applicant, these proffers shall be withdrawn and are null and void and the proffers approved with REZ #PLN2000-00041 will remain in full force and effect.

The headings of the proffers set forth below have been prepared for convenience or reference only and shall not control or affect the meaning or be taken as an interpretation of any provision of the proffers. Any improvements proffered herein below shall be provided at the time of development of the portion of the site served by the improvement, unless otherwise specified. The terms "Applicant" and "Developer" shall include all future owners and successors in interest.

For purposes of reference in this Proffer Statement, references to plans and exhibits shall include the following:

1. 4"Master Zoning Plan for Reid's Prospect" prepared by The Engineering Group~~Timmons Group~~, Inc. and dated November 6~~July 8, 2003, last revised September 30, 2004, 2019 consisting of the following sheets:~~

- a. Master Zoning Plan ("MZP")

{P0804124.DOC / 1 Proffers-Original-009025-000002}

Mark-up Proffers (showing all changes)

PROFFER AMENDMENT STATEMENT

REZ2019-00024, Hawthorn Retirement Residence at Reid's Prospect

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- b. Transportation and Utilities Plan ("Transportation Plan")
- c. Open Space/ & Buffer Plan ("~~Open Space/Buffer Plan~~")²."Design Guidelines – Reid's Prospect" dated September, ~~2004, 2004.~~

2. "Design Guidelines – Reid's Prospect," dated September 2004:

- ~~3.~~ "Private Street Standards" prepared by The Engineering Groupe, Inc. and dated July 28, 2003, last revised September 30, 2004 ("Private Street Standards").

TRANSPORTATION

~~1.~~ Prince William Parkway

~~a.~~ In the event additional right of way is required and if requested by the County, the Applicant shall dedicate, at no cost to Prince William County or the Virginia Department of Transportation (VDOT), right of way up to a maximum of sixty feet (60') in width from the existing centerline of Prince William Parkway across the frontage of the Property plus additional right of way as required for the construction of turn lanes. Said dedication shall be made, if requested by Prince William County, at the time a site plan is filed for the public improvements set forth in proffers #1.b and #1.c below.

~~b.~~ The Applicant shall construct, within existing right of way, or right of way to be dedicated pursuant to proffer #1.a above, modifications to the existing left turn lane on Prince William Parkway into the main entrance to the Property opposite Black Forest Drive on the Parkway. Any required improvements to the said left turn lane shall be provided at the time that the said entrance to the Property is constructed.

~~c.~~ The Applicant shall construct, within existing right of way or right of way to be dedicated pursuant to proffer #1.a above, the following improvements to Prince William Parkway: 1) a full travel lane, 2) right turn/deceleration lanes at Asdee Lane and each entrance to the Property, 3) curb and gutter and 4) reconstruction of the existing 8' wide bike trail.

3. "Illustrative Site Package," prepared by Lenity Architecture, dated July 8, 2019, consisting of the following sheets:

- a. Illustrative Variable Width Buffer (Sheet 2)
- b. Illustrative Entry Feature (Sheet 3)
- c. Illustrative Building Perspectives (Sheets 4 through 7)

Mark-up Proffers (showing all changes)

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TRANSPORTATION

- ~~2. Asdee Lane. The Applicant shall dedicate, at no cost to Prince William County or VDOT, right of way as required across the frontage of the Property and shall construct the Asdee Lane improvements as shown on the Transportation Plan.~~
- ~~3. Signalization.~~
 - ~~a. At the request of Prince William County or VDOT, the Applicant shall construct signalization at the entrance to the Property on the Prince William Parkway if warranted based on a traffic signal warrant study prepared by the Applicant and approved by VDOT during development of the Property. Said signalization shall include a controller suitable to synchronize the cycles with the signals located on the Parkway between and including Laurel Hills Drive and County Complex Court.~~
 - ~~b. If approved by the County and VDOT, the Applicant shall provide pedestrian activated crossing controls on the traffic signals located at the intersection of Asdee Lane and Prince William Parkway.~~
- ~~4. The Applicant shall provide painted pavement pedestrian crosswalks across Prince William Parkway and Asdee Lane at the intersection of said roads adjacent to the Property. Said painted crosswalks shall be provided at the time of and in conjunction with the improvements to said roads as set forth in proffers #1 and #2 above.~~
- ~~4. 5. Site Access~~
 - ~~a. The maximum number of entrances to the Property on the Prince William Parkway and locations of said entrances shall be generally as shown on the Transportation Plan, subject to modifications required at site plan based on final engineering.~~
 - ~~b. Access to Land Bay C shall be provided from existing Knightsbridge Drive and there shall be no vehicular connection between Land Bay C and the balance of the Property.~~
 - ~~b. c. In accordance with As depicted on the Transportation Plan, there shall be no interparcel connections between the Property and adjacent properties except for the connection as referenced in proffer #5.b above and as shown on the Transportation Plan a minimum of one (1) inter-parcel access on the Property.~~
- ~~6. The Applicant shall make a monetary contribution to the Prince William Board of County Supervisors in the amount of \$3,057 per multi-family unit, \$4,624 per single family attached~~

Mark-up Proffers (showing all changes)

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~~unit and live/work unit and \$5,264 per single family detached unit constructed on the Property to be used for transportation improvements. The proffered monetary contributions shall be applied to capital projects in the area of the subject rezoning that are identified in the Capital Improvement Program, 6-year road plan or other capital improvements projects adopted by the Board. The Board may also budget and appropriate these contributions or portion thereof to other specific capital projects. Said contribution shall be paid in a lump sum prior to and as a condition of the approval of the first Final Subdivision/Site Plan and shall be based on the total number and types of units approved on the Preliminary Plan. In the event the actual number of units constructed on the Property is different than the number approved on the Preliminary Plan and for which said contribution is paid, the County shall reimburse the Applicant in the amount of the contribution paid for units not constructed or the Applicant shall make an additional contribution to the County in accordance with the per unit amount set forth herein for any additional units ultimately constructed on the Property that were not reflected on the Preliminary Plan. Reconciliation of this contribution shall be provided at the time the last final plan for residential units is filed with the County.~~

~~7. If during the course of development of the Property, it is determined by the operator of the intra- or inter-County bus system that the Property is an appropriate location for a bus stop, the Applicant shall construct a bus shelter on the Property conforming to the applicable transit company standards at a location acceptable to the Applicant and to the bus system operator for the use of the patrons of the bus system. The Applicant shall contact a representative of the applicable transit company at the time a preliminary plan is filed to determine whether a bus shelter shall be located on the Property and, if so, the appropriate location shall be identified on the applicable final plan.~~

5. ~~8.~~In the event a hotel use is located on the Property and if requested by the Prince William County Department of Public WorksTransportation ("PWCDOT"), the Applicant shall provide an updated Traffic Impact Analysis (TIA) to determine impacts, if any, associated with such use and shall provide, in consultation with the Department of Public WorksPWCDOT, measures to mitigate such impacts.

USES AND SITE DEVELOPMENT

6. ~~9.~~Development of the Property will be in substantial conformance with the Master Zoning Plan. The exact boundaries and acreage of each Landbay-Land Bay within the respective zoning districts may be increased or decreased at the time of site plan/subdivision, not to exceed ten percent (10%) of the gross area of the larger Land Bay impacted by each such change.

Mark-up Proffers (showing all changes)

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10. ~~The maximum number of residential units constructed on the Property shall not exceed 532 units, inclusive of the live/work units.~~
11. ~~A minimum of twelve (12) live/work units shall be constructed on the Property, said units to be located in Land Bay H. For purposes of interpreting this proffer, the "live/work" units will have the following design and use characteristics:~~
- a. ~~Units shall be a minimum of three (3) stories in height.~~
 - b. ~~Floors above the ground level shall be reserved for residential uses.~~
 - c. ~~At least 50% of the ground floor shall be reserved for nonresidential uses as described below; the balance of the ground floor may be used for residential purposes, including garage and stairwell serving the residential uses on the upper floors.~~
 - d. ~~Non-residential and residential access shall be separate from each other, but both entrances may be on the same side(s) of the building.~~
 - e. ~~The first floor will be constructed to standards necessary to accommodate the home occupation uses listed herein below.~~
 - f. ~~Permitted uses shall include any of the following:~~
 - (1) ~~Administrative offices of business and/or trade.~~
 - (2) ~~Arts and crafts activities.~~
 - (3) ~~Baking/catering (off premise service).~~
 - (4) ~~Beauty salon (no tanning or toning equipment).~~
 - (5) ~~Clerical/secretarial activities.~~
 - (6) ~~Day-time adult care (no more than five (5) adults not residing in the home).~~
 - (7) ~~Diaper/laundry service.~~
 - (8) ~~Floral design.~~
 - (9) ~~Interior design/decorating.~~
 - (10) ~~Jewelry, watch, clock repair; engraving; locksmith; eyeglass; framing; dentures.~~
 - (11) ~~Maid services (off premise).~~
 - (12) ~~Nail sculpture, manicurist.~~
 - (13) ~~Offices of a physician, therapist (including psychological, physical, and/or massage), dentist, lawyer, accountant, engineer, architect, desktop publishing (or similar professional).~~
 - (14) ~~Pet grooming.~~
 - (15) ~~Photography.~~
 - (16) ~~Picture framing.~~
 - (17) ~~Scissors, saw, blade sharpening.~~
 - (18) ~~Seamstress, tailoring, upholstery activities.~~

Mark-up Proffers (showing all changes)

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~~(19) Small electronics repair.~~

~~(20) Tutoring, education or training (no more than five children or two adults at any one time).~~

7. ~~12. The uses located in Land Bays F and I shall be~~ The uses located in Land Bay J shall be limited to primarily employment and office uses. For purposes of this proffer, employment uses in Land Bay J shall include the following: assisted living, data and computer services; medical and dental offices or clinics; offices; brokerages; professional services such as lawyers, engineers, accountants; financial institutions, research and development (non-hazmat); business, professional and trade schools, colleges and university; trade or convention center, business equipment sales and servicing; packaging center; artist and photographer studios; art galleries; civic clubs; governmental agencies; and other uses as determined by the Planning Director and the Director of Economic Development to be bona fide employment uses and/or whose primary customers are businesses, consistent with the goals of the Economic Development Plan. This restriction shall not preclude first floor secondary retail uses in multi-story buildings, with the primary uses being employment related.

8. ~~13. Notwithstanding the use restrictions set forth in proffer #12-Proffer 7 above, the Applicant shall also have the right to construct a hotel and related ancillary and accessory uses and a maximum of two (2) freestanding full service restaurants in Land Bays F and I.~~

~~14. Phasing. The first phase of development of the Property shall include the uses, transportation improvements and amenities as set forth herein below.~~

~~a. Construction of the Prince William Parkway improvements as set forth in proffer #1.c above.~~

~~b. Construction of Asdee Lane improvements as set forth in proffer #2 above.~~

~~c. Construction of the loop entrance road from Prince William Parkway to the office building located at the northern end of Land Bay G.~~

~~d. Construction of the park/plaza area, including landscaping and amenities substantially as shown in the Design Guidelines.~~

~~e. Construction of the office building, or portion thereof, at the northern end of the park/plaza area (Land Bay G), as shown on the Illustrative Concept Plan. Said building shall contain a minimum of 30,000 square feet gross floor area (gfa) of office space. The Applicant shall have the right to construct additional office and employment uses~~

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~~as defined in these proffers and a hotel use on the Property at any time.~~

~~f. For purposes of interpreting this proffer, final plans for the uses and improvements set forth in subparagraphs a-e above shall be submitted and processed prior to or simultaneously with plans for any residential uses on the Property. Construction of all of the uses and improvements identified in subparagraphs a-c above shall be completed prior to the issuance of a building permit for the 101st residential unit on the Property and construction of the uses and improvements identified in subparagraphs d and e above shall be completed prior to the issuance of a building permit for the 190th residential unit on the Property. Completion of construction shall be interpreted to mean a building under roof with the exterior building skin in place and, in the case of road improvements, said improvements shall be completed and open for public use subject to reasonable traffic control measures to accommodate ongoing development of the Property.~~

9. ~~15.~~ All buildings located in Land Bays F and I Bay J shall be a minimum of two (2) stories in height with the exception of any freestanding full service restaurant(s) located in said land bays. In addition, the buildings constructed in the corners of Land Bays F and I Bay J along the Prince William Parkway frontage of said Land Bays Bay shall be a minimum of three (3) stories in height, with a maximum height of 60 feet.

COMMUNITY DESIGN

10. ~~16.~~ All development on ~~the PMR and PMD portions of~~ the Property shall be in substantial conformance with the design concepts and details set forth in the Design Guidelines. Modifications to the Concept Plan shall be permitted at the time of final engineering and design as required by the US Army Corp of Engineers (COE"USACE") and Department of Environmental Quality (DEQ"DEQ") in connection with the issuance of required permits by said agencies. Such changes shall be coordinated with the Planning Director, or his designee, to ensure that the integrity of the overall site design is not compromised. Compliance with ~~proffer #17 shall be demonstrated with the filing of the site plan for said park/plaza area.~~ Compliance with the architectural, design and building material controls identified in proffers proffer #18 and #19-11 shall be demonstrated with the submission to the Planning Office of building elevations prior to the issuance of the building permit release letter by the Planning Office for the affected buildings.

- ~~17. The park/plaza area located in Land Bay G shall be developed with a plaza area with specialty paving and seating, landscaping, a pond/water feature, and an amphitheater or other type of space/features suitable for community activities as approved by the Planning Director, all in~~

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~~substantial conformance with the design features as contained in the Design Guidelines. Notwithstanding, the pond/water feature may be enlarged in a manner that results in the elimination of the amphitheater.~~

11. ~~18.~~A coordinated architectural design theme shall be utilized in the development of Land Bays ~~F and I~~. The exterior of all structures shall be composed primarily of brick, glass, architectural pre-cast concrete, hardi-type siding or panels, job-cast architectural concrete or stone. Other similar materials may be used as approved by the Planning Director, or his designee, but in no event shall buildings with metal channel siding be allowed.
- a. ~~19.~~If the Property is developed for an assisted living use, as defined in the Prince William County Zoning Ordinance, the building shall be in substantial conformance with the building elevations shown on Illustrative Building Perspectives. Modifications shall be permitted to the building features such as, but not limited to, the number, location and dimensions of windows, doors, number of building stories and other architectural features and details provided the overall design concept is maintained. Significant changes to the architecture and/or materials must be approved by the Planning Director prior to the issuance of the building permit release letter. Compliance with this proffer shall be evidenced with the submission to the Planning Office of architectural construction plan drawings at least two weeks prior to the issuance of the building permit release letter.
12. In the event a hotel is constructed in Land Bay ~~F or I~~, such use shall utilize materials and a design characteristic of a hotel, however, the design shall incorporate common elements of design and features utilized in other buildings ~~in Land Bays F and I, within Reid's Prospect.~~
- ~~20.~~ ~~The Applicant shall create covenants, conditions and restrictions to coordinate development within the Property, which include such items as architectural controls, signage, building materials, lighting and landscaping. Further, the Applicant shall establish an association or multiple associations (residential and nonresidential) charged with responsibility to oversee the on-going management and maintenance of the Property, including landscaping and maintenance of common areas, community/public use space and private streets. Notwithstanding the above, Land Bay C shall not be subject to said covenants, conditions and restrictions or said association.~~
13. ~~21.~~A uniform sign program shall be implemented for the Property and shall be in substantial conformance with the parameters set forth in the Design Guidelines and as set forth below. Comprehensive sign plans for the residential and non-residential components of the project shall be submitted to the County with the first final plan for each such use.

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- ~~a. All freestanding signs shall be monument type and have a style and color compatible with the architectural design of the overall development. Said signs shall not exceed ten feet (10') in height.~~
- a. In the event an assisted living facility is constructed on the Property, the freestanding sign shall be in general conformance with signage shown on the Illustrative Entry Feature. Said sign shall not exceed twelve feet (12') in height.
- b. Project identification signs, which include the commercial and residential development, may be incorporated into a landscape/entrance feature at the entrances to the Property on Prince William Parkway ~~and Asdee Lane.~~
14. ~~22.~~ Applicant shall provide a pedestrian network linking the residential uses with the nonresidential uses constructed on the Property in ~~substantial~~general conformance with the pedestrian network as shown on the ~~Green Space and Amenities Plan in the Design Guidelines~~Transportation Plan. The pedestrian connections may vary in size but shall be a minimum of four feet in width. All pedestrian links shall consist of materials appropriate to serve their function and the character of the area, and shall be designed and shown on the final site plan for each phase or section, and shall be constructed at the time the respective land bay is developed.
15. ~~23.~~ The Applicant shall provide a streetscape along the Prince William Parkway frontage of the Property, said streetscape to be in ~~substantial~~general conformance with the ~~streetscape/buffer planting scheme set forth in the Design Guidelines, which shall be implemented at the time of development of the adjacent land bays~~Open Space & Buffer Plan. The streetscape shall be shown on the final site plan for ~~each portion of~~ the Property ~~adjacent to the Parkway as it is developed.~~
- a. ~~24.~~In the event an assisted living facility is constructed on the Property, landscaping shall be in general conformance with the Illustrative Variable Width Buffer exhibit.
16. Landscaping provided on the Property shall ~~include~~emphasize, but not be limited to, native and indigenous species appropriate to the location and climate of the area.
17. ~~25.~~ All freestanding parking lot lights located in Land ~~Bays F, G, H and I~~Bay J shall have a maximum height of twenty-four feet (24') and shall have fixtures which direct light downward and inward, all such lighting to be shown on final plans. In addition, all building-mounted lighting, if any, shall be directed or shielded in such a manner to prevent glare from projecting onto adjacent properties or public rights of way.

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- ~~26. All freestanding parking lot lights located in Land Bays A-E shall have a maximum height of sixteen feet (16') and shall have fixtures which direct light downward and inward, all such lighting to be shown on final plans. In addition, all building-mounted lighting, if any, shall be directed or shielded in such a manner to prevent glare from projecting onto adjacent properties or public rights of way.~~
- ~~27. If permitted by the Department of Public Works, all required intersection lighting at all entrances to the Property on Asdee Lane shall be an acorn style fixture as shown on page 34 of the Design Guidelines.~~
- ~~28. The residential units constructed in Land Bay C shall be of a similar design and size as the residential dwellings located in the adjoining section of Westridge. Compliance with this proffer shall be demonstrated with the submission to the Planning Office of building elevations prior to the issuance of the building permit release letter by the Planning Office for Land Bay C.~~
18. ~~29.~~ All existing and new utilities on the Property, including the existing overhead utilities within the right-of-way of Prince William Parkway along the frontage of the Property, if any, shall be placed underground. However, the utility pole closest to the intersection of Prince William Parkway and Laurel Hills Drive shall remain above ground.
19. ~~30.~~ The Applicant shall construct an eight a ten foot (810) high board on board non-white vinyl fence within the 75-ft. buffer area located along the eastern property boundary adjacent to the Laurel Hills residential uses. Said fence shall be constructed generally at the limits of clearing as said limits of clearing are shown on the Open Space/Buffer Plan. in the general area as shown on the MZP.
- ~~31. The Applicant shall continue the brick pier and metal fence treatment provided along the Prince William Parkway frontage of the Property and as shown on page 32 of the Design Guidelines along the Asdee Lane frontage of the Property extending from the intersection of Asdee Lane and Prince William Parkway to the northernmost entrance to the Property. Said wall/fence treatment shall be located within the perimeter buffer along the Asdee Lane frontage of the Property.~~
- ~~32. The fifty-foot (50') wide buffer located along the Asdee Lane frontage between the 2nd and 3rd entrances to the Property shall be planted in accordance with the Type C buffer planting standard.~~

Mark-up Proffers (showing all changes)

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- ~~33. The rear façade of all single family attached units that face directly onto Asdee Lane shall include at a minimum the following architectural features:~~
- ~~a. All rear facades and side facades of end units shall be brick~~
 - ~~b. Shutter treatments shall be provided on windows above the first floor~~
 - ~~c. 1" x 10" wide fascia boards with dental molding shall be provided along the roof line~~
- ~~34. The Applicant shall make a monetary contribution to the Prince William Board of County Supervisors in the amount of \$30,000 to be used for median plantings along the Prince William Parkway between Old Bridge Road and Hoadly Road. Said contribution shall be paid by March 1, 2005.~~

PARKS AND RECREATION

- ~~35. The Applicant shall provide on-site recreational amenities for the residential development consisting at a minimum of a 25-meter swimming pool with bathhouse, a multi-purpose and/or tennis court and one (1) tot lot. The swimming pool and bathhouse shall be located in the general location as shown on the Concept Plan in the Design Guidelines. The location of the tennis/multi-purpose court and tot lot shall be determined at the time of Preliminary Plan. The bathhouse shall be constructed as a two-story building with community meeting space or other amenities provided in the second floor space.~~
- ~~36. The Applicant shall make a monetary contribution to the Prince William Board of County Supervisors in the amount of \$1,657 per multi-family unit, \$2,441 per single family attached unit and live/work unit and \$2,756 per single family detached unit to be used for parks and recreation facilities. Said contribution shall be paid prior to and as a condition of the issuance of a building permit for each said unit constructed on the Property.~~
- ~~37. The Applicant shall make a monetary contribution to the Prince William Board of County Supervisors in the amount of \$800,000 to be used for the construction of the plaza improvements at the Government Center expansion. Said contribution shall be made prior to and as a condition of the issuance of the building permit release letter for the first residential unit constructed on the Property.~~
- ~~38. The Applicant shall make a monetary contribution to the Prince William Board of County Supervisors in the amount of \$200,000 to be used for park and recreation purposes. Said contribution shall be paid by April 15, 2005.~~

Mark-up Proffers (showing all changes)

PROFFER AMENDMENT STATEMENT

REZ2019-00024, Hawthorn Retirement Residence at Reid's Prospect

Plaza Land L.P.

October 25, 2019

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ENVIRONMENTAL

20. ~~39.~~The Applicant shall make a monetary contribution to the Prince William Board of County Supervisors in the amount of \$75.00 per acre for water quality studies. Said contribution shall be paid prior to and as a condition of the approval of each final site/subdivision plan and shall be based on the acreage reflected on each such approved plan.
21. ~~40.~~Conservation Areas. Within those portions of the Property identified as "Conservation Area" on the Open Space/& Buffer Plan, vegetation shall be preserved, subject to disturbance for: (a) the installation and maintenance of water line crossings, sanitary sewer crossings, drainage crossings, other utility crossings and pedestrian trail(s); (b) the installation of fencing; (c) the installation of such additional landscaping as may be approved by the County; and (~~ed~~) the removal of noxious vegetation, such as poison ivy, poison oak, etc., as well as dead, dying, or hazardous trees or dead or dying shrubbery, at the option of the landowners. Said conservation areas may be located on lots, provided that covenants are recorded against any such lots prohibiting the removal of any trees within said conservation area.
- ~~41.~~—~~The Applicant shall preserve the specimen trees in the locations shown on the Open Space/Buffer Plan, to the greatest extent feasible, provided, however, that the Applicant shall not be required to preserve the tree if a retaining wall higher than 4 feet is required. The Applicant shall take appropriate protective measures during development of the Property to help ensure preservation of said trees. By way of example and not limitation, such protective measures may include the services of a professional arborist, installation of protective fencing at the drip line of the tree and trimming/pruning of the tree. Said tree and associated save area may be located on a lot, provided that covenants are recorded against any such lots prohibiting the removal of said tree. This proffer shall not prohibit the removal of said tree if it should die or become damaged or hazardous or threaten surrounding residences. Details of applicable tree preservation measures shall be shown on the final site/subdivision plans for those portions of the Property where specimen trees are located.~~
- ~~42.~~—~~The Applicant shall provide a wet pond for stormwater management/BMP purposes in the general location as shown as "Water Feature" on the Open Space/Buffer Plan. The landscaping for such pond shall utilize wetland benches for emergent vegetation, shrubs, ornamental trees and shade trees.~~

LIBRARIES

- ~~43.~~—~~The Applicant shall make a monetary contribution to the Prince William Board of County~~

Mark-up Proffers (showing all changes)

PROFFER AMENDMENT STATEMENT

REZ2019-00024, Hawthorn Retirement Residence at Reid's Prospect

Plaza Land L.P.

October 25, 2019

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~~Supervisors in the amount of \$224 per multi-family unit, \$330 per single family attached unit and live/work unit and \$375 per single family detached unit to be used for library facilities. Said contribution shall be paid prior to and as a condition of the issuance of a building permit for each said unit constructed on the Property.~~

FIRE & RESCUE

22. ~~44.~~The Applicant shall make a monetary contribution to the Prince William Board of County Supervisors in the amount of ~~\$346 per multi-family unit, \$509 per single family attached unit and live/work unit and \$578 per single family detached unit to be used for fire and rescue services and facilities. Said contribution shall be paid prior to and as a condition of the issuance of a building permit for each said residential unit constructed on the Property.~~~~45.~~The Applicant shall make a monetary contribution to the Prince William Board of County Supervisors in the amount of ~~\$0.38-0.61~~ per square foot of gross floor area of nonresidential space constructed on the Property to be used for fire and rescue services and facilities. Said contribution shall be paid prior to and as a condition of the issuance of a building permit for nonresidential uses constructed on the Property.

~~46.~~ In the event any single family detached residential units are constructed with a building separation of less than twenty feet (20'), said residential units shall incorporate a one hour fire rated exterior wall in one of the two facing buildings or alternative fire suppression measure as approved by the Fire Marshal.

23. Sprinkler System: In the event an assisted living facility is constructed on the Property, the building shall be fully fire sprinklered including a dry system in the attic.

SCHOOLS

~~47.~~ Applicant shall make a monetary contribution to the Prince William Board of County Supervisors in the amount of ~~\$3,492 per multi-family unit \$7,973 per single family attached unit and live/work unit and \$8,287 per single family detached unit to be used for school purposes. Said contribution shall be made on a per unit basis prior to and as a condition of the issuance of a building permit for each said unit constructed on the Property.~~

AFFORDABLE HOUSING

~~48.~~ Applicant shall make a monetary contribution to the Prince William Board of County Supervisors in the amount of ~~\$250 per residential unit for the Housing Preservation and Development Fund. Said contribution shall be made on a per unit basis prior to and as a~~

Mark-up Proffers (showing all changes)

PROFFER AMENDMENT STATEMENT
REZ2019-00024, Hawthorn Retirement Residence at Reid's Prospect
Plaza Land L.P.
October 25, 2019
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~~condition of the issuance of a building permit for each unit constructed on the Property.~~

WATER AND SEWER

24. ~~49.~~ The Property shall be served by public sanitary sewer and water and the Applicant shall be responsible for the costs and construction of those on and off-site improvements required in order to provide such service for the demand generated by the development on the Property.
25. ~~50.~~ Acceptance and approval of this rezoning application by the Board of County Supervisors authorizes the location and provision of those public uses and facilities specifically referenced on the Master Plan, Transportation Plan, in this proffer statement, and the extension and construction of water and sewer lines and facilities and roads necessary to serve this property pursuant to the Virginia Code Section 15.2-2232 and the Prince William County Code Section 32-201.13.1. The general area of location of these uses and facilities are as shown on the Transportation Plan with the exact locations to be determined based on final engineering and as approved by Prince William County.

CULTURAL RESOURCES

- ~~51. In the event the existing cemetery on the Property is not relocated, said cemetery shall be protected with a fence and twenty-five foot (25') wide buffer around the perimeter of said cemetery. Pedestrian access shall be provided to said cemetery.~~
- ~~52. The Applicant shall retain a qualified professional archeologist to perform a Phase I cultural resource investigation as defined by the Virginia Division of Historic Landmarks for the Property. A report documenting the results of the survey shall be submitted to the Planning Director no later than with the submission of the preliminary plan for development on the Property. In the event the findings of the Phase I study indicate that sufficient further investigation is warranted to justify a Phase II or Phase III investigation with reference to specific locations and/or resources on the Property, the Applicant shall conduct such Phase II and/or Phase III investigation in connection with such sites and resources to the extent that they are located on the Property prior to and as a condition of final plan approval for the affected areas.~~

MISCELLANEOUS

- ~~53. The Applicant shall make a monetary contribution to the Prince William Board of County Supervisors in the amount of \$100,000 to be used for the construction and maintenance of the memorial for the Prince William County victims of September 11, 2001 (Liberty Memorial).~~

Mark-up Proffers (showing all changes)

PROFFER AMENDMENT STATEMENT

REZ2019-00024, Hawthorn Retirement Residence at Reid's Prospect

Plaza Land L.P.

October 25, 2019

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~~Said contribution shall be paid six (6) months after Final Rezoning of the Property by the Board of County Supervisors as requested by the Applicant. "Final Rezoning", as the term is used herein, shall be defined as that zoning which is in effect on the day following the last day upon which the Prince William Board of County Supervisors' decision granting the rezoning may be contested in the appropriate court or, if contested, the day following entry of a final court order affirming the decision of the Board of Supervisors which has not been appealed, or if appealed, the day following which the decision has been affirmed on appeal.~~

26. ~~54.~~ In the event the monetary contributions set forth in ~~the~~this Proffer Amendment Statement are paid to the Prince William County Board of County Supervisors ("Board") within eighteen (18) months of the approval of this rezoning, as applied for by the Applicant, said contributions shall be in the amounts as stated herein. Any monetary contributions set forth in this Proffer Statement which are paid to the Board after eighteen (18) months following the approval of this rezoning shall be adjusted in accordance with the Urban Consumer Price Index ("CPI-U") published by the United States Department of Labor, such that at the time contributions are paid they shall be adjusted by the percentage change in the CPI-U from that date eighteen (18) months after the approval of this rezoning to the most recently available CPI-U to the date the contributions are paid, subject to a cap of 6 percent (6%) per year, noncompounded.

27. ~~In the event an assisted living facility is constructed on the Property, the Applicant shall notify the Lake Ridge Occoquan Coles Civic Association/Planning, Environment, Land-Use and Transportation Committee (LOCCA/PELT) and Laurel Hills Community (those residents that live off of Laurel Hills Drive) in writing and make itself or a representative available for a joint meeting, in connection with the site plan review. Said meeting shall be for courtesy review purposes only and copies of the correspondence offering to meet and/or the agenda shall be provided to the County prior to site plan approval to evidence compliance with this proffer.~~

28. ~~In the event an assisted living facility is constructed on the Property, the Applicant shall prepare an Emergency Response Plan for the facility and provide a copy to the Prince William County Department of Social Services prior to issuance of an occupancy permit.~~

WAIVERS/MODIFICATIONS

~~55. Waiver of the applicable requirements set forth in the Zoning Ordinance and Sections 601.04.C and 602.13 of the DCSM in order to allow a private road network for the Property. Said private road system shall be designed and constructed to County and VDOT standards as modified by the Private Street Standards to allow the design concept of the project as set forth in the Design Guidelines, or as may be dictated by the Department of Public Works or Fire Marshal's office to satisfy minimum safety requirements relative to turning radii and sight distance.~~

Mark-up Proffers (showing all changes)

PROFFER AMENDMENT STATEMENT

REZ2019-00024, Hawthorn Retirement Residence at Reid's Prospect

Plaza Land L.P.

October 25, 2019

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- ~~56. Waiver of Sections 602.06A and 602.06I of the DCSM to reduce the spacing between entrances/access to the Property on Prince William Parkway and Asdee Lane as generally shown on the Transportation Plan.~~
29. 57. In accordance with Section 32-250.23 of the Zoning Ordinance, modification of Sections 32-250.24 Schedule B of the Zoning Ordinance to allow for a freestanding monument sign and entry feature as generally shown on Sheet 3 of the "Illustrative Site Package," prepared by Lenity Architects dated July 8, 2019.
- ~~58. Waiver of the secondary use requirement in the PMR district in light of the immediately adjacent commercial/office uses included in this application on the adjoining PMD zoned portion of the Property.~~
- ~~59. Modification of Section 32-306.12 of the Zoning Ordinance to allow the modified housing types and associated development standards as set forth in the Design Guidelines.~~
30. Modification of Sections 32-250.31, 250.33, 32-250.32, 280.14, 280.21 (7) and 306.12(4) 32-503.12 and 32-800.11 of the Zoning Ordinance and Sections 802.10, 802.11 and 802.12, 802.13, 1003.01 and 1003.02 of the DCSM to waive and modify all internal buffers between uses on the Property, to modify the perimeter buffers and buffers adjacent to roadways along Prince William Parkway, and Laurel Hills Drive and the portion of Asdee Lane adjacent to the commercial uses in accordance with the Open Space/Buffer Plan Design Guidelines and as more particularly described in the Design Guidelines Open Space & Buffer Plan; and to modify the perimeter buffer planting standard along the common boundary with Land Bay C standards to allow existing vegetation to satisfy the planting standard, standards and to allow utilities, easements, and retaining walls greater than three feet (3') within the buffer areas.
31. Waiver of Section 32-250.72 of the Zoning Ordinance and 601.04.I of the DCSM to waive vehicular interparcel connections with surrounding properties consistent with Proffer 3.b.
32. In accordance with Section 32-300.03.2 of the Zoning Ordinance, modification of Section 32-401.14.5 of the Zoning Ordinance to permit a maximum height of 60 feet as outlined in Proffer 7.
33. In accordance with Section 32-400.04.3 of the Zoning Ordinance, modification of Section 32-401.14.4 to allow for a maximum FAR of .86.

Mark-up Proffers (showing all changes)

PROFFER AMENDMENT STATEMENT

REZ2019-00024, Hawthorn Retirement Residence at Reid's Prospect

Plaza Land L.P.

October 25, 2019

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34. Modification of Section 125.01.1.1 of the DCSM to allow the existing overhead utility lines and pole located at the intersection of Prince William Parkway and Laurel Hills Road to remain aboveground as outlined in Proffer 18.

[SIGNATURE PAGE TO FOLLOW]

Mark-up Proffers (showing all changes)

PROFFER AMENDMENT STATEMENT

REZ2019-00024, Hawthorn Retirement Residence at Reid's Prospect

Plaza Land L.P.

October 25, 2019

Page 18 of 18

SIGNATURE PAGE

PLAZA LAND HOLDINGS L.P.

BY: _____

NAME: _____

TITLE: _____

P0948923.DOCX

J:\National Capital Land\Reid's Prospect\Land Use\REZ 2287.2\PROFFER.010.doc

10/26/04

PROFFER AMENDMENT #REZ2019-00024

FOR

HAWTHORN RETIREMENT RESIDENCE AT REID'S PROSPECT

OCCOQUAN MAGISTERIAL DISTRICT
PRINCE WILLIAM COUNTY, VIRGINIA

SUBJECT PROPERTIES REZONED PER #PLN 2000-00041:

(THE FOLLOWING SUBJECT PROPERTIES ARE LOCATED ON THE MAP 4306 (212))

Parcel No.	Submitter/Owner	Area	Category
R193 23-6185	HAPPY L. PROFFER	13.28 AC	A-1
R193 23-6567	STANLEY P. REID	82.29 AC	A-1
R193 23-7100	LESTER A. AND ROBERT D. NITTE	3.81 AC	A-1
R193 23-6387	STANLEY P. REID	1.99 AC	A-1
R193 23-6782	ANNEAL AND CHARL ABER	3.79 AC	A-1
R193 23-6870	STANLEY P. REID	1.70 AC	A-1
R193 23-0797	PLAZA LAND HOLDINGS LP	0.87 AC	A-1
R193 23-0898	PLAZA LAND HOLDINGS LP	22.18 AC	A-1

TOTAL AREA REZONED	126.09 AC
AREA REZONED PUD	94.81 AC
AREA REZONED PMSD	48.48 AC
AREA REZONED R 95	3.80 AC

GENERAL INFORMATION FOR NEPA, SECOND COVER, AND THIRD MAP AT THE END OF MAP 4306 AND TOOLS ONLY SHEETS

PROPERTY SUBJECT TO PROFFER AMENDMENT:

Parcel No.	Submitter/Owner	Area	Category
PORTION OF R193 23-6567	PLAZA LAND HOLDINGS LP	5.428 AC	PMSD



DEVELOPER/APPLICANT
 HAWTHORN DEVELOPMENT LLC
 9310 NE VANCOUVER MALL DRIVE
 SUITE 200
 VANCOUVER, WA 98662
 CONTACT PERSON: KRISTI NEZNANSKI

Sheet List Table

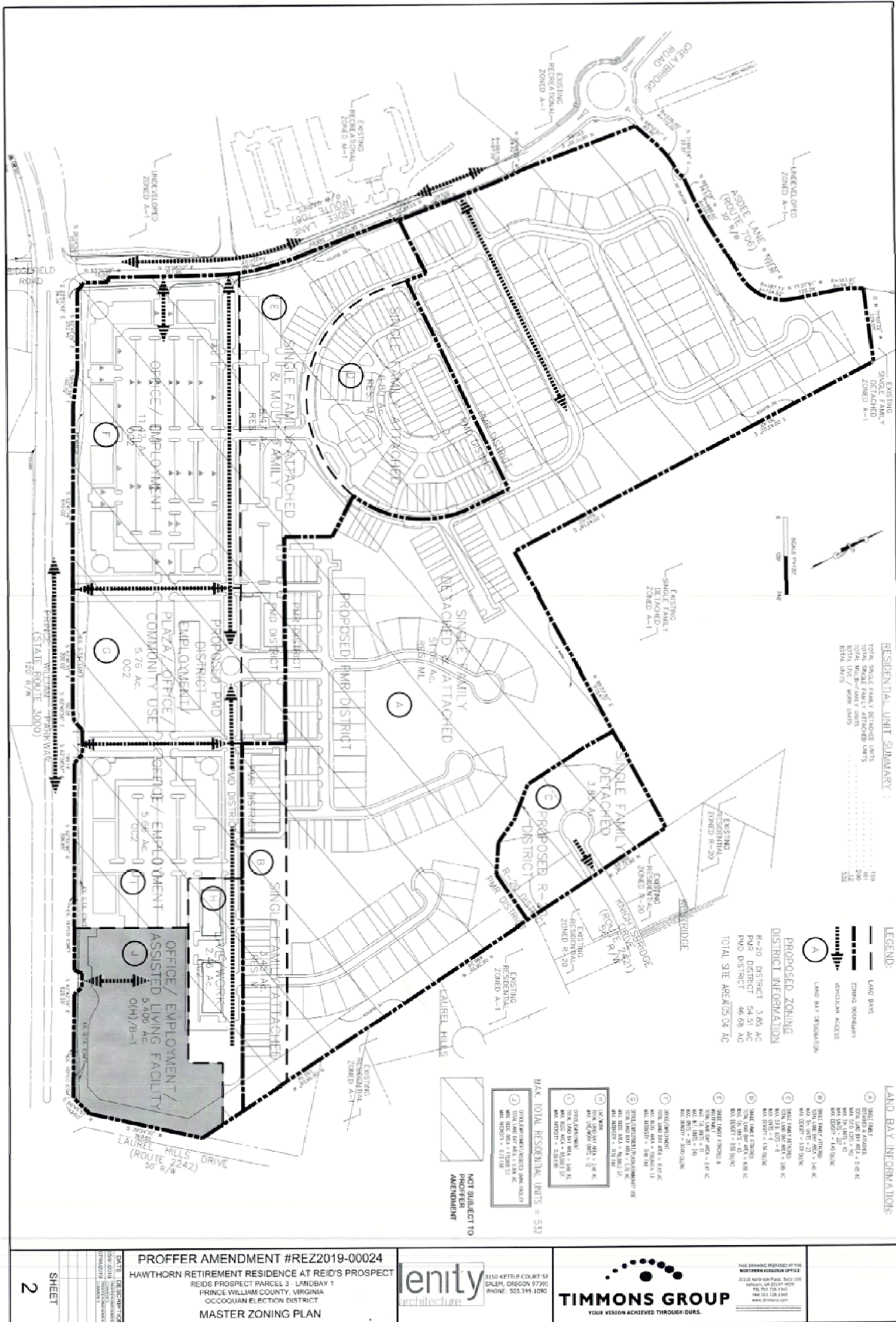
Sheet Number	Sheet Title
1	COVER SHEET
2	MASTER ZONING PLAN
3	ILLUSTRATIVE ASSIGNED-UNITS FACILITY PLAN
4	TRANSPORTATION AND UTILITIES PLAN
5	OPEN SPACE & BUFFER PLAN
TOTAL SHEETS: 5	



PROFFER AMENDMENT #REZ2019-00024
 HAWTHORN RETIREMENT RESIDENCE AT REID'S PROSPECT
 IN THE OCCOQUAN MAGISTERIAL DISTRICT
 PRINCE WILLIAM COUNTY, VIRGINIA
 OCCOQUAN ELECTRIC DISTRICT
 COVER SHEET

DATE:	10/10/2019
BY:	Kristi Neznanski
CHECKED BY:	[Blank]

SHEET
1



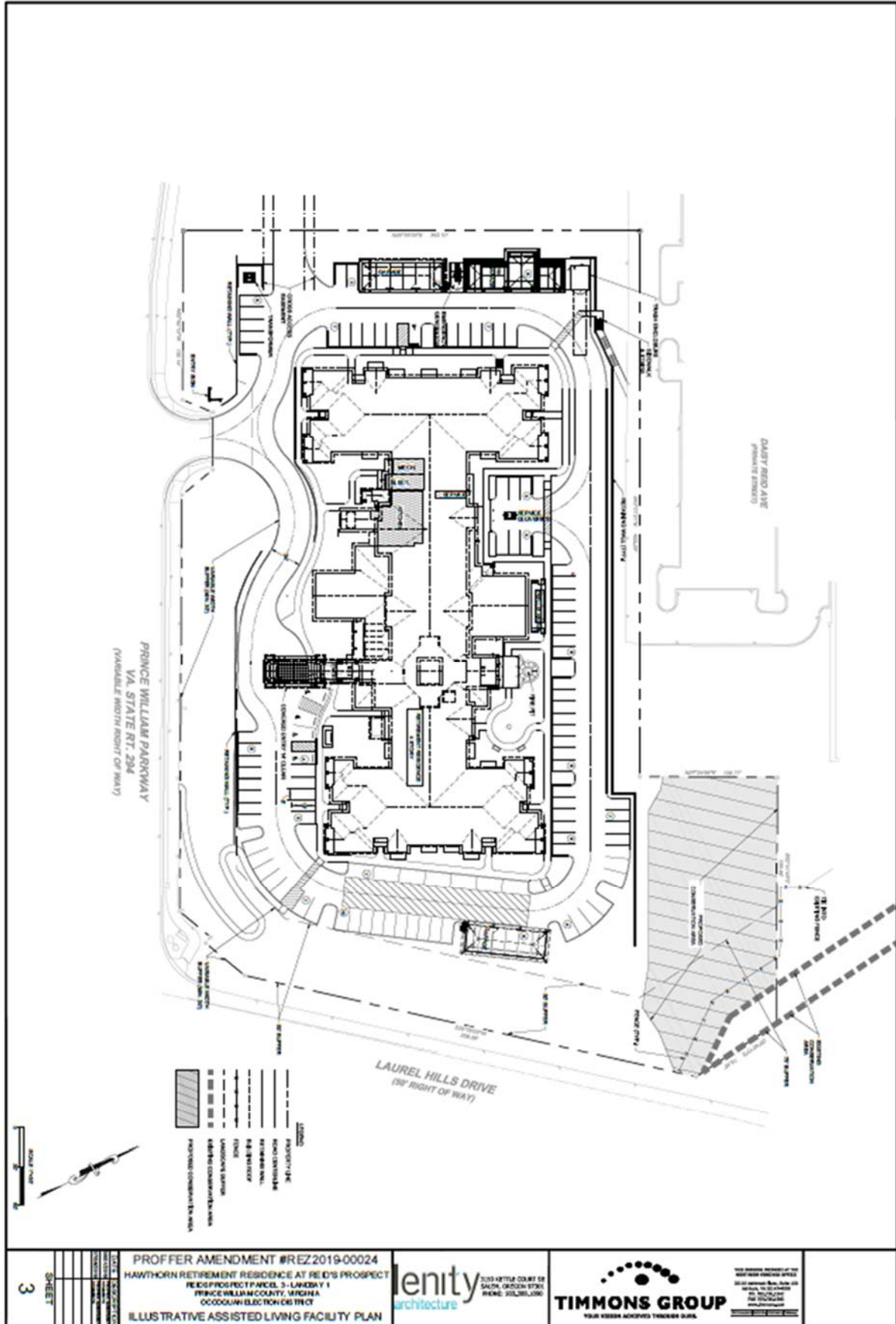
PROFFER AMENDMENT #REZ2019-00024
 HAWTHORN RETIREMENT RESIDENCE AT REID'S PROSPECT
 REID'S PROSPECT PARCEL 3, LANDBAY 1
 FRANK WILLIAMS COUNTY, VIRGINIA
 OCCOQUAN ELECTION DISTRICT
 MASTER ZONING PLAN

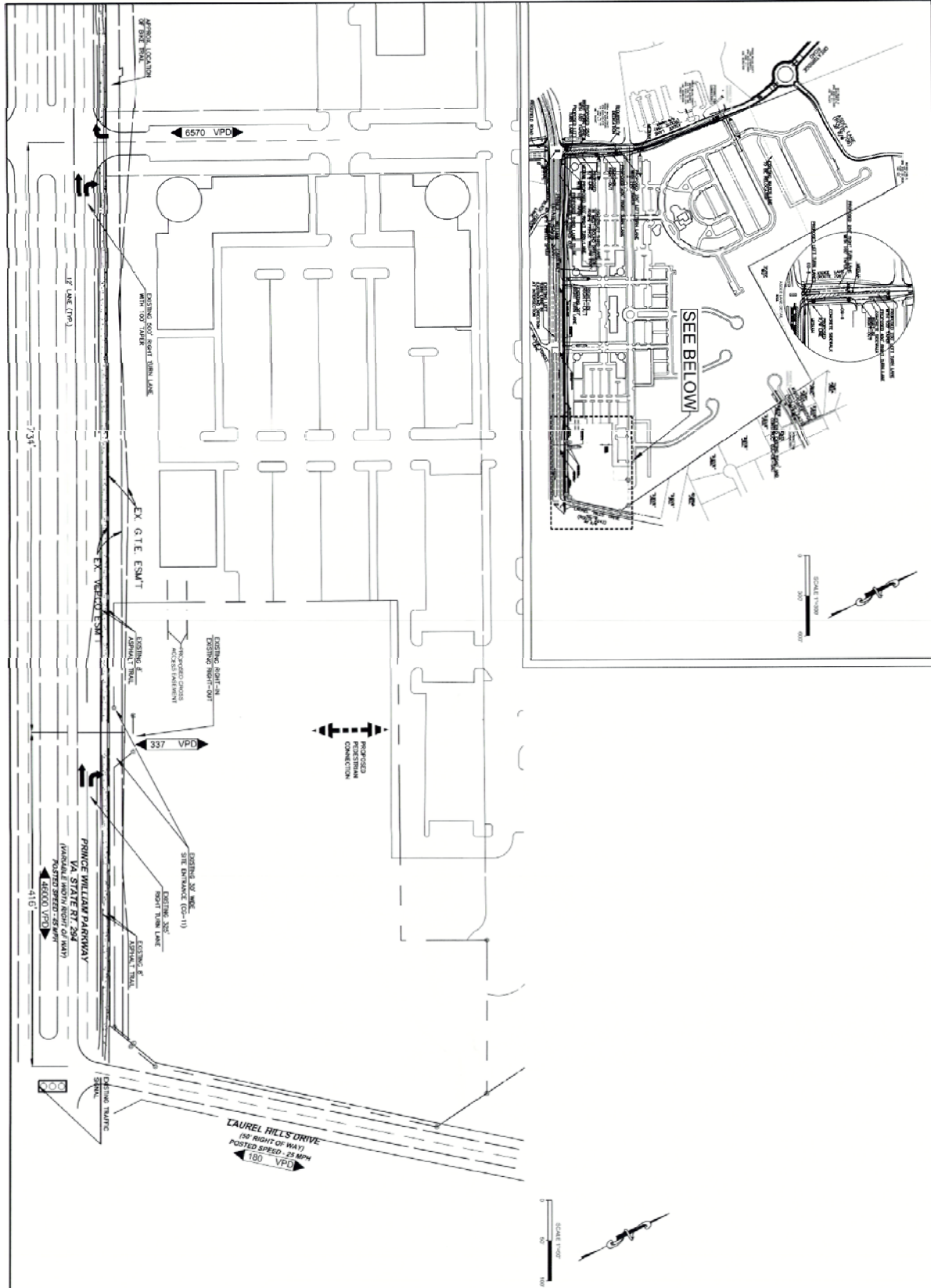
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 architecture

3150 WETLE COURT SE
 SALEM, OREGON 97306
 PHONE: 503.395.1800

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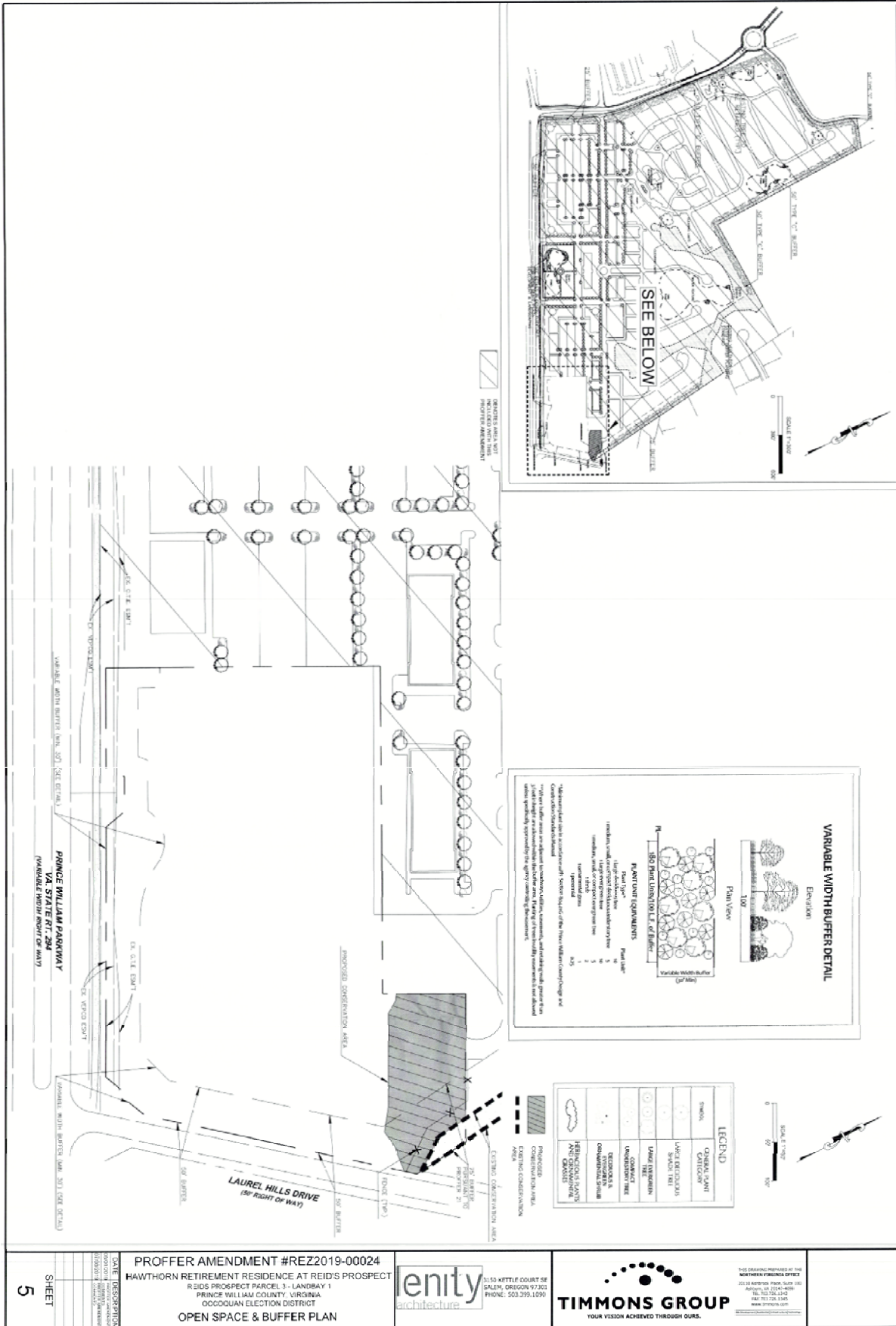
THIS DRAWING PREPARED AT THE
 MULTICOUNTY ENGINEERING OFFICE
 201 E. Ashwood Park, Suite 100
 Ashburn, VA 20147-4079
 TEL: 703.261.1585
 FAX: 703.261.1586
 WWW: 20100101.COM





<p>PROFFER AMENDMENT #REZ2019-00024</p> <p>HAWTHORN RETIREMENT RESIDENCE AT REID'S PROSPECT</p> <p>REID'S PROSPECT PARCEL 3 - LANDBAY 1</p> <p>PRINCE WILLIAM COUNTY, VIRGINIA</p> <p>OCCOQUAN ELECTION DISTRICT</p> <p>TRANSPORTATION AND UTILITIES PLAN</p>		<p>3150 KETTLER COURT SE</p> <p>SALEM, OREGON 97301</p> <p>PHONE: 503.399.3000</p>	 <p>YOUR VISION ACHIEVED THROUGH Ours.</p>
		<p>THIS DRAWING PREPARED BY THE NORTHWEST VIRGINIA OFFICE:</p> <p>27310 MIDWAY PARK, SUITE 100</p> <p>ARCHER, VA 22817-4000</p> <p>TEL: 703.735.2342</p> <p>FAX: 703.735.1961</p> <p>WWW.TIMMONSGROUP.COM</p>	
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SHEET
4



DATE: 11/15/2019
 DRAWN BY: J. WILSON
 CHECKED BY: J. WILSON
 SCALE: 1"=20'

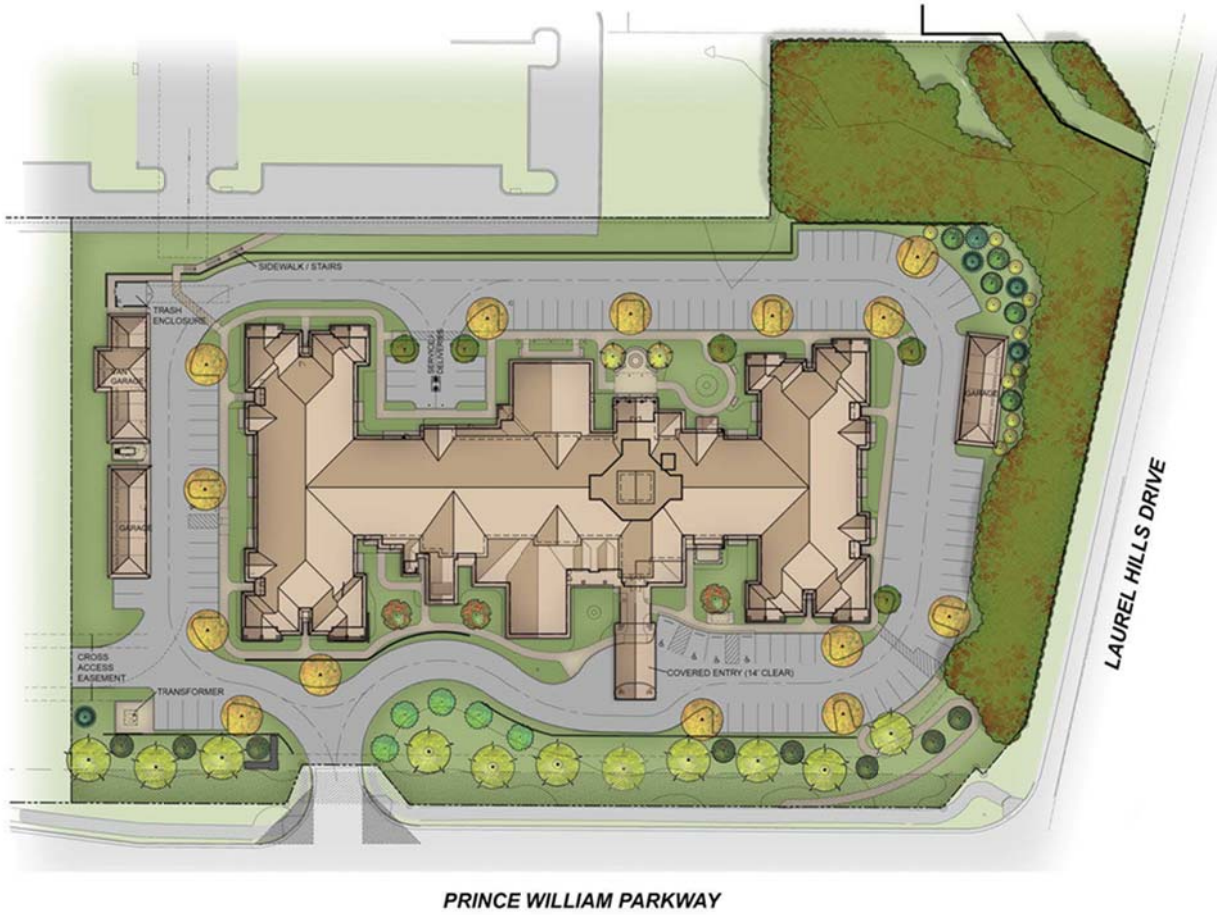
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3155 KETLE COURT SE
 SALEM, OREGON 97302
 PHONE: 503.295.1090

THIS PROJECT IS A PART OF THE
 HAWTHORN VILLAGES DEVELOPMENT

2019 PROSPECT PARCEL 3
 REID'S PROSPECT
 PRINCE WILLIAM COUNTY, VA
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PRINCE WILLIAM PARKWAY

LAUREL HILLS DRIVE

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Illustrative Site Package
Hawthorn Retirement Residence
at Reid's Prospect
Woodbridge, Virginia

Illustrative Site Plan
July 8, 2019
Sheet 1 of 7

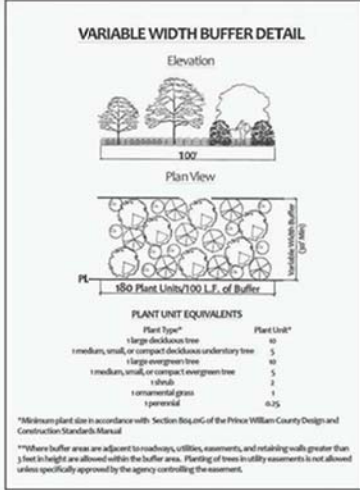
HAWTHORN
RETIREMENT GROUP
8310 NE Vancouver Mall Dr., Suite 200
Vancouver, WA 98662-8710
(360) 213-1300 Fax (360) 213-1340



SCALE: 1" = 40'-0"

LEGEND

SYMBOL	GENERAL PLANT CATEGORY
	LARGE DECIDUOUS SHADE TREE
	LARGE EVERGREEN TREE
	COMPACT UNDERSTORY TREE
	DECIDUOUS & EVERGREEN ORNAMENTAL SHRUB
	HERBACEOUS PLANTS AND ORNAMENTAL GRASSES



Variable Width Buffer Calculations

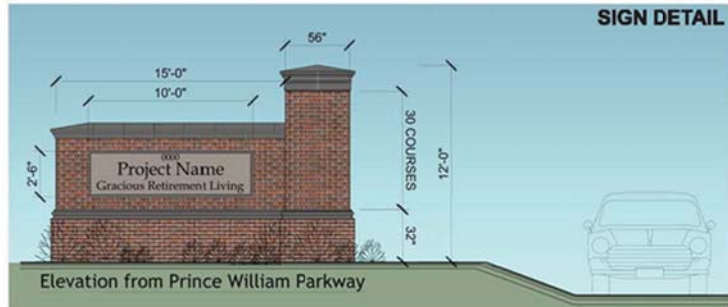
Minimum Buffer Width: 30 feet
 Maximum Buffer Width: varies
 Linear Feet of Buffer Area: 576 linear feet (less 30' driveway)
 Plant Units Required: 180 plant units x 5.46 (546 LF/100 LF) = 983 plant units required

Plant Type	Proposed	Plant Units
Large Deciduous Trees	10	100
Large Evergreen Trees	1	10
Deciduous understory trees	13	65
Shrubs	350	700
Ornamental Grasses	65	65
Perennials	184	46
Total Plant Units:		985

NOTE:
 FINAL PLANT TYPES, PLANT LOCATIONS, BUFFER WIDTHS AND UNIT COUNT TO BE DETERMINED DURING SITE PLAN REVIEW

Planting is proposed near the top of retaining walls. Retaining wall geogrid and tree plantings will be coordinated so that trees and geogrid are not placed so as to create a conflict between the two.

Illustrative Variable Width Buffer
 July 8, 2019
 Sheet 2 of 6



Illustrative
Entry Feature
July 8, 2019
Sheet 3 of 7



Illustrative Building
Front Perspective
July 8, 2019
Sheet 4 of 7

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**Illustrative Site Package
Hawthorn Retirement Residence
at Reid's Prospect
Woodbridge, Virginia**

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**Illustrative Site Package
Hawthorn Retirement Residence
at Reid's Prospect
Woodbridge, Virginia**

Illustrative Building
Right Perspective
July 8, 2019
Sheet 5 of 7

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RETIREMENT GROUP
8310 NE Vancouver Mall Dr., Suite 200
Vancouver, WA 98662-8210
OR 503 213-1550 Fax 503 213-1540



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Illustrative Site Package
Hawthorn Retirement Residence
at Reid's Prospect
Woodbridge, Virginia

Illustrative Building
Back Perspective
July 8, 2019
Sheet 6 of 7

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**Illustrative Site Package
Hawthorn Retirement Residence
at Reid's Prospect
Woodbridge, Virginia**

Illustrative Building
Left Perspective
July 8, 2019
Sheet 7 of 7

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Vancouver, WA 98662-8210
OR01 213-1500 Fax (206) 213-1540



LOOKING WEST @
PRINCE WILLIAM PARKWAY
August 28, 2019
Sheet 3 of 3

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2500 Kettle Court SE, Salem, Oregon 97301
#503 399 1090 #503 399 0565 www.lenityarch.com

Illustrative Line of Sight Exhibit
Hawthorn Retirement Residence
at Reid's Prospect
Woodbridge, Virginia

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#503.399.0960 #503.399.0365 www.lenityarchitecture.com

Illustrative Line of Sight Exhibit
Hawthorn Retirement Residence
at Reid's Prospect
Woodbridge, Virginia

LOOKING EAST @ PRINCE WILLIAM PARKWAY August 28, 2019 Sheet 2 of 3

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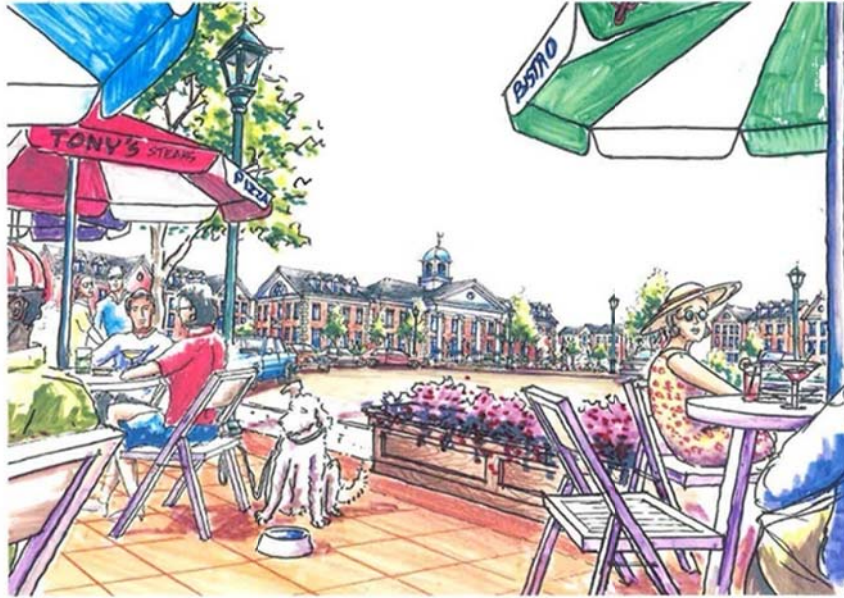
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Illustrative Line of Sight Exhibit
Hawthorn Retirement Residence
at Reid's Prospect
Woodbridge, Virginia

LOOKING TO DRIVE @ PRINCE WILLIAM PARKWAY August 28, 2019 Sheet 1 of 3

HAWTHORN
RETIREMENT GROUP



APPROVED
 PROFFER/DEVELOPMENT PLAN
Thomas Burnagone
 Signed
 10/26/2004
 Date
 OFFICE OF PLANNING

Pa # Plan 2000-00041
 REVISED SUBMISSION
 RECEIVED
 OCT 15 2004
 72

DEVELOPER:
 National Capital Land and Development Co
 13662 Office Place, Suite 201B
 Woodbridge, VA 22192
 Voice: (703) 580-8419
 Fax: (703) 580-8230

DESIGN GUIDELINES

REID'S PROSPECT

PRINCE WILLIAM COUNTY, VIRGINIA

August 2004
 Revised : September 2004

ARCHITECT / LANDSCAPE ARCHITECT:
 Lessard Architectural Group
 8603 Westwood Center Drive
 Suite 400
 Vienna, Virginia 22182
 Voice: (703) 760-9344

ENGINEER:
 The Engineering Groupe, Inc.
 Village Square
 13625 Office Place, Suite 101
 Woodbridge, VA 22192
 Voice: (703) 670-0985
 Fax: (703) 670-7769

ATTORNEY:
 Walsh, Colucci, Lubeley, Emrich & Terpak PC
 Glen Park I
 4310 Prince William Parkway
 Prince William, Virginia 22192-4216
 Voice: (703) 680-4664
 Fax: (703) 680-6067

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Community Patterns

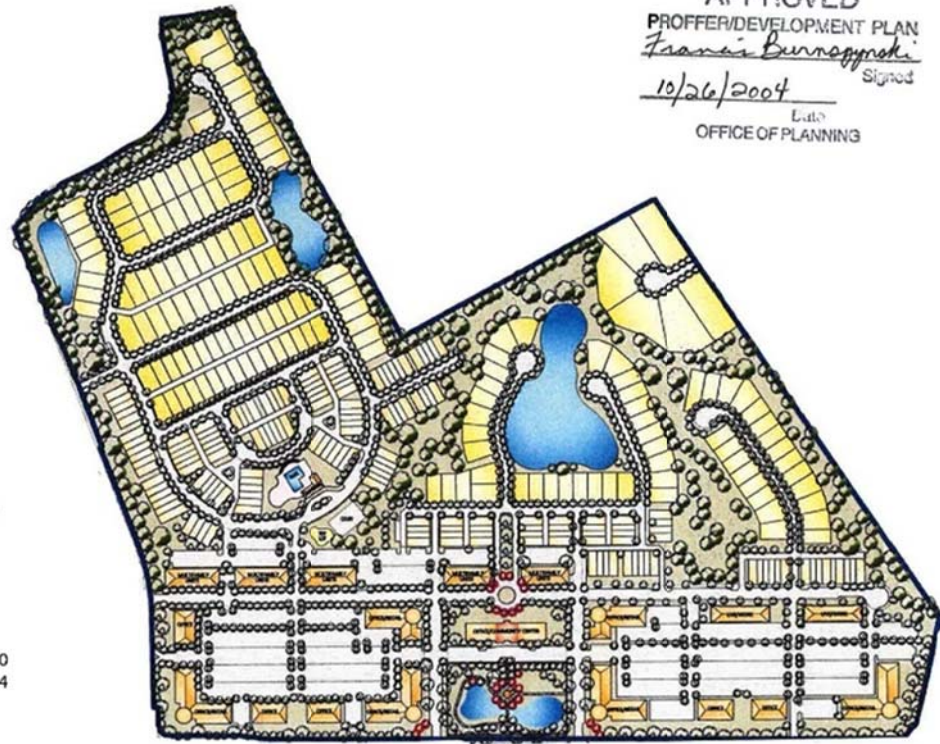
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INTRODUCTION:

National Capital Land and Development Company is the contract purchaser of a significant and unique assemblage of eight (8) parcels of land, consisting of approximately 105 acres, located adjacent to the Prince William Government Center along Prince William Parkway. Reid's Prospect's location & size lend itself to becoming a vibrant part of the community. The Property currently has a long-range land use plan classification of Community Employment Center - County Center (CEC-CC), which includes, but is not limited to, uses such as residential, lodging, community/public space, 1st floor retail in support of employment services, cafes, and offices.

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Introduction

Reid's
 Prospect
 Prince William,
 Virginia

Project Location Overview

Prince William County is ideally located in the Washington Metropolitan area in northern Virginia. The County is bordered by the Potomac River to the east, Fairfax and Loudoun Counties to the north, Fauquier County to the west and southwest, and Stafford County to the south. Reid's Prospect is located approximately 4 miles west of Interstate 95, 12 miles south of Interstate 66, and approximately 25 miles south of Washington D.C. The project is immediately bordered by the Prince William County Government Center to the west, a planned golf course and residential community to north, and established residential neighborhoods on the east and south, including the Prince William County Center mixed-use site (office/employment, commercial, residential, community open space, parks, and plazas). Reid's Prospect is being planned at the intersection of Prince William Parkway and Asdec Lane. The project parallels the concepts integrated into the Prince William County Center master-planned community across Prince William Parkway. Reid's Prospect contains employment, support retail, service, commercial and residential throughout the plan, thereby blending seamlessly into the existing and planned urban fabric.

The planning and design concept principles found within Reid's Prospect include human scaled streets and spaces, a well developed pedestrian network, coordinated urban design features, strong architectural design themes, and most importantly, a mixed-use livable community. Reid's Prospect offers a new, well defined sense of place for Prince William County.



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Community Design

Reid's Prospect is an approximately 105-acre "gateway" project that combines traditional neighborhood design (TND) principles with architectural concepts reminiscent of colonial architectural styles. Envisioned to be a true mixed-use village, Reid's Prospect is carefully and thoughtfully conceived and planned to provide a quality environment. This includes residential, retail and office uses typical of a traditional mixed-use village. It will be a place where one can live, work, shop and be entertained in both style and comfort.

Reid's Prospect's traditional neighborhood concept relies on a mix of uses in order to create a vibrant and successful community. A multi-family component located along a main boulevard creates the essence of an old village. The use of a minimal front yard setback enables buildings to be held close to the organizing main street that runs through the property on an east/west axis. The residential component is designed to offer residents the choice of either multifamily or single-family style homes in proximity to the community clubhouse/amenity space. Architectural details for all use types will be similar in style, which creates a distinct sense of place for the project. The execution of these details is very important as they can be included in not only buildings, but also parks, streetscapes, pedestrian pathways, water features, and trail networks.

The long-term plan along Prince William Parkway is envisioned to have a mix of uses, including government, residential, retail, and office. With the appropriate mix of uses, a constant energy of activity will be found. By day there will be office users/visitors, and by evening there will be residents of the community. To accomplish this goal, the plan provides for a mix of residential levels and unit types. The multi-family units allow for a mix of incomes across the site and near the center of the project. These moderate affordable options create housing for singles, upwardly mobile couples, or active adults. Comfortable yet affordable living is a strong component of the layout of Reid's Prospect.

Envisioned uses will create an exciting and active pedestrian-friendly streetscape while concealing the parking behind the buildings. Neighborhood and specialty shops are designed to give activity throughout the day and into the night. Retail and commercial opportunities are foreseen to include: quality support services within office buildings, boutique and specialty shops, and professional/medical employment uses. The office and retail uses may offer a wide variety of market responsive commercial space in this important Prince William County sector.

The focal point of the project is a proposed park along Prince William Parkway. Reid's Park, to include a pond, will create a centralized park for gathering, walking, & relaxing. The centrally located park creates a visually inviting relief along Prince William Parkway. This park will serve as the center of this community's retail and office core and will be organized around a hardscaped plaza, and an amenity area, including a water feature. These will all serve the greater community and employers of the Government Center as well as the Reid's Prospect community.

The land uses have been carefully positioned to provide the appropriate and necessary variety of uses on-site while remaining sensitive to the existing land uses on adjacent properties. The residential neighborhood is sited to provide an important transition from the surrounding residential land use designation on adjoining parcels along the northern and eastern boundaries of the project. As one moves closer to the main roads, the land uses evolve from lower density residential to higher density residential, live/work, and office; properly associated with their location next to the main road network. This design creates an easy transition across the property.



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NCL	Goals and Objectives	Reid's Prospect Prince William, Virginia
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General Architectural Guidelines

Buildings must exhibit a commitment to quality of design and materials while respecting the natural environment. Each building shall be designed to complement the character of this neighborhood and be sensitive to their materials, color and scale. Careful design and material considerations will help develop a distinctive overall community. The purpose is to develop standards which recognize the importance of the collective impression.

Architectural Massing: Buildings shall exhibit variety in their massing, height, projections and recessions. Where appropriate, asymmetry in design is encouraged, to provide visual vitality to the community setting. Reid's Prospect seeks to achieve an urban design that suggests multiple settings but also reflects participation in a single over-arching theme.

Roof Massing: An important part of the impression architecture can provide is roof massing. Roof forms enhance the sense of scale and interest, as well as providing a screen for mechanical equipment. Interruptions and changes to roof forms will provide visual variety and can create a sense of openness toward the sky.

Facades: Building facades shall provide incremental setback variations with a variety of facade designs, such as balconies, porches and bay windows, to create shadows and visual interest.

Side and Rear Elevations: Exposed side elevations shall incorporate the same design elements and materials as the street facade.

Urban Design and Architectural Guidelines: Building locations close to streets and roadways define the public realm, strengthen the pedestrian environment and create a sense of place.

The Architectural style and integrity as depicted on the illustrations contained herein shall be maintained through the development of Reid's Prospect. Modifications may be made to accommodate differing number of floors for the structures depicted within the authorized height limits and site considerations.

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The following principles address critical urban design issues, which will guide the design of Reid's Prospect:

Multiple Uses: Within Reid's Prospect, multiple uses will reduce dependency on the automobile, and provide extended hours of activity. Mixing uses within land bays and, where appropriate, within buildings adds a sense of vitality and interest to the larger community.

Lot Size and Configuration: Lot sizes and shapes are designed to encourage an efficient use of land.

Setbacks: Minimum building front yard setback dimensions are reduced from typical county standards to increase the sense of enclosure and urban community. Setback dimensions will provide adequate room for sidewalks, streetscape improvements and, where appropriate, private landscape improvements.

Corner Elevations: Elevations of buildings facing corner streets shall receive the same architectural treatments, design, materials, and colors compatible to the front facade. Corner elevations shall also have window openings.

Building Orientation: Building orientation will be perpendicular to and face directly onto the street. Buildings shall be finished on all elevations.

Building Materials: The use of a variety of architectural materials and colors is encouraged, but must reflect a single, over-arching design concept for the community.

Color: Black or appliance white shall not be used as a predominant exterior color. Garish or fluorescent colors shall not be used. Accent colors may be used to complement the building color and may be applied to window mullions, cornices and other architectural elements.

Building Entrances: Primary-building entrances will normally face the street, with necessary secondary entrances serving the side and rear elevations, parking and rear yards.

Window Openings: Window openings help to create a friendly environment and are critical in establishing a building's architectural character and proportions. Windows shall be encouraged on all elevations, including those facing parking and service areas, when feasible.

Glazing: All street level exterior windows shall use clear glass, and highly reflective glass will not be used.

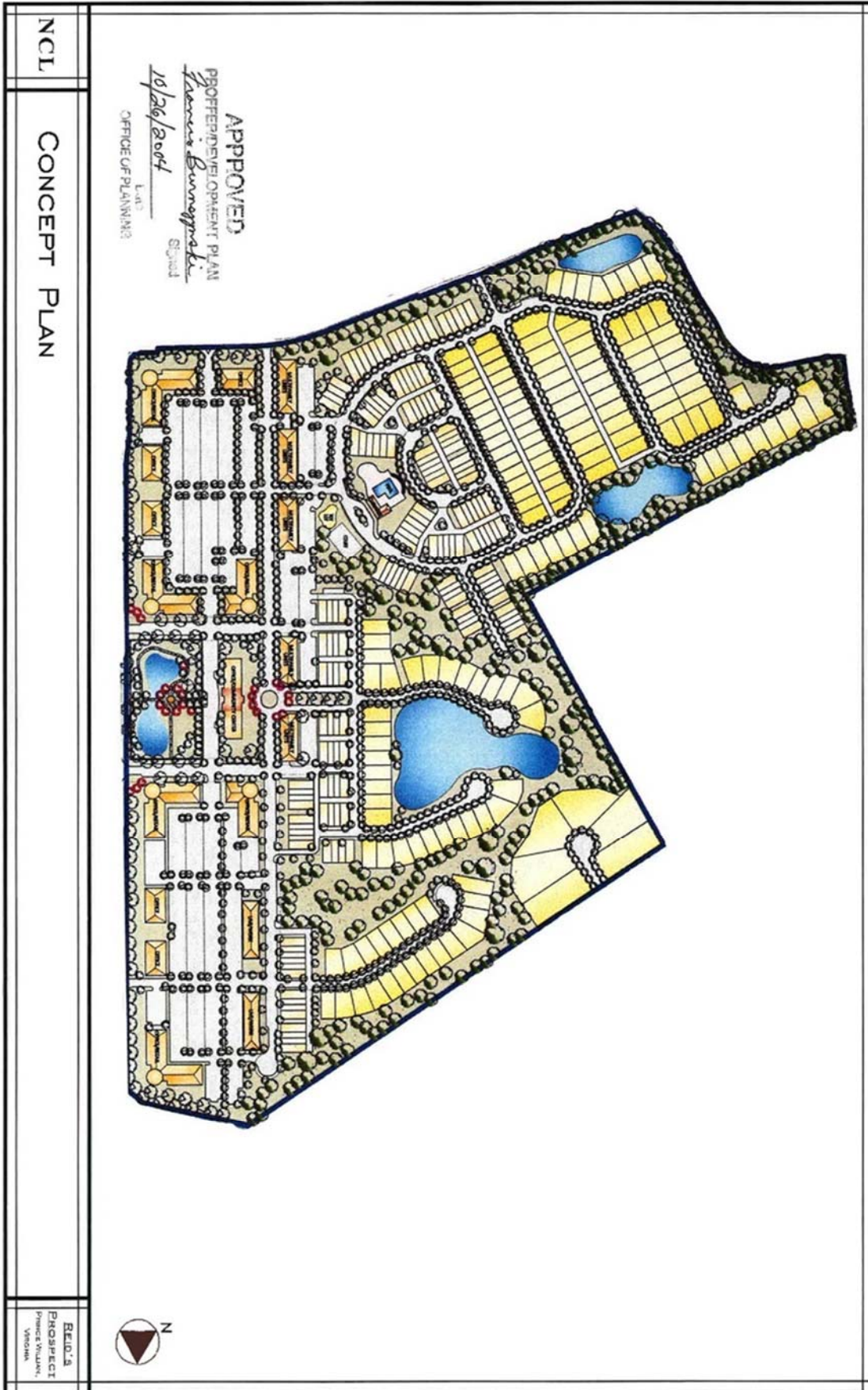
Mechanical/Electrical Equipment: Rooftop and building mounted equipment shall be screened from view in a manner that is architecturally compatible with the building design. Small satellite dishes shall be permitted and located at the rear of homes.

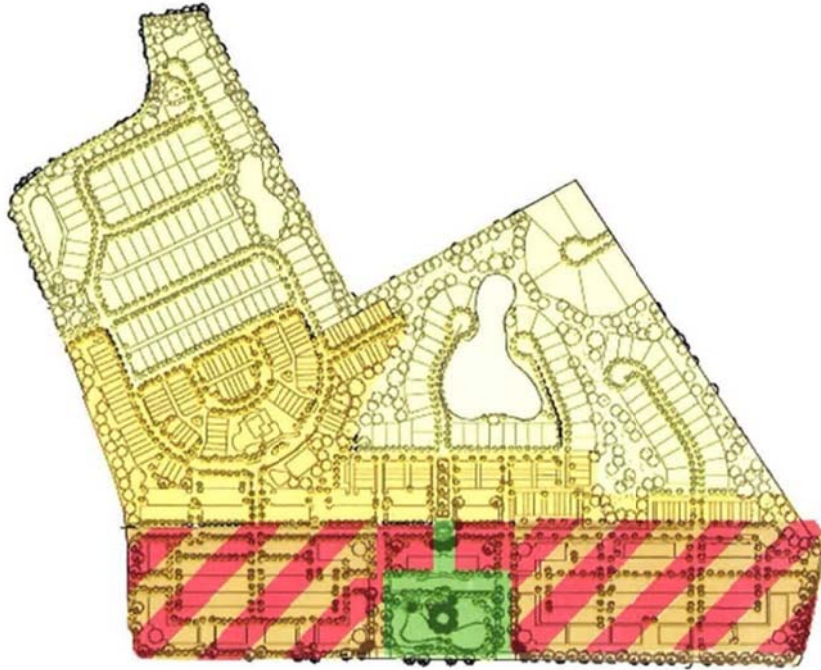
Service Areas: Dumpsters and loading areas shall be located away from roadways towards a rear parking storage area where possible. Service bays and dumpsters shall be screened from view of adjacent roadways, sidewalks and trails either with dense evergreen landscape materials or with masonry walls, 6' to 8' high, matching the adjacent architecture.

NCL	<h2 style="margin: 0;">General Architectural Guidelines</h2>	<p style="font-size: small; margin: 0;">Reid's Prospect Prince William, Virginia</p>
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General Single Family Guidelines	Frontage Road Guidelines	Exterior Wall Guidelines	
<p>Cohesive architectural design shall be achieved by incorporating the following elements:</p> <ul style="list-style-type: none"> All sides of buildings shall be aesthetically pleasing with attention given to exposed end wall and rear elevations. House styles shall reflect a diverse theme with unity, imbued with a sense of tradition. Building design shall be harmonious with the character of adjacent buildings through form, scale, color, materials, and proportions. Unit size will be appropriately scaled to fit lot size for all homes with minimum and maximum sizes specified. No house shall be sited on a corner lot at an angle at any major intersection. Corner lot sitings at secondary intersections may be angled if consistent with good land planning. Two adjacent, diagonal, or opposite buildings may be similar but not of the same elevation and/or color scheme. 	<p>Special care must be taken at the entrances, since the first impression sets the tone for the entire development. A lot which shares a property line with, or is visible from, any through-road or the main entrance roads must follow these guidelines:</p> <ul style="list-style-type: none"> Exposed foundations shall be brick or stone, or be siding to within 8" of grade. Brick or stone front elevations shall feature at least a 12" return on all sides. All exterior chimneys must have the appropriate masonry (stone, stucco or brick) on outside wall. Masonry shall not be required through interior walls or through the roof in rear of buildings, or where wood or simulated wood would be traditionally the preferred material. All visible elevations must be landscaped with the same care as the front elevations. Where architecturally appropriate, shutters shall be used. 	<ul style="list-style-type: none"> Wood, clapboard, brick, natural stone, (cultured stone is subject to review and approval), smooth finish stucco, or other various appropriate synthetic sidings and wall coverings may all be used for exterior walls, subject to architectural review. Any builder in a section shall build at least fifty percent of the homes with masonry fronts. The remaining fifty percent are to have strong elements, such as porches or porticos. The exterior color palette must be in accordance with approved development plans or site plans. Color changes or elevation changes require a separate approval. The builder may submit a standard color package along with elevations and house types for approval on a section by section basis. All siding, whether wood, aluminum, vinyl or composition, must have a minimum six-inch (6") lap or course; twin four-inch (4") siding and twin five-inch (5") are not acceptable. Where the water table treatment is required, exposed foundations shall be brick, stone, or "brick form" that is painted to match the predominant siding material. Exposed foundations on the front elevation may not exceed 24" in height and must be screened with sufficient landscaping. Areaways and wingwall materials shall be consistent with the architecture and shall be screened with landscaping. Front windows shall have a minimum of 1" x 4" trim or shutters. Columns at front porches or porticos shall be a minimum of 8" in diameter for round columns or 8" square for box columns with mouldings at top and bottom. Awnings shall be permitted in the rear of houses. 	
<p style="text-align: center;"> APPROVED PROFFER/DEVELOPMENT PLAN <i>Francis Burzynski</i> 10/26/2004 <small>Leticia</small> OFFICE OF PLANNING </p>			
<p>NCL</p>	<h2>General Architectural Guidelines</h2>		<p style="text-align: right;"> <i>Reid's</i> Prospect Prince William, Virginia </p>

Design Guidelines for Reid's Prospect (approved)





Overall District Patterns

This drawing illustrates the variety and location of the different housing types as well as the different uses proposed within the development. Each lot has a series of yard setback lines within which the elements of the particular residence may be placed, and this determines the character of each street.

Each building footprint shall be placed inside the front, side, and rear yard setbacks determined by the development parameters set forth in these Design Guidelines for each use. The front yard is open space between the front line of the building and the front lot or street line, and extending across the full width of the lot. The rear yard is open space on the same lot as the house between the rear lot line of the principal building and the rear line of the lot, and extending across the full width of the lot. The side yard is open space on the same lot as the house and the side lot line of the lot, and extending from the front yard line to the rear yard line.

Proposed Uses

Single Family Detached - "R-20"

Single Family Detached

Single Family Attached

Multi-Family Residential

Office / Retail / Employment / Live/Work

Green Space /

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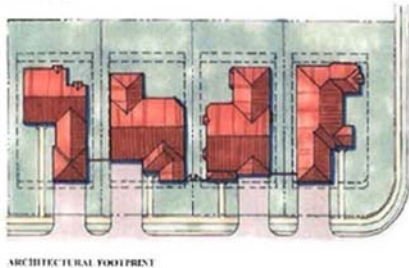
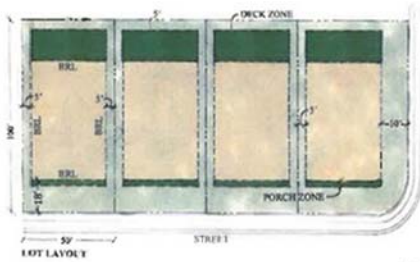
Overall District Patterns all District Patterns

Reid's
 Prospect
 Prince William,
 Virginia

SINGLE FAMILY DETACHED - FRONT LOAD

This dwelling type consists of a detached dwelling unit.

Minimum Lot Area	5,000 sq. ft.
Minimum Lot Width	50 ft
Maximum Building Height	40 ft
Min. Front Yard Setback from Lot Line	18 ft
Minimum Rear Yard	20 ft
Minimum Side Yard, Corner Unit	10 ft
Minimum Side Yard	5 ft



Decks may encroach up to 15' into the rear yard.

Architectural features (such as windows, sills, chimneys, cornices, eaves, and gutters, but excluding cantilevers) may project up to three feet into any required yard, setback, or buffer.

For Single Family homes only, front porches or stoops can encroach 4' into the front yard setback.

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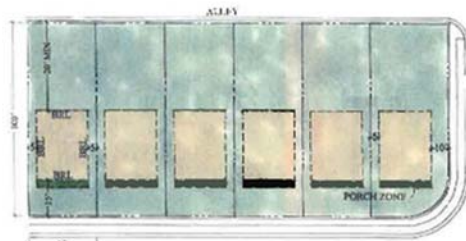
LOT TYPES - GENERAL CONDITIONS

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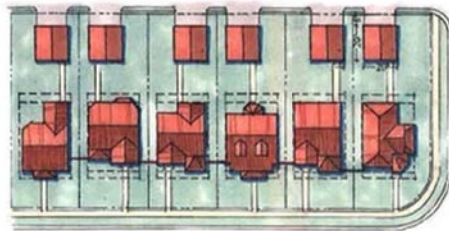
SINGLE FAMILY DETACHED - 50' REAR LOAD

This dwelling type consists of a detached dwelling unit.

Minimum Lot Area	5,000 sq. ft.
Minimum Lot Width	50 ft
Maximum Building Height	40 ft
Minimum Front Yard Setback	15 ft
Minimum Rear Yard	46 ft
Min. Rear Lot Line to Detached Garage	6 ft
Minimum Side Yard, Corner Unit	10 ft
Minimum Side Yard	5 ft



LOT LAYOUT



Decks may encroach up to 15' into the rear yard.

Architectural features (such as windows, sills, chimneys, cornices, eaves, and gutters, but excluding cantilevers) may project up to three feet into any required yard, setback, or buffer.

For Single Family homes only, front porches or stoops can encroach 4' into the front yard setback.

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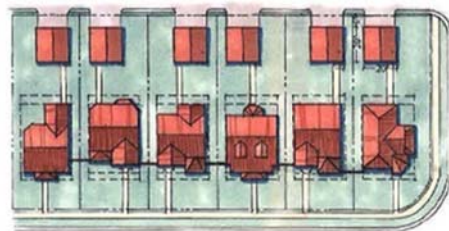
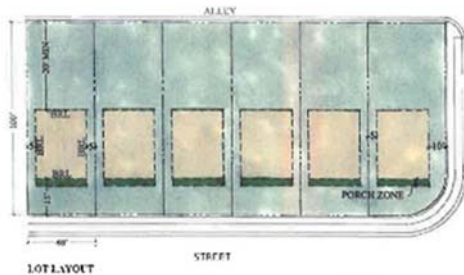
LOT TYPES - GENERAL CONDITIONS

REID'S
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 VIRGINIA

SINGLE FAMILY DETACHED - 40' REAR LOAD

This dwelling type consists of a detached dwelling unit.

Minimum Lot Area	4,000 sq. ft.
Minimum Lot Width	40 ft
Maximum Building Height	40 ft
Minimum Front Yard Setback	15 ft
Minimum Rear Yard	46 ft
Min. Rear Lot Line to Detached Garage	6 ft
Minimum Side Yard, Corner Unit	10 ft
Minimum Side Yard	5 ft



Decks may encroach up to 15' into the rear yard.

Architectural features (such as windows, sills, chimneys, cornices, eaves, and gutters, but excluding cantilevers) may project up to three feet into any required yard, setback, or buffer.

For Single Family homes only, front porches or stoops can encroach 4' into the front yard setback.

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LOT TYPES - GENERAL CONDITIONS

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 VERMONT

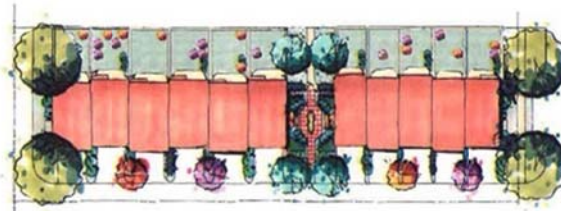
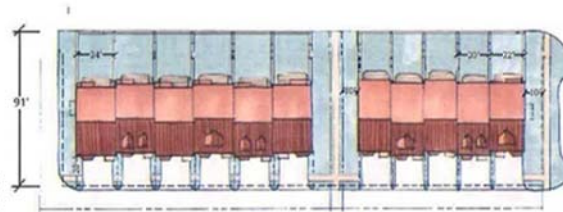
SINGLE FAMILY ATTACHED - FRONT LOAD

This dwelling type consists of a single-family attached unit, with individual outside access. Rows of attached townhouses shall contain no more than six dwelling units.

Minimum Building Footprint	720 sq. ft.
Minimum Lot Width	20 ft.
Minimum Open Space Required	30 %
Maximum Building Height	40 ft.
Minimum Front Yard Setback (w/ front load garage parking)	20 ft.
Min. Setback from public R.O.W.	30 ft.
Min. Side Yard (end unit)	10 ft.
Minimum Rear Yard	20 ft.

Note:

- 1) Setbacks shall be varied at least two feet for all townhouse units within a group, except that two abutting units may have the same setback, provided no more than four units in the same group have the same setback.
- 2) Front yard setback is measured from the face of Roadway curb.
- 3) Architectural treatment shall vary so that no more than two abutting units are substantially the same, and so that no more than four units in any group are substantially the same.
- 4) Unroofed decks may encroach up to 12 feet into the required rear yard setback of 20 feet.
- 5) For an individual section or phase of a multi-phase project, one-half of the required open space, or 15%, shall be provided within that phase or section. The remaining 15% may be provided on a project wide basis.
- 6) There are no minimum distances required between dwelling units and associated parking spaces.
- 7) Architectural features (such as windows, sills, chimneys, cornices, eaves and gutters, but excluding cantilevers) may project up to three feet into any required yard, setback, or buffer.



LANDSCAPE SKETCH



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SINGLE FAMILY ATTACHED - REAR LOAD

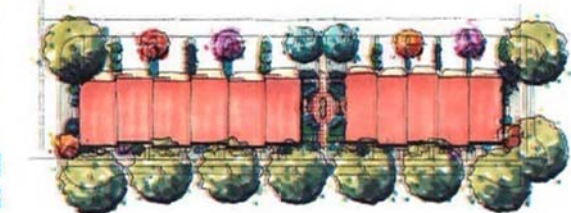
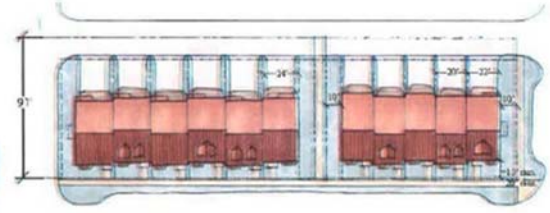
This dwelling type consists of a single-family attached unit, with individual outside access. Rows of attached townhouses shall contain no more than six dwelling units.

Minimum Building Footprint	720 sq. ft.
Minimum Lot Width	20 ft.
Minimum Open Space Required	30%
Maximum Building Height	40 ft.
Minimum Front Yard Setback (w/on street parking)	10 ft.

Min. Setback from public R.O.W.	30 ft.
Min. Side Yard (end unit)	10 ft.
Minimum Rear Yard	20 ft.

Note:

- 1) Setbacks shall be varied at least two feet for all townhouse units within a group, except that two abutting units may have the same setback, provided no more than four units in the same group have the same setback.
- 2) Front yard setback is measured from the face of roadway curb.
- 3) Architectural treatment shall vary so that no more than two abutting units are substantially the same, and so that no more than four units in any group are substantially the same.
- 4) Unroofed decks may encroach up to 12 feet into the required rear yard setback of 20 feet.
- 5) For an individual section or phase of a multi-phase project, one-half of the required open space, or 15%, shall be provided within that phase or section. The remaining 15% may be provided on a project wide basis.
- 6) There are no minimum distances required between dwelling units and associated parking spaces.
- 7) Architectural features (such as windows, sills, chimneys, cornices, eaves and gutters, but excluding cantilevers) may project up to three feet into any required yard, setback, or buffer.



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LOT TYPES - GENERAL CONDITIONS

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MULTI-FAMILY RESIDENTIAL

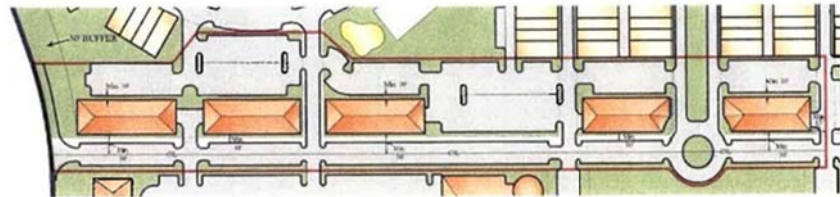
- Minimum Lot Area (4 story) 1175 s.f.
- Maximum Lot Coverage .75
- Maximum Building Height 60 ft.

Minimum Building Setbacks/Yards

- Front Setback (from centerline (C/L) of access easement) 30 ft.
- Rear Yard 15 ft.
- Side Yard 15 ft.
- Parking Lot to Dwelling 10 ft.

Architectural features (such as windows, sills, chimneys, cornices, eaves, and gutters, but excluding cantilevers) may project up to three feet in to any required yard, setback, or buffer.

Developer shall have the option to incorporate structured parking, below or at grade.



LOT LAYOUT



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LOT TYPES - GENERAL CONDITIONS

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Office / Retail

Guiding Principles for Building Architecture

- Building architecture shall be of Colonial Village architectural styling and shall maintain a neighborhood proportion. This will be accomplished by making use of familiar architectural details such as an entablature and portico entry features.
- Examples of facade features for a multi-story building are reflected on the building elevation (below). Elements such as balustrade railings and pedimented dormer windows within the gabled or mansard roof system shall be used throughout the office/retail buildings.
- Building skin shall avoid exterior reflective materials and mirrored glass.
- Building massing and landscaping shall relate strongly to adjoining blocks/land bays.
- Building facades shall be varied and articulated for pedestrian visual interest with one or two additional materials (e.g. metal) as accents. Appropriate exterior building materials shall provide architectural detailing and variation to avoid a flat facade.
- Buildings shall be a minimum of two stories and of a design consistent with that shown hereon.

- The design shall incorporate either a pitched roof or a parapet element above each multi-story building to screen equipment. This equipment will be screened from view from the abutting streets by extended parapet walls or by use of vertical roof features (gable, mansard, etc.) that are an integral part of the overall building design. Freestanding mechanical screen walls that contradict the overall building design shall be prohibited.
- Architectural features (such as windows, sills, chimneys, cornices, eaves, and gutters, but excluding cantilevers) may project up to three feet in to any required yard, setback, or buffer.

Mix of Uses

- This designation is primarily intended for professional office and commercial activities. Retail and/or restaurant uses are permitted and encouraged on the first floor.

Parking Accommodations

- Surface Parking
- On-street parallel parking within private street easements



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Reid's
 Prospect
 Prince William,
 Virginia

NCL	Office Buildings - General Conditions	Reid's Prospect Prince William, Virginia
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Reid's Prospect Centre

The Centre, located directly adjacent to Reid's Park, will be the signature office building for the development and shall be built with the first phase of construction.



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Green Space and Amenities

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PROFESSIONAL OPINION PLAN

Francis Burnagyski
Signed

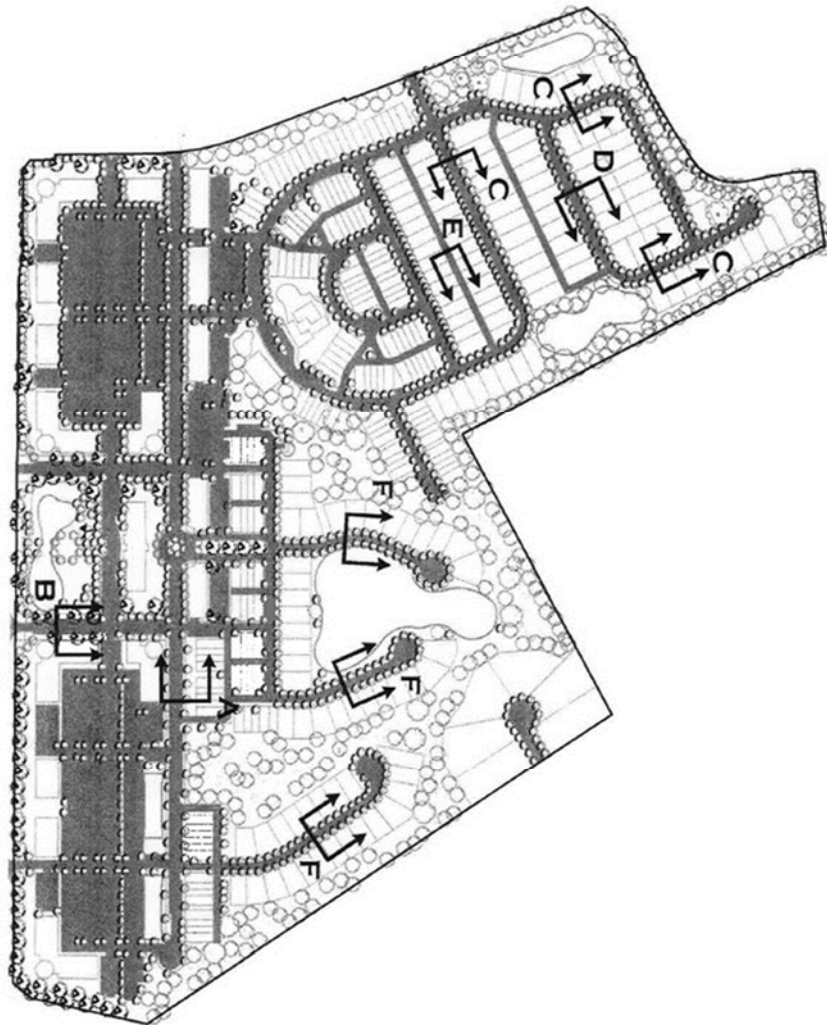
10/26/2004

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Reid's
Prospect
D. Steve Walker,
Mayor

NCL

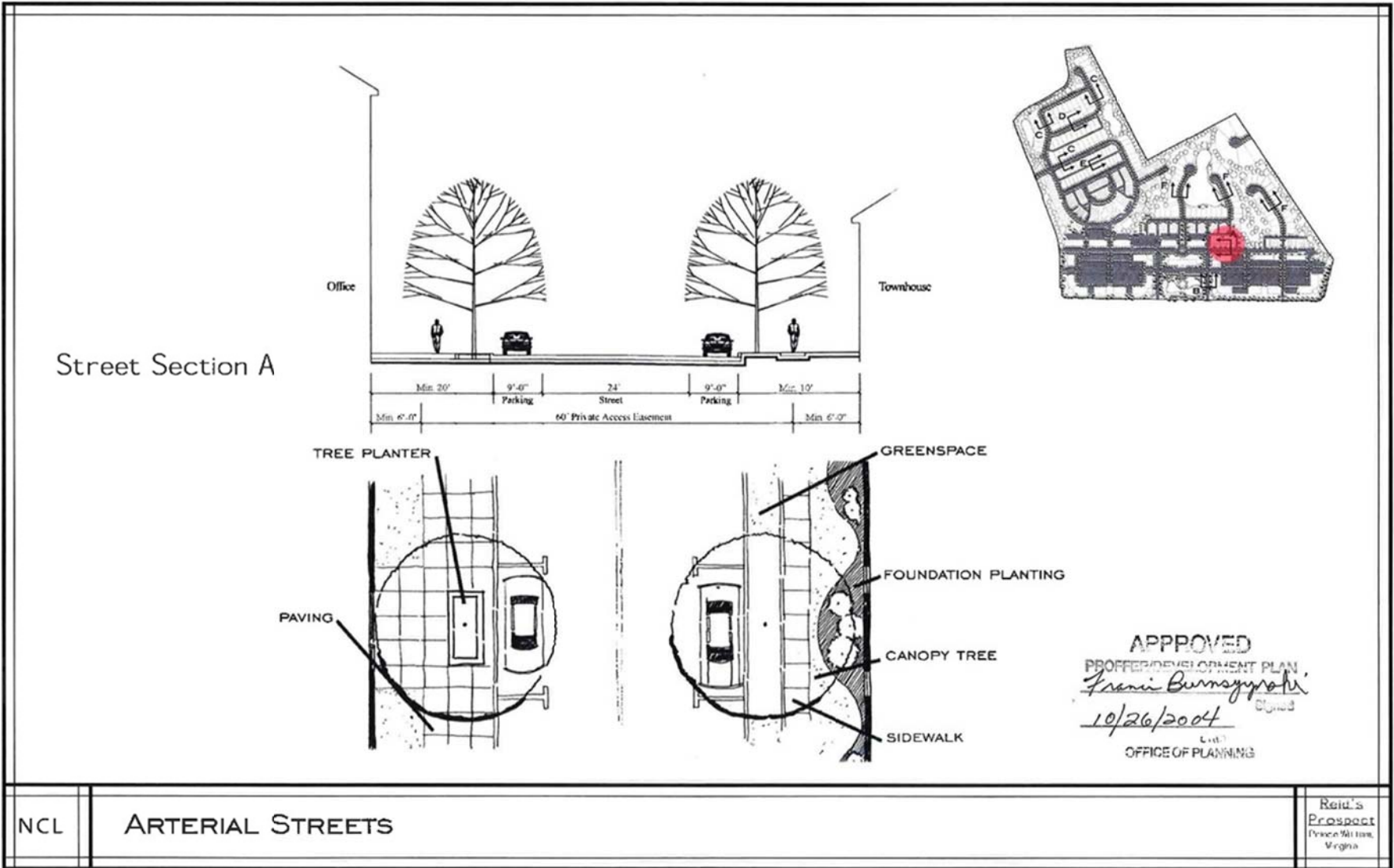
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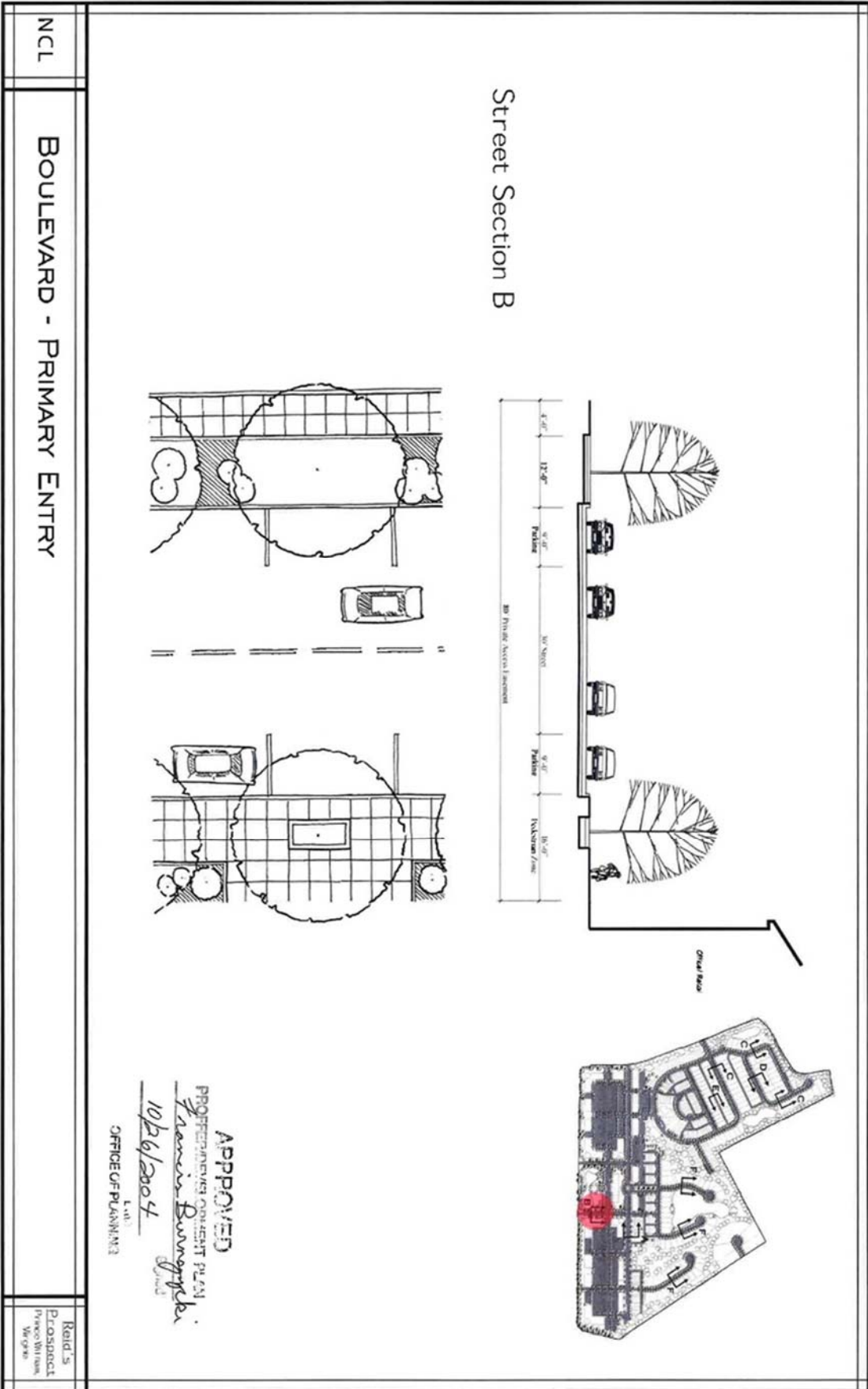


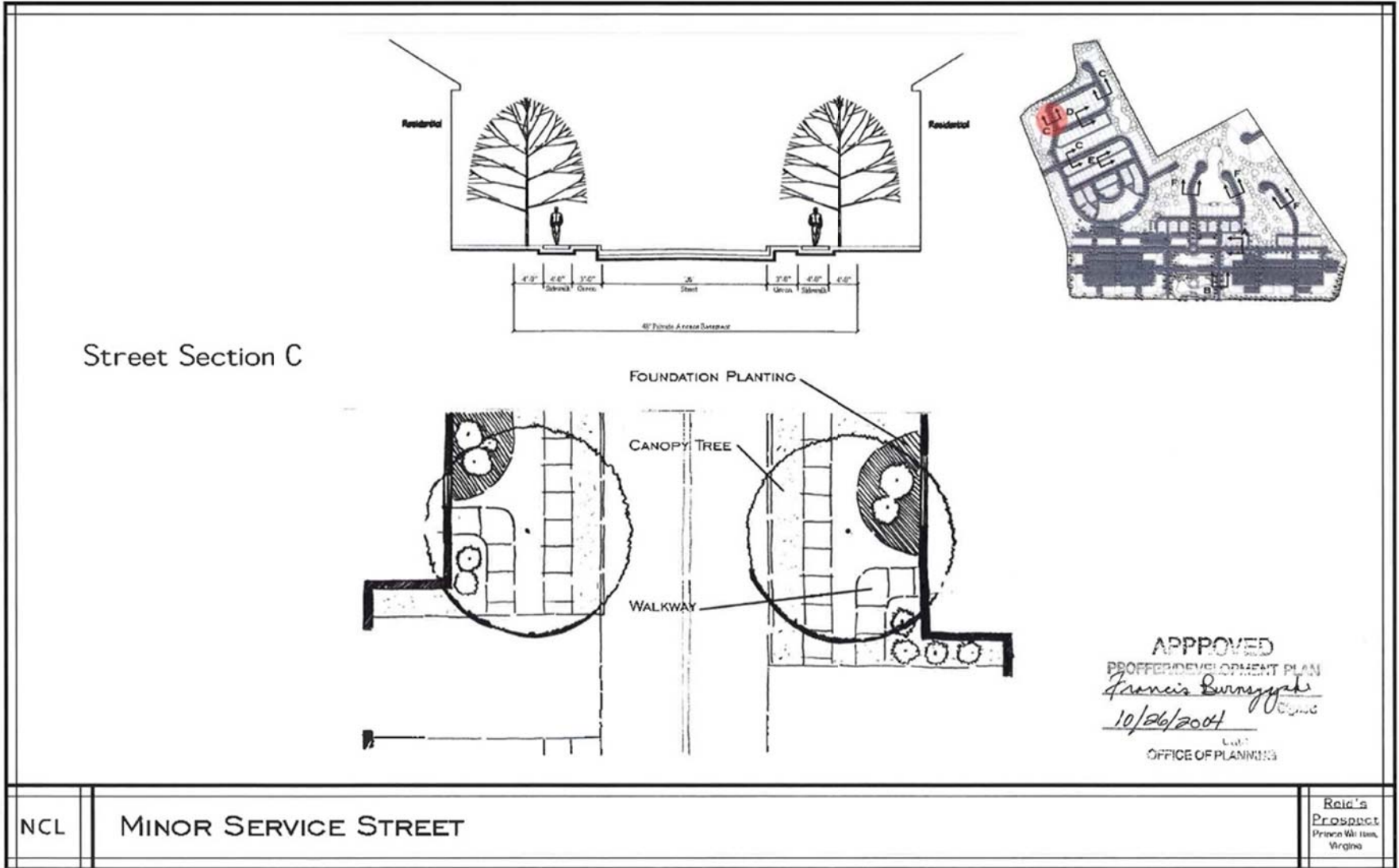
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James Cunningham
11/26/2004
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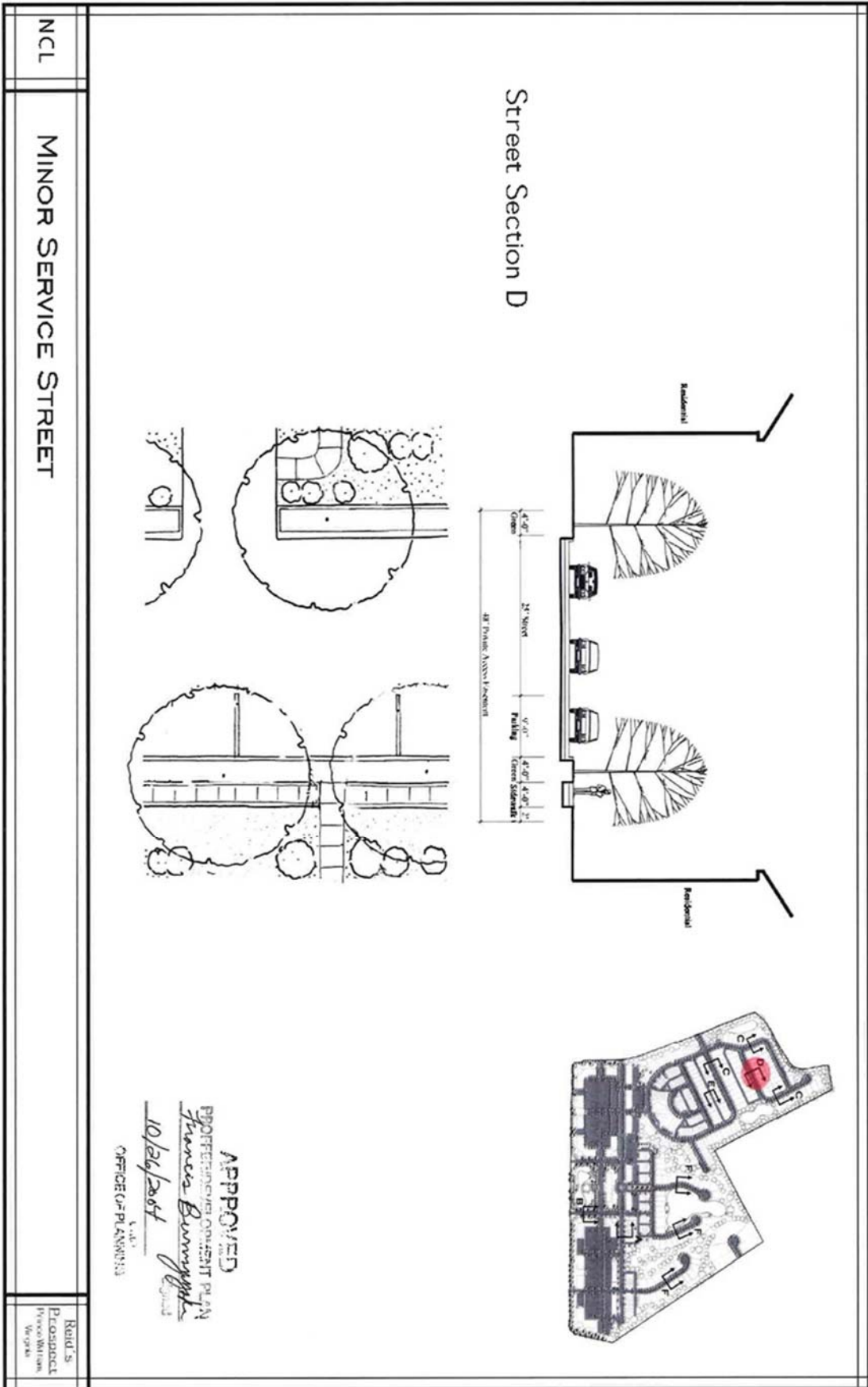
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Project 041100
No. 041100

	<p>Street Standards</p> <p>Reid's Prospect will be a pedestrian-oriented community, with smaller street sections that induce traffic calming. Reid's Prospect's street framework will support a wide range of land uses, and create a public infrastructure that encourages pedestrian activity, street life, and a sense of community and place.</p> <p>Overview</p> <p>Streets will be arranged to distribute traffic evenly throughout the community, while being modified in areas where environmental features dictate alternative layouts. They will be organized into a private street system, which will be built and maintained by the owner's association(s) of Reid's Prospect. Primary entrances are private roadways that interconnect into a "loop" through the community. Streets, alleys and parking lots are private.</p> <p>Curb Cuts</p> <p>Curb cuts are the entrances and driveways that interrupt the street curb line. Reid's Prospect's master plan minimizes curb cuts through the use of shared entrances and rear load product that separate driveway traffic from normal street traffic. Minimizing curb cuts also improves traffic safety.</p> <p>On-Street Parking</p> <p>Located throughout the community, on-street parking will help reduce parking lot size and create a traffic calming effect by minimizing speed. On-street parking enhances the sidewalk environment by providing a buffer between pedestrians and moving cars.</p> <p>Turn Radii</p> <p>Intersection and entrance drive radii dimensions will be kept to minimum sizes to reduce traffic speed and make pedestrian crossings less daunting. All turn radii will be subject to fire/rescue requirements for safety.</p> <p>Road Sections</p> <p>Descriptive street standards represent the different road sections to be utilized within Reid's Prospect. The following pages discuss the road sections.</p> <p>Off Street Auxiliary Parking</p> <p>The residential component will contain a number of strategically placed parking spaces.</p> <p>Utilities</p> <p>All utility lines shall be underground. An extra conduit for future communication service will be provided with the initial implementation. Additional information on individual utilities and their location within Reid's Prospect will be developed during final engineering.</p> <p>Parking Lots</p> <p>Parking and its design treatment are planned to reduce the visual impact of parking for both the community and visitors passing through.</p> <p>Lighting</p> <p>Parking lot lighting shall provide adequate illumination for security. The pole and fixture shall be coordinated with the design and color chosen for pedestrian fixtures.</p> <ul style="list-style-type: none"> - Residential Light Height Max: 16' - Commercial Light Height Max: 24' <p>Paving</p> <p>Either bituminous or concrete pavement is required for all drives and parking lots. Masonry pavers are an optional, decorative opportunity. Dirt, gravel, and other unpaved surfaces are inappropriate.</p> <p>Striping</p> <p>Striping will be required to identify all parking spaces.</p> <p>Screening</p> <p>Parking lots adjacent to streets will have required screening. Buildings will frame the parking and streets where possible. A low wall or evergreen hedge (maximum 30" height, where shown) will screen bumpers, wheels, and paving, while allowing for surveillance. Screening could also be effectively used between parking lots and buildings.</p> <div style="text-align: right; margin-top: 20px;"> <p>APPROVED PROFFER/DEVELOPMENT PLAN <i>Francis Burney</i> 10/26/2009 L. O. P. OFFICE OF PLANNING</p> </div>	
<p>NCL</p>	<p>Road Network</p>	<p>Reid's Prospect Prince William Virginia</p>



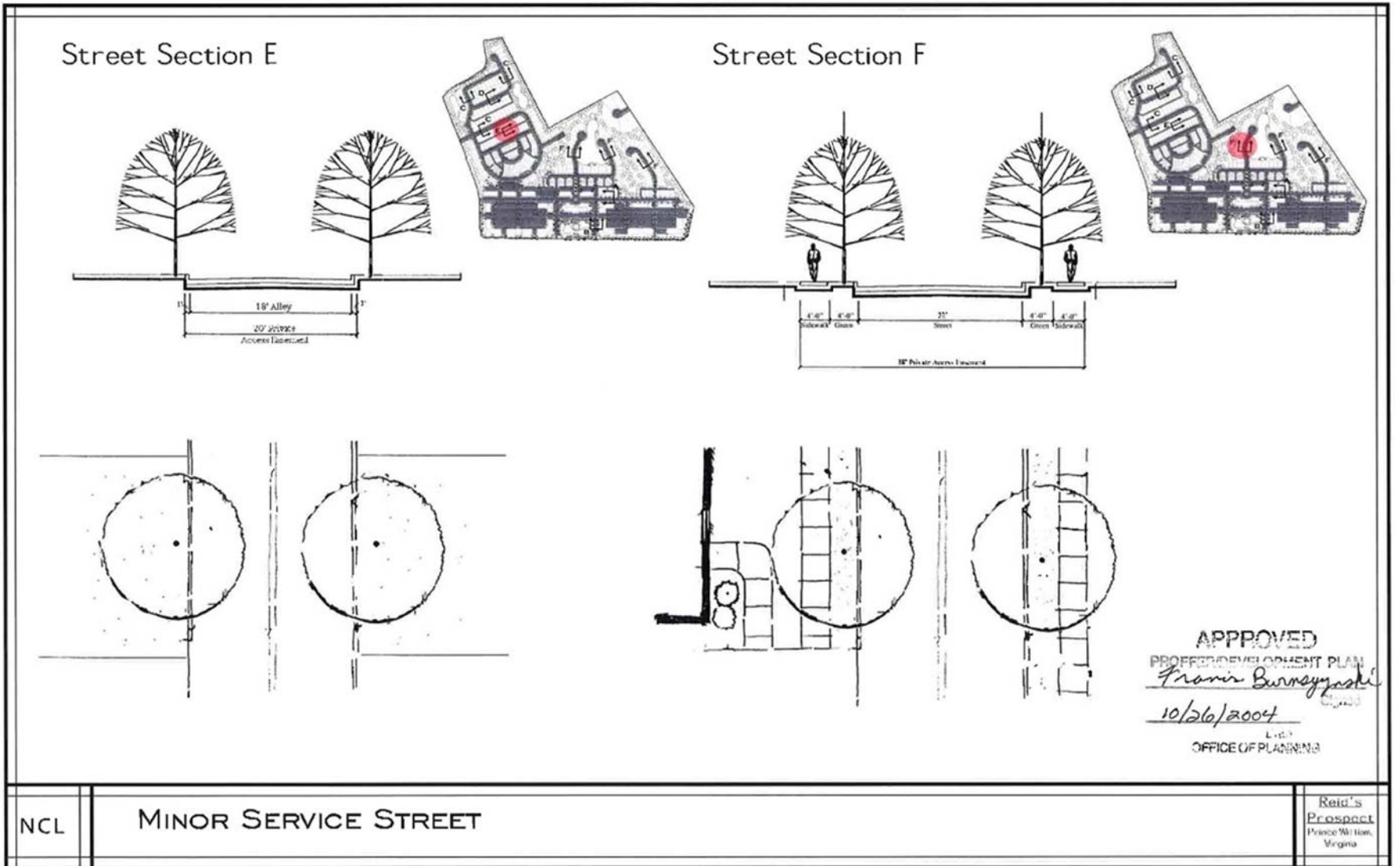






NCL

MINOR SERVICE STREET



NCL

MINOR SERVICE STREET

Reid's Prospect
 Prince William, Virginia



Main Street Features

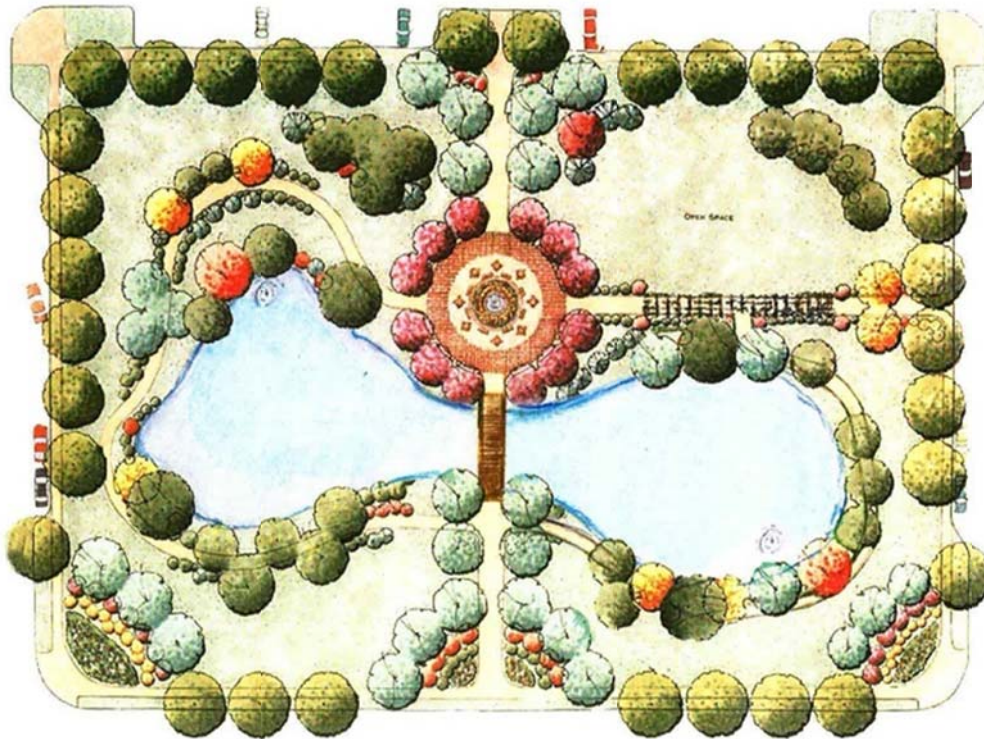
- Pedestrian Oriented
- Street Furniture
- Sidewalks on Both Sides
- Architectural Lighting
- Landscaped Traffic Circle
- Pedestrian Crosswalks
- Parallel Parking

Reid's Prospect Main Street is a pedestrian oriented street connecting the site from east to west. It is fronted by a variety of building types and open space, and will offer residents of Reid's Prospect a principal arterial to walk to commercial and recreational spaces. The traffic circle will function as a traffic-calming device to enhance pedestrian safety, and also serve as a focal point for the Main Street Vista.

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 10/26/2004
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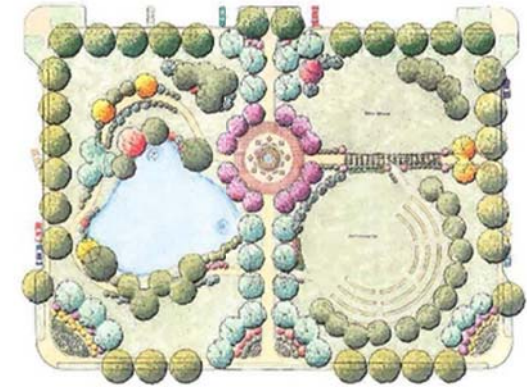
NCL	Reid's Prospect - Main Street	Reid's Prospect Prince William, Virginia
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Reid's Park

Reid's Park, centrally located on the site, becomes a focal point for the community further linking the social/live/work/shop environment.

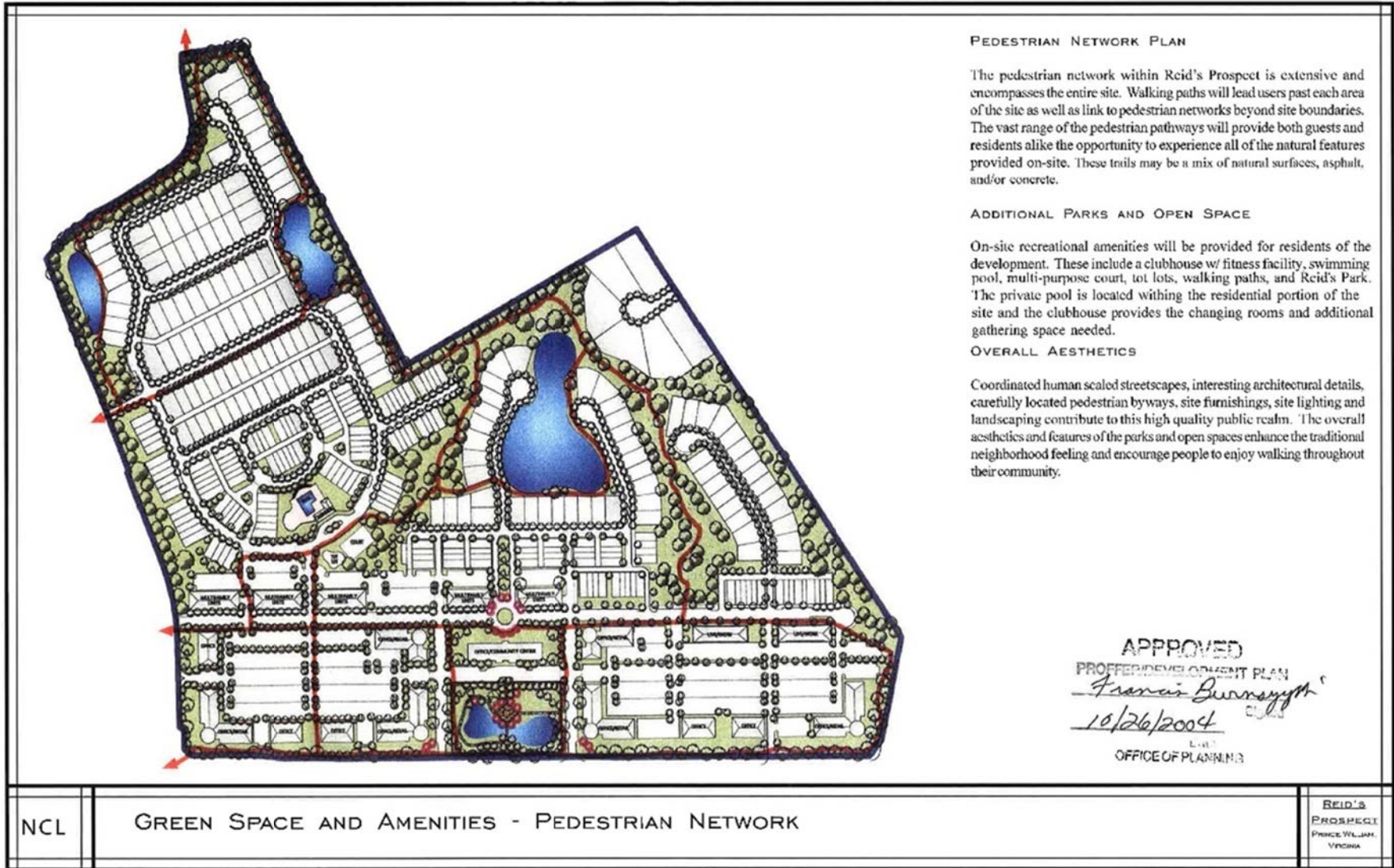
- Outdoor Plaza for daily activities
- Open Greenspace for passive recreation
- Specialty Paving and tree enclosure to enhance the park as a place for the community
- Designated Walking Paths to slow traffic and designate pedestrian locations
- Pond maintains current wildlife and encourages serene settings
- Amenity provided along Prince William Parkway
- Amphitheater for community activities (Alternate)



Alternate layout for development of Reid's Park w/Amphitheater

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 PROFESSIONAL DEVELOPMENT PLAN
Francis Bernagotta
 10/26/2004
 OFFICE OF PLANNING

NCL	Reid's Park	Reid's Prospect Prince William, Virginia
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PEDESTRIAN NETWORK PLAN

The pedestrian network within Reid's Prospect is extensive and encompasses the entire site. Walking paths will lead users past each area of the site as well as link to pedestrian networks beyond site boundaries. The vast range of the pedestrian pathways will provide both guests and residents alike the opportunity to experience all of the natural features provided on-site. These trails may be a mix of natural surfaces, asphalt, and/or concrete.

ADDITIONAL PARKS AND OPEN SPACE

On-site recreational amenities will be provided for residents of the development. These include a clubhouse w/ fitness facility, swimming pool, multi-purpose court, tot lots, walking paths, and Reid's Park. The private pool is located within the residential portion of the site and the clubhouse provides the changing rooms and additional gathering space needed.

OVERALL AESTHETICS

Coordinated human scaled streetscapes, interesting architectural details, carefully located pedestrian byways, site furnishings, site lighting and landscaping contribute to this high quality public realm. The overall aesthetics and features of the parks and open spaces enhance the traditional neighborhood feeling and encourage people to enjoy walking throughout their community.

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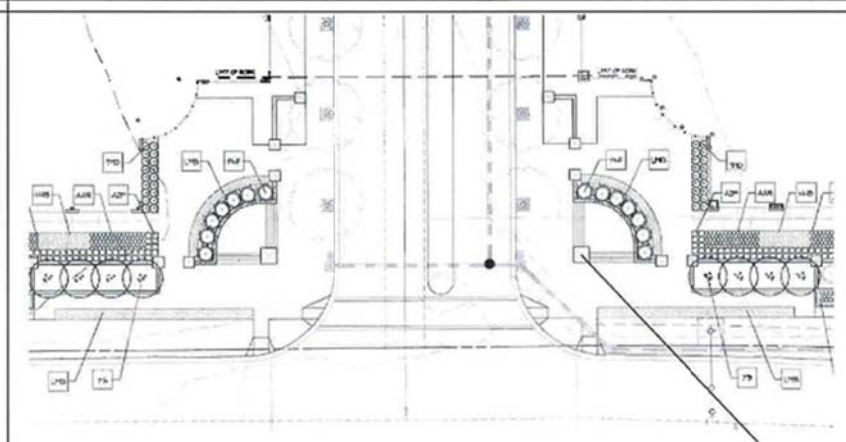
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GREEN SPACE AND AMENITIES - PEDESTRIAN NETWORK

REID'S
 PROSPECT
 PRINCE WILLIAM,
 VIRGINIA

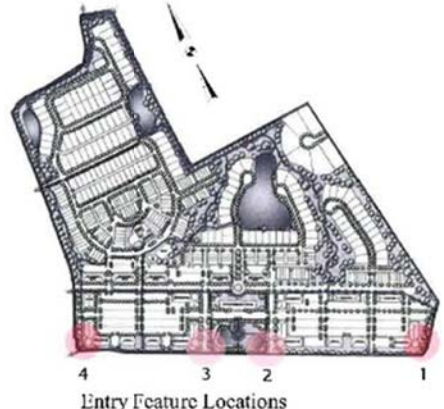
<p>Landscape Plans</p> <p>The significance of landscaping in a community cannot be overstated. The desired imagery associated with tree-lined streets and well-landscaped residences is as valued in Prince William County as anywhere in the world.</p> <p>The following is an overview that speaks to the inherent benefits associated with the inclusion of adequate landscape materials in a residential environment. While the aesthetic aspect of such landscaping is self evident, the functional role of adequate planting, including the opportunity for screening and buffering views, climate control, noise abatement and pollution and erosion control are equally important.</p> <p>The street is a major design determinant of any new development. It is more than a traffic corridor. It functions as a front yard and a major organizing element for the neighborhood. A successful street tree planting program reinforces the overall community organization and introduces a vertical element to offset the perceived horizontal dominance of the street. Such a planting program will reinforce the definition of the street edge and soften the architectural elements along the street.</p> <p>The finish and extent of landscaping associated with each individual home is equally important in conveying the image and sense of a quality community. Opportunities to transition from the streetscape to the residential yard should be maximized. This includes yard tree plantings and foundation plantings, as well as selective screening to insure that privacy is available to all residents. The following outlines minimum residential landscape requirements to achieve this end. Plans shall be prepared at a scale of not less than 1" = 50' and include all base data and programmed, or constructed, improvements on site.</p>	<p>Signage Policy</p> <p>National Capital Land & Development will select a preferred vendor to fabricate, install and maintain all Reid's Prospect signage. This vendor will be responsible for all community signage and the initial fabrication and installation of all individual builder signage. The standards committee strongly urges builders to use the preferred sign vendor for additional signage and maintenance. After initial fabrication and installation of signage, builders may choose to use a third party for maintenance.</p> <p>Strict adherence to the specifications will be enforced. The design, size, colors and typography will be specified, and variations are not acceptable. The following are prohibited within Reid's Prospect unless installed by the Developer, and in accordance with applicable ordinances. If the signs below or any other that have not been approved by the Developer are installed, they will be removed at the builders' expense:</p> <ul style="list-style-type: none"> - Permanent or temporary flags. This excludes U.S. flags on poles that are permanently affixed to trailers or model homes - Temporary signs in building windows - Sidewalk or curb signs - Sandwich board signs 	<p>Street Tree Planting Overview</p> <p>The following are designed to assure that an adequate street tree planting program is provided for all residential streets.</p> <ul style="list-style-type: none"> - Trees shall be planted continuously 3 feet from the edge of sidewalk and street and should be a type that provides a large canopy at maturity. Suggested varieties are identified within these guidelines. - Street tree spacing shall be no less than 30 feet and no greater than 50 feet. Where driveways/utility easements necessitate, tree spacing may be modified to accommodate. - A single type of tree shall be used for the entirety of a single roadway or street. Differing tree types may be associated with other roads or streets as specified by the Developer. - Tree planting around cul-de-sacs shall be symmetrically positioned despite physical constraints. - Street tree plantings shall not impede vehicular sight distances or create any situation which may pose an unsafe or hazardous condition. - Corner lots (including lots abutting pipestems) shall make provision for canopy street trees along side street and common drive exposures comparable to required street tree frontage conditions. <div style="text-align: right; margin-top: 20px;"> <p>APPROVED PROFFER/DEVELOPMENT PLAN <i>Francis Burrowsynski</i> 10/26/2004 OFFICE OF PLANNING</p> </div>
<p>NCL</p>	<p>Landscape Requirements</p>	<p>Reid's Prospect Prince William, Virginia</p>

YARD TREE PLANTING GOVERNING RULES	FOUNDATION AND SCREEN PLANTINGS	LANDSCAPING PRACTICES	PLANT MATERIAL SIZE SPECIFICATIONS
<p>Additional yard trees shall be planted for all residential units as follows:</p> <p>An average of one yard tree is required per 2,000 square feet of single family detached residential lots.</p> <p>An average of one yard tree is required per 3,000 square feet of townhouse or attached single family residential lots.</p> <p>A minimum of one of the required yard trees shall be located in the designated front yard of single family detached residences in addition to the minimum street tree provisions, as identified on Page 28.</p> <p>Yard trees may include ornamental flowering trees.</p> <p>Existing or saved trees meeting the minimum size criteria may be substituted for required plantings at a ratio of one existing tree for two required yard trees. However, if existing trees to remain are in the rear of the lot, front yard tree planting is still required.</p>	<p>INCLUDE:</p> <p>Foundation shrubs and planting for single family detached and attached units shall be provided at a minimum of one plant per three feet of any building facade with direct exposure to public right-of-way, private streets, common driveways or parking areas.</p> <p>Plant materials shall be chosen based on the relationship of ultimate height and width with regard to the space in which they are planted. Layering of plant materials is encouraged. Taller plants shall be placed behind lower plants.</p> <p>Shrubs shall be used to complement architectural features and not obstruct views from windows.</p> <p>Shrubs shall be planted in mulch beds a minimum of three feet from base of building foundations.</p> <p>Evergreen trees shall be placed to screen rear yards that are exposed to public and private streets, common driveways and parking areas. Spacing between trees shall be no more than twelve feet.</p>	<p>Planting Practices: Planting practices shall be standardized. All plants should be nursery grown in accordance with the highest standards of horticultural practices, and grown under climatic conditions similar to those of Reid's Prospect. Plants shall be typical of their species or variety with normal growth habits. Plants shall conform to the American Standard for Nursery Stock as published by the American Association of Nurserymen.</p> <p>Landscape Maintenance: Green space landscape maintenance in Reid's Prospect will be prescribed for both individual landowners and the Owner's Association in the Declaration of Protective Covenants.</p> <p>Individual owners shall be responsible for executing a landscape maintenance program for landscape areas within their personal site. The program shall include:</p> <p>Pruning trees and shrubs to maintain an attractive shape, removing dead branches and providing clearance for vehicles and pedestrians.</p> <p>Replacing dead and disfigured plant material immediately with equivalent plants.</p> <p>Fertilizing, mulching, watering and weeding plant beds. Applying insecticides and fungicides as necessary to maintain plant vigor and appearance.</p> <p>Lawns shall be watered, mowed and maintained in a dense, weed-free condition.</p>	<ol style="list-style-type: none"> 1. Hardwood Trees (Street Trees) 3" - 4" minimum caliper 2. Hardwood Trees (Yard Trees) 2" - 2 1/2" minimum caliper 3. Flowering Trees (Yard Trees) 2" - 2 1/2" minimum caliper 4. Screening Evergreens 5' - 8' minimum height 5. Columnar Evergreens 4' - 6' minimum height 6. Spreading Evergreens 2' - 3' minimum height 7. Broadleaf Evergreens and Deciduous Shrubs 18" - 24" minimum height
NCL	LANDSCAPE REQUIREMENTS		<p style="text-align: center;">APPROVED PROFFER/DEVELOPMENT PLAN <i>Francis Burnsponke</i> <u>10/26/2004</u> OFFICE OF PLANNING</p>
<p>REID'S PROSPECT PRINCE WILLIAM, VIRGINIA</p>			



LEGEND

- MS - DECIDUOUS TREE
- HHB - ORNAMENTAL GRASS OR SHRUB
- AAR - ORNAMENTAL GRASS OR SHRUB
- LMB - ORNAMENTAL GRASS OR SHRUB
- PHF - EVERGREEN SHRUB
- AZP - EVERGREEN SHRUB
- TMD - EVERGREEN SHRUB

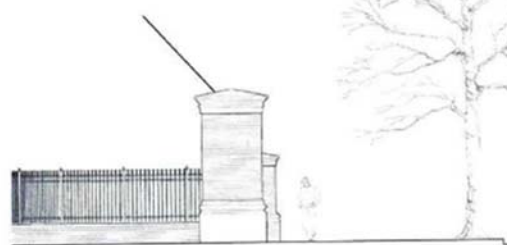


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Entry Feature Locations

Examples taken from Prince William County Center plans (provided by Lewis, Scully, Gionet).


Landscape details to be similar in nature to Prince William County Center

Entry features for Reid's Prospect shall be of similar material, form, and design as these examples. There are 4 entrance feature locations proposed, as depicted on the map on this page. Entrance features #1 and #4 will be located at the corners of Laurel Hills Drive and Prince William Parkway, and at the corner of Asdee Lane and Prince William Parkway respectively. Entrance feature #2 will be located on the eastern side of the proposed entrance. Entrance feature #3 will be located on the western side of the proposed entrance.



Entry Feature provided by Lewis, Scully & Gionet

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Illustrative of entry detail for Reid's Prospect

NCL	Landscape Elements	Reid's Prospect Prince William, Virginia
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Typical buffer along Prince William Parkway

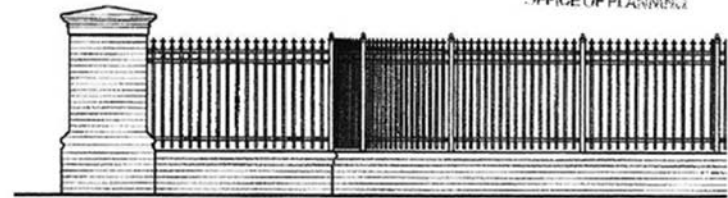


Pier and Fence

Low Screen/Hedge

Deciduous Trees

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Example of pier and metal fence detail provided by Lewis, Scully & Gionet

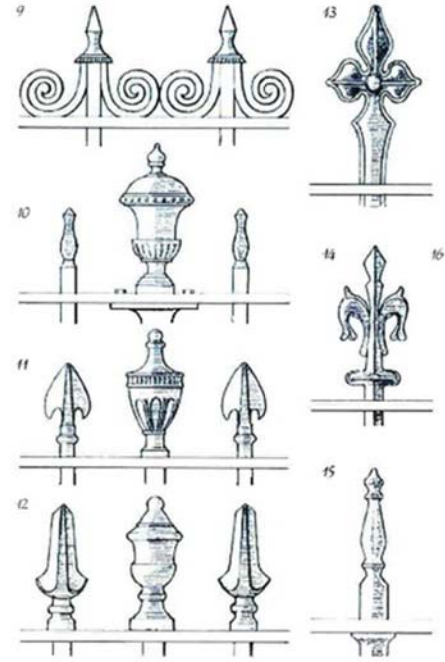
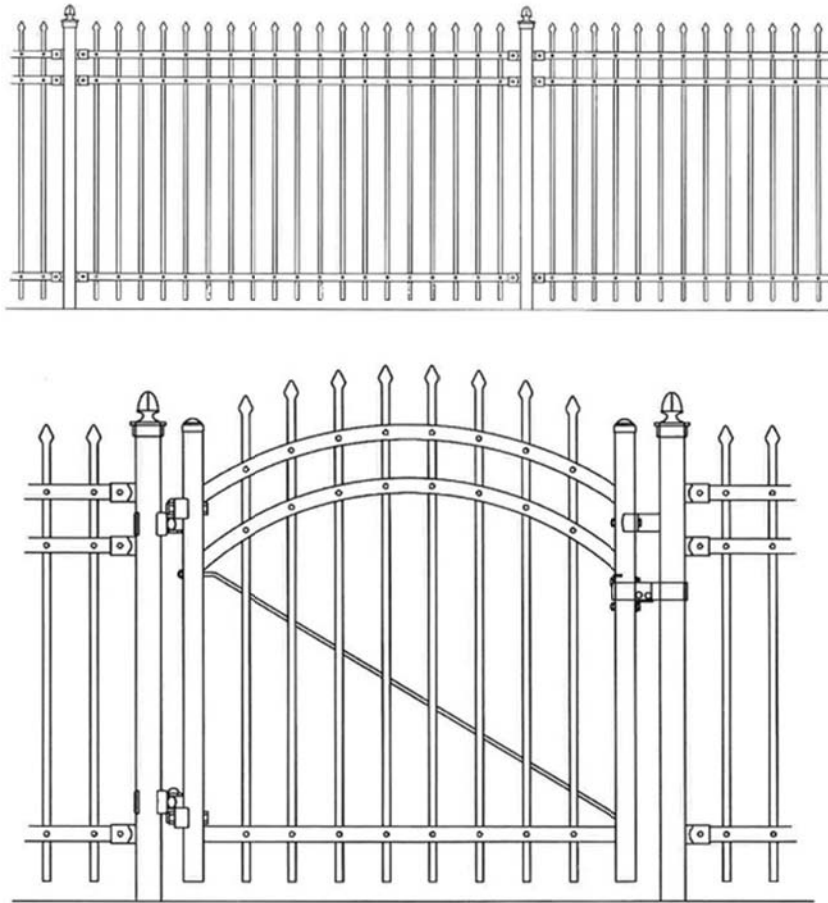


Possible Entry Signage

NCL

Landscape Elements

Reid's
 Prospect
 Prince William,
 Virginia



Decks and Fences

Deck, fence, and street furniture designs shown are for illustrative purposes. All decks and fences installed by homeowners are subject to prior approval by the Design Review Committee. Decks, fences, porches, and railing connections specified by the Developer must be complementary to the overall community design and shall be of high quality specified throughout these Design Guidelines.

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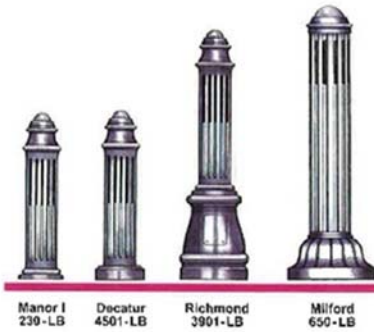
Reid's
 Prospect
 Prince William
 Virginia

NCL Landscape Elements



Reid's Prospect Landscape Elements mirror the landscaping patterns defined in the Prince William County Center.

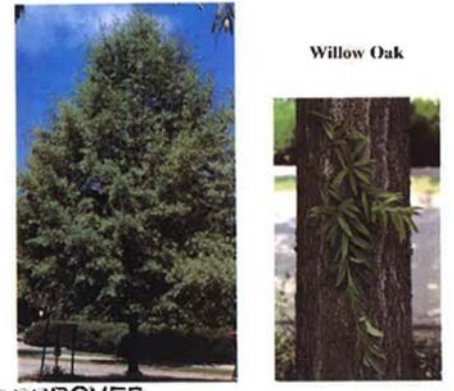
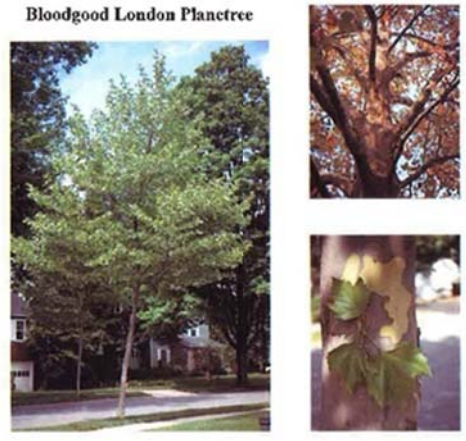
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 10/26/2014
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Landscape Elements

Reid's Prospect
 Prince William,
 Virginia



NCL

Street trees

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 10/26/2004

Reid's
 Prospect
 Prince William,
 Virginia



Canopy Trees

Acer rubrum	Red Maple
Cladrastis lutea	American Yellowwood
Fagus grandifolia	American Beech
Fagus sylvatica	European Beech
Fraxinus americanus	White Ash
Fraxinus pennsylvanica	Green Ash
Fraxinus pennsylvanica 'Newport'	Newport Green Ash
Ginkgo biloba	Ginkgo (male)
Gleditsia triacanthos var inermis	Thornless Honeylocust
Metasequoia glyptostroboides	Dawn Redwood
Nyssa sylvatica	Black Gum
Plantanus acerifolia	London Planetree
Prunus sargentii	Sargent's Cherry
Quercu acutissima	Sawtooth Oak
Quercus alba	White Oak
Quercus coccinea	Scarlet Oak
Quercus falcata	Southern Red Oak
Quercus palustris	Pin Oak
Quercus phellos	Willow Oak
Quercus rubra	Red Oak



Tilia americana	American Linden
Tilia cordata	Littleleaf Linden
Ulmus americana 'Valley Forge'	Valley Forge/American Elm
Ulmus americana 'New Harmony'	New Harmony/American Elm
Ulmus hollandica	Groenveltd Elm
Ulmus parviflora	Chinese Elm
Zelkova cultivars	Japanese Zelkova
Stewartia pseudocamellia	Japanese Stewartia

Evergreen Trees

Cedrus atlantica	Atlas Cedar
Cupressocyparis leylandii	Leyland Cypress
Ilex aquifolium cultivars	English Holly
Ilex opaca	American Holly Varieties
Magnolia virginiana	Sweetbay Magnolia
Pinus nigra	Austrian Pine
Pinus strobus	White Pine
Pinus thunbergii	Japanese Black Pine

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 10/26/2004
 LEO
 OFFICE OF PLANNING

NCL	Recommended Plant Palette	Reid's Prospect Prospect Area Map
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<p>Ornamental Trees</p> <p>Acer campestre Acer ginnala Acer palmatum Amelanchier arborea Amelanchier canadensis Amelanchier laevis Betula nigra Carpinus betulus Carpinus caroliniana Cercidiphyllum japonicum Cercis canadensis Chionanthus virginicus Cornus kousa Halesia tetraptera Lagerstroemia indica Magnolia soulangeana Magnoliastellata Malus spp. Ostrya virginiana Oxydendron arboreum Prunus serrulata Stewartia koreana Stewartia ovata Stewartia pseudocamellia Styrax japonicum</p> <p>Hedge Maple Amur Maple Japanese Maple Downy Serviceberry Shadblow Serviceberry Allegheny Serviceberry River Birch European Hornbeam Ironwood Katsura Tree Eastern Redbud Fringe-tree Kousa Dogwood Silverbell Crapemyrtle Saucer Magnolia Star Magnolia Flowering Crabapple Ironwood Sourwood Flowering Cherry Korean Stewartia Mountain Stewartia Japanese Stewartia Japanese Snowbell</p>	<p>Deciduous Shrubs</p> <p>Aronia arbutifolia Berberis spp. Cotoneaster spp. Euonymus spp. Forsythia x intermedia Hamamelis virginiana Jasminum nudiflorum Potentilla fruticosa Pyracantha coccinea "Lowboy" Rhododendron spp. Viburnum spp.</p> <p>Evergreen Shrubs</p> <p>Ilex spp. Mahonia aquifolium Rhododendron spp. Taxus spp.</p> <p>Red Chokeberry Barberry Cotoneaster Euonymus Forsythia Witch Hazel Winter Jasmine Shrubby Cinquefoil Firethorn Azalea Varieties Viburnum</p> <p>Holly Oregon Grape Holly Azalea Varieties Japanese Yew</p>	<p>Groundcovers</p> <p>Euonymus fortunei "Coloratus" Hedera helix Hosta spp. Liriope muscari Liriope spicata Pachysandra terminalis Vinca minor</p> <p>Purple Wintercreeper English Ivy Hosta Liriope Spreading Liriope Japanese Spurge Periwinkle</p> <p>Herbaceous Vines</p> <p>Chrysogonum virginianum Cimicifuga americana Eupatorium dubium Geum canadense Iris versicolor Lespedeza hirta Sanguinaria canadensis Solidago canadensis Parthenocissus quinquefolia</p> <p>Green-and-Gold Black Cohosh Eastern Joe-Pye Weed White Avens Blue Flag Hairy Bush Clover Bloodroot Canada Goldenrod Virginia Creeper</p> <p>Woody Vines</p> <p>Campsis radicans Vitis labrusca</p> <p>Trumpet Creeper Fox Grape</p>
<p>APPROVED PROFFER DEVELOPMENT PLAN <i>Francis Burnap</i> 10/26/2004 OFFICE OF PLANNING</p>		
<p>NCL</p>	<p>Recommended Plant Palette</p>	<p>Reid's Prospect Prince William, Virginia</p>

<p>Purpose Of Regulations</p> <p>Approval is required for all construction and improvements. To that end, a Design Review Committee (DRC) shall be formed to carry out this review and approval responsibility. The DRC will establish rules governing the content of submission to builder's plans and the procedures for review of these plans. The DRC membership at the outset shall include, at a minimum, a representative of the development entity, an architect, an engineer and, when available, a residential and a commercial member of the project community.</p> <p>The purpose of these standards is to set forth requirements, procedures, and technical criteria for the comprehensive review of site or development plans and exterior building elements. The DRC will establish criteria and enforcement policies that may go beyond government agency requirements, but will not take precedence over any governmental rules and regulations. Once County minimums are approved, additional criteria may be established by the DRC.</p> <p>The objective of the Reid's Prospect DRC is to achieve equitable and consistent harmony between builders of this community. Plans requiring review will include: Development Plans, Site Plans, Architectural Plans, Materials and Exterior Colors, Landscape Plans, Sales Area and Temporary Structure Plans, Signage Plans.</p> <p>Amendments, revisions, and waivers to the Design Guidelines must be approved by a majority vote of the membership of the DRC, with documentation provided to ensure the design intent of the amendment can be clearly understood and implemented. This includes the preparation of architectural, landscape, and engineering standards and criteria, as appropriate, to be included in the changes sought. No amendment, revision or waiver shall be approved which is not substantially consistent with these Design Guidelines and the zoning.</p> <p>Each amendment, revision or waiver to be considered by the DRC shall be first forwarded to the Prince William County Director of Planning, who shall have ten business days from receipt to notify the DRC in writing that he or she has determined said amendment, revision or waiver to be substantially inconsistent with these Design Guidelines and zoning. The Planning Director's written determination shall include specific references to those portions of the Design Guidelines or conditions on the zoning which are the basis for such determination. The DRC shall not approve any such amendment found substantially inconsistent by the Planning Director. Failure of the Planning Director to provide such written notice shall automatically mean that he or she has determined such amendment, revision or waiver is substantially consistent with these Design Guidelines and the conditions of the zoning and the DRC shall be entitled to either approve or not approve said amendment in its sole discretion.</p>	<p>Development Plans and Site Plans</p> <p><u>Submission Requirements:</u></p> <p>The DRC reviews each submission presented by a participating builder. The following outline is required for submission to complete the approval process from design sketches to construction start, and the components are defined below in governing rules. Unless otherwise noted, this section deals only with Development Plans.</p> <p><u>Information Required:</u></p> <ol style="list-style-type: none"> 1. Basic Information 2. Title Block Information 3. Base Information 4. Submissions Required <ol style="list-style-type: none"> a. Preliminary Submission b. Schematic Stage c. Formal Preliminary Stage d. Final Submission <p><u>Governing Rules:</u></p> <p>No development plan shall be submitted to Prince William without the approval signature of the DRC. This approval may be granted after preliminary submission provided for below.</p> <p>Prince William County submissions for development plan approval must not be made until the preliminary site plans have been approved with no changes or comments.</p> <p>Building permits can be applied for, and site clearing and grading can begin after preliminary approval and proper County clearances have been granted. However, the actual construction start (excavation and the pouring of footings) will not commence until final plans have been approved without changes or comments.</p>	<p>Basic Information</p> <p>Both submissions, preliminary and final, must contain the same basic information of TITLE BLOCK information and BASE information.</p> <p><u>TITLE BLOCK Information:</u></p> <p>Title block information is to include (but not to be limited to) the name and address of the developer (builder) and the firm preparing the plan, parcel and/or lot designation(s), section, area, scale (minimum 1" = 30' 0"), north arrow, date of preparation and revisions to include an explanation of their nature and stage of submission (i.e. preliminary or final).</p> <p><u>BASE Information:</u></p> <p>Base information is to include (but not to be limited to) all existing conditions such as field-run topography at no more than two-foot intervals; existing trees with diameters (measured at a point twelve inches above the ground line) of four inches or greater (unless other criteria is approved by the DRC), located by elevation at base of tree, size, and common name, rock formations, springs, streams, etc. Also to be included (but not limited to) are existing man-made conditions such as easements and rights-of-way, properly labeled, existing and proposed streets with names and elevations, proper labeling of lot or parcel with record plan dimensions, designations of adjacent lots, drainage systems, street trees, curb cuts and street lights.</p> <p><u>Submissions:</u></p> <p>This submission may be done in two stages if the builder so elects, or if the project is of such complexity to so warrant. These would consist of a schematic stage and a formal preliminary stage. If the two-step procedure is not appropriate, please submit them as the formal preliminary.</p> <p><u>Schematic Stage:</u></p> <p>The development plan should be a rough layout on the above "base" showing all proposed improvements to include, (but not limited to), building locations, vehicular systems, parking, pedestrian systems, outside storage, trash collection and facilities and lighting plans.</p> <p>If building plans are being developed with the development plan, the architecture at this stage shall be in concept form showing elevations and floor plans with basic dimensions.</p>
<p>NCL</p>	<p style="text-align: center;"> APPROVED PROFFER DEVELOPMENT PLAN <i>F. Ann Burroughs</i> 10/26/2004 OFFICE OF PLANNING </p>	<p style="text-align: right;"> Reid's Prospect Prince William, Virginia </p>



PLANNING COMMISSION RESOLUTION

MOTION: TAYLOR

October 2, 2019

SECOND: FRY

Regular Agenda

RES. No. 19-108

**RE: PROFFER AMENDMENT #REZ2019-00024,
HAWTHORN RETIREMENT RESIDENCE AT REID'S PROSPECT**

ACTION: DEFER TO DATE CERTAIN – OCTOBER 16, 2019

WHEREAS, this is a request to amend the proffers associated with REZ #PLN2000-00041 to change the use designation in a portion of Land Bay I from OC-2 (now O(H), Office High Rise) to O(H), Office High Rise / B-1, General Business, to permit an assisted living facility, along with associated modifications, to include signage, building height, and floor area ratio (FAR) increases; and

WHEREAS, the ±5.41-acre site is located north of Prince William Parkway, west of Laurel Hills Drive, and south of the terminus of Effie Rose Place; and

WHEREAS, the property is identified on County maps as GPIN 8193-31-4635 (portion) and is addressed as 4460 Prince William Parkway; and

WHEREAS, the site is designated CEC, Community Employment Center, in the Comprehensive Plan, and is located within the Government Center Sector Plan special planning area; and

WHEREAS, the site is zoned PMD, Planned Mixed Use District, and is located within the Prince William Parkway Highway Corridor Overlay District; and

WHEREAS, the Prince William County Planning Commission duly ordered, advertised, and held a public hearing on October 2, 2019; and

WHEREAS, the Prince William County Planning Commission believes that public general welfare as well as good planning practices are served by the deferral of this request;

NOW, THEREFORE, BE IT RESOLVED that the Prince William County Planning Commission does hereby defer to a date certain – October 16, 2019, as requested by the Applicant.

Planning Commission Resolutions

October 2, 2019
Regular Meeting
RES 19-108
Page 2

Votes:

Ayes: Berry, Fry, Holley, McKay, Milne, Moses-Nedd, Taylor

Nays: None

Absent from Vote: None

Absent from Meeting: Haynes

Abstain from Vote: None

MOTION CARRIED

Attest:



Jennifer Dorcsis
Clerk to the Planning Commission



PLANNING COMMISSION RESOLUTION

MOTION: TAYLOR

October 16, 2019
Regular Agenda
RES. No. 19-118

SECOND: FRY

RE: PROFFER AMENDMENT, #REZ2019-00024
HAWTHORN RETIREMENT RESIDENCE AT REID'S PROSPECT

ACTION: RECOMMEND APPROVAL

WHEREAS, this is a request to amend the proffers associated with REZ #PLN2000-00041 to change the use designation in a portion of Land Bay I from OC-2 (now O(H), Office High-Rise) to O(H), Office High-Rise / B-1, General Business, to permit an assisted living facility, along with associated modifications, to include signage, building height, and floor area ration (FAR) increases; and

WHEREAS, the ±5.41-acre site is located north of Prince William Parkway, west of Laurel Hills Drive., and south of the terminus of Effie Rose Place; and

WHEREAS, the project site is identified on County maps as GPIN 8193-31-4635 (portion) and is addressed as 4460 Prince William Parkway; and

WHEREAS, the site is designated CEC, Community Employment Center, in the Comprehensive Plan, and is located with the Government Center Sector Plan special planning area; and

WHEREAS, the site is currently zoned PMD, Planned Mixed Use District, and is located within the Prince William Parkway Highway Corridor Overlay District; and

WHEREAS, the Prince William County Planning Commission duly ordered, advertised, and held a public hearing on October 16, 2019, at which time public testimony was received and the merits of the above-referenced case were considered; and

WHEREAS, the Prince William County Planning Commission believes that public general welfare as well as good planning practices are served by the approval of this request;

NOW, THEREFORE, BE IT RESOLVED that the Prince William County Planning Commission does hereby recommend approval of Proffer Amendment #REZ2019-00024, Hawthorn Retirement Residence at Reid's Prospect, subject to the proffers dated August 28, 2019, and with the following items to be addressed prior to the Board of County Supervisors meeting:

Planning Commission Resolutions

October 16, 2019
Regular Meeting
RES. No. 19-118
Page 2

1. Consider the use of a dry sprinkler system for fire suppression.
2. Explore options for safety improvements with the flashing yellow traffic signal at the Prince William Parkway/Black Forest Lane/Reids Prospect Drive intersection .

Votes:

Ayes: Berry, Fry, Holley, McKay, Milne, Moses-Nedd, Taylor

Nays: Haynes

Absent from Vote: None

Absent from Meeting: None

Abstain from Vote: None

MOTION PASSED

Attest:


Jennifer Dorcsis
Clerk to the Planning Commission

Hawthorn Retirement Residence at Reid's Prospect Proffer Amendment #REZ2019-00024

Occoquan Magisterial District

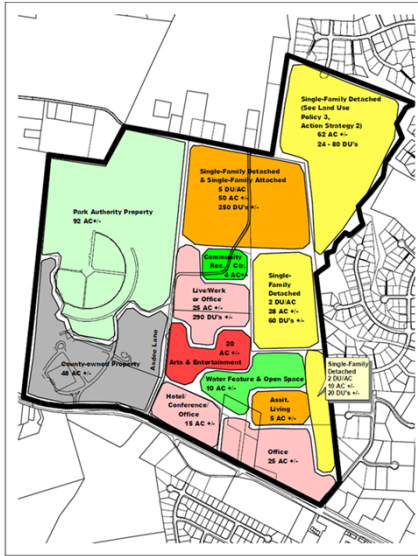
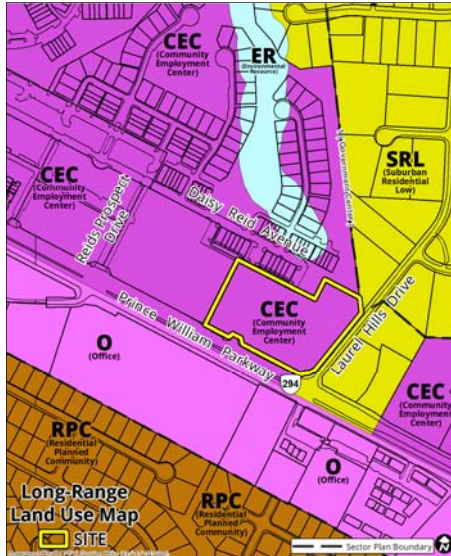
Scott F. Meyer
Planning Office

Proffer Amendment #REZ2019-00024 Hawthorn Retirement Residence at Reid's Prospect

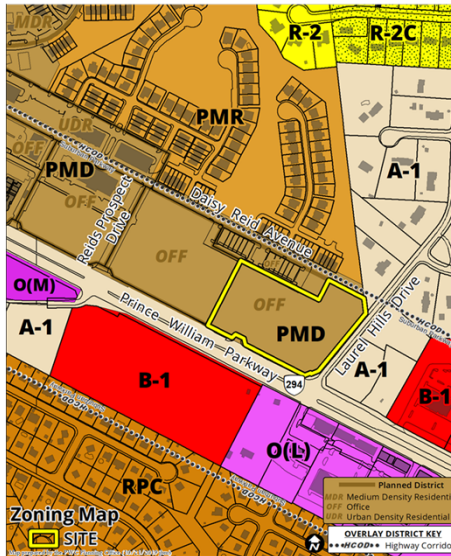
- ❑ **Proposal:** To amend the proffers associated with REZ #PLN2000-00041 to change the use designation in a portion of Land Bay I from OC-2 (now O(H), Office High Rise) to O(H), Office High Rise / B-1, General Business, to permit an assisted living facility, along with associated modifications, to include the following:
 - Signage
 - Building Height
 - Floor Area Ratio
- ❑ **Location:** North of Prince William Parkway, west of Laurel Hills Drive, and south of the terminus of Effie Rose Place; Undeveloped pad site of Reid's Prospect (±5.41 acres).
- ❑ **Recommendation:** Approval.



Proffer Amendment #REZ2019-00024
Hawthorn Retirement Residence at Reid's Prospect



Proffer Amendment #REZ2019-00024
Hawthorn Retirement Residence at Reid's Prospect

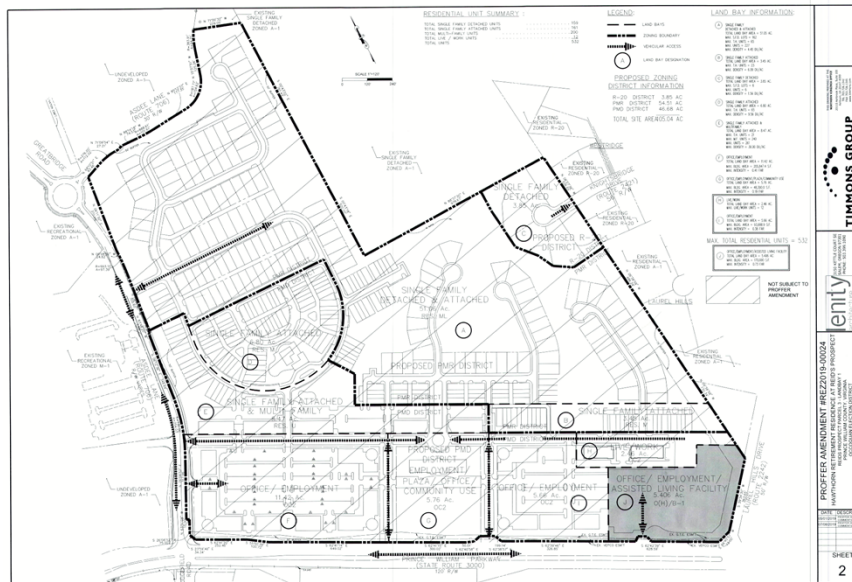


**Proffer Amendment #REZ2019-00024
Hawthorn Retirement Residence at Reid's Prospect**



Uses / Features	Previously Approved per REZ #PLN2000-00041 (PMD zoning)	Proposed (PMD zoning); with Proffer Amendment
Zoning	OC-2 - as proffered now O(H), Office High Rise	O(H), Office High Rise / B-1, General Business <i>(as modified)</i>
Use(s)	Land Bay I (±11.42 acres) Office/Employment uses	Land Bay J (Newly created) (±5.41 acres) Office/Employment/Assisted Living Facility
Monument Sign Height	10 feet	12 feet <i>(as modified)</i>
Floor Area Ratio (FAR)	1.25 in O(H); 0.40 in B-1	0.86 <i>(as modified)</i>
Building Height	Up to 100 feet, O(H) zoning Up to 45 feet, B-1 zoning	Up to 100 ft, O(H) zoning Up to 60 feet, B-1 zoning <i>(as modified)</i>

**Proffer Amendment #REZ2019-00024
Hawthorn Retirement Residence at Reid's Prospect**



Proffer Amendment #REZ2019-00024
Hawthorn Retirement Residence at Reid's Prospect



Illustrative Site Package
Hawthorn Retirement Residence
at Reid's Prospect
Woodbridge, Virginia



Proffer Amendment #REZ2019-00024
Hawthorn Retirement Residence at Reid's Prospect



**Proffer Amendment #REZ2019-00024
Hawthorn Retirement Residence at Reid's Prospect**



**Proffer Amendment #REZ2019-00024
Hawthorn Retirement Residence at Reid's Prospect**



**Illustrative Site Package
Hawthorn Retirement Residence
at Reid's Prospect**
Woodbridge, Virginia

Illustrative
Entry Feature
July 8, 2019
Sheet 3 of 7
HAWTHORN
RETIREMENT GROUP

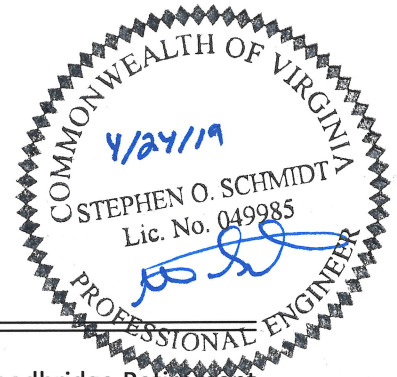
**Proffer Amendment #REZ2019-00024
Hawthorn Retirement Residence at Reid's Prospect**



Recommendations:

- ❑ **Planning Commission: Approval** of #REZ2019-00024, Hawthorn Retirement Residence at Reid's Prospect, subject to the proffers dated August 28, 2019, and with the following recommendations to be addressed prior to Board consideration:
 - Consider the use of a dry sprinkler system for fire suppression.
 - Explore options for safety improvements with the flashing yellow traffic signal at the Prince William Parkway / Black Forest Lane / Reids Prospect Drive intersection.
- ❑ **Staff Recommendation:** Concurs with **Approval**, subject to revised proffers dated October 25, 2019, and with removal of Proffer #34 (modification to allow overhead utility lines and pole to remain aboveground), for the following reasons:
 - The proposal allows the option to develop an assisted living facility in newly created Land Bay J, while retaining previously-proffered allowable office/employment uses.
 - An assisted living facility is among the planned uses in the Government Center Sector Plan for this area of Reid's Prospect.
 - The proffer amendment retains all prior design-related commitments for Reid's Prospect, including Design Guidelines.
 - As proffered, the new impacts associated with the assisted living facility will be adequately mitigated.

To: Elizabeth Scullin (Prince William County Public Works)
From: Stephen O. Schmidt, PE, PTOE (Timmons Group)
RE: Woodbridge Retirement Residence Traffic Assessment
Date: April 24, 2019
Copy: Jonelle Cameron (TLL), Luke Fetcho (TG)



Timmons Group has performed a traffic assessment in support of the proposed Woodbridge Retirement Residence in Prince William County (County), Virginia. The site is located north of Prince William Parkway, south of Daisy Reid Avenue, east of Reids Prospect Drive, and west of Laurel Hills Drive as shown on Figure 1 (all figures are located at the end of the report).

The traffic generated by the proposed development does not meet the County thresholds for a full Traffic Impact Analysis (TIA). For this reason, the County waived a full traffic impact analysis but required queuing analysis and weaving analysis at the adjacent intersections. A copy of the scoping documentation is included in Appendix A.

Background

The proposed development consists of 167 assisted living dwelling units (DU) with access provided via a single right-in/right-out only site entrance off of Prince William Parkway. The proposed access point is located at an existing curb cut with an existing right turn lane (100 feet of storage and 85 feet of taper) located approximately 435 feet west of the Prince William Parkway/Laurel Hills Drive intersection. See Figure 2 for the preliminary site layout.

This analysis specifically addresses traffic impacts of the site to the following intersections:

- Prince William Parkway / Laurel Hills Drive/Ridgewood Center Drive (signalized)
- Prince William Parkway / Reids Prospect Drive/Black Forest Drive (unsignalized)
- Prince William Parkway / Site Entrance (unsignalized)

All traffic entering and exiting the site will utilize the right-in/right-out only site entrance off Prince William Parkway and the adjacent intersections with Laurel Hills Drive (signalized) and Reids Prospect Drive (unsignalized) to make required U-turns.

Traffic approaching the site from the west on Prince William Parkway will travel past the site and make a U-turn at the Prince William Parkway/Laurel Hills Drive intersection and then a westbound right turn into the site.

All traffic exiting the site will make a right turn onto Prince William Parkway. Traffic heading back to the east will make a U-turn at the Prince William Parkway/Reids Prospect Drive intersection.

Prince William Parkway is a 6-lane, divided, urban principal arterial with a posted speed limit of 45 mph that carries approximately 46,000 vehicles per day (VDOT 2017 traffic count) and serves as the primary east-west travel corridor relative to the site.

The Prince William Parkway / Laurel Hills Drive/Ridgewood Center Drive intersection is signalized with dedicated left turn lanes in both the east and westbound directions. The mainline left-turns operate as protected only and U-turns are allowed in the protected phase.

The Prince William Parkway / Reids Prospect Drive/Black Forest Drive intersection operates as an unsignalized intersection with the side street under STOP control. The intersection has flashing control beacons, with flashing red (stop) signal indications for the northbound-southbound side-street approaches. Eastbound/westbound left turning movements at the intersection are permissive and operate via flashing yellow signal indications.

The existing geometry is shown on Figure 3.

Existing Traffic Volumes

Peak hour directional turning movement (DTM) counts were performed at both the Prince William Parkway/Laurel Hills Drive and Prince William Parkway/Reids Prospect Drive intersections. The data was collected on March 12, 2019 during the AM (6:00 – 9:00 AM) and PM (4:00 – 6:00 PM) peak periods when public schools were in session. The raw DTM count data is contained in Appendix B.

The AM peak hour was identified as 7:30 – 8:30 AM and the PM peak hour was identified as 5:00 – 6:00 PM. The 2019 existing peak hour traffic volumes are shown on Figure 4.

The existing traffic counts indicate very little traffic is using Laurel Hills Drive. The roadway provides access to approximately 21 single family residential dwelling units and the counts indicate zero vehicles make an eastbound left turn from Prince William Parkway onto Laurel Hills Drive in either peak hour.

Proposed Development and Trip Generation/Distribution

The proposed development will consist of an assisted living (under Prince William County definitions) facility with 167 dwelling units. The facility will operate as a congregate care retirement residence from a trip generation perspective.

Using the total dwelling units (DU) as the independent variable, trip generation estimates for the proposed development were calculated. The trip generation estimate is summarized in Table 1 below:

**Table 1:
 Site-Generated Traffic for Woodbridge Retirement Residence**

LAND USE	ITE CODE	AMOUNT UNITS	WEEKDAY TRIPS						
			ADI	AM PEAK HOUR			PM PEAK HOUR		
				IN	OUT	TOTAL	IN	OUT	TOTAL
Congregate Care	253	167 D.U.s	337	7	5	12	16	14	30

SOURCE: Institute of Transportation Engineers' *Trip Generation Manual* 10th Edition (2017)

Based on the directional distribution of existing traffic on Prince William Parkway, during the both the AM and PM peak hours, it was assumed that 60% of the site traffic will be to/from the west and 40% to/from the east.

Using the assumed distributions, the site-generated traffic shown in Table 1 was assigned to the adjacent intersections and is shown on Figure 5.

Projected Total Traffic

The 2019 existing traffic volumes (see Figure 4) were combined with the site-generated traffic estimates (see Figure 5) to calculate the total traffic volumes which are show on Figure 6.

Queue Analysis

Capacity and queueing analyses were performed using SYNCHRO/SimTraffic Version 10 based on HCM 6th methodologies at the following intersections:

- Prince William Parkway & Laurel Hills Drive / Ridgewood Center Drive
- Prince William Parkway & Reids Prospect Drive / Black Forest Drive
- Prince William Parkway & Site Entrance

The intersections were analyzed using the existing traffic signal timings (as provided by VDOT – see Appendix C), the existing lane use and traffic control shown on Figure 3. The intersections were analyzed under both existing (see Figure 4) and future (see Figure 6) traffic volume conditions.

The reported queues are both 95th percentile queues (as reported by SYNCHRO) and maximum queues (as reported by SimTraffic after 10 runs of 60 minutes each). See Table 2 for the existing analysis results and Table 3 for the future analysis results. The corresponding analysis worksheets are included in Appendix D for existing conditions and Appendix E for future conditions.

The SYNCHRO and SimTraffic analysis indicates the following:

- Under existing conditions, queues along Prince William Parkway do not exceed the existing storage bay availability.
 - At the signalized intersection with Laurel Hills Drive/Ridgewood Center Drive intersection, the traffic counts indicate zero vehicles make an eastbound left turn in either peak hour which results in zero queue.
 - At the unsignalized intersection with Reids Prospect Drive/Black Forest Lane, the westbound left turn lane has 430 feet of available full width storage and a maximum queue of 54 feet in the PM peak hour.
- Under future conditions with the development of the site and the corresponding U-turns, the queues along Prince William will not exceed the existing storage bay capacity.
 - At the signalized intersection with Laurel Hills Drive/Ridgewood Center Drive intersection, the eastbound left turn lane has 465 feet of available full width storage and will experience a maximum queue of 47 feet in the PM peak hour.

- At the unsignalized intersection with Reids Prospect Drive/Black Forest Lane, the westbound left turn lane has 430 feet of available full width storage and a maximum queue of 23 feet in the PM peak hour.
 - It is noted this queue is less than the queue reported under existing conditions by approximately one (1) vehicle length.
 - The available storage far exceeds the simulated maximum queue in either peak hour.

Weave Analysis

Weaving analysis was completed using HCS 2010 software for traffic leaving the site and eastbound on Prince William Parkway. This traffic must make a right turn onto westbound Prince William Parkway and then weave across four (4) lanes of traffic in 620 feet to enter the westbound left turn lane at the Reids Prospect Drive/Black Forest Lane intersection.

The analysis was completed using the existing lane use and traffic control shown on Figure 3 and the Future traffic volumes shown on Figure 6. The results of the analysis are included in Appendix F and indicate the weaving traffic has adequate distance to make the maneuver. In both the AM and PM peak hours, the weaving maneuver will operate at a LOS B.

Conclusions

With or without development of the Woodbridge Retirement Residence, the existing turn lanes along Prince William Parkway have adequate storage to contain the maximum queues. The weaving maneuver from traffic leaving the site and heading east on Prince William Parkway will operate at a LOS B in both peak hours.

**Table 2: Intersection Level of Service and Delay Summary
 2019 Existing Traffic**

Intersection and Type of Control	Movement and Approach	Turn Lane Storage (ft) ⁽¹⁾	AM PEAK HOUR				PM PEAK HOUR			
			Delay ² (sec/veh)	LOS ²	HCS 95th Percentile Queue Length (ft)	Simulated Maximum Queue Length (ft)	Delay ² (sec/veh)	LOS ²	HCS 95th Percentile Queue Length (ft)	Simulated Maximum Queue Length (ft)
1. Prince William Pkwy (E-W) at Ridgewood Center Drive (N) / Laurel Hills Drive (S) Signalized	EB Left	430	0.0	A	0	0	0.0	A	0	0
	EB Thru		10.8	B	719	337	7.1	A	491	220
	EB Thru-Right		12.3	B	719	297	7.7	A	0	171
	<i>EB Approach</i>		<i>11.3</i>	<i>B</i>	--	--	<i>7.3</i>	<i>A</i>	--	--
	WB Left	540	112.0	F	#140	130	118.4	F	47	68
	WB Thru		2.9	A	175	172	6.6	A	607	355
	WB Thru-Right		3.2	A	175	72	7.8	A	607	240
	<i>WB Approach</i>		<i>6.8</i>	<i>A</i>	--	--	<i>7.5</i>	<i>A</i>	--	--
	NB L-T-R		115.0	F	0	115	114.2	F	5	177
	<i>NB Approach</i>		<i>115.0</i>	<i>F</i>	--	--	<i>114.2</i>	<i>F</i>	--	--
	SB L-T-R		109.5	F	0	48	122.4	F	30	26
<i>SB Approach</i>		<i>109.5</i>	<i>F</i>	--	--	<i>122.4</i>	<i>F</i>	--	--	
Overall			10.4	B	--	--	8.6	A	--	--
2. Prince William Pkwy (E-W) at Black Forest Drive (N) / Reids Prospect Drive (S) Unsignalized	EB Left	518	26.6	D	0	24	139.0	F	5	24
	EB Thru-Right		†	†	†	†	†	†	†	†
	<i>EB Approach</i>		<i>0.0</i>	<i>A</i>	--	--	<i>0.1</i>	<i>A</i>	--	--
	WB Left	523	95.8	F	13	0	53.3	F	5	54
	WB Thru		†	†	†	†	†	†	†	†
	WB Right	488	†	†	†	†	†	†	†	†
	<i>WB Approach</i>		<i>0.4</i>	<i>A</i>	--	--	<i>0.1</i>	<i>A</i>	--	--
	NB L-T-R		40.1	E	5	28	327.5	F	33	305
	<i>NB Approach</i>		<i>40.1</i>	<i>E</i>	--	--	<i>327.5</i>	<i>F</i>	--	--
	SB Left-Thru		1823.6	F	205	425	5710.3	F	123	414
SB Right		19.4	C	3	0	51.6	F	10	20	
<i>SB Approach</i>		<i>1643.2</i>	<i>F</i>	--	--	<i>4167.0</i>	<i>F</i>	--	--	
3. Prince William Pkwy (E-W) at Site Entrance (N-S) Unsignalized	WB Right	193	FUTURE ANALYZED SCENARIO				FUTURE ANALYZED SCENARIO			
	<i>WB Approach</i>									
	SB Right									
	<i>SB Approach</i>									

¹ Available storage is full storage plus 1/2 the full taper, as recorded in SYNCHRO. Actual lane geometry reported in Figures.

² Overall intersection LOS and delay reported for signalized intersections only.

† SYNCHRO does not provide level of service or delay for unsignalized movements with no conflicting volumes.

**Table 3: Intersection Level of Service and Delay Summary
 2019 Future Traffic**

Intersection and Type of Control	Movement and Approach	Turn Lane Storage (ft) ⁽¹⁾	AM PEAK HOUR				PM PEAK HOUR			
			Delay ² (sec/veh)	LOS ²	HCS 95th Percentile Queue Length (ft)	Simulated Maximum Queue Length (ft)	Delay ² (sec/veh)	LOS ²	HCS 95th Percentile Queue Length (ft)	Simulated Maximum Queue Length (ft)
1. Prince William Pkwy (E-W) at Ridgewood Center Drive (N) / Laurel Hills Drive (S) Signalized	EB Left	430	120.3	F	20	27	118.8	F	41	47
	EB Thru		10.8	B	719	359	7.1	A	493	258
	EB Thru-Right		12.3	B	719	356	7.8	A	493	224
	<i>EB Approach</i>		11.5	B	--	--	7.9	A	--	--
	WB Left	540	112.0	F	#140	236	118.4	F	47	47
	WB Thru		4.7	A	274	194	10.7	B	960	368
	WB Thru-Right		5.0	A	274	93	12.3	B	960	266
	<i>WB Approach</i>		8.6	A	--	--	11.7	B	--	--
	NB L-T-R		115.0	F	0	134	114.2	F	5	177
	<i>NB Approach</i>		115.0	F	--	--	114.2	F	--	--
	SB L-T-R		109.5	F	0	26	122.4	F	30	46
<i>SB Approach</i>		109.5	F	--	--	122.4	F	--	--	
Overall			11.2	B	--	--	11.2	B	--	--
2. Prince William Pkwy (E-W) at Black Forest Drive (N) / Reids Prospect Drive (S) Unsignalized	EB Left	518	26.7	D	0	24	139.0	F	5	24
	EB Thru-Right		†	†	†	†	†	†	†	†
	<i>EB Approach</i>		0.0	A	--	--	0.1	A	--	--
	WB Left	523	100.7	F	15	25	58.5	F	13	23
	WB Thru		†	†	†	†	†	†	†	†
	WB Right	488	†	†	†	†	†	†	†	†
	<i>WB Approach</i>		0.5	A	--	--	0.2	A	--	--
	NB L-T-R		40.1	E	5	28	417.9	F	38	330
	<i>NB Approach</i>		40.1	E	--	--	417.9	F	--	--
	SB Left-Thru		1981.0	F	208	427	8746.6	F	125	427
SB Right		19.4	C	3	425	51.6	F	10	433	
<i>SB Approach</i>		1784.8	F	--	--	6375.2	F	--	--	
3. Prince William Pkwy (E-W) at Site Entrance (N-S) Unsignalized	WB Right	193	0.0	A	0	0	0.0	A	0	0
	<i>WB Approach</i>		0.0	A	--	--	0.0	A	--	--
	SB Right		19.9	C	3	24	62.9	F	18	0
	<i>SB Approach</i>		19.9	C	--	--	62.9	F	--	--

¹ Available storage is full storage plus 1/2 the full taper, as recorded in SYNCHRO. Actual lane geometry reported in Figures.

² Overall intersection LOS and delay reported for signalized intersections only.

† SYNCHRO does not provide level of service or delay for unsignalized movements with no conflicting volumes.

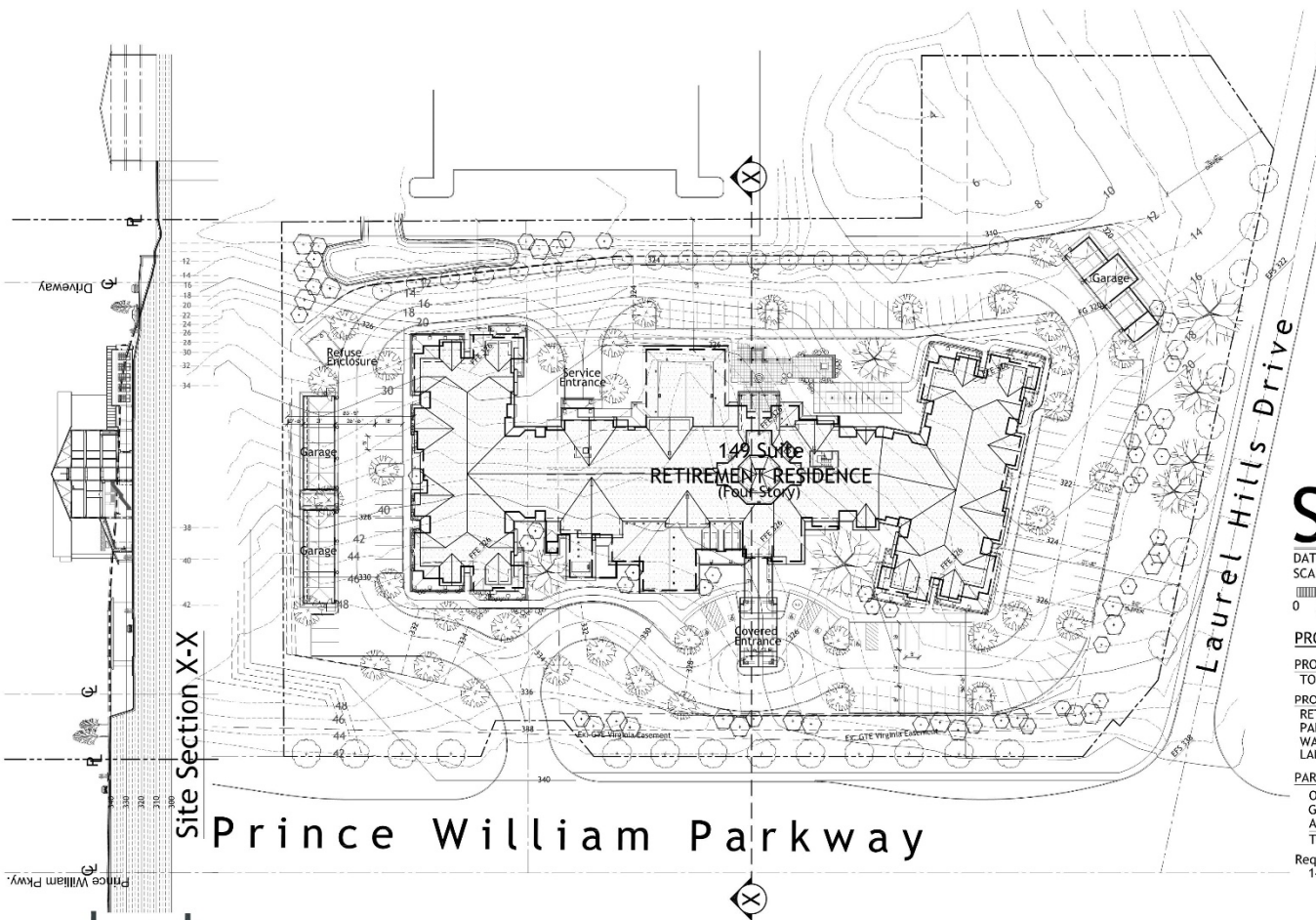


NOT TO
SCALE



Site Location Map
Woodbridge Retirement Residence
Prince William County, Virginia

Figure
1



Site Plan

DATE: 10 May 2018
SCALE: 1" = 30'-0"



PROJECT STATISTICS:

PROJECT AREA:
TOTAL AREA 5.41 AC 235,500 SQ. FT.

PROJECT STATISTICS:
RETIREMENT BUILDING: 43,523 SQ. FT. 18.5%
PARKING AND DRIVES: 62,230 SQ. FT. 26.4%
WALKS AND PATIOS: 9,215 SQ. FT. 3.9%
LANDSCAPED AREA: 120,532 SQ. FT. 51.2%

PARKING:

Open Spaces: 89
Garage Spaces: 18
Accessible Spaces: 5
Total Spaces: 112
Required Spaces:
149 Suites x 0.75 = 112 Spaces

lenity
architecture

3150 Kettle Court SE, Salem, Oregon 97301
503 355 1090 # 503 390 0555 lenityarch@lenityarch.com

Woodbridge Retirement Residence

Woodbridge, Virginia

HAWTHORN
RETIREMENT GROUP

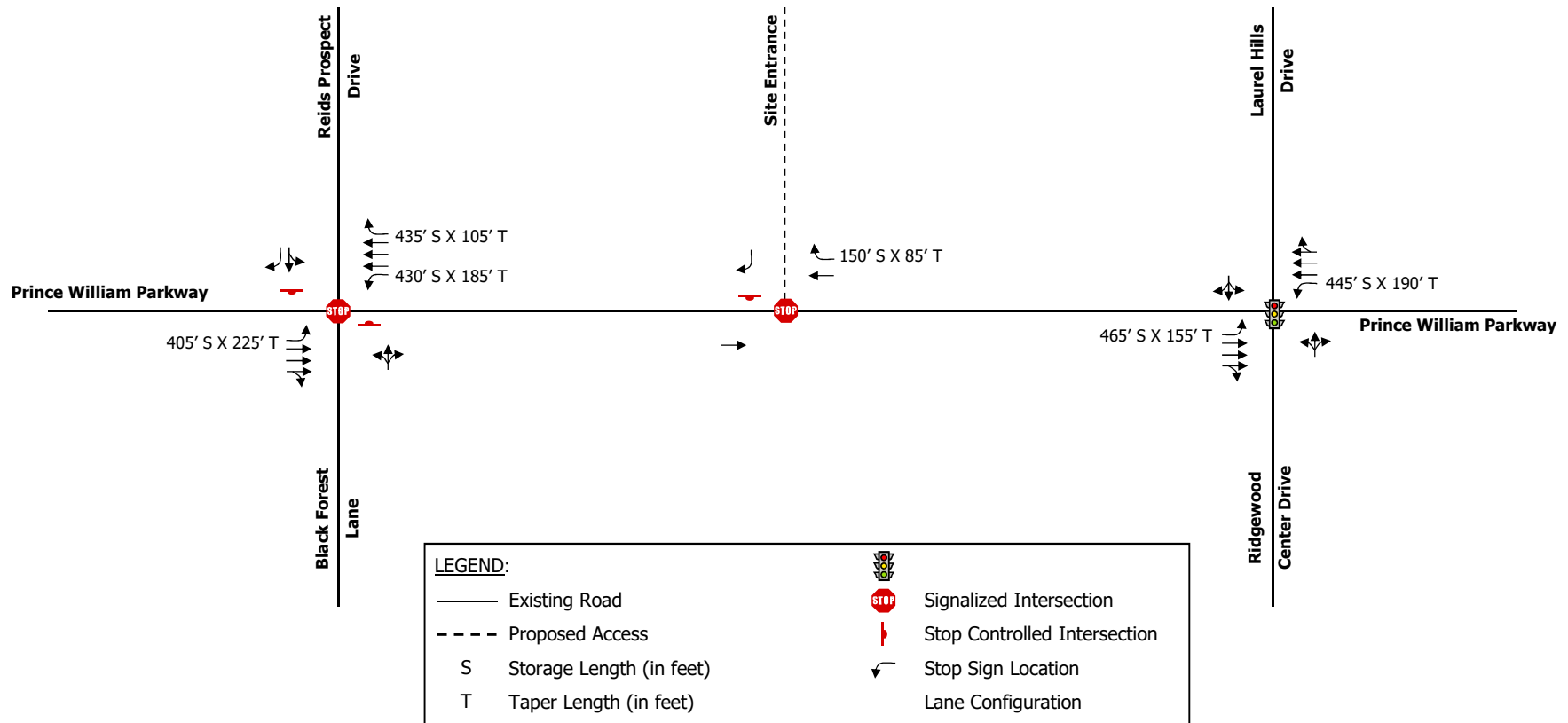
9510 NE Vancouver Mall Dr., Suite 200
Vancouver, WA 98665-4213
(360) 213-1650 Fax (360) 213-1540

NOT TO
SCALE



Preliminary Site Layout
Woodbridge Retirement Residence
Prince William County, Virginia

Figure
2



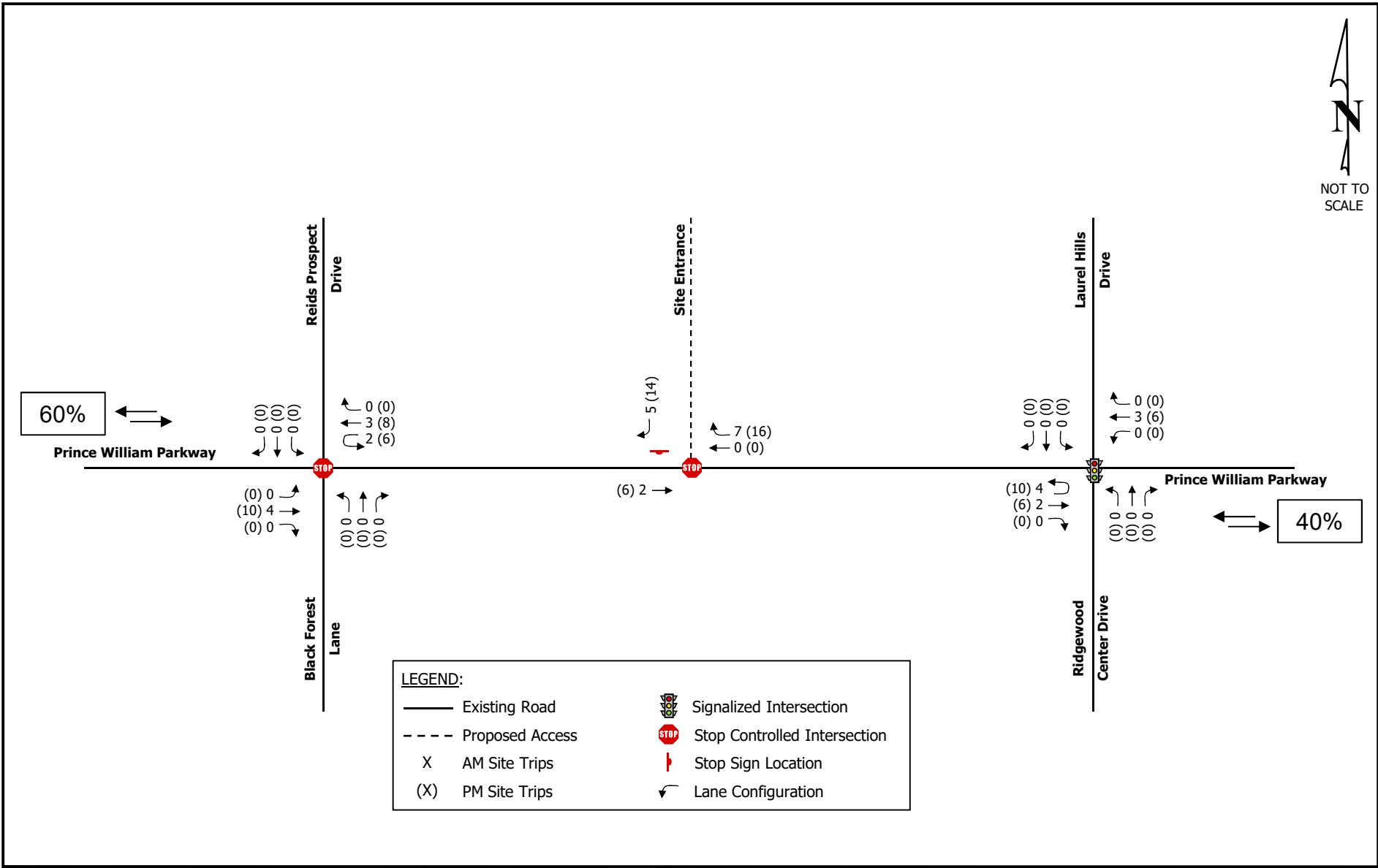
Existing Lane Use Configuration
 Woodbridge Retirement Residence
 Prince William County, Virginia

Figure
 3



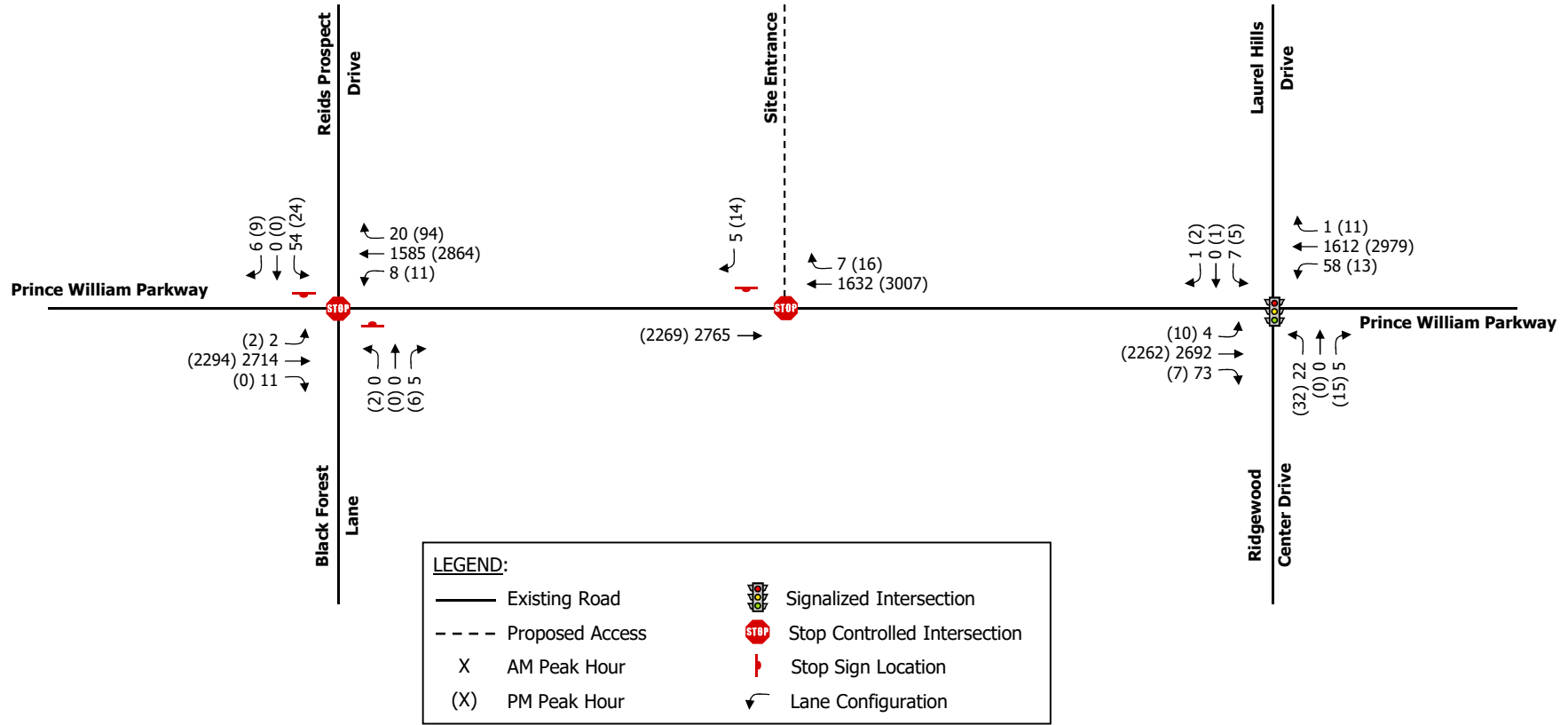
2019 Existing Peak Hour Volumes
Woodbridge Retirement Residence
Prince William County, Virginia

Figure
4



Peak Hour Site Trips
 Woodbridge Retirement Residence
 Prince William County, Virginia

Figure
 5



Total Peak Hour Volumes
 Woodbridge Retirement Residence
 Prince William County, Virginia

Figure
 6

APPENDIX A

Scoping Documents

APPLICATION FOR DEFERRAL OF TRAFFIC IMPACT ANALYSIS (TIA)
 (to be completed with assistance from PWC Transportation Department)

To be completed by applicant:

Applicant Name: Hawthorne Development LLC Phone: _____

Proposed Use: Assisted Living (Under PWC definitions)

Location: 4460 Prince William Pkwy /GPIN 8193-31-4635 (PART) Lot Size: 5.41 acres

Check one:

Rezoning Special Use Permit Other: Proffer Amendment

To be completed by applicant:				To be completed by PWC Transportation Department:				
Tract/Use	Area	Zoning	Land Use	ITE Code	(ITE Latest Edition Trip Rate)	Trips/24 Hours	Trips/AM Peak	Trips/PM Peak
8193-31-4635 (PART)	5.41 AC	PMD	CONGREGATE CARE	253	2.02/UNIT/DAY	337		
					0.07/UNIT/AM		12	
					0.18/UNIT/PM			30
Total						337	12	30
1200 Daily Trips or 100 Peak Hour Trips						Yes		
						No		

FOR OFFICE USE ONLY

A TIA (three copies and two information disks) is required to be submitted with the application. The consultant preparing the analysis must meet with the PWC Department of Transportation and VDOT to discuss the scope and requirements of the analysis before beginning the analysis. Additionally, at the scoping session, VDOT will determine whether a 527 review is required, as well as the applicable fee.

A TIA is not required to be submitted at this time. The traffic generated by the proposed development does not appear to exceed the thresholds established in §602.01 of the Prince William County Design and Construction Standards Manual (DCSM). However, a TIA may be required later in the rezoning/special use permit process or during the site plan review process if subsequent details warrant a TIA. The applicant should also be aware that a 527 review may be required by VDOT and may want to contact VDOT to verify whether a 527 review will be warranted.

A TIA has been waived by the Director for the following reasons: *The project does not generate sufficient traffic to warrant a TIA. However, queue analysis must be performed at the site access and for the U-turns at adjacent intersections.*

Reviewed by (print name): Elizabeth D. Scullin Date: 5.15.18

Additional Notes: *A waive analysis for U-turns should also be prepared.*

APPENDIX B

2019 Traffic Count Data

Peggy Malone & Associates

(888) 247-8602

File Name : 1-Reids Prospect Dr and Prince William Pkwy AM
 Site Code :
 Start Date : 3/12/2019
 Page No : 1

Groups Printed- Truck

Start Time	Reids Prospect Dr Southbound					Prince William Pkwy Westbound					Black Forest Dr Northbound					Prince William Pkwy Eastbound					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
06:00 AM	1	0	0	0	1	0	5	0	0	5	0	0	0	0	0	0	12	0	0	12	18
06:15 AM	0	0	0	0	0	0	9	0	0	9	0	0	0	0	0	0	15	0	0	15	24
06:30 AM	0	0	0	0	0	0	27	0	0	27	0	0	0	0	0	0	13	0	0	13	40
06:45 AM	1	0	0	0	1	0	12	0	0	12	0	0	0	0	0	0	16	0	0	16	29
Total	2	0	0	0	2	0	53	0	0	53	0	0	0	0	0	0	56	0	0	56	111
07:00 AM	0	0	0	0	0	1	6	0	0	7	0	0	0	0	0	0	17	0	0	17	24
07:15 AM	0	0	0	0	0	0	13	0	0	13	0	0	0	0	0	0	33	0	0	33	46
07:30 AM	0	0	0	0	0	0	13	0	0	13	0	0	0	0	0	0	28	1	0	29	42
07:45 AM	0	0	0	0	0	0	8	0	0	8	0	0	0	0	0	0	24	0	0	24	32
Total	0	0	0	0	0	1	40	0	0	41	0	0	0	0	0	0	102	1	0	103	144
08:00 AM	0	0	0	0	0	0	16	0	0	16	0	0	0	0	0	0	25	1	0	26	42
08:15 AM	0	0	0	0	0	0	24	0	0	24	0	0	0	0	0	0	18	0	0	18	42
08:30 AM	0	0	0	0	0	1	23	0	0	24	0	0	0	0	0	0	25	1	0	26	50
08:45 AM	0	0	0	0	0	0	23	0	0	23	0	0	0	0	0	0	26	0	0	26	49
Total	0	0	0	0	0	1	86	0	0	87	0	0	0	0	0	0	94	2	0	96	183
Grand Total	2	0	0	0	2	2	179	0	0	181	0	0	0	0	0	0	252	3	0	255	438
Apprch %	100	0	0	0		1.1	98.9	0	0		0	0	0	0		0	98.8	1.2	0		
Total %	0.5	0	0	0	0.5	0.5	40.9	0	0	41.3	0	0	0	0	0	0	57.5	0.7	0	58.2	

Start Time	Reids Prospect Dr Southbound				Prince William Pkwy Westbound				Black Forest Dr Northbound				Prince William Pkwy Eastbound				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	0	0	0	0	0	16	0	16	0	0	0	0	0	25	1	26	42
08:15 AM	0	0	0	0	0	24	0	24	0	0	0	0	0	18	0	18	42
08:30 AM	0	0	0	0	1	23	0	24	0	0	0	0	0	25	1	26	50
08:45 AM	0	0	0	0	0	23	0	23	0	0	0	0	0	26	0	26	49
Total Volume	0	0	0	0	1	86	0	87	0	0	0	0	0	94	2	96	183
% App. Total	0	0	0		1.1	98.9	0		0	0	0		0	97.9	2.1		
PHF	.000	.000	.000	.000	.250	.896	.000	.906	.000	.000	.000	.000	.000	.904	.500	.923	.915

Peggy Malone & Associates

(888) 247-8602

File Name : 1-Reids Prospect Dr and Prince William Pkwy AM
 Site Code :
 Start Date : 3/12/2019
 Page No : 1

Groups Printed- Car

Start Time	Reids Prospect Dr Southbound					Prince William Pkwy Westbound					Black Forest Dr Northbound					Prince William Pkwy Eastbound					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
06:00 AM	0	0	12	0	12	2	168	0	0	170	0	0	0	0	0	0	460	0	0	460	642
06:15 AM	1	0	15	0	16	0	236	0	0	236	0	0	0	0	0	0	520	1	0	521	773
06:30 AM	1	0	13	0	14	6	264	0	0	270	0	0	0	0	0	0	571	1	1	573	857
06:45 AM	1	0	8	0	9	3	282	0	0	285	0	0	0	0	0	0	618	0	2	620	914
Total	3	0	48	0	51	11	950	0	0	961	0	0	0	0	0	0	2169	2	3	2174	3186
07:00 AM	2	0	9	0	11	8	312	0	0	320	3	0	0	0	3	0	591	2	1	594	928
07:15 AM	2	0	20	0	22	4	333	1	0	338	3	0	0	0	3	0	641	4	0	645	1008
07:30 AM	1	0	15	0	16	4	370	0	0	374	0	0	0	2	2	0	657	1	1	659	1051
07:45 AM	2	0	9	0	11	7	417	2	0	426	1	0	0	0	1	0	679	2	1	682	1120
Total	7	0	53	0	60	23	1432	3	0	1458	7	0	0	2	9	0	2568	9	3	2580	4107
08:00 AM	1	0	10	0	11	5	412	3	0	420	1	0	0	0	1	2	623	2	0	627	1059
08:15 AM	1	0	10	0	11	6	350	1	1	358	1	0	0	0	1	0	634	5	0	639	1009
08:30 AM	0	0	9	0	9	4	368	3	1	376	2	0	0	0	2	0	525	3	0	528	915
08:45 AM	3	0	9	0	12	8	298	2	0	308	0	0	0	0	0	0	566	5	0	571	891
Total	5	0	38	0	43	23	1428	9	2	1462	4	0	0	0	4	2	2348	15	0	2365	3874
Grand Total	15	0	139	0	154	57	3810	12	2	3881	11	0	0	2	13	2	7085	26	6	7119	11167
Apprch %	9.7	0	90.3	0		1.5	98.2	0.3	0.1		84.6	0	0	15.4		0	99.5	0.4	0.1		
Total %	0.1	0	1.2	0	1.4	0.5	34.1	0.1	0	34.8	0.1	0	0	0	0.1	0	63.4	0.2	0.1	63.8	

Start Time	Reids Prospect Dr Southbound				Prince William Pkwy Westbound				Black Forest Dr Northbound				Prince William Pkwy Eastbound				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	2	0	20	22	4	333	1	338	3	0	0	3	0	641	4	645	1008
07:30 AM	1	0	15	16	4	370	0	374	0	0	0	0	0	657	1	658	1048
07:45 AM	2	0	9	11	7	417	2	426	1	0	0	1	0	679	2	681	1119
08:00 AM	1	0	10	11	5	412	3	420	1	0	0	1	2	623	2	627	1059
Total Volume	6	0	54	60	20	1532	6	1558	5	0	0	5	2	2600	9	2611	4234
% App. Total	10	0	90		1.3	98.3	0.4		100	0	0		0.1	99.6	0.3		
PHF	.750	.000	.675	.682	.714	.918	.500	.914	.417	.000	.000	.417	.250	.957	.563	.959	.946

Peggy Malone & Associates

(888) 247-8602

File Name : 1-Reids Prospect Dr and Prince William Pkwy AM
 Site Code :
 Start Date : 3/12/2019
 Page No : 1

Groups Printed- Bicycles on Crosswalk

Start Time	Reids Prospect Dr Southbound					Prince William Pkwy Westbound					Black Forest Dr Northbound					Prince William Pkwy Eastbound					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
06:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:30 AM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
06:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Apprch %	0	0	0	100		0	0	0	0		0	0	0	0		0	0	0	0		
Total %	0	0	0	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Start Time	Reids Prospect Dr Southbound				Prince William Pkwy Westbound				Black Forest Dr Northbound				Prince William Pkwy Eastbound				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	
06:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
06:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
06:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
06:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 06:00 AM

Peggy Malone & Associates

(888) 247-8602

File Name : 1-Reids Prospect Dr and Prince William Pkwy AM
 Site Code :
 Start Date : 3/12/2019
 Page No : 1

Groups Printed- Pedestrians

Start Time	Reids Prospect Dr Southbound					Prince William Pkwy Westbound					Black Forest Dr Northbound					Prince William Pkwy Eastbound					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
06:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:15 AM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:30 AM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
07:00 AM	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
07:15 AM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	0	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Total	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Grand Total	0	0	0	8	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
Apprch %	0	0	0	100		0	0	0	0		0	0	0	0		0	0	0	0		
Total %	0	0	0	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Start Time	Reids Prospect Dr Southbound				Prince William Pkwy Westbound				Black Forest Dr Northbound				Prince William Pkwy Eastbound				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 06:00 AM																	
06:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
06:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
06:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
06:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	

Peggy Malone & Associates

(888) 247-8602

File Name : 1-Reids Prospect Dr and Prince William Pkwy AM
 Site Code :
 Start Date : 3/12/2019
 Page No : 1

Groups Printed- Car - Truck

Start Time	Reids Prospect Dr Southbound					Prince William Pkwy Westbound					Black Forest Dr Northbound					Prince William Pkwy Eastbound					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
06:00 AM	1	0	12	0	13	2	173	0	0	175	0	0	0	0	0	0	472	0	0	472	660
06:15 AM	1	0	15	0	16	0	245	0	0	245	0	0	0	0	0	0	535	1	0	536	797
06:30 AM	1	0	13	0	14	6	291	0	0	297	0	0	0	0	0	0	584	1	1	586	897
06:45 AM	2	0	8	0	10	3	294	0	0	297	0	0	0	0	0	0	634	0	2	636	943
Total	5	0	48	0	53	11	1003	0	0	1014	0	0	0	0	0	0	2225	2	3	2230	3297
07:00 AM	2	0	9	0	11	9	318	0	0	327	3	0	0	0	3	0	608	2	1	611	952
07:15 AM	2	0	20	0	22	4	346	1	0	351	3	0	0	0	3	0	674	4	0	678	1054
07:30 AM	1	0	15	0	16	4	383	0	0	387	0	0	0	2	2	0	685	2	1	688	1093
07:45 AM	2	0	9	0	11	7	425	2	0	434	1	0	0	0	1	0	703	2	1	706	1152
Total	7	0	53	0	60	24	1472	3	0	1499	7	0	0	2	9	0	2670	10	3	2683	4251
08:00 AM	1	0	10	0	11	5	428	3	0	436	1	0	0	0	1	2	648	3	0	653	1101
08:15 AM	1	0	10	0	11	6	374	1	1	382	1	0	0	0	1	0	652	5	0	657	1051
08:30 AM	0	0	9	0	9	5	391	3	1	400	2	0	0	0	2	0	550	4	0	554	965
08:45 AM	3	0	9	0	12	8	321	2	0	331	0	0	0	0	0	0	592	5	0	597	940
Total	5	0	38	0	43	24	1514	9	2	1549	4	0	0	0	4	2	2442	17	0	2461	4057
Grand Total	17	0	139	0	156	59	3989	12	2	4062	11	0	0	2	13	2	7337	29	6	7374	11605
Apprch %	10.9	0	89.1	0		1.5	98.2	0.3	0		84.6	0	0	15.4		0	99.5	0.4	0.1		
Total %	0.1	0	1.2	0	1.3	0.5	34.4	0.1	0	35	0.1	0	0	0	0.1	0	63.2	0.2	0.1	63.5	
Car	15	0	139	0	154	57	3810	12	2	3881	11	0	0	2	13	2	7085	26	6	7119	11167
% Car	88.2	0	100	0	98.7	96.6	95.5	100	100	95.5	100	0	0	100	100	100	96.6	89.7	100	96.5	96.2
Truck	2	0	0	0	2	2	179	0	0	181	0	0	0	0	0	0	252	3	0	255	438
% Truck	11.8	0	0	0	1.3	3.4	4.5	0	0	4.5	0	0	0	0	0	0	3.4	10.3	0	3.5	3.8

Start Time	Reids Prospect Dr Southbound				Prince William Pkwy Westbound				Black Forest Dr Northbound				Prince William Pkwy Eastbound				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	2	0	20	22	4	346	1	351	3	0	0	3	0	674	4	678	1054
07:30 AM	1	0	15	16	4	383	0	387	0	0	0	0	0	685	2	687	1090
07:45 AM	2	0	9	11	7	425	2	434	1	0	0	1	0	703	2	705	1151
08:00 AM	1	0	10	11	5	428	3	436	1	0	0	1	2	648	3	653	1101
Total Volume	6	0	54	60	20	1582	6	1608	5	0	0	5	2	2710	11	2723	4396
% App. Total	10	0	90		1.2	98.4	0.4		100	0	0		0.1	99.5	0.4		
PHF	.750	.000	.675	.682	.714	.924	.500	.922	.417	.000	.000	.417	.250	.964	.688	.966	.955

Peggy Malone & Associates

(888) 247-8602

File Name : 1-Reids Prospect Dr and Prince William Pkwy PM
 Site Code :
 Start Date : 3/12/2019
 Page No : 1

Groups Printed- Car

Start Time	Reids Prospect Dr Southbound					Prince William Pkwy Westbound					Black Forest Dr Northbound					Prince William Pkwy Eastbound					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
04:00 PM	2	0	6	0	8	28	591	3	1	623	0	0	0	0	0	0	466	1	1	468	1099
04:15 PM	1	0	2	0	3	19	683	0	0	702	0	1	1	0	2	0	559	3	1	563	1270
04:30 PM	5	0	3	0	8	15	688	0	0	703	2	0	0	0	2	0	563	2	0	565	1278
04:45 PM	2	0	6	0	8	21	666	1	0	688	1	0	1	0	2	0	585	0	1	586	1284
Total	10	0	17	0	27	83	2628	4	1	2716	3	1	2	0	6	0	2173	6	3	2182	4931
05:00 PM	1	0	7	0	8	23	701	2	0	726	2	0	1	0	3	0	558	0	0	558	1295
05:15 PM	2	0	6	0	8	25	700	0	0	725	3	0	0	0	3	0	577	0	0	577	1313
05:30 PM	3	0	5	0	8	25	746	2	0	773	0	0	0	0	0	0	518	2	1	521	1302
05:45 PM	1	0	4	0	5	26	679	0	1	706	0	0	0	0	0	0	547	1	0	548	1259
Total	7	0	22	0	29	99	2826	4	1	2930	5	0	1	0	6	0	2200	3	1	2204	5169
06:00 PM	1	0	5	0	6	22	632	2	0	656	1	0	0	0	1	1	461	0	0	462	1125
06:15 PM	4	0	5	0	9	18	635	1	0	654	2	0	1	0	3	0	533	2	0	535	1201
06:30 PM	2	0	3	0	5	25	610	0	1	636	1	0	0	0	1	0	455	1	1	457	1099
06:45 PM	2	0	4	0	6	25	556	0	0	581	0	0	0	0	0	0	511	1	0	512	1099
Total	9	0	17	0	26	90	2433	3	1	2527	4	0	1	0	5	1	1960	4	1	1966	4524
Grand Total	26	0	56	0	82	272	7887	11	3	8173	12	1	4	0	17	1	6333	13	5	6352	14624
Apprch %	31.7	0	68.3	0		3.3	96.5	0.1	0		70.6	5.9	23.5	0		0	99.7	0.2	0.1		
Total %	0.2	0	0.4	0	0.6	1.9	53.9	0.1	0	55.9	0.1	0	0	0	0.1	0	43.3	0.1	0	43.4	

Start Time	Reids Prospect Dr Southbound				Prince William Pkwy Westbound				Black Forest Dr Northbound				Prince William Pkwy Eastbound				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	
Peak Hour Analysis From 04:00 PM to 06:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	2	0	6	8	21	666	1	688	1	0	1	2	0	585	0	585	1283
05:00 PM	1	0	7	8	23	701	2	726	2	0	1	3	0	558	0	558	1295
05:15 PM	2	0	6	8	25	700	0	725	3	0	0	3	0	577	0	577	1313
05:30 PM	3	0	5	8	25	746	2	773	0	0	0	0	0	518	2	520	1301
Total Volume	8	0	24	32	94	2813	5	2912	6	0	2	8	0	2238	2	2240	5192
% App. Total	25	0	75		3.2	96.6	0.2		75	0	25		0	99.9	0.1		
PHF	.667	.000	.857	1.00	.940	.943	.625	.942	.500	.000	.500	.667	.000	.956	.250	.957	.989

Peggy Malone & Associates

(888) 247-8602

File Name : 1-Reids Prospect Dr and Prince William Pkwy PM
 Site Code :
 Start Date : 3/12/2019
 Page No : 1

Groups Printed- Truck

Start Time	Reids Prospect Dr Southbound					Prince William Pkwy Westbound					Black Forest Dr Northbound					Prince William Pkwy Eastbound					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
04:00 PM	0	0	0	0	0	0	18	0	0	18	0	0	0	0	0	0	17	0	0	17	35
04:15 PM	0	0	0	0	0	0	22	0	0	22	0	0	0	0	0	0	12	0	0	12	34
04:30 PM	0	0	0	0	0	0	12	0	0	12	0	0	0	0	0	0	10	0	0	10	22
04:45 PM	0	0	0	0	0	0	19	0	0	19	0	0	0	0	0	0	16	0	0	16	35
Total	0	0	0	0	0	0	71	0	0	71	0	0	0	0	0	0	55	0	0	55	126
05:00 PM	0	0	0	0	0	0	12	0	0	12	0	0	0	0	0	0	11	0	0	11	23
05:15 PM	1	0	0	1	2	0	7	0	0	7	0	0	0	0	0	0	13	0	0	13	22
05:30 PM	0	0	0	0	0	0	7	0	0	7	0	0	0	0	0	0	6	0	0	6	13
05:45 PM	0	0	0	0	0	0	7	0	0	7	0	0	0	0	0	0	8	0	0	8	15
Total	1	0	0	1	2	0	33	0	0	33	0	0	0	0	0	0	38	0	0	38	73
06:00 PM	0	0	0	0	0	0	9	0	0	9	0	0	0	0	0	0	5	0	0	5	14
06:15 PM	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	0	10	0	0	10	16
06:30 PM	0	0	0	0	0	0	11	0	0	11	0	0	0	0	0	0	6	0	0	6	17
06:45 PM	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	9	0	0	9	14
Total	0	0	0	0	0	0	31	0	0	31	0	0	0	0	0	0	30	0	0	30	61
Grand Total	1	0	0	1	2	0	135	0	0	135	0	0	0	0	0	0	123	0	0	123	260
Apprch %	50	0	0	50		0	100	0	0		0	0	0	0		0	100	0	0		
Total %	0.4	0	0	0.4	0.8	0	51.9	0	0	51.9	0	0	0	0	0	0	47.3	0	0	47.3	

Start Time	Reids Prospect Dr Southbound				Prince William Pkwy Westbound				Black Forest Dr Northbound				Prince William Pkwy Eastbound				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	
Peak Hour Analysis From 04:00 PM to 06:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	0	0	0	0	18	0	18	0	0	0	0	0	17	0	17	35
04:15 PM	0	0	0	0	0	22	0	22	0	0	0	0	0	12	0	12	34
04:30 PM	0	0	0	0	0	12	0	12	0	0	0	0	0	10	0	10	22
04:45 PM	0	0	0	0	0	19	0	19	0	0	0	0	0	16	0	16	35
Total Volume	0	0	0	0	0	71	0	71	0	0	0	0	0	55	0	55	126
% App. Total	0	0	0		0	100	0		0	0	0		0	100	0		
PHF	.000	.000	.000	.000	.000	.807	.000	.807	.000	.000	.000	.000	.000	.809	.000	.809	.900

Peggy Malone & Associates

(888) 247-8602

File Name : 1-Reids Prospect Dr and Prince William Pkwy PM

Site Code :

Start Date : 3/12/2019

Page No : 1

Groups Printed- Bicycles on Crosswalk

Start Time	Reids Prospect Dr Southbound					Prince William Pkwy Westbound					Black Forest Dr Northbound					Prince William Pkwy Eastbound					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:15 PM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
06:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1
Total	0	0	0	1	1	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	2
Grand Total	0	0	0	2	2	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	3
Apprch %	0	0	0	100		0	0	0	0		0	0	0	100		0	0	0	0		
Total %	0	0	0	66.7	66.7	0	0	0	0	0	0	0	0	33.3	33.3	0	0	0	0	0	

Start Time	Reids Prospect Dr Southbound				Prince William Pkwy Westbound				Black Forest Dr Northbound				Prince William Pkwy Eastbound				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	

Peak Hour Analysis From 04:00 PM to 06:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 04:00 PM

Peggy Malone & Associates

(888) 247-8602

File Name : 1-Reids Prospect Dr and Prince William Pkwy PM

Site Code :

Start Date : 3/12/2019

Page No : 1

Groups Printed- Pedestrians

Start Time	Reids Prospect Dr Southbound					Prince William Pkwy Westbound					Black Forest Dr Northbound					Prince William Pkwy Eastbound					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
04:00 PM	0	0	0	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
04:15 PM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	1	1	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	2
Total	0	0	0	6	6	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	7
05:00 PM	0	0	0	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1
05:30 PM	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	5	5	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	6
06:00 PM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
06:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:30 PM	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
06:45 PM	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Total	0	0	0	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
Grand Total	0	0	0	16	16	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	18
Apprch %	0	0	0	100		0	0	0	0		0	0	0	100		0	0	0	0		
Total %	0	0	0	88.9	88.9	0	0	0	0	0	0	0	0	11.1	11.1	0	0	0	0	0	

Start Time	Reids Prospect Dr Southbound				Prince William Pkwy Westbound				Black Forest Dr Northbound				Prince William Pkwy Eastbound				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Peak Hour Analysis From 04:00 PM to 06:45 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 04:00 PM

Peggy Malone & Associates

(888) 247-8602

File Name : 1-Reids Prospect Dr and Prince William Pkwy PM

Site Code :

Start Date : 3/12/2019

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Groups Printed- Car - Truck

Start Time	Reids Prospect Dr Southbound					Prince William Pkwy Westbound					Black Forest Dr Northbound					Prince William Pkwy Eastbound					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
04:00 PM	2	0	6	0	8	28	609	3	1	641	0	0	0	0	0	0	483	1	1	485	1134
04:15 PM	1	0	2	0	3	19	705	0	0	724	0	1	1	0	2	0	571	3	1	575	1304
04:30 PM	5	0	3	0	8	15	700	0	0	715	2	0	0	0	2	0	573	2	0	575	1300
04:45 PM	2	0	6	0	8	21	685	1	0	707	1	0	1	0	2	0	601	0	1	602	1319
Total	10	0	17	0	27	83	2699	4	1	2787	3	1	2	0	6	0	2228	6	3	2237	5057
05:00 PM	1	0	7	0	8	23	713	2	0	738	2	0	1	0	3	0	569	0	0	569	1318
05:15 PM	3	0	6	1	10	25	707	0	0	732	3	0	0	0	3	0	590	0	0	590	1335
05:30 PM	3	0	5	0	8	25	753	2	0	780	0	0	0	0	0	0	524	2	1	527	1315
05:45 PM	1	0	4	0	5	26	686	0	1	713	0	0	0	0	0	0	555	1	0	556	1274
Total	8	0	22	1	31	99	2859	4	1	2963	5	0	1	0	6	0	2238	3	1	2242	5242
06:00 PM	1	0	5	0	6	22	641	2	0	665	1	0	0	0	1	1	466	0	0	467	1139
06:15 PM	4	0	5	0	9	18	641	1	0	660	2	0	1	0	3	0	543	2	0	545	1217
06:30 PM	2	0	3	0	5	25	621	0	1	647	1	0	0	0	1	0	461	1	1	463	1116
06:45 PM	2	0	4	0	6	25	561	0	0	586	0	0	0	0	0	0	520	1	0	521	1113
Total	9	0	17	0	26	90	2464	3	1	2558	4	0	1	0	5	1	1990	4	1	1996	4585
Grand Total	27	0	56	1	84	272	8022	11	3	8308	12	1	4	0	17	1	6456	13	5	6475	14884
Apprch %	32.1	0	66.7	1.2		3.3	96.6	0.1	0		70.6	5.9	23.5	0		0	99.7	0.2	0.1		
Total %	0.2	0	0.4	0	0.6	1.8	53.9	0.1	0	55.8	0.1	0	0	0	0.1	0	43.4	0.1	0	43.5	
Car	26	0	56	0	82	272	7887	11	3	8173	12	1	4	0	17	1	6333	13	5	6352	14624
% Car	96.3	0	100	0	97.6	100	98.3	100	100	98.4	100	100	100	0	100	100	98.1	100	100	98.1	98.3
Truck	1	0	0	1	2	0	135	0	0	135	0	0	0	0	0	0	123	0	0	123	260
% Truck	3.7	0	0	100	2.4	0	1.7	0	0	1.6	0	0	0	0	0	0	1.9	0	0	1.9	1.7

Start Time	Reids Prospect Dr Southbound				Prince William Pkwy Westbound				Black Forest Dr Northbound				Prince William Pkwy Eastbound				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	
Peak Hour Analysis From 04:00 PM to 06:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	2	0	6	8	21	685	1	707	1	0	1	2	0	601	0	601	1318
05:00 PM	1	0	7	8	23	713	2	738	2	0	1	3	0	569	0	569	1318
05:15 PM	3	0	6	9	25	707	0	732	3	0	0	3	0	590	0	590	1334
05:30 PM	3	0	5	8	25	753	2	780	0	0	0	0	0	524	2	526	1314
Total Volume	9	0	24	33	94	2858	5	2957	6	0	2	8	0	2284	2	2286	5284
% App. Total	27.3	0	72.7		3.2	96.7	0.2		75	0	25		0	99.9	0.1		
PHF	.750	.000	.857	.917	.940	.949	.625	.948	.500	.000	.500	.667	.000	.950	.250	.951	.990

Peggy Malone & Associates

(888) 247-8602

File Name : 2-Laurel Hills Dr and Prince William Pkwy AM

Site Code :

Start Date : 3/12/2019

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Groups Printed- Car

Start Time	Laurel Hills Dr Southbound					Prince William Pkwy Westbound					Ridgewood Center Dr Northbound					Prince William Pkwy Eastbound					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
06:00 AM	1	0	0	0	1	0	178	0	0	178	0	0	0	0	0	1	455	0	0	456	635
06:15 AM	1	0	1	0	2	0	239	1	0	240	0	0	0	0	0	2	498	0	0	500	742
06:30 AM	0	0	1	0	1	0	274	1	0	275	0	0	0	0	0	3	572	0	0	575	851
06:45 AM	2	0	1	0	3	0	280	5	0	285	0	0	0	0	0	2	605	0	0	607	895
Total	4	0	3	0	7	0	971	7	0	978	0	0	0	0	0	8	2130	0	0	2138	3123
07:00 AM	0	0	1	0	1	0	321	3	1	325	0	0	0	0	0	14	582	0	0	596	922
07:15 AM	0	0	1	0	1	0	350	8	1	359	0	0	1	0	1	14	640	0	1	655	1016
07:30 AM	0	0	0	0	0	0	372	9	0	381	0	0	0	0	0	15	660	0	0	675	1056
07:45 AM	0	0	2	0	2	0	423	20	2	445	0	0	1	0	1	27	673	0	1	701	1149
Total	0	0	4	0	4	0	1466	40	4	1510	0	0	2	0	2	70	2555	0	2	2627	4143
08:00 AM	0	0	3	0	3	0	414	12	0	426	2	0	5	0	7	15	624	0	0	639	1075
08:15 AM	1	0	1	0	2	0	336	17	4	357	3	0	16	0	19	16	637	0	0	653	1031
08:30 AM	0	0	1	0	1	1	373	19	2	395	2	0	7	0	9	10	528	0	1	539	944
08:45 AM	1	0	2	0	3	0	310	12	2	324	0	0	5	0	5	10	575	0	0	585	917
Total	2	0	7	0	9	1	1433	60	8	1502	7	0	33	0	40	51	2364	0	1	2416	3967
Grand Total	6	0	14	0	20	1	3870	107	12	3990	7	0	35	0	42	129	7049	0	3	7181	11233
Apprch %	30	0	70	0		0	97	2.7	0.3		16.7	0	83.3	0		1.8	98.2	0	0		
Total %	0.1	0	0.1	0	0.2	0	34.5	1	0.1	35.5	0.1	0	0.3	0	0.4	1.1	62.8	0	0	63.9	

Start Time	Laurel Hills Dr Southbound				Prince William Pkwy Westbound				Ridgewood Center Dr Northbound				Prince William Pkwy Eastbound				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	0	0	0	0	372	9	381	0	0	0	0	15	660	0	675	1056
07:45 AM	0	0	2	2	0	423	20	443	0	0	1	1	27	673	0	700	1146
08:00 AM	0	0	3	3	0	414	12	426	2	0	5	7	15	624	0	639	1075
08:15 AM	1	0	1	2	0	336	17	353	3	0	16	19	16	637	0	653	1027
Total Volume	1	0	6	7	0	1545	58	1603	5	0	22	27	73	2594	0	2667	4304
% App. Total	14.3	0	85.7		0	96.4	3.6		18.5	0	81.5		2.7	97.3	0		
PHF	.250	.000	.500	.583	.000	.913	.725	.905	.417	.000	.344	.355	.676	.964	.000	.953	.939

Peggy Malone & Associates

(888) 247-8602

File Name : 2-Laurel Hills Dr and Prince William Pkwy AM

Site Code :

Start Date : 3/12/2019

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Groups Printed- Truck

Start Time	Laurel Hills Dr Southbound					Prince William Pkwy Westbound					Ridgewood Center Dr Northbound					Prince William Pkwy Eastbound					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
06:00 AM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	14	0	0	14	18
06:15 AM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	15	0	0	15	19
06:30 AM	0	0	0	0	0	0	25	0	0	25	0	0	0	0	0	0	13	0	0	13	38
06:45 AM	0	0	0	0	0	1	10	0	0	11	0	0	0	0	0	0	15	0	0	15	26
Total	0	0	0	0	0	1	43	0	0	44	0	0	0	0	0	0	57	0	0	57	101
07:00 AM	1	0	0	0	1	0	7	0	0	7	0	0	0	0	0	0	15	0	0	15	23
07:15 AM	0	0	0	0	0	0	15	0	0	15	0	0	0	0	0	0	34	0	0	34	49
07:30 AM	0	0	0	0	0	1	17	0	0	18	0	0	0	0	0	0	29	0	0	29	47
07:45 AM	0	0	1	0	1	0	9	0	0	9	0	0	0	0	0	0	24	0	0	24	34
Total	1	0	1	0	2	1	48	0	0	49	0	0	0	0	0	0	102	0	0	102	153
08:00 AM	0	0	0	0	0	0	15	0	0	15	0	0	0	0	0	0	25	0	0	25	40
08:15 AM	0	0	0	0	0	0	23	0	0	23	0	0	0	0	0	0	18	0	0	18	41
08:30 AM	0	0	0	0	0	1	25	0	0	26	0	0	0	0	0	0	24	0	0	24	50
08:45 AM	0	0	1	0	1	0	22	0	0	22	0	0	0	0	0	0	27	0	0	27	50
Total	0	0	1	0	1	1	85	0	0	86	0	0	0	0	0	0	94	0	0	94	181
Grand Total	1	0	2	0	3	3	176	0	0	179	0	0	0	0	0	0	253	0	0	253	435
Apprch %	33.3	0	66.7	0		1.7	98.3	0	0		0	0	0	0		0	100	0	0		
Total %	0.2	0	0.5	0	0.7	0.7	40.5	0	0	41.1	0	0	0	0	0	0	58.2	0	0	58.2	

Start Time	Laurel Hills Dr Southbound				Prince William Pkwy Westbound				Ridgewood Center Dr Northbound				Prince William Pkwy Eastbound				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	0	0	0	0	0	15	0	15	0	0	0	0	0	25	0	25	40
08:15 AM	0	0	0	0	0	23	0	23	0	0	0	0	0	18	0	18	41
08:30 AM	0	0	0	0	1	25	0	26	0	0	0	0	0	24	0	24	50
08:45 AM	0	0	1	1	0	22	0	22	0	0	0	0	0	27	0	27	50
Total Volume	0	0	1	1	1	85	0	86	0	0	0	0	0	94	0	94	181
% App. Total	0	0	100		1.2	98.8	0		0	0	0		0	100	0		
PHF	.000	.000	.250	.250	.250	.850	.000	.827	.000	.000	.000	.000	.000	.870	.000	.870	.905

Peggy Malone & Associates

(888) 247-8602

File Name : 2-Laurel Hills Dr and Prince William Pkwy AM

Site Code :

Start Date : 3/12/2019

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Groups Printed- Bicycles

Start Time	Laurel Hills Dr Southbound					Prince William Pkwy Westbound					Ridgewood Center Dr Northbound					Prince William Pkwy Eastbound					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
06:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:30 AM	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
06:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Apprch %	0	0	0	100		0	0	0	0		0	0	0	0		0	0	0	0		
Total %	0	0	0	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Start Time	Laurel Hills Dr Southbound				Prince William Pkwy Westbound				Ridgewood Center Dr Northbound				Prince William Pkwy Eastbound				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 06:00 AM																	
06:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
06:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
06:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
06:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	

Peggy Malone & Associates

(888) 247-8602

File Name : 2-Laurel Hills Dr and Prince William Pkwy AM

Site Code :

Start Date : 3/12/2019

Page No : 1

Groups Printed- Pedestrians

Start Time	Laurel Hills Dr Southbound					Prince William Pkwy Westbound					Ridgewood Center Dr Northbound					Prince William Pkwy Eastbound					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
06:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:15 AM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:30 AM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
06:45 AM	0	0	0	1	1	0	0	0	1	1	0	0	0	1	1	0	0	0	0	0	3
Total	0	0	0	3	3	0	0	0	1	1	0	0	0	1	1	0	0	0	0	0	5
07:00 AM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
07:15 AM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
08:00 AM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2
Total	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	3
Grand Total	0	0	0	7	7	0	0	0	1	1	0	0	0	1	1	0	0	0	1	1	10
Apprch %	0	0	0	100		0	0	0	100		0	0	0	100		0	0	0	100		
Total %	0	0	0	70	70	0	0	0	10	10	0	0	0	10	10	0	0	0	10	10	

Start Time	Laurel Hills Dr Southbound				Prince William Pkwy Westbound				Ridgewood Center Dr Northbound				Prince William Pkwy Eastbound				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 06:00 AM																	
06:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Peggy Malone & Associates

(888) 247-8602

File Name : 2-Laurel Hills Dr and Prince William Pkwy AM

Site Code :

Start Date : 3/12/2019

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Groups Printed- Car - Truck

Start Time	Laurel Hills Dr Southbound					Prince William Pkwy Westbound					Ridgewood Center Dr Northbound					Prince William Pkwy Eastbound					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
06:00 AM	1	0	0	0	1	0	182	0	0	182	0	0	0	0	0	1	469	0	0	470	653
06:15 AM	1	0	1	0	2	0	243	1	0	244	0	0	0	0	0	2	513	0	0	515	761
06:30 AM	0	0	1	0	1	0	299	1	0	300	0	0	0	0	0	3	585	0	0	588	889
06:45 AM	2	0	1	0	3	1	290	5	0	296	0	0	0	0	0	2	620	0	0	622	921
Total	4	0	3	0	7	1	1014	7	0	1022	0	0	0	0	0	8	2187	0	0	2195	3224
07:00 AM	1	0	1	0	2	0	328	3	1	332	0	0	0	0	0	14	597	0	0	611	945
07:15 AM	0	0	1	0	1	0	365	8	1	374	0	0	1	0	1	14	674	0	1	689	1065
07:30 AM	0	0	0	0	0	1	389	9	0	399	0	0	0	0	0	15	689	0	0	704	1103
07:45 AM	0	0	3	0	3	0	432	20	2	454	0	0	1	0	1	27	697	0	1	725	1183
Total	1	0	5	0	6	1	1514	40	4	1559	0	0	2	0	2	70	2657	0	2	2729	4296
08:00 AM	0	0	3	0	3	0	429	12	0	441	2	0	5	0	7	15	649	0	0	664	1115
08:15 AM	1	0	1	0	2	0	359	17	4	380	3	0	16	0	19	16	655	0	0	671	1072
08:30 AM	0	0	1	0	1	2	398	19	2	421	2	0	7	0	9	10	552	0	1	563	994
08:45 AM	1	0	3	0	4	0	332	12	2	346	0	0	5	0	5	10	602	0	0	612	967
Total	2	0	8	0	10	2	1518	60	8	1588	7	0	33	0	40	51	2458	0	1	2510	4148
Grand Total	7	0	16	0	23	4	4046	107	12	4169	7	0	35	0	42	129	7302	0	3	7434	11668
Apprch %	30.4	0	69.6	0		0.1	97	2.6	0.3		16.7	0	83.3	0		1.7	98.2	0	0		
Total %	0.1	0	0.1	0	0.2	0	34.7	0.9	0.1	35.7	0.1	0	0.3	0	0.4	1.1	62.6	0	0	63.7	
Car	6	0	14	0	20	1	3870	107	12	3990	7	0	35	0	42	129	7049	0	3	7181	11233
% Car	85.7	0	87.5	0	87	25	95.7	100	100	95.7	100	0	100	0	100	100	96.5	0	100	96.6	96.3
Truck	1	0	2	0	3	3	176	0	0	179	0	0	0	0	0	0	253	0	0	253	435
% Truck	14.3	0	12.5	0	13	75	4.3	0	0	4.3	0	0	0	0	0	0	3.5	0	0	3.4	3.7

Start Time	Laurel Hills Dr Southbound				Prince William Pkwy Westbound				Ridgewood Center Dr Northbound				Prince William Pkwy Eastbound				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	0	0	0	1	389	9	399	0	0	0	0	15	689	0	704	1103
07:45 AM	0	0	3	3	0	432	20	452	0	0	1	1	27	697	0	724	1180
08:00 AM	0	0	3	3	0	429	12	441	2	0	5	7	15	649	0	664	1115
08:15 AM	1	0	1	2	0	359	17	376	3	0	16	19	16	655	0	671	1068
Total Volume	1	0	7	8	1	1609	58	1668	5	0	22	27	73	2690	0	2763	4466
% App. Total	12.5	0	87.5		0.1	96.5	3.5		18.5	0	81.5		2.6	97.4	0		
PHF	.250	.000	.583	.667	.250	.931	.725	.923	.417	.000	.344	.355	.676	.965	.000	.954	.946

Peggy Malone & Associates

(888) 247-8602

File Name : 2-Laurel Hills Dr and Prince William Pkwy PM

Site Code :

Start Date : 3/12/2019

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Groups Printed- Car

Start Time	Laurel Hills Dr Southbound					Prince William Pkwy Westbound					Ridgewood Center Dr Northbound					Prince William Pkwy Eastbound					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
04:00 PM	0	0	1	0	1	1	600	5	1	607	5	0	14	0	19	6	479	0	2	487	1114
04:15 PM	0	0	1	0	1	2	692	6	3	703	8	0	3	0	11	5	520	1	2	528	1243
04:30 PM	0	0	1	0	1	1	672	8	2	683	6	0	21	0	27	2	569	0	1	572	1283
04:45 PM	1	0	2	0	3	2	673	6	4	685	6	0	8	0	14	4	550	0	0	554	1256
Total	1	0	5	0	6	6	2637	25	10	2678	25	0	46	0	71	17	2118	1	5	2141	4896
05:00 PM	0	0	0	0	0	2	712	3	0	717	2	0	13	0	15	1	580	0	0	581	1313
05:15 PM	1	0	4	0	5	4	752	3	0	759	6	0	6	0	12	2	568	0	1	571	1347
05:30 PM	1	1	0	0	2	4	749	4	2	759	2	0	8	0	10	1	525	0	2	528	1299
05:45 PM	0	0	1	0	1	1	728	3	2	734	5	0	5	0	10	3	544	0	0	547	1292
Total	2	1	5	0	8	11	2941	13	4	2969	15	0	32	0	47	7	2217	0	3	2227	5251
06:00 PM	2	0	0	0	2	3	639	2	1	645	0	0	4	0	4	1	460	1	0	462	1113
06:15 PM	0	0	0	0	0	1	651	0	1	653	0	0	2	0	2	1	538	0	0	539	1194
06:30 PM	1	0	1	0	2	0	628	1	2	631	0	0	4	1	5	2	466	1	0	469	1107
06:45 PM	0	0	0	0	0	0	581	4	3	588	0	0	0	1	1	1	513	0	0	514	1103
Total	3	0	1	0	4	4	2499	7	7	2517	0	0	10	2	12	5	1977	2	0	1984	4517
Grand Total	6	1	11	0	18	21	8077	45	21	8164	40	0	88	2	130	29	6312	3	8	6352	14664
Apprch %	33.3	5.6	61.1	0		0.3	98.9	0.6	0.3		30.8	0	67.7	1.5		0.5	99.4	0	0.1		
Total %	0	0	0.1	0	0.1	0.1	55.1	0.3	0.1	55.7	0.3	0	0.6	0	0.9	0.2	43	0	0.1	43.3	

Start Time	Laurel Hills Dr Southbound				Prince William Pkwy Westbound				Ridgewood Center Dr Northbound				Prince William Pkwy Eastbound				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	
Peak Hour Analysis From 04:00 PM to 06:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	0	0	0	0	2	712	3	717	2	0	13	15	1	580	0	581	1313
05:15 PM	1	0	4	5	4	752	3	759	6	0	6	12	2	568	0	570	1346
05:30 PM	1	1	0	2	4	749	4	757	2	0	8	10	1	525	0	526	1295
05:45 PM	0	0	1	1	1	728	3	732	5	0	5	10	3	544	0	547	1290
Total Volume	2	1	5	8	11	2941	13	2965	15	0	32	47	7	2217	0	2224	5244
% App. Total	25	12.5	62.5		0.4	99.2	0.4		31.9	0	68.1		0.3	99.7	0		
PHF	.500	.250	.313	.400	.688	.978	.813	.977	.625	.000	.615	.783	.583	.956	.000	.957	.974

Peggy Malone & Associates

(888) 247-8602

File Name : 2-Laurel Hills Dr and Prince William Pkwy PM

Site Code :

Start Date : 3/12/2019

Page No : 1

Groups Printed- Truck

Start Time	Laurel Hills Dr Southbound					Prince William Pkwy Westbound					Ridgewood Center Dr Northbound					Prince William Pkwy Eastbound					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
04:00 PM	0	0	0	0	0	1	18	0	0	19	0	0	0	0	0	0	19	0	0	19	38
04:15 PM	0	0	1	0	1	0	22	0	0	22	0	0	0	0	0	0	11	0	0	11	34
04:30 PM	0	0	0	0	0	0	13	0	0	13	0	0	0	0	0	0	10	0	0	10	23
04:45 PM	0	0	0	0	0	0	17	0	0	17	0	0	0	0	0	0	17	0	0	17	34
Total	0	0	1	0	1	1	70	0	0	71	0	0	0	0	0	0	57	0	0	57	129
05:00 PM	0	0	0	0	0	0	12	0	0	12	0	0	0	0	0	0	12	0	0	12	24
05:15 PM	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	0	13	0	0	13	19
05:30 PM	0	0	0	0	0	0	7	0	0	7	0	0	0	0	0	0	7	0	0	7	14
05:45 PM	0	0	0	0	0	0	7	0	0	7	0	0	0	0	0	0	7	0	0	7	14
Total	0	0	0	0	0	0	32	0	0	32	0	0	0	0	0	0	39	0	0	39	71
06:00 PM	0	0	0	0	0	0	8	0	0	8	0	0	0	0	0	0	7	0	0	7	15
06:15 PM	0	0	0	0	0	0	7	0	0	7	0	0	0	0	0	1	8	0	0	9	16
06:30 PM	0	0	0	0	0	0	11	0	0	11	0	0	0	0	0	0	6	0	0	6	17
06:45 PM	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	8	0	0	8	13
Total	0	0	0	0	0	0	31	0	0	31	0	0	0	0	0	1	29	0	0	30	61
Grand Total	0	0	1	0	1	1	133	0	0	134	0	0	0	0	0	1	125	0	0	126	261
Apprch %	0	0	100	0		0.7	99.3	0	0		0	0	0	0		0.8	99.2	0	0		
Total %	0	0	0.4	0	0.4	0.4	51	0	0	51.3	0	0	0	0	0	0.4	47.9	0	0	48.3	

Start Time	Laurel Hills Dr Southbound				Prince William Pkwy Westbound				Ridgewood Center Dr Northbound				Prince William Pkwy Eastbound				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	
04:00 PM	0	0	0	0	1	18	0	19	0	0	0	0	0	19	0	19	38
04:15 PM	0	0	1	1	0	22	0	22	0	0	0	0	0	11	0	11	34
04:30 PM	0	0	0	0	0	13	0	13	0	0	0	0	0	10	0	10	23
04:45 PM	0	0	0	0	0	17	0	17	0	0	0	0	0	17	0	17	34
Total Volume	0	0	1	1	1	70	0	71	0	0	0	0	0	57	0	57	129
% App. Total	0	0	100		1.4	98.6	0		0	0	0		0	100	0		
PHF	.000	.000	.250	.250	.250	.795	.000	.807	.000	.000	.000	.000	.000	.750	.000	.750	.849

Peak Hour Analysis From 04:00 PM to 06:45 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 04:00 PM

Peggy Malone & Associates

(888) 247-8602

File Name : 2-Laurel Hills Dr and Prince William Pkwy PM

Site Code :

Start Date : 3/12/2019

Page No : 1

Groups Printed- Bicycles

Start Time	Laurel Hills Dr Southbound					Prince William Pkwy Westbound					Ridgewood Center Dr Northbound					Prince William Pkwy Eastbound					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	1	1	0	0	0	1	1	0	0	0	0	0	2
Total	0	0	0	0	0	0	0	0	1	1	0	0	0	1	1	0	0	0	0	0	2
06:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1
Grand Total	0	0	0	0	0	0	0	0	1	1	0	0	0	2	2	0	0	0	0	0	3
Apprch %	0	0	0	0	0	0	0	0	100	100	0	0	0	100	100	0	0	0	0	0	
Total %	0	0	0	0	0	0	0	0	33.3	33.3	0	0	0	66.7	66.7	0	0	0	0	0	

Start Time	Laurel Hills Dr Southbound				Prince William Pkwy Westbound				Ridgewood Center Dr Northbound				Prince William Pkwy Eastbound				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
% App. Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	

Peak Hour Analysis From 04:00 PM to 06:45 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 04:00 PM

Peggy Malone & Associates

(888) 247-8602

File Name : 2-Laurel Hills Dr and Prince William Pkwy PM

Site Code :

Start Date : 3/12/2019

Page No : 1

Groups Printed- Pedestrians

Start Time	Laurel Hills Dr Southbound					Prince William Pkwy Westbound					Ridgewood Center Dr Northbound					Prince William Pkwy Eastbound					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1
05:00 PM	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
05:15 PM	0	0	0	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
05:30 PM	0	0	0	2	2	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	3
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	7	7	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	8
06:00 PM	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
06:15 PM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
06:30 PM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
06:45 PM	0	0	0	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Total	0	0	0	7	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
Grand Total	0	0	0	14	14	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	16
Apprch %	0	0	0	100		0	0	0	0		0	0	0	100		0	0	0	0		
Total %	0	0	0	87.5	87.5	0	0	0	0	0	0	0	0	12.5	12.5	0	0	0	0	0	

Start Time	Laurel Hills Dr Southbound				Prince William Pkwy Westbound				Ridgewood Center Dr Northbound				Prince William Pkwy Eastbound				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	

Peak Hour Analysis From 04:00 PM to 06:45 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 04:00 PM

Peggy Malone & Associates

(888) 247-8602

File Name : 2-Laurel Hills Dr and Prince William Pkwy PM

Site Code :

Start Date : 3/12/2019

Page No : 1

Groups Printed- Car - Truck

Start Time	Laurel Hills Dr Southbound					Prince William Pkwy Westbound					Ridgewood Center Dr Northbound					Prince William Pkwy Eastbound					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
04:00 PM	0	0	1	0	1	2	618	5	1	626	5	0	14	0	19	6	498	0	2	506	1152
04:15 PM	0	0	2	0	2	2	714	6	3	725	8	0	3	0	11	5	531	1	2	539	1277
04:30 PM	0	0	1	0	1	1	685	8	2	696	6	0	21	0	27	2	579	0	1	582	1306
04:45 PM	1	0	2	0	3	2	690	6	4	702	6	0	8	0	14	4	567	0	0	571	1290
Total	1	0	6	0	7	7	2707	25	10	2749	25	0	46	0	71	17	2175	1	5	2198	5025
05:00 PM	0	0	0	0	0	2	724	3	0	729	2	0	13	0	15	1	592	0	0	593	1337
05:15 PM	1	0	4	0	5	4	758	3	0	765	6	0	6	0	12	2	581	0	1	584	1366
05:30 PM	1	1	0	0	2	4	756	4	2	766	2	0	8	0	10	1	532	0	2	535	1313
05:45 PM	0	0	1	0	1	1	735	3	2	741	5	0	5	0	10	3	551	0	0	554	1306
Total	2	1	5	0	8	11	2973	13	4	3001	15	0	32	0	47	7	2256	0	3	2266	5322
06:00 PM	2	0	0	0	2	3	647	2	1	653	0	0	4	0	4	1	467	1	0	469	1128
06:15 PM	0	0	0	0	0	1	658	0	1	660	0	0	2	0	2	2	546	0	0	548	1210
06:30 PM	1	0	1	0	2	0	639	1	2	642	0	0	4	1	5	2	472	1	0	475	1124
06:45 PM	0	0	0	0	0	0	586	4	3	593	0	0	0	1	1	1	521	0	0	522	1116
Total	3	0	1	0	4	4	2530	7	7	2548	0	0	10	2	12	6	2006	2	0	2014	4578
Grand Total	6	1	12	0	19	22	8210	45	21	8298	40	0	88	2	130	30	6437	3	8	6478	14925
Apprch %	31.6	5.3	63.2	0		0.3	98.9	0.5	0.3		30.8	0	67.7	1.5		0.5	99.4	0	0.1		
Total %	0	0	0.1	0	0.1	0.1	55	0.3	0.1	55.6	0.3	0	0.6	0	0.9	0.2	43.1	0	0.1	43.4	
Car	6	1	11	0	18	21	8077	45	21	8164	40	0	88	2	130	29	6312	3	8	6352	14664
% Car	100	100	91.7	0	94.7	95.5	98.4	100	100	98.4	100	0	100	100	100	96.7	98.1	100	100	98.1	98.3
Truck	0	0	1	0	1	1	133	0	0	134	0	0	0	0	0	1	125	0	0	126	261
% Truck	0	0	8.3	0	5.3	4.5	1.6	0	0	1.6	0	0	0	0	0	3.3	1.9	0	0	1.9	1.7

Start Time	Laurel Hills Dr Southbound				Prince William Pkwy Westbound				Ridgewood Center Dr Northbound				Prince William Pkwy Eastbound				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	
Peak Hour Analysis From 04:00 PM to 06:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	0	0	0	0	2	724	3	729	2	0	13	15	1	592	0	593	1337
05:15 PM	1	0	4	5	4	758	3	765	6	0	6	12	2	581	0	583	1365
05:30 PM	1	1	0	2	4	756	4	764	2	0	8	10	1	532	0	533	1309
05:45 PM	0	0	1	1	1	735	3	739	5	0	5	10	3	551	0	554	1304
Total Volume	2	1	5	8	11	2973	13	2997	15	0	32	47	7	2256	0	2263	5315
% App. Total	25	12.5	62.5		0.4	99.2	0.4		31.9	0	68.1		0.3	99.7	0		
PHF	.500	.250	.313	.400	.688	.981	.813	.979	.625	.000	.615	.783	.583	.953	.000	.954	.973

APPENDIX C

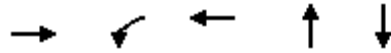
Analysis Worksheets for 2019

Existing Conditions

Queues

1: Ridgewood Center Drive/Laurel Hills Drive & Prince William Pkwy

04/01/2019



Lane Group	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	2852	63	1731	29	9
v/c Ratio	0.71	0.66	0.38	0.20	0.06
Control Delay	11.1	113.6	2.5	3.0	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	11.1	113.6	2.5	3.0	0.8
Queue Length 50th (ft)	480	74	80	0	0
Queue Length 95th (ft)	719	#140	175	0	0
Internal Link Dist (ft)	355		764	152	363
Turn Bay Length (ft)		540			
Base Capacity (vph)	4034	103	4542	385	193
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.71	0.61	0.38	0.08	0.05

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

1: Ridgewood Center Drive/Laurel Hills Drive & Prince William Pkwy

04/01/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↶↶↶		↶	↶↶↶			↶↶			↶↶	
Traffic Volume (veh/h)	0	2690	73	58	1609	1	22	0	5	7	0	1
Future Volume (veh/h)	0	2690	73	58	1609	1	22	0	5	7	0	1
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	2773	79	63	1730	1	24	0	5	8	0	1
Peak Hour Factor	0.92	0.97	0.92	0.92	0.93	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	1	3994	113	79	4548	3	31	0	6	16	0	2
Arrive On Green	0.00	0.78	0.78	0.04	0.86	0.86	0.02	0.00	0.02	0.01	0.00	0.01
Sat Flow, veh/h	1781	5104	144	1781	5271	3	1443	0	301	1562	0	195
Grp Volume(v), veh/h	0	1841	1011	63	1117	614	29	0	0	9	0	0
Grp Sat Flow(s),veh/h/ln	1781	1702	1844	1781	1702	1870	1744	0	0	1757	0	0
Q Serve(g_s), s	0.0	46.2	47.5	6.3	12.1	12.1	3.0	0.0	0.0	0.9	0.0	0.0
Cycle Q Clear(g_c), s	0.0	46.2	47.5	6.3	12.1	12.1	3.0	0.0	0.0	0.9	0.0	0.0
Prop In Lane	1.00		0.08	1.00		0.00	0.83		0.17	0.89		0.11
Lane Grp Cap(c), veh/h	1	2663	1443	79	2937	1613	38	0	0	18	0	0
V/C Ratio(X)	0.00	0.69	0.70	0.80	0.38	0.38	0.77	0.00	0.00	0.51	0.00	0.00
Avail Cap(c_a), veh/h	104	2663	1443	104	2937	1613	305	0	0	102	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	9.3	9.4	85.2	2.5	2.5	87.6	0.0	0.0	88.7	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.5	2.9	26.8	0.4	0.7	27.4	0.0	0.0	20.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	15.3	17.5	3.5	2.9	3.3	1.7	0.0	0.0	0.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	10.8	12.3	112.0	2.9	3.2	115.0	0.0	0.0	109.5	0.0	0.0
LnGrp LOS	A	B	B	F	A	A	F	A	A	F	A	A
Approach Vol, veh/h		2852			1794			29				9
Approach Delay, s/veh		11.3			6.8			115.0				109.5
Approach LOS		B			A			F				F
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	14.5	146.8		10.4	0.0	161.3		8.3				
Change Period (Y+Rc), s	6.5	6.0		6.5	6.5	6.0		6.5				
Max Green Setting (Gmax), s	10.5	102.0		31.5	10.5	102.0		10.5				
Max Q Clear Time (g_c+I1), s	8.3	49.5		5.0	0.0	14.1		2.9				
Green Ext Time (p_c), s	0.0	44.1		0.1	0.0	24.6		0.0				

Intersection Summary

HCM 6th Ctrl Delay	10.4
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

HCM 6th Signalized Intersection Capacity Analysis
 1: Ridgewood Center Drive/Laurel Hills Drive & Prince William Pkwy

04/01/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↶↶↶		↶	↶↶↶			↷			↷	
Traffic Volume (veh/h)	0	2690	73	58	1609	1	22	0	5	7	0	1
Future Volume (veh/h)	0	2690	73	58	1609	1	22	0	5	7	0	1
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj (A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	2773	79	63	1730	1	24	0	5	8	0	1
Peak Hour Factor	0.92	0.97	0.92	0.92	0.93	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	1	3994	113	79	4548	3	31	0	6	16	0	2
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Prop Arrive On Green	0.00	0.78	0.78	0.04	0.86	0.86	0.02	0.00	0.02	0.01	0.00	0.01
Unsig. Movement Delay												
Ln Grp Delay, s/veh	0.0	10.8	12.3	112.0	2.9	3.2	115.0	0.0	0.0	109.5	0.0	0.0
Ln Grp LOS	A	B	B	F	A	A	F	A	A	F	A	A
Approach Vol, veh/h		2852			1794			29				9
Approach Delay, s/veh		11.3			6.8			115.0				109.5
Approach LOS		B			A			F				F
Timer:		1	2	3	4	5	6	7	8			
Assigned Phs		1	2	8	4	5	6					
Case No		2.0	4.0	12.0	12.0	2.0	4.0					
Phs Duration (G+Y+Rc), s		14.5	146.8	8.3	10.4	0.0	161.3					
Change Period (Y+Rc), s		6.5	6.0	6.5	6.5	6.5	6.0					
Max Green (Gmax), s		10.5	102.0	10.5	31.5	10.5	102.0					
Max Allow Headway (MAH), s		3.7	5.4	5.5	5.5	0.0	5.4					
Max Q Clear (g_c+I1), s		8.3	49.5	2.9	5.0	0.0	14.1					
Green Ext Time (g_e), s		0.0	44.1	0.0	0.1	0.0	24.6					
Prob of Phs Call (p_c)		0.96	1.00	0.36	0.77	0.00	1.00					
Prob of Max Out (p_x)		1.00	0.00	0.05	0.00	0.00	0.00					
Left-Turn Movement Data												
Assigned Mvmt		1		3	7	5						
Mvmt Sat Flow, veh/h		1781		1562	1443	1781						
Through Movement Data												
Assigned Mvmt			2	8	4		6					
Mvmt Sat Flow, veh/h			5104	0	0		5271					
Right-Turn Movement Data												
Assigned Mvmt			12	18	14		16					
Mvmt Sat Flow, veh/h			144	195	301		3					
Left Lane Group Data												
Assigned Mvmt		1	0	3	7	5	0	0	0			
Lane Assignment		L (Prot)		L+T+R	L+T+R	L (Prot)						

HCM 6th Signalized Intersection Capacity Analysis
 1: Ridgewood Center Drive/Laurel Hills Drive & Prince William Pkwy

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Lanes in Grp	1	0	1	1	1	0	0	0
Grp Vol (v), veh/h	63	0	9	29	0	0	0	0
Grp Sat Flow (s), veh/h/ln	1781	0	1757	1744	1781	0	0	0
Q Serve Time (g_s), s	6.3	0.0	0.9	3.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	6.3	0.0	0.9	3.0	0.0	0.0	0.0	0.0
Perm LT Sat Flow (s_l), veh/h/ln	0	0	0	0	0	0	0	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Q Serve Time (g_ps), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	0.89	0.83	1.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	79	0	18	38	1	0	0	0
V/C Ratio (X)	0.80	0.00	0.51	0.77	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	104	0	102	305	104	0	0	0
Upstream Filter (I)	1.00	0.00	1.00	1.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	85.2	0.0	88.7	87.6	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	26.8	0.0	20.8	27.4	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	112.0	0.0	109.5	115.0	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	2.9	0.0	0.4	1.4	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.6	0.0	0.1	0.3	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	0.00	1.00	1.00	1.00	0.00	0.00	0.00
%ile Back of Q (50%), veh/ln	3.5	0.0	0.5	1.7	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.16	0.00	0.04	0.24	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	8	4	0	6	0	0
Lane Assignment		T				T		
Lanes in Grp	0	2	0	0	0	2	0	0
Grp Vol (v), veh/h	0	1841	0	0	0	1117	0	0
Grp Sat Flow (s), veh/h/ln	0	1702	0	0	0	1702	0	0
Q Serve Time (g_s), s	0.0	46.2	0.0	0.0	0.0	12.1	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	46.2	0.0	0.0	0.0	12.1	0.0	0.0
Lane Grp Cap (c), veh/h	0	2663	0	0	0	2937	0	0
V/C Ratio (X)	0.00	0.69	0.00	0.00	0.00	0.38	0.00	0.00
Avail Cap (c_a), veh/h	0	2663	0	0	0	2937	0	0
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	9.3	0.0	0.0	0.0	2.5	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.5	0.0	0.0	0.0	0.4	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	10.8	0.0	0.0	0.0	2.9	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	14.7	0.0	0.0	0.0	2.7	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.6	0.0	0.0	0.0	0.2	0.0	0.0

HCM 6th Signalized Intersection Capacity Analysis
 1: Ridgewood Center Drive/Laurel Hills Drive & Prince William Pkwy

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3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	15.3	0.0	0.0	0.0	2.9	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	1.02	0.00	0.00	0.00	0.09	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	18	14	0	16	0	0
Lane Assignment		T+R				T+R		
Lanes in Grp	0	1	0	0	0	1	0	0
Grp Vol (v), veh/h	0	1011	0	0	0	614	0	0
Grp Sat Flow (s), veh/h/ln	0	1844	0	0	0	1870	0	0
Q Serve Time (g_s), s	0.0	47.5	0.0	0.0	0.0	12.1	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	47.5	0.0	0.0	0.0	12.1	0.0	0.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.08	0.11	0.17	0.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	0	1443	0	0	0	1613	0	0
V/C Ratio (X)	0.00	0.70	0.00	0.00	0.00	0.38	0.00	0.00
Avail Cap (c_a), veh/h	0	1443	0	0	0	1613	0	0
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	9.4	0.0	0.0	0.0	2.5	0.0	0.0
Incr Delay (d2), s/veh	0.0	2.9	0.0	0.0	0.0	0.7	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	12.3	0.0	0.0	0.0	3.2	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	16.3	0.0	0.0	0.0	3.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	1.1	0.0	0.0	0.0	0.3	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	17.5	0.0	0.0	0.0	3.3	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	1.17	0.00	0.00	0.00	0.10	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	10.4
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

Intersection												
Int Delay, s/veh	23.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖ ↑↑↑ ↗			↖ ↑↑↑ ↗		↖		↕			↖ ↗	
Traffic Vol, veh/h	2	2710	11	6	1582	20	0	0	5	54	0	6
Future Vol, veh/h	2	2710	11	6	1582	20	0	0	5	54	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	518	-	-	523	-	488	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	96	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	2823	12	7	1720	22	0	0	5	59	0	7

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1742	0	0	2835	0	0	3535	4589	1418	2867	4573	860
Stage 1	-	-	-	-	-	-	2833	2833	-	1734	1734	-
Stage 2	-	-	-	-	-	-	702	1756	-	1133	2839	-
Critical Hdwy	5.34	-	-	5.34	-	-	6.44	6.54	7.14	6.44	6.54	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-	7.34	5.54	-	7.34	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.74	5.54	-	6.74	5.54	-
Follow-up Hdwy	3.12	-	-	3.12	-	-	3.82	4.02	3.92	3.82	4.02	3.92
Pot Cap-1 Maneuver	169	-	-	46	-	-	6	1	108	~18	1	257
Stage 1	-	-	-	-	-	-	9	38	-	60	141	-
Stage 2	-	-	-	-	-	-	359	137	-	194	38	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	169	-	-	46	-	-	5	1	108	~15	1	257
Mov Cap-2 Maneuver	-	-	-	-	-	-	5	1	-	~15	1	-
Stage 1	-	-	-	-	-	-	9	38	-	59	120	-
Stage 2	-	-	-	-	-	-	297	116	-	182	38	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.4			40.1			\$ 1643.2		
HCM LOS							E			F		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	108	169	-	-	46	-	-	15	257
HCM Lane V/C Ratio	0.05	0.013	-	-	0.142	-	-	3.913	0.025
HCM Control Delay (s)	40.1	26.6	-	-	95.8	-	-	\$ 1823.6	19.4
HCM Lane LOS	E	D	-	-	F	-	-	F	C
HCM 95th %tile Q(veh)	0.2	0	-	-	0.5	-	-	8.2	0.1

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM 6th TWSC
3: Prince William Pkwy & Site Entrance

04/01/2019

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑	↑		↑
Traffic Vol, veh/h	0	2763	1632	0	0	0
Future Vol, veh/h	0	2763	1632	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	193	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	3003	1774	0	0	0

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	-	0	-	0	887
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	3.92
Pot Cap-1 Maneuver	0	-	-	-	0 247
Stage 1	0	-	-	-	0 -
Stage 2	0	-	-	-	0 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	247
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s)	-	-	-	0
HCM Lane LOS	-	-	-	A
HCM 95th %tile Q(veh)	-	-	-	-

Intersection: 1: Ridgewood Center Drive/Laurel Hills Drive & Prince William Pkwy

Movement	EB	EB	EB	WB	WB	WB	WB	NB	SB
Directions Served	T	T	TR	L	T	T	TR	LTR	LTR
Maximum Queue (ft)	337	332	297	130	172	161	72	115	48
Average Queue (ft)	158	145	136	53	58	36	17	30	11
95th Queue (ft)	309	305	283	103	156	109	53	82	32
Link Distance (ft)	379	379	379		806	806	806	172	379
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)				540					
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 2: Black Forest Drive/Reids Prospect Drive & Prince William Pkwy

Movement	EB	NB	SB
Directions Served	L	LTR	LT
Maximum Queue (ft)	24	28	425
Average Queue (ft)	0	3	422
95th Queue (ft)	0	17	424
Link Distance (ft)		339	412
Upstream Blk Time (%)			96
Queuing Penalty (veh)			0
Storage Bay Dist (ft)	518		
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: Prince William Pkwy & Site Entrance

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

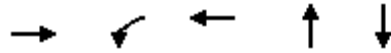
Network Summary

Network wide Queuing Penalty: 0

Queues

1: Ridgewood Center Drive/Laurel Hills Drive & Prince William Pkwy

04/01/2019



Lane Group	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	2334	14	3209	51	8
v/c Ratio	0.54	0.23	0.70	0.39	0.14
Control Delay	6.4	101.5	5.1	9.4	83.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	6.4	101.5	5.1	9.4	83.0
Queue Length 50th (ft)	280	18	267	0	8
Queue Length 95th (ft)	491	47	607	5	30
Internal Link Dist (ft)	355		764	152	363
Turn Bay Length (ft)		540			
Base Capacity (vph)	4351	137	4572	238	119
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.54	0.10	0.70	0.21	0.07

Intersection Summary

HCM 6th Signalized Intersection Summary

1: Ridgewood Center Drive/Laurel Hills Drive & Prince William Pkwy

04/01/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↶↶↶		↶	↶↶↶			↶↶			↶↶	
Traffic Volume (veh/h)	0	2256	7	13	2973	11	32	0	15	5	1	2
Future Volume (veh/h)	0	2256	7	13	2973	11	32	0	15	5	1	2
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No				No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	2326	8	14	3197	12	35	0	16	5	1	2
Peak Hour Factor	0.92	0.97	0.92	0.92	0.93	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	1	4267	15	24	4507	17	44	0	20	10	2	4
Arrive On Green	0.00	0.81	0.81	0.01	0.86	0.86	0.04	0.00	0.04	0.01	0.01	0.01
Sat Flow, veh/h	1781	5253	18	1781	5251	20	1177	0	538	1086	217	434
Grp Volume(v), veh/h	0	1507	827	14	2071	1138	51	0	0	8	0	0
Grp Sat Flow(s),veh/h/ln	1781	1702	1867	1781	1702	1867	1715	0	0	1738	0	0
Q Serve(g_s), s	0.0	29.8	29.9	1.6	44.0	44.2	5.9	0.0	0.0	0.9	0.0	0.0
Cycle Q Clear(g_c), s	0.0	29.8	29.9	1.6	44.0	44.2	5.9	0.0	0.0	0.9	0.0	0.0
Prop In Lane	1.00		0.01	1.00		0.01	0.69		0.31	0.62		0.25
Lane Grp Cap(c), veh/h	1	2765	1517	24	2922	1602	65	0	0	16	0	0
V/C Ratio(X)	0.00	0.54	0.55	0.58	0.71	0.71	0.79	0.00	0.00	0.51	0.00	0.00
Avail Cap(c_a), veh/h	138	2765	1517	138	2922	1602	159	0	0	117	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	6.3	6.3	98.1	5.1	5.1	95.4	0.0	0.0	98.7	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.8	1.4	20.3	1.5	2.7	18.7	0.0	0.0	23.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	9.6	10.8	0.9	12.0	13.8	3.0	0.0	0.0	0.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	7.1	7.7	118.4	6.6	7.8	114.2	0.0	0.0	122.4	0.0	0.0
LnGrp LOS	A	A	A	F	A	A	F	A	A	F	A	A
Approach Vol, veh/h		2334			3223			51				8
Approach Delay, s/veh		7.3			7.5			114.2				122.4
Approach LOS		A			A			F				F
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.2	168.5		14.0	0.0	177.7		8.3				
Change Period (Y+Rc), s	6.5	6.0		6.5	6.5	6.0		6.5				
Max Green Setting (Gmax), s	15.5	127.0		18.5	15.5	127.0		13.5				
Max Q Clear Time (g_c+I1), s	3.6	31.9		7.9	0.0	46.2		2.9				
Green Ext Time (p_c), s	0.0	48.5		0.1	0.0	70.7		0.0				

Intersection Summary

HCM 6th Ctrl Delay	8.6
HCM 6th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

HCM 6th Signalized Intersection Capacity Analysis

1: Ridgewood Center Drive/Laurel Hills Drive & Prince William Pkwy

04/01/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↶↶↶		↶	↶↶↶			↕			↕	
Traffic Volume (veh/h)	0	2256	7	13	2973	11	32	0	15	5	1	2
Future Volume (veh/h)	0	2256	7	13	2973	11	32	0	15	5	1	2
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj (A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	2326	8	14	3197	12	35	0	16	5	1	2
Peak Hour Factor	0.92	0.97	0.92	0.92	0.93	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	1	4267	15	24	4507	17	44	0	20	10	2	4
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Prop Arrive On Green	0.00	0.81	0.81	0.01	0.86	0.86	0.04	0.00	0.04	0.01	0.01	0.01
Unsig. Movement Delay												
Ln Grp Delay, s/veh	0.0	7.1	7.7	118.4	6.6	7.8	114.2	0.0	0.0	122.4	0.0	0.0
Ln Grp LOS	A	A	A	F	A	A	F	A	A	F	A	A
Approach Vol, veh/h		2334			3223			51			8	
Approach Delay, s/veh		7.3			7.5			114.2			122.4	
Approach LOS		A			A			F			F	
Timer:		1	2	3	4	5	6	7	8			
Assigned Phs		1	2	8	4	5	6					
Case No		2.0	4.0	12.0	12.0	2.0	4.0					
Phs Duration (G+Y+Rc), s		9.2	168.5	8.3	14.0	0.0	177.7					
Change Period (Y+Rc), s		6.5	6.0	6.5	6.5	6.5	6.0					
Max Green (Gmax), s		15.5	127.0	13.5	18.5	15.5	127.0					
Max Allow Headway (MAH), s		3.7	5.4	5.5	5.6	0.0	5.4					
Max Q Clear (g_c+I1), s		3.6	31.9	2.9	7.9	0.0	46.2					
Green Ext Time (g_e), s		0.0	48.5	0.0	0.1	0.0	70.7					
Prob of Phs Call (p_c)		0.54	1.00	0.36	0.94	0.00	1.00					
Prob of Max Out (p_x)		0.00	0.00	0.00	0.01	0.00	0.00					
Left-Turn Movement Data												
Assigned Mvmt		1		3	7	5						
Mvmt Sat Flow, veh/h		1781		1086	1177	1781						
Through Movement Data												
Assigned Mvmt			2	8	4		6					
Mvmt Sat Flow, veh/h			5253	217	0		5251					
Right-Turn Movement Data												
Assigned Mvmt			12	18	14		16					
Mvmt Sat Flow, veh/h			18	434	538		20					
Left Lane Group Data												
Assigned Mvmt		1	0	3	7	5	0	0	0			
Lane Assignment		L (Prot)		L+T+R	L+T+R	L (Prot)						

HCM 6th Signalized Intersection Capacity Analysis
 1: Ridgewood Center Drive/Laurel Hills Drive & Prince William Pkwy

04/01/2019

Lanes in Grp	1	0	1	1	1	0	0	0
Grp Vol (v), veh/h	14	0	8	51	0	0	0	0
Grp Sat Flow (s), veh/h/ln	1781	0	1738	1715	1781	0	0	0
Q Serve Time (g_s), s	1.6	0.0	0.9	5.9	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	1.6	0.0	0.9	5.9	0.0	0.0	0.0	0.0
Perm LT Sat Flow (s_l), veh/h/ln	0	0	0	0	0	0	0	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Q Serve Time (g_ps), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	0.62	0.69	1.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	24	0	16	65	1	0	0	0
V/C Ratio (X)	0.58	0.00	0.51	0.79	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	138	0	117	159	138	0	0	0
Upstream Filter (I)	1.00	0.00	1.00	1.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	98.1	0.0	98.7	95.4	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	20.3	0.0	23.7	18.7	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	118.4	0.0	122.4	114.2	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.7	0.0	0.4	2.7	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.1	0.0	0.1	0.3	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	0.00	1.00	1.00	1.00	0.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.9	0.0	0.5	3.0	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.04	0.00	0.04	0.44	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	8	4	0	6	0	0
Lane Assignment		T				T		
Lanes in Grp	0	2	0	0	0	2	0	0
Grp Vol (v), veh/h	0	1507	0	0	0	2071	0	0
Grp Sat Flow (s), veh/h/ln	0	1702	0	0	0	1702	0	0
Q Serve Time (g_s), s	0.0	29.8	0.0	0.0	0.0	44.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	29.8	0.0	0.0	0.0	44.0	0.0	0.0
Lane Grp Cap (c), veh/h	0	2765	0	0	0	2922	0	0
V/C Ratio (X)	0.00	0.54	0.00	0.00	0.00	0.71	0.00	0.00
Avail Cap (c_a), veh/h	0	2765	0	0	0	2922	0	0
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	6.3	0.0	0.0	0.0	5.1	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.8	0.0	0.0	0.0	1.5	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	7.1	0.0	0.0	0.0	6.6	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	9.3	0.0	0.0	0.0	11.4	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.3	0.0	0.0	0.0	0.6	0.0	0.0

HCM 6th Signalized Intersection Capacity Analysis
 1: Ridgewood Center Drive/Laurel Hills Drive & Prince William Pkwy

04/01/2019

3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	9.6	0.0	0.0	0.0	12.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.64	0.00	0.00	0.00	0.38	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	18	14	0	16	0	0
Lane Assignment		T+R				T+R		
Lanes in Grp	0	1	0	0	0	1	0	0
Grp Vol (v), veh/h	0	827	0	0	0	1138	0	0
Grp Sat Flow (s), veh/h/ln	0	1867	0	0	0	1867	0	0
Q Serve Time (g_s), s	0.0	29.9	0.0	0.0	0.0	44.2	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	29.9	0.0	0.0	0.0	44.2	0.0	0.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.01	0.25	0.31	0.00	0.01	0.00	0.00
Lane Grp Cap (c), veh/h	0	1517	0	0	0	1602	0	0
V/C Ratio (X)	0.00	0.55	0.00	0.00	0.00	0.71	0.00	0.00
Avail Cap (c_a), veh/h	0	1517	0	0	0	1602	0	0
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	6.3	0.0	0.0	0.0	5.1	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.4	0.0	0.0	0.0	2.7	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	7.7	0.0	0.0	0.0	7.8	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	10.2	0.0	0.0	0.0	12.6	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.6	0.0	0.0	0.0	1.2	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	10.8	0.0	0.0	0.0	13.8	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.72	0.00	0.00	0.00	0.43	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	8.6
HCM 6th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Intersection												
Int Delay, s/veh	27.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖ ↑↑↑			↖ ↑↑↑		↖		↔			↖	↖
Traffic Vol, veh/h	2	2284	0	5	2858	94	2	0	6	24	0	9
Future Vol, veh/h	2	2284	0	5	2858	94	2	0	6	24	0	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	518	-	-	523	-	488	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	96	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	2379	0	5	3107	102	2	0	7	26	0	10

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	3209	0	0	2379	0	0	3636	5602	1190	4073	5500	1554
Stage 1	-	-	-	-	-	-	2383	2383	-	3117	3117	-
Stage 2	-	-	-	-	-	-	1253	3219	-	956	2383	-
Critical Hdwy	5.34	-	-	5.34	-	-	6.44	6.54	7.14	6.44	6.54	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-	7.34	5.54	-	7.34	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.74	5.54	-	6.74	5.54	-
Follow-up Hdwy	3.12	-	-	3.12	-	-	3.82	4.02	3.92	3.82	4.02	3.92
Pot Cap-1 Maneuver	29	-	-	80	-	-	6	0	155	~3	0	87
Stage 1	-	-	-	-	-	-	20	65	-	~6	27	-
Stage 2	-	-	-	-	-	-	163	23	-	250	65	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	29	-	-	80	-	-	5	0	155	~3	0	87
Mov Cap-2 Maneuver	-	-	-	-	-	-	5	0	-	~3	0	-
Stage 1	-	-	-	-	-	-	19	61	-	~6	25	-
Stage 2	-	-	-	-	-	-	136	22	-	223	61	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.1			\$ 327.5			\$ 4167		
HCM LOS							F			F		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	18	29	-	-	80	-	-	3	87
HCM Lane V/C Ratio	0.483	0.075	-	-	0.068	-	-	8.696	0.112
HCM Control Delay (s)	\$ 327.5	139	-	-	53.3	-	-	\$ 5710.3	51.6
HCM Lane LOS	F	F	-	-	F	-	-	F	F
HCM 95th %tile Q(veh)	1.3	0.2	-	-	0.2	-	-	4.9	0.4

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑	↑		↑
Traffic Vol, veh/h	0	2263	3007	0	0	0
Future Vol, veh/h	0	2263	3007	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	193	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	2460	3268	0	0	0

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	-	0	- 0 - 1634
Stage 1	-	-	- - -
Stage 2	-	-	- - -
Critical Hdwy	-	-	- - 7.14
Critical Hdwy Stg 1	-	-	- - -
Critical Hdwy Stg 2	-	-	- - -
Follow-up Hdwy	-	-	- - 3.92
Pot Cap-1 Maneuver	0	-	- - 0 77
Stage 1	0	-	- - 0 -
Stage 2	0	-	- - 0 -
Platoon blocked, %	-	-	- - -
Mov Cap-1 Maneuver	-	-	- - 77
Mov Cap-2 Maneuver	-	-	- - -
Stage 1	-	-	- - -
Stage 2	-	-	- - -

Approach	EB	WB	SB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s)	-	-	-	0
HCM Lane LOS	-	-	-	A
HCM 95th %tile Q(veh)	-	-	-	-

Intersection: 1: Ridgewood Center Drive/Laurel Hills Drive & Prince William Pkwy

Movement	EB	EB	EB	WB	WB	WB	WB	NB	SB
Directions Served	T	T	TR	L	T	T	TR	LTR	LTR
Maximum Queue (ft)	220	219	171	68	336	355	240	177	26
Average Queue (ft)	82	87	62	15	72	68	50	49	4
95th Queue (ft)	197	202	148	46	210	203	152	115	19
Link Distance (ft)	379	379	379		806	806	806	172	379
Upstream Blk Time (%)								0	
Queuing Penalty (veh)								0	
Storage Bay Dist (ft)				540					
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 2: Black Forest Drive/Reids Prospect Drive & Prince William Pkwy

Movement	EB	WB	NB	SB	SB
Directions Served	L	R	LTR	LT	R
Maximum Queue (ft)	24	54	305	414	20
Average Queue (ft)	3	2	227	371	2
95th Queue (ft)	14	18	289	459	13
Link Distance (ft)			339	412	412
Upstream Blk Time (%)				64	
Queuing Penalty (veh)				0	
Storage Bay Dist (ft)	518	488			
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 3: Prince William Pkwy & Site Entrance

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Network Summary

Network wide Queuing Penalty: 0

APPENDIX D

Analysis Worksheets for
Future Conditions

Queues

1: Ridgewood Center Drive/Laurel Hills Drive & Prince William Pkwy

04/01/2019



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	4	2854	63	1734	29	9
v/c Ratio	0.07	0.71	0.66	0.39	0.20	0.06
Control Delay	86.2	11.1	113.6	3.6	3.0	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	86.2	11.1	113.6	3.6	3.0	0.8
Queue Length 50th (ft)	5	482	74	80	0	0
Queue Length 95th (ft)	20	719	#140	274	0	0
Internal Link Dist (ft)		355		764	152	363
Turn Bay Length (ft)	430		540			
Base Capacity (vph)	103	4034	103	4466	385	193
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.71	0.61	0.39	0.08	0.05

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

1: Ridgewood Center Drive/Laurel Hills Drive & Prince William Pkwy

04/01/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↑↑↑		↖	↑↑↑			↕			↕	
Traffic Volume (veh/h)	4	2692	73	58	1612	1	22	0	5	7	0	1
Future Volume (veh/h)	4	2692	73	58	1612	1	22	0	5	7	0	1
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	4	2775	79	63	1733	1	24	0	5	8	0	1
Peak Hour Factor	0.92	0.97	0.92	0.92	0.93	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	9	3994	113	79	4331	2	31	0	6	16	0	2
Arrive On Green	0.01	0.78	0.78	0.04	0.82	0.82	0.02	0.00	0.02	0.01	0.00	0.01
Sat Flow, veh/h	1781	5104	144	1781	5271	3	1443	0	301	1562	0	195
Grp Volume(v), veh/h	4	1843	1011	63	1119	615	29	0	0	9	0	0
Grp Sat Flow(s),veh/h/ln	1781	1702	1844	1781	1702	1870	1744	0	0	1757	0	0
Q Serve(g_s), s	0.4	46.2	47.5	6.3	15.7	15.7	3.0	0.0	0.0	0.9	0.0	0.0
Cycle Q Clear(g_c), s	0.4	46.2	47.5	6.3	15.7	15.7	3.0	0.0	0.0	0.9	0.0	0.0
Prop In Lane	1.00		0.08	1.00		0.00	0.83		0.17	0.89		0.11
Lane Grp Cap(c), veh/h	9	2663	1443	79	2797	1536	38	0	0	18	0	0
V/C Ratio(X)	0.45	0.69	0.70	0.80	0.40	0.40	0.77	0.00	0.00	0.51	0.00	0.00
Avail Cap(c_a), veh/h	104	2663	1443	104	2797	1536	305	0	0	102	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	89.3	9.3	9.4	85.2	4.3	4.3	87.6	0.0	0.0	88.7	0.0	0.0
Incr Delay (d2), s/veh	31.0	1.5	2.9	26.8	0.4	0.8	27.4	0.0	0.0	20.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	15.2	17.6	3.5	4.7	5.3	1.7	0.0	0.0	0.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	120.3	10.8	12.3	112.0	4.7	5.0	115.0	0.0	0.0	109.5	0.0	0.0
LnGrp LOS	F	B	B	F	A	A	F	A	A	F	A	A
Approach Vol, veh/h		2858			1797			29				9
Approach Delay, s/veh		11.5			8.6			115.0				109.5
Approach LOS		B			A			F				F
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	14.5	146.8		10.4	7.4	153.9		8.3				
Change Period (Y+Rc), s	6.5	6.0		6.5	6.5	6.0		6.5				
Max Green Setting (Gmax), s	10.5	102.0		31.5	10.5	102.0		10.5				
Max Q Clear Time (g_c+I1), s	8.3	49.5		5.0	2.4	17.7		2.9				
Green Ext Time (p_c), s	0.0	44.1		0.1	0.0	24.5		0.0				

Intersection Summary

HCM 6th Ctrl Delay	11.2
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

HCM 6th Signalized Intersection Capacity Analysis

1: Ridgewood Center Drive/Laurel Hills Drive & Prince William Pkwy

04/01/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑↑↑		↖	↑↑↑			↕			↕	
Traffic Volume (veh/h)	4	2692	73	58	1612	1	22	0	5	7	0	1
Future Volume (veh/h)	4	2692	73	58	1612	1	22	0	5	7	0	1
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj (A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	4	2775	79	63	1733	1	24	0	5	8	0	1
Peak Hour Factor	0.92	0.97	0.92	0.92	0.93	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	9	3994	113	79	4331	2	31	0	6	16	0	2
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Prop Arrive On Green	0.01	0.78	0.78	0.04	0.82	0.82	0.02	0.00	0.02	0.01	0.00	0.01
Unsig. Movement Delay												
Ln Grp Delay, s/veh	120.3	10.8	12.3	112.0	4.7	5.0	115.0	0.0	0.0	109.5	0.0	0.0
Ln Grp LOS	F	B	B	F	A	A	F	A	A	F	A	A
Approach Vol, veh/h		2858			1797			29				9
Approach Delay, s/veh		11.5			8.6			115.0				109.5
Approach LOS		B			A			F				F
Timer:		1	2	3	4	5	6	7	8			
Assigned Phs		1	2	8	4	5	6					
Case No		2.0	4.0	12.0	12.0	2.0	4.0					
Phs Duration (G+Y+Rc), s		14.5	146.8	8.3	10.4	7.4	153.9					
Change Period (Y+Rc), s		6.5	6.0	6.5	6.5	6.5	6.0					
Max Green (Gmax), s		10.5	102.0	10.5	31.5	10.5	102.0					
Max Allow Headway (MAH), s		3.7	5.4	5.5	5.5	3.7	5.4					
Max Q Clear (g_c+I1), s		8.3	49.5	2.9	5.0	2.4	17.7					
Green Ext Time (g_e), s		0.0	44.1	0.0	0.1	0.0	24.5					
Prob of Phs Call (p_c)		0.96	1.00	0.36	0.77	0.18	1.00					
Prob of Max Out (p_x)		1.00	0.00	0.05	0.00	0.00	0.00					
Left-Turn Movement Data												
Assigned Mvmt		1		3	7	5						
Mvmt Sat Flow, veh/h		1781		1562	1443	1781						
Through Movement Data												
Assigned Mvmt			2	8	4		6					
Mvmt Sat Flow, veh/h			5104	0	0		5271					
Right-Turn Movement Data												
Assigned Mvmt			12	18	14		16					
Mvmt Sat Flow, veh/h			144	195	301		3					
Left Lane Group Data												
Assigned Mvmt		1	0	3	7	5	0	0	0			
Lane Assignment		L (Prot)		L+T+R	L+T+R	L (Prot)						

HCM 6th Signalized Intersection Capacity Analysis
 1: Ridgewood Center Drive/Laurel Hills Drive & Prince William Pkwy

04/01/2019

Lanes in Grp	1	0	1	1	1	0	0	0
Grp Vol (v), veh/h	63	0	9	29	4	0	0	0
Grp Sat Flow (s), veh/h/ln	1781	0	1757	1744	1781	0	0	0
Q Serve Time (g_s), s	6.3	0.0	0.9	3.0	0.4	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	6.3	0.0	0.9	3.0	0.4	0.0	0.0	0.0
Perm LT Sat Flow (s_l), veh/h/ln	0	0	0	0	0	0	0	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Q Serve Time (g_ps), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	0.89	0.83	1.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	79	0	18	38	9	0	0	0
V/C Ratio (X)	0.80	0.00	0.51	0.77	0.45	0.00	0.00	0.00
Avail Cap (c_a), veh/h	104	0	102	305	104	0	0	0
Upstream Filter (I)	1.00	0.00	1.00	1.00	1.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	85.2	0.0	88.7	87.6	89.3	0.0	0.0	0.0
Incr Delay (d2), s/veh	26.8	0.0	20.8	27.4	31.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	112.0	0.0	109.5	115.0	120.3	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	2.9	0.0	0.4	1.4	0.2	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.6	0.0	0.1	0.3	0.1	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	0.00	1.00	1.00	1.00	0.00	0.00	0.00
%ile Back of Q (50%), veh/ln	3.5	0.0	0.5	1.7	0.3	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.16	0.00	0.04	0.24	0.02	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	8	4	0	6	0	0
Lane Assignment		T				T		
Lanes in Grp	0	2	0	0	0	2	0	0
Grp Vol (v), veh/h	0	1843	0	0	0	1119	0	0
Grp Sat Flow (s), veh/h/ln	0	1702	0	0	0	1702	0	0
Q Serve Time (g_s), s	0.0	46.2	0.0	0.0	0.0	15.7	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	46.2	0.0	0.0	0.0	15.7	0.0	0.0
Lane Grp Cap (c), veh/h	0	2663	0	0	0	2797	0	0
V/C Ratio (X)	0.00	0.69	0.00	0.00	0.00	0.40	0.00	0.00
Avail Cap (c_a), veh/h	0	2663	0	0	0	2797	0	0
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	9.3	0.0	0.0	0.0	4.3	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.5	0.0	0.0	0.0	0.4	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	10.8	0.0	0.0	0.0	4.7	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	14.7	0.0	0.0	0.0	4.5	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.6	0.0	0.0	0.0	0.2	0.0	0.0

HCM 6th Signalized Intersection Capacity Analysis

1: Ridgewood Center Drive/Laurel Hills Drive & Prince William Pkwy

04/01/2019

3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	15.2	0.0	0.0	0.0	4.7	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	1.02	0.00	0.00	0.00	0.15	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	18	14	0	16	0	0
Lane Assignment		T+R				T+R		
Lanes in Grp	0	1	0	0	0	1	0	0
Grp Vol (v), veh/h	0	1011	0	0	0	615	0	0
Grp Sat Flow (s), veh/h/ln	0	1844	0	0	0	1870	0	0
Q Serve Time (g_s), s	0.0	47.5	0.0	0.0	0.0	15.7	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	47.5	0.0	0.0	0.0	15.7	0.0	0.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.08	0.11	0.17	0.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	0	1443	0	0	0	1536	0	0
V/C Ratio (X)	0.00	0.70	0.00	0.00	0.00	0.40	0.00	0.00
Avail Cap (c_a), veh/h	0	1443	0	0	0	1536	0	0
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	9.4	0.0	0.0	0.0	4.3	0.0	0.0
Incr Delay (d2), s/veh	0.0	2.9	0.0	0.0	0.0	0.8	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	12.3	0.0	0.0	0.0	5.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	16.4	0.0	0.0	0.0	4.9	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	1.1	0.0	0.0	0.0	0.3	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	17.6	0.0	0.0	0.0	5.3	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	1.18	0.00	0.00	0.00	0.17	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	11.2
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

Intersection												
Int Delay, s/veh	25.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖ ↑↑↑ ↗			↖ ↑↑↑ ↗		↖		↕			↖	↖
Traffic Vol, veh/h	2	2714	11	8	1585	20	0	0	5	54	0	6
Future Vol, veh/h	2	2714	11	8	1585	20	0	0	5	54	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	518	-	-	523	-	488	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	96	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	2827	12	9	1723	22	0	0	5	59	0	7

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1745	0	0	2839	0	0	3544	4600	1420	2876	4584	862
Stage 1	-	-	-	-	-	-	2837	2837	-	1741	1741	-
Stage 2	-	-	-	-	-	-	707	1763	-	1135	2843	-
Critical Hdwy	5.34	-	-	5.34	-	-	6.44	6.54	7.14	6.44	6.54	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-	7.34	5.54	-	7.34	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.74	5.54	-	6.74	5.54	-
Follow-up Hdwy	3.12	-	-	3.12	-	-	3.82	4.02	3.92	3.82	4.02	3.92
Pot Cap-1 Maneuver	168	-	-	46	-	-	6	1	108	~18	1	256
Stage 1	-	-	-	-	-	-	9	38	-	59	139	-
Stage 2	-	-	-	-	-	-	357	136	-	194	37	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	168	-	-	46	-	-	5	1	108	~14	1	256
Mov Cap-2 Maneuver	-	-	-	-	-	-	5	1	-	~14	1	-
Stage 1	-	-	-	-	-	-	9	38	-	~58	112	-
Stage 2	-	-	-	-	-	-	280	109	-	182	37	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.5			40.1			\$ 1784.8		
HCM LOS							E			F		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	108	168	-	-	46	-	-	14	256
HCM Lane V/C Ratio	0.05	0.013	-	-	0.189	-	-	4.193	0.025
HCM Control Delay (s)	40.1	26.7	-	-	100.7	-	-	\$ 1981	19.4
HCM Lane LOS	E	D	-	-	F	-	-	F	C
HCM 95th %tile Q(veh)	0.2	0	-	-	0.6	-	-	8.3	0.1

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM 6th TWSC
3: Prince William Pkwy & Site Entrance

04/01/2019

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑	↑		↑
Traffic Vol, veh/h	0	2765	1632	7	0	5
Future Vol, veh/h	0	2765	1632	7	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	193	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	3005	1774	8	0	5

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	-	0	-	0	887
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	3.92
Pot Cap-1 Maneuver	0	-	-	-	0 247
Stage 1	0	-	-	-	0 -
Stage 2	0	-	-	-	0 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	247
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	19.9
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	247
HCM Lane V/C Ratio	-	-	-	0.022
HCM Control Delay (s)	-	-	-	19.9
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0.1

Intersection: 1: Ridgewood Center Drive/Laurel Hills Drive & Prince William Pkwy

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	SB
Directions Served	L	T	T	TR	L	T	T	TR	LTR	LTR
Maximum Queue (ft)	27	318	359	356	236	170	194	93	134	26
Average Queue (ft)	3	190	184	162	75	54	45	21	43	7
95th Queue (ft)	14	345	347	334	176	151	133	67	94	25
Link Distance (ft)		379	379	379		806	806	806	172	379
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	430				540					
Storage Blk Time (%)										
Queuing Penalty (veh)										

Intersection: 2: Black Forest Drive/Reids Prospect Drive & Prince William Pkwy

Movement	EB	WB	NB	SB	SB
Directions Served	L	L	LTR	LT	R
Maximum Queue (ft)	24	25	28	427	425
Average Queue (ft)	1	8	4	405	309
95th Queue (ft)	10	27	20	458	603
Link Distance (ft)			339	412	412
Upstream Blk Time (%)				85	76
Queuing Penalty (veh)				0	0
Storage Bay Dist (ft)	518	523			
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 3: Prince William Pkwy & Site Entrance

Movement	SB
Directions Served	R
Maximum Queue (ft)	24
Average Queue (ft)	2
95th Queue (ft)	14
Link Distance (ft)	206
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 0

Queues

1: Ridgewood Center Drive/Laurel Hills Drive & Prince William Pkwy

04/01/2019



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	11	2340	14	3215	51	8
v/c Ratio	0.18	0.54	0.23	0.73	0.39	0.14
Control Delay	100.0	6.4	101.5	9.1	9.4	83.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	100.0	6.4	101.5	9.1	9.4	83.0
Queue Length 50th (ft)	14	281	18	268	0	8
Queue Length 95th (ft)	41	493	47	960	5	30
Internal Link Dist (ft)		355		764	152	363
Turn Bay Length (ft)	430		540			
Base Capacity (vph)	137	4351	137	4424	238	119
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.54	0.10	0.73	0.21	0.07

Intersection Summary

HCM 6th Signalized Intersection Summary

1: Ridgewood Center Drive/Laurel Hills Drive & Prince William Pkwy

04/01/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑↑↑		↖	↑↑↑			↕			↕	
Traffic Volume (veh/h)	10	2262	7	13	2979	11	32	0	15	5	1	2
Future Volume (veh/h)	10	2262	7	13	2979	11	32	0	15	5	1	2
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	2332	8	14	3203	12	35	0	16	5	1	2
Peak Hour Factor	0.92	0.97	0.92	0.92	0.93	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	20	4267	15	24	4276	16	44	0	20	10	2	4
Arrive On Green	0.01	0.81	0.81	0.01	0.81	0.81	0.04	0.00	0.04	0.01	0.01	0.01
Sat Flow, veh/h	1781	5253	18	1781	5251	20	1177	0	538	1086	217	434
Grp Volume(v), veh/h	11	1511	829	14	2075	1140	51	0	0	8	0	0
Grp Sat Flow(s),veh/h/ln	1781	1702	1867	1781	1702	1867	1715	0	0	1738	0	0
Q Serve(g_s), s	1.2	30.0	30.0	1.6	58.0	58.2	5.9	0.0	0.0	0.9	0.0	0.0
Cycle Q Clear(g_c), s	1.2	30.0	30.0	1.6	58.0	58.2	5.9	0.0	0.0	0.9	0.0	0.0
Prop In Lane	1.00		0.01	1.00		0.01	0.69		0.31	0.62		0.25
Lane Grp Cap(c), veh/h	20	2765	1517	24	2772	1520	65	0	0	16	0	0
V/C Ratio(X)	0.54	0.55	0.55	0.58	0.75	0.75	0.79	0.00	0.00	0.51	0.00	0.00
Avail Cap(c_a), veh/h	138	2765	1517	138	2772	1520	159	0	0	117	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	98.3	6.3	6.3	98.1	8.8	8.9	95.4	0.0	0.0	98.7	0.0	0.0
Incr Delay (d2), s/veh	20.4	0.8	1.4	20.3	1.9	3.4	18.7	0.0	0.0	23.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	9.6	10.8	0.9	18.7	21.3	3.0	0.0	0.0	0.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	118.8	7.1	7.8	118.4	10.7	12.3	114.2	0.0	0.0	122.4	0.0	0.0
LnGrp LOS	F	A	A	F	B	B	F	A	A	F	A	A
Approach Vol, veh/h		2351			3229			51				8
Approach Delay, s/veh		7.9			11.7			114.2				122.4
Approach LOS		A			B			F				F
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.2	168.5		14.0	8.8	168.9		8.3				
Change Period (Y+Rc), s	6.5	6.0		6.5	6.5	6.0		6.5				
Max Green Setting (Gmax), s	15.5	127.0		18.5	15.5	127.0		13.5				
Max Q Clear Time (g_c+I1), s	3.6	32.0		7.9	3.2	60.2		2.9				
Green Ext Time (p_c), s	0.0	48.7		0.1	0.0	59.8		0.0				

Intersection Summary

HCM 6th Ctrl Delay	11.2
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

HCM 6th Signalized Intersection Capacity Analysis

1: Ridgewood Center Drive/Laurel Hills Drive & Prince William Pkwy

04/01/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↶↶↶		↶	↶↶↶			↕			↕	
Traffic Volume (veh/h)	10	2262	7	13	2979	11	32	0	15	5	1	2
Future Volume (veh/h)	10	2262	7	13	2979	11	32	0	15	5	1	2
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj (A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	2332	8	14	3203	12	35	0	16	5	1	2
Peak Hour Factor	0.92	0.97	0.92	0.92	0.93	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	20	4267	15	24	4276	16	44	0	20	10	2	4
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Prop Arrive On Green	0.01	0.81	0.81	0.01	0.81	0.81	0.04	0.00	0.04	0.01	0.01	0.01
Unsig. Movement Delay												
Ln Grp Delay, s/veh	118.8	7.1	7.8	118.4	10.7	12.3	114.2	0.0	0.0	122.4	0.0	0.0
Ln Grp LOS	F	A	A	F	B	B	F	A	A	F	A	A
Approach Vol, veh/h		2351			3229			51			8	
Approach Delay, s/veh		7.9			11.7			114.2			122.4	
Approach LOS		A			B			F			F	
Timer:		1	2	3	4	5	6	7	8			
Assigned Phs		1	2	8	4	5	6					
Case No		2.0	4.0	12.0	12.0	2.0	4.0					
Phs Duration (G+Y+Rc), s		9.2	168.5	8.3	14.0	8.8	168.9					
Change Period (Y+Rc), s		6.5	6.0	6.5	6.5	6.5	6.0					
Max Green (Gmax), s		15.5	127.0	13.5	18.5	15.5	127.0					
Max Allow Headway (MAH), s		3.7	5.4	5.5	5.6	3.7	5.4					
Max Q Clear (g_c+I1), s		3.6	32.0	2.9	7.9	3.2	60.2					
Green Ext Time (g_e), s		0.0	48.7	0.0	0.1	0.0	59.8					
Prob of Phs Call (p_c)		0.54	1.00	0.36	0.94	0.46	1.00					
Prob of Max Out (p_x)		0.00	0.00	0.00	0.01	0.00	0.00					
Left-Turn Movement Data												
Assigned Mvmt		1		3	7	5						
Mvmt Sat Flow, veh/h		1781		1086	1177	1781						
Through Movement Data												
Assigned Mvmt			2	8	4		6					
Mvmt Sat Flow, veh/h			5253	217	0		5251					
Right-Turn Movement Data												
Assigned Mvmt			12	18	14		16					
Mvmt Sat Flow, veh/h			18	434	538		20					
Left Lane Group Data												
Assigned Mvmt		1	0	3	7	5	0	0	0			
Lane Assignment		L (Prot)		L+T+R	L+T+R	L (Prot)						

HCM 6th Signalized Intersection Capacity Analysis
 1: Ridgewood Center Drive/Laurel Hills Drive & Prince William Pkwy

04/01/2019

Lanes in Grp	1	0	1	1	1	0	0	0
Grp Vol (v), veh/h	14	0	8	51	11	0	0	0
Grp Sat Flow (s), veh/h/ln	1781	0	1738	1715	1781	0	0	0
Q Serve Time (g_s), s	1.6	0.0	0.9	5.9	1.2	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	1.6	0.0	0.9	5.9	1.2	0.0	0.0	0.0
Perm LT Sat Flow (s_l), veh/h/ln	0	0	0	0	0	0	0	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Q Serve Time (g_ps), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	0.62	0.69	1.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	24	0	16	65	20	0	0	0
V/C Ratio (X)	0.58	0.00	0.51	0.79	0.54	0.00	0.00	0.00
Avail Cap (c_a), veh/h	138	0	117	159	138	0	0	0
Upstream Filter (I)	1.00	0.00	1.00	1.00	1.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	98.1	0.0	98.7	95.4	98.3	0.0	0.0	0.0
Incr Delay (d2), s/veh	20.3	0.0	23.7	18.7	20.4	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	118.4	0.0	122.4	114.2	118.8	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.7	0.0	0.4	2.7	0.6	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.1	0.0	0.1	0.3	0.1	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	0.00	1.00	1.00	1.00	0.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.9	0.0	0.5	3.0	0.7	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.04	0.00	0.04	0.44	0.04	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	8	4	0	6	0	0
Lane Assignment		T				T		
Lanes in Grp	0	2	0	0	0	2	0	0
Grp Vol (v), veh/h	0	1511	0	0	0	2075	0	0
Grp Sat Flow (s), veh/h/ln	0	1702	0	0	0	1702	0	0
Q Serve Time (g_s), s	0.0	30.0	0.0	0.0	0.0	58.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	30.0	0.0	0.0	0.0	58.0	0.0	0.0
Lane Grp Cap (c), veh/h	0	2765	0	0	0	2772	0	0
V/C Ratio (X)	0.00	0.55	0.00	0.00	0.00	0.75	0.00	0.00
Avail Cap (c_a), veh/h	0	2765	0	0	0	2772	0	0
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	6.3	0.0	0.0	0.0	8.8	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.8	0.0	0.0	0.0	1.9	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	7.1	0.0	0.0	0.0	10.7	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	9.3	0.0	0.0	0.0	18.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.3	0.0	0.0	0.0	0.7	0.0	0.0

HCM 6th Signalized Intersection Capacity Analysis

1: Ridgewood Center Drive/Laurel Hills Drive & Prince William Pkwy

04/01/2019

3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	9.6	0.0	0.0	0.0	18.7	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.65	0.00	0.00	0.00	0.59	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	18	14	0	16	0	0
Lane Assignment		T+R			T+R			
Lanes in Grp	0	1	0	0	0	1	0	0
Grp Vol (v), veh/h	0	829	0	0	0	1140	0	0
Grp Sat Flow (s), veh/h/ln	0	1867	0	0	0	1867	0	0
Q Serve Time (g_s), s	0.0	30.0	0.0	0.0	0.0	58.2	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	30.0	0.0	0.0	0.0	58.2	0.0	0.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.01	0.25	0.31	0.00	0.01	0.00	0.00
Lane Grp Cap (c), veh/h	0	1517	0	0	0	1520	0	0
V/C Ratio (X)	0.00	0.55	0.00	0.00	0.00	0.75	0.00	0.00
Avail Cap (c_a), veh/h	0	1517	0	0	0	1520	0	0
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	6.3	0.0	0.0	0.0	8.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.4	0.0	0.0	0.0	3.4	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	7.8	0.0	0.0	0.0	12.3	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	10.2	0.0	0.0	0.0	19.8	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.6	0.0	0.0	0.0	1.5	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	10.8	0.0	0.0	0.0	21.3	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.73	0.00	0.00	0.00	0.67	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	11.2
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

Intersection												
Int Delay, s/veh	41.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖ ↑↑↑			↖ ↑↑↑		↖		↕			↖	↖
Traffic Vol, veh/h	2	2294	0	11	2864	94	2	0	6	24	0	9
Future Vol, veh/h	2	2294	0	11	2864	94	2	0	6	24	0	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	518	-	-	523	-	488	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	96	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	2390	0	12	3113	102	2	0	7	26	0	10

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	3215	0	0	2390	0	0	3663	5633	1195	4097	5531	1557
Stage 1	-	-	-	-	-	-	2394	2394	-	3137	3137	-
Stage 2	-	-	-	-	-	-	1269	3239	-	960	2394	-
Critical Hdwy	5.34	-	-	5.34	-	-	6.44	6.54	7.14	6.44	6.54	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-	7.34	5.54	-	7.34	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.74	5.54	-	6.74	5.54	-
Follow-up Hdwy	3.12	-	-	3.12	-	-	3.82	4.02	3.92	3.82	4.02	3.92
Pot Cap-1 Maneuver	29	-	-	79	-	-	5	0	153	~3	0	87
Stage 1	-	-	-	-	-	-	20	65	-	~5	26	-
Stage 2	-	-	-	-	-	-	159	23	-	249	65	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	29	-	-	79	-	-	4	0	153	~2	0	87
Mov Cap-2 Maneuver	-	-	-	-	-	-	4	0	-	~2	0	-
Stage 1	-	-	-	-	-	-	19	61	-	~5	22	-
Stage 2	-	-	-	-	-	-	120	20	-	222	61	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.2	\$ 417.9	\$ 6375.2
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	15	29	-	-	79	-	-	2	87
HCM Lane V/C Ratio	0.58	0.075	-	-	0.151	-	-	13.043	0.112
HCM Control Delay (s)	\$ 417.9	139	-	-	58.5	-	-	\$ 8746.6	51.6
HCM Lane LOS	F	F	-	-	F	-	-	F	F
HCM 95th %tile Q(veh)	1.5	0.2	-	-	0.5	-	-	5	0.4

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM 6th TWSC
3: Prince William Pkwy & Site Entrance

04/01/2019

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑	↑		↑
Traffic Vol, veh/h	0	2269	3007	16	0	14
Future Vol, veh/h	0	2269	3007	16	0	14
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	193	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	2466	3268	17	0	15

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	-	0	-	0	1634
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	3.92
Pot Cap-1 Maneuver	0	-	-	-	77
Stage 1	0	-	-	-	0
Stage 2	0	-	-	-	0
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	77
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	62.9
HCM LOS			F

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	77
HCM Lane V/C Ratio	-	-	-	0.198
HCM Control Delay (s)	-	-	-	62.9
HCM Lane LOS	-	-	-	F
HCM 95th %tile Q(veh)	-	-	-	0.7

Intersection: 1: Ridgewood Center Drive/Laurel Hills Drive & Prince William Pkwy

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	SB
Directions Served	L	T	T	TR	L	T	T	TR	LTR	LTR
Maximum Queue (ft)	47	242	258	224	47	355	368	336	137	69
Average Queue (ft)	10	77	83	69	6	140	121	89	61	9
95th Queue (ft)	31	214	228	194	26	349	328	271	113	36
Link Distance (ft)		379	379	379		806	806	806	172	379
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	430				540					
Storage Blk Time (%)										
Queuing Penalty (veh)										

Intersection: 2: Black Forest Drive/Reids Prospect Drive & Prince William Pkwy

Movement	EB	WB	NB	SB	SB
Directions Served	L	L	LTR	LT	R
Maximum Queue (ft)	23	50	50	427	423
Average Queue (ft)	2	4	11	220	51
95th Queue (ft)	13	23	35	434	257
Link Distance (ft)			339	412	412
Upstream Blk Time (%)				18	10
Queuing Penalty (veh)				0	0
Storage Bay Dist (ft)	518	523			
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 3: Prince William Pkwy & Site Entrance

Movement	WB	WB	WB	SB
Directions Served	T	T	T	R
Maximum Queue (ft)	263	286	285	68
Average Queue (ft)	9	10	10	17
95th Queue (ft)	90	98	97	51
Link Distance (ft)	379	379	379	206
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 0

APPENDIX E

Analysis Worksheets for

Weaving

FREEWAY WEAVING WORKSHEET									
General Information					Site Information				
Analyst	SOS				Freeway/Dir of Travel	PW Parkway WB			
Agency/Company	Timmons Group				Weaving Segment Location	WB U-turn			
Date Performed	4/24/2019				Analysis Year	2019			
Analysis Time Period	Future AM Peak								
Project Description Woodbridge Retirement									
Inputs									
Weaving configuration	Two-Sided				Segment type	Freeway			
Weaving number of lanes, N	4				Freeway minimum speed, S _{MIN}	15			
Weaving segment length, L _S	620ft				Freeway maximum capacity, C _{IFL}	2250			
Freeway free-flow speed, FFS	45 mph				Terrain type	Level			
Conversions to pc/h Under Base Conditions									
	V (veh/h)	PHF	Truck (%)	RV (%)	E _T	E _R	f _{HV}	f _p	v (pc/h)
V _{FF}	1632	0.94	2	0	1.5	1.2	0.990	1.00	1754
V _{RF}	3	0.94	0	0	1.5	1.2	1.000	1.00	3
V _{FR}	0	0.94	0	0	1.5	1.2	1.000	1.00	0
V _{RR}	2	0.94	2	0	1.5	1.2	0.990	1.00	2
V _{NW}	1757							V =	1759
V _W	2								
VR	0.001								
Configuration Characteristics									
Minimum maneuver lanes, N _{WL}	0 lc				Minimum weaving lane changes, LC _{MIN}	8 lc/h			
Interchange density, ID	0.0 int/mi				Weaving lane changes, LC _W	120 lc/h			
Minimum RF lane changes, LC _{RF}	lc/pc				Non-weaving lane changes, LC _{NW}	0 lc/h			
Minimum FR lane changes, LC _{FR}	lc/pc				Total lane changes, LC _{ALL}	120 lc/h			
Minimum RR lane changes, LC _{RR}	4 lc/pc				Non-weaving vehicle index, I _{NW}	0			
Weaving Segment Speed, Density, Level of Service, and Capacity									
Weaving segment flow rate, v	1742 veh/h				Weaving intensity factor, W	0.062			
Weaving segment capacity, c _w	7358 veh/h				Weaving segment speed, S	42.8 mph			
Weaving segment v/c ratio	0.237				Average weaving speed, S _w	43.3 mph			
Weaving segment density, D	10.3 pc/mi/ln				Average non-weaving speed, S _{NW}	42.8 mph			
Level of Service, LOS	B				Maximum weaving length, L _{MAX}	5738 ft			
Notes									
a. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, "Freeway Merge and Diverge Segments".									
b. For volumes that exceed the weaving segment capacity, the level of service is "F".									

FREEWAY WEAVING WORKSHEET									
General Information					Site Information				
Analyst	SOS				Freeway/Dir of Travel	PW Parkway WB			
Agency/Company	Timmons Group				Weaving Segment Location	WB U-turn			
Date Performed	4/24/2019				Analysis Year	2019			
Analysis Time Period	Future PM Peak								
Project Description Woodbridge Retirement									
Inputs									
Weaving configuration	Two-Sided				Segment type	Freeway			
Weaving number of lanes, N	4				Freeway minimum speed, S _{MIN}	15			
Weaving segment length, L _S	620ft				Freeway maximum capacity, C _{IFL}	2250			
Freeway free-flow speed, FFS	45 mph				Terrain type	Level			
Conversions to pc/h Under Base Conditions									
	V (veh/h)	PHF	Truck (%)	RV (%)	E _T	E _R	f _{HV}	f _p	v (pc/h)
V _{FF}	3007	0.94	2	0	1.5	1.2	0.990	1.00	3231
V _{RF}	8	0.94	0	0	1.5	1.2	1.000	1.00	9
V _{FR}	0	0.94	0	0	1.5	1.2	1.000	1.00	0
V _{RR}	6	0.94	2	0	1.5	1.2	0.990	1.00	6
V _{NW}	3240							V =	3246
V _W	6								
VR	0.002								
Configuration Characteristics									
Minimum maneuver lanes, N _{WL}	0 lc				Minimum weaving lane changes, LC _{MIN}	24 lc/h			
Interchange density, ID	0.0 int/mi				Weaving lane changes, LC _W	136 lc/h			
Minimum RF lane changes, LC _{RF}	lc/pc				Non-weaving lane changes, LC _{NW}	233 lc/h			
Minimum FR lane changes, LC _{FR}	lc/pc				Total lane changes, LC _{ALL}	369 lc/h			
Minimum RR lane changes, LC _{RR}	4 lc/pc				Non-weaving vehicle index, I _{NW}	0			
Weaving Segment Speed, Density, Level of Service, and Capacity									
Weaving segment flow rate, v	3214 veh/h				Weaving intensity factor, W	0.150			
Weaving segment capacity, c _w	7358 veh/h				Weaving segment speed, S	40.9 mph			
Weaving segment v/c ratio	0.437				Average weaving speed, S _w	41.1 mph			
Weaving segment density, D	19.8 pc/mi/ln				Average non-weaving speed, S _{NW}	40.9 mph			
Level of Service, LOS	B				Maximum weaving length, L _{MAX}	5745 ft			
Notes									
a. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, "Freeway Merge and Diverge Segments".									
b. For volumes that exceed the weaving segment capacity, the level of service is "F".									

Appendix F: Synchro™ Reports for Existing Year (2022)

Intersection															
Int Delay, s/veh	33														
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↔ ↑↑↑				↔ ↑↑↑			↔		↔			↔	
Traffic Vol, veh/h	2	22	2480	0	1	8	1851	58	0	0	1	32	0	11	
Future Vol, veh/h	2	22	2480	0	1	8	1851	58	0	0	1	32	0	11	
Conflicting Peds, #/hr	0	2	0	1	1	0	0	2	0	0	1	0	0	2	
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop	
RT Channelized	-	-	-	None	-	-	-	None	-	-	None	-	-	None	
Storage Length	-	465	-	-	-	450	-	450	-	-	-	-	-	-	
Veh in Median Storage, #	-	-	0	-	-	-	0	-	-	0	-	-	0	-	
Grade, %	-	-	1	-	-	-	-1	-	-	-1	-	-	5	-	
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98	98	98	
Heavy Vehicles, %	0	5	6	0	0	0	6	4	0	0	0	0	0	0	
Mvmt Flow	2	22	2531	0	1	8	1889	59	0	0	1	33	0	11	

Major/Minor	Major1			Major2			Minor1			Minor2				
Conflicting Flow All	1379	1950	0	0	1847	2532	0	0	3356	4548	1268	2970	4489	949
Stage 1	-	-	-	-	-	-	-	-	2580	2580	-	1909	1909	-
Stage 2	-	-	-	-	-	-	-	-	776	1968	-	1061	2580	-
Critical Hdwy	5.6	5.4	-	-	5.6	5.3	-	-	6.2	6.3	7	7.4	7.5	7.6
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	7.1	5.3	-	8.3	6.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	6.5	5.3	-	7.7	6.5	-
Follow-up Hdwy	2.3	3.15	-	-	2.3	3.1	-	-	3.8	4	3.9	3.8	4	3.9
Pot Cap-1 Maneuver	276	128	-	-	151	69	-	-	11	2	144	~7	0	199
Stage 1	-	-	-	-	-	-	-	-	17	61	-	~27	69	-
Stage 2	-	-	-	-	-	-	-	-	342	122	-	163	26	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	134	134	-	-	73	73	-	-	8	1	144	~5	0	198
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	8	1	-	~5	0	-
Stage 1	-	-	-	-	-	-	-	-	14	50	-	~22	60	-
Stage 2	-	-	-	-	-	-	-	-	283	107	-	133	21	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0.3	30.2	\$ 3394.5
HCM LOS			D	F

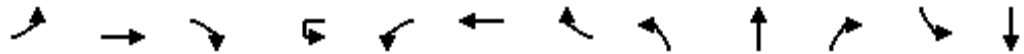
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	144	134	-	-	73	-	-	7
HCM Lane V/C Ratio	0.007	0.183	-	-	0.126	-	-	6.268
HCM Control Delay (s)	30.2	37.9	-	-	60.9	-	-	\$ 3394.5
HCM Lane LOS	D	E	-	-	F	-	-	F
HCM 95th %tile Q(veh)	0	0.6	-	-	0.4	-	-	7

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM Signalized Intersection Capacity Analysis

2: Ridgewood Center Drive/Laurel Hills Drive & Prince William Pkwy

04/03/2023



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations	↖	↑↑↑			↘	↑↑↑			↕			↕
Traffic Volume (vph)	0	2471	43	9	83	1881	1	36	0	10	4	0
Future Volume (vph)	0	2471	43	9	83	1881	1	36	0	10	4	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	10	10
Grade (%)		0%				0%			0%			5%
Total Lost time (s)		6.0			6.5	6.0			6.5			6.5
Lane Util. Factor		0.91			1.00	0.91			1.00			1.00
Frbp, ped/bikes		1.00			1.00	1.00			1.00			0.94
Flpb, ped/bikes		1.00			1.00	1.00			1.00			1.00
Frt		1.00			1.00	1.00			0.97			0.97
Flt Protected		1.00			0.95	1.00			0.96			0.96
Satd. Flow (prot)		4929			1805	4937			1768			1263
Flt Permitted		1.00			0.38	1.00			0.96			0.96
Satd. Flow (perm)		4929			724	4937			1768			1263
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	2686	47	10	90	2045	1	39	0	11	4	0
RTOR Reduction (vph)	0	1	0	0	0	0	0	0	49	0	0	5
Lane Group Flow (vph)	0	2732	0	0	100	2046	0	0	1	0	0	0
Confl. Peds. (#/hr)	8		1		1		10			3	2	
Confl. Bikes (#/hr)			2									
Heavy Vehicles (%)	0%	5%	0%	0%	0%	5%	100%	0%	0%	0%	0%	0%
Turn Type	Prot	NA			Prot	NA		Split	NA		Split	NA
Protected Phases	5	2			1	6		4	4		3	3
Permitted Phases												
Actuated Green, G (s)		118.3			10.5	135.3			4.6			1.1
Effective Green, g (s)		118.3			10.5	135.3			4.6			1.1
Actuated g/C Ratio		0.74			0.07	0.85			0.03			0.01
Clearance Time (s)		6.0			6.5	6.0			6.5			6.5
Vehicle Extension (s)		3.5			3.0	3.5			3.0			3.0
Lane Grp Cap (vph)		3644			47	4174			50			8
v/s Ratio Prot		c0.55				0.41			c0.00			c0.00
v/s Ratio Perm					c0.14							
v/c Ratio		0.75			2.13	0.49			0.03			0.00
Uniform Delay, d1		12.2			74.8	3.3			75.5			78.9
Progression Factor		1.00			1.00	0.91			1.00			1.00
Incremental Delay, d2		1.5			513.9	0.0			0.2			0.2
Delay (s)		13.7			588.6	3.0			75.8			79.1
Level of Service		B			F	A			E			E
Approach Delay (s)		13.7				30.3			75.8			79.1
Approach LOS		B				C			E			E
Intersection Summary												
HCM 2000 Control Delay			21.6									C
HCM 2000 Volume to Capacity ratio			0.82									
Actuated Cycle Length (s)			160.0						25.5			
Intersection Capacity Utilization			76.3%									D
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
 2: Ridgewood Center Drive/Laurel Hills Drive & Prince William Pkwy

04/03/2023

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	1
Future Volume (vph)	1
Ideal Flow (vphpl)	1900
Lane Width	10
Grade (%)	
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	1
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	8
Confl. Bikes (#/hr)	
Heavy Vehicles (%)	100%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM Unsignalized Intersection Capacity Analysis

3: Prince William Pkwy & Seeton Square

04/03/2023



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		↑↑↑	↑↑↑			↗	
Traffic Volume (veh/h)	0	2537	1948	65	0	40	
Future Volume (Veh/h)	0	2537	1948	65	0	40	
Sign Control		Free	Free		Stop		
Grade		0%	0%		4%		
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	
Hourly flow rate (vph)	0	2950	2265	76	0	47	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		None	None				
Median storage (veh)							
Upstream signal (ft)		1140	342				
pX, platoon unblocked	0.63				0.81	0.63	
vC, conflicting volume	2341				3286	793	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1088				48	0	
tC, single (s)	4.1				6.8	6.9	
tC, 2 stage (s)							
tF (s)	2.2				3.5	3.3	
p0 queue free %	100				100	93	
cM capacity (veh/h)	411				779	690	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	983	983	983	906	906	529	47
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	76	47
cSH	1700	1700	1700	1700	1700	1700	690
Volume to Capacity	0.58	0.58	0.58	0.53	0.53	0.31	0.07
Queue Length 95th (ft)	0	0	0	0	0	0	5
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	10.6
Lane LOS							B
Approach Delay (s)	0.0			0.0			10.6
Approach LOS							B
Intersection Summary							
Average Delay			0.1				
Intersection Capacity Utilization			52.4%		ICU Level of Service		A
Analysis Period (min)			15				

HCM 6th TWSC
3: Prince William Pkwy & Seeton Square

04/03/2023

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑			↑
Traffic Vol, veh/h	0	2537	1948	65	0	40
Future Vol, veh/h	0	2537	1948	65	0	40
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	4	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	0	4	5	3	0	0
Mvmt Flow	0	2950	2265	76	0	47

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	-	0	- 0 - 1171
Stage 1	-	-	- - -
Stage 2	-	-	- - -
Critical Hdwy	-	-	- - 7.5
Critical Hdwy Stg 1	-	-	- - -
Critical Hdwy Stg 2	-	-	- - -
Follow-up Hdwy	-	-	- - 3.9
Pot Cap-1 Maneuver	0	-	- 0 142
Stage 1	0	-	- 0 -
Stage 2	0	-	- 0 -
Platoon blocked, %	-	-	- - -
Mov Cap-1 Maneuver	-	-	- - 142
Mov Cap-2 Maneuver	-	-	- - -
Stage 1	-	-	- - -
Stage 2	-	-	- - -

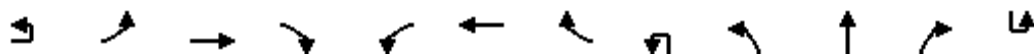
Approach	EB	WB	SB
HCM Control Delay, s	0	0	42.2
HCM LOS			E

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	142
HCM Lane V/C Ratio	-	-	-	0.328
HCM Control Delay (s)	-	-	-	42.2
HCM Lane LOS	-	-	-	E
HCM 95th %tile Q(veh)	-	-	-	1.3

HCM Signalized Intersection Capacity Analysis

4: Prince William Pkwy & Old Bridge Road & Touchstone Cir

04/03/2023



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	
Lane Configurations		↔	↕	↗	↖	↕	↕		↔	↕	↗		
Traffic Volume (vph)	20	114	891	1512	392	885	29	5	1010	97	268	1	
Future Volume (vph)	20	114	891	1512	392	885	29	5	1010	97	268	1	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Grade (%)			0%			2%				1%			
Total Lost time (s)		7.9	5.7	4.0	7.5	5.7			9.9	9.9	7.5		
Lane Util. Factor		1.00	0.95	1.00	0.97	0.91			0.91	0.91	1.00		
Frbp, ped/bikes		1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00		
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00		
Frt		1.00	1.00	0.85	1.00	1.00			1.00	1.00	0.85		
Flt Protected		0.95	1.00	1.00	0.95	1.00			0.95	0.96	1.00		
Satd. Flow (prot)		1789	3406	1553	3333	4873			3085	1565	1545		
Flt Permitted		0.17	1.00	1.00	0.95	1.00			0.68	0.96	1.00		
Satd. Flow (perm)		326	3406	1553	3333	4873			2214	1565	1545		
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	
Adj. Flow (vph)	21	119	928	1575	408	922	30	5	1052	101	279	1	
RTOR Reduction (vph)	0	0	0	0	0	2	0	0	0	0	165	0	
Lane Group Flow (vph)	0	140	928	1575	408	950	0	0	762	396	114	0	
Confl. Peds. (#/hr)		2					2						
Heavy Vehicles (%)	0%	1%	6%	4%	4%	5%	0%	0%	6%	6%	4%	0%	
Turn Type		Prot	NA	Free	Prot	NA			Split	NA	pm+ov		
Protected Phases		5	2		1	6			4	4	1		
Permitted Phases				Free							4		
Actuated Green, G (s)		23.1	46.6	160.0	24.2	47.3			41.1	41.1	65.3		
Effective Green, g (s)		23.1	46.6	160.0	24.2	47.3			41.1	41.1	65.3		
Actuated g/C Ratio		0.14	0.29	1.00	0.15	0.30			0.26	0.26	0.41		
Clearance Time (s)		7.9	5.7		7.5	5.7			9.9	9.9	7.5		
Vehicle Extension (s)		3.0	2.0		3.0	2.0			3.0	3.0	3.0		
Lane Grp Cap (vph)		47	991	1553	504	1440			568	402	630		
v/s Ratio Prot			0.27		0.12	0.19				0.25	0.03		
v/s Ratio Perm		c0.43		c1.01					c0.34		0.05		
v/c Ratio		2.98	0.94	1.01	0.81	0.66			1.34	0.99	0.18		
Uniform Delay, d1		68.5	55.3	80.0	65.7	49.3			59.5	59.1	30.3		
Progression Factor		1.00	0.84	1.00	0.94	0.77			0.73	0.72	0.14		
Incremental Delay, d2		932.2	13.7	23.5	8.2	2.1			164.5	39.1	0.1		
Delay (s)		1000.6	60.0	103.5	69.8	39.9			208.0	81.4	4.2		
Level of Service		F	E	F	E	D			F	F	A		
Approach Delay (s)			135.7			48.9				133.5			
Approach LOS			F			D				F			
Intersection Summary													
HCM 2000 Control Delay			111.1		HCM 2000 Level of Service					F			
HCM 2000 Volume to Capacity ratio			1.57										
Actuated Cycle Length (s)			160.0		Sum of lost time (s)					31.1			
Intersection Capacity Utilization			96.2%		ICU Level of Service					F			
Analysis Period (min)			15										
c Critical Lane Group													

HCM Signalized Intersection Capacity Analysis

4: Prince William Pkwy & Old Bridge Road & Touchstone Cir

04/03/2023



Movement	SBL	SBT	SBR
Lane Configurations	↔	↑↑	↗
Traffic Volume (vph)	28	107	98
Future Volume (vph)	28	107	98
Ideal Flow (vphpl)	1900	1900	1900
Grade (%)		5%	
Total Lost time (s)	7.6	7.6	7.9
Lane Util. Factor	1.00	0.95	1.00
Frbp, ped/bikes	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00
Frt	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00
Satd. Flow (prot)	1760	3451	1549
Flt Permitted	0.23	1.00	1.00
Satd. Flow (perm)	426	3451	1549
Peak-hour factor, PHF	0.96	0.96	0.96
Adj. Flow (vph)	29	111	102
RTOR Reduction (vph)	0	0	64
Lane Group Flow (vph)	30	111	38
Confl. Peds. (#/hr)			2
Heavy Vehicles (%)	0%	2%	1%
Turn Type	Split	NA	pm+ov
Protected Phases	3	3	5
Permitted Phases			3
Actuated Green, G (s)	17.4	17.4	40.5
Effective Green, g (s)	17.4	17.4	40.5
Actuated g/C Ratio	0.11	0.11	0.25
Clearance Time (s)	7.6	7.6	7.9
Vehicle Extension (s)	3.0	3.0	3.0
Lane Grp Cap (vph)	46	375	392
v/s Ratio Prot		0.03	0.01
v/s Ratio Perm	0.07		0.01
v/c Ratio	0.65	0.30	0.10
Uniform Delay, d1	68.4	65.7	45.7
Progression Factor	1.00	1.02	0.84
Incremental Delay, d2	28.5	0.4	0.1
Delay (s)	96.9	67.2	38.6
Level of Service	F	E	D
Approach Delay (s)		58.9	
Approach LOS		E	
Intersection Summary			

HCM Unsignalized Intersection Capacity Analysis

5: Tribe at the Glen & Old Bridge Road

04/03/2023



Movement	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations	↑↑	↑		↑↑↑		↑	
Traffic Volume (veh/h)	1132	55	0	1306	0	14	
Future Volume (Veh/h)	1132	55	0	1306	0	14	
Sign Control	Free			Free	Stop		
Grade	-3%			2%	0%		
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	
Hourly flow rate (vph)	1364	66	0	1573	0	17	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type	None			None			
Median storage (veh)							
Upstream signal (ft)	371			392			
pX, platoon unblocked	0.74			0.84	0.74		
vC, conflicting volume	1364			1888	682		
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	780			215	0		
tC, single (s)	4.1			6.8	6.9		
tC, 2 stage (s)							
tF (s)	2.2			3.5	3.3		
p0 queue free %	100			100	98		
cM capacity (veh/h)	624			637	804		
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1
Volume Total	682	682	66	524	524	524	17
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	66	0	0	0	17
cSH	1700	1700	1700	1700	1700	1700	804
Volume to Capacity	0.40	0.40	0.04	0.31	0.31	0.31	0.02
Queue Length 95th (ft)	0	0	0	0	0	0	2
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	9.6
Lane LOS							A
Approach Delay (s)	0.0			0.0			9.6
Approach LOS							A
Intersection Summary							
Average Delay	0.1						
Intersection Capacity Utilization	41.3%			ICU Level of Service			A
Analysis Period (min)	15						

HCM 6th TWSC
5: Tribe at the Glen & Old Bridge Road

04/03/2023

Intersection						
Int Delay, s/veh	0.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑		↑↑↑		↑
Traffic Vol, veh/h	1132	55	0	1306	0	14
Future Vol, veh/h	1132	55	0	1306	0	14
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Free	-	None	-	Stop
Storage Length	-	175	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	-3	-	-	2	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	6	0	0	4	0	0
Mvmt Flow	1364	66	0	1573	0	17

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	-	-	-	682
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	3.3
Pot Cap-1 Maneuver	-	0	0	-	397
Stage 1	-	0	0	-	-
Stage 2	-	0	0	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	397
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	14.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	WBT
Capacity (veh/h)	397	-	-
HCM Lane V/C Ratio	0.042	-	-
HCM Control Delay (s)	14.5	-	-
HCM Lane LOS	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-

HCM Signalized Intersection Capacity Analysis

6: Troupe Street/Glen Shopping Ctr & Old Bridge Road

04/03/2023



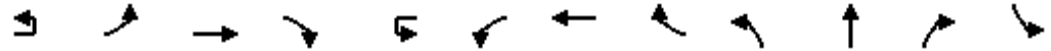
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑	↗		↘	↗		↘	↗
Traffic Volume (vph)	16	1078	52	86	1199	77	92	8	169	45	12	15
Future Volume (vph)	16	1078	52	86	1199	77	92	8	169	45	12	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			7%			-1%			0%	
Total Lost time (s)	7.0	6.5	8.0	7.0	6.0	7.0		8.0	8.0		7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.97		1.00	0.99		1.00	0.95
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.96	1.00		0.96	1.00
Satd. Flow (prot)	1823	3440	1548	1598	3350	1489		1746	1441		1828	1540
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.96	1.00		0.96	1.00
Satd. Flow (perm)	1823	3440	1548	1598	3350	1489		1746	1441		1828	1540
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	17	1172	57	93	1303	84	100	9	184	49	13	16
RTOR Reduction (vph)	0	0	19	0	0	25	0	0	166	0	0	15
Lane Group Flow (vph)	17	1172	38	93	1303	59	0	109	18	0	62	1
Confl. Peds. (#/hr)			3			6	3		2	2		7
Heavy Vehicles (%)	0%	6%	4%	9%	4%	1%	5%	0%	11%	0%	0%	0%
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Split	NA	Perm	Split	NA	Perm
Protected Phases	5	2	4	1	6	3	4	4		3	3	
Permitted Phases			2			6			4			3
Actuated Green, G (s)	4.8	91.8	107.2	14.7	102.2	111.8		15.4	15.4		9.6	9.6
Effective Green, g (s)	4.8	91.8	107.2	14.7	102.2	111.8		15.4	15.4		9.6	9.6
Actuated g/C Ratio	0.03	0.57	0.67	0.09	0.64	0.70		0.10	0.10		0.06	0.06
Clearance Time (s)	7.0	6.5	8.0	7.0	6.0	7.0		8.0	8.0		7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	54	1973	1037	146	2139	1040		168	138		109	92
v/s Ratio Prot	0.01	0.34	0.00	c0.06	c0.39	0.00		c0.06			c0.03	
v/s Ratio Perm			0.02			0.04			0.01			0.00
v/c Ratio	0.31	0.59	0.04	0.64	0.61	0.06		0.65	0.13		0.57	0.01
Uniform Delay, d1	76.0	22.1	8.9	70.1	17.1	7.6		69.7	66.2		73.2	70.7
Progression Factor	0.99	0.85	3.84	1.29	0.57	0.16		1.14	2.46		1.00	1.00
Incremental Delay, d2	2.5	1.0	0.0	8.0	1.2	0.0		8.3	0.4		6.7	0.0
Delay (s)	77.4	19.8	34.3	98.3	10.9	1.3		87.5	163.1		79.8	70.8
Level of Service	E	B	C	F	B	A		F	F		E	E
Approach Delay (s)		21.2			15.9			135.0			78.0	
Approach LOS		C			B			F			E	

Intersection Summary

HCM 2000 Control Delay	30.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	28.5
Intersection Capacity Utilization	70.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 7: Titania Way/Touchstone Circle & Old Bridge Road

04/03/2023



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations		↔	↕	↗		↔	↕	↗		↕		
Traffic Volume (vph)	3	11	1265	13	9	12	1320	51	17	1	15	56
Future Volume (vph)	3	11	1265	13	9	12	1320	51	17	1	15	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)			4%				-7%			-3%		
Total Lost time (s)		8.5	8.5	8.5		8.5	8.5	8.5		7.5		
Lane Util. Factor		1.00	0.95	1.00		1.00	0.95	1.00		1.00		
Frbp, ped/bikes		1.00	1.00	0.98		1.00	1.00	0.98		0.99		
Flpb, ped/bikes		1.00	1.00	1.00		1.00	1.00	1.00		1.00		
Frt		1.00	1.00	0.85		1.00	1.00	0.85		0.94		
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00		0.97		
Satd. Flow (prot)		1662	3338	1432		1868	3593	1573		1699		
Flt Permitted		0.17	1.00	1.00		0.18	1.00	1.00		0.81		
Satd. Flow (perm)		296	3338	1432		349	3593	1573		1406		
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	3	12	1332	14	9	13	1389	54	18	1	16	59
RTOR Reduction (vph)	0	0	0	3	0	0	0	12	0	15	0	0
Lane Group Flow (vph)	0	15	1332	11	0	22	1389	42	0	20	0	0
Confl. Peds. (#/hr)		4		1		1		6			3	2
Heavy Vehicles (%)	0%	8%	6%	8%	0%	0%	4%	4%	6%	0%	0%	4%
Turn Type		pm+pt	NA	Perm		pm+pt	NA	Perm	Perm	NA		Perm
Protected Phases		1	6			5	2			4		
Permitted Phases		6		6		2		2	4			8
Actuated Green, G (s)		124.1	122.0	122.0		126.1	123.0	123.0		10.4		
Effective Green, g (s)		124.1	122.0	122.0		126.1	123.0	123.0		10.4		
Actuated g/C Ratio		0.78	0.76	0.76		0.79	0.77	0.77		0.07		
Clearance Time (s)		8.5	8.5	8.5		8.5	8.5	8.5		7.5		
Vehicle Extension (s)		2.0	8.0	8.0		2.0	8.0	8.0		2.0		
Lane Grp Cap (vph)		247	2545	1091		304	2762	1209		91		
v/s Ratio Prot		0.00	c0.40			c0.00	0.39					
v/s Ratio Perm		0.05		0.01		0.06		0.03		0.01		
v/c Ratio		0.06	0.52	0.01		0.07	0.50	0.03		0.22		
Uniform Delay, d1		4.9	7.5	4.5		4.6	7.0	4.4		71.0		
Progression Factor		0.45	0.31	1.00		0.63	1.01	1.19		1.00		
Incremental Delay, d2		0.0	0.6	0.0		0.0	0.6	0.1		0.4		
Delay (s)		2.2	3.0	4.6		2.9	7.6	5.3		71.4		
Level of Service		A	A	A		A	A	A		E		
Approach Delay (s)			3.0				7.5			71.4		
Approach LOS			A				A			E		
Intersection Summary												
HCM 2000 Control Delay			8.3				HCM 2000 Level of Service			A		
HCM 2000 Volume to Capacity ratio			0.53									
Actuated Cycle Length (s)			160.0				Sum of lost time (s)			24.5		
Intersection Capacity Utilization			69.9%				ICU Level of Service			C		
Analysis Period (min)			15									
c	Critical Lane Group											

HCM Signalized Intersection Capacity Analysis
 7: Titania Way/Touchstone Circle & Old Bridge Road

04/03/2023



Movement	SBT	SBR
Lane Configurations	↔	↗
Traffic Volume (vph)	0	22
Future Volume (vph)	0	22
Ideal Flow (vphpl)	1900	1900
Grade (%)	2%	
Total Lost time (s)	7.5	7.5
Lane Util. Factor	1.00	1.00
Frpb, ped/bikes	1.00	0.98
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	0.95	1.00
Satd. Flow (prot)	1714	1482
Flt Permitted	0.73	1.00
Satd. Flow (perm)	1325	1482
Peak-hour factor, PHF	0.95	0.95
Adj. Flow (vph)	0	23
RTOR Reduction (vph)	0	22
Lane Group Flow (vph)	59	1
Confl. Peds. (#/hr)		4
Heavy Vehicles (%)	0%	6%
Turn Type	NA	Perm
Protected Phases	8	
Permitted Phases		8
Actuated Green, G (s)	10.4	10.4
Effective Green, g (s)	10.4	10.4
Actuated g/C Ratio	0.07	0.07
Clearance Time (s)	7.5	7.5
Vehicle Extension (s)	2.0	2.0
Lane Grp Cap (vph)	86	96
v/s Ratio Prot		
v/s Ratio Perm	c0.04	0.00
v/c Ratio	0.69	0.02
Uniform Delay, d1	73.2	70.0
Progression Factor	1.00	1.00
Incremental Delay, d2	16.5	0.0
Delay (s)	89.7	70.0
Level of Service	F	E
Approach Delay (s)	84.2	
Approach LOS	F	
Intersection Summary		

HCM Unsignalized Intersection Capacity Analysis

8: Old Bridge Road & Brussels Way

04/03/2023



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↗		↗
Traffic Volume (veh/h)	0	1345	1381	10	0	11
Future Volume (Veh/h)	0	1345	1381	10	0	11
Sign Control		Free	Free		Stop	
Grade		7%	-1%		1%	
Peak Hour Factor	0.59	0.59	0.59	0.59	0.59	0.59
Hourly flow rate (vph)	0	2280	2341	17	0	19
Pedestrians		7			7	
Lane Width (ft)		12.0			12.0	
Walking Speed (ft/s)		4.0			4.0	
Percent Blockage		1			1	
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)		685	1088			
pX, platoon unblocked	0.78				0.86	0.78
vC, conflicting volume	2365				3488	1184
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2188				2724	679
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	94
cM capacity (veh/h)	191				15	308
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	SB 1
Volume Total	1140	1140	1170	1170	17	19
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	17	19
cSH	1700	1700	1700	1700	1700	308
Volume to Capacity	0.67	0.67	0.69	0.69	0.01	0.06
Queue Length 95th (ft)	0	0	0	0	0	5
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	17.4
Lane LOS						C
Approach Delay (s)	0.0		0.0			17.4
Approach LOS						C
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utilization			50.3%		ICU Level of Service	A
Analysis Period (min)			15			

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↑		↑
Traffic Vol, veh/h	0	1345	1381	10	0	11
Future Vol, veh/h	0	1345	1381	10	0	11
Conflicting Peds, #/hr	7	0	0	7	0	7
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	225	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	7	-1	-	1	-
Peak Hour Factor	59	59	59	59	59	59
Heavy Vehicles, %	0	6	4	0	0	0
Mvmt Flow	0	2280	2341	17	0	19

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	-	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	-
Pot Cap-1 Maneuver	0	-	-
Stage 1	0	-	-
Stage 2	0	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	27.7
HCM LOS			D

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	177
HCM Lane V/C Ratio	-	-	-	0.105
HCM Control Delay (s)	-	-	-	27.7
HCM Lane LOS	-	-	-	D
HCM 95th %tile Q(veh)	-	-	-	0.3

HCM Unsignalized Intersection Capacity Analysis

9: Old Bridge Ln/Church Entr & Old Bridge Road

04/03/2023



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations		↔	↕	↗		↔	↕	↗		↕		↗
Traffic Volume (veh/h)	3	3	1322	17	5	10	1354	3	34	0	28	1
Future Volume (Veh/h)	3	3	1322	17	5	10	1354	3	34	0	28	1
Sign Control			Free				Free			Stop		
Grade			1%				3%			0%		
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	0	3	1363	18	0	10	1396	3	35	0	29	1
Pedestrians			5				4			4		
Lane Width (ft)			12.0				12.0			12.0		
Walking Speed (ft/s)			4.0				4.0			4.0		
Percent Blockage			0				0			0		
Right turn flare (veh)												
Median type			None				None					
Median storage (veh)												
Upstream signal (ft)			1188				585					
pX, platoon unblocked	0.00	0.78			0.00				0.78	0.78		0.78
vC, conflicting volume	0	1404			0	1385			2096	2797	690	2142
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0	953			0	1385			1841	2740	690	1899
tC, single (s)	0.0	4.1			0.0	4.2			7.5	6.5	6.9	7.5
tC, 2 stage (s)												
tF (s)	0.0	2.2			0.0	2.3			3.5	4.0	3.3	3.5
p0 queue free %	0	99			0	98			3	100	93	97
cM capacity (veh/h)	0	566			0	464			36	15	390	30
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1	SB 2	
Volume Total	3	682	682	18	10	698	698	3	64	1	0	
Volume Left	3	0	0	0	10	0	0	0	35	1	0	
Volume Right	0	0	0	18	0	0	0	3	29	0	0	
cSH	566	1700	1700	1700	464	1700	1700	1700	61	30	1700	
Volume to Capacity	0.01	0.40	0.40	0.01	0.02	0.41	0.41	0.00	1.05	0.03	0.00	
Queue Length 95th (ft)	0	0	0	0	2	0	0	0	127	3	0	
Control Delay (s)	11.4	0.0	0.0	0.0	12.9	0.0	0.0	0.0	241.1	128.4	0.0	
Lane LOS	B				B				F	F	A	
Approach Delay (s)	0.0				0.1				241.1	128.4		
Approach LOS									F	F		
Intersection Summary												
Average Delay			5.5									
Intersection Capacity Utilization			57.3%			ICU Level of Service			B			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 9: Old Bridge Ln/Church Entr & Old Bridge Road

04/03/2023



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	0	0
Future Volume (Veh/h)	0	0
Sign Control	Stop	
Grade	-1%	
Peak Hour Factor	0.97	0.97
Hourly flow rate (vph)	0	0
Pedestrians	5	
Lane Width (ft)	10.0	
Walking Speed (ft/s)	4.0	
Percent Blockage	0	
Right turn flare (veh)		
Median type		
Median storage veh		
Upstream signal (ft)		
pX, platoon unblocked	0.78	0.78
vC, conflicting volume	2812	708
vC1, stage 1 conf vol		
vC2, stage 2 conf vol		
vCu, unblocked vol	2759	61
tC, single (s)	6.5	6.9
tC, 2 stage (s)		
tF (s)	4.0	3.3
p0 queue free %	100	100
cM capacity (veh/h)	15	772
Direction, Lane #		

HCM 6th TWSC
 9: Old Bridge Ln/Church Entr & Old Bridge Road

04/03/2023

Intersection														
Int Delay, s/veh	8.7													
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↕	↕		↔	↕	↕		↔		↕		↕
Traffic Vol, veh/h	3	3	1322	17	5	10	1354	3	34	0	28	1	0	0
Future Vol, veh/h	3	3	1322	17	5	10	1354	3	34	0	28	1	0	0
Conflicting Peds, #/hr	0	5	0	4	0	4	0	5	0	0	4	0	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	-	None	-	-	-	None	-	-	None	-	-	None
Storage Length	-	365	-	340	-	225	-	230	-	-	-	0	-	0
Veh in Median Storage, #	-	-	0	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-	1	-	-	-	3	-	-	0	-	-	-1	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	0	0	6	1	0	7	4	0	0	0	0	0	0	0
Mvmt Flow	3	3	1363	18	5	10	1396	3	35	0	29	1	0	0

Major/Minor	Major1		Major2		Minor1		Minor2							
Conflicting Flow All	1396	1404	0	0	1363	1385	0	0	2112	2813	690	2129	-	708
Stage 1	-	-	-	-	-	-	-	-	1379	1379	-	1431	-	-
Stage 2	-	-	-	-	-	-	-	-	733	1434	-	698	-	-
Critical Hdwy	6.4	4.1	-	-	6.4	4.24	-	-	7.5	6.5	6.9	7.3	-	6.8
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	6.5	5.5	-	6.3	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	6.5	5.5	-	6.3	-	-
Follow-up Hdwy	2.5	2.2	-	-	2.5	2.27	-	-	3.5	4	3.3	3.5	-	3.3
Pot Cap-1 Maneuver	188	493	-	-	197	465	-	-	~30	18	392	32	0	389
Stage 1	-	-	-	-	-	-	-	-	155	214	-	156	0	-
Stage 2	-	-	-	-	-	-	-	-	383	201	-	418	0	-
Platoon blocked, %			-	-	-	-	-	-						
Mov Cap-1 Maneuver	272	272	-	-	307	307	-	-	~28	17	389	28	-	386
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	~28	17	-	28	-	-
Stage 1	-	-	-	-	-	-	-	-	151	209	-	152	-	-
Stage 2	-	-	-	-	-	-	-	-	363	191	-	377	-	-

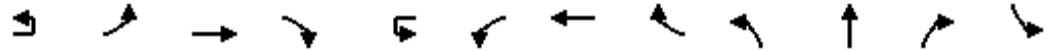
Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.2	\$ 379.4	138.4
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	48	272	-	-	307	-	-	28	-
HCM Lane V/C Ratio	1.332	0.023	-	-	0.05	-	-	0.037	-
HCM Control Delay (s)	\$ 379.4	18.5	-	-	17.4	-	-	138.4	0
HCM Lane LOS	F	C	-	-	C	-	-	F	A
HCM 95th %tile Q(veh)	6	0.1	-	-	0.2	-	-	0.1	-

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM Signalized Intersection Capacity Analysis
 10: Rockwood Lane/Westridge Drive & Old Bridge Road

04/03/2023



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations		↔	↕↔			↔	↕↕	↗		↕↔		
Traffic Volume (vph)	3	143	1210	0	8	0	1137	78	0	0	0	154
Future Volume (vph)	3	143	1210	0	8	0	1137	78	0	0	0	154
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)			1%				3%			0%		
Total Lost time (s)		8.6	8.6			8.6	8.6	8.6				
Lane Util. Factor		1.00	0.95			1.00	0.95	1.00				
Frbp, ped/bikes		1.00	1.00			1.00	1.00	0.98				
Flpb, ped/bikes		1.00	1.00			1.00	1.00	1.00				
Frt		1.00	1.00			1.00	1.00	0.85				
Flt Protected		0.95	1.00			0.95	1.00	1.00				
Satd. Flow (prot)		1681	3389			1775	3387	1515				
Flt Permitted		0.15	1.00			0.21	1.00	1.00				
Satd. Flow (perm)		269	3389			391	3387	1515				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	3	155	1315	0	9	0	1236	85	0	0	0	167
RTOR Reduction (vph)	0	0	0	0	0	0	0	33	0	0	0	0
Lane Group Flow (vph)	0	158	1315	0	0	9	1236	52	0	0	0	0
Confl. Peds. (#/hr)		3		5		5		5			7	2
Heavy Vehicles (%)	0%	7%	6%	0%	0%	0%	5%	3%	0%	0%	0%	2%
Turn Type		pm+pt	NA			Perm	NA	Perm				Perm
Protected Phases		1	6				2			8		
Permitted Phases		6				2		2	8			4
Actuated Green, G (s)		118.5	118.5			98.1	98.1	98.1				
Effective Green, g (s)		118.5	118.5			98.1	98.1	98.1				
Actuated g/C Ratio		0.74	0.74			0.61	0.61	0.61				
Clearance Time (s)		8.6	8.6			8.6	8.6	8.6				
Vehicle Extension (s)		3.0	4.0			4.0	4.0	4.0				
Lane Grp Cap (vph)		303	2509			239	2076	928				
v/s Ratio Prot		0.04	c0.39				c0.36					
v/s Ratio Perm		0.35				0.02		0.03				
v/c Ratio		0.52	0.52			0.04	0.60	0.06				
Uniform Delay, d1		12.3	8.8			12.3	18.9	12.4				
Progression Factor		1.19	1.16			1.00	1.00	1.00				
Incremental Delay, d2		1.6	0.8			0.3	1.3	0.1				
Delay (s)		16.2	11.0			12.6	20.1	12.5				
Level of Service		B	B			B	C	B				
Approach Delay (s)			11.5				19.6			0.0		
Approach LOS			B				B			A		
Intersection Summary												
HCM 2000 Control Delay			21.8			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.64									
Actuated Cycle Length (s)			160.0			Sum of lost time (s)				24.5		
Intersection Capacity Utilization			85.6%			ICU Level of Service				E		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

10: Rockwood Lane/Westridge Drive & Old Bridge Road

04/03/2023



Movement	SBT	SBR
Lane Configurations	↔	↔
Traffic Volume (vph)	0	232
Future Volume (vph)	0	232
Ideal Flow (vphpl)	1900	1900
Grade (%)	-1%	
Total Lost time (s)	7.3	8.6
Lane Util. Factor	1.00	1.00
Frpb, ped/bikes	1.00	0.99
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	0.95	1.00
Satd. Flow (prot)	1773	1574
Flt Permitted	0.76	1.00
Satd. Flow (perm)	1413	1574
Peak-hour factor, PHF	0.92	0.92
Adj. Flow (vph)	0	252
RTOR Reduction (vph)	0	29
Lane Group Flow (vph)	167	223
Confl. Peds. (#/hr)		3
Heavy Vehicles (%)	0%	2%
Turn Type	NA	pm+ov
Protected Phases	4	1
Permitted Phases		4
Actuated Green, G (s)	25.6	37.4
Effective Green, g (s)	25.6	37.4
Actuated g/C Ratio	0.16	0.23
Clearance Time (s)	7.3	8.6
Vehicle Extension (s)	3.5	3.0
Lane Grp Cap (vph)	226	367
v/s Ratio Prot		0.04
v/s Ratio Perm	c0.12	0.10
v/c Ratio	0.74	0.61
Uniform Delay, d1	64.0	54.7
Progression Factor	1.00	1.00
Incremental Delay, d2	12.3	2.8
Delay (s)	76.3	57.6
Level of Service	E	E
Approach Delay (s)	65.0	
Approach LOS	E	
Intersection Summary		

HCM Unsignalized Intersection Capacity Analysis

11: Touchstone Cir & Exxon/Glen Shopping Ctr



















04/03/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗		↑↑↑	↗		↑↑↑	
Traffic Volume (veh/h)	0	0	18	0	0	61	0	134	107	0	216	17
Future Volume (Veh/h)	0	0	18	0	0	61	0	134	107	0	216	17
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			-1%			2%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	0	0	21	0	0	72	0	158	126	0	254	20
Pedestrians		3			1			1			3	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		0			0			0			0	
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)								317				
pX, platoon unblocked												
vC, conflicting volume	395	552	78	244	436	57	277			285		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	395	552	78	244	436	57	277			285		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	98	100	100	93	100			100		
cM capacity (veh/h)	501	443	971	677	515	1001	1294			1288		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3	SB 4		
Volume Total	21	72	53	53	53	126	73	73	73	56		
Volume Left	0	0	0	0	0	0	0	0	0	0		
Volume Right	21	72	0	0	0	126	0	0	0	20		
cSH	971	1001	1700	1700	1700	1700	1700	1700	1700	1700		
Volume to Capacity	0.02	0.07	0.03	0.03	0.03	0.07	0.04	0.04	0.04	0.03		
Queue Length 95th (ft)	2	6	0	0	0	0	0	0	0	0		
Control Delay (s)	8.8	8.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Lane LOS	A	A										
Approach Delay (s)	8.8	8.9	0.0				0.0					
Approach LOS	A	A										
Intersection Summary												
Average Delay			1.3									
Intersection Capacity Utilization			15.3%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 13: Touchstone Cir & Seeton Square/Merchant Plaza

04/03/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	2	1	16	87	4	3	78	47	44	26	5	52
Future Volume (Veh/h)	2	1	16	87	4	3	78	47	44	26	5	52
Sign Control		Stop			Stop				Free			Free
Grade		-2%			0%				-1%			2%
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	2	1	17	94	4	3	0	51	47	28	5	56
Pedestrians		2			2				1			3
Lane Width (ft)		12.0			12.0				12.0			12.0
Walking Speed (ft/s)		4.0			4.0				4.0			4.0
Percent Blockage		0			0				0			0
Right turn flare (veh)												
Median type									None			None
Median storage (veh)												
Upstream signal (ft)									589			
pX, platoon unblocked							0.00					
vC, conflicting volume	207	252	36	222	244	42	0	69			77	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	207	252	36	222	244	42	0	69			77	
tC, single (s)	7.5	6.5	7.0	7.5	6.5	6.9	0.0	4.1			4.5	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.4	3.5	4.0	3.3	0.0	2.2			2.4	
p0 queue free %	100	100	98	86	99	100	0	97			100	
cM capacity (veh/h)	707	628	1009	682	635	1021	0	1542			1395	
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3				
Volume Total	20	101	51	31	44	5	37	30				
Volume Left	2	94	51	0	0	5	0	0				
Volume Right	17	3	0	0	28	0	0	11				
cSH	941	687	1542	1700	1700	1395	1700	1700				
Volume to Capacity	0.02	0.15	0.03	0.02	0.03	0.00	0.02	0.02				
Queue Length 95th (ft)	2	13	3	0	0	0	0	0				
Control Delay (s)	8.9	11.1	7.4	0.0	0.0	7.6	0.0	0.0				
Lane LOS	A	B	A			A						
Approach Delay (s)	8.9	11.1	3.0			0.5						
Approach LOS	A	B										
Intersection Summary												
Average Delay			5.4									
Intersection Capacity Utilization			32.3%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 13: Touchstone Cir & Seeton Square/Merchant Plaza

04/03/2023



Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	10
Future Volume (Veh/h)	10
Sign Control	
Grade	
Peak Hour Factor	0.93
Hourly flow rate (vph)	11
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage veh	
Upstream signal (ft)	
pX, platoon unblocked	
vC, conflicting volume	
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	
tC, single (s)	
tC, 2 stage (s)	
tF (s)	
p0 queue free %	
cM capacity (veh/h)	
Direction, Lane #	

HCM 6th TWSC
 13: Touchstone Cir & Seeton Square/Merchant Plaza

04/03/2023

Intersection													
Int Delay, s/veh	6.7												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↕		↕	↕	
Traffic Vol, veh/h	2	1	16	87	4	3	78	47	44	26	5	52	10
Future Vol, veh/h	2	1	16	87	4	3	78	47	44	26	5	52	10
Conflicting Peds, #/hr	2	0	1	1	0	3	0	0	0	2	1	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	0	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	-	0	-	-	0	-
Grade, %	-	-2	-	-	0	-	-	-	-1	-	-	2	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	7	1	0	0	0	0	13	0	20	2	0
Mvmt Flow	2	1	17	94	4	3	84	51	47	28	5	56	11

Major/Minor	Minor2		Minor1		Major1			Major2					
Conflicting Flow All	373	421	37	373	412	43	67	69	0	0	77	0	0
Stage 1	74	74	-	333	333	-	-	-	-	-	-	-	-
Stage 2	299	347	-	40	79	-	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.1	6.84	7.52	6.5	6.9	6.4	4.1	-	-	4.5	-	-
Critical Hdwy Stg 1	6.1	5.1	-	6.52	5.5	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.1	-	6.52	5.5	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.37	3.51	4	3.3	2.5	2.2	-	-	2.4	-	-
Pot Cap-1 Maneuver	588	552	1013	561	533	1025	1308	1545	-	-	1398	-	-
Stage 1	940	844	-	657	647	-	-	-	-	-	-	-	-
Stage 2	714	663	-	973	833	-	-	-	-	-	-	-	-
Platoon blocked, %									-	-	-	-	-
Mov Cap-1 Maneuver	535	494	1010	507	477	1021	1372	1372	-	-	1396	-	-
Mov Cap-2 Maneuver	535	494	-	507	477	-	-	-	-	-	-	-	-
Stage 1	847	839	-	592	582	-	-	-	-	-	-	-	-
Stage 2	636	597	-	951	828	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	9.2		13.7		5.1		0.6	
HCM LOS	A		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1372	-	-	879	514	1396	-	-
HCM Lane V/C Ratio	0.098	-	-	0.023	0.197	0.004	-	-
HCM Control Delay (s)	7.9	-	-	9.2	13.7	7.6	-	-
HCM Lane LOS	A	-	-	A	B	A	-	-
HCM 95th %tile Q(veh)	0.3	-	-	0.1	0.7	0	-	-

HCM Unsignalized Intersection Capacity Analysis

14: Touchstone Circle & Merchant Plaza/CVS

04/03/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	4	1	18	4	1	0	20	38	5	0	56	7
Future Volume (Veh/h)	4	1	18	4	1	0	20	38	5	0	56	7
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			-3%			3%	
Peak Hour Factor	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Hourly flow rate (vph)	7	2	30	7	2	0	33	63	8	0	93	12
Pedestrians		3			6			5			4	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		0			1			0			0	
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)								350				
pX, platoon unblocked												
vC, conflicting volume	204	245	60	222	247	46	108			77		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	204	245	60	222	247	46	108			77		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.5			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.4			2.2		
p0 queue free %	99	100	97	99	100	100	98			100		
cM capacity (veh/h)	717	639	992	674	638	1012	1343			1527		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	39	9	64	40	46	58						
Volume Left	7	7	33	0	0	0						
Volume Right	30	0	0	8	0	12						
cSH	904	666	1343	1700	1527	1700						
Volume to Capacity	0.04	0.01	0.02	0.02	0.00	0.03						
Queue Length 95th (ft)	3	1	2	0	0	0						
Control Delay (s)	9.2	10.5	4.1	0.0	0.0	0.0						
Lane LOS	A	B	A									
Approach Delay (s)	9.2	10.5	2.5		0.0							
Approach LOS	A	B										
Intersection Summary												
Average Delay			2.8									
Intersection Capacity Utilization			20.3%		ICU Level of Service				A			
Analysis Period (min)			15									

Intersection												
Int Delay, s/veh	2.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	1	18	4	1	0	20	38	5	0	56	7
Future Vol, veh/h	4	1	18	4	1	0	20	38	5	0	56	7
Conflicting Peds, #/hr	0	0	5	2	0	4	3	0	6	4	0	3
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	-	-	-3	-	-	3	-
Peak Hour Factor	60	60	60	60	60	60	60	60	60	60	60	60
Heavy Vehicles, %	0	0	0	0	0	0	22	0	0	0	4	0
Mvmt Flow	7	2	30	7	2	0	33	63	8	0	93	12

Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	205	245	61	192	247	46	108	0	0	77	0	0
Stage 1	102	102	-	139	139	-	-	-	-	-	-	-
Stage 2	103	143	-	53	108	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.54	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.42	-	-	2.2	-	-
Pot Cap-1 Maneuver	740	661	998	756	659	1020	1346	-	-	1535	-	-
Stage 1	899	815	-	856	785	-	-	-	-	-	-	-
Stage 2	897	782	-	959	810	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	720	639	991	711	637	1012	1343	-	-	1527	-	-
Mov Cap-2 Maneuver	720	639	-	711	637	-	-	-	-	-	-	-
Stage 1	874	813	-	829	761	-	-	-	-	-	-	-
Stage 2	869	758	-	924	808	-	-	-	-	-	-	-

Approach	EB		WB			NB			SB			
HCM Control Delay, s	9.1		10.2			2.5			0			
HCM LOS	A		B									

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1343	-	-	910	695	1527	-	-
HCM Lane V/C Ratio	0.025	-	-	0.042	0.012	-	-	-
HCM Control Delay (s)	7.7	0	-	9.1	10.2	0	-	-
HCM Lane LOS	A	A	-	A	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	0	0	-	-

HCM Unsignalized Intersection Capacity Analysis

15: Prince William Pkwy & Chinn Park Dr

04/03/2023



Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations								
Traffic Volume (veh/h)	0	19	1361	162	0	2016		
Future Volume (Veh/h)	0	19	1361	162	0	2016		
Sign Control	Stop		Free		Free			
Grade	0%		1%		0%			
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86		
Hourly flow rate (vph)	0	22	1583	188	0	2344		
Pedestrians								
Lane Width (ft)								
Walking Speed (ft/s)								
Percent Blockage								
Right turn flare (veh)								
Median type	None				None			
Median storage (veh)								
Upstream signal (ft)	990				666			
pX, platoon unblocked	0.88	0.88			0.88			
vC, conflicting volume	2458	490			1583			
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol	1965	0			968			
tC, single (s)	6.8	7.0			4.1			
tC, 2 stage (s)								
tF (s)	3.5	3.4			2.2			
p0 queue free %	100	98			100			
cM capacity (veh/h)	49	940			632			
Direction, Lane #	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3
Volume Total	22	452	452	452	414	781	781	781
Volume Left	0	0	0	0	0	0	0	0
Volume Right	22	0	0	0	188	0	0	0
cSH	940	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.02	0.27	0.27	0.27	0.24	0.46	0.46	0.46
Queue Length 95th (ft)	2	0	0	0	0	0	0	0
Control Delay (s)	8.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	A							
Approach Delay (s)	8.9	0.0			0.0	0.0		
Approach LOS	A							
Intersection Summary								
Average Delay			0.0					
Intersection Capacity Utilization			42.3%		ICU Level of Service		A	
Analysis Period (min)			15					

HCM Signalized Intersection Capacity Analysis

16: Prince William Pkwy & Kenwood Dr./

School Entrance

04/03/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations		↕			↕	↕		↕	↑↑↑	↕		↕
Traffic Volume (vph)	44	1	76	28	1	27	2	23	1451	59	1	43
Future Volume (vph)	44	1	76	28	1	27	2	23	1451	59	1	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			1%				-2%			
Total Lost time (s)		6.6			5.8	8.8			8.8	8.8	5.8	8.8
Lane Util. Factor		1.00			1.00	1.00			1.00	0.91	1.00	1.00
Frbp, ped/bikes		0.99			1.00	1.00			1.00	1.00	0.98	1.00
Flpb, ped/bikes		1.00			1.00	1.00			1.00	1.00	1.00	1.00
Frt		0.92			1.00	0.85			1.00	1.00	0.85	1.00
Flt Protected		0.98			0.95	1.00			0.95	1.00	1.00	0.95
Satd. Flow (prot)		1622			1674	1488			1823	4989	1533	1712
Flt Permitted		0.98			0.95	1.00			0.07	1.00	1.00	0.13
Satd. Flow (perm)		1622			1674	1488			129	4989	1533	241
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	46	1	79	29	1	28	2	24	1511	61	1	45
RTOR Reduction (vph)	0	38	0	0	0	26	0	0	0	19	0	0
Lane Group Flow (vph)	0	88	0	0	30	2	0	26	1511	42	0	46
Confl. Peds. (#/hr)			4	2					2		2	
Heavy Vehicles (%)	5%	100%	0%	8%	0%	8%	0%	0%	5%	4%	0%	5%
Turn Type	Split	NA		Split	NA	pm+ov		D.P+P	NA	pm+ov		D.P+P
Protected Phases	3	3		4	4	5		1	6	4		5
Permitted Phases						4		2		6		6
Actuated Green, G (s)		13.8			8.3	14.2		107.9	102.0	110.3		107.9
Effective Green, g (s)		13.8			8.3	14.2		107.9	102.0	110.3		107.9
Actuated g/C Ratio		0.09			0.05	0.09		0.67	0.64	0.69		0.67
Clearance Time (s)		6.6			5.8	8.8		8.8	8.8	5.8		8.8
Vehicle Extension (s)		3.0			3.0	3.0		3.0	3.0	3.0		3.0
Lane Grp Cap (vph)		139			86	132		131	3180	1056		216
v/s Ratio Prot		c0.05			c0.02	0.00		0.01	0.30	0.00		c0.01
v/s Ratio Perm						0.00		0.13		0.03		0.14
v/c Ratio		0.63			0.35	0.02		0.20	0.48	0.04		0.21
Uniform Delay, d1		70.6			73.2	66.5		11.9	15.1	7.9		9.8
Progression Factor		1.00			1.00	1.00		0.88	0.85	0.16		1.62
Incremental Delay, d2		9.0			2.4	0.1		0.7	0.5	0.0		0.3
Delay (s)		79.6			75.7	66.6		11.1	13.3	1.3		16.1
Level of Service		E			E	E		B	B	A		B
Approach Delay (s)		79.6			71.3				12.8			
Approach LOS		E			E				B			

Intersection Summary

HCM 2000 Control Delay	22.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	30.0
Intersection Capacity Utilization	74.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

16: Prince William Pkwy & Kenwood Dr./

School Entrance

04/03/2023



Movement	SBT	SBR
Lane Configurations	↑↑↑↑	↑
Traffic Volume (vph)	1924	48
Future Volume (vph)	1924	48
Ideal Flow (vphpl)	1900	1900
Grade (%)	1%	
Total Lost time (s)	8.8	6.6
Lane Util. Factor	0.91	1.00
Frpb, ped/bikes	1.00	0.98
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	4963	1498
Flt Permitted	1.00	1.00
Satd. Flow (perm)	4963	1498
Peak-hour factor, PHF	0.96	0.96
Adj. Flow (vph)	2004	50
RTOR Reduction (vph)	0	13
Lane Group Flow (vph)	2004	37
Confl. Peds. (#/hr)		2
Heavy Vehicles (%)	4%	5%
Turn Type	NA	pm+ov
Protected Phases	2	3
Permitted Phases		2
Actuated Green, G (s)	103.7	117.5
Effective Green, g (s)	103.7	117.5
Actuated g/C Ratio	0.65	0.73
Clearance Time (s)	8.8	6.6
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	3216	1100
v/s Ratio Prot	c0.40	0.00
v/s Ratio Perm		0.02
v/c Ratio	0.62	0.03
Uniform Delay, d1	16.6	5.8
Progression Factor	1.50	0.36
Incremental Delay, d2	0.5	0.0
Delay (s)	25.5	2.1
Level of Service	C	A
Approach Delay (s)	24.7	
Approach LOS	C	
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

17: Prince William Pkwy & Hillendale Road

04/03/2023






















Movement	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Lane Configurations	↔↔	↔		↔↔	↑↑↑	↔	↑↑↑	↔
Traffic Volume (vph)	321	294	2	126	1214	0	1791	239
Future Volume (vph)	321	294	2	126	1214	0	1791	239
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)	2%				1%		2%	
Total Lost time (s)	6.5	8.0		8.0	5.5		5.5	6.5
Lane Util. Factor	0.97	1.00		0.97	0.91		0.91	1.00
Frbp, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00
Frt	1.00	0.85		1.00	1.00		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		1.00	1.00
Satd. Flow (prot)	3399	1537		3384	4915		4938	1509
Flt Permitted	0.95	1.00		0.29	1.00		1.00	1.00
Satd. Flow (perm)	3399	1537		1018	4915		4938	1509
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	353	323	2	138	1334	0	1968	263
RTOR Reduction (vph)	0	3	0	0	0	0	0	56
Lane Group Flow (vph)	353	320	0	140	1334	0	1968	207
Confl. Bikes (#/hr)								2
Heavy Vehicles (%)	2%	4%	0%	3%	5%	0%	4%	5%
Turn Type	Prot	pm+ov		Prot	NA	Prot	NA	pm+ov
Protected Phases	4	5		5	2	1	6	4
Permitted Phases		4						6
Actuated Green, G (s)	35.3	49.3		14.0	112.7		90.7	126.0
Effective Green, g (s)	35.3	49.3		14.0	112.7		90.7	126.0
Actuated g/C Ratio	0.22	0.31		0.09	0.70		0.57	0.79
Clearance Time (s)	6.5	8.0		8.0	5.5		5.5	6.5
Vehicle Extension (s)	4.0	4.0		4.0	4.0		4.0	4.0
Lane Grp Cap (vph)	749	473		89	3462		2799	1188
v/s Ratio Prot	0.10	c0.06			0.27		c0.40	0.04
v/s Ratio Perm		0.15		c0.14				0.10
v/c Ratio	0.47	0.68		1.57	0.39		0.70	0.17
Uniform Delay, d1	54.2	48.4		73.0	9.6		25.0	4.2
Progression Factor	1.00	1.00		1.00	1.00		0.60	3.47
Incremental Delay, d2	0.6	4.1		304.8	0.3		1.3	0.1
Delay (s)	54.9	52.5		377.8	9.9		16.3	14.6
Level of Service	D	D		F	A		B	B
Approach Delay (s)	53.7				44.9		16.1	
Approach LOS	D				D		B	

Intersection Summary

HCM 2000 Control Delay	31.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	76.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
 18: Library/Fitness Ctr/Troupe Street & Chinn Park Dr

04/03/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	106	5	24	1	2	17	9	35	0	8	71	4
Future Volume (Veh/h)	106	5	24	1	2	17	9	35	0	8	71	4
Sign Control		Free			Free			Stop			Stop	
Grade		1%			-2%			-2%			3%	
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74
Hourly flow rate (vph)	143	7	32	1	3	23	12	47	0	11	96	5
Pedestrians		1			5						6	
Lane Width (ft)		12.0			10.0						12.0	
Walking Speed (ft/s)		4.0			4.0						4.0	
Percent Blockage		0			0						1	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	32			39			364	327	12	344	348	22
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	32			39			364	327	12	344	348	22
tC, single (s)	4.1			5.1			7.1	6.6	6.2	7.4	6.6	6.7
tC, 2 stage (s)												
tF (s)	2.2			3.1			3.5	4.1	3.3	3.7	4.1	3.8
p0 queue free %	91			100			97	91	100	98	81	99
cM capacity (veh/h)	1572			1117			471	519	1071	487	513	927
Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	SB 1	SB 2					
Volume Total	150	32	27	12	47	11	101					
Volume Left	143	0	1	12	0	11	0					
Volume Right	0	32	23	0	0	0	5					
cSH	1572	1700	1117	471	519	487	525					
Volume to Capacity	0.09	0.02	0.00	0.03	0.09	0.02	0.19					
Queue Length 95th (ft)	7	0	0	2	7	2	18					
Control Delay (s)	7.2	0.0	0.3	12.8	12.6	12.6	13.5					
Lane LOS	A		A	B	B	B	B					
Approach Delay (s)	5.9		0.3	12.7		13.4						
Approach LOS				B		B						
Intersection Summary												
Average Delay			8.8									
Intersection Capacity Utilization			27.6%		ICU Level of Service				A			
Analysis Period (min)			15									

Intersection												
Int Delay, s/veh	8.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕		↕	↗		↕	↗	
Traffic Vol, veh/h	106	5	24	1	2	17	9	35	0	8	71	4
Future Vol, veh/h	106	5	24	1	2	17	9	35	0	8	71	4
Conflicting Peds, #/hr	0	0	0	0	0	6	0	0	5	5	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	0	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	1	-	-	-2	-	-	-2	-	-	3	-
Peak Hour Factor	74	74	74	74	74	74	74	74	74	74	74	74
Heavy Vehicles, %	2	0	4	100	0	41	0	13	0	25	7	50
Mvmt Flow	143	7	32	1	3	23	12	47	0	11	96	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	32	0	0	39	0	0	361	327	12	361	348	22
Stage 1	-	-	-	-	-	-	293	293	-	23	23	-
Stage 2	-	-	-	-	-	-	68	34	-	338	325	-
Critical Hdwy	4.12	-	-	5.1	-	-	6.7	6.23	6	7.95	7.17	7
Critical Hdwy Stg 1	-	-	-	-	-	-	5.7	5.23	-	6.95	6.17	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.7	5.23	-	6.95	6.17	-
Follow-up Hdwy	2.218	-	-	3.1	-	-	3.5	4.117	3.3	3.725	4.063	3.75
Pot Cap-1 Maneuver	1580	-	-	1117	-	-	623	595	1075	522	536	930
Stage 1	-	-	-	-	-	-	743	672	-	936	863	-
Stage 2	-	-	-	-	-	-	954	849	-	596	606	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1572	-	-	1117	-	-	488	537	1071	448	483	925
Mov Cap-2 Maneuver	-	-	-	-	-	-	488	537	-	448	483	-
Stage 1	-	-	-	-	-	-	674	610	-	844	858	-
Stage 2	-	-	-	-	-	-	841	844	-	497	550	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	5.9			0.4			12.4			14		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	488	537	1572	-	-	1117	-	-	448	496
HCM Lane V/C Ratio	0.025	0.088	0.091	-	-	0.001	-	-	0.024	0.204
HCM Control Delay (s)	12.6	12.4	7.5	0	-	8.2	0	-	13.2	14.1
HCM Lane LOS	B	B	A	A	-	A	A	-	B	B
HCM 95th %tile Q(veh)	0.1	0.3	0.3	-	-	0	-	-	0.1	0.8

Intersection															
Int Delay, s/veh	192.7														
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↔ ↑↑↑				↔ ↑↑↑			↔		↔				
Traffic Vol, veh/h	3	7	2572	0	2	9	2732	78	1	0	12	28	0	13	
Future Vol, veh/h	3	7	2572	0	2	9	2732	78	1	0	12	28	0	13	
Conflicting Peds, #/hr	0	9	0	3	0	3	0	9	0	0	3	0	0	9	
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop	
RT Channelized	-	-	-	None	-	-	-	None	-	-	None	-	-	None	
Storage Length	-	465	-	-	-	450	-	450	-	-	-	-	-	-	
Veh in Median Storage, #	-	-	0	-	-	-	0	-	-	0	-	-	0	-	
Grade, %	-	-	1	-	-	-	-1	-	-	-1	-	-	5	-	
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96	96	96	
Heavy Vehicles, %	0	17	2	0	0	0	3	0	0	0	0	0	0	0	
Mvmt Flow	3	7	2679	0	2	9	2846	81	1	0	13	29	0	14	

Major/Minor	Major1			Major2			Minor1			Minor2				
Conflicting Flow All	2077	2936	0	0	1956	2682	0	0	3871	5660	1346	3972	5579	1441
Stage 1	-	-	-	-	-	-	-	-	2702	2702	-	2877	2877	-
Stage 2	-	-	-	-	-	-	-	-	1169	2958	-	1095	2702	-
Critical Hdwy	5.6	5.64	-	-	5.6	5.3	-	-	6.2	6.3	7	7.4	7.5	7.6
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	7.1	5.3	-	8.3	6.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	6.5	5.3	-	7.7	6.5	-
Follow-up Hdwy	2.3	3.27	-	-	2.3	3.1	-	-	3.8	4	3.9	3.8	4	3.9
Pot Cap-1 Maneuver	112	32	-	-	131	57	-	-	5	0	128	~1	0	87
Stage 1	-	-	-	-	-	-	-	-	14	53	-	~4	17	-
Stage 2	-	-	-	-	-	-	-	-	200	39	-	154	22	-
Platoon blocked, %			-	-			-	-						
Mov Cap-1 Maneuver	40	40	-	-	63	63	-	-	3	0	127	~1	0	85
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	3	0	-	~1	0	-
Stage 1	-	-	-	-	-	-	-	-	10	40	-	~3	14	-
Stage 2	-	-	-	-	-	-	-	-	138	32	-	104	16	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	0.3	200.6	\$ 25529.5
HCM LOS			F	F

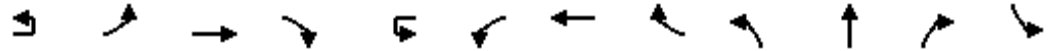
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	30	40	-	-	63	-	-	1
HCM Lane V/C Ratio	0.451	0.26	-	-	0.182	-	-	-42.708
HCM Control Delay (s)	200.6	124.3	-	-	74.5	-	-	\$ 25529.5
HCM Lane LOS	F	F	-	-	F	-	-	F
HCM 95th %tile Q(veh)	1.4	0.9	-	-	0.6	-	-	7.4

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM Signalized Intersection Capacity Analysis

2: Ridgewood Center Drive/Laurel Hills Drive & Prince William Pkwy

04/03/2023



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations		↔	↑↑↑			↔	↑↑↑			↔		
Traffic Volume (vph)	2	2	2602	8	11	14	2794	5	24	0	25	9
Future Volume (vph)	2	2	2602	8	11	14	2794	5	24	0	25	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	10
Grade (%)			0%				0%			0%		
Total Lost time (s)		6.5	6.0			6.5	6.0			6.5		
Lane Util. Factor		1.00	0.91			1.00	0.91			1.00		
Frbp, ped/bikes		1.00	1.00			1.00	1.00			0.99		
Flpb, ped/bikes		1.00	1.00			1.00	1.00			1.00		
Frt		1.00	1.00			1.00	1.00			0.93		
Flt Protected		0.95	1.00			0.95	1.00			0.98		
Satd. Flow (prot)		1803	5081			1805	5084			1713		
Flt Permitted		0.95	1.00			0.38	1.00			0.98		
Satd. Flow (perm)		1807	5081			724	5084			1713		
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	2	2	2739	8	12	15	2941	5	25	0	26	9
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	49	0	0
Lane Group Flow (vph)	0	4	2747	0	0	27	2946	0	0	2	0	0
Confl. Peds. (#/hr)		13		3		3		14			4	1
Heavy Vehicles (%)	0%	0%	2%	14%	0%	0%	2%	0%	0%	0%	0%	0%
Turn Type		Prot	NA			Prot	NA		Split	NA		Split
Protected Phases		5	2			1	6		4	4		3
Permitted Phases												
Actuated Green, G (s)		4.2	58.3			10.5	64.6			4.6		
Effective Green, g (s)		4.2	58.3			10.5	64.6			4.6		
Actuated g/C Ratio		0.04	0.58			0.10	0.65			0.05		
Clearance Time (s)		6.5	6.0			6.5	6.0			6.5		
Vehicle Extension (s)		3.0	3.5			3.0	3.5			3.0		
Lane Grp Cap (vph)		75	2962			76	3284			78		
v/s Ratio Prot			0.54				c0.58			c0.00		
v/s Ratio Perm		0.00				c0.04						
v/c Ratio		0.05	0.93			0.36	0.90			0.03		
Uniform Delay, d1		46.0	18.9			41.6	14.9			45.6		
Progression Factor		1.00	1.00			1.00	0.59			1.00		
Incremental Delay, d2		0.3	6.5			0.3	0.4			0.2		
Delay (s)		46.3	25.4			41.9	9.2			45.7		
Level of Service		D	C			D	A			D		
Approach Delay (s)			25.4				9.5			45.7		
Approach LOS			C				A			D		
Intersection Summary												
HCM 2000 Control Delay			17.5				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.82									
Actuated Cycle Length (s)			100.0				Sum of lost time (s)			25.5		
Intersection Capacity Utilization			71.9%				ICU Level of Service			C		
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 2: Ridgewood Center Drive/Laurel Hills Drive & Prince William Pkwy

04/03/2023



Movement	SBT	SBR
Lane Configurations	↕	
Traffic Volume (vph)	0	1
Future Volume (vph)	0	1
Ideal Flow (vphpl)	1900	1900
Lane Width	10	10
Grade (%)	5%	
Total Lost time (s)	6.5	
Lane Util. Factor	1.00	
Frpb, ped/bikes	0.97	
Flpb, ped/bikes	1.00	
Frt	0.99	
Flt Protected	0.96	
Satd. Flow (prot)	1581	
Flt Permitted	0.96	
Satd. Flow (perm)	1581	
Peak-hour factor, PHF	0.95	0.95
Adj. Flow (vph)	0	1
RTOR Reduction (vph)	10	0
Lane Group Flow (vph)	0	0
Confl. Peds. (#/hr)		13
Heavy Vehicles (%)	0%	0%
Turn Type	NA	
Protected Phases	3	
Permitted Phases		
Actuated Green, G (s)	1.1	
Effective Green, g (s)	1.1	
Actuated g/C Ratio	0.01	
Clearance Time (s)	6.5	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	17	
v/s Ratio Prot	c0.00	
v/s Ratio Perm		
v/c Ratio	0.01	
Uniform Delay, d1	48.9	
Progression Factor	1.00	
Incremental Delay, d2	0.2	
Delay (s)	49.1	
Level of Service	D	
Approach Delay (s)	49.1	
Approach LOS	D	
Intersection Summary		

HCM Unsignalized Intersection Capacity Analysis

3: Prince William Pkwy & Seeton Square

04/03/2023



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		↑↑↑	↑↑↑			↗	
Traffic Volume (veh/h)	0	2714	2841	55	0	39	
Future Volume (Veh/h)	0	2714	2841	55	0	39	
Sign Control		Free	Free		Stop		
Grade		0%	0%		4%		
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	
Hourly flow rate (vph)	0	3435	3596	70	0	49	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		None	None				
Median storage (veh)							
Upstream signal (ft)		1140	342				
pX, platoon unblocked	0.50			0.71	0.50		
vC, conflicting volume	3666			4776	1234		
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	2842			155	0		
tC, single (s)	4.1			6.8	6.9		
tC, 2 stage (s)							
tF (s)	2.2			3.5	3.3		
p0 queue free %	100			100	91		
cM capacity (veh/h)	68			586	549		
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	1145	1145	1145	1438	1438	789	49
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	70	49
cSH	1700	1700	1700	1700	1700	1700	549
Volume to Capacity	0.67	0.67	0.67	0.85	0.85	0.46	0.09
Queue Length 95th (ft)	0	0	0	0	0	0	7
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	12.2
Lane LOS							B
Approach Delay (s)	0.0			0.0			12.2
Approach LOS							B
Intersection Summary							
Average Delay			0.1				
Intersection Capacity Utilization			66.1%	ICU Level of Service		C	
Analysis Period (min)			15				

HCM 6th TWSC
3: Prince William Pkwy & Seeton Square

04/03/2023

Intersection						
Int Delay, s/veh	2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑			↑
Traffic Vol, veh/h	0	2714	2841	55	0	39
Future Vol, veh/h	0	2714	2841	55	0	39
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	4	-
Peak Hour Factor	79	79	79	79	79	79
Heavy Vehicles, %	0	0	2	4	0	0
Mvmt Flow	0	3435	3596	70	0	49

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	-	0	- 0 - 1833
Stage 1	-	-	- - -
Stage 2	-	-	- - -
Critical Hdwy	-	-	- - 7.5
Critical Hdwy Stg 1	-	-	- - -
Critical Hdwy Stg 2	-	-	- - -
Follow-up Hdwy	-	-	- - 3.9
Pot Cap-1 Maneuver	0	-	- 0 ~ 47
Stage 1	0	-	- 0 -
Stage 2	0	-	- 0 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	- - ~ 47
Mov Cap-2 Maneuver	-	-	- - -
Stage 1	-	-	- - -
Stage 2	-	-	- - -

Approach	EB	WB	SB
HCM Control Delay, s	0	0	283.5
HCM LOS			F

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	47
HCM Lane V/C Ratio	-	-	-	1.05
HCM Control Delay (s)	-	-	-	283.5
HCM Lane LOS	-	-	-	F
HCM 95th %tile Q(veh)	-	-	-	4.5

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM Signalized Intersection Capacity Analysis

4: Prince William Pkwy & Old Bridge Road & Touchstone Cir

04/03/2023



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations		↔	↕	↗		↔	↕			↔	↕	↗
Traffic Volume (vph)	13	169	1106	1426	2	504	1227	44	13	1447	182	358
Future Volume (vph)	13	169	1106	1426	2	504	1227	44	13	1447	182	358
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)			0%				2%				1%	
Total Lost time (s)		7.9	5.7	4.0		7.5	5.7			9.9	9.9	7.5
Lane Util. Factor		1.00	0.95	1.00		0.97	0.91			0.91	0.91	1.00
Frbp, ped/bikes		1.00	1.00	1.00		1.00	1.00			1.00	1.00	0.99
Flpb, ped/bikes		1.00	1.00	1.00		1.00	1.00			1.00	1.00	1.00
Frt		1.00	1.00	0.85		1.00	0.99			1.00	1.00	0.85
Flt Protected		0.95	1.00	1.00		0.95	1.00			0.95	0.97	1.00
Satd. Flow (prot)		1787	3574	1583		3432	5005			3205	1641	1588
Flt Permitted		0.22	1.00	1.00		0.14	1.00			0.63	0.97	1.00
Satd. Flow (perm)		416	3574	1583		507	5005			2129	1641	1588
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	13	174	1140	1470	2	520	1265	45	13	1492	188	369
RTOR Reduction (vph)	0	0	0	0	0	0	2	0	0	0	0	126
Lane Group Flow (vph)	0	187	1140	1470	0	522	1308	0	0	1102	591	243
Confl. Peds. (#/hr)		3						7				4
Confl. Bikes (#/hr)								1				
Heavy Vehicles (%)	0%	1%	1%	2%	0%	1%	2%	2%	0%	2%	0%	0%
Turn Type		Prot	NA	Free		Prot	NA			Split	NA	pm+ov
Protected Phases		5	2			1	6			4	4	1
Permitted Phases				Free								4
Actuated Green, G (s)		18.1	64.3	200.0		28.5	74.3			60.1	60.1	88.6
Effective Green, g (s)		18.1	64.3	200.0		28.5	74.3			60.1	60.1	88.6
Actuated g/C Ratio		0.09	0.32	1.00		0.14	0.37			0.30	0.30	0.44
Clearance Time (s)		7.9	5.7			7.5	5.7			9.9	9.9	7.5
Vehicle Extension (s)		3.0	2.0			3.0	2.0			3.0	3.0	3.0
Lane Grp Cap (vph)		37	1149	1583		72	1859			639	493	703
v/s Ratio Prot			0.32				0.26				0.36	0.05
v/s Ratio Perm		0.45		c0.93		c1.03				c0.52		0.10
v/c Ratio		5.05	0.99	0.93		7.25	0.70			1.72	1.20	0.35
Uniform Delay, d1		91.0	67.6	0.0		85.8	53.5			70.0	70.0	36.6
Progression Factor		1.00	1.02	1.00		1.00	0.54			0.81	0.80	1.83
Incremental Delay, d2		1868.2	21.1	8.6		2829.8	1.4			331.5	104.8	0.2
Delay (s)		1959.1	90.1	8.6		2915.6	30.2			387.9	161.1	67.2
Level of Service		F	F	A		F	C			F	F	E
Approach Delay (s)			172.2			852.4					265.5	
Approach LOS			F			F					F	
Intersection Summary												
HCM 2000 Control Delay			370.5			HCM 2000 Level of Service				F		
HCM 2000 Volume to Capacity ratio			2.37									
Actuated Cycle Length (s)			200.0			Sum of lost time (s)				31.1		
Intersection Capacity Utilization			116.0%			ICU Level of Service				H		
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

4: Prince William Pkwy & Old Bridge Road & Touchstone Cir

04/03/2023



Movement	SBU	SBL	SBT	SBR
Lane Configurations		↵	↑↑	↗
Traffic Volume (vph)	2	54	186	209
Future Volume (vph)	2	54	186	209
Ideal Flow (vphpl)	1900	1900	1900	1900
Grade (%)			5%	
Total Lost time (s)		7.6	7.6	7.9
Lane Util. Factor		1.00	0.95	1.00
Frbp, ped/bikes		1.00	1.00	0.99
Flpb, ped/bikes		1.00	1.00	1.00
Frt		1.00	1.00	0.85
Flt Protected		0.95	1.00	1.00
Satd. Flow (prot)		1756	3485	1546
Flt Permitted		0.24	1.00	1.00
Satd. Flow (perm)		451	3485	1546
Peak-hour factor, PHF	0.97	0.97	0.97	0.97
Adj. Flow (vph)	2	56	192	215
RTOR Reduction (vph)	0	0	0	91
Lane Group Flow (vph)	0	58	192	124
Confl. Peds. (#/hr)	4			3
Confl. Bikes (#/hr)				
Heavy Vehicles (%)	0%	0%	1%	1%
Turn Type		Split	NA	pm+ov
Protected Phases		3	3	5
Permitted Phases				3
Actuated Green, G (s)		16.4	16.4	34.5
Effective Green, g (s)		16.4	16.4	34.5
Actuated g/C Ratio		0.08	0.08	0.17
Clearance Time (s)		7.6	7.6	7.9
Vehicle Extension (s)		3.0	3.0	3.0
Lane Grp Cap (vph)		36	285	266
v/s Ratio Prot			0.06	0.04
v/s Ratio Perm		c0.13		0.04
v/c Ratio		1.61	0.67	0.47
Uniform Delay, d1		91.8	89.2	74.5
Progression Factor		1.00	1.02	0.93
Incremental Delay, d2		372.3	6.1	1.3
Delay (s)		464.1	97.2	70.3
Level of Service		F	F	E
Approach Delay (s)			130.5	
Approach LOS			F	
Intersection Summary				

HCM Unsignalized Intersection Capacity Analysis

5: Tribe at the Glen & Old Bridge Road

04/03/2023



Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations	↑↑	↑		↑↑↑		↑		
Traffic Volume (veh/h)	1436	84	0	1777	0	45		
Future Volume (Veh/h)	1436	84	0	1777	0	45		
Sign Control	Free			Free	Stop			
Grade	-3%			2%	0%			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97		
Hourly flow rate (vph)	1480	87	0	1832	0	46		
Pedestrians				2	2			
Lane Width (ft)				12.0	14.0			
Walking Speed (ft/s)				4.0	4.0			
Percent Blockage				0	0			
Right turn flare (veh)								
Median type	None			None				
Median storage (veh)								
Upstream signal (ft)	371			392				
pX, platoon unblocked				0.68	0.82	0.68		
vC, conflicting volume				1482	2093	744		
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol				782	0	0		
tC, single (s)				4.1	6.8	6.9		
tC, 2 stage (s)								
tF (s)				2.2	3.5	3.3		
p0 queue free %				100	100	94		
cM capacity (veh/h)				577	840	744		
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	
Volume Total	740	740	87	611	611	611	46	
Volume Left	0	0	0	0	0	0	0	
Volume Right	0	0	87	0	0	0	46	
cSH	1700	1700	1700	1700	1700	1700	744	
Volume to Capacity	0.44	0.44	0.05	0.36	0.36	0.36	0.06	
Queue Length 95th (ft)	0	0	0	0	0	0	5	
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	10.2	
Lane LOS							B	
Approach Delay (s)	0.0				0.0			10.2
Approach LOS							B	
Intersection Summary								
Average Delay				0.1				
Intersection Capacity Utilization				50.3%	ICU Level of Service	A		
Analysis Period (min)				15				

HCM 6th TWSC
5: Tribe at the Glen & Old Bridge Road

04/03/2023

Intersection						
Int Delay, s/veh	0.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑		↑↑↑		↑
Traffic Vol, veh/h	1436	84	0	1777	0	45
Future Vol, veh/h	1436	84	0	1777	0	45
Conflicting Peds, #/hr	0	2	2	0	0	2
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Free	-	None	-	Stop
Storage Length	-	175	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	-3	-	-	2	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	1	0	0	2	0	0
Mvmt Flow	1480	87	0	1832	0	46

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	-	-	-	742
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	3.3
Pot Cap-1 Maneuver	-	0	0	-	363
Stage 1	-	0	0	-	-
Stage 2	-	0	0	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	362
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	16.4
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	WBT
Capacity (veh/h)	362	-	-
HCM Lane V/C Ratio	0.128	-	-
HCM Control Delay (s)	16.4	-	-
HCM Lane LOS	C	-	-
HCM 95th %tile Q(veh)	0.4	-	-

HCM Signalized Intersection Capacity Analysis

6: Troupe Street/Glen Shopping Ctr & Old Bridge Road

04/03/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑	↗		↘	↗		↘	↗
Traffic Volume (vph)	58	1342	81	118	1547	174	183	19	260	114	25	47
Future Volume (vph)	58	1342	81	118	1547	174	183	19	260	114	25	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			7%			-1%			0%	
Total Lost time (s)	7.0	6.5	8.0	7.0	6.0	7.0		8.0	8.0		7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.96		1.00	0.98		1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.96	1.00		0.96	1.00
Satd. Flow (prot)	1823	3610	1564	1708	3415	1478		1794	1541		1825	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.96	1.00		0.96	1.00
Satd. Flow (perm)	1823	3610	1564	1708	3415	1478		1794	1541		1825	1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	60	1398	84	123	1611	181	191	20	271	119	26	49
RTOR Reduction (vph)	0	0	18	0	0	40	0	0	126	0	0	45
Lane Group Flow (vph)	60	1398	66	123	1611	141	0	211	145	0	145	4
Confl. Peds. (#/hr)	2		2	2		7			7	5		2
Confl. Bikes (#/hr)						2						
Heavy Vehicles (%)	0%	1%	3%	2%	2%	1%	2%	0%	3%	0%	0%	0%
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Split	NA	Perm	Split	NA	Perm
Protected Phases	5	2	4	1	6	3	4	4		3	3	
Permitted Phases			2			6			4			3
Actuated Green, G (s)	11.1	113.1	139.4	17.1	119.6	134.6		26.3	26.3		15.0	15.0
Effective Green, g (s)	11.1	113.1	139.4	17.1	119.6	134.6		26.3	26.3		15.0	15.0
Actuated g/C Ratio	0.06	0.57	0.70	0.09	0.60	0.67		0.13	0.13		0.08	0.08
Clearance Time (s)	7.0	6.5	8.0	7.0	6.0	7.0		8.0	8.0		7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	101	2041	1090	146	2042	994		235	202		136	118
v/s Ratio Prot	0.03	0.39	0.01	c0.07	c0.47	0.01		c0.12			c0.08	
v/s Ratio Perm			0.03			0.09			0.09			0.00
v/c Ratio	0.59	0.68	0.06	0.84	0.79	0.14		0.90	0.72		1.07	0.03
Uniform Delay, d1	92.2	30.8	9.6	90.1	30.6	11.8		85.5	83.3		92.5	85.8
Progression Factor	1.05	0.37	0.04	1.36	0.38	0.16		0.94	0.87		1.00	1.00
Incremental Delay, d2	5.4	1.1	0.0	25.4	2.3	0.0		32.3	11.5		96.0	0.1
Delay (s)	102.7	12.6	0.4	148.3	13.8	1.9		113.1	84.2		188.5	85.9
Level of Service	F	B	A	F	B	A		F	F		F	F
Approach Delay (s)		15.5			21.3			96.8			162.5	
Approach LOS		B			C			F			F	

Intersection Summary

HCM 2000 Control Delay	34.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	200.0	Sum of lost time (s)	28.5
Intersection Capacity Utilization	87.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

7: Titania Way/Touchstone Circle & Old Bridge Road

04/03/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗	↘		↕			↖	↗
Traffic Volume (vph)	71	1612	33	17	1833	142	22	1	20	155	7	56
Future Volume (vph)	71	1612	33	17	1833	142	22	1	20	155	7	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		4%			-7%			-3%			2%	
Total Lost time (s)	8.5	8.5	8.5	8.5	8.5	8.5		7.5			7.5	7.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00			1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.94	1.00	1.00	0.98		0.99			1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00			1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		0.94			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.98			0.95	1.00
Satd. Flow (prot)	1769	3503	1483	1868	3663	1615		1738			1792	1546
Flt Permitted	0.07	1.00	1.00	0.11	1.00	1.00		0.57			0.74	1.00
Satd. Flow (perm)	125	3503	1483	209	3663	1615		1017			1393	1546
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	72	1645	34	17	1870	145	22	1	20	158	7	57
RTOR Reduction (vph)	0	0	9	0	0	42	0	16	0	0	0	49
Lane Group Flow (vph)	72	1645	25	17	1870	103	0	27	0	0	165	8
Confl. Peds. (#/hr)	5		11	4		6	7		5	1		12
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	0%	1%	0%	0%	2%	1%	0%	0%	0%	0%	0%	0%
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases	1	6		5	2			4			8	
Permitted Phases	2		6	6		2	4			8		8
Actuated Green, G (s)	148.7	145.6	145.6	148.7	141.8	141.8		26.8			26.8	26.8
Effective Green, g (s)	148.7	145.6	145.6	148.7	141.8	141.8		26.8			26.8	26.8
Actuated g/C Ratio	0.74	0.73	0.73	0.74	0.71	0.71		0.13			0.13	0.13
Clearance Time (s)	8.5	8.5	8.5	8.5	8.5	8.5		7.5			7.5	7.5
Vehicle Extension (s)	2.0	8.0	8.0	2.0	8.0	8.0		2.0			2.0	2.0
Lane Grp Cap (vph)	149	2550	1079	181	2597	1145		136			186	207
v/s Ratio Prot	c0.02	c0.47		0.00	c0.51							
v/s Ratio Perm	0.34		0.02	0.07		0.06		0.03			c0.12	0.00
v/c Ratio	0.48	0.65	0.02	0.09	0.72	0.09		0.20			0.89	0.04
Uniform Delay, d1	21.0	13.9	7.5	11.3	17.3	9.0		77.1			85.1	75.4
Progression Factor	2.26	0.39	1.00	0.45	0.88	0.35		1.00			1.00	1.00
Incremental Delay, d2	0.6	0.9	0.0	0.1	1.4	0.1		0.3			35.2	0.0
Delay (s)	48.1	6.2	7.6	5.1	16.6	3.3		77.3			120.3	75.4
Level of Service	D	A	A	A	B	A		E			F	E
Approach Delay (s)		8.0			15.6			77.3			108.8	
Approach LOS		A			B			E			F	

Intersection Summary

HCM 2000 Control Delay	18.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	200.0	Sum of lost time (s)	24.5
Intersection Capacity Utilization	91.8%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

8: Old Bridge Road & Brussels Way

04/03/2023



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↗		↗
Traffic Volume (veh/h)	0	1787	1903	19	0	11
Future Volume (Veh/h)	0	1787	1903	19	0	11
Sign Control		Free	Free		Stop	
Grade		7%	-1%		1%	
Peak Hour Factor	0.68	0.68	0.68	0.68	0.68	0.68
Hourly flow rate (vph)	0	2628	2799	28	0	16
Pedestrians		11			11	
Lane Width (ft)		12.0			12.0	
Walking Speed (ft/s)		4.0			4.0	
Percent Blockage		1			1	
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)		685	1088			
pX, platoon unblocked	0.54				0.66	0.54
vC, conflicting volume	2838				4124	1422
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2697				2974	51
tC, single (s)	4.1				6.8	7.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.5
p0 queue free %	100				100	97
cM capacity (veh/h)	82				7	504
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	SB 1
Volume Total	1314	1314	1400	1400	28	16
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	28	16
cSH	1700	1700	1700	1700	1700	504
Volume to Capacity	0.77	0.77	0.82	0.82	0.02	0.03
Queue Length 95th (ft)	0	0	0	0	0	2
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	12.4
Lane LOS						B
Approach Delay (s)	0.0		0.0			12.4
Approach LOS						B
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			65.7%		ICU Level of Service	C
Analysis Period (min)			15			

HCM 6th TWSC
8: Old Bridge Road & Brussels Way

04/03/2023

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↑		↑
Traffic Vol, veh/h	0	1787	1903	19	0	11
Future Vol, veh/h	0	1787	1903	19	0	11
Conflicting Peds, #/hr	11	0	0	11	0	11
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	225	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	7	-1	-	1	-
Peak Hour Factor	68	68	68	68	68	68
Heavy Vehicles, %	0	1	2	0	0	17
Mvmt Flow	0	2628	2799	28	0	16

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	-	0	- 0 - 1422
Stage 1	-	-	- - -
Stage 2	-	-	- - -
Critical Hdwy	-	-	- - 7.34
Critical Hdwy Stg 1	-	-	- - -
Critical Hdwy Stg 2	-	-	- - -
Follow-up Hdwy	-	-	- - 3.47
Pot Cap-1 Maneuver	0	-	- 0 105
Stage 1	0	-	- 0 -
Stage 2	0	-	- 0 -
Platoon blocked, %	-	-	- - -
Mov Cap-1 Maneuver	-	-	- - 103
Mov Cap-2 Maneuver	-	-	- - -
Stage 1	-	-	- - -
Stage 2	-	-	- - -

Approach	EB	WB	SB
HCM Control Delay, s	0	0	46.4
HCM LOS			E

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	103
HCM Lane V/C Ratio	-	-	-	0.157
HCM Control Delay (s)	-	-	-	46.4
HCM Lane LOS	-	-	-	E
HCM 95th %tile Q(veh)	-	-	-	0.5

HCM Unsignalized Intersection Capacity Analysis

9: Old Bridge Ln/Church Entr & Old Bridge Road

04/03/2023



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations		↔	↕↕	↗		↔	↕↕	↗		↕↔		↗
Traffic Volume (veh/h)	1	8	1714	64	1	23	1908	1	13	0	19	2
Future Volume (Veh/h)	1	8	1714	64	1	23	1908	1	13	0	19	2
Sign Control			Free				Free			Stop		
Grade			1%				3%			0%		
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	9	1823	68	0	24	2030	1	14	0	20	2
Pedestrians			9				1			1		
Lane Width (ft)			12.0				12.0			12.0		
Walking Speed (ft/s)			4.0				4.0			4.0		
Percent Blockage			1				0			0		
Right turn flare (veh)												
Median type			None				None					
Median storage (veh)												
Upstream signal (ft)			1188				585					
pX, platoon unblocked	0.00	0.54			0.00	0.79			0.65	0.65	0.79	0.65
vC, conflicting volume	0	2040			0	1892			2914	3930	914	3038
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0	1234			0	1603			1430	3000	370	1621
tC, single (s)	0.0	4.1			0.0	4.1			7.5	6.5	6.9	7.5
tC, 2 stage (s)												
tF (s)	0.0	2.2			0.0	2.2			3.5	4.0	3.3	3.5
p0 queue free %	0	97			0	93			75	100	96	95
cM capacity (veh/h)	0	309			0	328			57	8	501	40
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1	SB 2	
Volume Total	9	912	912	68	24	1015	1015	1	34	2	0	
Volume Left	9	0	0	0	24	0	0	0	14	2	0	
Volume Right	0	0	0	68	0	0	0	1	20	0	0	
cSH	309	1700	1700	1700	328	1700	1700	1700	119	40	1700	
Volume to Capacity	0.03	0.54	0.54	0.04	0.07	0.60	0.60	0.00	0.29	0.05	0.00	
Queue Length 95th (ft)	2	0	0	0	6	0	0	0	27	4	0	
Control Delay (s)	17.0	0.0	0.0	0.0	16.9	0.0	0.0	0.0	46.8	100.7	0.0	
Lane LOS	C				C				E	F	A	
Approach Delay (s)	0.1				0.2				46.8	100.7		
Approach LOS									E	F		
Intersection Summary												
Average Delay			0.6									
Intersection Capacity Utilization			72.3%			ICU Level of Service			C			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 9: Old Bridge Ln/Church Entr & Old Bridge Road

04/03/2023



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	0	0
Future Volume (Veh/h)	0	0
Sign Control	Stop	
Grade	-1%	
Peak Hour Factor	0.94	0.94
Hourly flow rate (vph)	0	0
Pedestrians	9	
Lane Width (ft)	10.0	
Walking Speed (ft/s)	4.0	
Percent Blockage	1	
Right turn flare (veh)		
Median type		
Median storage veh		
Upstream signal (ft)		
pX, platoon unblocked	0.65	0.54
vC, conflicting volume	3997	1033
vC1, stage 1 conf vol		
vC2, stage 2 conf vol		
vCu, unblocked vol	3103	0
tC, single (s)	6.5	6.9
tC, 2 stage (s)		
tF (s)	4.0	3.3
p0 queue free %	100	100
cM capacity (veh/h)	7	585
Direction, Lane #		

HCM 6th TWSC
 9: Old Bridge Ln/Church Entr & Old Bridge Road

04/03/2023

Intersection														
Int Delay, s/veh	10.8													
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↕	↕		↔	↕	↕		↔	↕	↕		↕
Traffic Vol, veh/h	1	8	1714	64	1	23	1908	1	13	0	19	2	0	0
Future Vol, veh/h	1	8	1714	64	1	23	1908	1	13	0	19	2	0	0
Conflicting Peds, #/hr	0	9	0	1	0	1	0	9	0	0	1	0	0	9
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	-	None	-	-	-	None	-	-	None	-	-	None
Storage Length	-	365	-	340	-	225	-	230	-	-	-	0	-	0
Veh in Median Storage, #	-	-	0	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-	1	-	-	-	3	-	-	0	-	-	-1	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	0	1	0	0	0	2	0	0	0	0	0	0	0
Mvmt Flow	1	9	1823	68	1	24	2030	1	14	0	20	2	0	0

Major/Minor	Major1		Major2		Minor1		Minor2							
Conflicting Flow All	2030	2040	0	0	1823	1892	0	0	2918	3934	914	3022	-	1033
Stage 1	-	-	-	-	-	-	-	-	1844	1844	-	2089	-	-
Stage 2	-	-	-	-	-	-	-	-	1074	2090	-	933	-	-
Critical Hdwy	6.4	4.1	-	-	6.4	4.1	-	-	7.5	6.5	6.9	7.3	-	6.8
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	6.5	5.5	-	6.3	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	6.5	5.5	-	6.3	-	-
Follow-up Hdwy	2.5	2.2	-	-	2.5	2.2	-	-	3.5	4	3.3	3.5	-	3.3
Pot Cap-1 Maneuver	73	280	-	-	99	320	-	-	~7	3	279	7	0	240
Stage 1	-	-	-	-	-	-	-	-	79	127	-	62	0	-
Stage 2	-	-	-	-	-	-	-	-	238	95	-	306	0	-
Platoon blocked, %			-	-			-	-						
Mov Cap-1 Maneuver	212	212	-	-	290	290	-	-	~6	3	279	6	-	237
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	~6	3	-	6	-	-
Stage 1	-	-	-	-	-	-	-	-	75	121	-	59	-	-
Stage 2	-	-	-	-	-	-	-	-	215	86	-	270	-	-

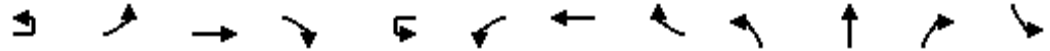
Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.2	\$ 1204.8	\$ 801.6
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	14	212	-	-	290	-	-	6	-
HCM Lane V/C Ratio	2.432	0.045	-	-	0.088	-	-	0.355	-
HCM Control Delay (s)	\$ 1204.8	22.8	-	-	18.6	-	-	\$ 801.6	0
HCM Lane LOS	F	C	-	-	C	-	-	F	A
HCM 95th %tile Q(veh)	5	0.1	-	-	0.3	-	-	0.7	-

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM Signalized Intersection Capacity Analysis
 10: Rockwood Lane/Westridge Drive & Old Bridge Road

04/03/2023



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations		↔	↕			↔	↕	↕		↕		
Traffic Volume (vph)	7	270	1458	1	8	3	1695	214	0	0	1	120
Future Volume (vph)	7	270	1458	1	8	3	1695	214	0	0	1	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)			1%				3%			0%		
Total Lost time (s)		8.6	8.6			8.6	8.6	8.6		7.3		
Lane Util. Factor		1.00	0.95			1.00	0.95	1.00		1.00		
Frbp, ped/bikes		1.00	1.00			1.00	1.00	0.98		0.99		
Flpb, ped/bikes		1.00	1.00			1.00	1.00	1.00		1.00		
Frt		1.00	1.00			1.00	1.00	0.85		0.86		
Flt Protected		0.95	1.00			0.95	1.00	1.00		1.00		
Satd. Flow (prot)		1796	3521			1777	3486	1558		1605		
Flt Permitted		0.04	1.00			0.17	1.00	1.00		1.00		
Satd. Flow (perm)		69	3521			313	3486	1558		1605		
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	7	284	1535	1	8	3	1784	225	0	0	1	126
RTOR Reduction (vph)	0	0	0	0	0	0	0	95	0	1	0	0
Lane Group Flow (vph)	0	291	1536	0	0	11	1784	130	0	0	0	0
Confl. Peds. (#/hr)		5		1		1		5			1	
Heavy Vehicles (%)	0%	0%	2%	0%	0%	0%	2%	0%	0%	0%	1%	0%
Turn Type		D.P+P	NA			Perm	NA	Perm		NA		Perm
Protected Phases		1	6				2			8		
Permitted Phases		2				2		2	8			4
Actuated Green, G (s)		148.8	157.4			115.8	115.8	115.8		26.7		
Effective Green, g (s)		148.8	157.4			115.8	115.8	115.8		26.7		
Actuated g/C Ratio		0.74	0.79			0.58	0.58	0.58		0.13		
Clearance Time (s)		8.6	8.6			8.6	8.6	8.6		7.3		
Vehicle Extension (s)		3.0	4.0			4.0	4.0	4.0		3.5		
Lane Grp Cap (vph)		336	2771			181	2018	902		214		
v/s Ratio Prot		c0.14	0.44				c0.51			0.00		
v/s Ratio Perm		0.50				0.04		0.08				
v/c Ratio		0.87	0.55			0.06	0.88	0.14		0.00		
Uniform Delay, d1		69.9	8.0			18.4	36.3	19.3		75.1		
Progression Factor		0.91	1.38			1.00	1.00	1.00		1.00		
Incremental Delay, d2		18.8	0.7			0.6	6.1	0.3		0.0		
Delay (s)		82.0	11.9			19.0	42.4	19.7		75.1		
Level of Service		F	B			B	D	B		E		
Approach Delay (s)			23.1				39.7			75.1		
Approach LOS			C				D			E		
Intersection Summary												
HCM 2000 Control Delay			35.1				HCM 2000 Level of Service			D		
HCM 2000 Volume to Capacity ratio			0.85									
Actuated Cycle Length (s)			200.0				Sum of lost time (s)			24.5		
Intersection Capacity Utilization			109.5%				ICU Level of Service			H		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
 10: Rockwood Lane/Westridge Drive & Old Bridge Road

04/03/2023



Movement	SBT	SBR
Lane Configurations	↔	↗
Traffic Volume (vph)	0	231
Future Volume (vph)	0	231
Ideal Flow (vphpl)	1900	1900
Grade (%)	-1%	
Total Lost time (s)	7.3	8.6
Lane Util. Factor	1.00	1.00
Frpb, ped/bikes	1.00	0.99
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	0.95	1.00
Satd. Flow (prot)	1814	1579
Flt Permitted	0.76	1.00
Satd. Flow (perm)	1446	1579
Peak-hour factor, PHF	0.95	0.95
Adj. Flow (vph)	0	243
RTOR Reduction (vph)	0	22
Lane Group Flow (vph)	126	221
Confl. Peds. (#/hr)		5
Heavy Vehicles (%)	0%	2%
Turn Type	NA	pm+ov
Protected Phases	4	1
Permitted Phases		4
Actuated Green, G (s)	26.7	59.7
Effective Green, g (s)	26.7	59.7
Actuated g/C Ratio	0.13	0.30
Clearance Time (s)	7.3	8.6
Vehicle Extension (s)	3.5	3.0
Lane Grp Cap (vph)	193	471
v/s Ratio Prot		0.08
v/s Ratio Perm	c0.09	0.06
v/c Ratio	0.65	0.47
Uniform Delay, d1	82.3	57.2
Progression Factor	1.00	1.00
Incremental Delay, d2	8.0	0.7
Delay (s)	90.3	58.0
Level of Service	F	E
Approach Delay (s)	69.0	
Approach LOS	E	
Intersection Summary		

HCM Unsignalized Intersection Capacity Analysis

11: Touchstone Cir & Exxon/Glen Shopping Ctr


















04/03/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗		↑↑↑	↗		↑↑↑	
Traffic Volume (veh/h)	0	0	43	0	0	110	0	176	221	0	408	27
Future Volume (Veh/h)	0	0	43	0	0	110	0	176	221	0	408	27
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			-1%			2%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	0	0	51	0	0	129	0	207	260	0	480	32
Pedestrians		12			1			7			6	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			0			1			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh												
Upstream signal (ft)								317				
pX, platoon unblocked												
vC, conflicting volume	712	976	155	386	732	76	524			468		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	712	976	155	386	732	76	524			468		
tC, single (s)	7.5	6.5	7.0	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	94	100	100	87	100			100		
cM capacity (veh/h)	274	250	846	511	347	971	1042			1103		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3	SB 4		
Volume Total	51	129	69	69	69	260	137	137	137	101		
Volume Left	0	0	0	0	0	0	0	0	0	0		
Volume Right	51	129	0	0	0	260	0	0	0	32		
cSH	846	971	1700	1700	1700	1700	1700	1700	1700	1700		
Volume to Capacity	0.06	0.13	0.04	0.04	0.04	0.15	0.08	0.08	0.08	0.06		
Queue Length 95th (ft)	5	11	0	0	0	0	0	0	0	0		
Control Delay (s)	9.5	9.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Lane LOS	A	A										
Approach Delay (s)	9.5	9.3	0.0				0.0					
Approach LOS	A	A										
Intersection Summary												
Average Delay			1.5									
Intersection Capacity Utilization			20.8%		ICU Level of Service					A		
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 13: Touchstone Cir & Seeton Square/Merchant Plaza

04/03/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (veh/h)	6	7	42	194	10	19	137	38	54	57	1	7
Future Volume (Veh/h)	6	7	42	194	10	19	137	38	54	57	1	7
Sign Control		Stop			Stop				Free			
Grade		-2%			0%				-1%			
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	1.00	0.91
Hourly flow rate (vph)	7	8	46	213	11	21	0	42	59	63	0	8
Pedestrians		4			3				6			
Lane Width (ft)		12.0			12.0				12.0			
Walking Speed (ft/s)		4.0			4.0				4.0			
Percent Blockage		0			0				1			
Right turn flare (veh)												
Median type									None			
Median storage (veh)												
Upstream signal (ft)									589			
pX, platoon unblocked							0.00				0.00	
vC, conflicting volume	230	298	46	284	268	65	0	75			0	125
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	230	298	46	284	268	65	0	75			0	125
tC, single (s)	7.5	6.5	7.0	7.5	6.5	6.9	0.0	4.1			0.0	4.1
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	0.0	2.2			0.0	2.2
p0 queue free %	99	99	95	64	98	98	0	97			0	99
cM capacity (veh/h)	663	593	1003	591	616	989	0	1532			0	1470
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3				
Volume Total	61	245	42	39	83	8	45	26				
Volume Left	7	213	42	0	0	8	0	0				
Volume Right	46	21	0	0	63	0	0	3				
cSH	872	613	1532	1700	1700	1470	1700	1700				
Volume to Capacity	0.07	0.40	0.03	0.02	0.05	0.01	0.03	0.02				
Queue Length 95th (ft)	6	48	2	0	0	0	0	0				
Control Delay (s)	9.4	14.7	7.4	0.0	0.0	7.5	0.0	0.0				
Lane LOS	A	B	A			A						
Approach Delay (s)	9.4	14.7	1.9			0.8						
Approach LOS	A	B										
Intersection Summary												
Average Delay			8.3									
Intersection Capacity Utilization			42.1%	ICU Level of Service	A							
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 13: Touchstone Cir & Seeton Square/Merchant Plaza

04/03/2023



Movement	SBT	SBR
Lane Configurations	↑↑	
Traffic Volume (veh/h)	62	3
Future Volume (Veh/h)	62	3
Sign Control	Free	
Grade	2%	
Peak Hour Factor	0.91	0.91
Hourly flow rate (vph)	68	3
Pedestrians	1	
Lane Width (ft)	12.0	
Walking Speed (ft/s)	4.0	
Percent Blockage	0	
Right turn flare (veh)		
Median type	None	
Median storage (veh)		
Upstream signal (ft)		
pX, platoon unblocked		
vC, conflicting volume		
vC1, stage 1 conf vol		
vC2, stage 2 conf vol		
vCu, unblocked vol		
tC, single (s)		
tC, 2 stage (s)		
tF (s)		
p0 queue free %		
cM capacity (veh/h)		
Direction, Lane #		

HCM 6th TWSC
 13: Touchstone Cir & Seeton Square/Merchant Plaza

04/03/2023

Intersection														
Int Delay, s/veh	14.3													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↕			↕	↕	
Traffic Vol, veh/h	6	7	42	194	10	19	137	38	54	57	1	7	62	3
Future Vol, veh/h	6	7	42	194	10	19	137	38	54	57	1	7	62	3
Conflicting Peds, #/hr	0	0	6	2	0	1	0	4	0	3	0	1	0	4
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	-	None	-	-	-	None
Storage Length	-	-	-	-	-	-	-	0	-	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	-	0	-	-	-	0	-
Grade, %	-	-2	-	-	0	-	-	-	-1	-	-	-	2	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	100	91	91	91
Heavy Vehicles, %	0	0	3	1	0	0	0	0	1	2	2	0	1	0
Mvmt Flow	7	8	46	213	11	21	151	42	59	63	1	8	68	3

Major/Minor	Minor2		Minor1		Major1			Major2						
Conflicting Flow All	514	603	46	542	573	65	71	75	0	0	122	125	0	0
Stage 1	92	92	-	480	480	-	-	-	-	-	-	-	-	-
Stage 2	422	511	-	62	93	-	-	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.1	6.76	7.52	6.5	6.9	6.4	4.1	-	-	6.44	4.1	-	-
Critical Hdwy Stg 1	6.1	5.1	-	6.52	5.5	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.1	-	6.52	5.5	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.33	3.51	4	3.3	2.5	2.2	-	-	2.52	2.2	-	-
Pot Cap-1 Maneuver	474	445	1013	426	432	992	1301	1537	-	-	1198	1474	-	-
Stage 1	920	831	-	538	558	-	-	-	-	-	-	-	-	-
Stage 2	613	572	-	945	822	-	-	-	-	-	-	-	-	-
Platoon blocked, %									-	-			-	-
Mov Cap-1 Maneuver	399	375	1005	351	364	989	1299	1299	-	-	1429	1429	-	-
Mov Cap-2 Maneuver	399	375	-	351	364	-	-	-	-	-	-	-	-	-
Stage 1	781	824	-	457	474	-	-	-	-	-	-	-	-	-
Stage 2	499	486	-	883	815	-	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	10.4		31.5		5		0.8	
HCM LOS	B		D					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1299	-	-	729	372	1429	-
HCM Lane V/C Ratio	0.148	-	-	0.083	0.659	0.006	-
HCM Control Delay (s)	8.3	-	-	10.4	31.5	7.5	-
HCM Lane LOS	A	-	-	B	D	A	-
HCM 95th %tile Q(veh)	0.5	-	-	0.3	4.5	0	-

HCM Unsignalized Intersection Capacity Analysis

14: Touchstone Circle & Merchant Plaza/CVS

04/03/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	13	5	104	53	10	5	97	53	59	1	61	16
Future Volume (Veh/h)	13	5	104	53	10	5	97	53	59	1	61	16
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			-3%			3%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	14	6	116	59	11	6	108	59	66	1	68	18
Pedestrians		11			7			12			6	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh												
Upstream signal (ft)								350				
pX, platoon unblocked												
vC, conflicting volume	353	438	66	482	414	76	97			132		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	353	438	66	482	414	76	97			132		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	97	99	88	84	98	99	93			100		
cM capacity (veh/h)	524	471	972	378	486	966	1495			1457		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	136	76	138	96	35	52						
Volume Left	14	59	108	0	1	0						
Volume Right	116	6	0	66	0	18						
cSH	856	411	1495	1700	1457	1700						
Volume to Capacity	0.16	0.18	0.07	0.06	0.00	0.03						
Queue Length 95th (ft)	14	17	6	0	0	0						
Control Delay (s)	10.0	15.7	6.1	0.0	0.2	0.0						
Lane LOS	A	C	A		A							
Approach Delay (s)	10.0	15.7	3.6		0.1							
Approach LOS	A	C										
Intersection Summary												
Average Delay			6.4									
Intersection Capacity Utilization			30.0%		ICU Level of Service				A			
Analysis Period (min)			15									

Intersection												
Int Delay, s/veh	6.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	13	5	104	53	10	5	97	53	59	1	61	16
Future Vol, veh/h	13	5	104	53	10	5	97	53	59	1	61	16
Conflicting Peds, #/hr	3	0	12	4	0	6	8	0	7	3	0	11
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	-	-	-3	-	-	3	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0	0	2	0	0	0	0
Mvmt Flow	14	6	116	59	11	6	108	59	66	1	68	18

Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	347	438	66	366	414	76	97	0	0	132	0	0
Stage 1	90	90	-	315	315	-	-	-	-	-	-	-
Stage 2	257	348	-	51	99	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	588	515	991	570	532	976	1509	-	-	1466	-	-
Stage 1	913	824	-	676	659	-	-	-	-	-	-	-
Stage 2	731	638	-	962	817	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	532	467	972	461	483	965	1495	-	-	1457	-	-
Mov Cap-2 Maneuver	532	467	-	461	483	-	-	-	-	-	-	-
Stage 1	834	816	-	620	604	-	-	-	-	-	-	-
Stage 2	654	584	-	833	809	-	-	-	-	-	-	-

Approach	EB		WB			NB			SB		
HCM Control Delay, s	10		13.8			3.6			0.1		
HCM LOS	B		B								

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1495	-	-	858	483	1457	-
HCM Lane V/C Ratio	0.072	-	-	0.158	0.156	0.001	-
HCM Control Delay (s)	7.6	0.1	-	10	13.8	7.5	0
HCM Lane LOS	A	A	-	B	B	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0.6	0.6	0	-

HCM Unsignalized Intersection Capacity Analysis

15: Prince William Pkwy & Chinn Park Dr

04/03/2023



Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations								
Traffic Volume (veh/h)	0	65	1935	267	0	2129		
Future Volume (Veh/h)	0	65	1935	267	0	2129		
Sign Control	Stop		Free		Free			
Grade	0%		1%		0%			
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93		
Hourly flow rate (vph)	0	70	2081	287	0	2289		
Pedestrians	3				3			
Lane Width (ft)	12.0				12.0			
Walking Speed (ft/s)	4.0				4.0			
Percent Blockage	0				0			
Right turn flare (veh)								
Median type	None				None			
Median storage (veh)								
Upstream signal (ft)	990				666			
pX, platoon unblocked	0.85	0.78			0.78			
vC, conflicting volume	2990	670			2084			
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol	1250	0			992			
tC, single (s)	6.8	6.9			4.1			
tC, 2 stage (s)								
tF (s)	3.5	3.3			2.2			
p0 queue free %	100	92			100			
cM capacity (veh/h)	142	844			550			
Direction, Lane #	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3
Volume Total	70	595	595	595	584	763	763	763
Volume Left	0	0	0	0	0	0	0	0
Volume Right	70	0	0	0	287	0	0	0
cSH	844	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.08	0.35	0.35	0.35	0.34	0.45	0.45	0.45
Queue Length 95th (ft)	7	0	0	0	0	0	0	0
Control Delay (s)	9.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	A							
Approach Delay (s)	9.7	0.0			0.0			
Approach LOS	A							
Intersection Summary								
Average Delay			0.1					
Intersection Capacity Utilization			52.1%		ICU Level of Service		A	
Analysis Period (min)			15					

HCM Signalized Intersection Capacity Analysis

16: Prince William Pkwy & Kenwood Dr./

School Entrance

04/03/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations		↔			↔	↔			↔↔↔	↔		↔
Traffic Volume (vph)	51	1	104	12	1	8	2	111	2139	25	4	2
Future Volume (vph)	51	1	104	12	1	8	2	111	2139	25	4	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			1%				-2%			
Total Lost time (s)		6.6			5.8	8.8		8.8	8.8	5.8		8.8
Lane Util. Factor		1.00			1.00	1.00		1.00	0.91	1.00		1.00
Frbp, ped/bikes		0.99			1.00	0.99		1.00	1.00	0.97		1.00
Flpb, ped/bikes		1.00			1.00	1.00		1.00	1.00	1.00		1.00
Frt		0.91			1.00	0.85		1.00	1.00	0.85		1.00
Flt Protected		0.98			0.96	1.00		0.95	1.00	1.00		0.95
Satd. Flow (prot)		1646			1807	1390		1805	5136	1576		1796
Flt Permitted		0.98			0.96	1.00		0.05	1.00	1.00		0.05
Satd. Flow (perm)		1646			1807	1390		102	5136	1576		94
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	54	1	109	13	1	8	2	117	2252	26	4	2
RTOR Reduction (vph)	0	36	0	0	0	8	0	0	0	7	0	0
Lane Group Flow (vph)	0	128	0	0	14	0	0	119	2252	19	0	6
Confl. Peds. (#/hr)	2		3	2		6		1		6		4
Heavy Vehicles (%)	0%	0%	1%	0%	0%	14%	0%	1%	2%	0%	0%	0%
Turn Type	Split	NA		Split	NA	pm+ov		D.P+P	NA	pm+ov		D.P+P
Protected Phases	3	3		4	4	5		1	6	4		5
Permitted Phases						4		2		6		6
Actuated Green, G (s)		19.3			8.0	12.2		142.7	138.5	146.5		142.7
Effective Green, g (s)		19.3			8.0	12.2		142.7	138.5	146.5		142.7
Actuated g/C Ratio		0.10			0.04	0.06		0.71	0.69	0.73		0.71
Clearance Time (s)		6.6			5.8	8.8		8.8	8.8	5.8		8.8
Vehicle Extension (s)		3.0			3.0	3.0		3.0	3.0	3.0		3.0
Lane Grp Cap (vph)		158			72	84		186	3556	1154		102
v/s Ratio Prot		c0.08			c0.01	0.00		c0.04	c0.44	0.00		0.00
v/s Ratio Perm						0.00		0.41		0.01		0.04
v/c Ratio		0.81			0.19	0.01		0.64	0.63	0.02		0.06
Uniform Delay, d1		88.5			92.9	88.2		33.0	16.8	7.2		13.1
Progression Factor		1.00			1.00	1.00		1.00	1.00	1.00		0.96
Incremental Delay, d2		25.4			1.3	0.0		7.0	0.9	0.0		0.2
Delay (s)		113.9			94.2	88.2		40.1	17.7	7.2		12.8
Level of Service		F			F	F		D	B	A		B
Approach Delay (s)		113.9			92.0				18.7			
Approach LOS		F			F				B			

Intersection Summary

HCM 2000 Control Delay	22.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	200.0	Sum of lost time (s)	30.0
Intersection Capacity Utilization	92.0%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

16: Prince William Pkwy & Kenwood Dr./

School Entrance

04/03/2023



Movement	SBT	SBR
Lane Configurations	↑↑↑↑	↑
Traffic Volume (vph)	2022	101
Future Volume (vph)	2022	101
Ideal Flow (vphpl)	1900	1900
Grade (%)	1%	
Total Lost time (s)	8.8	6.6
Lane Util. Factor	0.91	1.00
Frpb, ped/bikes	1.00	0.98
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	5060	1568
Flt Permitted	1.00	1.00
Satd. Flow (perm)	5060	1568
Peak-hour factor, PHF	0.95	0.95
Adj. Flow (vph)	2128	106
RTOR Reduction (vph)	0	20
Lane Group Flow (vph)	2128	86
Confl. Peds. (#/hr)		3
Heavy Vehicles (%)	2%	0%
Turn Type	NA	pm+ov
Protected Phases	2	3
Permitted Phases		2
Actuated Green, G (s)	129.4	148.7
Effective Green, g (s)	129.4	148.7
Actuated g/C Ratio	0.65	0.74
Clearance Time (s)	8.8	6.6
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	3273	1165
v/s Ratio Prot	c0.42	0.01
v/s Ratio Perm		0.05
v/c Ratio	0.65	0.07
Uniform Delay, d1	21.5	7.0
Progression Factor	0.84	0.84
Incremental Delay, d2	0.8	0.0
Delay (s)	18.7	5.9
Level of Service	B	A
Approach Delay (s)	18.1	
Approach LOS	B	
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

17: Prince William Pkwy & Hillendale Road

04/03/2023



Movement	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Lane Configurations	↖↗	↗		↖↗	↑↑↑	↘	↑↑↑	↗
Traffic Volume (vph)	283	238	2	541	1994	0	1691	449
Future Volume (vph)	283	238	2	541	1994	0	1691	449
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)	2%				1%		2%	
Total Lost time (s)	6.5	8.0		8.0	5.5		5.5	6.5
Lane Util. Factor	0.97	1.00		0.97	0.91		0.91	1.00
Frbp, ped/bikes	1.00	0.99		1.00	1.00		1.00	0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00
Frtr	1.00	0.85		1.00	1.00		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		1.00	1.00
Satd. Flow (prot)	3432	1547		3414	5060		5034	1564
Flt Permitted	0.95	1.00		0.29	1.00		1.00	1.00
Satd. Flow (perm)	3432	1547		1027	5060		5034	1564
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	301	253	2	576	2121	0	1799	478
RTOR Reduction (vph)	0	7	0	0	0	0	0	102
Lane Group Flow (vph)	301	246	0	578	2121	0	1799	376
Confl. Peds. (#/hr)		6		3				3
Confl. Bikes (#/hr)		1						
Heavy Vehicles (%)	1%	2%	0%	2%	2%	0%	2%	1%
Turn Type	Prot	pm+ov		Prot	NA	Prot	NA	pm+ov
Protected Phases	4	5		5	2	1	6	4
Permitted Phases		4						6
Actuated Green, G (s)	28.9	42.9		14.0	119.1		97.1	126.0
Effective Green, g (s)	28.9	42.9		14.0	119.1		97.1	126.0
Actuated g/C Ratio	0.18	0.27		0.09	0.74		0.61	0.79
Clearance Time (s)	6.5	8.0		8.0	5.5		5.5	6.5
Vehicle Extension (s)	4.0	4.0		4.0	4.0		4.0	4.0
Lane Grp Cap (vph)	619	414		89	3766		3055	1231
v/s Ratio Prot	0.09	c0.05			0.42		c0.36	0.06
v/s Ratio Perm		0.11		c0.56				0.19
v/c Ratio	0.49	0.60		6.49	0.56		0.59	0.31
Uniform Delay, d1	58.9	51.0		73.0	9.0		19.2	4.8
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2	0.8	2.7		2496.2	0.6		0.8	0.2
Delay (s)	59.7	53.7		2569.2	9.6		20.1	5.0
Level of Service	E	D		F	A		C	A
Approach Delay (s)	56.9				557.7		16.9	
Approach LOS	E				F		B	

Intersection Summary

HCM 2000 Control Delay	284.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.17		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	81.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 18: Library/Fitness Ctr/Troupe Street & Chinn Park Dr

04/03/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔		↔		↔	↔		↔	↔	
Traffic Volume (veh/h)	120	31	57	1	6	36	13	94	1	47	79	1
Future Volume (Veh/h)	120	31	57	1	6	36	13	94	1	47	79	1
Sign Control		Free			Free			Stop			Stop	
Grade		1%			-2%			-2%			3%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	143	37	68	1	7	43	15	112	1	56	94	1
Pedestrians		3			7			3			7	
Lane Width (ft)		12.0			10.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		0			0			0			1	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	57			108			408	385	47	424	432	38
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	57			108			408	385	47	424	432	38
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	91			100			97	77	100	86	80	100
cM capacity (veh/h)	1532			1492			433	496	1020	410	461	1030
Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	SB 1	SB 2					
Volume Total	180	68	51	15	113	56	95					
Volume Left	143	0	1	15	0	56	0					
Volume Right	0	68	43	0	1	0	1					
cSH	1532	1700	1492	433	498	410	464					
Volume to Capacity	0.09	0.04	0.00	0.03	0.23	0.14	0.20					
Queue Length 95th (ft)	8	0	0	3	22	12	19					
Control Delay (s)	6.2	0.0	0.2	13.6	14.3	15.2	14.7					
Lane LOS	A		A	B	B	C	B					
Approach Delay (s)	4.5		0.2	14.2		14.9						
Approach LOS				B		B						
Intersection Summary												
Average Delay			9.0									
Intersection Capacity Utilization			31.3%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM 6th TWSC
 18: Library/Fitness Ctr/Troupe Street & Chinn Park Dr

04/03/2023

Intersection												
Int Delay, s/veh	9.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔		↔		↔	↔		↔	↔	
Traffic Vol, veh/h	120	31	57	1	6	36	13	94	1	47	79	1
Future Vol, veh/h	120	31	57	1	6	36	13	94	1	47	79	1
Conflicting Peds, #/hr	1	0	3	1	0	7	2	0	7	6	0	3
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	0	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	1	-	-	-2	-	-	-2	-	-	3	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	3	0	0	0	0	6	0	0	0	0	4	0
Mvmt Flow	143	37	68	1	7	43	15	112	1	56	94	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	57	0	0	108	0	0	407	385	47	459	432	39
Stage 1	-	-	-	-	-	-	326	326	-	38	38	-
Stage 2	-	-	-	-	-	-	81	59	-	421	394	-
Critical Hdwy	4.13	-	-	4.1	-	-	6.7	6.1	6	7.7	7.14	6.5
Critical Hdwy Stg 1	-	-	-	-	-	-	5.7	5.1	-	6.7	6.14	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.7	5.1	-	6.7	6.14	-
Follow-up Hdwy	2.227	-	-	2.2	-	-	3.5	4	3.3	3.5	4.036	3.3
Pot Cap-1 Maneuver	1541	-	-	1495	-	-	584	576	1031	478	478	1035
Stage 1	-	-	-	-	-	-	716	676	-	976	854	-
Stage 2	-	-	-	-	-	-	941	855	-	573	564	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1532	-	-	1491	-	-	446	514	1023	364	426	1026
Mov Cap-2 Maneuver	-	-	-	-	-	-	446	514	-	364	426	-
Stage 1	-	-	-	-	-	-	643	607	-	874	848	-
Stage 2	-	-	-	-	-	-	833	849	-	418	506	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	4.4			0.2			13.8			16.1		
HCM LOS							B			C		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	446	517	1532	-	-	1491	-	-	364	429
HCM Lane V/C Ratio	0.035	0.219	0.093	-	-	0.001	-	-	0.154	0.222
HCM Control Delay (s)	13.4	13.9	7.6	0	-	7.4	0	-	16.7	15.8
HCM Lane LOS	B	B	A	A	-	A	A	-	C	C
HCM 95th %tile Q(veh)	0.1	0.8	0.3	-	-	0	-	-	0.5	0.8

Appendix G: Traffic Growth Information Provided by Stakeholders



MEMORANDUM

TO: Rami Bazlamit (Prince William County)
FROM: Katie Flood (RDA)
SUBJECT: Route 294 (Prince William Parkway) & Old Bridge Road Growth Rates
DATE: Tuesday, October 11, 2022

The Prince William County traffic demand models for 2019 and 2040 were utilized to develop traffic growth rates for Route 294 (Prince William Parkway) and Old Bridge Road. Utilizing the models, rates as high as 5.5% were calculated. Following discussions with Prince William County, it was determined the COG model produced growth rates that would yield future volumes above the project area's capacity, and modified rates should be utilized. Therefore, the VDOT approved growth rates for Minnieville Road with Prince William Parkway Interchange Alternative Report (IAR) and growth rates the Prince William Parkway/Old Bridge Road STARS Report were used to develop the following rates.

- A 1% annual growth rate will be applied to the existing intersection volumes from 2022 to the construction year of 2026.
- The 1% annual growth rate will continue to be applied to grown volumes from 2026 to 2030.
- A 0.5% annual growth rate will be applied to the further grown volumes from 2030 to the future year of 2045.
- All movements associated with Touchstone Circle will be grown at 0% as the area surrounding the road is considered built out. As noted in the STARS report, the AADT on Touchstone Circle has remained stagnant for all reviewed years.



Appendix H: Synchro™ Report for Opening Year (2026)

Intersection															
Int Delay, s/veh	47.6														
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↔ ↑↑↑				↔ ↑↑↑			↔		↔				
Traffic Vol, veh/h	2	23	2584	0	3	8	1929	60	0	0	1	33	0	11	
Future Vol, veh/h	2	23	2584	0	3	8	1929	60	0	0	1	33	0	11	
Conflicting Peds, #/hr	0	2	0	1	1	0	0	2	0	0	1	0	0	2	
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop	
RT Channelized	-	-	-	None	-	-	-	None	-	-	None	-	-	None	
Storage Length	-	465	-	-	-	450	-	450	-	-	-	-	-	-	
Veh in Median Storage, #	-	-	0	-	-	-	0	-	-	0	-	-	0	-	
Grade, %	-	-	1	-	-	-	-1	-	-	-1	-	-	5	-	
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98	98	98	
Heavy Vehicles, %	0	5	6	0	0	0	6	4	0	0	0	0	0	0	
Mvmt Flow	2	23	2637	0	3	8	1968	61	0	0	1	34	0	11	

Major/Minor	Major1			Major2			Minor1			Minor2				
Conflicting Flow All	1437	2031	0	0	1925	2638	0	0	3499	4741	1321	3098	4680	988
Stage 1	-	-	-	-	-	-	-	-	2688	2688	-	1992	1992	-
Stage 2	-	-	-	-	-	-	-	-	811	2053	-	1106	2688	-
Critical Hdwy	5.6	5.4	-	-	5.6	5.3	-	-	6.2	6.3	7	7.4	7.5	7.6
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	7.1	5.3	-	8.3	6.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	6.5	5.3	-	7.7	6.5	-
Follow-up Hdwy	2.3	3.15	-	-	2.3	3.1	-	-	3.8	4	3.9	3.8	4	3.9
Pot Cap-1 Maneuver	256	116	-	-	136	61	-	-	9	1	133	~6	0	187
Stage 1	-	-	-	-	-	-	-	-	14	54	-	~23	61	-
Stage 2	-	-	-	-	-	-	-	-	326	111	-	151	22	-
Platoon blocked, %			-	-			-	-						
Mov Cap-1 Maneuver	121	121	-	-	72	72	-	-	6	1	133	~4	0	186
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	6	1	-	~4	0	-
Stage 1	-	-	-	-	-	-	-	-	11	42	-	~18	52	-
Stage 2	-	-	-	-	-	-	-	-	259	94	-	118	17	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0.4	32.3	\$ 4996.9
HCM LOS			D	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	133	121	-	-	72	-	-	5
HCM Lane V/C Ratio	0.008	0.211	-	-	0.156	-	-	8.98
HCM Control Delay (s)	32.3	42.5	-	-	64.3	-	-	\$ 4996.9
HCM Lane LOS	D	E	-	-	F	-	-	F
HCM 95th %tile Q(veh)	0	0.8	-	-	0.5	-	-	7.3

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM Signalized Intersection Capacity Analysis

2: Ridgewood Center Drive/Laurel Hills Drive & Prince William Pkwy

04/03/2023



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations		↔	↑↑↑			↔	↑↑↑			↔		
Traffic Volume (vph)	4	0	2573	44	9	86	1960	1	37	0	10	5
Future Volume (vph)	4	0	2573	44	9	86	1960	1	37	0	10	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	10
Grade (%)			0%				0%			0%		
Total Lost time (s)		6.5	6.0			6.5	6.0			6.5		
Lane Util. Factor		1.00	0.91			1.00	0.91			1.00		
Frbp, ped/bikes		1.00	1.00			1.00	1.00			1.00		
Flpb, ped/bikes		0.99	1.00			1.00	1.00			1.00		
Frt		1.00	1.00			1.00	1.00			0.97		
Flt Protected		0.95	1.00			0.95	1.00			0.96		
Satd. Flow (prot)		1755	4930			1805	4937			1769		
Flt Permitted		1.00	1.00			0.21	1.00			0.96		
Satd. Flow (perm)		1847	4930			390	4937			1769		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	4	0	2797	48	10	93	2130	1	40	0	11	5
RTOR Reduction (vph)	0	0	1	0	0	0	0	0	0	49	0	0
Lane Group Flow (vph)	0	4	2844	0	0	103	2131	0	0	2	0	0
Confl. Peds. (#/hr)		8		1		1		10			3	2
Confl. Bikes (#/hr)				2								
Heavy Vehicles (%)	2%	0%	5%	0%	0%	0%	5%	100%	0%	0%	0%	0%
Turn Type	custom	Prot	NA		custom	Prot	NA		Split	NA		Split
Protected Phases		5	2			1	6		4	4		3
Permitted Phases	5				1							
Actuated Green, G (s)		1.6	79.4			19.5	97.3			4.6		
Effective Green, g (s)		1.6	79.4			19.5	97.3			4.6		
Actuated g/C Ratio		0.01	0.61			0.15	0.75			0.04		
Clearance Time (s)		6.5	6.0			6.5	6.0			6.5		
Vehicle Extension (s)		3.0	3.5			3.0	3.5			3.0		
Lane Grp Cap (vph)		22	3011			58	3695			62		
v/s Ratio Prot			c0.58				0.43			c0.00		
v/s Ratio Perm		0.00				c0.26						
v/c Ratio		0.18	0.94			1.78	0.58			0.03		
Uniform Delay, d1		63.6	23.3			55.2	7.2			60.5		
Progression Factor		1.00	1.00			1.11	0.69			1.00		
Incremental Delay, d2		4.0	7.8			389.2	0.4			0.2		
Delay (s)		67.5	31.0			450.4	5.4			60.7		
Level of Service		E	C			F	A			E		
Approach Delay (s)			31.1				25.9			60.7		
Approach LOS			C				C			E		
Intersection Summary												
HCM 2000 Control Delay			29.2									C
HCM 2000 Volume to Capacity ratio			1.05									
Actuated Cycle Length (s)			130.0							25.5		
Intersection Capacity Utilization			78.4%									D
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
 2: Ridgewood Center Drive/Laurel Hills Drive & Prince William Pkwy

04/03/2023



Movement	SBT	SBR
Lane Configurations	↕	
Traffic Volume (vph)	0	1
Future Volume (vph)	0	1
Ideal Flow (vphpl)	1900	1900
Lane Width	10	10
Grade (%)	5%	
Total Lost time (s)	6.5	
Lane Util. Factor	1.00	
Frbp, ped/bikes	0.95	
Flpb, ped/bikes	1.00	
Frt	0.98	
Flt Protected	0.96	
Satd. Flow (prot)	1319	
Flt Permitted	0.96	
Satd. Flow (perm)	1319	
Peak-hour factor, PHF	0.92	0.92
Adj. Flow (vph)	0	1
RTOR Reduction (vph)	6	0
Lane Group Flow (vph)	0	0
Confl. Peds. (#/hr)	8	
Confl. Bikes (#/hr)		
Heavy Vehicles (%)	0%	100%
Turn Type	NA	
Protected Phases	3	
Permitted Phases		
Actuated Green, G (s)	1.0	
Effective Green, g (s)	1.0	
Actuated g/C Ratio	0.01	
Clearance Time (s)	6.5	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	10	
v/s Ratio Prot	c0.00	
v/s Ratio Perm		
v/c Ratio	0.00	
Uniform Delay, d1	64.0	
Progression Factor	1.00	
Incremental Delay, d2	0.2	
Delay (s)	64.2	
Level of Service	E	
Approach Delay (s)	64.2	
Approach LOS	E	

Intersection Summary

HCM Unsignalized Intersection Capacity Analysis

3: Prince William Pkwy & Seeton Square

04/03/2023



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		↑↑↑	↑↑↑			↗	
Traffic Volume (veh/h)	0	2640	2027	68	0	42	
Future Volume (Veh/h)	0	2640	2027	68	0	42	
Sign Control		Free	Free		Stop		
Grade		0%	0%		4%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	0	2870	2203	74	0	46	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		None	None				
Median storage (veh)							
Upstream signal (ft)		1140	342				
pX, platoon unblocked	0.65				0.60	0.65	
vC, conflicting volume	2277				3197	771	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1096				0	0	
tC, single (s)	4.1				6.8	6.9	
tC, 2 stage (s)							
tF (s)	2.2				3.5	3.3	
p0 queue free %	100				100	94	
cM capacity (veh/h)	421				616	712	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	957	957	957	881	881	515	46
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	74	46
cSH	1700	1700	1700	1700	1700	1700	712
Volume to Capacity	0.56	0.56	0.56	0.52	0.52	0.30	0.06
Queue Length 95th (ft)	0	0	0	0	0	0	5
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	10.4
Lane LOS							B
Approach Delay (s)	0.0			0.0			10.4
Approach LOS							B
Intersection Summary							
Average Delay			0.1				
Intersection Capacity Utilization			54.3%	ICU Level of Service		A	
Analysis Period (min)			15				

HCM 6th TWSC
3: Prince William Pkwy & Seeton Square

04/03/2023

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑			↑
Traffic Vol, veh/h	0	2640	2027	68	0	42
Future Vol, veh/h	0	2640	2027	68	0	42
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	4	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	4	5	3	0	0
Mvmt Flow	0	2870	2203	74	0	46

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	-	0	- 0 - 1139
Stage 1	-	-	- - -
Stage 2	-	-	- - -
Critical Hdwy	-	-	- - 7.5
Critical Hdwy Stg 1	-	-	- - -
Critical Hdwy Stg 2	-	-	- - -
Follow-up Hdwy	-	-	- - 3.9
Pot Cap-1 Maneuver	0	-	- 0 150
Stage 1	0	-	- 0 -
Stage 2	0	-	- 0 -
Platoon blocked, %	-	-	- - -
Mov Cap-1 Maneuver	-	-	- - 150
Mov Cap-2 Maneuver	-	-	- - -
Stage 1	-	-	- - -
Stage 2	-	-	- - -

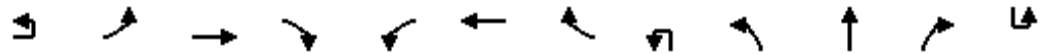
Approach	EB	WB	SB
HCM Control Delay, s	0	0	39.2
HCM LOS			E

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	150
HCM Lane V/C Ratio	-	-	-	0.304
HCM Control Delay (s)	-	-	-	39.2
HCM Lane LOS	-	-	-	E
HCM 95th %tile Q(veh)	-	-	-	1.2

HCM Signalized Intersection Capacity Analysis

4: Prince William Pkwy & Old Bridge Road & Touchstone Cir

04/03/2023



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU
Lane Configurations		↔	↕	↗	↖	↕			↔	↕	↗	
Traffic Volume (vph)	20	114	927	1573	408	921	29	6	1051	97	279	1
Future Volume (vph)	20	114	927	1573	408	921	29	6	1051	97	279	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)			0%			2%				1%		
Total Lost time (s)		7.9	5.7	4.0	7.5	5.7			9.9	9.9	7.5	
Lane Util. Factor		1.00	0.95	1.00	0.97	0.91			0.91	0.91	1.00	
Frbp, ped/bikes		1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00	
Frt		1.00	1.00	0.85	1.00	1.00			1.00	1.00	0.85	
Flt Protected		0.95	1.00	1.00	0.95	1.00			0.95	0.96	1.00	
Satd. Flow (prot)		1789	3406	1553	3333	4873			3085	1564	1545	
Flt Permitted		0.44	1.00	1.00	0.95	1.00			0.68	0.96	1.00	
Satd. Flow (perm)		828	3406	1553	3333	4873			2214	1564	1545	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	21	119	966	1639	425	959	30	6	1095	101	291	1
RTOR Reduction (vph)	0	0	0	0	0	3	0	0	0	0	48	0
Lane Group Flow (vph)	0	140	966	1639	425	986	0	0	794	408	243	0
Confl. Peds. (#/hr)		2					2					
Heavy Vehicles (%)	0%	1%	6%	4%	4%	5%	0%	0%	6%	6%	4%	0%
Turn Type	custom	Prot	NA	Free	Prot	NA		Perm	Split	NA	pm+ov	Perm
Protected Phases		5	2		1	6			4	4	1	
Permitted Phases	5!			Free				4			4	3
Actuated Green, G (s)		9.1	37.3	130.0	15.9	43.7			41.1	41.1	57.0	
Effective Green, g (s)		9.1	37.3	130.0	15.9	43.7			41.1	41.1	57.0	
Actuated g/C Ratio		0.07	0.29	1.00	0.12	0.34			0.32	0.32	0.44	
Clearance Time (s)		7.9	5.7		7.5	5.7			9.9	9.9	7.5	
Vehicle Extension (s)		3.0	2.0		3.0	2.0			3.0	3.0	3.0	
Lane Grp Cap (vph)		57	977	1553	407	1638			699	494	677	
v/s Ratio Prot			0.28		0.13	0.20				0.26	0.04	
v/s Ratio Perm		c0.17		c1.06					0.36		0.11	
v/c Ratio		2.46	0.99	1.06	1.04	0.60			1.14	0.83	0.36	
Uniform Delay, d1		60.5	46.1	65.0	57.0	35.9			44.5	41.1	24.3	
Progression Factor		1.32	0.85	1.00	1.20	0.65			0.96	0.92	1.82	
Incremental Delay, d2		680.7	17.8	33.2	52.0	1.3			76.4	9.7	0.3	
Delay (s)		760.3	57.2	98.2	120.6	24.7			119.0	47.7	44.5	
Level of Service		F	E	F	F	C			F	D	D	
Approach Delay (s)			117.5			53.5				85.0		
Approach LOS			F			D				F		

Intersection Summary

HCM 2000 Control Delay	92.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.43		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	31.1
Intersection Capacity Utilization	96.9%	ICU Level of Service	F
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

4: Prince William Pkwy & Old Bridge Road & Touchstone Cir

04/03/2023



Movement	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗
Traffic Volume (vph)	28	107	98
Future Volume (vph)	28	107	98
Ideal Flow (vphpl)	1900	1900	1900
Grade (%)		5%	
Total Lost time (s)	7.6	7.6	7.9
Lane Util. Factor	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00
Frt	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00
Satd. Flow (prot)	1760	3451	1549
Flt Permitted	0.80	1.00	1.00
Satd. Flow (perm)	1482	3451	1549
Peak-hour factor, PHF	0.96	0.96	0.96
Adj. Flow (vph)	29	111	102
RTOR Reduction (vph)	0	0	91
Lane Group Flow (vph)	30	111	11
Confl. Peds. (#/hr)			2
Heavy Vehicles (%)	0%	2%	1%
Turn Type	Split	NA	pm+ov
Protected Phases	3	3	5!
Permitted Phases			3
Actuated Green, G (s)	5.0	5.0	14.1
Effective Green, g (s)	5.0	5.0	14.1
Actuated g/C Ratio	0.04	0.04	0.11
Clearance Time (s)	7.6	7.6	7.9
Vehicle Extension (s)	3.0	3.0	3.0
Lane Grp Cap (vph)	57	132	168
v/s Ratio Prot		0.03	0.00
v/s Ratio Perm	0.02		0.00
v/c Ratio	0.53	0.84	0.07
Uniform Delay, d1	61.3	62.1	52.0
Progression Factor	0.98	0.97	1.12
Incremental Delay, d2	8.2	34.8	0.2
Delay (s)	68.2	95.2	58.6
Level of Service	E	F	E
Approach Delay (s)		76.5	
Approach LOS		E	
Intersection Summary			

HCM Unsignalized Intersection Capacity Analysis

5: Tribe at the Glen & Old Bridge Road

04/03/2023



Movement	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations	↑↑	↑		↑↑↑		↑	
Traffic Volume (veh/h)	1178	57	0	1359	0	15	
Future Volume (Veh/h)	1178	57	0	1359	0	15	
Sign Control	Free			Free	Stop		
Grade	-3%			2%	0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	1280	62	0	1477	0	16	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type	None			None			
Median storage (veh)							
Upstream signal (ft)	371			392			
pX, platoon unblocked	0.72			0.85	0.72		
vC, conflicting volume	1280			1772	640		
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	622			0	0		
tC, single (s)	4.1			6.8	6.9		
tC, 2 stage (s)							
tF (s)	2.2			3.5	3.3		
p0 queue free %	100			100	98		
cM capacity (veh/h)	701			870	789		
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1
Volume Total	640	640	62	492	492	492	16
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	62	0	0	0	16
cSH	1700	1700	1700	1700	1700	1700	789
Volume to Capacity	0.38	0.38	0.04	0.29	0.29	0.29	0.02
Queue Length 95th (ft)	0	0	0	0	0	0	2
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	9.7
Lane LOS							A
Approach Delay (s)	0.0			0.0			9.7
Approach LOS							A
Intersection Summary							
Average Delay	0.1						
Intersection Capacity Utilization	42.6%			ICU Level of Service			A
Analysis Period (min)	15						

HCM 6th TWSC
5: Tribe at the Glen & Old Bridge Road

04/03/2023

Intersection						
Int Delay, s/veh	0.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑		↑↑↑		↑
Traffic Vol, veh/h	1178	57	0	1359	0	15
Future Vol, veh/h	1178	57	0	1359	0	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Free	-	None	-	Stop
Storage Length	-	175	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	-3	-	-	2	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	6	0	0	4	0	0
Mvmt Flow	1280	62	0	1477	0	16

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	-	-	-	640
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	3.3
Pot Cap-1 Maneuver	-	0	0	-	423
Stage 1	-	0	0	-	-
Stage 2	-	0	0	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	423
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	13.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	WBT
Capacity (veh/h)	423	-	-
HCM Lane V/C Ratio	0.039	-	-
HCM Control Delay (s)	13.9	-	-
HCM Lane LOS	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-

HCM Signalized Intersection Capacity Analysis

6: Troupe Street/Glen Shopping Ctr & Old Bridge Road

04/03/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑	↗		↘	↗		↘	↗
Traffic Volume (vph)	17	1122	54	89	1247	80	95	8	175	47	12	16
Future Volume (vph)	17	1122	54	89	1247	80	95	8	175	47	12	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			7%			-1%			0%	
Total Lost time (s)	7.0	6.5	8.0	7.0	6.0	7.0		8.0	8.0		7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.97		1.00	0.99		1.00	0.95
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.96	1.00		0.96	1.00
Satd. Flow (prot)	1823	3440	1549	1598	3350	1494		1745	1442		1827	1540
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.96	1.00		0.96	1.00
Satd. Flow (perm)	1823	3440	1549	1598	3350	1494		1745	1442		1827	1540
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	18	1220	59	97	1355	87	103	9	190	51	13	17
RTOR Reduction (vph)	0	0	24	0	0	30	0	0	170	0	0	16
Lane Group Flow (vph)	18	1220	35	97	1355	57	0	112	20	0	64	1
Confl. Peds. (#/hr)			3			6	3		2	2		7
Heavy Vehicles (%)	0%	6%	4%	9%	4%	1%	5%	0%	11%	0%	0%	0%
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Split	NA	Perm	Split	NA	Perm
Protected Phases	5	2	4	1	6	3	4	4		3	3	
Permitted Phases			2			6			4			3
Actuated Green, G (s)	3.3	64.2	78.1	15.7	77.1	84.8		13.9	13.9		7.7	7.7
Effective Green, g (s)	3.3	64.2	78.1	15.7	77.1	84.8		13.9	13.9		7.7	7.7
Actuated g/C Ratio	0.03	0.49	0.60	0.12	0.59	0.65		0.11	0.11		0.06	0.06
Clearance Time (s)	7.0	6.5	8.0	7.0	6.0	7.0		8.0	8.0		7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	46	1698	930	192	1986	974		186	154		108	91
v/s Ratio Prot	0.01	c0.35	0.00	c0.06	c0.40	0.00		c0.06			c0.04	
v/s Ratio Perm			0.02			0.03			0.01			0.00
v/c Ratio	0.39	0.72	0.04	0.51	0.68	0.06		0.60	0.13		0.59	0.01
Uniform Delay, d1	62.4	25.8	10.6	53.5	18.1	8.2		55.4	52.6		59.6	57.6
Progression Factor	1.01	0.44	0.13	0.97	0.92	2.84		0.85	0.59		1.00	1.00
Incremental Delay, d2	3.2	1.6	0.0	1.9	1.7	0.0		5.4	0.4		8.4	0.0
Delay (s)	66.0	12.9	1.3	53.6	18.3	23.2		52.3	31.4		68.1	57.6
Level of Service	E	B	A	D	B	C		D	C		E	E
Approach Delay (s)		13.1			20.8			39.2			65.9	
Approach LOS		B			C			D			E	

Intersection Summary

HCM 2000 Control Delay	20.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	28.5
Intersection Capacity Utilization	71.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

7: Titania Way/Touchstone Circle & Old Bridge Road

04/03/2023



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	3	11	1317	14	9	12	1374	51	18	1	16	56
Future Volume (vph)	3	11	1317	14	9	12	1374	51	18	1	16	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)			4%				-7%			-3%		
Total Lost time (s)		8.5	8.5	8.5		8.5	8.5	8.5		7.5		
Lane Util. Factor		1.00	0.95	1.00		1.00	0.95	1.00		1.00		
Frbp, ped/bikes		1.00	1.00	0.98		1.00	1.00	0.98		0.99		
Flpb, ped/bikes		1.00	1.00	1.00		1.00	1.00	1.00		1.00		
Frt		1.00	1.00	0.85		1.00	1.00	0.85		0.94		
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00		0.97		
Satd. Flow (prot)		1662	3338	1432		1868	3593	1576		1699		
Flt Permitted		0.15	1.00	1.00		0.16	1.00	1.00		0.81		
Satd. Flow (perm)		263	3338	1432		311	3593	1576		1407		
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	3	12	1386	15	9	13	1446	54	19	1	17	59
RTOR Reduction (vph)	0	0	0	4	0	0	0	15	0	16	0	0
Lane Group Flow (vph)	0	15	1386	11	0	22	1446	39	0	21	0	0
Confl. Peds. (#/hr)		4		1		1		6			3	2
Heavy Vehicles (%)	0%	8%	6%	8%	0%	0%	4%	4%	6%	0%	0%	4%
Turn Type	custom	pm+pt	NA	Perm	custom	pm+pt	NA	Perm	Perm	NA		Perm
Protected Phases		1	6			5	2			4		
Permitted Phases	1	6		6	5	2		2	4			8
Actuated Green, G (s)		95.2	93.1	93.1		97.2	94.1	94.1		9.3		
Effective Green, g (s)		95.2	93.1	93.1		97.2	94.1	94.1		9.3		
Actuated g/C Ratio		0.73	0.72	0.72		0.75	0.72	0.72		0.07		
Clearance Time (s)		8.5	8.5	8.5		8.5	8.5	8.5		7.5		
Vehicle Extension (s)		2.0	8.0	8.0		2.0	8.0	8.0		2.0		
Lane Grp Cap (vph)		215	2390	1025		269	2600	1140		100		
v/s Ratio Prot		0.00	c0.42			c0.00	0.40					
v/s Ratio Perm		0.05		0.01		0.06		0.02		0.02		
v/c Ratio		0.07	0.58	0.01		0.08	0.56	0.03		0.21		
Uniform Delay, d1		5.8	9.0	5.3		5.5	8.3	5.1		56.9		
Progression Factor		0.25	0.14	1.00		1.58	1.38	1.00		1.00		
Incremental Delay, d2		0.0	0.8	0.0		0.0	0.7	0.0		0.4		
Delay (s)		1.5	2.1	5.3		8.7	12.2	5.1		57.3		
Level of Service		A	A	A		A	B	A		E		
Approach Delay (s)			2.1				11.9			57.3		
Approach LOS			A				B			E		
Intersection Summary												
HCM 2000 Control Delay			9.3				HCM 2000 Level of Service			A		
HCM 2000 Volume to Capacity ratio			0.57									
Actuated Cycle Length (s)			130.0				Sum of lost time (s)			24.5		
Intersection Capacity Utilization			71.4%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
 7: Titania Way/Touchstone Circle & Old Bridge Road

04/03/2023



Movement	SBT	SBR
Lane Configurations	↔	↗
Traffic Volume (vph)	0	22
Future Volume (vph)	0	22
Ideal Flow (vphpl)	1900	1900
Grade (%)	2%	
Total Lost time (s)	7.5	7.5
Lane Util. Factor	1.00	1.00
Frpb, ped/bikes	1.00	0.98
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	0.95	1.00
Satd. Flow (prot)	1715	1483
Flt Permitted	0.73	1.00
Satd. Flow (perm)	1323	1483
Peak-hour factor, PHF	0.95	0.95
Adj. Flow (vph)	0	23
RTOR Reduction (vph)	0	21
Lane Group Flow (vph)	59	2
Confl. Peds. (#/hr)		4
Heavy Vehicles (%)	0%	6%
Turn Type	NA	Perm
Protected Phases	8	
Permitted Phases		8
Actuated Green, G (s)	9.3	9.3
Effective Green, g (s)	9.3	9.3
Actuated g/C Ratio	0.07	0.07
Clearance Time (s)	7.5	7.5
Vehicle Extension (s)	2.0	2.0
Lane Grp Cap (vph)	94	106
v/s Ratio Prot		
v/s Ratio Perm	c0.04	0.00
v/c Ratio	0.63	0.02
Uniform Delay, d1	58.7	56.1
Progression Factor	1.00	1.00
Incremental Delay, d2	9.1	0.0
Delay (s)	67.7	56.1
Level of Service	E	E
Approach Delay (s)	64.5	
Approach LOS	E	
Intersection Summary		

HCM Unsignalized Intersection Capacity Analysis

8: Old Bridge Road & Brussels Way

04/03/2023



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↗		↗
Traffic Volume (veh/h)	0	1399	1437	10	0	11
Future Volume (Veh/h)	0	1399	1437	10	0	11
Sign Control		Free	Free		Stop	
Grade		7%	-1%		1%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1521	1562	11	0	12
Pedestrians		7			7	
Lane Width (ft)		12.0			12.0	
Walking Speed (ft/s)		4.0			4.0	
Percent Blockage		1			1	
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)		685	1088			
pX, platoon unblocked	0.74				0.84	0.74
vC, conflicting volume	1580				2330	795
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1074				1093	10
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	98
cM capacity (veh/h)	481				177	784
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	SB 1
Volume Total	760	760	781	781	11	12
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	11	12
cSH	1700	1700	1700	1700	1700	784
Volume to Capacity	0.45	0.45	0.46	0.46	0.01	0.02
Queue Length 95th (ft)	0	0	0	0	0	1
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	9.7
Lane LOS						A
Approach Delay (s)	0.0		0.0			9.7
Approach LOS						A
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			51.8%		ICU Level of Service	A
Analysis Period (min)			15			

HCM 6th TWSC
8: Old Bridge Road & Brussels Way

04/03/2023

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↑		↑
Traffic Vol, veh/h	0	1399	1437	10	0	11
Future Vol, veh/h	0	1399	1437	10	0	11
Conflicting Peds, #/hr	7	0	0	7	0	7
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	225	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	7	-1	-	1	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	6	4	0	0	0
Mvmt Flow	0	1521	1562	11	0	12

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	-	0	-	0	795
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	-	-	-	7
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0 327
Stage 1	0	-	-	-	0 -
Stage 2	0	-	-	-	0 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	323
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	16.6
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	323
HCM Lane V/C Ratio	-	-	-	0.037
HCM Control Delay (s)	-	-	-	16.6
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0.1

HCM Unsignalized Intersection Capacity Analysis

9: Old Bridge Ln/Church Entr & Old Bridge Road

04/03/2023



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations		↔	↕↕	↗		↔	↕↕	↗		↕↔		↗
Traffic Volume (veh/h)	3	3	1376	18	6	10	1409	3	35	0	29	1
Future Volume (Veh/h)	3	3	1376	18	6	10	1409	3	35	0	29	1
Sign Control			Free				Free			Stop		
Grade			1%				3%			0%		
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	0	3	1419	19	0	10	1453	3	36	0	30	1
Pedestrians			5				4			4		
Lane Width (ft)			12.0				12.0			12.0		
Walking Speed (ft/s)			4.0				4.0			4.0		
Percent Blockage			0				0			0		
Right turn flare (veh)												
Median type			None				None					
Median storage (veh)												
Upstream signal (ft)			1188				585					
pX, platoon unblocked	0.00	0.73			0.00	0.80			0.83	0.83	0.80	0.83
vC, conflicting volume	0	1461			0	1442			2180	2910	718	2228
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0	906			0	1058			949	1824	154	1006
tC, single (s)	0.0	4.1			0.0	4.2			7.5	6.5	6.9	7.5
tC, 2 stage (s)												
tF (s)	0.0	2.2			0.0	2.3			3.5	4.0	3.3	3.5
p0 queue free %	0	99			0	98			80	100	96	99
cM capacity (veh/h)	0	556			0	500			176	63	693	153
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1	SB 2	
Volume Total	3	710	710	19	10	726	726	3	66	1	0	
Volume Left	3	0	0	0	10	0	0	0	36	1	0	
Volume Right	0	0	0	19	0	0	0	3	30	0	0	
cSH	556	1700	1700	1700	500	1700	1700	1700	266	153	1700	
Volume to Capacity	0.01	0.42	0.42	0.01	0.02	0.43	0.43	0.00	0.25	0.01	0.00	
Queue Length 95th (ft)	0	0	0	0	2	0	0	0	24	0	0	
Control Delay (s)	11.5	0.0	0.0	0.0	12.3	0.0	0.0	0.0	22.9	28.6	0.0	
Lane LOS	B				B				C	D	A	
Approach Delay (s)	0.0				0.1				22.9	28.6		
Approach LOS									C	D		
Intersection Summary												
Average Delay			0.6									
Intersection Capacity Utilization			58.9%		ICU Level of Service				B			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 9: Old Bridge Ln/Church Entr & Old Bridge Road

04/03/2023



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	0	0
Future Volume (Veh/h)	0	0
Sign Control	Stop	
Grade	-1%	
Peak Hour Factor	0.97	0.97
Hourly flow rate (vph)	0	0
Pedestrians	5	
Lane Width (ft)	10.0	
Walking Speed (ft/s)	4.0	
Percent Blockage	0	
Right turn flare (veh)		
Median type		
Median storage (veh)		
Upstream signal (ft)		
pX, platoon unblocked	0.83	0.73
vC, conflicting volume	2926	736
vC1, stage 1 conf vol		
vC2, stage 2 conf vol		
vCu, unblocked vol	1843	0
tC, single (s)	6.5	6.9
tC, 2 stage (s)		
tF (s)	4.0	3.3
p0 queue free %	100	100
cM capacity (veh/h)	61	796
Direction, Lane #		

HCM 6th TWSC
 9: Old Bridge Ln/Church Entr & Old Bridge Road

04/03/2023

Intersection														
Int Delay, s/veh	11.2													
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↕	↕		↔	↕	↕		↔		↕		↕
Traffic Vol, veh/h	3	3	1376	18	6	10	1409	3	35	0	29	1	0	0
Future Vol, veh/h	3	3	1376	18	6	10	1409	3	35	0	29	1	0	0
Conflicting Peds, #/hr	0	5	0	4	0	4	0	5	0	0	4	0	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	-	None	-	-	-	None	-	-	None	-	-	None
Storage Length	-	365	-	340	-	225	-	230	-	-	-	0	-	0
Veh in Median Storage, #	-	-	0	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-	1	-	-	-	3	-	-	0	-	-	-1	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	0	0	6	1	0	7	4	0	0	0	0	0	0	0
Mvmt Flow	3	3	1419	19	6	10	1453	3	36	0	30	1	0	0

Major/Minor	Major1			Major2			Minor1			Minor2				
Conflicting Flow All	1453	1461	0	0	1419	1442	0	0	2199	2928	718	2216	-	737
Stage 1	-	-	-	-	-	-	-	-	1435	1435	-	1490	-	-
Stage 2	-	-	-	-	-	-	-	-	764	1493	-	726	-	-
Critical Hdwy	6.4	4.1	-	-	6.4	4.24	-	-	7.5	6.5	6.9	7.3	-	6.8
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	6.5	5.5	-	6.3	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	6.5	5.5	-	6.3	-	-
Follow-up Hdwy	2.5	2.2	-	-	2.5	2.27	-	-	3.5	4	3.3	3.5	-	3.3
Pot Cap-1 Maneuver	173	469	-	-	182	442	-	-	~26	15	376	28	0	373
Stage 1	-	-	-	-	-	-	-	-	143	201	-	144	0	-
Stage 2	-	-	-	-	-	-	-	-	367	188	-	402	0	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	252	252	-	-	274	274	-	-	~24	14	373	24	-	370
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	~24	14	-	24	-	-
Stage 1	-	-	-	-	-	-	-	-	139	196	-	140	-	-
Stage 2	-	-	-	-	-	-	-	-	344	177	-	360	-	-

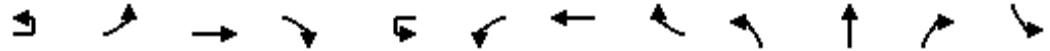
Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.2	\$ 496.8	161.6
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	42	252	-	-	274	-	-	24	-
HCM Lane V/C Ratio	1.571	0.025	-	-	0.06	-	-	0.043	-
HCM Control Delay (s)	\$ 496.8	19.6	-	-	19	-	-	161.6	0
HCM Lane LOS	F	C	-	-	C	-	-	F	A
HCM 95th %tile Q(veh)	6.7	0.1	-	-	0.2	-	-	0.1	-

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM Signalized Intersection Capacity Analysis
 10: Rockwood Lane/Westridge Drive & Old Bridge Road

04/03/2023



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations		↔	↕			↔	↕	↗		↕		
Traffic Volume (vph)	3	149	1259	0	8	0	1183	82	0	0	0	160
Future Volume (vph)	3	149	1259	0	8	0	1183	82	0	0	0	160
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)			1%				3%			0%		
Total Lost time (s)		8.6	8.6			8.6	8.6	8.6				
Lane Util. Factor		1.00	0.95			1.00	0.95	1.00				
Frbp, ped/bikes		1.00	1.00			1.00	1.00	0.98				
Flpb, ped/bikes		1.00	1.00			1.00	1.00	1.00				
Frt		1.00	1.00			1.00	1.00	0.85				
Flt Protected		0.95	1.00			0.95	1.00	1.00				
Satd. Flow (prot)		1680	3389			1775	3387	1517				
Flt Permitted		0.13	1.00			0.20	1.00	1.00				
Satd. Flow (perm)		222	3389			370	3387	1517				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	3	162	1368	0	9	0	1286	89	0	0	0	174
RTOR Reduction (vph)	0	0	0	0	0	0	0	39	0	0	0	0
Lane Group Flow (vph)	0	165	1368	0	0	9	1286	50	0	0	0	0
Confl. Peds. (#/hr)		3		5		5		5			7	2
Heavy Vehicles (%)	0%	7%	6%	0%	0%	0%	5%	3%	0%	0%	0%	2%
Turn Type	custom	pm+pt	NA		Perm	Perm	NA	Perm				Perm
Protected Phases		1	6				2			8		
Permitted Phases	1!	6			2	2		2	8			4
Actuated Green, G (s)		92.3	92.3			73.3	73.3	73.3				
Effective Green, g (s)		92.3	92.3			73.3	73.3	73.3				
Actuated g/C Ratio		0.71	0.71			0.56	0.56	0.56				
Clearance Time (s)		8.6	8.6			8.6	8.6	8.6				
Vehicle Extension (s)		3.0	4.0			4.0	4.0	4.0				
Lane Grp Cap (vph)		274	2406			208	1909	855				
v/s Ratio Prot		0.05	c0.40				c0.38					
v/s Ratio Perm		0.38				0.02		0.03				
v/c Ratio		0.60	0.57			0.04	0.67	0.06				
Uniform Delay, d1		14.0	9.2			12.7	19.9	12.8				
Progression Factor		2.53	0.23			1.00	1.00	1.00				
Incremental Delay, d2		3.3	0.9			0.4	1.9	0.1				
Delay (s)		38.8	3.0			13.1	21.9	12.9				
Level of Service		D	A			B	C	B				
Approach Delay (s)			6.8				21.2			0.0		
Approach LOS			A				C			A		

Intersection Summary

HCM 2000 Control Delay	18.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	24.5
Intersection Capacity Utilization	87.4%	ICU Level of Service	E
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 10: Rockwood Lane/Westridge Drive & Old Bridge Road

04/03/2023



Movement	SBT	SBR
Lane Configurations	↔	↗
Traffic Volume (vph)	0	241
Future Volume (vph)	0	241
Ideal Flow (vphpl)	1900	1900
Grade (%)	-1%	
Total Lost time (s)	7.3	8.6
Lane Util. Factor	1.00	1.00
Frpb, ped/bikes	1.00	0.99
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	0.95	1.00
Satd. Flow (prot)	1774	1574
Flt Permitted	0.76	1.00
Satd. Flow (perm)	1414	1574
Peak-hour factor, PHF	0.92	0.92
Adj. Flow (vph)	0	262
RTOR Reduction (vph)	0	35
Lane Group Flow (vph)	174	227
Confl. Peds. (#/hr)		3
Heavy Vehicles (%)	0%	2%
Turn Type	NA	pm+ov
Protected Phases	4	1!
Permitted Phases		4
Actuated Green, G (s)	21.8	32.2
Effective Green, g (s)	21.8	32.2
Actuated g/C Ratio	0.17	0.25
Clearance Time (s)	7.3	8.6
Vehicle Extension (s)	3.5	3.0
Lane Grp Cap (vph)	237	389
v/s Ratio Prot		0.05
v/s Ratio Perm	c0.12	0.10
v/c Ratio	0.73	0.58
Uniform Delay, d1	51.3	43.0
Progression Factor	1.00	1.00
Incremental Delay, d2	11.5	2.2
Delay (s)	62.9	45.2
Level of Service	E	D
Approach Delay (s)	52.3	
Approach LOS	D	
Intersection Summary		

HCM Unsignalized Intersection Capacity Analysis

11: Touchstone Cir & Exxon/Glen Shopping Ctr

04/03/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations			↗			↗		↑↑↑	↗		↑↑↑		
Traffic Volume (veh/h)	0	0	18	0	0	61	0	134	107	0	216	17	
Future Volume (Veh/h)	0	0	18	0	0	61	0	134	107	0	216	17	
Sign Control	Stop		Stop		Free		Free						
Grade	0%		0%		-1%		2%						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	0	0	20	0	0	66	0	146	116	0	235	18	
Pedestrians	3		1		1		3						
Lane Width (ft)	12.0		12.0		12.0		12.0						
Walking Speed (ft/s)	4.0		4.0		4.0		4.0						
Percent Blockage	0		0		0		0						
Right turn flare (veh)													
Median type							None			None			
Median storage (veh)													
Upstream signal (ft)							317						
pX, platoon unblocked													
vC, conflicting volume	365	510	72	227	403	53	256			263			
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	365	510	72	227	403	53	256			263			
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1			
tC, 2 stage (s)													
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2			
p0 queue free %	100	100	98	100	100	93	100			100			
cM capacity (veh/h)	530	468	979	697	538	1007	1317			1312			
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3	SB 4			
Volume Total	20	66	49	49	49	116	67	67	67	52			
Volume Left	0	0	0	0	0	0	0	0	0	0			
Volume Right	20	66	0	0	0	116	0	0	0	18			
cSH	979	1007	1700	1700	1700	1700	1700	1700	1700	1700			
Volume to Capacity	0.02	0.07	0.03	0.03	0.03	0.07	0.04	0.04	0.04	0.03			
Queue Length 95th (ft)	2	5	0	0	0	0	0	0	0	0			
Control Delay (s)	8.8	8.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Lane LOS	A	A											
Approach Delay (s)	8.8	8.8	0.0					0.0					
Approach LOS	A	A											
Intersection Summary													
Average Delay			1.3										
Intersection Capacity Utilization			15.3%		ICU Level of Service				A				
Analysis Period (min)			15										

HCM Unsignalized Intersection Capacity Analysis
 13: Touchstone Cir & Seeton Square/Merchant Plaza

04/03/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations		↕			↕			↕	↕		↕	↕
Traffic Volume (veh/h)	2	1	16	87	4	3	78	47	44	26	5	52
Future Volume (Veh/h)	2	1	16	87	4	3	78	47	44	26	5	52
Sign Control		Stop			Stop				Free			Free
Grade		-2%			0%				-1%			2%
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	2	1	17	94	4	3	0	51	47	28	5	56
Pedestrians		2			2				1			3
Lane Width (ft)		12.0			12.0				12.0			12.0
Walking Speed (ft/s)		4.0			4.0				4.0			4.0
Percent Blockage		0			0				0			0
Right turn flare (veh)												
Median type									None			None
Median storage (veh)												
Upstream signal (ft)									589			
pX, platoon unblocked							0.00					
vC, conflicting volume	207	252	36	222	244	42	0	69			77	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	207	252	36	222	244	42	0	69			77	
tC, single (s)	7.5	6.5	7.0	7.5	6.5	6.9	0.0	4.1			4.5	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.4	3.5	4.0	3.3	0.0	2.2			2.4	
p0 queue free %	100	100	98	86	99	100	0	97			100	
cM capacity (veh/h)	707	628	1009	682	635	1021	0	1542			1395	
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3				
Volume Total	20	101	51	31	44	5	37	30				
Volume Left	2	94	51	0	0	5	0	0				
Volume Right	17	3	0	0	28	0	0	11				
cSH	941	687	1542	1700	1700	1395	1700	1700				
Volume to Capacity	0.02	0.15	0.03	0.02	0.03	0.00	0.02	0.02				
Queue Length 95th (ft)	2	13	3	0	0	0	0	0				
Control Delay (s)	8.9	11.1	7.4	0.0	0.0	7.6	0.0	0.0				
Lane LOS	A	B	A			A						
Approach Delay (s)	8.9	11.1	3.0			0.5						
Approach LOS	A	B										
Intersection Summary												
Average Delay			5.4									
Intersection Capacity Utilization			32.3%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 13: Touchstone Cir & Seeton Square/Merchant Plaza

04/03/2023



Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	10
Future Volume (Veh/h)	10
Sign Control	
Grade	
Peak Hour Factor	0.93
Hourly flow rate (vph)	11
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage veh)	
Upstream signal (ft)	
pX, platoon unblocked	
vC, conflicting volume	
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	
tC, single (s)	
tC, 2 stage (s)	
tF (s)	
p0 queue free %	
cM capacity (veh/h)	
Direction, Lane #	

HCM 6th TWSC
 13: Touchstone Cir & Seeton Square/Merchant Plaza

04/03/2023

Intersection													
Int Delay, s/veh	6.7												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↕		↕	↕	
Traffic Vol, veh/h	2	1	16	87	4	3	78	47	44	26	5	52	10
Future Vol, veh/h	2	1	16	87	4	3	78	47	44	26	5	52	10
Conflicting Peds, #/hr	2	0	1	1	0	3	0	0	0	2	1	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	0	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	-	0	-	-	0	-
Grade, %	-	-2	-	-	0	-	-	-	-1	-	-	2	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	7	1	0	0	0	0	13	0	20	2	0
Mvmt Flow	2	1	17	94	4	3	84	51	47	28	5	56	11

Major/Minor	Minor2		Minor1		Major1			Major2					
Conflicting Flow All	373	421	37	373	412	43	67	69	0	0	77	0	0
Stage 1	74	74	-	333	333	-	-	-	-	-	-	-	-
Stage 2	299	347	-	40	79	-	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.1	6.84	7.52	6.5	6.9	6.4	4.1	-	-	4.5	-	-
Critical Hdwy Stg 1	6.1	5.1	-	6.52	5.5	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.1	-	6.52	5.5	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.37	3.51	4	3.3	2.5	2.2	-	-	2.4	-	-
Pot Cap-1 Maneuver	588	552	1013	561	533	1025	1308	1545	-	-	1398	-	-
Stage 1	940	844	-	657	647	-	-	-	-	-	-	-	-
Stage 2	714	663	-	973	833	-	-	-	-	-	-	-	-
Platoon blocked, %									-	-	-	-	-
Mov Cap-1 Maneuver	535	494	1010	507	477	1021	1372	1372	-	-	1396	-	-
Mov Cap-2 Maneuver	535	494	-	507	477	-	-	-	-	-	-	-	-
Stage 1	847	839	-	592	582	-	-	-	-	-	-	-	-
Stage 2	636	597	-	951	828	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	9.2		13.7		5.1		0.6	
HCM LOS	A		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1372	-	-	879	514	1396	-
HCM Lane V/C Ratio	0.098	-	-	0.023	0.197	0.004	-
HCM Control Delay (s)	7.9	-	-	9.2	13.7	7.6	-
HCM Lane LOS	A	-	-	A	B	A	-
HCM 95th %tile Q(veh)	0.3	-	-	0.1	0.7	0	-

HCM Unsignalized Intersection Capacity Analysis

14: Touchstone Circle & Merchant Plaza/CVS

04/03/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	4	1	18	4	1	0	20	38	5	0	56	7
Future Volume (Veh/h)	4	1	18	4	1	0	20	38	5	0	56	7
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			-3%			3%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	1	20	4	1	0	22	41	5	0	61	8
Pedestrians		3			6			5			4	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		0			1			0			0	
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)								350				
pX, platoon unblocked												
vC, conflicting volume	137	164	42	150	166	33	72			52		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	137	164	42	150	166	33	72			52		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.5			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.4			2.2		
p0 queue free %	100	100	98	99	100	100	98			100		
cM capacity (veh/h)	806	715	1018	771	714	1031	1388			1559		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	25	5	42	26	30	38						
Volume Left	4	4	22	0	0	0						
Volume Right	20	0	0	5	0	8						
cSH	961	759	1388	1700	1559	1700						
Volume to Capacity	0.03	0.01	0.02	0.01	0.00	0.02						
Queue Length 95th (ft)	2	0	1	0	0	0						
Control Delay (s)	8.8	9.8	4.0	0.0	0.0	0.0						
Lane LOS	A	A	A									
Approach Delay (s)	8.8	9.8	2.5		0.0							
Approach LOS	A	A										
Intersection Summary												
Average Delay			2.6									
Intersection Capacity Utilization			20.3%		ICU Level of Service				A			
Analysis Period (min)			15									

Intersection												
Int Delay, s/veh	2.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	1	18	4	1	0	20	38	5	0	56	7
Future Vol, veh/h	4	1	18	4	1	0	20	38	5	0	56	7
Conflicting Peds, #/hr	0	0	5	2	0	4	3	0	6	4	0	3
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	-	-	-3	-	-	3	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	22	0	0	0	4	0
Mvmt Flow	4	1	20	4	1	0	22	41	5	0	61	8

Major/Minor	Minor2		Minor1			Major1		Major2				
Conflicting Flow All	137	164	43	130	166	33	72	0	0	52	0	0
Stage 1	68	68	-	94	94	-	-	-	-	-	-	-
Stage 2	69	96	-	36	72	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.54	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.42	-	-	2.2	-	-
Pot Cap-1 Maneuver	826	732	1025	835	730	1040	1392	-	-	1567	-	-
Stage 1	940	842	-	908	821	-	-	-	-	-	-	-
Stage 2	939	819	-	981	839	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	810	715	1018	801	713	1031	1389	-	-	1559	-	-
Mov Cap-2 Maneuver	810	715	-	801	713	-	-	-	-	-	-	-
Stage 1	923	840	-	889	804	-	-	-	-	-	-	-
Stage 2	920	802	-	957	837	-	-	-	-	-	-	-

Approach	EB		WB			NB		SB		
HCM Control Delay, s	8.9		9.6			2.4		0		
HCM LOS	A		A							

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1389	-	-	958	782	1559	-	-
HCM Lane V/C Ratio	0.016	-	-	0.026	0.007	-	-	-
HCM Control Delay (s)	7.6	0	-	8.9	9.6	0	-	-
HCM Lane LOS	A	A	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-	-

HCM Unsignalized Intersection Capacity Analysis
 15: Prince William Pkwy & Chinn Park Dr

04/03/2023



Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations								
Traffic Volume (veh/h)	0	19	1417	169	0	2097		
Future Volume (Veh/h)	0	19	1417	169	0	2097		
Sign Control	Stop		Free		Free			
Grade	0%		1%		0%			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Hourly flow rate (vph)	0	21	1540	184	0	2279		
Pedestrians								
Lane Width (ft)								
Walking Speed (ft/s)								
Percent Blockage								
Right turn flare (veh)								
Median type	None				None			
Median storage (veh)								
Upstream signal (ft)	990				666			
pX, platoon unblocked	0.84	0.84			0.84			
vC, conflicting volume	2392	477			1540			
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol	1726	0			718			
tC, single (s)	6.8	7.0			4.1			
tC, 2 stage (s)								
tF (s)	3.5	3.4			2.2			
p0 queue free %	100	98			100			
cM capacity (veh/h)	69	905			754			
Direction, Lane #	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3
Volume Total	21	440	440	440	404	760	760	760
Volume Left	0	0	0	0	0	0	0	0
Volume Right	21	0	0	0	184	0	0	0
cSH	905	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.02	0.26	0.26	0.26	0.24	0.45	0.45	0.45
Queue Length 95th (ft)	2	0	0	0	0	0	0	0
Control Delay (s)	9.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	A							
Approach Delay (s)	9.1	0.0			0.0	0.0	0.0	0.0
Approach LOS	A							
Intersection Summary								
Average Delay			0.0					
Intersection Capacity Utilization			43.9%		ICU Level of Service		A	
Analysis Period (min)			15					

HCM Signalized Intersection Capacity Analysis

16: Prince William Pkwy & Kenwood Dr./

School Entrance

04/03/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations		↔			↔	↔		↔	↑↑↑	↔		↔
Traffic Volume (vph)	45	1	79	29	1	28	2	24	1510	61	1	45
Future Volume (vph)	45	1	79	29	1	28	2	24	1510	61	1	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			1%				-2%			
Total Lost time (s)		6.6			5.8	8.8		8.8	8.8	5.8		8.8
Lane Util. Factor		1.00			1.00	1.00		1.00	0.91	1.00		1.00
Frbp, ped/bikes		0.99			1.00	1.00		1.00	1.00	0.98		1.00
Flpb, ped/bikes		1.00			1.00	1.00		1.00	1.00	1.00		1.00
Frt		0.91			1.00	0.85		1.00	1.00	0.85		1.00
Flt Protected		0.98			0.95	1.00		0.95	1.00	1.00		0.95
Satd. Flow (prot)		1623			1674	1488		1823	4989	1535		1712
Flt Permitted		0.98			0.95	1.00		0.05	1.00	1.00		0.11
Satd. Flow (perm)		1623			1674	1488		102	4989	1535		206
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	47	1	82	30	1	29	2	25	1573	64	1	47
RTOR Reduction (vph)	0	60	0	0	0	26	0	0	0	24	0	0
Lane Group Flow (vph)	0	70	0	0	31	3	0	27	1573	40	0	48
Confl. Peds. (#/hr)			4	2				2		2		
Heavy Vehicles (%)	5%	100%	0%	8%	0%	8%	0%	0%	5%	4%	0%	5%
Turn Type	Split	NA		Split	NA	pm+ov	custom	D.P+P	NA	pm+ov	custom	D.P+P
Protected Phases	3	3		4	4	5!		1	6	4		5
Permitted Phases						4	1	2		6	5!	6
Actuated Green, G (s)		12.3			8.2	13.8		79.5	73.9	82.1		79.5
Effective Green, g (s)		12.3			8.2	13.8		79.5	73.9	82.1		79.5
Actuated g/C Ratio		0.09			0.06	0.11		0.61	0.57	0.63		0.61
Clearance Time (s)		6.6			5.8	8.8		8.8	8.8	5.8		8.8
Vehicle Extension (s)		3.0			3.0	3.0		3.0	3.0	3.0		3.0
Lane Grp Cap (vph)		153			105	157		117	2836	969		190
v/s Ratio Prot		c0.04			c0.02	0.00		0.01	0.32	0.00		c0.01
v/s Ratio Perm						0.00		0.13		0.02		0.14
v/c Ratio		0.46			0.30	0.02		0.23	0.55	0.04		0.25
Uniform Delay, d1		55.7			58.1	52.0		14.5	17.7	9.1		11.5
Progression Factor		1.00			1.00	1.00		0.97	0.86	0.23		0.96
Incremental Delay, d2		2.2			1.6	0.1		0.9	0.7	0.0		0.2
Delay (s)		57.9			59.7	52.1		14.9	16.0	2.1		11.2
Level of Service		E			E	D		B	B	A		B
Approach Delay (s)		57.9			56.0				15.4			
Approach LOS		E			E				B			

Intersection Summary

HCM 2000 Control Delay	19.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	30.0
Intersection Capacity Utilization	75.8%	ICU Level of Service	D
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group



Movement	SBT	SBR
Lane Configurations	↑↑↑↑	↑
Traffic Volume (vph)	2002	50
Future Volume (vph)	2002	50
Ideal Flow (vphpl)	1900	1900
Grade (%)	1%	
Total Lost time (s)	8.8	6.6
Lane Util. Factor	0.91	1.00
Frbp, ped/bikes	1.00	0.98
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	4963	1500
Flt Permitted	1.00	1.00
Satd. Flow (perm)	4963	1500
Peak-hour factor, PHF	0.96	0.96
Adj. Flow (vph)	2085	52
RTOR Reduction (vph)	0	17
Lane Group Flow (vph)	2085	35
Confl. Peds. (#/hr)		2
Heavy Vehicles (%)	4%	5%
Turn Type	NA	pm+ov
Protected Phases	2	3
Permitted Phases		2
Actuated Green, G (s)	75.3	87.6
Effective Green, g (s)	75.3	87.6
Actuated g/C Ratio	0.58	0.67
Clearance Time (s)	8.8	6.6
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	2874	1010
v/s Ratio Prot	c0.42	0.00
v/s Ratio Perm		0.02
v/c Ratio	0.73	0.03
Uniform Delay, d1	19.8	7.1
Progression Factor	0.96	0.00
Incremental Delay, d2	0.4	0.0
Delay (s)	19.5	0.0
Level of Service	B	A
Approach Delay (s)	18.8	
Approach LOS	B	
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

17: Prince William Pkwy & Hillendale Road

04/03/2023



Movement	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Lane Configurations	↖↗	↗		↖↗	↑↑↑	↘	↑↑↑	↗
Traffic Volume (vph)	334	306	2	132	1263	0	1864	249
Future Volume (vph)	334	306	2	132	1263	0	1864	249
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)	2%				1%		2%	
Total Lost time (s)	6.5	8.0		8.0	5.5		5.5	6.5
Lane Util. Factor	0.97	1.00		0.97	0.91		0.91	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00
Fr t	1.00	0.85		1.00	1.00		1.00	0.85
Fl t Protected	0.95	1.00		0.95	1.00		1.00	1.00
Satd. Flow (prot)	3399	1537		3384	4915		4938	1510
Fl t Permitted	0.95	1.00		0.16	1.00		1.00	1.00
Satd. Flow (perm)	3399	1537		570	4915		4938	1510
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	363	333	2	143	1373	0	2026	271
RTOR Reduction (vph)	0	0	0	0	0	0	0	94
Lane Group Flow (vph)	363	333	0	145	1373	0	2026	177
Confl. Bikes (#/hr)								2
Heavy Vehicles (%)	2%	4%	0%	3%	5%	0%	4%	5%
Turn Type	Prot	pm+ov	custom	Prot	NA	Prot	NA	pm+ov
Protected Phases	4	5!		5	2	1	6	4
Permitted Phases		4	5!					6
Actuated Green, G (s)	28.6	53.6		25.0	89.4		56.4	85.0
Effective Green, g (s)	28.6	53.6		25.0	89.4		56.4	85.0
Actuated g/C Ratio	0.22	0.41		0.19	0.69		0.43	0.65
Clearance Time (s)	6.5	8.0		8.0	5.5		5.5	6.5
Vehicle Extension (s)	4.0	4.0		4.0	4.0		4.0	4.0
Lane Grp Cap (vph)	747	633		109	3380		2142	987
v/s Ratio Prot	0.11	c0.10			0.28		c0.41	0.04
v/s Ratio Perm		0.12		c0.25				0.08
v/c Ratio	0.49	0.53		1.33	0.41		0.95	0.18
Uniform Delay, d1	44.3	28.7		52.5	8.8		35.3	8.8
Progression Factor	1.00	1.00		1.00	1.00		0.51	2.09
Incremental Delay, d2	0.7	1.0		198.4	0.4		8.5	0.1
Delay (s)	45.0	29.7		250.9	9.2		26.6	18.5
Level of Service	D	C		F	A		C	B
Approach Delay (s)	37.7				32.3		25.6	
Approach LOS	D				C		C	

Intersection Summary




















HCM 2000 Control Delay	29.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	78.7%	ICU Level of Service	D
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 18: Library/Fitness Ctr/Troupe Street & Chinn Park Dr

04/03/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	5	25	1	2	18	9	36	0	8	74	4
Future Volume (Veh/h)	110	5	25	1	2	18	9	36	0	8	74	4
Sign Control		Free			Free			Stop			Stop	
Grade		1%			-2%			-2%			3%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	120	5	27	1	2	20	10	39	0	9	80	4
Pedestrians		1			5						6	
Lane Width (ft)		12.0			10.0						12.0	
Walking Speed (ft/s)		4.0			4.0						4.0	
Percent Blockage		0			0						1	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	28			32			304	275	10	290	292	19
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	28			32			304	275	10	290	292	19
tC, single (s)	4.1			5.1			7.1	6.6	6.2	7.4	6.6	6.7
tC, 2 stage (s)												
tF (s)	2.2			3.1			3.5	4.1	3.3	3.7	4.1	3.8
p0 queue free %	92			100			98	93	100	98	86	100
cM capacity (veh/h)	1578			1125			543	564	1073	546	560	930
Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	SB 1	SB 2					
Volume Total	125	27	23	10	39	9	84					
Volume Left	120	0	1	10	0	9	0					
Volume Right	0	27	20	0	0	0	4					
cSH	1578	1700	1125	543	564	546	571					
Volume to Capacity	0.08	0.02	0.00	0.02	0.07	0.02	0.15					
Queue Length 95th (ft)	6	0	0	1	6	1	13					
Control Delay (s)	7.2	0.0	0.4	11.8	11.9	11.7	12.4					
Lane LOS	A		A	B	B	B	B					
Approach Delay (s)	5.9		0.4	11.8		12.3						
Approach LOS				B		B						
Intersection Summary												
Average Delay			8.3									
Intersection Capacity Utilization			27.8%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM 6th TWSC
 18: Library/Fitness Ctr/Troupe Street & Chinn Park Dr

04/03/2023

Intersection												
Int Delay, s/veh	8.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕		↕	↗		↕	↗	
Traffic Vol, veh/h	110	5	25	1	2	18	9	36	0	8	74	4
Future Vol, veh/h	110	5	25	1	2	18	9	36	0	8	74	4
Conflicting Peds, #/hr	0	0	0	0	0	6	0	0	5	5	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	0	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	1	-	-	-2	-	-	-2	-	-	3	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	0	4	100	0	41	0	13	0	25	7	50
Mvmt Flow	120	5	27	1	2	20	10	39	0	9	80	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	28	0	0	32	0	0	302	275	10	303	292	19
Stage 1	-	-	-	-	-	-	245	245	-	20	20	-
Stage 2	-	-	-	-	-	-	57	30	-	283	272	-
Critical Hdwy	4.12	-	-	5.1	-	-	6.7	6.23	6	7.95	7.17	7
Critical Hdwy Stg 1	-	-	-	-	-	-	5.7	5.23	-	6.95	6.17	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.7	5.23	-	6.95	6.17	-
Follow-up Hdwy	2.218	-	-	3.1	-	-	3.5	4.117	3.3	3.725	4.063	3.75
Pot Cap-1 Maneuver	1585	-	-	1125	-	-	677	633	1078	577	581	934
Stage 1	-	-	-	-	-	-	784	702	-	939	866	-
Stage 2	-	-	-	-	-	-	966	852	-	646	646	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1577	-	-	1125	-	-	560	580	1074	510	532	929
Mov Cap-2 Maneuver	-	-	-	-	-	-	560	580	-	510	532	-
Stage 1	-	-	-	-	-	-	723	647	-	861	861	-
Stage 2	-	-	-	-	-	-	870	847	-	558	596	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	5.9			0.4			11.7			12.7		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	560	580	1577	-	-	1125	-	-	510	544
HCM Lane V/C Ratio	0.017	0.067	0.076	-	-	0.001	-	-	0.017	0.156
HCM Control Delay (s)	11.5	11.7	7.5	0	-	8.2	0	-	12.2	12.8
HCM Lane LOS	B	B	A	A	-	A	A	-	B	B
HCM 95th %tile Q(veh)	0.1	0.2	0.2	-	-	0	-	-	0.1	0.5

Intersection															
Int Delay, s/veh	201														
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↔ ↑↑↑				↔ ↑↑↑			↔		↔			↔	
Traffic Vol, veh/h	3	7	2686	0	8	9	2851	81	1	0	12	29	0	14	
Future Vol, veh/h	3	7	2686	0	8	9	2851	81	1	0	12	29	0	14	
Conflicting Peds, #/hr	0	9	0	3	0	3	0	9	0	0	3	0	0	9	
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop	
RT Channelized	-	-	-	None	-	-	-	None	-	-	None	-	-	None	
Storage Length	-	465	-	-	-	450	-	450	-	-	-	-	-	-	
Veh in Median Storage, #	-	-	0	-	-	-	0	-	-	0	-	-	0	-	
Grade, %	-	-	1	-	-	-	-1	-	-	-1	-	-	5	-	
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96	96	96	
Heavy Vehicles, %	0	17	2	0	0	0	3	0	0	0	0	0	0	0	
Mvmt Flow	3	7	2798	0	8	9	2970	84	1	0	13	30	0	15	

Major/Minor	Major1			Major2			Minor1			Minor2				
Conflicting Flow All	2168	3063	0	0	2042	2801	0	0	4052	5918	1405	4155	5834	1503
Stage 1	-	-	-	-	-	-	-	-	2821	2821	-	3013	3013	-
Stage 2	-	-	-	-	-	-	-	-	1231	3097	-	1142	2821	-
Critical Hdwy	5.6	5.64	-	-	5.6	5.3	-	-	6.2	6.3	7	7.4	7.5	7.6
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	7.1	5.3	-	8.3	6.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	6.5	5.3	-	7.7	6.5	-
Follow-up Hdwy	2.3	3.27	-	-	2.3	3.1	-	-	3.8	4	3.9	3.8	4	3.9
Pot Cap-1 Maneuver	99	27	-	-	117	50	-	-	4	0	117	~1	0	78
Stage 1	-	-	-	-	-	-	-	-	11	46	-	~3	14	-
Stage 2	-	-	-	-	-	-	-	-	183	33	-	142	18	-
Platoon blocked, %			-	-			-	-						
Mov Cap-1 Maneuver	34	34	-	-	66	66	-	-	2	0	116	~1	0	77
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	2	0	-	~1	0	-
Stage 1	-	-	-	-	-	-	-	-	8	32	-	~2	10	-
Stage 2	-	-	-	-	-	-	-	-	107	24	-	89	13	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0.4	\$ 311.9	\$ 26483
HCM LOS			F	F

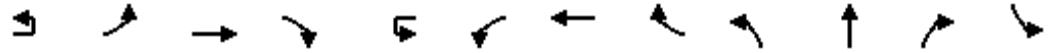
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	22	34	-	-	66	-	-	1
HCM Lane V/C Ratio	0.616	0.306	-	-	0.268	-	-	44.792
HCM Control Delay (s)	\$ 311.9	153.6	-	-	77.9	-	-	\$ 26483
HCM Lane LOS	F	F	-	-	F	-	-	F
HCM 95th %tile Q(veh)	1.8	1	-	-	0.9	-	-	7.7

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM Signalized Intersection Capacity Analysis

2: Ridgewood Center Drive/Laurel Hills Drive & Prince William Pkwy

04/03/2023



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations		↔	↑↑↑			↔	↑↑↑			↔		
Traffic Volume (vph)	12	2	2713	8	11	15	2907	6	25	0	26	9
Future Volume (vph)	12	2	2713	8	11	15	2907	6	25	0	26	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	10
Grade (%)			0%				0%			0%		
Total Lost time (s)		6.5	6.0			6.5	6.0			6.5		
Lane Util. Factor		1.00	0.91			1.00	0.91			1.00		
Frpb, ped/bikes		1.00	1.00			1.00	1.00			0.99		
Flpb, ped/bikes		1.00	1.00			1.00	1.00			1.00		
Frt		1.00	1.00			1.00	1.00			0.93		
Flt Protected		0.95	1.00			0.95	1.00			0.98		
Satd. Flow (prot)		1802	5081			1805	5084			1712		
Flt Permitted		0.95	1.00			0.49	1.00			0.98		
Satd. Flow (perm)		1806	5081			927	5084			1712		
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	13	2	2856	8	12	16	3060	6	26	0	27	9
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	51	0	0
Lane Group Flow (vph)	0	15	2864	0	0	28	3066	0	0	2	0	0
Confl. Peds. (#/hr)		13		3		3		14			4	1
Heavy Vehicles (%)	0%	0%	2%	14%	0%	0%	2%	0%	0%	0%	0%	0%
Turn Type	custom	Prot	NA		custom	Prot	NA		Split	NA		Split
Protected Phases		5	2			1	6		4	4		3
Permitted Phases	5				1							
Actuated Green, G (s)		4.2	119.5			8.2	123.5			4.6		
Effective Green, g (s)		4.2	119.5			8.2	123.5			4.6		
Actuated g/C Ratio		0.03	0.75			0.05	0.77			0.03		
Clearance Time (s)		6.5	6.0			6.5	6.0			6.5		
Vehicle Extension (s)		3.0	3.5			3.0	3.5			3.0		
Lane Grp Cap (vph)		47	3794			47	3924			49		
v/s Ratio Prot			0.56				c0.60			c0.00		
v/s Ratio Perm		0.01				c0.03						
v/c Ratio		0.32	0.75			0.60	0.78			0.03		
Uniform Delay, d1		76.5	11.8			74.3	10.5			75.5		
Progression Factor		1.00	1.00			1.05	1.33			1.00		
Incremental Delay, d2		3.9	1.4			1.8	0.1			0.3		
Delay (s)		80.4	13.2			79.7	14.1			75.8		
Level of Service		F	B			E	B			E		
Approach Delay (s)			13.5				14.7			75.8		
Approach LOS			B				B			E		
Intersection Summary												
HCM 2000 Control Delay			14.8									B
HCM 2000 Volume to Capacity ratio			0.75									
Actuated Cycle Length (s)			160.0							25.5		
Intersection Capacity Utilization			74.1%									D
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 2: Ridgewood Center Drive/Laurel Hills Drive & Prince William Pkwy

04/03/2023



Movement	SBT	SBR
Lane Configurations	↕	
Traffic Volume (vph)	0	1
Future Volume (vph)	0	1
Ideal Flow (vphpl)	1900	1900
Lane Width	10	10
Grade (%)	5%	
Total Lost time (s)	6.5	
Lane Util. Factor	1.00	
Frpb, ped/bikes	0.97	
Flpb, ped/bikes	1.00	
Frt	0.99	
Flt Protected	0.96	
Satd. Flow (prot)	1585	
Flt Permitted	0.96	
Satd. Flow (perm)	1585	
Peak-hour factor, PHF	0.95	0.95
Adj. Flow (vph)	0	1
RTOR Reduction (vph)	10	0
Lane Group Flow (vph)	0	0
Confl. Peds. (#/hr)		13
Heavy Vehicles (%)	0%	0%
Turn Type	NA	
Protected Phases	3	
Permitted Phases		
Actuated Green, G (s)	2.2	
Effective Green, g (s)	2.2	
Actuated g/C Ratio	0.01	
Clearance Time (s)	6.5	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	21	
v/s Ratio Prot	c0.00	
v/s Ratio Perm		
v/c Ratio	0.01	
Uniform Delay, d1	77.8	
Progression Factor	1.00	
Incremental Delay, d2	0.1	
Delay (s)	77.9	
Level of Service	E	
Approach Delay (s)	77.9	
Approach LOS	E	
Intersection Summary		

HCM Unsignalized Intersection Capacity Analysis

3: Prince William Pkwy & Seeton Square

04/03/2023



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		↑↑↑	↑↑↑			↗	
Traffic Volume (veh/h)	0	2824	2956	58	0	41	
Future Volume (Veh/h)	0	2824	2956	58	0	41	
Sign Control		Free	Free		Stop		
Grade		0%	0%		4%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	0	3070	3213	63	0	45	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		None	None				
Median storage (veh)							
Upstream signal (ft)		1140	342				
pX, platoon unblocked	0.46				0.65	0.46	
vC, conflicting volume	3276				4268	1102	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1820				148	0	
tC, single (s)	4.1				6.8	6.9	
tC, 2 stage (s)							
tF (s)	2.2				3.5	3.3	
p0 queue free %	100				100	91	
cM capacity (veh/h)	156				541	498	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	1023	1023	1023	1285	1285	706	45
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	63	45
cSH	1700	1700	1700	1700	1700	1700	498
Volume to Capacity	0.60	0.60	0.60	0.76	0.76	0.42	0.09
Queue Length 95th (ft)	0	0	0	0	0	0	7
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	12.9
Lane LOS							B
Approach Delay (s)	0.0			0.0			12.9
Approach LOS							B
Intersection Summary							
Average Delay			0.1				
Intersection Capacity Utilization			68.4%		ICU Level of Service		C
Analysis Period (min)			15				

HCM 6th TWSC
3: Prince William Pkwy & Seeton Square

04/03/2023

Intersection						
Int Delay, s/veh	1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑			↑
Traffic Vol, veh/h	0	2824	2956	58	0	41
Future Vol, veh/h	0	2824	2956	58	0	41
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	4	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	2	4	0	0
Mvmt Flow	0	3070	3213	63	0	45

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	-	0	-	0	1638
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	-	-	-	7.5
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	3.9
Pot Cap-1 Maneuver	0	-	-	-	0 65
Stage 1	0	-	-	-	0 -
Stage 2	0	-	-	-	0 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	- 65
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	138.3
HCM LOS			F

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	65
HCM Lane V/C Ratio	-	-	-	0.686
HCM Control Delay (s)	-	-	-	138.3
HCM Lane LOS	-	-	-	F
HCM 95th %tile Q(veh)	-	-	-	3

HCM Signalized Intersection Capacity Analysis

4: Prince William Pkwy & Old Bridge Road & Touchstone Cir

04/03/2023



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations		↔	↕	↗		↖	↕	↔		↖	↕	↗
Traffic Volume (vph)	14	169	1151	1484	2	525	1277	44	14	1505	182	373
Future Volume (vph)	14	169	1151	1484	2	525	1277	44	14	1505	182	373
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)			0%				2%				1%	
Total Lost time (s)		7.9	5.7	4.0		7.5	5.7			9.9	9.9	7.5
Lane Util. Factor		1.00	0.95	1.00		0.97	0.91			0.91	0.91	1.00
Frbp, ped/bikes		1.00	1.00	1.00		1.00	1.00			1.00	1.00	0.99
Flpb, ped/bikes		1.00	1.00	1.00		1.00	1.00			1.00	1.00	1.00
Frt		1.00	1.00	0.85		1.00	1.00			1.00	1.00	0.85
Flt Protected		0.95	1.00	1.00		0.95	1.00			0.95	0.97	1.00
Satd. Flow (prot)		1788	3574	1583		3432	5006			3205	1639	1591
Flt Permitted		0.18	1.00	1.00		0.12	1.00			0.63	0.97	1.00
Satd. Flow (perm)		341	3574	1583		419	5006			2129	1639	1591
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	14	174	1187	1530	2	541	1316	45	14	1552	188	385
RTOR Reduction (vph)	0	0	0	0	0	0	2	0	0	0	0	33
Lane Group Flow (vph)	0	188	1187	1530	0	543	1359	0	0	1131	623	352
Confl. Peds. (#/hr)		3						7				4
Confl. Bikes (#/hr)												1
Heavy Vehicles (%)	0%	1%	1%	2%	0%	1%	2%	2%	0%	2%	0%	0%
Turn Type	custom	Prot	NA	Free	custom	Prot	NA		Perm	Split	NA	pm+ov
Protected Phases		5	2			1	6			4	4	1!
Permitted Phases	5!			Free	1!				4			4
Actuated Green, G (s)		22.1	35.3	160.0		34.5	47.3			50.1	50.1	84.6
Effective Green, g (s)		22.1	35.3	160.0		34.5	47.3			50.1	50.1	84.6
Actuated g/C Ratio		0.14	0.22	1.00		0.22	0.30			0.31	0.31	0.53
Clearance Time (s)		7.9	5.7			7.5	5.7			9.9	9.9	7.5
Vehicle Extension (s)		3.0	2.0			3.0	2.0			3.0	3.0	3.0
Lane Grp Cap (vph)		47	788	1583		90	1479			666	513	841
v/s Ratio Prot			c0.33				0.27				0.38	0.09
v/s Ratio Perm		0.55		c0.97		c1.30				c0.53		0.13
v/c Ratio		4.00	1.51	0.97		6.03	0.92			1.70	1.21	0.42
Uniform Delay, d1		69.0	62.4	0.0		62.8	54.5			55.0	55.0	22.8
Progression Factor		0.98	0.84	1.00		1.03	0.52			0.85	0.85	0.29
Incremental Delay, d2		1387.1	232.8	13.1		2275.7	5.4			319.2	110.1	0.3
Delay (s)		1454.5	285.4	13.1		2340.6	34.0			366.2	157.0	6.9
Level of Service		F	F	B		F	C			F	F	A
Approach Delay (s)			217.7				691.8				240.6	
Approach LOS			F				F				F	
Intersection Summary												
HCM 2000 Control Delay			339.4									F
HCM 2000 Volume to Capacity ratio			2.81									
Actuated Cycle Length (s)			160.0							31.1		
Intersection Capacity Utilization			117.0%									H
Analysis Period (min)			15									
! Phase conflict between lane groups.												
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

4: Prince William Pkwy & Old Bridge Road & Touchstone Cir

04/03/2023



Movement	SBU	SBL	SBT	SBR
Lane Configurations		↵	↑↑	↶
Traffic Volume (vph)	2	54	186	209
Future Volume (vph)	2	54	186	209
Ideal Flow (vphpl)	1900	1900	1900	1900
Grade (%)			5%	
Total Lost time (s)		7.6	7.6	7.9
Lane Util. Factor		1.00	0.95	1.00
Frpb, ped/bikes		1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00	1.00
Frt		1.00	1.00	0.85
Flt Protected		0.95	1.00	1.00
Satd. Flow (prot)		1757	3485	1551
Flt Permitted		0.43	1.00	1.00
Satd. Flow (perm)		787	3485	1551
Peak-hour factor, PHF	0.97	0.97	0.97	0.97
Adj. Flow (vph)	2	56	192	215
RTOR Reduction (vph)	0	0	0	110
Lane Group Flow (vph)	0	58	192	105
Confl. Peds. (#/hr)	4			3
Confl. Bikes (#/hr)				
Heavy Vehicles (%)	0%	0%	1%	1%
Turn Type	Perm	Split	NA	pm+ov
Protected Phases		3	3	5!
Permitted Phases	3			3
Actuated Green, G (s)		9.4	9.4	31.5
Effective Green, g (s)		9.4	9.4	31.5
Actuated g/C Ratio		0.06	0.06	0.20
Clearance Time (s)		7.6	7.6	7.9
Vehicle Extension (s)		3.0	3.0	3.0
Lane Grp Cap (vph)		46	204	305
v/s Ratio Prot			0.06	0.05
v/s Ratio Perm		0.07		0.02
v/c Ratio		1.26	0.94	0.34
Uniform Delay, d1		75.3	75.0	55.4
Progression Factor		1.00	0.99	1.03
Incremental Delay, d2		214.4	44.6	0.6
Delay (s)		289.9	118.8	57.5
Level of Service		F	F	E
Approach Delay (s)			111.8	
Approach LOS			F	
Intersection Summary				

HCM Unsignalized Intersection Capacity Analysis

5: Tribe at the Glen & Old Bridge Road

04/03/2023



Movement	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations	↑↑	↑		↑↑↑		↑	
Traffic Volume (veh/h)	1495	87	0	1849	0	45	
Future Volume (Veh/h)	1495	87	0	1849	0	45	
Sign Control	Free			Free	Stop		
Grade	-3%			2%	0%		
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	
Hourly flow rate (vph)	1541	90	0	1906	0	46	
Pedestrians				46	2		
Lane Width (ft)				12.0	14.0		
Walking Speed (ft/s)				4.0	4.0		
Percent Blockage				4	0		
Right turn flare (veh)							
Median type	None			None			
Median storage (veh)							
Upstream signal (ft)	371			392			
pX, platoon unblocked				0.78	0.67	0.78	
vC, conflicting volume				1543	2178	818	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol				1137	0	211	
tC, single (s)				4.1	6.8	6.9	
tC, 2 stage (s)							
tF (s)				2.2	3.5	3.3	
p0 queue free %				100	100	92	
cM capacity (veh/h)				485	686	601	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1
Volume Total	770	770	90	635	635	635	46
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	90	0	0	0	46
cSH	1700	1700	1700	1700	1700	1700	601
Volume to Capacity	0.45	0.45	0.05	0.37	0.37	0.37	0.08
Queue Length 95th (ft)	0	0	0	0	0	0	6
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	11.5
Lane LOS							B
Approach Delay (s)	0.0			0.0			11.5
Approach LOS							B
Intersection Summary							
Average Delay	0.1						
Intersection Capacity Utilization	59.9%			ICU Level of Service			B
Analysis Period (min)	15						

HCM 6th TWSC
5: Tribe at the Glen & Old Bridge Road

04/03/2023

Intersection						
Int Delay, s/veh	0.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑		↑↑↑		↑
Traffic Vol, veh/h	1495	87	0	1849	0	45
Future Vol, veh/h	1495	87	0	1849	0	45
Conflicting Peds, #/hr	0	2	2	0	0	46
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Free	-	None	-	Stop
Storage Length	-	175	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	-3	-	-	2	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	1	0	0	2	0	0
Mvmt Flow	1541	90	0	1906	0	46























Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	-	-	-	817
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	3.3
Pot Cap-1 Maneuver	-	0	0	-	324
Stage 1	-	0	0	-	-
Stage 2	-	0	0	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	312
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	18.5
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	WBT
Capacity (veh/h)	312	-	-
HCM Lane V/C Ratio	0.149	-	-
HCM Control Delay (s)	18.5	-	-
HCM Lane LOS	C	-	-
HCM 95th %tile Q(veh)	0.5	-	-

HCM Signalized Intersection Capacity Analysis
 6: Troupe Street/Glen Shopping Ctr & Old Bridge Road

04/03/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	1396	84	122	1610	181	191	19	271	119	26	49
Future Volume (vph)	60	1396	84	122	1610	181	191	19	271	119	26	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			7%			-1%			0%	
Total Lost time (s)	7.0	6.5	8.0	7.0	6.0	7.0		8.0	8.0		7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.96		1.00	0.98		1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.96	1.00		0.96	1.00
Satd. Flow (prot)	1823	3610	1566	1708	3415	1488		1794	1544		1825	1585
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.96	1.00		0.96	1.00
Satd. Flow (perm)	1823	3610	1566	1708	3415	1488		1794	1544		1825	1585
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	62	1454	88	127	1677	189	199	20	282	124	27	51
RTOR Reduction (vph)	0	0	28	0	0	43	0	0	178	0	0	46
Lane Group Flow (vph)	63	1454	60	127	1677	146	0	219	104	0	151	5
Confl. Peds. (#/hr)	2		2	2		7			7	5		2
Confl. Bikes (#/hr)						2						
Heavy Vehicles (%)	0%	1%	3%	2%	2%	1%	2%	0%	3%	0%	0%	0%
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Split	NA	Perm	Split	NA	Perm
Protected Phases	5	2	4	1	6	3	4	4		3	3	
Permitted Phases			2			6			4			3
Actuated Green, G (s)	9.6	75.9	100.6	16.1	82.9	97.7		24.7	24.7		14.8	14.8
Effective Green, g (s)	9.6	75.9	100.6	16.1	82.9	97.7		24.7	24.7		14.8	14.8
Actuated g/C Ratio	0.06	0.47	0.63	0.10	0.52	0.61		0.15	0.15		0.09	0.09
Clearance Time (s)	7.0	6.5	8.0	7.0	6.0	7.0		8.0	8.0		7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	109	1712	984	171	1769	908		276	238		168	146
v/s Ratio Prot	0.03	0.40	0.01	c0.07	c0.49	0.01		c0.12			c0.08	
v/s Ratio Perm			0.03			0.08			0.07			0.00
v/c Ratio	0.58	0.85	0.06	0.74	0.95	0.16		0.79	0.44		0.90	0.03
Uniform Delay, d1	73.2	37.0	11.5	69.9	36.5	13.5		65.2	61.3		71.9	66.1
Progression Factor	0.95	1.48	3.70	1.47	0.33	0.03		1.12	1.44		1.00	1.00
Incremental Delay, d2	0.7	0.5	0.0	9.7	8.0	0.0		14.4	1.3		41.2	0.1
Delay (s)	70.2	55.3	42.4	112.2	20.0	0.4		87.1	89.5		113.0	66.2
Level of Service	E	E	D	F	B	A		F	F		F	E
Approach Delay (s)		55.2			24.0			88.4			101.2	
Approach LOS		E			C			F			F	
Intersection Summary												
HCM 2000 Control Delay			46.8									D
HCM 2000 Volume to Capacity ratio			0.93									
Actuated Cycle Length (s)			160.0						28.5			
Intersection Capacity Utilization			89.2%									E
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

7: Titania Way/Touchstone Circle & Old Bridge Road

04/03/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↑↑	↗	↙	↑↑	↗		↕			↕	↗
Traffic Volume (vph)	71	1677	34	18	1908	142	23	1	20	155	7	56
Future Volume (vph)	71	1677	34	18	1908	142	23	1	20	155	7	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		4%			-7%			-3%			2%	
Total Lost time (s)	8.5	8.5	8.5	8.5	8.5	8.5		7.5			7.5	7.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00			1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	0.98		0.99			1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00			1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		0.94			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.97			0.95	1.00
Satd. Flow (prot)	1769	3503	1496	1868	3663	1619		1743			1793	1551
Flt Permitted	0.04	1.00	1.00	0.08	1.00	1.00		0.67			0.70	1.00
Satd. Flow (perm)	74	3503	1496	163	3663	1619		1203			1320	1551
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	72	1711	35	18	1947	145	23	1	20	158	7	57
RTOR Reduction (vph)	0	0	11	0	0	47	0	17	0	0	0	48
Lane Group Flow (vph)	72	1711	24	18	1947	98	0	27	0	0	165	9
Confl. Peds. (#/hr)	5		11	4		6	7		5	1		12
Confl. Bikes (#/hr)						1						1
Heavy Vehicles (%)	0%	1%	0%	0%	2%	1%	0%	0%	0%	0%	0%	0%
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases	1	6		5	2			4			8	
Permitted Phases	2		6	6		2	4		8			8
Actuated Green, G (s)	111.0	107.8	107.8	111.0	103.5	103.5		24.5			24.5	24.5
Effective Green, g (s)	111.0	107.8	107.8	111.0	103.5	103.5		24.5			24.5	24.5
Actuated g/C Ratio	0.69	0.67	0.67	0.69	0.65	0.65		0.15			0.15	0.15
Clearance Time (s)	8.5	8.5	8.5	8.5	8.5	8.5		7.5			7.5	7.5
Vehicle Extension (s)	2.0	8.0	8.0	2.0	8.0	8.0		2.0			2.0	2.0
Lane Grp Cap (vph)	130	2360	1007	147	2369	1047		184			202	237
v/s Ratio Prot	c0.03	c0.49		0.00	c0.53							
v/s Ratio Perm	0.36		0.02	0.08		0.06		0.02			c0.12	0.01
v/c Ratio	0.55	0.72	0.02	0.12	0.82	0.09		0.15			0.82	0.04
Uniform Delay, d1	29.0	16.6	8.7	14.0	21.3	10.6		58.7			65.6	57.7
Progression Factor	1.63	0.42	1.00	0.45	1.20	1.19		1.00			1.00	1.00
Incremental Delay, d2	1.6	1.1	0.0	0.1	1.9	0.1		0.1			20.9	0.0
Delay (s)	48.8	8.1	8.7	6.3	27.5	12.7		58.8			86.4	57.7
Level of Service	D	A	A	A	C	B		E			F	E
Approach Delay (s)		9.7			26.3			58.8			79.1	
Approach LOS		A			C			E			E	

Intersection Summary

HCM 2000 Control Delay	22.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	24.5
Intersection Capacity Utilization	92.9%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

8: Old Bridge Road & Brussels Way

04/03/2023



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↗		↗
Traffic Volume (veh/h)	0	1860	1980	19	0	11
Future Volume (Veh/h)	0	1860	1980	19	0	11
Sign Control		Free	Free		Stop	
Grade		7%	-1%		1%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	2022	2152	21	0	12
Pedestrians		11			11	
Lane Width (ft)		12.0			12.0	
Walking Speed (ft/s)		4.0			4.0	
Percent Blockage		1			1	
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)		685	1088			
pX, platoon unblocked	0.49				0.66	0.49
vC, conflicting volume	2184				3174	1098
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1341				1000	0
tC, single (s)	4.1				6.8	7.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.5
p0 queue free %	100				100	98
cM capacity (veh/h)	254				158	501
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	SB 1
Volume Total	1011	1011	1076	1076	21	12
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	21	12
cSH	1700	1700	1700	1700	1700	501
Volume to Capacity	0.59	0.59	0.63	0.63	0.01	0.02
Queue Length 95th (ft)	0	0	0	0	0	2
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	12.4
Lane LOS						B
Approach Delay (s)	0.0		0.0			12.4
Approach LOS						B
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			67.8%		ICU Level of Service	C
Analysis Period (min)			15			

HCM 6th TWSC
8: Old Bridge Road & Brussels Way

04/03/2023

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↑		↑
Traffic Vol, veh/h	0	1860	1980	19	0	11
Future Vol, veh/h	0	1860	1980	19	0	11
Conflicting Peds, #/hr	11	0	0	11	0	11
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	225	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	7	-1	-	1	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	1	2	0	0	17
Mvmt Flow	0	2022	2152	21	0	12

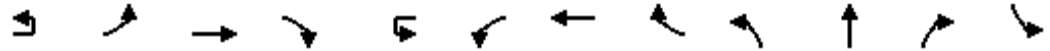
Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	-	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	-
Pot Cap-1 Maneuver	0	-	-
Stage 1	0	-	-
Stage 2	0	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	26.9
HCM LOS			D

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	176
HCM Lane V/C Ratio	-	-	-	0.068
HCM Control Delay (s)	-	-	-	26.9
HCM Lane LOS	-	-	-	D
HCM 95th %tile Q(veh)	-	-	-	0.2

HCM Unsignalized Intersection Capacity Analysis
 9: Old Bridge Ln/Church Entr & Old Bridge Road

04/03/2023



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations		↔	↕↕	↗		↔	↕↕	↗		↕↔		↗
Traffic Volume (veh/h)	1	8	1784	67	1	24	1986	1	14	0	19	2
Future Volume (Veh/h)	1	8	1784	67	1	24	1986	1	14	0	19	2
Sign Control			Free				Free			Stop		
Grade			1%				3%			0%		
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	9	1898	71	0	26	2113	1	15	0	20	2
Pedestrians			9				1			1		
Lane Width (ft)			12.0				12.0			12.0		
Walking Speed (ft/s)			4.0				4.0			4.0		
Percent Blockage			1				0			0		
Right turn flare (veh)												
Median type			None				None					
Median storage (veh)												
Upstream signal (ft)			1188				585					
pX, platoon unblocked	0.00	0.51			0.00	0.67			0.67	0.67	0.67	0.67
vC, conflicting volume	0	2123			0	1970			3034	4092	951	3162
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0	1265			0	1467			847	2426	0	1037
tC, single (s)	0.0	4.1			0.0	4.1			7.5	6.5	6.9	7.5
tC, 2 stage (s)												
tF (s)	0.0	2.2			0.0	2.2			3.5	4.0	3.3	3.5
p0 queue free %	0	97			0	92			90	100	97	98
cM capacity (veh/h)	0	279			0	313			156	19	732	111
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1	SB 2	
Volume Total	9	949	949	71	26	1056	1056	1	35	2	0	
Volume Left	9	0	0	0	26	0	0	0	15	2	0	
Volume Right	0	0	0	71	0	0	0	1	20	0	0	
cSH	279	1700	1700	1700	313	1700	1700	1700	284	111	1700	
Volume to Capacity	0.03	0.56	0.56	0.04	0.08	0.62	0.62	0.00	0.12	0.02	0.00	
Queue Length 95th (ft)	2	0	0	0	7	0	0	0	10	1	0	
Control Delay (s)	18.3	0.0	0.0	0.0	17.5	0.0	0.0	0.0	19.5	38.1	0.0	
Lane LOS	C				C				C	E	A	
Approach Delay (s)	0.1				0.2				19.5	38.1		
Approach LOS									C	E		
Intersection Summary												
Average Delay			0.3									
Intersection Capacity Utilization			74.5%		ICU Level of Service				D			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 9: Old Bridge Ln/Church Entr & Old Bridge Road

04/03/2023



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	0	0
Future Volume (Veh/h)	0	0
Sign Control	Stop	
Grade	-1%	
Peak Hour Factor	0.94	0.94
Hourly flow rate (vph)	0	0
Pedestrians	9	
Lane Width (ft)	10.0	
Walking Speed (ft/s)	4.0	
Percent Blockage	1	
Right turn flare (veh)		
Median type		
Median storage veh		
Upstream signal (ft)		
pX, platoon unblocked	0.67	0.51
vC, conflicting volume	4162	1074
vC1, stage 1 conf vol		
vC2, stage 2 conf vol		
vCu, unblocked vol	2531	0
tC, single (s)	6.5	6.9
tC, 2 stage (s)		
tF (s)	4.0	3.3
p0 queue free %	100	100
cM capacity (veh/h)	16	544
Direction, Lane #		

HCM 6th TWSC
 9: Old Bridge Ln/Church Entr & Old Bridge Road

04/03/2023

Intersection														
Int Delay, s/veh	14.8													
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↕	↕		↔	↕	↕		↔		↕		↕
Traffic Vol, veh/h	1	8	1784	67	1	24	1986	1	14	0	19	2	0	0
Future Vol, veh/h	1	8	1784	67	1	24	1986	1	14	0	19	2	0	0
Conflicting Peds, #/hr	0	9	0	1	0	1	0	9	0	0	1	0	0	9
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	-	None	-	-	-	None	-	-	None	-	-	None
Storage Length	-	365	-	340	-	225	-	230	-	-	-	0	-	0
Veh in Median Storage, #	-	-	0	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-	1	-	-	-	3	-	-	0	-	-	-1	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	0	1	0	0	0	2	0	0	0	0	0	0	0
Mvmt Flow	1	9	1898	71	1	26	2113	1	15	0	20	2	0	0

Major/Minor	Major1		Major2		Minor1		Minor2							
Conflicting Flow All	2113	2123	0	0	1898	1970	0	0	3039	4096	951	3146	-	1075
Stage 1	-	-	-	-	-	-	-	-	1919	1919	-	2176	-	-
Stage 2	-	-	-	-	-	-	-	-	1120	2177	-	970	-	-
Critical Hdwy	6.4	4.1	-	-	6.4	4.1	-	-	7.5	6.5	6.9	7.3	-	6.8
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	6.5	5.5	-	6.3	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	6.5	5.5	-	6.3	-	-
Follow-up Hdwy	2.5	2.2	-	-	2.5	2.2	-	-	3.5	4	3.3	3.5	-	3.3
Pot Cap-1 Maneuver	64	260	-	-	89	299	-	-	~6	3	264	6	0	225
Stage 1	-	-	-	-	-	-	-	-	71	116	-	55	0	-
Stage 2	-	-	-	-	-	-	-	-	223	86	-	291	0	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	193	193	-	-	271	271	-	-	~5	3	264	5	-	222
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	~5	3	-	5	-	-
Stage 1	-	-	-	-	-	-	-	-	67	110	-	52	-	-
Stage 2	-	-	-	-	-	-	-	-	199	77	-	255	-	-

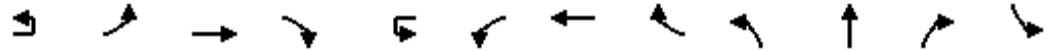
Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.2	\$ 1669.8	\$ 988.9
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	11	193	-	-	271	-	-	5	-
HCM Lane V/C Ratio	3.191	0.05	-	-	0.098	-	-	0.426	-
HCM Control Delay (s)	\$ 1669.8	24.6	-	-	19.7	-	-	\$ 988.9	0
HCM Lane LOS	F	C	-	-	C	-	-	F	A
HCM 95th %tile Q(veh)	5.4	0.2	-	-	0.3	-	-	0.7	-

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM Signalized Intersection Capacity Analysis
 10: Rockwood Lane/Westridge Drive & Old Bridge Road

04/03/2023



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations		↔	↕			↔	↕	↗		↕		
Traffic Volume (vph)	7	281	1517	1	8	3	1764	222	0	0	1	125
Future Volume (vph)	7	281	1517	1	8	3	1764	222	0	0	1	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)			1%				3%			0%		
Total Lost time (s)		8.6	8.6			8.6	8.6	8.6		7.3		
Lane Util. Factor		1.00	0.95			1.00	0.95	1.00		1.00		
Frbp, ped/bikes		1.00	1.00			1.00	1.00	0.98		0.99		
Flpb, ped/bikes		1.00	1.00			1.00	1.00	1.00		1.00		
Frt		1.00	1.00			1.00	1.00	0.85		0.86		
Flt Protected		0.95	1.00			0.95	1.00	1.00		1.00		
Satd. Flow (prot)		1796	3521			1777	3486	1561		1605		
Flt Permitted		0.04	1.00			0.15	1.00	1.00		1.00		
Satd. Flow (perm)		80	3521			286	3486	1561		1605		
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	7	296	1597	1	8	3	1857	234	0	0	1	132
RTOR Reduction (vph)	0	0	0	0	0	0	0	97	0	1	0	0
Lane Group Flow (vph)	0	303	1598	0	0	11	1857	137	0	0	0	0
Confl. Peds. (#/hr)		5		1		1		5			1	
Heavy Vehicles (%)	0%	0%	2%	0%	0%	0%	2%	0%	0%	0%	1%	0%
Turn Type	custom	D.P+P	NA		Perm	Perm	NA	Perm		NA		Perm
Protected Phases		1	6				2			8		
Permitted Phases	1!	2			2	2		2	8			4
Actuated Green, G (s)		110.4	119.0			94.0	94.0	94.0		25.1		
Effective Green, g (s)		110.4	119.0			94.0	94.0	94.0		25.1		
Actuated g/C Ratio		0.69	0.74			0.59	0.59	0.59		0.16		
Clearance Time (s)		8.6	8.6			8.6	8.6	8.6		7.3		
Vehicle Extension (s)		3.0	4.0			4.0	4.0	4.0		3.5		
Lane Grp Cap (vph)		231	2618			168	2048	917		251		
v/s Ratio Prot		c0.13	0.45				0.53			0.00		
v/s Ratio Perm		c0.77				0.04		0.09				
v/c Ratio		1.31	0.61			0.07	0.91	0.15		0.00		
Uniform Delay, d1		57.5	9.6			14.2	29.1	14.9		56.9		
Progression Factor		0.88	1.67			1.00	1.00	1.00		1.00		
Incremental Delay, d2		162.2	0.8			0.7	7.3	0.3		0.0		
Delay (s)		212.7	16.9			14.9	36.4	15.3		56.9		
Level of Service		F	B			B	D	B		E		
Approach Delay (s)			48.1				33.9			56.9		
Approach LOS			D				C			E		

Intersection Summary

HCM 2000 Control Delay	42.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.18		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	24.5
Intersection Capacity Utilization	112.6%	ICU Level of Service	H
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

10: Rockwood Lane/Westridge Drive & Old Bridge Road

04/03/2023



Movement	SBT	SBR
Lane Configurations	↔	↔
Traffic Volume (vph)	0	241
Future Volume (vph)	0	241
Ideal Flow (vphpl)	1900	1900
Grade (%)	-1%	
Total Lost time (s)	7.3	8.6
Lane Util. Factor	1.00	1.00
Frpb, ped/bikes	1.00	0.99
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	0.95	1.00
Satd. Flow (prot)	1814	1574
Flt Permitted	0.76	1.00
Satd. Flow (perm)	1446	1574
Peak-hour factor, PHF	0.95	0.95
Adj. Flow (vph)	0	254
RTOR Reduction (vph)	0	28
Lane Group Flow (vph)	132	226
Confl. Peds. (#/hr)		5
Heavy Vehicles (%)	0%	2%
Turn Type	NA	pm+ov
Protected Phases	4	1!
Permitted Phases		4
Actuated Green, G (s)	25.1	41.5
Effective Green, g (s)	25.1	41.5
Actuated g/C Ratio	0.16	0.26
Clearance Time (s)	7.3	8.6
Vehicle Extension (s)	3.5	3.0
Lane Grp Cap (vph)	226	408
v/s Ratio Prot		0.06
v/s Ratio Perm	c0.09	0.09
v/c Ratio	0.58	0.55
Uniform Delay, d1	62.6	51.2
Progression Factor	1.00	1.00
Incremental Delay, d2	4.1	1.6
Delay (s)	66.7	52.9
Level of Service	E	D
Approach Delay (s)	57.6	
Approach LOS	E	
Intersection Summary		

HCM Unsignalized Intersection Capacity Analysis

11: Touchstone Cir & Exxon/Glen Shopping Ctr

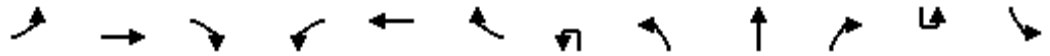
04/03/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗		↑↑↑	↗		↑↑↑	
Traffic Volume (veh/h)	0	0	43	0	0	110	0	176	221	0	408	27
Future Volume (Veh/h)	0	0	43	0	0	110	0	176	221	0	408	27
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			-1%			2%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	47	0	0	120	0	191	240	0	443	29
Pedestrians		12			1			7			6	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			0			1			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh												
Upstream signal (ft)								317				
pX, platoon unblocked												
vC, conflicting volume	659	902	144	357	676	71	484			432		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	659	902	144	357	676	71	484			432		
tC, single (s)	7.5	6.5	7.0	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	95	100	100	88	100			100		
cM capacity (veh/h)	302	277	860	539	374	978	1078			1137		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3	SB 4		
Volume Total	47	120	64	64	64	240	127	127	127	92		
Volume Left	0	0	0	0	0	0	0	0	0	0		
Volume Right	47	120	0	0	0	240	0	0	0	29		
cSH	860	978	1700	1700	1700	1700	1700	1700	1700	1700		
Volume to Capacity	0.05	0.12	0.04	0.04	0.04	0.14	0.07	0.07	0.07	0.05		
Queue Length 95th (ft)	4	10	0	0	0	0	0	0	0	0		
Control Delay (s)	9.4	9.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Lane LOS	A	A										
Approach Delay (s)	9.4	9.2	0.0				0.0					
Approach LOS	A	A										
Intersection Summary												
Average Delay			1.4									
Intersection Capacity Utilization			20.8%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 13: Touchstone Cir & Seeton Square/Merchant Plaza

04/03/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	
Lane Configurations		↔			↔			↔	↕			↔	
Traffic Volume (veh/h)	6	7	42	194	10	19	137	38	54	57	1	7	
Future Volume (Veh/h)	6	7	42	194	10	19	137	38	54	57	1	7	
Sign Control		Stop				Stop				Free			
Grade		-2%				0%				-1%			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	7	8	46	211	11	21	0	41	59	62	0	8	
Pedestrians		4				3				6			
Lane Width (ft)		12.0				12.0				12.0			
Walking Speed (ft/s)		4.0				4.0				4.0			
Percent Blockage		0				0				1			
Right turn flare (veh)													
Median type		None											
Median storage (veh)													
Upstream signal (ft)		589											
pX, platoon unblocked		0.00						0.00					
vC, conflicting volume	228	294	45	280	265	64	0	74			0	124	
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	228	294	45	280	265	64	0	74			0	124	
tC, single (s)	7.5	6.5	7.0	7.5	6.5	6.9	0.0	4.1			0.0	4.1	
tC, 2 stage (s)													
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	0.0	2.2			0.0	2.2	
p0 queue free %	99	99	95	64	98	98	0	97			0	99	
cM capacity (veh/h)	667	597	1003	594	620	990	0	1533			0	1472	
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3					
Volume Total	61	243	41	39	82	8	45	25					
Volume Left	7	211	41	0	0	8	0	0					
Volume Right	46	21	0	0	62	0	0	3					
cSH	875	616	1533	1700	1700	1472	1700	1700					
Volume to Capacity	0.07	0.39	0.03	0.02	0.05	0.01	0.03	0.01					
Queue Length 95th (ft)	6	47	2	0	0	0	0	0					
Control Delay (s)	9.4	14.6	7.4	0.0	0.0	7.5	0.0	0.0					
Lane LOS	A	B	A			A							
Approach Delay (s)	9.4	14.6	1.9			0.8							
Approach LOS	A	B											
Intersection Summary													
Average Delay			8.2										
Intersection Capacity Utilization			42.1%		ICU Level of Service				A				
Analysis Period (min)			15										

HCM Unsignalized Intersection Capacity Analysis
 13: Touchstone Cir & Seeton Square/Merchant Plaza

04/03/2023



Movement	SBT	SBR
Lane Configurations	↑↑	
Traffic Volume (veh/h)	62	3
Future Volume (Veh/h)	62	3
Sign Control	Free	
Grade	2%	
Peak Hour Factor	0.92	0.92
Hourly flow rate (vph)	67	3
Pedestrians	1	
Lane Width (ft)	12.0	
Walking Speed (ft/s)	4.0	
Percent Blockage	0	
Right turn flare (veh)		
Median type	None	
Median storage (veh)		
Upstream signal (ft)		
pX, platoon unblocked		
vC, conflicting volume		
vC1, stage 1 conf vol		
vC2, stage 2 conf vol		
vCu, unblocked vol		
tC, single (s)		
tC, 2 stage (s)		
tF (s)		
p0 queue free %		
cM capacity (veh/h)		
Direction, Lane #		

HCM 6th TWSC
 13: Touchstone Cir & Seeton Square/Merchant Plaza

04/03/2023

Intersection														
Int Delay, s/veh	13.8													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↕			↕	↕	
Traffic Vol, veh/h	6	7	42	194	10	19	137	38	54	57	1	7	62	3
Future Vol, veh/h	6	7	42	194	10	19	137	38	54	57	1	7	62	3
Conflicting Peds, #/hr	0	0	6	2	0	1	0	4	0	3	0	1	0	4
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	-	None	-	-	-	None
Storage Length	-	-	-	-	-	-	-	0	-	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	-	0	-	-	-	0	-
Grade, %	-	-2	-	-	0	-	-	-	-1	-	-	-	2	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	3	1	0	0	0	0	1	2	2	0	1	0
Mvmt Flow	7	8	46	211	11	21	149	41	59	62	1	8	67	3

Major/Minor	Minor2		Minor1		Major1			Major2						
Conflicting Flow All	507	595	45	535	565	65	71	74	0	0	121	124	0	0
Stage 1	91	91	-	473	473	-	-	-	-	-	-	-	-	-
Stage 2	416	504	-	62	92	-	-	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.1	6.76	7.52	6.5	6.9	6.4	4.1	-	-	6.44	4.1	-	-
Critical Hdwy Stg 1	6.1	5.1	-	6.52	5.5	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.1	-	6.52	5.5	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.33	3.51	4	3.3	2.5	2.2	-	-	2.52	2.2	-	-
Pot Cap-1 Maneuver	479	449	1014	431	437	992	1301	1538	-	-	1200	1475	-	-
Stage 1	921	832	-	544	562	-	-	-	-	-	-	-	-	-
Stage 2	618	576	-	945	823	-	-	-	-	-	-	-	-	-
Platoon blocked, %									-	-			-	-
Mov Cap-1 Maneuver	404	379	1006	356	369	989	1300	1300	-	-	1426	1426	-	-
Mov Cap-2 Maneuver	404	379	-	356	369	-	-	-	-	-	-	-	-	-
Stage 1	784	825	-	463	479	-	-	-	-	-	-	-	-	-
Stage 2	504	491	-	884	816	-	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	10.3		30.2		5		0.8	
HCM LOS	B		D					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1300	-	-	733	377	1426	-
HCM Lane V/C Ratio	0.146	-	-	0.082	0.643	0.006	-
HCM Control Delay (s)	8.2	-	-	10.3	30.2	7.5	-
HCM Lane LOS	A	-	-	B	D	A	-
HCM 95th %tile Q(veh)	0.5	-	-	0.3	4.3	0	-

HCM Unsignalized Intersection Capacity Analysis
 14: Touchstone Circle & Merchant Plaza/CVS

04/03/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	13	5	104	53	10	5	97	53	59	1	61	16
Future Volume (Veh/h)	13	5	104	53	10	5	97	53	59	1	61	16
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			-3%			3%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	14	5	113	58	11	5	105	58	64	1	66	17
Pedestrians		11			7			12			6	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh												
Upstream signal (ft)								350				
pX, platoon unblocked												
vC, conflicting volume	343	426	64	470	403	74	94			129		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	343	426	64	470	403	74	94			129		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	97	99	88	85	98	99	93			100		
cM capacity (veh/h)	534	479	974	389	494	969	1499			1461		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	132	74	134	93	34	50						
Volume Left	14	58	105	0	1	0						
Volume Right	113	5	0	64	0	17						
cSH	864	419	1499	1700	1461	1700						
Volume to Capacity	0.15	0.18	0.07	0.05	0.00	0.03						
Queue Length 95th (ft)	13	16	6	0	0	0						
Control Delay (s)	9.9	15.4	6.1	0.0	0.2	0.0						
Lane LOS	A	C	A		A							
Approach Delay (s)	9.9	15.4	3.6		0.1							
Approach LOS	A	C										
Intersection Summary												
Average Delay			6.3									
Intersection Capacity Utilization			30.0%		ICU Level of Service				A			
Analysis Period (min)			15									

Intersection												
Int Delay, s/veh	6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	13	5	104	53	10	5	97	53	59	1	61	16
Future Vol, veh/h	13	5	104	53	10	5	97	53	59	1	61	16
Conflicting Peds, #/hr	3	0	12	4	0	6	8	0	7	3	0	11
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	-	-	-3	-	-	3	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	2	0	0	0	0
Mvmt Flow	14	5	113	58	11	5	105	58	64	1	66	17

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	339	427	65	357	403	74	94	0	0	129	0	0
Stage 1	88	88	-	307	307	-	-	-	-	-	-	-
Stage 2	251	339	-	50	96	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	596	523	992	579	539	979	1513	-	-	1469	-	-
Stage 1	916	826	-	683	665	-	-	-	-	-	-	-
Stage 2	737	643	-	963	819	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	541	475	973	470	490	968	1499	-	-	1460	-	-
Mov Cap-2 Maneuver	541	475	-	470	490	-	-	-	-	-	-	-
Stage 1	839	818	-	628	610	-	-	-	-	-	-	-
Stage 2	662	590	-	836	811	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.9	13.6	3.5	0.1
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1499	-	-	863	492	1460	-
HCM Lane V/C Ratio	0.07	-	-	0.154	0.15	0.001	-
HCM Control Delay (s)	7.6	0.1	-	9.9	13.6	7.5	0
HCM Lane LOS	A	A	-	A	B	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0.5	0.5	0	-

HCM Unsignalized Intersection Capacity Analysis

15: Prince William Pkwy & Chinn Park Dr

04/03/2023



Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations								
Traffic Volume (veh/h)	0	68	2013	278	0	2216		
Future Volume (Veh/h)	0	68	2013	278	0	2216		
Sign Control	Stop		Free			Free		
Grade	0%		1%			0%		
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93		
Hourly flow rate (vph)	0	73	2165	299	0	2383		
Pedestrians	3					3		
Lane Width (ft)	12.0					12.0		
Walking Speed (ft/s)	4.0					4.0		
Percent Blockage	0					0		
Right turn flare (veh)								
Median type			None			None		
Median storage (veh)								
Upstream signal (ft)			990			666		
pX, platoon unblocked	0.80	0.73			0.73			
vC, conflicting volume	3112	697			2168			
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol	1161	0			763			
tC, single (s)	6.8	6.9			4.1			
tC, 2 stage (s)								
tF (s)	3.5	3.3			2.2			
p0 queue free %	100	91			100			
cM capacity (veh/h)	152	790			627			
Direction, Lane #	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3
Volume Total	73	619	619	619	608	794	794	794
Volume Left	0	0	0	0	0	0	0	0
Volume Right	73	0	0	0	299	0	0	0
cSH	790	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.09	0.36	0.36	0.36	0.36	0.47	0.47	0.47
Queue Length 95th (ft)	8	0	0	0	0	0	0	0
Control Delay (s)	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	B							
Approach Delay (s)	10.0	0.0				0.0		
Approach LOS	B							
Intersection Summary								
Average Delay			0.1					
Intersection Capacity Utilization			53.8%		ICU Level of Service			A
Analysis Period (min)			15					

HCM Signalized Intersection Capacity Analysis

16: Prince William Pkwy & Kenwood Dr./

School Entrance

04/03/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations		↔			↔	↔		↔	↑↑↑	↔		↔
Traffic Volume (vph)	53	1	108	12	1	8	2	116	2226	26	5	2
Future Volume (vph)	53	1	108	12	1	8	2	116	2226	26	5	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			1%				-2%			
Total Lost time (s)		6.6			5.8	8.8		8.8	8.8	5.8		8.8
Lane Util. Factor		1.00			1.00	1.00		1.00	0.91	1.00		1.00
Frbp, ped/bikes		0.99			1.00	0.99		1.00	1.00	0.97		1.00
Flpb, ped/bikes		1.00			1.00	1.00		1.00	1.00	1.00		1.00
Frt		0.91			1.00	0.85		1.00	1.00	0.85		1.00
Flt Protected		0.98			0.96	1.00		0.95	1.00	1.00		0.95
Satd. Flow (prot)		1647			1807	1389		1805	5136	1582		1796
Flt Permitted		0.98			0.96	1.00		0.04	1.00	1.00		0.04
Satd. Flow (perm)		1647			1807	1389		81	5136	1582		73
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	56	1	114	13	1	8	2	122	2343	27	5	2
RTOR Reduction (vph)	0	45	0	0	0	7	0	0	0	8	0	0
Lane Group Flow (vph)	0	126	0	0	14	1	0	124	2343	19	0	7
Confl. Peds. (#/hr)	2		3	2		6		1		6		4
Heavy Vehicles (%)	0%	0%	1%	0%	0%	14%	0%	1%	2%	0%	0%	0%
Turn Type	Split	NA		Split	NA	pm+ov	custom	D.P+P	NA	pm+ov	custom	D.P+P
Protected Phases	3	3		4	4	5!		1	6	4		5
Permitted Phases						4	1	2		6	5!	6
Actuated Green, G (s)		15.5			8.0	10.8		106.5	103.7	111.7		106.5
Effective Green, g (s)		15.5			8.0	10.8		106.5	103.7	111.7		106.5
Actuated g/C Ratio		0.10			0.05	0.07		0.67	0.65	0.70		0.67
Clearance Time (s)		6.6			5.8	8.8		8.8	8.8	5.8		8.8
Vehicle Extension (s)		3.0			3.0	3.0		3.0	3.0	3.0		3.0
Lane Grp Cap (vph)		159			90	93		186	3328	1104		78
v/s Ratio Prot		c0.08			c0.01	0.00		c0.05	c0.46	0.00		0.00
v/s Ratio Perm						0.00		0.39		0.01		0.06
v/c Ratio		0.79			0.16	0.01		0.67	0.70	0.02		0.09
Uniform Delay, d1		70.7			72.8	69.6		40.0	18.2	7.4		15.0
Progression Factor		1.00			1.00	1.00		1.46	0.70	1.00		1.58
Incremental Delay, d2		23.0			0.8	0.0		7.3	1.1	0.0		0.0
Delay (s)		93.7			73.6	69.6		66.0	13.8	7.4		23.7
Level of Service		F			E	E		E	B	A		C
Approach Delay (s)		93.7			72.1				16.3			
Approach LOS		F			E				B			

Intersection Summary

HCM 2000 Control Delay	27.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	30.0
Intersection Capacity Utilization	94.0%	ICU Level of Service	F
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group



Movement	SBT	SBR
Lane Configurations	↑↑↑	↑
Traffic Volume (vph)	2105	105
Future Volume (vph)	2105	105
Ideal Flow (vphpl)	1900	1900
Grade (%)	1%	
Total Lost time (s)	8.8	6.6
Lane Util. Factor	0.91	1.00
Frpb, ped/bikes	1.00	0.98
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	5060	1571
Flt Permitted	1.00	1.00
Satd. Flow (perm)	5060	1571
Peak-hour factor, PHF	0.95	0.95
Adj. Flow (vph)	2216	111
RTOR Reduction (vph)	0	25
Lane Group Flow (vph)	2216	86
Confl. Peds. (#/hr)		3
Heavy Vehicles (%)	2%	0%
Turn Type	NA	pm+ov
Protected Phases	2	3
Permitted Phases		2
Actuated Green, G (s)	94.2	109.7
Effective Green, g (s)	94.2	109.7
Actuated g/C Ratio	0.59	0.69
Clearance Time (s)	8.8	6.6
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	2979	1077
v/s Ratio Prot	c0.44	0.01
v/s Ratio Perm		0.05
v/c Ratio	0.74	0.08
Uniform Delay, d1	24.1	8.4
Progression Factor	1.47	1.42
Incremental Delay, d2	0.2	0.0
Delay (s)	35.6	11.9
Level of Service	D	B
Approach Delay (s)	34.4	
Approach LOS	C	
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

17: Prince William Pkwy & Hillendale Road

04/03/2023



Movement	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Lane Configurations	↖↗	↖		↖↗	↑↑↑	↘	↑↑↑	↖
Traffic Volume (vph)	295	247	2	563	2075	0	1760	467
Future Volume (vph)	295	247	2	563	2075	0	1760	467
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)	2%				1%		2%	
Total Lost time (s)	6.5	8.0		8.0	5.5		5.5	6.5
Lane Util. Factor	0.97	1.00		0.97	0.91		0.91	1.00
Frbp, ped/bikes	1.00	0.99		1.00	1.00		1.00	0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00
Fr _t	1.00	0.85		1.00	1.00		1.00	0.85
Fl _t Protected	0.95	1.00		0.95	1.00		1.00	1.00
Satd. Flow (prot)	3432	1546		3415	5060		5034	1564
Fl _t Permitted	0.95	1.00		0.29	1.00		1.00	1.00
Satd. Flow (perm)	3432	1546		1027	5060		5034	1564
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	314	263	2	599	2207	0	1872	497
RTOR Reduction (vph)	0	5	0	0	0	0	0	0
Lane Group Flow (vph)	314	258	0	601	2207	0	1872	497
Confl. Peds. (#/hr)		6		3				3
Confl. Bikes (#/hr)		1						
Heavy Vehicles (%)	1%	2%	0%	2%	2%	0%	2%	1%
Turn Type	Prot	pm+ov	custom	Prot	NA	Prot	NA	pm+ov
Protected Phases	4	5!		5	2	1	6	4
Permitted Phases		4	5!					6
Actuated Green, G (s)	30.2	44.2		14.0	117.8		95.8	126.0
Effective Green, g (s)	30.2	44.2		14.0	117.8		95.8	126.0
Actuated g/C Ratio	0.19	0.28		0.09	0.74		0.60	0.79
Clearance Time (s)	6.5	8.0		8.0	5.5		5.5	6.5
Vehicle Extension (s)	4.0	4.0		4.0	4.0		4.0	4.0
Lane Grp Cap (vph)	647	427		89	3725		3014	1231
v/s Ratio Prot	0.09	c0.05			0.44		c0.37	0.08
v/s Ratio Perm		0.11		c0.59				0.24
v/c Ratio	0.49	0.60		6.75	0.59		0.62	0.40
Uniform Delay, d ₁	58.0	50.3		73.0	9.9		20.5	5.3
Progression Factor	1.00	1.00		1.00	1.00		0.16	0.12
Incremental Delay, d ₂	0.8	2.8		2612.3	0.7		0.7	0.2
Delay (s)	58.7	53.1		2685.3	10.6		3.9	0.9
Level of Service	E	D		F	B		A	A
Approach Delay (s)	56.2				583.0		3.3	
Approach LOS	E				F		A	

Intersection Summary			
HCM 2000 Control Delay	291.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.22		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	84.0%	ICU Level of Service	E
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 18: Library/Fitness Ctr/Troupe Street & Chinn Park Dr

04/03/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗		↔		↖	↗		↖	↗	
Traffic Volume (veh/h)	125	32	59	1	6	37	14	98	1	49	82	1
Future Volume (Veh/h)	125	32	59	1	6	37	14	98	1	49	82	1
Sign Control		Free			Free			Stop			Stop	
Grade		1%			-2%			-2%			3%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	136	35	64	1	7	40	15	107	1	53	89	1
Pedestrians		3			7			3			7	
Lane Width (ft)		12.0			10.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		0			0			0			1	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	54			102			388	366	45	404	410	37
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	54			102			388	366	45	404	410	37
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	91			100			97	79	100	88	81	100
cM capacity (veh/h)	1536			1499			455	511	1023	431	477	1032
Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	SB 1	SB 2					
Volume Total	171	64	48	15	108	53	90					
Volume Left	136	0	1	15	0	53	0					
Volume Right	0	64	40	0	1	0	1					
cSH	1536	1700	1499	455	514	431	480					
Volume to Capacity	0.09	0.04	0.00	0.03	0.21	0.12	0.19					
Queue Length 95th (ft)	7	0	0	3	20	10	17					
Control Delay (s)	6.2	0.0	0.2	13.2	13.9	14.5	14.2					
Lane LOS	A		A	B	B	B	B					
Approach Delay (s)	4.5		0.2	13.8		14.3						
Approach LOS				B		B						
Intersection Summary												
Average Delay			8.8									
Intersection Capacity Utilization			31.7%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM 6th TWSC
 18: Library/Fitness Ctr/Troupe Street & Chinn Park Dr

04/03/2023

Intersection												
Int Delay, s/veh	8.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↕		↕		↕	↕		↕	↕	
Traffic Vol, veh/h	125	32	59	1	6	37	14	98	1	49	82	1
Future Vol, veh/h	125	32	59	1	6	37	14	98	1	49	82	1
Conflicting Peds, #/hr	1	0	3	1	0	7	2	0	7	6	0	3
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	0	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	1	-	-	-2	-	-	-2	-	-	3	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	0	0	0	0	6	0	0	0	0	4	0
Mvmt Flow	136	35	64	1	7	40	15	107	1	53	89	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	54	0	0	102	0	0	387	366	45	436	410	37
Stage 1	-	-	-	-	-	-	310	310	-	36	36	-
Stage 2	-	-	-	-	-	-	77	56	-	400	374	-
Critical Hdwy	4.13	-	-	4.1	-	-	6.7	6.1	6	7.7	7.14	6.5
Critical Hdwy Stg 1	-	-	-	-	-	-	5.7	5.1	-	6.7	6.14	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.7	5.1	-	6.7	6.14	-
Follow-up Hdwy	2.227	-	-	2.2	-	-	3.5	4	3.3	3.5	4.036	3.3
Pot Cap-1 Maneuver	1545	-	-	1503	-	-	601	589	1033	497	493	1038
Stage 1	-	-	-	-	-	-	729	686	-	979	856	-
Stage 2	-	-	-	-	-	-	945	857	-	590	577	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1536	-	-	1499	-	-	469	529	1025	386	443	1029
Mov Cap-2 Maneuver	-	-	-	-	-	-	469	529	-	386	443	-
Stage 1	-	-	-	-	-	-	659	620	-	882	850	-
Stage 2	-	-	-	-	-	-	842	851	-	440	522	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	4.4			0.2			13.4			15.4		
HCM LOS							B			C		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	469	532	1536	-	-	1499	-	-	386	446
HCM Lane V/C Ratio	0.032	0.202	0.088	-	-	0.001	-	-	0.138	0.202
HCM Control Delay (s)	12.9	13.5	7.6	0	-	7.4	0	-	15.8	15.1
HCM Lane LOS	B	B	A	A	-	A	A	-	C	C
HCM 95th %tile Q(veh)	0.1	0.8	0.3	-	-	0	-	-	0.5	0.7

Intersection														
Int Delay, s/veh	46.7													
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕ ↑↑↑				↕ ↑↑↑	↕			↕			↕	
Traffic Vol, veh/h	2	23	2663	0	1	8	1938	60	0	0	1	33	0	11
Future Vol, veh/h	2	23	2663	0	1	8	1938	60	0	0	1	33	0	11
Conflicting Peds, #/hr	0	2	0	1	1	0	0	2	0	0	1	0	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	-	None	-	-	-	None	-	-	None	-	-	None
Storage Length	-	465	-	-	-	450	-	450	-	-	-	-	-	-
Veh in Median Storage, #	-	-	0	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-	1	-	-	-	-1	-	-	-1	-	-	5	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	0	5	6	0	0	0	6	4	0	0	0	0	0	0
Mvmt Flow	2	23	2717	0	1	8	1978	61	0	0	1	34	0	11

Major/Minor	Major1			Major2			Minor1			Minor2				
Conflicting Flow All	1444	2041	0	0	1984	2718	0	0	3579	4827	1361	3136	4766	993
Stage 1	-	-	-	-	-	-	-	-	2768	2768	-	1998	1998	-
Stage 2	-	-	-	-	-	-	-	-	811	2059	-	1138	2768	-
Critical Hdwy	5.6	5.4	-	-	5.6	5.3	-	-	6.2	6.3	7	7.4	7.5	7.6
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	7.1	5.3	-	8.3	6.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	6.5	5.3	-	7.7	6.5	-
Follow-up Hdwy	2.3	3.15	-	-	2.3	3.1	-	-	3.8	4	3.9	3.8	4	3.9
Pot Cap-1 Maneuver	254	115	-	-	126	55	-	-	8	1	125	~5	0	185
Stage 1	-	-	-	-	-	-	-	-	12	49	-	~23	61	-
Stage 2	-	-	-	-	-	-	-	-	326	111	-	143	20	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	120	120	-	-	59	59	-	-	6	1	125	~4	0	184
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	6	1	-	~4	0	-
Stage 1	-	-	-	-	-	-	-	-	9	38	-	~18	52	-
Stage 2	-	-	-	-	-	-	-	-	259	94	-	111	16	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0.3	34	\$ 4996.9
HCM LOS			D	F

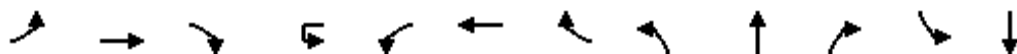
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	125	120	-	-	59	-	-	5
HCM Lane V/C Ratio	0.008	0.213	-	-	0.156	-	-	8.98
HCM Control Delay (s)	34	42.9	-	-	77.5	-	-	\$ 4996.9
HCM Lane LOS	D	E	-	-	F	-	-	F
HCM 95th %tile Q(veh)	0	0.8	-	-	0.5	-	-	7.3

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM Signalized Intersection Capacity Analysis

2: Ridgewood Center Drive/Laurel Hills Drive & Prince William Pkwy

05/30/2024



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations	↵	↑↑↑			↵	↑↑↑			↕			↕
Traffic Volume (vph)	0	2654	44	9	86	1967	1	37	0	10	5	0
Future Volume (vph)	0	2654	44	9	86	1967	1	37	0	10	5	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	10	10
Grade (%)		0%				0%			0%			5%
Total Lost time (s)		6.0			6.5	6.0			6.5			6.5
Lane Util. Factor		0.91			1.00	0.91			1.00			1.00
Frbp, ped/bikes		1.00			1.00	1.00			1.00			0.95
Flpb, ped/bikes		1.00			1.00	1.00			1.00			1.00
Frt		1.00			1.00	1.00			0.97			0.98
Flt Protected		1.00			0.95	1.00			0.96			0.96
Satd. Flow (prot)		4930			1805	4938			1769			1319
Flt Permitted		1.00			0.21	1.00			0.96			0.96
Satd. Flow (perm)		4930			390	4938			1769			1319
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	2885	48	10	93	2138	1	40	0	11	5	0
RTOR Reduction (vph)	0	1	0	0	0	0	0	0	49	0	0	6
Lane Group Flow (vph)	0	2932	0	0	103	2139	0	0	2	0	0	0
Confl. Peds. (#/hr)	8		1		1		10			3	2	
Heavy Vehicles (%)	0%	5%	0%	0%	0%	5%	100%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		custom	Prot	NA		Split	NA		Split	NA
Protected Phases	5	2			1	6		4	4		3	3
Permitted Phases				1								
Actuated Green, G (s)		79.4			19.5	105.4			4.6			1.0
Effective Green, g (s)		79.4			19.5	105.4			4.6			1.0
Actuated g/C Ratio		0.61			0.15	0.81			0.04			0.01
Clearance Time (s)		6.0			6.5	6.0			6.5			6.5
Vehicle Extension (s)		3.5			3.0	3.5			3.0			3.0
Lane Grp Cap (vph)		3011			58	4003			62			10
v/s Ratio Prot		c0.59				0.43			c0.00			c0.00
v/s Ratio Perm					c0.26							
v/c Ratio		0.97			1.78	0.53			0.03			0.00
Uniform Delay, d1		24.3			55.2	4.1			60.5			64.0
Progression Factor		1.00			0.89	1.61			1.00			1.00
Incremental Delay, d2		11.3			398.7	0.4			0.2			0.2
Delay (s)		35.6			448.0	7.0			60.7			64.2
Level of Service		D			F	A			E			E
Approach Delay (s)		35.6				27.3			60.7			64.2
Approach LOS		D				C			E			E

Intersection Summary

HCM 2000 Control Delay	32.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	25.5
Intersection Capacity Utilization	80.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 2: Ridgewood Center Drive/Laurel Hills Drive & Prince William Pkwy

05/30/2024

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	1
Future Volume (vph)	1
Ideal Flow (vphpl)	1900
Lane Width	10
Grade (%)	
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	1
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	8
Heavy Vehicles (%)	100%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM 6th Signalized Intersection Summary

4: Prince William Pkwy & Old Bridge Road

07/30/2024



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↖↗	↖↗↖↗	↑↑↑	↗	↖↗↖↗	↑↑↑
Traffic Volume (veh/h)	564	1019	1070	274	1041	1573
Future Volume (veh/h)	564	1019	1070	274	1041	1573
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1817	1802	1805	1835	1811	1841
Adj Flow Rate, veh/h	588	1061	1115	285	1084	1639
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	4	5	6	4	6	4
Cap, veh/h	2472	3461	1630	1659	1253	3247
Arrive On Green	0.74	0.74	0.33	0.33	0.26	0.65
Sat Flow, veh/h	3357	3482	5091	1555	4864	5191
Grp Volume(v), veh/h	588	1061	1115	285	1084	1639
Grp Sat Flow(s),veh/h/ln	1679	1161	1643	1555	1621	1675
Q Serve(g_s), s	7.3	0.4	25.4	0.0	27.7	22.3
Cycle Q Clear(g_c), s	7.3	0.4	25.4	0.0	27.7	22.3
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	2472	3461	1630	1659	1253	3247
V/C Ratio(X)	0.24	0.31	0.68	0.17	0.86	0.50
Avail Cap(c_a), veh/h	2472	3461	1630	1659	1253	3247
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	5.5	0.0	37.6	0.0	46.1	12.1
Incr Delay (d2), s/veh	0.2	0.2	1.2	0.0	8.1	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	12.9	10.1	6.4	11.8	7.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	5.7	0.2	38.8	0.0	54.2	12.6
LnGrp LOS	A	A	D	A	D	B
Approach Vol, veh/h	1649		1400			2723
Approach Delay, s/veh	2.2		30.9			29.2
Approach LOS	A		C			C
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		91.8		108.2	41.0	50.8
Change Period (Y+Rc), s		* 7.8		10.5	7.5	* 7.8
Max Green Setting (Gmax), s		* 84		29.7	33.5	* 41
Max Q Clear Time (g_c+I1), s		24.3		9.3	29.7	27.4
Green Ext Time (p_c), s		5.8		15.9	1.8	5.2

Intersection Summary

HCM 6th Ctrl Delay	21.9
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM Signalized Intersection Capacity Analysis
 6: Troupe Street/Glen Shopping Ctr & Old Bridge Road

07/30/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	138	1108	54	89	1343	82	95	10	149	70	6	67
Future Volume (vph)	138	1108	54	89	1343	82	95	10	149	70	6	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			7%			-1%			0%	
Total Lost time (s)	7.0	6.5		7.0	6.0		4.0	8.0	8.0	7.0	7.0	7.0
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.99	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Fr t	1.00	0.99		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Fl t Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1823	4908		1598	4770		1724	1909	1442	1803	1900	1560
Fl t Permitted	0.95	1.00		0.95	1.00		0.75	1.00	1.00	0.60	1.00	1.00
Satd. Flow (perm)	1823	4908		1598	4770		1367	1909	1442	1144	1900	1560
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	150	1204	59	97	1460	89	103	11	162	76	7	73
RTOR Reduction (vph)	0	3	0	0	4	0	0	0	151	0	0	66
Lane Group Flow (vph)	150	1260	0	97	1545	0	103	11	11	76	7	7
Confl. Peds. (#/hr)			3			6	3		2	2		7
Heavy Vehicles (%)	0%	6%	4%	9%	4%	1%	5%	0%	11%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases							4		4	8		8
Actuated Green, G (s)	23.5	70.1		17.0	64.1		15.0	8.8	8.8	17.8	12.2	12.2
Effective Green, g (s)	23.5	70.1		17.0	64.1		15.0	8.8	8.8	17.8	12.2	12.2
Actuated g/C Ratio	0.18	0.54		0.13	0.49		0.12	0.07	0.07	0.14	0.09	0.09
Clearance Time (s)	7.0	6.5		7.0	6.0		4.0	8.0	8.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	329	2646		208	2351		174	129	97	185	178	146
v/s Ratio Prot	c0.08	c0.26		0.06	c0.32		c0.03	0.01		0.02	0.00	
v/s Ratio Perm							c0.04		0.01	0.04		0.00
v/c Ratio	0.46	0.48		0.47	0.66		0.59	0.09	0.11	0.41	0.04	0.05
Uniform Delay, d1	47.5	18.6		52.3	24.7		54.1	56.8	56.9	50.6	53.6	53.6
Progression Factor	0.39	1.50		0.76	1.09		0.63	0.69	0.76	1.00	1.00	1.00
Incremental Delay, d2	0.7	0.4		1.4	1.2		5.0	0.3	0.5	1.5	0.1	0.1
Delay (s)	19.1	28.4		41.4	28.0		38.8	39.7	43.6	52.1	53.7	53.7
Level of Service	B	C		D	C		D	D	D	D	D	D
Approach Delay (s)		27.4			28.8			41.6			52.9	
Approach LOS		C			C			D			D	
Intersection Summary												
HCM 2000 Control Delay			30.3				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.62									
Actuated Cycle Length (s)			130.0				Sum of lost time (s)			28.5		
Intersection Capacity Utilization			66.3%				ICU Level of Service			C		
Analysis Period (min)			15									
c	Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

7: Titania Way/Touchstone Circle & Old Bridge Road

07/30/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑	↗		↕			↖	↗
Traffic Volume (vph)	66	1335	14	12	1430	51	18	1	16	78	0	73
Future Volume (vph)	66	1335	14	12	1430	51	18	1	16	78	0	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		4%			-7%			-3%			2%	
Total Lost time (s)	8.5	8.5	8.5	8.5	8.5	8.5		7.5			7.5	7.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00			1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98		0.99			1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00			1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		0.94			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.97			0.95	1.00
Satd. Flow (prot)	1638	3338	1432	1868	3593	1576		1699			1715	1483
Flt Permitted	0.12	1.00	1.00	0.16	1.00	1.00		0.80			0.73	1.00
Satd. Flow (perm)	202	3338	1432	311	3593	1576		1386			1323	1483
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	69	1405	15	13	1505	54	19	1	17	82	0	77
RTOR Reduction (vph)	0	0	5	0	0	18	0	15	0	0	0	70
Lane Group Flow (vph)	69	1405	10	13	1505	36	0	22	0	0	82	7
Confl. Peds. (#/hr)	4		1	1		6			3	2		4
Heavy Vehicles (%)	8%	6%	8%	0%	4%	4%	6%	0%	0%	4%	0%	6%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6		6	2		2	4			8		8
Actuated Green, G (s)	96.8	90.9	90.9	89.0	87.0	87.0		12.6			12.6	12.6
Effective Green, g (s)	96.8	90.9	90.9	89.0	87.0	87.0		12.6			12.6	12.6
Actuated g/C Ratio	0.74	0.70	0.70	0.68	0.67	0.67		0.10			0.10	0.10
Clearance Time (s)	8.5	8.5	8.5	8.5	8.5	8.5		7.5			7.5	7.5
Vehicle Extension (s)	2.0	8.0	8.0	2.0	8.0	8.0		2.0			2.0	2.0
Lane Grp Cap (vph)	215	2334	1001	236	2404	1054		134			128	143
v/s Ratio Prot	c0.01	c0.42		0.00	c0.42							
v/s Ratio Perm	0.22		0.01	0.04		0.02		0.02			c0.06	0.01
v/c Ratio	0.32	0.60	0.01	0.06	0.63	0.03		0.16			0.64	0.05
Uniform Delay, d1	8.7	10.2	5.9	7.4	12.2	7.3		53.9			56.5	53.3
Progression Factor	1.84	1.01	1.00	1.56	1.20	1.00		1.00			1.00	1.00
Incremental Delay, d2	0.3	1.1	0.0	0.0	1.0	0.0		0.2			7.9	0.1
Delay (s)	16.3	11.4	5.9	11.5	15.7	7.3		54.1			64.5	53.3
Level of Service	B	B	A	B	B	A		D			E	D
Approach Delay (s)		11.5			15.3			54.1			59.1	
Approach LOS		B			B			D			E	

Intersection Summary

HCM 2000 Control Delay	16.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	24.5
Intersection Capacity Utilization	75.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th TWSC
8: Old Bridge Road & Brussels Way

05/30/2024

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↑		↑
Traffic Vol, veh/h	0	1429	1482	10	0	11
Future Vol, veh/h	0	1429	1482	10	0	11
Conflicting Peds, #/hr	7	0	0	7	0	7
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	225	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	7	-1	-	1	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	6	4	0	0	0
Mvmt Flow	0	1553	1611	11	0	12

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	-	0	-	0	820
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	-	-	-	7
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0 315
Stage 1	0	-	-	-	0 -
Stage 2	0	-	-	-	0 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	311
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	17
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	311
HCM Lane V/C Ratio	-	-	-	0.038
HCM Control Delay (s)	-	-	-	17
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0.1

HCM 6th TWSC
 9: Old Bridge Ln/Church Entr & Old Bridge Road

05/30/2024

Intersection														
Int Delay, s/veh	13.3													
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↕↕	↕		↕	↕↕	↕		↕↕		↕		↕
Traffic Vol, veh/h	3	3	1405	18	6	10	1457	3	35	0	29	1	0	0
Future Vol, veh/h	3	3	1405	18	6	10	1457	3	35	0	29	1	0	0
Conflicting Peds, #/hr	0	5	0	4	0	4	0	5	0	0	4	0	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	-	None	-	-	-	None	-	-	None	-	-	None
Storage Length	-	365	-	340	-	225	-	230	-	-	-	0	-	0
Veh in Median Storage, #	-	-	0	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-	1	-	-	-	3	-	-	0	-	-	-1	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	0	0	6	1	0	7	4	0	0	0	0	0	0	0
Mvmt Flow	3	3	1448	19	6	10	1502	3	36	0	30	1	0	0

Major/Minor	Major1		Major2		Minor1		Minor2							
Conflicting Flow All	1502	1510	0	0	1448	1471	0	0	2252	3006	732	2279	-	761
Stage 1	-	-	-	-	-	-	-	-	1464	1464	-	1539	-	-
Stage 2	-	-	-	-	-	-	-	-	788	1542	-	740	-	-
Critical Hdwy	6.4	4.1	-	-	6.4	4.24	-	-	7.5	6.5	6.9	7.3	-	6.8
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	6.5	5.5	-	6.3	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	6.5	5.5	-	6.3	-	-
Follow-up Hdwy	2.5	2.2	-	-	2.5	2.27	-	-	3.5	4	3.3	3.5	-	3.3
Pot Cap-1 Maneuver	161	449	-	-	174	430	-	-	~23	14	368	25	0	360
Stage 1	-	-	-	-	-	-	-	-	137	195	-	134	0	-
Stage 2	-	-	-	-	-	-	-	-	355	178	-	395	0	-
Platoon blocked, %			-	-			-	-						
Mov Cap-1 Maneuver	237	237	-	-	263	263	-	-	~21	13	366	21	-	357
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	~21	13	-	21	-	-
Stage 1	-	-	-	-	-	-	-	-	133	190	-	130	-	-
Stage 2	-	-	-	-	-	-	-	-	332	167	-	352	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.2	\$ 608.9	185.1
HCM LOS			F	F

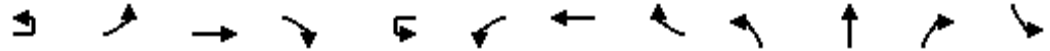
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	37	237	-	-	263	-	-	21	-
HCM Lane V/C Ratio	1.783	0.026	-	-	0.063	-	-	0.049	-
HCM Control Delay (s)	\$ 608.9	20.6	-	-	19.6	-	-	185.1	0
HCM Lane LOS	F	C	-	-	C	-	-	F	A
HCM 95th %tile Q(veh)	7.1	0.1	-	-	0.2	-	-	0.1	-

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM Signalized Intersection Capacity Analysis

10: Rockwood Lane/Westridge Drive & Old Bridge Road

05/30/2024



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations		↖	↕			↖	↕	↗		↕		
Traffic Volume (vph)	3	149	1289	0	8	0	1232	82	0	0	0	160
Future Volume (vph)	3	149	1289	0	8	0	1232	82	0	0	0	160
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)			1%				3%			0%		
Total Lost time (s)		8.6	8.6			8.6	8.6	8.6				
Lane Util. Factor		1.00	0.95			1.00	0.95	1.00				
Frbp, ped/bikes		1.00	1.00			1.00	1.00	0.98				
Flpb, ped/bikes		1.00	1.00			1.00	1.00	1.00				
Frt		1.00	1.00			1.00	1.00	0.85				
Flt Protected		0.95	1.00			0.95	1.00	1.00				
Satd. Flow (prot)		1680	3389			1775	3387	1517				
Flt Permitted		0.11	1.00			0.19	1.00	1.00				
Satd. Flow (perm)		199	3389			358	3387	1517				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	3	162	1401	0	9	0	1339	89	0	0	0	174
RTOR Reduction (vph)	0	0	0	0	0	0	0	39	0	0	0	0
Lane Group Flow (vph)	0	165	1401	0	0	9	1339	50	0	0	0	0
Confl. Peds. (#/hr)		3		5		5		5			7	2
Heavy Vehicles (%)	0%	7%	6%	0%	0%	0%	5%	3%	0%	0%	0%	2%
Turn Type	custom	pm+pt	NA		Perm	Perm	NA	Perm				Perm
Protected Phases		1	6				2			8		
Permitted Phases	1!	6			2	2		2	8			4
Actuated Green, G (s)		92.3	92.3			73.0	73.0	73.0				
Effective Green, g (s)		92.3	92.3			73.0	73.0	73.0				
Actuated g/C Ratio		0.71	0.71			0.56	0.56	0.56				
Clearance Time (s)		8.6	8.6			8.6	8.6	8.6				
Vehicle Extension (s)		3.0	4.0			4.0	4.0	4.0				
Lane Grp Cap (vph)		263	2406			201	1901	851				
v/s Ratio Prot		0.05	c0.41				c0.40					
v/s Ratio Perm		0.39				0.03		0.03				
v/c Ratio		0.63	0.58			0.04	0.70	0.06				
Uniform Delay, d1		15.6	9.3			12.8	20.7	12.9				
Progression Factor		2.62	0.28			1.00	1.00	1.00				
Incremental Delay, d2		4.1	0.9			0.4	2.2	0.1				
Delay (s)		45.0	3.5			13.2	22.9	13.1				
Level of Service		D	A			B	C	B				
Approach Delay (s)			7.9				22.2			0.0		
Approach LOS			A				C			A		

Intersection Summary

HCM 2000 Control Delay	19.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	24.5
Intersection Capacity Utilization	88.2%	ICU Level of Service	E
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 10: Rockwood Lane/Westridge Drive & Old Bridge Road

05/30/2024



Movement	SBT	SBR
Lane Configurations	↔	↔
Traffic Volume (vph)	0	241
Future Volume (vph)	0	241
Ideal Flow (vphpl)	1900	1900
Grade (%)	-1%	
Total Lost time (s)	7.3	8.6
Lane Util. Factor	1.00	1.00
Frpb, ped/bikes	1.00	0.99
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	0.95	1.00
Satd. Flow (prot)	1774	1575
Flt Permitted	0.76	1.00
Satd. Flow (perm)	1414	1575
Peak-hour factor, PHF	0.92	0.92
Adj. Flow (vph)	0	262
RTOR Reduction (vph)	0	35
Lane Group Flow (vph)	174	227
Confl. Peds. (#/hr)		3
Heavy Vehicles (%)	0%	2%
Turn Type	NA	pm+ov
Protected Phases	4	1!
Permitted Phases		4
Actuated Green, G (s)	21.8	32.5
Effective Green, g (s)	21.8	32.5
Actuated g/C Ratio	0.17	0.25
Clearance Time (s)	7.3	8.6
Vehicle Extension (s)	3.5	3.0
Lane Grp Cap (vph)	237	393
v/s Ratio Prot		0.05
v/s Ratio Perm	c0.12	0.10
v/c Ratio	0.73	0.58
Uniform Delay, d1	51.3	42.7
Progression Factor	1.00	1.00
Incremental Delay, d2	11.5	2.1
Delay (s)	62.9	44.8
Level of Service	E	D
Approach Delay (s)	52.0	
Approach LOS	D	
Intersection Summary		

HCM 6th TWSC
 11: Exxon/Glen Shopping Ctr & Touchstone Cir

05/30/2024

Intersection												
Int Delay, s/veh	5.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗	↘	↗	↗		↗	↗
Traffic Vol, veh/h	0	0	18	0	0	61	17	16	13	0	31	17
Future Vol, veh/h	0	0	18	0	0	61	17	16	13	0	31	17
Conflicting Peds, #/hr	3	0	1	1	0	3	0	0	1	0	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Stop	-	-	Yield	-	-	Free	-	-	Free
Storage Length	-	-	0	-	-	0	115	-	100	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	2	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	5	1	0	2	0
Mvmt Flow	0	0	20	0	0	66	18	17	14	0	34	18

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	-	-	35	-	-	20	34	0	-	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.2	-	-	6.2	4.1	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.3	2.2	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	1044	0	0	1064	1591	-	0	0	-	0
Stage 1	0	0	-	0	0	-	-	-	0	0	-	0
Stage 2	0	0	-	0	0	-	-	-	0	0	-	0
Platoon blocked, %								-				-
Mov Cap-1 Maneuver	-	-	1043	-	-	1061	1591	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	8.5		8.6		3.8		0	
HCM LOS	A		A					

Minor Lane/Major Mvmt	NBL	NBT	EBLn1WBLn1	SBT
Capacity (veh/h)	1591	-	1043	1061
HCM Lane V/C Ratio	0.012	-	0.019	0.062
HCM Control Delay (s)	7.3	-	8.5	8.6
HCM Lane LOS	A	-	A	A
HCM 95th %tile Q(veh)	0	-	0.1	0.2

Intersection												
Int Delay, s/veh	4.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Vol, veh/h	2	1	3	19	4	3	24	23	13	5	11	10
Future Vol, veh/h	2	1	3	19	4	3	24	23	13	5	11	10
Conflicting Peds, #/hr	2	0	1	1	0	3	0	0	2	1	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-2	-	-	0	-	-	-1	-	-	2	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	7	1	0	0	0	13	0	20	2	0
Mvmt Flow	2	1	3	20	4	3	26	25	14	5	12	11

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	100	123	15	104	121	25	25	0	0	41	0	0
Stage 1	30	30	-	86	86	-	-	-	-	-	-	-
Stage 2	70	93	-	18	35	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.1	6.84	7.52	6.5	6.9	4.1	-	-	4.5	-	-
Critical Hdwy Stg 1	6.1	5.1	-	6.52	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.1	-	6.52	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.37	3.51	4	3.3	2.2	-	-	2.4	-	-
Pot Cap-1 Maneuver	886	782	1046	868	773	1052	1603	-	-	1445	-	-
Stage 1	992	877	-	915	827	-	-	-	-	-	-	-
Stage 2	945	830	-	1001	870	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	863	764	1043	849	755	1048	1600	-	-	1443	-	-
Mov Cap-2 Maneuver	863	764	-	849	755	-	-	-	-	-	-	-
Stage 1	974	873	-	899	812	-	-	-	-	-	-	-
Stage 2	920	815	-	992	866	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	8.9		9.4		2.9		1.4	
HCM LOS	A		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1600	-	-	923	851	1443	-	-
HCM Lane V/C Ratio	0.016	-	-	0.007	0.033	0.004	-	-
HCM Control Delay (s)	7.3	-	-	8.9	9.4	7.5	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-	-

Intersection												
Int Delay, s/veh	1.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	1	18	4	1	0	20	93	5	0	123	7
Future Vol, veh/h	4	1	18	4	1	0	20	93	5	0	123	7
Conflicting Peds, #/hr	0	0	5	2	0	4	3	0	6	4	0	3
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	-	-	-3	-	-	3	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	22	0	0	0	4	0
Mvmt Flow	4	1	20	4	1	0	22	101	5	0	134	8

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	240	297	79	227	299	63	145	0	0	112	0	0
Stage 1	141	141	-	154	154	-	-	-	-	-	-	-
Stage 2	99	156	-	73	145	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.54	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.42	-	-	2.2	-	-
Pot Cap-1 Maneuver	699	618	972	714	616	995	1300	-	-	1490	-	-
Stage 1	853	784	-	839	774	-	-	-	-	-	-	-
Stage 2	902	772	-	934	781	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	684	603	966	683	601	987	1297	-	-	1483	-	-
Mov Cap-2 Maneuver	684	603	-	683	601	-	-	-	-	-	-	-
Stage 1	836	782	-	820	756	-	-	-	-	-	-	-
Stage 2	882	754	-	910	779	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	9.2		10.5		1.3		0	
HCM LOS	A		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1297	-	-	880	665	1483	-	-
HCM Lane V/C Ratio	0.017	-	-	0.028	0.008	-	-	-
HCM Control Delay (s)	7.8	0	-	9.2	10.5	0	-	-
HCM Lane LOS	A	A	-	A	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	0	0	-	-

HCM Signalized Intersection Capacity Analysis

16: Prince William Pkwy & Kenwood Dr./

School Entrance

05/30/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations		↔			↔	↔			↑↑↑	↔		↔
Traffic Volume (vph)	45	1	79	29	1	28	2	24	1510	61	1	45
Future Volume (vph)	45	1	79	29	1	28	2	24	1510	61	1	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			1%				-2%			
Total Lost time (s)		6.6			5.8	8.8		8.8	8.8	5.8		8.8
Lane Util. Factor		1.00			1.00	1.00		1.00	0.91	1.00		1.00
Frbp, ped/bikes		0.99			1.00	1.00		1.00	1.00	0.98		1.00
Flpb, ped/bikes		1.00			1.00	1.00		1.00	1.00	1.00		1.00
Frt		0.91			1.00	0.85		1.00	1.00	0.85		1.00
Flt Protected		0.98			0.95	1.00		0.95	1.00	1.00		0.95
Satd. Flow (prot)		1623			1674	1488		1823	4989	1535		1712
Flt Permitted		0.98			0.95	1.00		0.05	1.00	1.00		0.11
Satd. Flow (perm)		1623			1674	1488		102	4989	1535		206
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	47	1	82	30	1	29	2	25	1573	64	1	47
RTOR Reduction (vph)	0	60	0	0	0	26	0	0	0	24	0	0
Lane Group Flow (vph)	0	70	0	0	31	3	0	27	1573	40	0	48
Confl. Peds. (#/hr)			4	2				2		2		
Heavy Vehicles (%)	5%	100%	0%	8%	0%	8%	0%	0%	5%	4%	0%	5%
Turn Type	Split	NA		Split	NA	pm+ov	custom	D.P+P	NA	pm+ov	custom	D.P+P
Protected Phases	3	3		4	4	5!		1	2	6	4	5
Permitted Phases						4	1	2		6	5!	6
Actuated Green, G (s)		12.3			8.2	13.8		79.5	73.9	82.1		79.5
Effective Green, g (s)		12.3			8.2	13.8		79.5	73.9	82.1		79.5
Actuated g/C Ratio		0.09			0.06	0.11		0.61	0.57	0.63		0.61
Clearance Time (s)		6.6			5.8	8.8		8.8	8.8	5.8		8.8
Vehicle Extension (s)		3.0			3.0	3.0		3.0	3.0	3.0		3.0
Lane Grp Cap (vph)		153			105	157		117	2836	969		190
v/s Ratio Prot		c0.04			c0.02	0.00		0.01	0.32	0.00		c0.01
v/s Ratio Perm						0.00		0.13		0.02		0.14
v/c Ratio		0.46			0.30	0.02		0.23	0.55	0.04		0.25
Uniform Delay, d1		55.7			58.1	52.0		14.4	17.7	9.1		11.5
Progression Factor		1.00			1.00	1.00		0.97	0.86	0.23		1.07
Incremental Delay, d2		2.2			1.6	0.1		0.9	0.7	0.0		0.6
Delay (s)		57.9			59.7	52.1		14.9	16.0	2.1		13.0
Level of Service		E			E	D		B	B	A		B
Approach Delay (s)		57.9			56.0				15.4			
Approach LOS		E			E				B			

Intersection Summary

HCM 2000 Control Delay	24.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	30.0
Intersection Capacity Utilization	75.7%	ICU Level of Service	D
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group



Movement	SBT	SBR
Lane Configurations	↑↑↑	↑
Traffic Volume (vph)	1997	50
Future Volume (vph)	1997	50
Ideal Flow (vphpl)	1900	1900
Grade (%)	1%	
Total Lost time (s)	8.8	6.6
Lane Util. Factor	0.91	1.00
Frpb, ped/bikes	1.00	0.98
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	4963	1500
Flt Permitted	1.00	1.00
Satd. Flow (perm)	4963	1500
Peak-hour factor, PHF	0.96	0.96
Adj. Flow (vph)	2080	52
RTOR Reduction (vph)	0	17
Lane Group Flow (vph)	2080	35
Confl. Peds. (#/hr)		2
Heavy Vehicles (%)	4%	5%
Turn Type	NA	pm+ov
Protected Phases	2	3
Permitted Phases		2
Actuated Green, G (s)	75.3	87.6
Effective Green, g (s)	75.3	87.6
Actuated g/C Ratio	0.58	0.67
Clearance Time (s)	8.8	6.6
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	2874	1010
v/s Ratio Prot	c0.42	0.00
v/s Ratio Perm		0.02
v/c Ratio	0.72	0.03
Uniform Delay, d1	19.8	7.1
Progression Factor	1.12	30.69
Incremental Delay, d2	1.4	0.0
Delay (s)	23.6	217.3
Level of Service	C	F
Approach Delay (s)	28.0	
Approach LOS	C	

Intersection Summary

HCM Signalized Intersection Capacity Analysis

17: Prince William Pkwy & Hillendale Road

05/30/2024



Movement	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Lane Configurations	↔↔	↔		↔↔	↑↑↑	↔	↑↑↑	↔
Traffic Volume (vph)	334	306	2	132	1263	0	1858	249
Future Volume (vph)	334	306	2	132	1263	0	1858	249
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)	2%				1%		2%	
Total Lost time (s)	6.5	8.0		8.0	5.5		5.5	6.5
Lane Util. Factor	0.97	1.00		0.97	0.91		0.91	1.00
Fr _t	1.00	0.85		1.00	1.00		1.00	0.85
Fl _t Protected	0.95	1.00		0.95	1.00		1.00	1.00
Satd. Flow (prot)	3399	1537		3384	4915		4938	1523
Fl _t Permitted	0.95	1.00		0.16	1.00		1.00	1.00
Satd. Flow (perm)	3399	1537		570	4915		4938	1523
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	363	333	2	143	1373	0	2020	271
RTOR Reduction (vph)	0	0	0	0	0	0	0	94
Lane Group Flow (vph)	363	333	0	145	1373	0	2020	177
Heavy Vehicles (%)	2%	4%	0%	3%	5%	0%	4%	5%
Turn Type	Prot	pm+ov	custom	Prot	NA	Prot	NA	pm+ov
Protected Phases	4	5!		5	2	1	6	4
Permitted Phases		4	5!					6
Actuated Green, G (s)	28.6	53.6		25.0	89.4		56.4	85.0
Effective Green, g (s)	28.6	53.6		25.0	89.4		56.4	85.0
Actuated g/C Ratio	0.22	0.41		0.19	0.69		0.43	0.65
Clearance Time (s)	6.5	8.0		8.0	5.5		5.5	6.5
Vehicle Extension (s)	4.0	4.0		4.0	4.0		4.0	4.0
Lane Grp Cap (vph)	747	633		109	3380		2142	995
v/s Ratio Prot	0.11	c0.10			0.28		c0.41	0.04
v/s Ratio Perm		0.12		c0.25				0.08
v/c Ratio	0.49	0.53		1.33	0.41		0.94	0.18
Uniform Delay, d ₁	44.3	28.7		52.5	8.8		35.3	8.8
Progression Factor	1.00	1.00		1.00	1.00		0.55	2.29
Incremental Delay, d ₂	0.7	1.0		198.4	0.4		8.2	0.1
Delay (s)	45.0	29.7		250.9	9.2		27.4	20.2
Level of Service	D	C		F	A		C	C
Approach Delay (s)	37.7				32.3		26.6	
Approach LOS	D				C		C	

Intersection Summary

HCM 2000 Control Delay	30.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	78.6%	ICU Level of Service	D
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group

Intersection												
Int Delay, s/veh	9.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↕		↕		↕	↕		↕	↕	
Traffic Vol, veh/h	212	5	25	1	2	18	9	36	0	8	74	4
Future Vol, veh/h	212	5	25	1	2	18	9	36	0	8	74	4
Conflicting Peds, #/hr	0	0	0	0	0	6	0	0	5	5	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	0	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	1	-	-	-2	-	-	-2	-	-	3	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	0	4	100	0	41	0	13	0	25	7	50
Mvmt Flow	230	5	27	1	2	20	10	39	0	9	80	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	28	0	0	32	0	0	522	495	10	523	512	19
Stage 1	-	-	-	-	-	-	465	465	-	20	20	-
Stage 2	-	-	-	-	-	-	57	30	-	503	492	-
Critical Hdwy	4.12	-	-	5.1	-	-	6.7	6.23	6	7.95	7.17	7
Critical Hdwy Stg 1	-	-	-	-	-	-	5.7	5.23	-	6.95	6.17	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.7	5.23	-	6.95	6.17	-
Follow-up Hdwy	2.218	-	-	3.1	-	-	3.5	4.117	3.3	3.725	4.063	3.75
Pot Cap-1 Maneuver	1585	-	-	1125	-	-	496	486	1078	394	421	934
Stage 1	-	-	-	-	-	-	612	574	-	939	866	-
Stage 2	-	-	-	-	-	-	966	852	-	469	497	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1577	-	-	1125	-	-	363	411	1074	321	356	929
Mov Cap-2 Maneuver	-	-	-	-	-	-	363	411	-	321	356	-
Stage 1	-	-	-	-	-	-	521	488	-	795	861	-
Stage 2	-	-	-	-	-	-	870	847	-	366	423	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	6.7			0.4			14.8			17.6		
HCM LOS							B			C		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	363	411	1577	-	-	1125	-	-	321	368
HCM Lane V/C Ratio	0.027	0.095	0.146	-	-	0.001	-	-	0.027	0.23
HCM Control Delay (s)	15.2	14.7	7.7	0	-	8.2	0	-	16.5	17.7
HCM Lane LOS	C	B	A	A	-	A	A	-	C	C
HCM 95th %tile Q(veh)	0.1	0.3	0.5	-	-	0	-	-	0.1	0.9

Intersection						
Int Delay, s/veh	0.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑					↑
Traffic Vol, veh/h	1258	57	0	0	0	15
Future Vol, veh/h	1258	57	0	0	0	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Free	-	None	-	Stop
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	-3	-	-	2	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	6	0	0	4	0	0
Mvmt Flow	1367	62	0	0	0	16

Major/Minor	Major1		Minor1	
Conflicting Flow All	0	-	-	684
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	-	7.1
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	-	3.9
Pot Cap-1 Maneuver	-	0	0	339
Stage 1	-	0	0	-
Stage 2	-	0	0	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	339
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	NB
HCM Control Delay, s	0	16.2
HCM LOS		C

Minor Lane/Major Mvmt	NBLn1	EBT
Capacity (veh/h)	339	-
HCM Lane V/C Ratio	0.048	-
HCM Control Delay (s)	16.2	-
HCM Lane LOS	C	-
HCM 95th %tile Q(veh)	0.2	-

Intersection						
Int Delay, s/veh	0.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			↑↑↑↑	↑		↑
Traffic Vol, veh/h	0	0	2021	68	0	42
Future Vol, veh/h	0	0	2021	68	0	42
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	Free	-	Stop
Storage Length	-	-	-	100	-	0
Veh in Median Storage, #	-	1	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	2197	74	0	46

Major/Minor	Major2	Minor2
Conflicting Flow All	-	0 - 1099
Stage 1	-	- -
Stage 2	-	- -
Critical Hdwy	-	- 7.14
Critical Hdwy Stg 1	-	- -
Critical Hdwy Stg 2	-	- -
Follow-up Hdwy	-	- 3.92
Pot Cap-1 Maneuver	-	0 0 178
Stage 1	-	0 0 -
Stage 2	-	0 0 -
Platoon blocked, %	-	
Mov Cap-1 Maneuver	-	- 178
Mov Cap-2 Maneuver	-	- -
Stage 1	-	- -
Stage 2	-	- -

Approach	WB	SB
HCM Control Delay, s	0	32.1
HCM LOS		D

Minor Lane/Major Mvmt	WBT	SBLn1
Capacity (veh/h)	-	178
HCM Lane V/C Ratio	-	0.256
HCM Control Delay (s)	-	32.1
HCM Lane LOS	-	D
HCM 95th %tile Q(veh)	-	1

Intersection						
Int Delay, s/veh	0.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			↑↑↑			↑
Traffic Vol, veh/h	0	0	1534	29	0	49
Future Vol, veh/h	0	0	1534	29	0	49
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	1	0	-	0	-
Grade, %	-	0	2	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	1534	29	0	49

Major/Minor	Major2	Minor2
Conflicting Flow All	-	0
Stage 1	-	-
Stage 2	-	-
Critical Hdwy	-	-
Critical Hdwy Stg 1	-	-
Critical Hdwy Stg 2	-	-
Follow-up Hdwy	-	-
Pot Cap-1 Maneuver	-	0
Stage 1	-	0
Stage 2	-	0
Platoon blocked, %	-	-
Mov Cap-1 Maneuver	-	-
Mov Cap-2 Maneuver	-	-
Stage 1	-	-
Stage 2	-	-

Approach	WB	SB
HCM Control Delay, s	0	20
HCM LOS		C

Minor Lane/Major Mvmt	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	289
HCM Lane V/C Ratio	-	-	0.17
HCM Control Delay (s)	-	-	20
HCM Lane LOS	-	-	C
HCM 95th %tile Q(veh)	-	-	0.6

Intersection						
Int Delay, s/veh	3.4					
Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations	↘			↗		↑
Traffic Vol, veh/h	49	0	0	0	0	83
Future Vol, veh/h	49	0	0	0	0	83
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	0	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	49	0	0	0	0	83

Major/Minor	Minor1	Major2	
Conflicting Flow All	83	-	-
Stage 1	0	-	-
Stage 2	83	-	-
Critical Hdwy	6.42	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	-	-
Pot Cap-1 Maneuver	919	0	0
Stage 1	-	0	-
Stage 2	940	0	-
Platoon blocked, %			-
Mov Cap-1 Maneuver	919	-	-
Mov Cap-2 Maneuver	919	-	-
Stage 1	-	-	-
Stage 2	940	-	-

Approach	NW	SW
HCM Control Delay, s	9.1	0
HCM LOS	A	

Minor Lane/Major Mvmt	NWLn1	SWT
Capacity (veh/h)	919	-
HCM Lane V/C Ratio	0.053	-
HCM Control Delay (s)	9.1	-
HCM Lane LOS	A	-
HCM 95th %tile Q(veh)	0.2	-

1: Black Forest Ln/Reids Prospect Dr & Prince William Pkwy Performance by movement

Movement	EBU	EBL	EBT	WBU	WBL	WBT	WBR	NBR	SBL	SBR	All
Denied Del/Veh (s)	3.2	1.8	0.5		0.1	0.0	0.1	0.1	1072.4	899.6	8.6
Total Del/Veh (s)	17.9	21.8	3.5		241.7	2.5	2.9	125.3	2845.2	2790.8	13.6

2: Ridgewood Center Drive/Laurel Hills Drive & Prince William Pkwy Performance by movement

Movement	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBR	SBL	SBR	All
Denied Del/Veh (s)	0.2	0.0	0.0	0.0	0.0	2.1	0.1	0.1	0.1	0.1	0.1
Total Del/Veh (s)	24.8	15.1	56.0	60.4	6.3	3.4	56.5	27.5	79.1	25.7	18.0

3: Prince William Pkwy & Seeton Square Performance by movement

Movement	SBR2	SET	SER	NWT	NWR	All
Denied Del/Veh (s)	0.1	0.1	0.2	0.0	0.2	0.1
Total Del/Veh (s)	1.2	7.6	5.2	11.2	10.3	9.1

4: Prince William Pkwy & Old Bridge Road Performance by movement

Movement	WBL	WBT	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.3	0.0	0.1	0.5	0.2	0.3	0.1	0.2
Total Del/Veh (s)	34.8	2.8	3.2	44.6	4.5	39.6	14.7	24.5

5: Tribe at the Glen & Old Bridge Road Performance by movement

Movement	EBT	EBR	WBT	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.1	0.0
Total Del/Veh (s)	5.3	2.5	3.4	0.4	4.2

6: Troupe Street/Glen Shopping Ctr & Old Bridge Road Performance by movement

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.1	0.1	0.2	0.4
Total Del/Veh (s)	77.8	23.1	9.6	69.1	58.9	23.2	17.8	51.7	54.7	15.7	52.6	45.4

6: Troupe Street/Glen Shopping Ctr & Old Bridge Road Performance by movement

Movement	SBR	All
Denied Del/Veh (s)	3.8	0.2
Total Del/Veh (s)	12.9	26.5

7: Titania Way/Touchstone Circle & Old Bridge Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.0		0.0
Total Del/Veh (s)	25.1	12.0	3.3	20.5	14.2	2.4	50.0	68.2	24.7	54.1		11.3

7: Titania Way/Touchstone Circle & Old Bridge Road Performance by movement

Movement	All
Denied Del/Veh (s)	0.0
Total Del/Veh (s)	14.5

8: Old Bridge Road & Brussels Way Performance by movement

Movement	EBT	WBT	WBR	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.1	0.0
Total Del/Veh (s)	3.4	1.7	0.5	16.7	2.6

9: Old Bridge Ln/Church Entr & Old Bridge Road Performance by movement

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBR	SBL	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.0
Total Del/Veh (s)	16.7	34.3	1.6	0.4	14.8	22.3	4.8	3.4	90.3	56.3	50.6	4.9

10: Rockwood Lane/Westridge Drive & Old Bridge Road Performance by movement

Movement	EBU	EBL	EBT	WBU	WBT	WBR	SBL	SBR	All
Denied Del/Veh (s)	0.0	0.1	0.0	2.1	0.4	2.3	0.2	0.3	0.3
Total Del/Veh (s)	38.6	40.4	5.9	30.7	20.7	2.9	49.0	22.2	16.6

11: Exxon/Glen Shopping Ctr & Touchstone Cir Performance by movement

Movement	EBR	WBR	NBL	NBT	NBR	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.1	1.6	0.1	1.8	0.0	0.0	0.3
Total Del/Veh (s)	0.7	0.9	1.6	0.2	1.1	0.5	0.6	0.8

13: Touchstone Cir & Seeton Square/Merchant Plaza Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	3.9	0.1	0.1
Total Del/Veh (s)	5.0	5.0	2.2	3.2	3.6	3.0	2.7	1.8	1.9	1.9	0.1	0.0

13: Touchstone Cir & Seeton Square/Merchant Plaza Performance by movement

Movement	All
Denied Del/Veh (s)	0.2
Total Del/Veh (s)	2.0

14: Touchstone Circle & Merchant Plaza/CVS Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.2	0.1
Total Del/Veh (s)	3.2	2.9	2.8	3.3	3.0	2.4	0.6	0.5	0.2	0.0	0.8

15: Prince William Pkwy & Chinn Park Dr Performance by movement

Movement	WBT	WBR	NBT	NBR	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	0.4	11.5	5.5	8.7	0.8	3.1

16: Prince William Pkwy & Kenwood Dr./ School Entrance Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Denied Del/Veh (s)	0.2	0.2	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.1		0.1
Total Del/Veh (s)	58.1	71.4	34.1	64.7	84.4	10.4	43.9	27.4	12.4	2.9		24.5

16: Prince William Pkwy & Kenwood Dr./ School Entrance Performance by movement

Movement	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.3	0.0
Total Del/Veh (s)	18.3	3.9	16.8

17: Prince William Pkwy & Hillendale Road Performance by movement

Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.5	0.3	2.0	0.2	0.2	0.0	0.0	0.1
Total Del/Veh (s)	41.5	21.2	54.4	56.7	10.1	22.8	7.3	20.5

18: Library/Fitness Ctr/Troupe Street & Chinn Park Dr Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0		0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0
Total Del/Veh (s)	7.4	5.4	5.1		0.2	0.2	6.4	6.6	6.0	4.5	4.1	5.9

21: Old Bridge Road Performance by movement

Movement	EBT	WBT	WBR	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0		0.0	0.0
Total Del/Veh (s)	5.3	5.1	1.3		39.5	5.8

33: Tribe at the Glen & Old Bridge Road Performance by movement

Movement	EBT	EBR	NBR	All
Denied Del/Veh (s)	0.1	0.2	0.1	0.1
Total Del/Veh (s)	1.3	1.3	0.4	1.3

38: Prince William Parkway & Seeton Square Performance by movement

Movement	WBT	WBR	SBR	All
Denied Del/Veh (s)	0.2	1.7	0.1	0.2
Total Del/Veh (s)	1.4	1.3	0.8	1.4

43: Old Bridge Rd & Touchstone Circle Performance by movement

Movement	WBT	WBR	SBR	All
Denied Del/Veh (s)	0.1	0.2	0.1	0.1
Total Del/Veh (s)	1.3	0.2	3.5	1.3

45: Performance by movement

Movement	NWL	SWT	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	4.3	0.1	1.7

46: Prince William Pkwy Performance by movement

Movement	SET	SER	NWT	All
Denied Del/Veh (s)	0.0	0.2	0.0	0.0
Total Del/Veh (s)	2.5	1.4	4.9	3.4

Total Network Performance

Denied Del/Veh (s)	3.4
Total Del/Veh (s)	55.3

Intersection: 1: Black Forest Ln/Reids Prospect Dr & Prince William Pkwy

Movement	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	SB
Directions Served	UL	T	T	TR	UL	T	T	T	R	LTR	LTR
Maximum Queue (ft)	59	139	162	16	63	15	19	38	8	17	309
Average Queue (ft)	15	9	9	1	16	1	1	2	0	1	280
95th Queue (ft)	43	90	125	11	56	8	9	17	6	11	341
Link Distance (ft)		725	725	725		1121	1121	1121		323	294
Upstream Blk Time (%)		0	0								80
Queuing Penalty (veh)		0	0								0
Storage Bay Dist (ft)	465				450				450		
Storage Blk Time (%)											
Queuing Penalty (veh)											

Intersection: 2: Ridgewood Center Drive/Laurel Hills Drive & Prince William Pkwy

Movement	EB	EB	EB	WB	WB	WB	WB	NB	SB
Directions Served	T	T	TR	UL	T	T	TR	LTR	LTR
Maximum Queue (ft)	924	855	738	157	240	284	284	100	46
Average Queue (ft)	420	342	253	72	64	78	91	42	7
95th Queue (ft)	801	728	556	135	168	193	214	86	30
Link Distance (ft)	1121	1121	1121		1050	1050	1050	414	441
Upstream Blk Time (%)	0	0							
Queuing Penalty (veh)	0	0							
Storage Bay Dist (ft)				470					
Storage Blk Time (%)	10								
Queuing Penalty (veh)	0								

Intersection: 3: Prince William Pkwy & Seeton Square

Movement	SB	SE	SE	SE	SE	SE	SE	NW	NW
Directions Served	>	T	T	T	T	T	T	T	T
Maximum Queue (ft)	27	86	94	84	27	54	88	5	9
Average Queue (ft)	1	13	12	7	1	3	11	0	0
95th Queue (ft)	14	60	58	45	16	28	51	5	8
Link Distance (ft)	236				1050	1050	1050	277	277
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)		150	150	150					
Storage Blk Time (%)		0							
Queuing Penalty (veh)		0							

Intersection: 4: Prince William Pkwy & Old Bridge Road

Movement	WB	WB	WB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	L	R	R	R	T	T	T	R	L	L	L
Maximum Queue (ft)	144	146	172	186	195	253	254	248	220	328	340	292
Average Queue (ft)	116	122	18	23	42	214	217	218	47	255	266	207
95th Queue (ft)	152	150	99	117	164	261	259	255	183	336	351	310
Link Distance (ft)	126	126	126	126	126	224	224	224	224	277	277	277
Upstream Blk Time (%)	12	20	1	2	4	14	15	19	0	7	8	2
Queuing Penalty (veh)	39	65	4	5	12	46	52	63	1	30	36	10
Storage Bay Dist (ft)												
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 4: Prince William Pkwy & Old Bridge Road

Movement	SB	SB	SB
Directions Served	T	T	T
Maximum Queue (ft)	280	291	294
Average Queue (ft)	172	201	222
95th Queue (ft)	265	290	313
Link Distance (ft)	277	277	277
Upstream Blk Time (%)	0	0	2
Queuing Penalty (veh)	1	2	7
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: Tribe at the Glen & Old Bridge Road

Movement	EB	EB	EB	WB	NB
Directions Served	T	T	TR	T	R
Maximum Queue (ft)	186	179	109	15	21
Average Queue (ft)	44	45	8	1	1
95th Queue (ft)	137	133	53	11	10
Link Distance (ft)	257	257	257		274
Upstream Blk Time (%)		0			
Queuing Penalty (veh)		0			
Storage Bay Dist (ft)				120	
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 6: Troupe Street/Glen Shopping Ctr & Old Bridge Road

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	T	T	TR	UL	T	T	TR	L	T	R	L
Maximum Queue (ft)	250	358	358	336	254	406	343	356	165	101	220	112
Average Queue (ft)	126	263	267	136	87	218	175	182	66	28	87	44
95th Queue (ft)	263	416	417	318	180	360	293	301	133	72	174	90
Link Distance (ft)		317	317	317		644	644	644		623	623	324
Upstream Blk Time (%)		5	6	1								
Queuing Penalty (veh)		22	26	4								
Storage Bay Dist (ft)	175				335				210			
Storage Blk Time (%)	2	14				2			0	0		
Queuing Penalty (veh)	7	15				2			0	0		

Intersection: 6: Troupe Street/Glen Shopping Ctr & Old Bridge Road

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	58	118
Average Queue (ft)	10	47
95th Queue (ft)	38	89
Link Distance (ft)	324	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		100
Storage Blk Time (%)	0	1
Queuing Penalty (veh)	0	0

Intersection: 7: Titania Way/Touchstone Circle & Old Bridge Road

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	SB	SB
Directions Served	L	T	T	R	L	T	T	R	LTR	LT	R
Maximum Queue (ft)	173	507	477	37	64	448	435	130	89	147	86
Average Queue (ft)	46	83	96	3	10	212	200	13	28	62	30
95th Queue (ft)	112	299	300	19	56	403	387	81	68	120	64
Link Distance (ft)		644	644	644		610	610		214	241	241
Upstream Blk Time (%)		0	0								
Queuing Penalty (veh)		0	0								
Storage Bay Dist (ft)	145				225			440			
Storage Blk Time (%)		2				8	0				
Queuing Penalty (veh)		1				1	0				

Intersection: 8: Old Bridge Road & Brussels Way

Movement	EB	EB	WB	WB	SB
Directions Served	T	T	T	T	R
Maximum Queue (ft)	60	64	73	62	28
Average Queue (ft)	4	4	6	5	6
95th Queue (ft)	29	30	42	39	23
Link Distance (ft)	610	610	422	422	211
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 9: Old Bridge Ln/Church Entr & Old Bridge Road

Movement	EB	EB	EB	EB	WB	WB	WB	NB	SB
Directions Served	UL	T	T	R	UL	T	T	LTR	L
Maximum Queue (ft)	26	50	60	7	41	117	112	162	21
Average Queue (ft)	3	4	5	0	8	9	7	55	1
95th Queue (ft)	17	25	34	4	28	56	50	128	10
Link Distance (ft)		422	422			489	489	321	184
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	365			340	225				
Storage Blk Time (%)						0			
Queuing Penalty (veh)						0			

Intersection: 10: Rockwood Lane/Westridge Drive & Old Bridge Road

Movement	EB	EB	EB	WB	WB	WB	WB	SB	SB
Directions Served	UL	T	TR	UL	T	T	R	LT	R
Maximum Queue (ft)	193	245	248	24	434	405	46	227	218
Average Queue (ft)	93	68	75	2	236	199	16	110	98
95th Queue (ft)	167	168	176	12	378	349	39	192	180
Link Distance (ft)		489	489		1172	1172		438	438
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	165			300			1000		
Storage Blk Time (%)	1	1			3				
Queuing Penalty (veh)	10	2			0				

Intersection: 11: Exxon/Glen Shopping Ctr & Touchstone Cir

Movement	NB	SB
Directions Served	L T	
Maximum Queue (ft)	16	3
Average Queue (ft)	1	0
95th Queue (ft)	7	4
Link Distance (ft)		213
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	115	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 13: Touchstone Cir & Seeton Square/Merchant Plaza

Movement	EB	WB	NB	NB	SB
Directions Served	LTR	LTR	L	T	L
Maximum Queue (ft)	29	42	21	5	11
Average Queue (ft)	4	19	1	0	0
95th Queue (ft)	22	45	10	5	6
Link Distance (ft)	102	196		213	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			100		250
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 14: Touchstone Circle & Merchant Plaza/CVS

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	LT	TR	LT	TR
Maximum Queue (ft)	42	25	42	5	10	8
Average Queue (ft)	16	4	3	0	0	0
95th Queue (ft)	41	19	18	4	6	5
Link Distance (ft)	167	38	241	241	191	191
Upstream Blk Time (%)		0				
Queuing Penalty (veh)		0				
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 15: Prince William Pkwy & Chinn Park Dr

Movement	WB	NB	NB	SB	SB
Directions Served	R	T	TR	T	T
Maximum Queue (ft)	31	5	44	11	7
Average Queue (ft)	5	0	3	0	0
95th Queue (ft)	18	5	22	8	7
Link Distance (ft)	628	874	874	202	202
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 16: Prince William Pkwy & Kenwood Dr./ School Entrance

Movement	EB	WB	WB	NB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	LT	R	UL	T	T	T	R	UL	T	T	T
Maximum Queue (ft)	212	85	65	64	355	303	322	49	90	429	465	499
Average Queue (ft)	79	28	18	20	124	129	121	10	25	187	209	243
95th Queue (ft)	162	67	46	51	259	262	252	35	65	390	421	462
Link Distance (ft)	512	287	287		701	701	701			874	874	874
Upstream Blk Time (%)					0							
Queuing Penalty (veh)					0							
Storage Bay Dist (ft)				195				245	230			
Storage Blk Time (%)					2		1			6		10
Queuing Penalty (veh)					0		1			3		5

Intersection: 16: Prince William Pkwy & Kenwood Dr./ School Entrance

Movement	SB
Directions Served	R
Maximum Queue (ft)	113
Average Queue (ft)	7
95th Queue (ft)	74
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	235
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 17: Prince William Pkwy & Hillendale Road

Movement	EB	EB	EB	NB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	L	R	UL	L	T	T	T	T	T	T	R
Maximum Queue (ft)	170	322	266	152	180	269	218	199	510	538	518	246
Average Queue (ft)	106	176	127	28	100	141	96	95	211	222	227	38
95th Queue (ft)	208	277	225	98	165	229	187	176	444	456	457	139
Link Distance (ft)		517	517		641	641	641	641	701	701	701	
Upstream Blk Time (%)										0	0	
Queuing Penalty (veh)										0	0	
Storage Bay Dist (ft)	125			475								500
Storage Blk Time (%)	1	26							3		0	
Queuing Penalty (veh)	2	44							0		1	

Intersection: 18: Library/Fitness Ctr/Troupe Street & Chinn Park Dr

Movement	EB	EB	WB	NB	NB	SB	SB
Directions Served	LT	R	LTR	L	TR	L	TR
Maximum Queue (ft)	66	2	18	28	59	39	102
Average Queue (ft)	10	0	1	6	19	5	37
95th Queue (ft)	39	2	9	23	46	25	76
Link Distance (ft)	628	628	407	108	108	623	623
Upstream Blk Time (%)					0		
Queuing Penalty (veh)					0		
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 21: Old Bridge Road

Movement	EB	EB	EB	WB	WB	WB	WB	WB	SB
Directions Served	T	T	T	T	T	T	T	TR	R
Maximum Queue (ft)	35	28	63	164	198	58	85	125	119
Average Queue (ft)	1	2	4	38	62	3	6	14	36
95th Queue (ft)	24	20	41	121	150	28	42	68	85
Link Distance (ft)	126	126	126		257	257	257	257	276
Upstream Blk Time (%)	0	0	0		0				
Queuing Penalty (veh)	0	0	0		0				
Storage Bay Dist (ft)				75					
Storage Blk Time (%)				2	7				
Queuing Penalty (veh)				7	21				

Intersection: 33: Tribe at the Glen & Old Bridge Road

Movement	NB
Directions Served	R
Maximum Queue (ft)	16
Average Queue (ft)	0
95th Queue (ft)	7
Link Distance (ft)	182
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 38: Prince William Parkway & Seeton Square

Movement	SB
Directions Served	R
Maximum Queue (ft)	26
Average Queue (ft)	1
95th Queue (ft)	12
Link Distance (ft)	137
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 43: Old Bridge Rd & Touchstone Circle

Movement	SB
Directions Served	R
Maximum Queue (ft)	58
Average Queue (ft)	25
95th Queue (ft)	50
Link Distance (ft)	151
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 45:

Movement	NW
Directions Served	L
Maximum Queue (ft)	47
Average Queue (ft)	19
95th Queue (ft)	36
Link Distance (ft)	588
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 46: Prince William Pkwy

Movement	SE	SE	NW	NW	NW	NW
Directions Served	T	T	T	T	T	T
Maximum Queue (ft)	4	2	123	132	151	44
Average Queue (ft)	0	0	26	36	44	3
95th Queue (ft)	5	2	87	106	120	28
Link Distance (ft)	224	224	202	202	202	202
Upstream Blk Time (%)					0	
Queuing Penalty (veh)					0	
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

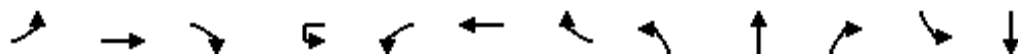
Network Summary

Network wide Queuing Penalty: 549

HCM Signalized Intersection Capacity Analysis

2: Ridgewood Center Drive/Laurel Hills Drive & Prince William Pkwy

05/30/2024



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations	↖	↑↑↑			↖	↑↑↑			↕			↕
Traffic Volume (vph)	2	2781	8	11	15	3010	6	25	0	26	9	0
Future Volume (vph)	2	2781	8	11	15	3010	6	25	0	26	9	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	10	10
Grade (%)		0%				0%			0%			5%
Total Lost time (s)	6.5	6.0			6.5	6.0			6.5			6.5
Lane Util. Factor	1.00	0.91			1.00	0.91			1.00			1.00
Frpb, ped/bikes	1.00	1.00			1.00	1.00			0.99			0.98
Flpb, ped/bikes	1.00	1.00			1.00	1.00			1.00			1.00
Frt	1.00	1.00			1.00	1.00			0.93			0.99
Flt Protected	0.95	1.00			0.95	1.00			0.98			0.96
Satd. Flow (prot)	1805	4938			1805	4929			1713			1472
Flt Permitted	0.95	1.00			0.49	1.00			0.98			0.96
Satd. Flow (perm)	1805	4938			927	4929			1713			1472
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2	3023	9	12	16	3272	7	27	0	28	10	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	53	0	0	11
Lane Group Flow (vph)	2	3032	0	0	28	3279	0	0	2	0	0	0
Confl. Peds. (#/hr)	8		1		1		10			3	2	
Heavy Vehicles (%)	0%	5%	0%	0%	0%	5%	100%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		custom	Prot	NA		Split	NA		Split	NA
Protected Phases	5	2			1	6		4	4		3	3
Permitted Phases				1								
Actuated Green, G (s)	1.3	119.5			8.2	126.4			4.6			2.2
Effective Green, g (s)	1.3	119.5			8.2	126.4			4.6			2.2
Actuated g/C Ratio	0.01	0.75			0.05	0.79			0.03			0.01
Clearance Time (s)	6.5	6.0			6.5	6.0			6.5			6.5
Vehicle Extension (s)	3.0	3.5			3.0	3.5			3.0			3.0
Lane Grp Cap (vph)	14	3688			47	3893			49			20
v/s Ratio Prot	0.00	0.61				c0.67			c0.00			c0.00
v/s Ratio Perm					c0.03							
v/c Ratio	0.14	0.82			0.60	0.84			0.03			0.01
Uniform Delay, d1	78.8	13.3			74.3	10.5			75.5			77.8
Progression Factor	1.00	1.00			0.95	1.43			1.00			1.00
Incremental Delay, d2	4.7	2.2			8.1	1.0			0.3			0.2
Delay (s)	83.5	15.5			78.8	16.1			75.8			78.0
Level of Service	F	B			E	B			E			E
Approach Delay (s)		15.5				16.6			75.8			78.0
Approach LOS		B				B			E			E

Intersection Summary

HCM 2000 Control Delay	16.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	25.5
Intersection Capacity Utilization	75.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 2: Ridgewood Center Drive/Laurel Hills Drive & Prince William Pkwy

05/30/2024

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	1
Future Volume (vph)	1
Ideal Flow (vphpl)	1900
Lane Width	10
Grade (%)	
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	1
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	8
Heavy Vehicles (%)	100%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Intersection															
Int Delay, s/veh	192.5														
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↗ ↑↑↑				↗ ↑↑↑			↗		↕			↕	
Traffic Vol, veh/h	3	7	2750	0	2	9	2947	81	1	0	12	29	0	14	
Future Vol, veh/h	3	7	2750	0	2	9	2947	81	1	0	12	29	0	14	
Conflicting Peds, #/hr	0	2	0	1	1	0	0	2	0	0	1	0	0	2	
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop	
RT Channelized	-	-	-	None	-	-	-	None	-	-	None	-	-	None	
Storage Length	-	465	-	-	-	450	-	450	-	-	-	-	-	-	
Veh in Median Storage, #	-	-	0	-	-	-	0	-	-	0	-	-	0	-	
Grade, %	-	-	1	-	-	-	-1	-	-	-1	-	-	5	-	
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98	98	98	
Heavy Vehicles, %	0	5	6	0	0	0	6	4	0	0	0	0	0	0	
Mvmt Flow	3	7	2806	0	2	9	3007	83	1	0	12	30	0	14	

Major/Minor	Major1			Major2			Minor1			Minor2				
Conflicting Flow All	2195	3092	0	0	2048	2807	0	0	4054	5941	1405	4174	5858	1508
Stage 1	-	-	-	-	-	-	-	-	2827	2827	-	3031	3031	-
Stage 2	-	-	-	-	-	-	-	-	1227	3114	-	1143	2827	-
Critical Hdwy	5.6	5.4	-	-	5.6	5.3	-	-	6.2	6.3	7	7.4	7.5	7.6
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	7.1	5.3	-	8.3	6.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	6.5	5.3	-	7.7	6.5	-
Follow-up Hdwy	2.3	3.15	-	-	2.3	3.1	-	-	3.8	4	3.9	3.8	4	3.9
Pot Cap-1 Maneuver	96	32	-	-	116	49	-	-	4	0	117	~1	0	78
Stage 1	-	-	-	-	-	-	-	-	11	46	-	~3	13	-
Stage 2	-	-	-	-	-	-	-	-	184	33	-	141	18	-
Platoon blocked, %			-	-			-	-						
Mov Cap-1 Maneuver	39	39	-	-	54	54	-	-	2	0	117	~1	0	78
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	2	0	-	~1	0	-
Stage 1	-	-	-	-	-	-	-	-	8	34	-	~2	10	-
Stage 2	-	-	-	-	-	-	-	-	120	26	-	94	13	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	0.3	\$ 308.2	\$ 26064.7
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	22	39	-	-	54	-	-	1
HCM Lane V/C Ratio	0.603	0.262	-	-	0.208	-	-	-43.878
HCM Control Delay (s)	\$ 308.2	127.5	-	-	88	-	-	\$ 26064.7
HCM Lane LOS	F	F	-	-	F	-	-	F
HCM 95th %tile Q(veh)	1.8	0.9	-	-	0.7	-	-	7.5

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM 6th TWSC
 3: Prince William Parkway & Seeton Square

05/30/2024

Intersection						
Int Delay, s/veh	1.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			↑↑↑↑	↑		↑
Traffic Vol, veh/h	0	0	3001	58	0	41
Future Vol, veh/h	0	0	3001	58	0	41
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	Free	-	Stop
Storage Length	-	-	-	100	-	0
Veh in Median Storage, #	-	1	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	3262	63	0	45

Major/Minor	Major2	Minor2
Conflicting Flow All	-	0 - 1631
Stage 1	-	- -
Stage 2	-	- -
Critical Hdwy	-	- 7.14
Critical Hdwy Stg 1	-	- -
Critical Hdwy Stg 2	-	- -
Follow-up Hdwy	-	- 3.92
Pot Cap-1 Maneuver	-	0 77
Stage 1	-	0 -
Stage 2	-	0 -
Platoon blocked, %	-	
Mov Cap-1 Maneuver	-	- 77
Mov Cap-2 Maneuver	-	- -
Stage 1	-	- -
Stage 2	-	- -

Approach	WB	SB
HCM Control Delay, s	0	102.4
HCM LOS		F

Minor Lane/Major Mvmt	WBT SBLn1
Capacity (veh/h)	- 77
HCM Lane V/C Ratio	- 0.579
HCM Control Delay (s)	- 102.4
HCM Lane LOS	- F
HCM 95th %tile Q(veh)	- 2.5

HCM 6th Signalized Intersection Summary

4: Prince William Pkwy & Old Bridge Road

07/30/2024



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↶↶	↶↶↶	↶↶↶	↷	↶↶↶	↶↶↶
Traffic Volume (veh/h)	769	1486	1573	402	1320	1484
Future Volume (veh/h)	769	1486	1573	402	1320	1484
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1817	1802	1805	1835	1811	1841
Adj Flow Rate, veh/h	801	1548	1639	419	1375	1546
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	4	5	6	4	6	4
Cap, veh/h	1689	2878	2155	1462	1573	4058
Arrive On Green	0.50	0.50	0.44	0.44	0.32	0.81
Sat Flow, veh/h	3357	3482	5091	1555	4864	5191
Grp Volume(v), veh/h	801	1548	1639	419	1375	1546
Grp Sat Flow(s),veh/h/ln	1679	1161	1643	1555	1621	1675
Q Serve(g_s), s	24.9	22.2	44.9	3.5	42.7	13.7
Cycle Q Clear(g_c), s	24.9	22.2	44.9	3.5	42.7	13.7
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	1689	2878	2155	1462	1573	4058
V/C Ratio(X)	0.47	0.54	0.76	0.29	0.87	0.38
Avail Cap(c_a), veh/h	1689	2878	2155	1462	2204	4058
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.9	4.3	38.0	0.4	51.1	4.3
Incr Delay (d2), s/veh	1.0	0.7	2.6	0.5	3.1	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.9	27.1	18.1	12.5	17.4	3.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	26.9	5.1	40.6	0.9	54.1	4.6
LnGrp LOS	C	A	D	A	D	A
Approach Vol, veh/h	2349		2058			2921
Approach Delay, s/veh	12.5		32.5			27.9
Approach LOS	B		C			C
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		137.0		93.0	59.2	77.8
Change Period (Y+Rc), s		* 7.8		10.5	7.5	* 7.8
Max Green Setting (Gmax), s		* 1.3E2		14.5	72.5	* 47
Max Q Clear Time (g_c+I1), s		15.7		26.9	44.7	46.9
Green Ext Time (p_c), s		5.3		0.0	7.1	0.3

Intersection Summary

HCM 6th Ctrl Delay	24.3
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
 User approved changes to right turn type.

Intersection						
Int Delay, s/veh	0.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑					↑
Traffic Vol, veh/h	1637	87	0	0	0	46
Future Vol, veh/h	1637	87	0	0	0	46
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Free	-	None	-	Stop
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	-3	-	-	2	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	6	0	0	4	0	0
Mvmt Flow	1779	95	0	0	0	50




























Major/Minor	Major1		Minor1	
Conflicting Flow All	0	-	-	890
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	-	7.1
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	-	3.9
Pot Cap-1 Maneuver	-	0	0	249
Stage 1	-	0	0	-
Stage 2	-	0	0	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	249
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	NB
HCM Control Delay, s	0	23.1
HCM LOS		C

Minor Lane/Major Mvmt	NBLn1	EBT
Capacity (veh/h)	249	-
HCM Lane V/C Ratio	0.201	-
HCM Control Delay (s)	23.1	-
HCM Lane LOS	C	-
HCM 95th %tile Q(veh)	0.7	-

HCM Signalized Intersection Capacity Analysis
 6: Troupe Street/Glen Shopping Ctr & Old Bridge Road

07/30/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  						 	
Traffic Volume (vph)	195	1403	84	122	1765	181	191	79	364	130	26	241
Future Volume (vph)	195	1403	84	122	1765	181	191	79	364	130	26	241
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			7%			-1%			0%	
Total Lost time (s)	7.0	6.5		7.0	6.0		8.0	8.0	8.0	7.0	7.0	7.0
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.99	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Fr _t	1.00	0.99		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Fl _t Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1823	4901		1598	4742		1725	1909	1441	1802	1900	1569
Fl _t Permitted	0.95	1.00		0.95	1.00		0.52	1.00	1.00	0.70	1.00	1.00
Satd. Flow (perm)	1823	4901		1598	4742		941	1909	1441	1330	1900	1569
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	212	1525	91	133	1918	197	208	86	396	141	28	262
RTOR Reduction (vph)	0	4	0	0	7	0	0	0	133	0	0	209
Lane Group Flow (vph)	212	1612	0	133	2108	0	208	86	263	141	28	53
Confl. Peds. (#/hr)			3			6	3		2	2		7
Heavy Vehicles (%)	0%	6%	4%	9%	4%	1%	5%	0%	11%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases							4		4	8		8
Actuated Green, G (s)	21.8	74.5		17.2	70.4		46.8	32.8	32.8	26.8	19.8	19.8
Effective Green, g (s)	21.8	74.5		17.2	70.4		46.8	32.8	32.8	26.8	19.8	19.8
Actuated g/C Ratio	0.14	0.47		0.11	0.44		0.29	0.20	0.20	0.17	0.12	0.12
Clearance Time (s)	7.0	6.5		7.0	6.0		8.0	8.0	8.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	248	2282		171	2086		373	391	295	243	235	194
v/s Ratio Prot	c0.12	c0.33		0.08	c0.44		c0.07	0.05		0.03	0.01	
v/s Ratio Perm							0.09		c0.18	0.07		0.03
v/c Ratio	0.85	0.71		0.78	1.01		0.56	0.22	0.89	0.58	0.12	0.27
Uniform Delay, d ₁	67.6	34.0		69.5	44.8		45.8	52.9	61.9	60.4	62.3	63.6
Progression Factor	0.81	1.49		1.44	0.35		1.21	1.20	1.26	1.00	1.00	1.00
Incremental Delay, d ₂	20.2	1.5		8.4	14.9		1.8	0.3	26.3	3.5	0.2	0.8
Delay (s)	74.6	52.2		108.4	30.4		57.2	63.6	104.1	63.9	62.6	64.3
Level of Service	E	D		F	C		E	E	F	E	E	E
Approach Delay (s)		54.8			35.0			84.9			64.1	
Approach LOS		D			D			F			E	
Intersection Summary												
HCM 2000 Control Delay			51.0				HCM 2000 Level of Service			D		
HCM 2000 Volume to Capacity ratio			0.96									
Actuated Cycle Length (s)			160.0				Sum of lost time (s)			28.5		
Intersection Capacity Utilization			84.8%				ICU Level of Service			E		
Analysis Period (min)			15									
c	Critical Lane Group											

HCM Signalized Intersection Capacity Analysis
 7: Titania Way/Touchstone Circle & Old Bridge Road

07/30/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations														
Traffic Volume (vph)	165	1699	34	18	1890	142	23	1	20	194	7	155		
Future Volume (vph)	165	1699	34	18	1890	142	23	1	20	194	7	155		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Grade (%)		4%			-7%			-3%			2%			
Total Lost time (s)	8.5	8.5	8.5	8.5	8.5	8.5		7.5			7.5	7.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00			1.00	1.00		
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98		0.99			1.00	0.98		
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00			1.00	1.00		
Frft	1.00	1.00	0.85	1.00	1.00	0.85		0.94			1.00	0.85		
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.97			0.95	1.00		
Satd. Flow (prot)	1638	3338	1432	1868	3593	1573		1698			1723	1482		
Flt Permitted	0.04	1.00	1.00	0.07	1.00	1.00		0.65			0.70	1.00		
Satd. Flow (perm)	71	3338	1432	134	3593	1573		1141			1263	1482		
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95		
Adj. Flow (vph)	174	1788	36	19	1989	149	24	1	21	204	7	163		
RTOR Reduction (vph)	0	0	13	0	0	59	0	17	0	0	0	99		
Lane Group Flow (vph)	174	1788	23	19	1989	90	0	29	0	0	211	64		
Confl. Peds. (#/hr)	4		1	1		6			3	2		4		
Heavy Vehicles (%)	8%	6%	8%	0%	4%	4%	6%	0%	0%	4%	0%	6%		
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	Perm		
Protected Phases	1	6		5	2			4			8			
Permitted Phases	6		6	2		2	4			8		8		
Actuated Green, G (s)	113.7	101.9	101.9	91.8	88.5	88.5		30.3			30.3	30.3		
Effective Green, g (s)	113.7	101.9	101.9	91.8	88.5	88.5		30.3			30.3	30.3		
Actuated g/C Ratio	0.71	0.64	0.64	0.57	0.55	0.55		0.19			0.19	0.19		
Clearance Time (s)	8.5	8.5	8.5	8.5	8.5	8.5		7.5			7.5	7.5		
Vehicle Extension (s)	2.0	8.0	8.0	2.0	8.0	8.0		2.0			2.0	2.0		
Lane Grp Cap (vph)	214	2125	912	112	1987	870		216			239	280		
v/s Ratio Prot	c0.08	c0.54		0.00	c0.55									
v/s Ratio Perm	0.49		0.02	0.09		0.06		0.03			c0.17	0.04		
v/c Ratio	0.81	0.84	0.03	0.17	1.00	0.10		0.13			0.88	0.23		
Uniform Delay, d1	56.2	22.7	10.7	20.6	35.8	16.9		53.9			63.1	55.0		
Progression Factor	1.29	0.74	1.00	0.62	1.16	1.37		1.00			1.00	1.00		
Incremental Delay, d2	14.0	2.9	0.0	0.1	13.7	0.1		0.1			28.8	0.2		
Delay (s)	86.4	19.9	10.8	12.9	55.3	23.3		54.0			91.9	55.1		
Level of Service	F	B	B	B	E	C		D			F	E		
Approach Delay (s)		25.5			52.7			54.0			75.9			
Approach LOS		C			D			D			E			
Intersection Summary														
HCM 2000 Control Delay			42.7									HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio			0.97											
Actuated Cycle Length (s)			160.0								24.5			
Intersection Capacity Utilization			100.9%										ICU Level of Service	G
Analysis Period (min)			15											
c	Critical Lane Group													

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↑		↑
Traffic Vol, veh/h	0	1913	2039	19	0	11
Future Vol, veh/h	0	1913	2039	19	0	11
Conflicting Peds, #/hr	7	0	0	7	0	7
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	225	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	7	-1	-	1	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	6	4	0	0	0
Mvmt Flow	0	2079	2216	21	0	12

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	-	0	-	0	- 1122
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	-	-	-	7
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0 197
Stage 1	0	-	-	-	0 -
Stage 2	0	-	-	-	0 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	195
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	24.7
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	195
HCM Lane V/C Ratio	-	-	-	0.061
HCM Control Delay (s)	-	-	-	24.7
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0.2

HCM 6th TWSC
 9: Old Bridge Ln/Church Entr & Old Bridge Road

05/30/2024

Intersection														
Int Delay, s/veh	14													
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↘	↗	↗		↘	↗	↗		↔		↘		↗
Traffic Vol, veh/h	1	8	1837	67	1	24	2044	1	14	0	19	2	0	0
Future Vol, veh/h	1	8	1837	67	1	24	2044	1	14	0	19	2	0	0
Conflicting Peds, #/hr	0	5	0	4	0	4	0	5	0	0	4	0	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	-	None	-	-	-	None	-	-	None	-	-	None
Storage Length	-	365	-	340	-	225	-	230	-	-	-	0	-	0
Veh in Median Storage, #	-	-	0	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-	1	-	-	-	3	-	-	0	-	-	-1	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	0	0	6	1	0	7	4	0	0	0	0	0	0	0
Mvmt Flow	1	8	1894	69	1	25	2107	1	14	0	20	2	0	0

Major/Minor	Major1		Major2		Minor1		Minor2							
Conflicting Flow All	2107	2113	0	0	1894	1967	0	0	3027	4081	955	3133	-	1064
Stage 1	-	-	-	-	-	-	-	-	1916	1916	-	2164	-	-
Stage 2	-	-	-	-	-	-	-	-	1111	2165	-	969	-	-
Critical Hdwy	6.4	4.1	-	-	6.4	4.24	-	-	7.5	6.5	6.9	7.3	-	6.8
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	6.5	5.5	-	6.3	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	6.5	5.5	-	6.3	-	-
Follow-up Hdwy	2.5	2.2	-	-	2.5	2.27	-	-	3.5	4	3.3	3.5	-	3.3
Pot Cap-1 Maneuver	65	263	-	-	89	273	-	-	~6	3	263	6	0	229
Stage 1	-	-	-	-	-	-	-	-	71	116	-	56	0	-
Stage 2	-	-	-	-	-	-	-	-	226	87	-	291	0	-
Platoon blocked, %			-	-			-	-						
Mov Cap-1 Maneuver	196	196	-	-	249	249	-	-	~5	3	261	5	-	227
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	~5	3	-	5	-	-
Stage 1	-	-	-	-	-	-	-	-	68	110	-	53	-	-
Stage 2	-	-	-	-	-	-	-	-	202	78	-	256	-	-

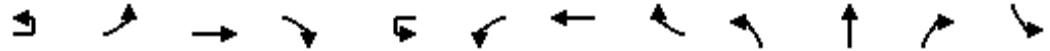
Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.3	\$ 1626.1	\$ 981.5
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	11	196	-	-	249	-	-	5	-
HCM Lane V/C Ratio	3.093	0.047	-	-	0.104	-	-	0.412	-
HCM Control Delay (s)	\$ 1626.1	24.3	-	-	21.1	-	-	\$ 981.5	0
HCM Lane LOS	F	C	-	-	C	-	-	F	A
HCM 95th %tile Q(veh)	5.3	0.1	-	-	0.3	-	-	0.7	-

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM Signalized Intersection Capacity Analysis
 10: Rockwood Lane/Westridge Drive & Old Bridge Road

05/30/2024



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	7	281	1570	1	8	3	1822	222	0	0	1	125
Future Volume (vph)	7	281	1570	1	8	3	1822	222	0	0	1	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)			1%				3%			0%		
Total Lost time (s)		8.6	8.6			8.6	8.6	8.6		7.3		
Lane Util. Factor		1.00	0.95			1.00	0.95	1.00		1.00		
Frbp, ped/bikes		1.00	1.00			1.00	1.00	0.98		0.98		
Flpb, ped/bikes		1.00	1.00			1.00	1.00	1.00		1.00		
Frt		1.00	1.00			1.00	1.00	0.85		0.86		
Flt Protected		0.95	1.00			0.95	1.00	1.00		1.00		
Satd. Flow (prot)		1681	3388			1776	3387	1515		1606		
Flt Permitted		0.04	1.00			0.13	1.00	1.00		1.00		
Satd. Flow (perm)		69	3388			240	3387	1515		1606		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	8	305	1707	1	9	3	1980	241	0	0	1	136
RTOR Reduction (vph)	0	0	0	0	0	0	0	100	0	1	0	0
Lane Group Flow (vph)	0	313	1708	0	0	12	1980	141	0	0	0	0
Confl. Peds. (#/hr)		3		5		5		5			7	2
Heavy Vehicles (%)	0%	7%	6%	0%	0%	0%	5%	3%	0%	0%	0%	2%
Turn Type		pm+pt	NA			Perm	NA	Perm		NA		Perm
Protected Phases		1	6				2			8		
Permitted Phases		6				2		2	8			4
Actuated Green, G (s)		118.3	118.3			93.3	93.3	93.3		25.8		
Effective Green, g (s)		118.3	118.3			93.3	93.3	93.3		25.8		
Actuated g/C Ratio		0.74	0.74			0.58	0.58	0.58		0.16		
Clearance Time (s)		8.6	8.6			8.6	8.6	8.6		7.3		
Vehicle Extension (s)		3.0	4.0			4.0	4.0	4.0		3.5		
Lane Grp Cap (vph)		216	2505			139	1975	883		258		
v/s Ratio Prot		c0.15	0.50				0.58			0.00		
v/s Ratio Perm		c0.92				0.05		0.09				
v/c Ratio		1.45	0.68			0.09	1.00	0.16		0.00		
Uniform Delay, d1		60.5	11.0			14.6	33.4	15.3		56.3		
Progression Factor		1.09	1.60			1.00	1.00	1.00		1.00		
Incremental Delay, d2		218.8	1.0			1.2	20.9	0.4		0.0		
Delay (s)		285.0	18.6			15.9	54.2	15.7		56.3		
Level of Service		F	B			B	D	B		E		
Approach Delay (s)			59.8				49.8			56.3		
Approach LOS			E				D			E		
Intersection Summary												
HCM 2000 Control Delay			54.8			HCM 2000 Level of Service					D	
HCM 2000 Volume to Capacity ratio			1.31									
Actuated Cycle Length (s)			160.0			Sum of lost time (s)					24.5	
Intersection Capacity Utilization			117.7%			ICU Level of Service					H	
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
 10: Rockwood Lane/Westridge Drive & Old Bridge Road

05/30/2024



Movement	SBT	SBR
Lane Configurations	↔	↗
Traffic Volume (vph)	0	241
Future Volume (vph)	0	241
Ideal Flow (vphpl)	1900	1900
Grade (%)	-1%	
Total Lost time (s)	7.3	8.6
Lane Util. Factor	1.00	1.00
Frpb, ped/bikes	1.00	0.99
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	0.95	1.00
Satd. Flow (prot)	1773	1576
Flt Permitted	0.76	1.00
Satd. Flow (perm)	1413	1576
Peak-hour factor, PHF	0.92	0.92
Adj. Flow (vph)	0	262
RTOR Reduction (vph)	0	28
Lane Group Flow (vph)	136	234
Confl. Peds. (#/hr)		3
Heavy Vehicles (%)	0%	2%
Turn Type	NA	pm+ov
Protected Phases	4	1
Permitted Phases		4
Actuated Green, G (s)	25.8	42.2
Effective Green, g (s)	25.8	42.2
Actuated g/C Ratio	0.16	0.26
Clearance Time (s)	7.3	8.6
Vehicle Extension (s)	3.5	3.0
Lane Grp Cap (vph)	227	415
v/s Ratio Prot		0.06
v/s Ratio Perm	c0.10	0.09
v/c Ratio	0.60	0.56
Uniform Delay, d1	62.3	50.9
Progression Factor	1.00	1.00
Incremental Delay, d2	4.5	1.8
Delay (s)	66.8	52.7
Level of Service	E	D
Approach Delay (s)	57.5	
Approach LOS	E	
Intersection Summary		

Intersection												
Int Delay, s/veh	5.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗	↗	↖	↖		↖	↖
Traffic Vol, veh/h	0	0	43	0	0	110	28	20	24	0	62	27
Future Vol, veh/h	0	0	43	0	0	110	28	20	24	0	62	27
Conflicting Peds, #/hr	3	0	1	1	0	3	0	0	1	0	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Stop	-	-	Yield	-	-	Free	-	-	Free
Storage Length	-	-	0	-	-	0	115	-	100	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	2	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	5	1	0	2	0
Mvmt Flow	0	0	47	0	0	120	30	22	26	0	67	29

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	-	-	68	-	-	25	67	0	-	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.2	-	-	6.2	4.1	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.3	2.2	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	1001	0	0	1057	1547	-	0	0	-	0
Stage 1	0	0	-	0	0	-	-	-	0	0	-	0
Stage 2	0	0	-	0	0	-	-	-	0	0	-	0
Platoon blocked, %								-				-
Mov Cap-1 Maneuver	-	-	1000	-	-	1054	1547	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB				
HCM Control Delay, s	8.8		8.9		4.3		0				
HCM LOS	A		A								

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	WBLn1	SBT
Capacity (veh/h)	1547	-	1000	1054	-
HCM Lane V/C Ratio	0.02	-	0.047	0.113	-
HCM Control Delay (s)	7.4	-	8.8	8.9	-
HCM Lane LOS	A	-	A	A	-
HCM 95th %tile Q(veh)	0.1	-	0.1	0.4	-

HCM 6th TWSC
 13: Touchstone Cir & Seeton Square/Merchant Plaza

05/30/2024

Intersection												
Int Delay, s/veh	5.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Vol, veh/h	6	7	8	39	10	19	26	37	39	7	12	3
Future Vol, veh/h	6	7	8	39	10	19	26	37	39	7	12	3
Conflicting Peds, #/hr	2	0	1	1	0	3	0	0	2	1	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-2	-	-	0	-	-	-1	-	-	2	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	7	1	0	0	0	13	0	20	2	0
Mvmt Flow	6	8	9	42	11	20	28	40	42	8	13	3

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	118	173	11	147	153	46	18	0	0	84	0	0
Stage 1	33	33	-	119	119	-	-	-	-	-	-	-
Stage 2	85	140	-	28	34	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.1	6.84	7.52	6.5	6.9	4.1	-	-	4.5	-	-
Critical Hdwy Stg 1	6.1	5.1	-	6.52	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.1	-	6.52	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.37	3.51	4	3.3	2.2	-	-	2.4	-	-
Pot Cap-1 Maneuver	863	738	1052	810	742	1020	1612	-	-	1389	-	-
Stage 1	988	875	-	876	801	-	-	-	-	-	-	-
Stage 2	928	797	-	988	871	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	818	718	1049	781	722	1016	1609	-	-	1387	-	-
Mov Cap-2 Maneuver	818	718	-	781	722	-	-	-	-	-	-	-
Stage 1	969	868	-	859	786	-	-	-	-	-	-	-
Stage 2	879	782	-	965	864	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	9.4		9.8		1.9		2.4	
HCM LOS	A		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1609	-	-	850	824	1387	-
HCM Lane V/C Ratio	0.017	-	-	0.027	0.089	0.005	-
HCM Control Delay (s)	7.3	-	-	9.4	9.8	7.6	-
HCM Lane LOS	A	-	-	A	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	0.3	0	-

Intersection												
Int Delay, s/veh	6.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	13	52	104	53	10	5	97	152	59	1	182	16
Future Vol, veh/h	13	52	104	53	10	5	97	152	59	1	182	16
Conflicting Peds, #/hr	0	0	5	2	0	4	3	0	6	4	0	3
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	-	-	-3	-	-	3	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	22	0	0	0	4	0
Mvmt Flow	14	57	113	58	11	5	105	165	64	1	198	17

Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	514	657	116	548	633	125	218	0	0	235	0	0
Stage 1	212	212	-	413	413	-	-	-	-	-	-	-
Stage 2	302	445	-	135	220	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.54	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.42	-	-	2.2	-	-
Pot Cap-1 Maneuver	448	387	921	424	400	909	1215	-	-	1344	-	-
Stage 1	776	731	-	592	597	-	-	-	-	-	-	-
Stage 2	688	578	-	860	725	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	399	346	915	298	357	901	1212	-	-	1337	-	-
Mov Cap-2 Maneuver	399	346	-	298	357	-	-	-	-	-	-	-
Stage 1	697	729	-	530	535	-	-	-	-	-	-	-
Stage 2	601	518	-	692	723	-	-	-	-	-	-	-

Approach	EB		WB			NB			SB		
HCM Control Delay, s	14.3		19.5			2.7			0		
HCM LOS	B		C								

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1212	-	-	570	322	1337	-
HCM Lane V/C Ratio	0.087	-	-	0.322	0.23	0.001	-
HCM Control Delay (s)	8.3	0.2	-	14.3	19.5	7.7	0
HCM Lane LOS	A	A	-	B	C	A	A
HCM 95th %tile Q(veh)	0.3	-	-	1.4	0.9	0	-

HCM Signalized Intersection Capacity Analysis

16: Prince William Pkwy & Kenwood Dr./

School Entrance

05/30/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations		↔			↔	↔			↔	↔		↔
Traffic Volume (vph)	53	1	108	12	1	8	2	116	2226	26	5	2
Future Volume (vph)	53	1	108	12	1	8	2	116	2226	26	5	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			1%				-2%			
Total Lost time (s)		6.6			5.8	8.8		8.8	8.8	5.8		8.8
Lane Util. Factor		1.00			1.00	1.00		1.00	0.91	1.00		1.00
Frbp, ped/bikes		0.99			1.00	1.00		1.00	1.00	0.98		1.00
Flpb, ped/bikes		1.00			1.00	1.00		1.00	1.00	1.00		1.00
Frt		0.91			1.00	0.85		1.00	1.00	0.85		1.00
Flt Protected		0.98			0.96	1.00		0.95	1.00	1.00		0.95
Satd. Flow (prot)		1620			1682	1488		1823	4989	1533		1771
Flt Permitted		0.98			0.96	1.00		0.04	1.00	1.00		0.04
Satd. Flow (perm)		1620			1682	1488		82	4989	1533		75
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	55	1	112	12	1	8	2	121	2319	27	5	2
RTOR Reduction (vph)	0	46	0	0	0	7	0	0	0	8	0	0
Lane Group Flow (vph)	0	123	0	0	14	1	0	123	2319	19	0	7
Confl. Peds. (#/hr)			4	2				2		2		
Heavy Vehicles (%)	5%	100%	0%	8%	0%	8%	0%	0%	5%	4%	0%	5%
Turn Type	Split	NA		Split	NA	pm+ov		D.P+P	NA	pm+ov		D.P+P
Protected Phases	3	3		4	4	5		1	6	4		5
Permitted Phases						4		2		6		6
Actuated Green, G (s)		15.4			8.0	10.8		106.6	103.8	111.8		106.6
Effective Green, g (s)		15.4			8.0	10.8		106.6	103.8	111.8		106.6
Actuated g/C Ratio		0.10			0.05	0.07		0.67	0.65	0.70		0.67
Clearance Time (s)		6.6			5.8	8.8		8.8	8.8	5.8		8.8
Vehicle Extension (s)		3.0			3.0	3.0		3.0	3.0	3.0		3.0
Lane Grp Cap (vph)		155			84	100		186	3236	1071		79
v/s Ratio Prot		c0.08			c0.01	0.00		c0.05	c0.46	0.00		0.00
v/s Ratio Perm						0.00		0.39		0.01		0.06
v/c Ratio		0.79			0.17	0.01		0.66	0.72	0.02		0.09
Uniform Delay, d1		70.7			72.8	69.6		39.0	18.4	7.4		14.6
Progression Factor		1.00			1.00	1.00		1.45	0.67	1.00		1.05
Incremental Delay, d2		23.6			0.9	0.0		7.0	1.1	0.0		0.0
Delay (s)		94.4			73.7	69.6		63.5	13.6	7.4		15.4
Level of Service		F			E	E		E	B	A		B
Approach Delay (s)		94.4			72.2				16.0			
Approach LOS		F			E				B			

Intersection Summary

HCM 2000 Control Delay	24.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	30.0
Intersection Capacity Utilization	94.7%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

16: Prince William Pkwy & Kenwood Dr./

School Entrance

05/30/2024



Movement	SBT	SBR
Lane Configurations	↑↑↑	↑
Traffic Volume (vph)	2088	105
Future Volume (vph)	2088	105
Ideal Flow (vphpl)	1900	1900
Grade (%)	1%	
Total Lost time (s)	8.8	6.6
Lane Util. Factor	0.91	1.00
Frpb, ped/bikes	1.00	0.98
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	4963	1499
Flt Permitted	1.00	1.00
Satd. Flow (perm)	4963	1499
Peak-hour factor, PHF	0.96	0.96
Adj. Flow (vph)	2175	109
RTOR Reduction (vph)	0	25
Lane Group Flow (vph)	2175	84
Confl. Peds. (#/hr)		2
Heavy Vehicles (%)	4%	5%
Turn Type	NA	pm+ov
Protected Phases	2	3
Permitted Phases		2
Actuated Green, G (s)	94.5	109.9
Effective Green, g (s)	94.5	109.9
Actuated g/C Ratio	0.59	0.69
Clearance Time (s)	8.8	6.6
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	2931	1029
v/s Ratio Prot	c0.44	0.01
v/s Ratio Perm		0.05
v/c Ratio	0.74	0.08
Uniform Delay, d1	23.9	8.3
Progression Factor	1.20	1.06
Incremental Delay, d2	0.2	0.0
Delay (s)	28.9	8.8
Level of Service	C	A
Approach Delay (s)	27.9	
Approach LOS	C	
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

17: Prince William Pkwy & Hillendale Road

05/30/2024



Movement	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Lane Configurations								
Traffic Volume (vph)	295	247	2	563	2075	0	1743	467
Future Volume (vph)	295	247	2	563	2075	0	1743	467
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)	2%				1%		2%	
Total Lost time (s)	6.5	8.0		8.0	5.5		5.5	6.5
Lane Util. Factor	0.97	1.00		0.97	0.91		0.91	1.00
Fr _t	1.00	0.85		1.00	1.00		1.00	0.85
Fl _t Protected	0.95	1.00		0.95	1.00		1.00	1.00
Satd. Flow (prot)	3399	1537		3383	4915		4938	1523
Fl _t Permitted	0.95	1.00		0.29	1.00		1.00	1.00
Satd. Flow (perm)	3399	1537		1017	4915		4938	1523
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	321	268	2	612	2255	0	1895	508
RTOR Reduction (vph)	0	5	0	0	0	0	0	0
Lane Group Flow (vph)	321	263	0	614	2255	0	1895	508
Heavy Vehicles (%)	2%	4%	0%	3%	5%	0%	4%	5%
Turn Type	Prot	pm+ov	custom	Prot	NA	Prot	NA	pm+ov
Protected Phases	4	5!		5	2	1	6	4
Permitted Phases		4	5!					6
Actuated Green, G (s)	30.6	44.6		14.0	117.4		95.4	126.0
Effective Green, g (s)	30.6	44.6		14.0	117.4		95.4	126.0
Actuated g/C Ratio	0.19	0.28		0.09	0.73		0.60	0.79
Clearance Time (s)	6.5	8.0		8.0	5.5		5.5	6.5
Vehicle Extension (s)	4.0	4.0		4.0	4.0		4.0	4.0
Lane Grp Cap (vph)	650	428		88	3606		2944	1199
v/s Ratio Prot	0.09	c0.05			0.46		c0.38	0.08
v/s Ratio Perm		0.12		c0.60				0.25
v/c Ratio	0.49	0.61		6.98	0.63		0.64	0.42
Uniform Delay, d ₁	57.8	50.2		73.0	10.5		21.2	5.4
Progression Factor	1.00	1.00		1.00	1.00		0.17	0.12
Incremental Delay, d ₂	0.8	3.0		2713.4	0.8		0.8	0.2
Delay (s)	58.6	53.2		2786.4	11.3		4.4	0.9
Level of Service	E	D		F	B		A	A
Approach Delay (s)	56.1			605.2			3.7	
Approach LOS	E			F			A	

Intersection Summary

HCM 2000 Control Delay	303.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.26		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	83.0%	ICU Level of Service	E
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group

Intersection												
Int Delay, s/veh	13.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕		↕	↗		↕	↗	
Traffic Vol, veh/h	278	32	59	1	6	37	14	98	1	49	82	1
Future Vol, veh/h	278	32	59	1	6	37	14	98	1	49	82	1
Conflicting Peds, #/hr	0	0	0	0	0	6	0	0	5	5	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	0	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	1	-	-	-2	-	-	-2	-	-	3	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	0	4	100	0	41	0	13	0	25	7	50
Mvmt Flow	302	35	64	1	7	40	15	107	1	53	89	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	53	0	0	99	0	0	714	694	40	765	738	34
Stage 1	-	-	-	-	-	-	639	639	-	35	35	-
Stage 2	-	-	-	-	-	-	75	55	-	730	703	-
Critical Hdwy	4.12	-	-	5.1	-	-	6.7	6.23	6	7.95	7.17	7
Critical Hdwy Stg 1	-	-	-	-	-	-	5.7	5.23	-	6.95	6.17	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.7	5.23	-	6.95	6.17	-
Follow-up Hdwy	2.218	-	-	3.1	-	-	3.5	4.117	3.3	3.725	4.063	3.75
Pot Cap-1 Maneuver	1553	-	-	1053	-	-	378	381	1039	258	300	915
Stage 1	-	-	-	-	-	-	502	487	-	920	851	-
Stage 2	-	-	-	-	-	-	947	833	-	336	385	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1545	-	-	1053	-	-	226	300	1035	157	236	910
Mov Cap-2 Maneuver	-	-	-	-	-	-	226	300	-	157	236	-
Stage 1	-	-	-	-	-	-	398	386	-	725	846	-
Stage 2	-	-	-	-	-	-	845	828	-	192	305	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	5.9			0.2			23.2			32.9		
HCM LOS							C			D		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	226	302	1545	-	-	1053	-	-	157	238
HCM Lane V/C Ratio	0.067	0.356	0.196	-	-	0.001	-	-	0.339	0.379
HCM Control Delay (s)	22.1	23.4	7.9	0	-	8.4	0	-	39.3	29.1
HCM Lane LOS	C	C	A	A	-	A	A	-	E	D
HCM 95th %tile Q(veh)	0.2	1.6	0.7	-	-	0	-	-	1.4	1.7

Intersection						
Int Delay, s/veh	2.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			↑↑↑			↑
Traffic Vol, veh/h	0	0	2151	44	0	105
Future Vol, veh/h	0	0	2151	44	0	105
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	1	0	-	0	-
Grade, %	-	0	2	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	2151	44	0	105

Major/Minor	Major2	Minor2
Conflicting Flow All	-	0 - 1098
Stage 1	-	- -
Stage 2	-	- -
Critical Hdwy	-	- 7.14
Critical Hdwy Stg 1	-	- -
Critical Hdwy Stg 2	-	- -
Follow-up Hdwy	-	- 3.92
Pot Cap-1 Maneuver	-	0 178
Stage 1	-	0 -
Stage 2	-	0 -
Platoon blocked, %	-	-
Mov Cap-1 Maneuver	-	- 178
Mov Cap-2 Maneuver	-	- -
Stage 1	-	- -
Stage 2	-	- -

Approach	WB	SB
HCM Control Delay, s	0	50.8
HCM LOS		F

Minor Lane/Major Mvmt	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	178
HCM Lane V/C Ratio	-	-	0.59
HCM Control Delay (s)	-	-	50.8
HCM Lane LOS	-	-	F
HCM 95th %tile Q(veh)	-	-	3.2

Intersection						
Int Delay, s/veh	4					
Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations	↘			↗		↑
Traffic Vol, veh/h	58	0	0	0	0	74
Future Vol, veh/h	58	0	0	0	0	74
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	0	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	58	0	0	0	0	74

Major/Minor	Minor1	Major2
Conflicting Flow All	74	-
Stage 1	0	-
Stage 2	74	-
Critical Hdwy	6.42	-
Critical Hdwy Stg 1	-	-
Critical Hdwy Stg 2	5.42	-
Follow-up Hdwy	3.518	-
Pot Cap-1 Maneuver	930	0
Stage 1	-	0
Stage 2	949	0
Platoon blocked, %		-
Mov Cap-1 Maneuver	930	-
Mov Cap-2 Maneuver	930	-
Stage 1	-	-
Stage 2	949	-

Approach	NW	SW
HCM Control Delay, s	9.1	0
HCM LOS	A	

Minor Lane/Major Mvmt	NWLn1	SWT
Capacity (veh/h)	930	-
HCM Lane V/C Ratio	0.062	-
HCM Control Delay (s)	9.1	-
HCM Lane LOS	A	-
HCM 95th %tile Q(veh)	0.2	-

1: Black Forest Ln/Reids Prospect Dr & Prince William Pkwy Performance by movement

Movement	EBU	EBL	EBT	WBU	WBL	WBT	WBR	NBL	NBR	SBL	SBR	All
Denied Del/Veh (s)	2.5	34.7	10.6	0.0	0.1	0.0	0.1		0.1	1121.5	1021.4	16.7
Total Del/Veh (s)	26.2	34.9	7.5	993.1	675.7	2.4	2.8		790.8	3275.9	2844.7	18.5

2: Ridgewood Center Drive/Laurel Hills Drive & Prince William Pkwy Performance by movement

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBR	SBL	SBR	All
Denied Del/Veh (s)	0.0	1.5	0.2	0.0	0.0	0.0	1.3	0.1	0.1	0.1	0.1	0.9
Total Del/Veh (s)	93.3	23.5	5.6	90.2	76.3	6.3	7.3	82.2	67.5	73.9	10.4	17.4

3: Prince William Parkway & Seeton Square Performance by movement

Movement	WBT	WBR	SBR	All
Denied Del/Veh (s)	0.3	1.4	0.1	0.3
Total Del/Veh (s)	1.5	1.2	0.8	1.5

4: Prince William Pkwy & Old Bridge Road Performance by movement

Movement	WBL	WBT	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	37.3	0.0	35.1	2.0	1.5	1.8	1.0	8.5
Total Del/Veh (s)	121.7	1.7	2.6	35.9	7.4	44.3	4.0	28.0

5: Tribe at the Glen & Old Bridge Rd Performance by movement

Movement	EBT	EBR	NBR	All
Denied Del/Veh (s)	0.1	0.2	0.1	0.1
Total Del/Veh (s)	1.4	0.9	0.3	1.4

6: Troupe Street/Glen Shopping Ctr & Old Bridge Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.2	1.1	20.8	31.3	16.3	12.8	13.9	11.6	10.8	15.1	13.6
Total Del/Veh (s)	87.2	37.6	20.8	216.2	162.4	18.9	57.4	56.5	46.4	72.1	69.9	32.0

6: Troupe Street/Glen Shopping Ctr & Old Bridge Road Performance by movement

Movement	All
Denied Del/Veh (s)	10.6
Total Del/Veh (s)	70.7

7: Titania Way/Touchstone Circle & Old Bridge Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.2	0.5	0.0	25.8	27.5	20.2	208.2	123.6	136.7	34.7	16.7	52.1
Total Del/Veh (s)	59.9	21.9	2.9	210.6	212.5	78.8	296.7	248.6	325.3	62.1	47.7	245.0

7: Titania Way/Touchstone Circle & Old Bridge Road Performance by movement

Movement	All
Denied Del/Veh (s)	14.6
Total Del/Veh (s)	85.9

8: Old Bridge Road & Brussels Way Performance by movement

Movement	EBT	WBT	WBR	SBR	All
Denied Del/Veh (s)	0.0	77.2	96.8	0.1	23.0
Total Del/Veh (s)	6.2	160.2	40.8	543.6	53.8

9: Old Bridge Ln/Church Entr & Old Bridge Road Performance by movement

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SBL	All
Denied Del/Veh (s)		0.0	0.0	0.0	52.5	32.7		394.1	499.4	0.1	16.0
Total Del/Veh (s)		56.5	8.9	1.3	106.1	176.7		2141.6	2030.5	104.3	77.2

10: Rockwood Lane/Westridge Drive & Old Bridge Road Performance by movement

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBR	SBL	SBR	All
Denied Del/Veh (s)	0.0	0.7	0.4	0.2	1185.5	762.5	1023.2	1013.8	0.1	459.1	480.6	567.5
Total Del/Veh (s)	187.9	82.5	28.5	17.6	484.0	245.9	483.1	45.8	23.7	66.6	370.1	172.4

11: Exxon/Glen Shopping Ctr & Touchstone Cir Performance by movement

Movement	EBR	WBR	NBL	NBT	NBR	SBT	SBR	All
Denied Del/Veh (s)	1338.8	0.8	2.2	0.1	2.3	977.0	788.4	387.8
Total Del/Veh (s)	710.8	2.2	1.4	0.2	1.1	2597.4	356.2	210.9

13: Touchstone Cir & Seeton Square/Merchant Plaza Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	439.8	508.0	365.5	766.2	834.6	655.1	0.0	0.0	0.0	3.9	0.1	0.1
Total Del/Veh (s)	493.6	700.7	934.4	1201.2	341.8	615.1	50.6	3.9	3.1	4.1	823.1	287.7

13: Touchstone Cir & Seeton Square/Merchant Plaza Performance by movement

Movement	All
Denied Del/Veh (s)	246.9
Total Del/Veh (s)	238.2

14: Touchstone Circle & Merchant Plaza/ CVS Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	393.7	407.2	428.4	367.6	325.3	468.9	2.5	0.0	0.0		217.2	211.7
Total Del/Veh (s)	124.5	147.2	136.3	83.3	22.6	16.9	59.0	5.9	7.1		70.8	143.1

14: Touchstone Circle & Merchant Plaza/ CVS Performance by movement

Movement	All
Denied Del/Veh (s)	222.1
Total Del/Veh (s)	70.2

15: Prince William Pkwy & Chinn Park Dr Performance by movement

Movement	WBR	NBT	NBR	SBT	All
Denied Del/Veh (s)	0.1	0.2	0.3	0.0	0.1
Total Del/Veh (s)	29.9	11.8	13.6	0.5	6.4

16: Prince William Pkwy & Kenwood Dr./ School Entrance Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Denied Del/Veh (s)	0.3	0.1	0.2	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.0
Total Del/Veh (s)	83.5	69.2	60.5	79.4	109.3	12.5	25.5	21.9	9.7	1.3	15.6	11.5

16: Prince William Pkwy & Kenwood Dr./ School Entrance Performance by movement

Movement	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.4	0.1
Total Del/Veh (s)	12.1	2.6	14.1

17: Prince William Pkwy & Hillendale Road Performance by movement

Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.5	0.3	838.7	824.7	819.6	0.0	0.0	435.5
Total Del/Veh (s)	57.5	19.7	391.0	494.2	9.4	12.2	6.7	59.3

18: Library/Fitness Ctr/Troupe Street & Chinn Park Dr Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0		0.1	0.1	14.8	13.0	0.2	0.0	0.0	0.2
Total Del/Veh (s)	13.4	6.9	5.2		8.5	10.1	6.5	15.4	4.5	10.6	4.1	4.3

18: Library/Fitness Ctr/Troupe Street & Chinn Park Dr Performance by movement

Movement	All
Denied Del/Veh (s)	2.6
Total Del/Veh (s)	10.1

21: Old Bridge Road Performance by movement

Movement	EBT	WBT	WBR	SBR	All
Denied Del/Veh (s)	0.7	1.3	1.4	170.6	1.5
Total Del/Veh (s)	8.3	56.8	0.6	3008.1	49.0

34: Prince William Pkwy & Seeton Square Performance by movement

Movement	SBR2	SET	SER	NWT	NWR	All
Denied Del/Veh (s)	0.1	0.7	0.3	0.0	0.3	0.4
Total Del/Veh (s)	1.4	11.4	3.4	10.4	9.1	10.8

39: Tribe at the Glen & Old Bridge Road Performance by movement

Movement	EBT	EBR	WBT	NBR	All
Denied Del/Veh (s)	1.4	0.0	0.0	0.4	0.8
Total Del/Veh (s)	16.6	4.9	37.0	21.4	24.2

43: Old Bridge Rd & Touchstone Circle Performance by movement

Movement	WBT	WBR	SBR	All
Denied Del/Veh (s)	0.2	0.3	0.2	0.2
Total Del/Veh (s)	1.4	0.1	4.8	1.5

45: Mohammadia Center Performance by movement

Movement	NWL	SWT	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	4.3	0.1	1.7

46: Prince William Pkwy & Mohammadia Center Performance by movement

Movement	SET	SER	NWT	All
Denied Del/Veh (s)	0.0	0.0	0.6	0.2
Total Del/Veh (s)	1.3	0.6	10.5	5.1

Total Network Performance

Denied Del/Veh (s)	265.5
Total Del/Veh (s)	135.2

Intersection: 1: Black Forest Ln/Reids Prospect Dr & Prince William Pkwy

Movement	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	SB
Directions Served	UL	T	T	TR	UL	T	T	T	R	LTR	LTR
Maximum Queue (ft)	90	367	216	165	59	20	19	20	6	150	305
Average Queue (ft)	7	53	36	10	24	1	1	1	0	66	271
95th Queue (ft)	72	330	269	122	87	14	10	16	8	169	354
Link Distance (ft)		725	725	725		1121	1121	1121		323	294
Upstream Blk Time (%)		3	2	0							77
Queuing Penalty (veh)		0	0	0							0
Storage Bay Dist (ft)	465				450				450		
Storage Blk Time (%)		3									
Queuing Penalty (veh)		0									

Intersection: 2: Ridgewood Center Drive/Laurel Hills Drive & Prince William Pkwy

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	SB
Directions Served	L	T	T	TR	UL	T	T	TR	LTR	LTR
Maximum Queue (ft)	23	946	918	755	59	274	274	298	144	49
Average Queue (ft)	2	428	336	223	14	61	65	77	53	8
95th Queue (ft)	11	996	911	681	44	190	197	222	116	31
Link Distance (ft)		1121	1121	1121		1049	1049	1049	415	435
Upstream Blk Time (%)		4	3	3						
Queuing Penalty (veh)		37	31	26						
Storage Bay Dist (ft)	460				470					
Storage Blk Time (%)		13				0				
Queuing Penalty (veh)		0				0				

Intersection: 3: Prince William Parkway & Seeton Square

Movement	SB
Directions Served	R
Maximum Queue (ft)	50
Average Queue (ft)	3
95th Queue (ft)	21
Link Distance (ft)	100
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 4: Prince William Pkwy & Old Bridge Road

Movement	WB	WB	WB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	L	R	R	R	T	T	T	R	L	L	L
Maximum Queue (ft)	165	157	113	126	189	241	226	225	209	335	350	315
Average Queue (ft)	132	131	5	10	26	185	190	193	56	290	308	264
95th Queue (ft)	148	144	53	75	126	247	243	241	200	331	361	335
Link Distance (ft)	126	126	126	126	126	200	200	200	200	285	285	285
Upstream Blk Time (%)	87	88	0	1	2	15	16	19	6	20	21	10
Queuing Penalty (veh)	391	396	1	3	10	72	77	92	31	90	97	47
Storage Bay Dist (ft)												
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 4: Prince William Pkwy & Old Bridge Road

Movement	SB	SB	SB
Directions Served	T	T	T
Maximum Queue (ft)	134	162	184
Average Queue (ft)	46	76	92
95th Queue (ft)	112	150	175
Link Distance (ft)	285	285	285
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: Tribe at the Glen & Old Bridge Rd

Movement	EB
Directions Served	TR
Maximum Queue (ft)	2
Average Queue (ft)	0
95th Queue (ft)	2
Link Distance (ft)	116
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 6: Troupe Street/Glen Shopping Ctr & Old Bridge Road

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	T	T	TR	L	T	T	TR	L	T	R	L
Maximum Queue (ft)	250	371	369	363	445	666	657	633	253	232	397	223
Average Queue (ft)	194	321	322	237	257	652	166	146	133	57	191	115
95th Queue (ft)	319	403	379	426	597	669	509	426	233	147	404	219
Link Distance (ft)		317	317	317		644	644	644		623	623	324
Upstream Blk Time (%)		23	24	11		71	2	0			5	3
Queuing Penalty (veh)		128	132	59		492	13	2			10	0
Storage Bay Dist (ft)	175				335				210			
Storage Blk Time (%)	15	30				97			3	0		
Queuing Penalty (veh)	69	58				118			3	0		

Intersection: 6: Troupe Street/Glen Shopping Ctr & Old Bridge Road

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	279	199
Average Queue (ft)	47	114
95th Queue (ft)	172	198
Link Distance (ft)	324	
Upstream Blk Time (%)	0	
Queuing Penalty (veh)	0	
Storage Bay Dist (ft)		100
Storage Blk Time (%)	0	21
Queuing Penalty (veh)	0	5

Intersection: 7: Titania Way/Touchstone Circle & Old Bridge Road

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	SB	SB
Directions Served	L	T	T	R	L	T	T	R	LTR	LT	R
Maximum Queue (ft)	229	510	510	108	314	631	660	475	194	264	269
Average Queue (ft)	109	233	232	26	36	600	535	115	97	125	213
95th Queue (ft)	223	485	478	213	198	725	818	423	229	263	335
Link Distance (ft)		644	644	644		610	610		214	241	241
Upstream Blk Time (%)		6	6	3		74	40		22	4	58
Queuing Penalty (veh)		38	35	20		763	406		0	7	99
Storage Bay Dist (ft)	145				225			440			
Storage Blk Time (%)	9	13				93	40	1			
Queuing Penalty (veh)	79	21				17	57	5			

Intersection: 8: Old Bridge Road & Brussels Way

Movement	EB	EB	WB	WB	WB	SB
Directions Served	T	T	T	T	R	R
Maximum Queue (ft)	154	171	460	482	236	105
Average Queue (ft)	26	26	423	424	26	36
95th Queue (ft)	190	194	545	568	161	111
Link Distance (ft)	610	610	422	422		211
Upstream Blk Time (%)	0	0	75	68		
Queuing Penalty (veh)	4	2	769	697		
Storage Bay Dist (ft)					225	
Storage Blk Time (%)				67	1	
Queuing Penalty (veh)				13	15	

Intersection: 9: Old Bridge Ln/Church Entr & Old Bridge Road

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	SB
Directions Served	UL	T	T	R	UL	T	T	R	LTR	L
Maximum Queue (ft)	103	343	358	135	301	523	524	65	331	26
Average Queue (ft)	12	81	86	8	33	456	457	2	244	2
95th Queue (ft)	81	294	299	99	190	667	671	47	410	13
Link Distance (ft)		422	422			489	489		321	184
Upstream Blk Time (%)		3	1	0		53	58		51	
Queuing Penalty (veh)		26	6	0		555	602		0	
Storage Bay Dist (ft)	365			340	225			230		
Storage Blk Time (%)		5	2			86	80			
Queuing Penalty (veh)		0	1			22	1			

Intersection: 10: Rockwood Lane/Westridge Drive & Old Bridge Road

Movement	EB	EB	EB	WB	WB	WB	WB	NB	SB	SB
Directions Served	UL	T	TR	UL	T	T	R	LTR	LT	R
Maximum Queue (ft)	230	516	541	332	1222	1221	1050	15	460	477
Average Queue (ft)	186	380	376	29	1125	1118	509	1	176	377
95th Queue (ft)	299	614	617	200	1420	1431	1363	9	465	587
Link Distance (ft)		489	489		1172	1172		355	438	438
Upstream Blk Time (%)		9	4		79	77			13	68
Queuing Penalty (veh)		79	35		0	0			0	0
Storage Bay Dist (ft)	165			300			1000			
Storage Blk Time (%)	28	16			88	81	0			
Queuing Penalty (veh)	221	47			10	180	0			

Intersection: 11: Exxon/Glen Shopping Ctr & Touchstone Cir

Movement	EB	WB	NB	NB	SB	SB
Directions Served	R	R	L	R	T	R
Maximum Queue (ft)	89	20	2	8	217	132
Average Queue (ft)	57	1	0	0	185	93
95th Queue (ft)	122	22	2	9	273	267
Link Distance (ft)	91	135			213	213
Upstream Blk Time (%)	65	1			69	42
Queuing Penalty (veh)	0	0			21	13
Storage Bay Dist (ft)			115	100		
Storage Blk Time (%)					0	
Queuing Penalty (veh)					0	

Intersection: 13: Touchstone Cir & Seeton Square/Merchant Plaza

Movement	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LTR	L	T	TR	L	T	TR
Maximum Queue (ft)	110	203	26	15	28	26	160	87
Average Queue (ft)	60	140	6	3	4	1	55	23
95th Queue (ft)	125	261	45	39	54	13	156	82
Link Distance (ft)	102	196		213	213		545	545
Upstream Blk Time (%)	34	62			1			
Queuing Penalty (veh)	0	0			1			
Storage Bay Dist (ft)			100			250		
Storage Blk Time (%)			3				1	
Queuing Penalty (veh)			1				0	

Intersection: 14: Touchstone Circle & Merchant Plaza/CVS

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	LT	TR	LT	TR
Maximum Queue (ft)	182	53	100	64	125	202
Average Queue (ft)	122	33	31	17	26	99
95th Queue (ft)	217	54	135	119	130	250
Link Distance (ft)	167	38	241	241	191	191
Upstream Blk Time (%)	51	44	4	6	8	34
Queuing Penalty (veh)	0	0	6	10	0	0
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 15: Prince William Pkwy & Chinn Park Dr

Movement	WB	NB	NB	NB	NB	SB
Directions Served	R	T	T	T	TR	T
Maximum Queue (ft)	112	90	224	239	231	4
Average Queue (ft)	29	11	25	36	38	0
95th Queue (ft)	83	110	234	280	295	4
Link Distance (ft)	628		874	874	874	208
Upstream Blk Time (%)			1	2	3	
Queuing Penalty (veh)			10	18	20	
Storage Bay Dist (ft)		350				
Storage Blk Time (%)		2	2			
Queuing Penalty (veh)		7	7			

Intersection: 16: Prince William Pkwy & Kenwood Dr./ School Entrance

Movement	EB	WB	WB	NB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	LT	R	UL	T	T	T	R	UL	T	T	T
Maximum Queue (ft)	315	65	52	103	308	332	326	15	21	318	321	375
Average Queue (ft)	142	16	8	40	67	81	75	1	3	108	125	171
95th Queue (ft)	273	47	32	85	229	251	246	9	13	253	273	340
Link Distance (ft)	512	287	287		701	701	701			874	874	874
Upstream Blk Time (%)					1	1	1					
Queuing Penalty (veh)					7	7	9					
Storage Bay Dist (ft)				195				245	230			
Storage Blk Time (%)					2		2			1		5
Queuing Penalty (veh)					3		1			0		5

Intersection: 16: Prince William Pkwy & Kenwood Dr./ School Entrance

Movement	SB
Directions Served	R
Maximum Queue (ft)	81
Average Queue (ft)	7
95th Queue (ft)	56
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	235
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 17: Prince William Pkwy & Hillendale Road

Movement	EB	EB	EB	NB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	L	R	UL	L	T	T	T	T	T	T	R
Maximum Queue (ft)	170	330	232	575	689	683	659	464	303	284	284	162
Average Queue (ft)	120	192	93	572	660	634	284	32	105	113	118	45
95th Queue (ft)	213	300	187	584	678	814	786	208	244	237	243	115
Link Distance (ft)		517	517		641	641	641	641	701	701	701	
Upstream Blk Time (%)		0			85	41	2	0				
Queuing Penalty (veh)		0			0	0	0	0				
Storage Bay Dist (ft)	125			475								500
Storage Blk Time (%)	3	33		81	99				0			
Queuing Penalty (veh)	4	49		228	279				0			

Intersection: 18: Library/Fitness Ctr/Troupe Street & Chinn Park Dr

Movement	EB	EB	WB	NB	NB	SB	SB
Directions Served	LT	R	LTR	L	TR	L	TR
Maximum Queue (ft)	86	11	62	36	90	86	77
Average Queue (ft)	18	0	5	9	37	24	28
95th Queue (ft)	86	5	52	29	75	64	62
Link Distance (ft)	628	628	407	108	108	623	623
Upstream Blk Time (%)					4		
Queuing Penalty (veh)					0		
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 21: Old Bridge Road

Movement	EB	EB	EB	WB	WB	WB	WB	WB	SB
Directions Served	T	T	T	T	T	T	T	TR	R
Maximum Queue (ft)	135	128	204	175	276	17	31	67	353
Average Queue (ft)	25	18	43	164	266	1	2	6	340
95th Queue (ft)	100	85	164	203	277	9	20	36	389
Link Distance (ft)	126	126	126		257	257	257	257	276
Upstream Blk Time (%)	6	6	7		79				97
Queuing Penalty (veh)	35	33	39		433				102
Storage Bay Dist (ft)				75					
Storage Blk Time (%)				86	92				
Queuing Penalty (veh)				367	397				

Intersection: 34: Prince William Pkwy & Seeton Square

Movement	SE	SE	SE	SE	SE	SE	NW	NW
Directions Served	T	T	T	T	T	T	T	T
Maximum Queue (ft)	183	183	184	214	106	110	7	5
Average Queue (ft)	66	64	45	47	17	14	0	0
95th Queue (ft)	164	191	206	404	227	208	5	5
Link Distance (ft)				1049	1049	1049	285	285
Upstream Blk Time (%)				4	0	0		
Queuing Penalty (veh)				39	0	0		
Storage Bay Dist (ft)	150	150	150					
Storage Blk Time (%)	6	5	5					
Queuing Penalty (veh)	25	22	22					

Intersection: 39: Tribe at the Glen & Old Bridge Road

Movement	EB	EB	EB	WB	WB	WB	NB
Directions Served	T	T	TR	T	T	T	R
Maximum Queue (ft)	279	281	288	220	345	108	96
Average Queue (ft)	181	167	93	217	328	5	15
95th Queue (ft)	316	304	278	224	342	63	81
Link Distance (ft)	257	257	257		317	317	274
Upstream Blk Time (%)	9	6	7		36	0	0
Queuing Penalty (veh)	50	32	38		262	0	0
Storage Bay Dist (ft)				120			
Storage Blk Time (%)				75	0		
Queuing Penalty (veh)				409	0		

Intersection: 43: Old Bridge Rd & Touchstone Circle

Movement	SB
Directions Served	R
Maximum Queue (ft)	80
Average Queue (ft)	38
95th Queue (ft)	65
Link Distance (ft)	109
Upstream Blk Time (%)	0
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 45: Mohammadia Center

Movement	NW
Directions Served	L
Maximum Queue (ft)	37
Average Queue (ft)	16
95th Queue (ft)	33
Link Distance (ft)	584
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 46: Prince William Pkwy & Mohammadia Center

Movement	SE	NW	NW	NW	NW
Directions Served	R	T	T	T	T
Maximum Queue (ft)	6	203	208	218	148
Average Queue (ft)	0	55	76	89	18
95th Queue (ft)	6	172	199	209	101
Link Distance (ft)		208	208	208	208
Upstream Blk Time (%)		3	3	4	4
Queuing Penalty (veh)		13	15	19	17
Storage Bay Dist (ft)	100				
Storage Blk Time (%)					
Queuing Penalty (veh)					

Network Summary

Network wide Queuing Penalty: 10400

Appendix I: Synchro™ Report for Horizon Year (2045)

Intersection															
Int Delay, s/veh	91.8														
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↔ ↑↑↑				↔ ↑↑↑			↔		↔			↔	
Traffic Vol, veh/h	2	25	2898	0	3	9	2163	67	0	0	1	37	0	13	
Future Vol, veh/h	2	25	2898	0	3	9	2163	67	0	0	1	37	0	13	
Conflicting Peds, #/hr	0	2	0	1	1	0	0	2	0	0	1	0	0	2	
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop	
RT Channelized	-	-	-	None	-	-	-	None	-	-	None	-	-	None	
Storage Length	-	465	-	-	-	450	-	450	-	-	-	-	-	-	
Veh in Median Storage, #	-	-	0	-	-	-	0	-	-	0	-	-	0	-	
Grade, %	-	-	1	-	-	-	-1	-	-	-1	-	-	5	-	
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98	98	98	
Heavy Vehicles, %	0	5	6	0	0	0	6	4	0	0	0	0	0	0	
Mvmt Flow	2	26	2957	0	3	9	2207	68	0	0	1	38	0	13	

Major/Minor	Major1			Major2			Minor1			Minor2				
Conflicting Flow All	1611	2277	0	0	2159	2958	0	0	3923	5315	1481	3473	5247	1108
Stage 1	-	-	-	-	-	-	-	-	3014	3014	-	2233	2233	-
Stage 2	-	-	-	-	-	-	-	-	909	2301	-	1240	3014	-
Critical Hdwy	5.6	5.4	-	-	5.6	5.3	-	-	6.2	6.3	7	7.4	7.5	7.6
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	7.1	5.3	-	8.3	6.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	6.5	5.3	-	7.7	6.5	-
Follow-up Hdwy	2.3	3.15	-	-	2.3	3.1	-	-	3.8	4	3.9	3.8	4	3.9
Pot Cap-1 Maneuver	205	87	-	-	100	41	-	-	5	0	104	~3	0	153
Stage 1	-	-	-	-	-	-	-	-	8	37	-	~14	43	-
Stage 2	-	-	-	-	-	-	-	-	285	84	-	120	14	-
Platoon blocked, %			-	-			-	-						
Mov Cap-1 Maneuver	91	91	-	-	48	48	-	-	3	0	104	~2	0	152
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	3	0	-	~2	0	-
Stage 1	-	-	-	-	-	-	-	-	6	26	-	~10	32	-
Stage 2	-	-	-	-	-	-	-	-	195	63	-	82	10	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0.6	40	\$ 9513.4
HCM LOS			E	F

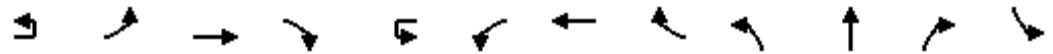
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	104	91	-	-	48	-	-	3
HCM Lane V/C Ratio	0.01	0.303	-	-	0.255	-	-	17.007
HCM Control Delay (s)	40	61.2	-	-	103.9	-	-	\$ 9513.4
HCM Lane LOS	E	F	-	-	F	-	-	F
HCM 95th %tile Q(veh)	0	1.1	-	-	0.9	-	-	8.3

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM Signalized Intersection Capacity Analysis

2: Ridgewood Center Drive/Laurel Hills Drive & Prince William Pkwy

04/03/2023



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations		↔	↑↑↑			↔	↑↑↑			↔		
Traffic Volume (vph)	4	0	2886	50	10	97	2198	1	42	0	11	5
Future Volume (vph)	4	0	2886	50	10	97	2198	1	42	0	11	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	10
Grade (%)			0%				0%			0%		
Total Lost time (s)		6.5	6.0			6.5	6.0			6.5		
Lane Util. Factor		1.00	0.91			1.00	0.91			1.00		
Frbp, ped/bikes		1.00	1.00			1.00	1.00			1.00		
Flpb, ped/bikes		0.99	1.00			1.00	1.00			1.00		
Frt		1.00	1.00			1.00	1.00			0.97		
Flt Protected		0.95	1.00			0.95	1.00			0.96		
Satd. Flow (prot)		1759	4930			1805	4938			1771		
Flt Permitted		1.00	1.00			0.21	1.00			0.96		
Satd. Flow (perm)		1852	4930			390	4938			1771		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	4	0	3137	54	11	105	2389	1	46	0	12	5
RTOR Reduction (vph)	0	0	1	0	0	0	0	0	0	56	0	0
Lane Group Flow (vph)	0	4	3190	0	0	116	2390	0	0	2	0	0
Confl. Peds. (#/hr)		8		1		1		10			3	2
Confl. Bikes (#/hr)				2								
Heavy Vehicles (%)	2%	0%	5%	0%	0%	0%	5%	100%	0%	0%	0%	0%
Turn Type	custom	Prot	NA		custom	Prot	NA		Split	NA		Split
Protected Phases		5	2			1	6		4	4		3
Permitted Phases	5				1							
Actuated Green, G (s)		1.6	79.4			19.5	97.3			4.6		
Effective Green, g (s)		1.6	79.4			19.5	97.3			4.6		
Actuated g/C Ratio		0.01	0.61			0.15	0.75			0.04		
Clearance Time (s)		6.5	6.0			6.5	6.0			6.5		
Vehicle Extension (s)		3.0	3.5			3.0	3.5			3.0		
Lane Grp Cap (vph)		22	3011			58	3695			62		
v/s Ratio Prot			c0.65				0.48			c0.00		
v/s Ratio Perm		0.00				c0.30						
v/c Ratio		0.18	1.06			2.00	0.65			0.03		
Uniform Delay, d1		63.6	25.3			55.2	8.0			60.6		
Progression Factor		1.00	1.00			1.10	0.69			1.00		
Incremental Delay, d2		4.0	34.9			479.3	0.4			0.2		
Delay (s)		67.5	60.2			540.0	5.9			60.8		
Level of Service		E	E			F	A			E		
Approach Delay (s)			60.3				30.7			60.8		
Approach LOS			E				C			E		

Intersection Summary		
HCM 2000 Control Delay	47.4	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	1.18	D
Actuated Cycle Length (s)	130.0	Sum of lost time (s)
Intersection Capacity Utilization	85.3%	25.5
Analysis Period (min)	15	ICU Level of Service
		E
c Critical Lane Group		

HCM Signalized Intersection Capacity Analysis
 2: Ridgewood Center Drive/Laurel Hills Drive & Prince William Pkwy

04/03/2023



Movement	SBT	SBR
Lane Configurations	↕	
Traffic Volume (vph)	0	1
Future Volume (vph)	0	1
Ideal Flow (vphpl)	1900	1900
Lane Width	10	10
Grade (%)	5%	
Total Lost time (s)	6.5	
Lane Util. Factor	1.00	
Frpb, ped/bikes	0.95	
Flpb, ped/bikes	1.00	
Frt	0.98	
Flt Protected	0.96	
Satd. Flow (prot)	1319	
Flt Permitted	0.96	
Satd. Flow (perm)	1319	
Peak-hour factor, PHF	0.92	0.92
Adj. Flow (vph)	0	1
RTOR Reduction (vph)	6	0
Lane Group Flow (vph)	0	0
Confl. Peds. (#/hr)		8
Confl. Bikes (#/hr)		
Heavy Vehicles (%)	0%	100%
Turn Type	NA	
Protected Phases	3	
Permitted Phases		
Actuated Green, G (s)	1.0	
Effective Green, g (s)	1.0	
Actuated g/C Ratio	0.01	
Clearance Time (s)	6.5	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	10	
v/s Ratio Prot	c0.00	
v/s Ratio Perm		
v/c Ratio	0.00	
Uniform Delay, d1	64.0	
Progression Factor	1.00	
Incremental Delay, d2	0.2	
Delay (s)	64.2	
Level of Service	E	
Approach Delay (s)	64.2	
Approach LOS	E	

Intersection Summary

HCM Unsignalized Intersection Capacity Analysis

3: Prince William Pkwy & Seeton Square

04/03/2023



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		↑↑↑	↑↑↑			↑	
Traffic Volume (veh/h)	0	2961	2273	76	0	47	
Future Volume (Veh/h)	0	2961	2273	76	0	47	
Sign Control		Free	Free		Stop		
Grade		0%	0%		4%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	0	3218	2471	83	0	51	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		None	None				
Median storage (veh)							
Upstream signal (ft)		1140	342				
pX, platoon unblocked	0.59			0.61	0.59		
vC, conflicting volume	2554			3585	865		
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1180			0	0		
tC, single (s)	4.1			6.8	6.9		
tC, 2 stage (s)							
tF (s)	2.2			3.5	3.3		
p0 queue free %	100			100	92		
cM capacity (veh/h)	351			631	639		
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	1073	1073	1073	988	988	577	51
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	83	51
cSH	1700	1700	1700	1700	1700	1700	639
Volume to Capacity	0.63	0.63	0.63	0.58	0.58	0.34	0.08
Queue Length 95th (ft)	0	0	0	0	0	0	6
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	11.1
Lane LOS							B
Approach Delay (s)	0.0			0.0			11.1
Approach LOS							B
Intersection Summary							
Average Delay			0.1				
Intersection Capacity Utilization			60.5%	ICU Level of Service		B	
Analysis Period (min)			15				

HCM 6th TWSC
3: Prince William Pkwy & Seeton Square

04/03/2023

Intersection						
Int Delay, s/veh	0.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑			↑
Traffic Vol, veh/h	0	2961	2273	76	0	47
Future Vol, veh/h	0	2961	2273	76	0	47
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	4	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	4	5	3	0	0
Mvmt Flow	0	3218	2471	83	0	51

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	-	0	- 0 - 1277
Stage 1	-	-	- - -
Stage 2	-	-	- - -
Critical Hdwy	-	-	- - 7.5
Critical Hdwy Stg 1	-	-	- - -
Critical Hdwy Stg 2	-	-	- - -
Follow-up Hdwy	-	-	- - 3.9
Pot Cap-1 Maneuver	0	-	- 0 119
Stage 1	0	-	- 0 -
Stage 2	0	-	- 0 -
Platoon blocked, %	-	-	- - -
Mov Cap-1 Maneuver	-	-	- - 119
Mov Cap-2 Maneuver	-	-	- - -
Stage 1	-	-	- - -
Stage 2	-	-	- - -

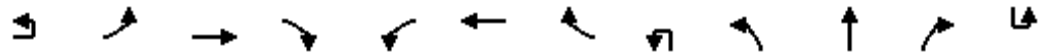
Approach	EB	WB	SB
HCM Control Delay, s	0	0	56.3
HCM LOS			F

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	119
HCM Lane V/C Ratio	-	-	-	0.429
HCM Control Delay (s)	-	-	-	56.3
HCM Lane LOS	-	-	-	F
HCM 95th %tile Q(veh)	-	-	-	1.9

HCM Signalized Intersection Capacity Analysis

4: Prince William Pkwy & Old Bridge Road & Touchstone Cir

04/03/2023



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU
Lane Configurations		↔	↕	↗	↖	↕			↔	↕	↗	
Traffic Volume (vph)	23	114	1040	1764	457	1033	29	6	1179	109	313	1
Future Volume (vph)	23	114	1040	1764	457	1033	29	6	1179	109	313	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)			0%			2%				1%		
Total Lost time (s)		7.9	5.7	4.0	7.5	5.7			9.9	9.9	7.5	
Lane Util. Factor		1.00	0.95	1.00	0.97	0.91			0.91	0.91	1.00	
Frbp, ped/bikes		1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00	
Frt		1.00	1.00	0.85	1.00	1.00			1.00	1.00	0.85	
Flt Protected		0.95	1.00	1.00	0.95	1.00			0.95	0.96	1.00	
Satd. Flow (prot)		1789	3406	1553	3333	4875			3085	1564	1545	
Flt Permitted		0.44	1.00	1.00	0.95	1.00			0.68	0.96	1.00	
Satd. Flow (perm)		828	3406	1553	3333	4875			2214	1564	1545	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	24	119	1083	1838	476	1076	30	6	1228	114	326	1
RTOR Reduction (vph)	0	0	0	0	0	2	0	0	0	0	48	0
Lane Group Flow (vph)	0	143	1083	1838	476	1104	0	0	890	458	278	0
Confl. Peds. (#/hr)		2					2					
Heavy Vehicles (%)	0%	1%	6%	4%	4%	5%	0%	0%	6%	6%	4%	0%
Turn Type	custom	Prot	NA	Free	Prot	NA		Perm	Split	NA	pm+ov	Perm
Protected Phases		5	2		1	6			4	4	1	
Permitted Phases	5!			Free				4			4	3
Actuated Green, G (s)		9.1	37.3	130.0	15.9	43.7			41.1	41.1	57.0	
Effective Green, g (s)		9.1	37.3	130.0	15.9	43.7			41.1	41.1	57.0	
Actuated g/C Ratio		0.07	0.29	1.00	0.12	0.34			0.32	0.32	0.44	
Clearance Time (s)		7.9	5.7		7.5	5.7			9.9	9.9	7.5	
Vehicle Extension (s)		3.0	2.0		3.0	2.0			3.0	3.0	3.0	
Lane Grp Cap (vph)		57	977	1553	407	1638			699	494	677	
v/s Ratio Prot			0.32		0.14	0.23				0.29	0.05	
v/s Ratio Perm		c0.17		c1.18					0.40		0.13	
v/c Ratio		2.51	1.11	1.18	1.17	0.67			1.27	0.93	0.41	
Uniform Delay, d1		60.5	46.4	65.0	57.0	37.0			44.5	43.0	25.0	
Progression Factor		1.29	0.92	1.00	1.26	0.70			0.92	0.88	1.63	
Incremental Delay, d2		695.1	54.2	84.9	93.6	1.6			132.3	20.8	0.3	
Delay (s)		772.9	96.6	149.9	165.7	27.5			173.2	58.7	41.1	
Level of Service		F	F	F	F	C			F	E	D	
Approach Delay (s)			160.1			69.1				116.2		
Approach LOS			F			E				F		

Intersection Summary

HCM 2000 Control Delay	123.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.58		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	31.1
Intersection Capacity Utilization	99.7%	ICU Level of Service	F
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

4: Prince William Pkwy & Old Bridge Road & Touchstone Cir

04/03/2023



Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (vph)	28	107	98
Future Volume (vph)	28	107	98
Ideal Flow (vphpl)	1900	1900	1900
Grade (%)		5%	
Total Lost time (s)	7.6	7.6	7.9
Lane Util. Factor	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00
Frt	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00
Satd. Flow (prot)	1760	3451	1549
Flt Permitted	0.80	1.00	1.00
Satd. Flow (perm)	1482	3451	1549
Peak-hour factor, PHF	0.96	0.96	0.96
Adj. Flow (vph)	29	111	102
RTOR Reduction (vph)	0	0	91
Lane Group Flow (vph)	30	111	11
Confl. Peds. (#/hr)			2
Heavy Vehicles (%)	0%	2%	1%
Turn Type	Split	NA	pm+ov
Protected Phases	3	3	5!
Permitted Phases			3
Actuated Green, G (s)	5.0	5.0	14.1
Effective Green, g (s)	5.0	5.0	14.1
Actuated g/C Ratio	0.04	0.04	0.11
Clearance Time (s)	7.6	7.6	7.9
Vehicle Extension (s)	3.0	3.0	3.0
Lane Grp Cap (vph)	57	132	168
v/s Ratio Prot		0.03	0.00
v/s Ratio Perm	0.02		0.00
v/c Ratio	0.53	0.84	0.07
Uniform Delay, d1	61.3	62.1	52.0
Progression Factor	0.97	0.97	1.11
Incremental Delay, d2	8.2	34.6	0.2
Delay (s)	67.7	94.9	58.2
Level of Service	E	F	E
Approach Delay (s)		76.1	
Approach LOS		E	
Intersection Summary			

HCM Unsignalized Intersection Capacity Analysis

5: Tribe at the Glen & Old Bridge Road

04/03/2023



Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations	↑↑	↑		↑↑↑		↑		
Traffic Volume (veh/h)	1321	64	0	1525	0	17		
Future Volume (Veh/h)	1321	64	0	1525	0	17		
Sign Control	Free			Free	Stop			
Grade	-3%			2%	0%			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Hourly flow rate (vph)	1436	70	0	1658	0	18		
Pedestrians								
Lane Width (ft)								
Walking Speed (ft/s)								
Percent Blockage								
Right turn flare (veh)								
Median type	None			None				
Median storage (veh)								
Upstream signal (ft)	371			392				
pX, platoon unblocked				0.72	0.82	0.72		
vC, conflicting volume				1436	1989	718		
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol				822	0	0		
tC, single (s)				4.1	6.8	6.9		
tC, 2 stage (s)								
tF (s)				2.2	3.5	3.3		
p0 queue free %				100	100	98		
cM capacity (veh/h)				586	840	784		
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	
Volume Total	718	718	70	553	553	553	18	
Volume Left	0	0	0	0	0	0	0	
Volume Right	0	0	70	0	0	0	18	
cSH	1700	1700	1700	1700	1700	1700	784	
Volume to Capacity	0.42	0.42	0.04	0.33	0.33	0.33	0.02	
Queue Length 95th (ft)	0	0	0	0	0	0	2	
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	9.7	
Lane LOS							A	
Approach Delay (s)	0.0			0.0				9.7
Approach LOS							A	
Intersection Summary								
Average Delay				0.1				
Intersection Capacity Utilization	46.5%			ICU Level of Service			A	
Analysis Period (min)	15							

HCM 6th TWSC
5: Tribe at the Glen & Old Bridge Road

04/03/2023

Intersection						
Int Delay, s/veh	0.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑		↑↑↑		↑
Traffic Vol, veh/h	1321	64	0	1525	0	17
Future Vol, veh/h	1321	64	0	1525	0	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Free	-	None	-	Stop
Storage Length	-	175	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	-3	-	-	2	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	6	0	0	4	0	0
Mvmt Flow	1436	70	0	1658	0	18

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	-	-	-	718
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	3.3
Pot Cap-1 Maneuver	-	0	0	-	0 376
Stage 1	-	0	0	-	0 -
Stage 2	-	0	0	-	0 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	376
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	15.1
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	WBT
Capacity (veh/h)	376	-	-
HCM Lane V/C Ratio	0.049	-	-
HCM Control Delay (s)	15.1	-	-
HCM Lane LOS	C	-	-
HCM 95th %tile Q(veh)	0.2	-	-

HCM Signalized Intersection Capacity Analysis

6: Troupe Street/Glen Shopping Ctr & Old Bridge Road

04/03/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑	↗		↘	↗		↘	↗
Traffic Volume (vph)	19	1258	61	100	1399	90	107	9	197	52	14	18
Future Volume (vph)	19	1258	61	100	1399	90	107	9	197	52	14	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			7%			-1%			0%	
Total Lost time (s)	7.0	6.5	8.0	7.0	6.0	7.0		8.0	8.0		7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.97		1.00	0.99		1.00	0.95
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.96	1.00		0.96	1.00
Satd. Flow (prot)	1823	3440	1550	1598	3350	1495		1745	1442		1828	1540
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.96	1.00		0.96	1.00
Satd. Flow (perm)	1823	3440	1550	1598	3350	1495		1745	1442		1828	1540
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	21	1367	66	109	1521	98	116	10	214	57	15	20
RTOR Reduction (vph)	0	0	28	0	0	36	0	0	175	0	0	19
Lane Group Flow (vph)	21	1367	38	109	1521	62	0	126	39	0	72	1
Confl. Peds. (#/hr)			3			6	3		2	2		7
Heavy Vehicles (%)	0%	6%	4%	9%	4%	1%	5%	0%	11%	0%	0%	0%
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Split	NA	Perm	Split	NA	Perm
Protected Phases	5	2	4	1	6	3	4	4		3	3	
Permitted Phases			2			6			4			3
Actuated Green, G (s)	4.8	60.8	75.7	18.0	74.5	82.3		14.9	14.9		7.8	7.8
Effective Green, g (s)	4.8	60.8	75.7	18.0	74.5	82.3		14.9	14.9		7.8	7.8
Actuated g/C Ratio	0.04	0.47	0.58	0.14	0.57	0.63		0.11	0.11		0.06	0.06
Clearance Time (s)	7.0	6.5	8.0	7.0	6.0	7.0		8.0	8.0		7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	67	1608	902	221	1919	946		200	165		109	92
v/s Ratio Prot	0.01	c0.40	0.00	c0.07	c0.45	0.00		c0.07			c0.04	
v/s Ratio Perm			0.02			0.04			0.03			0.00
v/c Ratio	0.31	0.85	0.04	0.49	0.79	0.07		0.63	0.23		0.66	0.01
Uniform Delay, d1	61.0	30.6	11.6	51.8	21.7	9.1		54.9	52.4		59.8	57.5
Progression Factor	1.02	0.45	0.10	1.03	0.85	2.08		0.84	0.54		1.00	1.00
Incremental Delay, d2	1.2	2.7	0.0	1.5	3.0	0.0		6.2	0.7		14.0	0.1
Delay (s)	63.5	16.4	1.1	55.0	21.5	19.0		52.5	28.8		73.8	57.5
Level of Service	E	B	A	E	C	B		D	C		E	E
Approach Delay (s)		16.4			23.5			37.5			70.3	
Approach LOS		B			C			D			E	

Intersection Summary

HCM 2000 Control Delay	23.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	28.5
Intersection Capacity Utilization	76.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

7: Titania Way/Touchstone Circle & Old Bridge Road

04/03/2023



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations		↔	↕	↗		↔	↕	↗		↕		
Traffic Volume (vph)	4	11	1477	15	10	14	1540	51	20	1	18	56
Future Volume (vph)	4	11	1477	15	10	14	1540	51	20	1	18	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)			4%				-7%			-3%		
Total Lost time (s)		8.5	8.5	8.5		8.5	8.5	8.5		7.5		
Lane Util. Factor		1.00	0.95	1.00		1.00	0.95	1.00		1.00		
Frbp, ped/bikes		1.00	1.00	0.98		1.00	1.00	0.98		0.99		
Flpb, ped/bikes		1.00	1.00	1.00		1.00	1.00	1.00		1.00		
Frt		1.00	1.00	0.85		1.00	1.00	0.85		0.94		
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00		0.98		
Satd. Flow (prot)		1669	3338	1432		1868	3593	1576		1698		
Flt Permitted		0.12	1.00	1.00		0.12	1.00	1.00		0.81		
Satd. Flow (perm)		203	3338	1432		242	3593	1576		1407		
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	4	12	1555	16	11	15	1621	54	21	1	19	59
RTOR Reduction (vph)	0	0	0	5	0	0	0	15	0	18	0	0
Lane Group Flow (vph)	0	16	1555	11	0	26	1621	39	0	23	0	0
Confl. Peds. (#/hr)		4		1		1		6			3	2
Heavy Vehicles (%)	0%	8%	6%	8%	0%	0%	4%	4%	6%	0%	0%	4%
Turn Type	custom	pm+pt	NA	Perm	custom	pm+pt	NA	Perm	Perm	NA		Perm
Protected Phases		1	6			5	2			4		
Permitted Phases	1	6		6	5	2		2	4			8
Actuated Green, G (s)		95.1	93.0	93.0		97.3	94.1	94.1		9.3		
Effective Green, g (s)		95.1	93.0	93.0		97.3	94.1	94.1		9.3		
Actuated g/C Ratio		0.73	0.72	0.72		0.75	0.72	0.72		0.07		
Clearance Time (s)		8.5	8.5	8.5		8.5	8.5	8.5		7.5		
Vehicle Extension (s)		2.0	8.0	8.0		2.0	8.0	8.0		2.0		
Lane Grp Cap (vph)		172	2387	1024		221	2600	1140		100		
v/s Ratio Prot		0.00	c0.47			c0.00	0.45					
v/s Ratio Perm		0.07		0.01		0.09		0.02		0.02		
v/c Ratio		0.09	0.65	0.01		0.12	0.62	0.03		0.23		
Uniform Delay, d1		6.8	9.9	5.3		6.5	9.0	5.1		57.0		
Progression Factor		0.28	0.24	1.00		1.72	1.58	1.00		1.00		
Incremental Delay, d2		0.1	0.9	0.0		0.1	0.8	0.0		0.4		
Delay (s)		2.0	3.2	5.3		11.2	15.1	5.1		57.4		
Level of Service		A	A	A		B	B	A		E		
Approach Delay (s)			3.2				14.7			57.4		
Approach LOS			A				B			E		

Intersection Summary

HCM 2000 Control Delay	11.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	24.5
Intersection Capacity Utilization	76.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 7: Titania Way/Touchstone Circle & Old Bridge Road

04/03/2023



Movement	SBT	SBR
Lane Configurations	↔	↗
Traffic Volume (vph)	0	22
Future Volume (vph)	0	22
Ideal Flow (vphpl)	1900	1900
Grade (%)	2%	
Total Lost time (s)	7.5	7.5
Lane Util. Factor	1.00	1.00
Frpb, ped/bikes	1.00	0.98
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	0.95	1.00
Satd. Flow (prot)	1715	1483
Flt Permitted	0.73	1.00
Satd. Flow (perm)	1318	1483
Peak-hour factor, PHF	0.95	0.95
Adj. Flow (vph)	0	23
RTOR Reduction (vph)	0	21
Lane Group Flow (vph)	59	2
Confl. Peds. (#/hr)		4
Heavy Vehicles (%)	0%	6%
Turn Type	NA	Perm
Protected Phases	8	
Permitted Phases		8
Actuated Green, G (s)	9.3	9.3
Effective Green, g (s)	9.3	9.3
Actuated g/C Ratio	0.07	0.07
Clearance Time (s)	7.5	7.5
Vehicle Extension (s)	2.0	2.0
Lane Grp Cap (vph)	94	106
v/s Ratio Prot		
v/s Ratio Perm	c0.04	0.00
v/c Ratio	0.63	0.02
Uniform Delay, d1	58.7	56.1
Progression Factor	1.00	1.00
Incremental Delay, d2	9.1	0.0
Delay (s)	67.7	56.1
Level of Service	E	E
Approach Delay (s)	64.5	
Approach LOS	E	
Intersection Summary		

HCM Unsignalized Intersection Capacity Analysis

8: Old Bridge Road & Brussels Way

04/03/2023



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↗		↗
Traffic Volume (veh/h)	0	1569	1612	11	0	13
Future Volume (Veh/h)	0	1569	1612	11	0	13
Sign Control		Free	Free		Stop	
Grade		7%	-1%		1%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1705	1752	12	0	14
Pedestrians		7			7	
Lane Width (ft)		12.0			12.0	
Walking Speed (ft/s)		4.0			4.0	
Percent Blockage		1			1	
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)		685	1088			
pX, platoon unblocked	0.66				0.79	0.66
vC, conflicting volume	1771				2612	890
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1129				1020	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	98
cM capacity (veh/h)	409				185	708
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	SB 1
Volume Total	852	852	876	876	12	14
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	12	14
cSH	1700	1700	1700	1700	1700	708
Volume to Capacity	0.50	0.50	0.52	0.52	0.01	0.02
Queue Length 95th (ft)	0	0	0	0	0	2
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	10.2
Lane LOS						B
Approach Delay (s)	0.0		0.0			10.2
Approach LOS						B
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			56.6%		ICU Level of Service	B
Analysis Period (min)			15			

HCM 6th TWSC
8: Old Bridge Road & Brussels Way

04/03/2023

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↑		↑
Traffic Vol, veh/h	0	1569	1612	11	0	13
Future Vol, veh/h	0	1569	1612	11	0	13
Conflicting Peds, #/hr	7	0	0	7	0	7
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	225	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	7	-1	-	1	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	6	4	0	0	0
Mvmt Flow	0	1705	1752	12	0	14

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	-	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	-
Pot Cap-1 Maneuver	0	-	-
Stage 1	0	-	-
Stage 2	0	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	18.5
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	280
HCM Lane V/C Ratio	-	-	-	0.05
HCM Control Delay (s)	-	-	-	18.5
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0.2

HCM Unsignalized Intersection Capacity Analysis

9: Old Bridge Ln/Church Entr & Old Bridge Road

04/03/2023



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations		↔	↕↕	↗		↔	↕↕	↗		↕↔		↗
Traffic Volume (veh/h)	4	4	1543	20	6	11	1580	4	39	0	33	1
Future Volume (Veh/h)	4	4	1543	20	6	11	1580	4	39	0	33	1
Sign Control			Free				Free			Stop		
Grade			1%				3%			0%		
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	0	4	1591	21	0	11	1629	4	40	0	34	1
Pedestrians			5				4			4		
Lane Width (ft)			12.0				12.0			12.0		
Walking Speed (ft/s)			4.0				4.0			4.0		
Percent Blockage			0				0			0		
Right turn flare (veh)												
Median type			None				None					
Median storage (veh)												
Upstream signal (ft)			1188				585					
pX, platoon unblocked	0.00	0.66			0.00	0.75			0.78	0.78	0.75	0.78
vC, conflicting volume	0	1638			0	1616			2444	3263	804	2498
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0	924			0	1151			843	1890	66	910
tC, single (s)	0.0	4.1			0.0	4.2			7.5	6.5	6.9	7.5
tC, 2 stage (s)												
tF (s)	0.0	2.2			0.0	2.3			3.5	4.0	3.3	3.5
p0 queue free %	0	99			0	97			80	100	95	99
cM capacity (veh/h)	0	489			0	429			196	53	736	167
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1	SB 2	
Volume Total	4	796	796	21	11	814	814	4	74	1	0	
Volume Left	4	0	0	0	11	0	0	0	40	1	0	
Volume Right	0	0	0	21	0	0	0	4	34	0	0	
cSH	489	1700	1700	1700	429	1700	1700	1700	295	167	1700	
Volume to Capacity	0.01	0.47	0.47	0.01	0.03	0.48	0.48	0.00	0.25	0.01	0.00	
Queue Length 95th (ft)	1	0	0	0	2	0	0	0	24	0	0	
Control Delay (s)	12.4	0.0	0.0	0.0	13.6	0.0	0.0	0.0	21.2	26.7	0.0	
Lane LOS	B				B				C	D	A	
Approach Delay (s)	0.0				0.1				21.2	26.7		
Approach LOS									C	D		
Intersection Summary												
Average Delay			0.5									
Intersection Capacity Utilization			64.0%			ICU Level of Service			C			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 9: Old Bridge Ln/Church Entr & Old Bridge Road

04/03/2023



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	0	0
Future Volume (Veh/h)	0	0
Sign Control	Stop	
Grade	-1%	
Peak Hour Factor	0.97	0.97
Hourly flow rate (vph)	0	0
Pedestrians	5	
Lane Width (ft)	10.0	
Walking Speed (ft/s)	4.0	
Percent Blockage	0	
Right turn flare (veh)		
Median type		
Median storage (veh)		
Upstream signal (ft)		
pX, platoon unblocked	0.78	0.66
vC, conflicting volume	3280	824
vC1, stage 1 conf vol		
vC2, stage 2 conf vol		
vCu, unblocked vol	1912	0
tC, single (s)	6.5	6.9
tC, 2 stage (s)		
tF (s)	4.0	3.3
p0 queue free %	100	100
cM capacity (veh/h)	52	710
Direction, Lane #		

HCM 6th TWSC
 9: Old Bridge Ln/Church Entr & Old Bridge Road

04/03/2023

Intersection														
Int Delay, s/veh	27.2													
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↕	↕		↔	↕	↕		↔		↕		↕
Traffic Vol, veh/h	4	4	1543	20	6	11	1580	4	39	0	33	1	0	0
Future Vol, veh/h	4	4	1543	20	6	11	1580	4	39	0	33	1	0	0
Conflicting Peds, #/hr	0	5	0	4	0	4	0	5	0	0	4	0	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	-	None	-	-	-	None	-	-	None	-	-	None
Storage Length	-	365	-	340	-	225	-	230	-	-	-	0	-	0
Veh in Median Storage, #	-	-	0	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-	1	-	-	-	3	-	-	0	-	-	-1	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	0	0	6	1	0	7	4	0	0	0	0	0	0	0
Mvmt Flow	4	4	1591	21	6	11	1629	4	40	0	34	1	0	0

Major/Minor	Major1			Major2			Minor1			Minor2				
Conflicting Flow All	1629	1638	0	0	1591	1616	0	0	2465	3283	804	2484	-	825
Stage 1	-	-	-	-	-	-	-	-	1611	1611	-	1668	-	-
Stage 2	-	-	-	-	-	-	-	-	854	1672	-	816	-	-
Critical Hdwy	6.4	4.1	-	-	6.4	4.24	-	-	7.5	6.5	6.9	7.3	-	6.8
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	6.5	5.5	-	6.3	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	6.5	5.5	-	6.3	-	-
Follow-up Hdwy	2.5	2.2	-	-	2.5	2.27	-	-	3.5	4	3.3	3.5	-	3.3
Pot Cap-1 Maneuver	133	401	-	-	141	377	-	-	~ 16	9	330	18	0	327
Stage 1	-	-	-	-	-	-	-	-	111	165	-	112	0	-
Stage 2	-	-	-	-	-	-	-	-	324	154	-	357	0	-
Platoon blocked, %			-	-			-	-						
Mov Cap-1 Maneuver	200	200	-	-	222	222	-	-	~ 14	8	328	15	-	325
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	~ 14	8	-	15	-	-
Stage 1	-	-	-	-	-	-	-	-	106	158	-	107	-	-
Stage 2	-	-	-	-	-	-	-	-	297	141	-	306	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.2	\$ 1215.5	262
HCM LOS			F	F

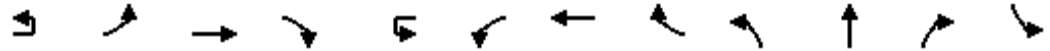
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	25	200	-	-	222	-	-	15	-
HCM Lane V/C Ratio	2.969	0.041	-	-	0.079	-	-	0.069	-
HCM Control Delay (s)	\$ 1215.5	23.8	-	-	22.6	-	-	262	0
HCM Lane LOS	F	C	-	-	C	-	-	F	A
HCM 95th %tile Q(veh)	9.2	0.1	-	-	0.3	-	-	0.2	-

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM Signalized Intersection Capacity Analysis

10: Rockwood Lane/Westridge Drive & Old Bridge Road

04/03/2023



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations		↔	↕			↔	↕	↗		↕		
Traffic Volume (vph)	4	167	1412	0	9	0	1327	92	0	0	0	179
Future Volume (vph)	4	167	1412	0	9	0	1327	92	0	0	0	179
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)			1%				3%			0%		
Total Lost time (s)		8.6	8.6			8.6	8.6	8.6				
Lane Util. Factor		1.00	0.95			1.00	0.95	1.00				
Frbp, ped/bikes		1.00	1.00			1.00	1.00	0.98				
Flpb, ped/bikes		1.00	1.00			1.00	1.00	1.00				
Frt		1.00	1.00			1.00	1.00	0.85				
Flt Protected		0.95	1.00			0.95	1.00	1.00				
Satd. Flow (prot)		1681	3389			1776	3387	1517				
Flt Permitted		0.08	1.00			0.16	1.00	1.00				
Satd. Flow (perm)		143	3389			302	3387	1517				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	4	182	1535	0	10	0	1442	100	0	0	0	195
RTOR Reduction (vph)	0	0	0	0	0	0	0	46	0	0	0	0
Lane Group Flow (vph)	0	186	1535	0	0	10	1442	54	0	0	0	0
Confl. Peds. (#/hr)		3		5		5		5			7	2
Heavy Vehicles (%)	0%	7%	6%	0%	0%	0%	5%	3%	0%	0%	0%	2%
Turn Type	custom	pm+pt	NA		Perm	Perm	NA	Perm				Perm
Protected Phases		1	6				2			8		
Permitted Phases	1!	6			2	2		2	8			4
Actuated Green, G (s)		90.8	90.8			69.8	69.8	69.8				
Effective Green, g (s)		90.8	90.8			69.8	69.8	69.8				
Actuated g/C Ratio		0.70	0.70			0.54	0.54	0.54				
Clearance Time (s)		8.6	8.6			8.6	8.6	8.6				
Vehicle Extension (s)		3.0	4.0			4.0	4.0	4.0				
Lane Grp Cap (vph)		246	2367			162	1818	814				
v/s Ratio Prot		0.07	c0.45				c0.43					
v/s Ratio Perm		0.45				0.03		0.04				
v/c Ratio		0.76	0.65			0.06	0.79	0.07				
Uniform Delay, d1		28.5	10.8			14.4	24.3	14.5				
Progression Factor		1.98	0.21			1.00	1.00	1.00				
Incremental Delay, d2		10.9	1.2			0.7	3.7	0.2				
Delay (s)		67.4	3.4			15.1	27.9	14.6				
Level of Service		E	A			B	C	B				
Approach Delay (s)			10.3				27.0			0.0		
Approach LOS			B				C			A		

Intersection Summary

HCM 2000 Control Delay	22.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	24.5
Intersection Capacity Utilization	92.7%	ICU Level of Service	F
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

10: Rockwood Lane/Westridge Drive & Old Bridge Road

04/03/2023



Movement	SBT	SBR
Lane Configurations	↔	↔
Traffic Volume (vph)	0	271
Future Volume (vph)	0	271
Ideal Flow (vphpl)	1900	1900
Grade (%)	-1%	
Total Lost time (s)	7.3	8.6
Lane Util. Factor	1.00	1.00
Frpb, ped/bikes	1.00	0.99
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	0.95	1.00
Satd. Flow (prot)	1774	1575
Flt Permitted	0.76	1.00
Satd. Flow (perm)	1414	1575
Peak-hour factor, PHF	0.92	0.92
Adj. Flow (vph)	0	295
RTOR Reduction (vph)	0	34
Lane Group Flow (vph)	195	261
Confl. Peds. (#/hr)		3
Heavy Vehicles (%)	0%	2%
Turn Type	NA	pm+ov
Protected Phases	4	1!
Permitted Phases		4
Actuated Green, G (s)	23.3	35.7
Effective Green, g (s)	23.3	35.7
Actuated g/C Ratio	0.18	0.27
Clearance Time (s)	7.3	8.6
Vehicle Extension (s)	3.5	3.0
Lane Grp Cap (vph)	253	432
v/s Ratio Prot		0.06
v/s Ratio Perm	c0.14	0.11
v/c Ratio	0.77	0.60
Uniform Delay, d1	50.8	41.0
Progression Factor	1.00	1.00
Incremental Delay, d2	13.9	2.4
Delay (s)	64.7	43.4
Level of Service	E	D
Approach Delay (s)	51.9	
Approach LOS	D	
Intersection Summary		

HCM Unsignalized Intersection Capacity Analysis

11: Touchstone Cir & Exxon/Glen Shopping Ctr

04/03/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗		↑↑↑	↗		↑↑↑	
Traffic Volume (veh/h)	0	0	18	0	0	61	0	134	107	0	216	17
Future Volume (Veh/h)	0	0	18	0	0	61	0	134	107	0	216	17
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			-1%			2%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	20	0	0	66	0	146	116	0	235	18
Pedestrians		3			1			1			3	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		0			0			0			0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh												
Upstream signal (ft)								317				
pX, platoon unblocked												
vC, conflicting volume	365	510	72	227	403	53	256			263		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	365	510	72	227	403	53	256			263		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	98	100	100	93	100			100		
cM capacity (veh/h)	530	468	979	697	538	1007	1317			1312		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3	SB 4		
Volume Total	20	66	49	49	49	116	67	67	67	52		
Volume Left	0	0	0	0	0	0	0	0	0	0		
Volume Right	20	66	0	0	0	116	0	0	0	18		
cSH	979	1007	1700	1700	1700	1700	1700	1700	1700	1700		
Volume to Capacity	0.02	0.07	0.03	0.03	0.03	0.07	0.04	0.04	0.04	0.03		
Queue Length 95th (ft)	2	5	0	0	0	0	0	0	0	0		
Control Delay (s)	8.8	8.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Lane LOS	A	A										
Approach Delay (s)	8.8	8.8	0.0				0.0					
Approach LOS	A	A										
Intersection Summary												
Average Delay			1.3									
Intersection Capacity Utilization			15.3%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 13: Touchstone Cir & Seeton Square/Merchant Plaza

04/03/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations		↕			↕			↕	↕		↕	↕
Traffic Volume (veh/h)	2	1	16	87	4	3	78	47	44	26	5	52
Future Volume (Veh/h)	2	1	16	87	4	3	78	47	44	26	5	52
Sign Control		Stop			Stop				Free			Free
Grade		-2%			0%				-1%			2%
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	2	1	17	94	4	3	0	51	47	28	5	56
Pedestrians		2			2				1			3
Lane Width (ft)		12.0			12.0				12.0			12.0
Walking Speed (ft/s)		4.0			4.0				4.0			4.0
Percent Blockage		0			0				0			0
Right turn flare (veh)												
Median type									None			None
Median storage (veh)												
Upstream signal (ft)									589			
pX, platoon unblocked							0.00					
vC, conflicting volume	207	252	36	222	244	42	0	69			77	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	207	252	36	222	244	42	0	69			77	
tC, single (s)	7.5	6.5	7.0	7.5	6.5	6.9	0.0	4.1			4.5	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.4	3.5	4.0	3.3	0.0	2.2			2.4	
p0 queue free %	100	100	98	86	99	100	0	97			100	
cM capacity (veh/h)	707	628	1009	682	635	1021	0	1542			1395	
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3				
Volume Total	20	101	51	31	44	5	37	30				
Volume Left	2	94	51	0	0	5	0	0				
Volume Right	17	3	0	0	28	0	0	11				
cSH	941	687	1542	1700	1700	1395	1700	1700				
Volume to Capacity	0.02	0.15	0.03	0.02	0.03	0.00	0.02	0.02				
Queue Length 95th (ft)	2	13	3	0	0	0	0	0				
Control Delay (s)	8.9	11.1	7.4	0.0	0.0	7.6	0.0	0.0				
Lane LOS	A	B	A			A						
Approach Delay (s)	8.9	11.1	3.0			0.5						
Approach LOS	A	B										
Intersection Summary												
Average Delay			5.4									
Intersection Capacity Utilization			32.3%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 13: Touchstone Cir & Seeton Square/Merchant Plaza

04/03/2023



Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	10
Future Volume (Veh/h)	10
Sign Control	
Grade	
Peak Hour Factor	0.93
Hourly flow rate (vph)	11
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage veh)	
Upstream signal (ft)	
pX, platoon unblocked	
vC, conflicting volume	
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	
tC, single (s)	
tC, 2 stage (s)	
tF (s)	
p0 queue free %	
cM capacity (veh/h)	
Direction, Lane #	

HCM 6th TWSC
 13: Touchstone Cir & Seeton Square/Merchant Plaza

04/03/2023

Intersection													
Int Delay, s/veh	6.7												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↕		↕	↕	
Traffic Vol, veh/h	2	1	16	87	4	3	78	47	44	26	5	52	10
Future Vol, veh/h	2	1	16	87	4	3	78	47	44	26	5	52	10
Conflicting Peds, #/hr	2	0	1	1	0	3	0	0	0	2	1	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	0	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	-	0	-	-	0	-
Grade, %	-	-2	-	-	0	-	-	-	-1	-	-	2	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	7	1	0	0	0	0	13	0	20	2	0
Mvmt Flow	2	1	17	94	4	3	84	51	47	28	5	56	11

Major/Minor	Minor2		Minor1		Major1			Major2					
Conflicting Flow All	373	421	37	373	412	43	67	69	0	0	77	0	0
Stage 1	74	74	-	333	333	-	-	-	-	-	-	-	-
Stage 2	299	347	-	40	79	-	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.1	6.84	7.52	6.5	6.9	6.4	4.1	-	-	4.5	-	-
Critical Hdwy Stg 1	6.1	5.1	-	6.52	5.5	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.1	-	6.52	5.5	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.37	3.51	4	3.3	2.5	2.2	-	-	2.4	-	-
Pot Cap-1 Maneuver	588	552	1013	561	533	1025	1308	1545	-	-	1398	-	-
Stage 1	940	844	-	657	647	-	-	-	-	-	-	-	-
Stage 2	714	663	-	973	833	-	-	-	-	-	-	-	-
Platoon blocked, %									-	-	-	-	-
Mov Cap-1 Maneuver	535	494	1010	507	477	1021	1372	1372	-	-	1396	-	-
Mov Cap-2 Maneuver	535	494	-	507	477	-	-	-	-	-	-	-	-
Stage 1	847	839	-	592	582	-	-	-	-	-	-	-	-
Stage 2	636	597	-	951	828	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	9.2		13.7		5.1		0.6	
HCM LOS	A		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1372	-	-	879	514	1396	-	-
HCM Lane V/C Ratio	0.098	-	-	0.023	0.197	0.004	-	-
HCM Control Delay (s)	7.9	-	-	9.2	13.7	7.6	-	-
HCM Lane LOS	A	-	-	A	B	A	-	-
HCM 95th %tile Q(veh)	0.3	-	-	0.1	0.7	0	-	-

HCM Unsignalized Intersection Capacity Analysis

14: Touchstone Circle & Merchant Plaza/CVS

04/03/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	4	1	18	4	1	0	20	38	5	0	56	7
Future Volume (Veh/h)	4	1	18	4	1	0	20	38	5	0	56	7
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			-3%			3%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	1	20	4	1	0	22	41	5	0	61	8
Pedestrians		3			6			5			4	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		0			1			0			0	
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)								350				
pX, platoon unblocked												
vC, conflicting volume	137	164	42	150	166	33	72			52		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	137	164	42	150	166	33	72			52		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.5			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.4			2.2		
p0 queue free %	100	100	98	99	100	100	98			100		
cM capacity (veh/h)	806	715	1018	771	714	1031	1388			1559		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	25	5	42	26	30	38						
Volume Left	4	4	22	0	0	0						
Volume Right	20	0	0	5	0	8						
cSH	961	759	1388	1700	1559	1700						
Volume to Capacity	0.03	0.01	0.02	0.01	0.00	0.02						
Queue Length 95th (ft)	2	0	1	0	0	0						
Control Delay (s)	8.8	9.8	4.0	0.0	0.0	0.0						
Lane LOS	A	A	A									
Approach Delay (s)	8.8	9.8	2.5		0.0							
Approach LOS	A	A										
Intersection Summary												
Average Delay			2.6									
Intersection Capacity Utilization			20.3%		ICU Level of Service				A			
Analysis Period (min)			15									

Intersection												
Int Delay, s/veh	2.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	1	18	4	1	0	20	38	5	0	56	7
Future Vol, veh/h	4	1	18	4	1	0	20	38	5	0	56	7
Conflicting Peds, #/hr	0	0	5	2	0	4	3	0	6	4	0	3
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	-	-	-3	-	-	3	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	22	0	0	0	4	0
Mvmt Flow	4	1	20	4	1	0	22	41	5	0	61	8

Major/Minor	Minor2		Minor1			Major1		Major2				
Conflicting Flow All	137	164	43	130	166	33	72	0	0	52	0	0
Stage 1	68	68	-	94	94	-	-	-	-	-	-	-
Stage 2	69	96	-	36	72	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.54	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.42	-	-	2.2	-	-
Pot Cap-1 Maneuver	826	732	1025	835	730	1040	1392	-	-	1567	-	-
Stage 1	940	842	-	908	821	-	-	-	-	-	-	-
Stage 2	939	819	-	981	839	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	810	715	1018	801	713	1031	1389	-	-	1559	-	-
Mov Cap-2 Maneuver	810	715	-	801	713	-	-	-	-	-	-	-
Stage 1	923	840	-	889	804	-	-	-	-	-	-	-
Stage 2	920	802	-	957	837	-	-	-	-	-	-	-

Approach	EB		WB			NB		SB		
HCM Control Delay, s	8.9		9.6			2.4		0		
HCM LOS	A		A							

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1389	-	-	958	782	1559	-	-
HCM Lane V/C Ratio	0.016	-	-	0.026	0.007	-	-	-
HCM Control Delay (s)	7.6	0	-	8.9	9.6	0	-	-
HCM Lane LOS	A	A	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-	-

HCM Unsignalized Intersection Capacity Analysis
 15: Prince William Pkwy & Chinn Park Dr

04/03/2023



Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations								
Traffic Volume (veh/h)	0	22	1589	190	0	2352		
Future Volume (Veh/h)	0	22	1589	190	0	2352		
Sign Control	Stop		Free			Free		
Grade	0%		1%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Hourly flow rate (vph)	0	24	1727	207	0	2557		
Pedestrians								
Lane Width (ft)								
Walking Speed (ft/s)								
Percent Blockage								
Right turn flare (veh)								
Median type			None	None				
Median storage (veh)								
Upstream signal (ft)			990	666				
pX, platoon unblocked	0.80	0.80			0.80			
vC, conflicting volume	2683	535			1727			
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol	1863	0			671			
tC, single (s)	6.8	7.0			4.1			
tC, 2 stage (s)								
tF (s)	3.5	3.4			2.2			
p0 queue free %	100	97			100			
cM capacity (veh/h)	53	859			745			
Direction, Lane #	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3
Volume Total	24	493	493	493	454	852	852	852
Volume Left	0	0	0	0	0	0	0	0
Volume Right	24	0	0	0	207	0	0	0
cSH	859	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.03	0.29	0.29	0.29	0.27	0.50	0.50	0.50
Queue Length 95th (ft)	2	0	0	0	0	0	0	0
Control Delay (s)	9.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS								
Approach Delay (s)	9.3	0.0				0.0		
Approach LOS								
A								
Intersection Summary								
Average Delay			0.0					
Intersection Capacity Utilization			48.8%			ICU Level of Service		A
Analysis Period (min)			15					

HCM Signalized Intersection Capacity Analysis

16: Prince William Pkwy & Kenwood Dr./

School Entrance

04/03/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations		↔			↔	↔			↑↑↑	↔		↔
Traffic Volume (vph)	51	1	89	33	1	32	2	27	1693	69	1	51
Future Volume (vph)	51	1	89	33	1	32	2	27	1693	69	1	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			1%				-2%			
Total Lost time (s)		6.6			5.8	8.8		8.8	8.8	5.8		8.8
Lane Util. Factor		1.00			1.00	1.00		1.00	0.91	1.00		1.00
Frbp, ped/bikes		0.99			1.00	1.00		1.00	1.00	0.98		1.00
Flpb, ped/bikes		1.00			1.00	1.00		1.00	1.00	1.00		1.00
Frt		0.91			1.00	0.85		1.00	1.00	0.85		1.00
Flt Protected		0.98			0.95	1.00		0.95	1.00	1.00		0.95
Satd. Flow (prot)		1624			1673	1488		1823	4989	1536		1712
Flt Permitted		0.98			0.95	1.00		0.05	1.00	1.00		0.08
Satd. Flow (perm)		1624			1673	1488		103	4989	1536		150
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	53	1	93	34	1	33	2	28	1764	72	1	53
RTOR Reduction (vph)	0	60	0	0	0	29	0	0	0	27	0	0
Lane Group Flow (vph)	0	87	0	0	35	4	0	30	1764	45	0	54
Confl. Peds. (#/hr)			4	2				2		2		
Heavy Vehicles (%)	5%	100%	0%	8%	0%	8%	0%	0%	5%	4%	0%	5%
Turn Type	Split	NA		Split	NA	pm+ov	custom	D.P+P	NA	pm+ov	custom	D.P+P
Protected Phases	3	3		4	4	5!		1	6	4		5
Permitted Phases						4	1	2		6	5!	6
Actuated Green, G (s)		13.2			8.3	13.9		78.5	72.9	81.2		78.5
Effective Green, g (s)		13.2			8.3	13.9		78.5	72.9	81.2		78.5
Actuated g/C Ratio		0.10			0.06	0.11		0.60	0.56	0.62		0.60
Clearance Time (s)		6.6			5.8	8.8		8.8	8.8	5.8		8.8
Vehicle Extension (s)		3.0			3.0	3.0		3.0	3.0	3.0		3.0
Lane Grp Cap (vph)		164			106	159		117	2797	959		157
v/s Ratio Prot		c0.05			c0.02	0.00		0.01	0.35	0.00		c0.01
v/s Ratio Perm						0.00		0.15		0.03		0.19
v/c Ratio		0.53			0.33	0.02		0.26	0.63	0.05		0.34
Uniform Delay, d1		55.5			58.2	52.0		18.1	19.4	9.4		13.3
Progression Factor		1.00			1.00	1.00		0.94	0.82	0.19		1.03
Incremental Delay, d2		3.1			1.8	0.1		1.1	1.0	0.0		0.1
Delay (s)		58.5			60.0	52.0		18.1	16.8	1.8		13.8
Level of Service		E			E	D		B	B	A		B
Approach Delay (s)		58.5			56.1				16.3			
Approach LOS		E			E				B			

Intersection Summary

HCM 2000 Control Delay	20.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	30.0
Intersection Capacity Utilization	80.8%	ICU Level of Service	D
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

16: Prince William Pkwy & Kenwood Dr./

School Entrance

04/03/2023



Movement	SBT	SBR
Lane Configurations	↑↑↑	↑
Traffic Volume (vph)	2245	56
Future Volume (vph)	2245	56
Ideal Flow (vphpl)	1900	1900
Grade (%)	1%	
Total Lost time (s)	8.8	6.6
Lane Util. Factor	0.91	1.00
Frbp, ped/bikes	1.00	0.98
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	4963	1500
Flt Permitted	1.00	1.00
Satd. Flow (perm)	4963	1500
Peak-hour factor, PHF	0.96	0.96
Adj. Flow (vph)	2339	58
RTOR Reduction (vph)	0	19
Lane Group Flow (vph)	2339	39
Confl. Peds. (#/hr)		2
Heavy Vehicles (%)	4%	5%
Turn Type	NA	pm+ov
Protected Phases	2	3
Permitted Phases		2
Actuated Green, G (s)	74.3	87.5
Effective Green, g (s)	74.3	87.5
Actuated g/C Ratio	0.57	0.67
Clearance Time (s)	8.8	6.6
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	2836	1009
v/s Ratio Prot	c0.47	0.00
v/s Ratio Perm		0.02
v/c Ratio	0.82	0.04
Uniform Delay, d1	22.6	7.1
Progression Factor	0.95	0.00
Incremental Delay, d2	0.3	0.0
Delay (s)	21.8	0.0
Level of Service	C	A
Approach Delay (s)	21.1	
Approach LOS	C	
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

17: Prince William Pkwy & Hillendale Road

04/03/2023



Movement	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Lane Configurations	↔↔	↔		↔↔	↑↑↑	↔	↑↑↑	↔
Traffic Volume (vph)	374	343	2	148	1417	0	2090	279
Future Volume (vph)	374	343	2	148	1417	0	2090	279
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)	2%				1%		2%	
Total Lost time (s)	6.5	8.0		8.0	5.5		5.5	6.5
Lane Util. Factor	0.97	1.00		0.97	0.91		0.91	1.00
Frbp, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00
Frt	1.00	0.85		1.00	1.00		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		1.00	1.00
Satd. Flow (prot)	3399	1537		3384	4915		4938	1511
Flt Permitted	0.95	1.00		0.16	1.00		1.00	1.00
Satd. Flow (perm)	3399	1537		570	4915		4938	1511
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	407	373	2	161	1540	0	2272	303
RTOR Reduction (vph)	0	0	0	0	0	0	0	105
Lane Group Flow (vph)	407	373	0	163	1540	0	2272	198
Confl. Bikes (#/hr)	2							
Heavy Vehicles (%)	2%	4%	0%	3%	5%	0%	4%	5%
Turn Type	Prot	pm+ov	custom	Prot	NA	Prot	NA	pm+ov
Protected Phases	4	5!		5	2	1	6	4
Permitted Phases		4	5!					6
Actuated Green, G (s)	31.4	56.4		25.0	86.6		53.6	85.0
Effective Green, g (s)	31.4	56.4		25.0	86.6		53.6	85.0
Actuated g/C Ratio	0.24	0.43		0.19	0.67		0.41	0.65
Clearance Time (s)	6.5	8.0		8.0	5.5		5.5	6.5
Vehicle Extension (s)	4.0	4.0		4.0	4.0		4.0	4.0
Lane Grp Cap (vph)	820	666		109	3274		2035	987
v/s Ratio Prot	0.12	c0.11			0.31		c0.46	0.05
v/s Ratio Perm		0.14		c0.29				0.08
v/c Ratio	0.50	0.56		1.50	0.47		1.12	0.20
Uniform Delay, d1	42.5	27.5		52.5	10.6		38.2	9.0
Progression Factor	1.00	1.00		1.00	1.00		0.53	2.21
Incremental Delay, d2	0.6	1.3		264.9	0.5		57.7	0.1
Delay (s)	43.1	28.8		317.4	11.0		78.0	19.9
Level of Service	D	C		F	B		E	B
Approach Delay (s)	36.3				40.4		71.2	
Approach LOS	D				D		E	

Intersection Summary




















HCM 2000 Control Delay	55.4	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	85.4%	ICU Level of Service	E
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 18: Library/Fitness Ctr/Troupe Street & Chinn Park Dr

04/03/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	124	6	28	1	2	20	11	41	0	9	83	5
Future Volume (Veh/h)	124	6	28	1	2	20	11	41	0	9	83	5
Sign Control		Free			Free			Stop			Stop	
Grade		1%			-2%			-2%			3%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	135	7	30	1	2	22	12	45	0	10	90	5
Pedestrians		1			5						6	
Lane Width (ft)		12.0			10.0						12.0	
Walking Speed (ft/s)		4.0			4.0						4.0	
Percent Blockage		0			0						1	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	30			37			343	309	12	326	328	20
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	30			37			343	309	12	326	328	20
tC, single (s)	4.1			5.1			7.1	6.6	6.2	7.4	6.6	6.7
tC, 2 stage (s)												
tF (s)	2.2			3.1			3.5	4.1	3.3	3.7	4.1	3.8
p0 queue free %	91			100			98	92	100	98	83	99
cM capacity (veh/h)	1575			1120			496	534	1071	506	529	929
Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	SB 1	SB 2					
Volume Total	142	30	25	12	45	10	95					
Volume Left	135	0	1	12	0	10	0					
Volume Right	0	30	22	0	0	0	5					
cSH	1575	1700	1120	496	534	506	542					
Volume to Capacity	0.09	0.02	0.00	0.02	0.08	0.02	0.18					
Queue Length 95th (ft)	7	0	0	2	7	2	16					
Control Delay (s)	7.2	0.0	0.3	12.4	12.4	12.3	13.1					
Lane LOS	A		A	B	B	B	B					
Approach Delay (s)	5.9		0.3	12.4		13.0						
Approach LOS				B		B						
Intersection Summary												
Average Delay			8.6									
Intersection Capacity Utilization			28.7%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM 6th TWSC
 18: Library/Fitness Ctr/Troupe Street & Chinn Park Dr

04/03/2023

Intersection												
Int Delay, s/veh	8.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↕		↕		↕	↕		↕	↕	
Traffic Vol, veh/h	124	6	28	1	2	20	11	41	0	9	83	5
Future Vol, veh/h	124	6	28	1	2	20	11	41	0	9	83	5
Conflicting Peds, #/hr	0	0	0	0	0	6	0	0	5	5	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	0	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	1	-	-	-2	-	-	-2	-	-	3	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	0	4	100	0	41	0	13	0	25	7	50
Mvmt Flow	135	7	30	1	2	22	12	45	0	10	90	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	30	0	0	37	0	0	341	309	12	341	328	20
Stage 1	-	-	-	-	-	-	277	277	-	21	21	-
Stage 2	-	-	-	-	-	-	64	32	-	320	307	-
Critical Hdwy	4.12	-	-	5.1	-	-	6.7	6.23	6	7.95	7.17	7
Critical Hdwy Stg 1	-	-	-	-	-	-	5.7	5.23	-	6.95	6.17	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.7	5.23	-	6.95	6.17	-
Follow-up Hdwy	2.218	-	-	3.1	-	-	3.5	4.117	3.3	3.725	4.063	3.75
Pot Cap-1 Maneuver	1583	-	-	1120	-	-	641	608	1075	540	552	933
Stage 1	-	-	-	-	-	-	757	682	-	938	865	-
Stage 2	-	-	-	-	-	-	959	850	-	612	619	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1575	-	-	1120	-	-	512	551	1071	469	501	928
Mov Cap-2 Maneuver	-	-	-	-	-	-	512	551	-	469	501	-
Stage 1	-	-	-	-	-	-	690	622	-	851	860	-
Stage 2	-	-	-	-	-	-	852	845	-	516	565	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	5.9			0.4			12.1			13.5		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	512	551	1575	-	-	1120	-	-	469	514
HCM Lane V/C Ratio	0.023	0.081	0.086	-	-	0.001	-	-	0.021	0.186
HCM Control Delay (s)	12.2	12.1	7.5	0	-	8.2	0	-	12.8	13.6
HCM Lane LOS	B	B	A	A	-	A	A	-	B	B
HCM 95th %tile Q(veh)	0.1	0.3	0.3	-	-	0	-	-	0.1	0.7

Intersection															
Int Delay, s/veh	4.2														
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↔ ↑↑↑				↔ ↑↑↑			↔		↔			↔	
Traffic Vol, veh/h	4	8	3011	0	9	10	3197	91	1	0	14	33	0	15	
Future Vol, veh/h	4	8	3011	0	9	10	3197	91	1	0	14	33	0	15	
Conflicting Peds, #/hr	0	9	0	3	0	3	0	9	0	0	3	0	0	9	
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop	
RT Channelized	-	-	-	None	-	-	-	None	-	-	None	-	-	None	
Storage Length	-	465	-	-	-	450	-	450	-	-	-	-	-	-	
Veh in Median Storage, #	-	-	0	-	-	-	0	-	-	0	-	-	0	-	
Grade, %	-	-	1	-	-	-	-1	-	-	-1	-	-	5	-	
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96	96	96	
Heavy Vehicles, %	0	17	2	0	0	0	3	0	0	0	0	0	0	0	
Mvmt Flow	4	8	3136	0	9	10	3330	95	1	0	15	34	0	16	

Major/Minor	Major1			Major2			Minor1			Minor2				
Conflicting Flow All	2431	3434	0	0	2290	3139	0	0	4542	6635	1574	4658	6540	1683
Stage 1	-	-	-	-	-	-	-	-	3163	3163	-	3377	3377	-
Stage 2	-	-	-	-	-	-	-	-	1379	3472	-	1281	3163	-
Critical Hdwy	5.6	5.64	-	-	5.6	5.3	-	-	6.2	6.3	7	7.4	7.5	7.6
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	7.1	5.3	-	8.3	6.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	6.5	5.3	-	7.7	6.5	-
Follow-up Hdwy	2.3	3.27	-	-	2.3	3.1	-	-	3.8	4	3.9	3.8	4	3.9
Pot Cap-1 Maneuver	70	17	-	-	85	33	-	-	2	0	90	0	0	57
Stage 1	-	-	-	-	-	-	-	-	6	31	-	~1	8	-
Stage 2	-	-	-	-	-	-	-	-	149	21	-	112	11	-
Platoon blocked, %			-	-			-	-						
Mov Cap-1 Maneuver	22	22	-	-	44	44	-	-	~1	0	90	0	0	56
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	~1	0	-	0	0	-
Stage 1	-	-	-	-	-	-	-	-	2	13	-	0	4	-
Stage 2	-	-	-	-	-	-	-	-	59	11	-	38	4	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.2	0.8	\$ 717	207.7
HCM LOS			F	F

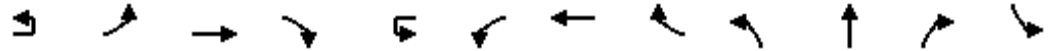
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	13	22	-	-	44	-	-	56
HCM Lane V/C Ratio	1.202	0.568	-	-	0.45	-	-	0.893
HCM Control Delay (s)	\$ 717	\$ 300.7	-	-	139.8	-	-	207.7
HCM Lane LOS	F	F	-	-	F	-	-	F
HCM 95th %tile Q(veh)	2.6	1.7	-	-	1.6	-	-	4

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM Signalized Intersection Capacity Analysis

2: Ridgewood Center Drive/Laurel Hills Drive & Prince William Pkwy

04/03/2023



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations		↔	↑↑↑			↔	↑↑↑			↔		
Traffic Volume (vph)	12	3	3042	9	13	17	3266	6	28	0	29	10
Future Volume (vph)	12	3	3042	9	13	17	3266	6	28	0	29	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	10
Grade (%)			0%				0%			0%		
Total Lost time (s)		6.5	6.0			6.5	6.0			6.5		
Lane Util. Factor		1.00	0.91			1.00	0.91			1.00		
Frbp, ped/bikes		1.00	1.00			1.00	1.00			0.99		
Flpb, ped/bikes		1.00	1.00			1.00	1.00			1.00		
Frt		1.00	1.00			1.00	1.00			0.93		
Flt Protected		0.95	1.00			0.95	1.00			0.98		
Satd. Flow (prot)		1804	5081			1805	5084			1710		
Flt Permitted		0.65	1.00			0.48	1.00			0.98		
Satd. Flow (perm)		1225	5081			905	5084			1710		
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	13	3	3202	9	14	18	3438	6	29	0	31	11
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	58	0	0
Lane Group Flow (vph)	0	16	3211	0	0	32	3444	0	0	2	0	0
Confl. Peds. (#/hr)		13		3		3		14			4	1
Heavy Vehicles (%)	0%	0%	2%	14%	0%	0%	2%	0%	0%	0%	0%	0%
Turn Type	custom	Prot	NA		custom	Prot	NA		Split	NA		Split
Protected Phases		5	2			1	6		4	4		3
Permitted Phases	5				1							
Actuated Green, G (s)		6.2	119.3			8.4	121.5			4.6		
Effective Green, g (s)		6.2	119.3			8.4	121.5			4.6		
Actuated g/C Ratio		0.04	0.75			0.05	0.76			0.03		
Clearance Time (s)		6.5	6.0			6.5	6.0			6.5		
Vehicle Extension (s)		3.0	3.5			3.0	3.5			3.0		
Lane Grp Cap (vph)		47	3788			47	3860			49		
v/s Ratio Prot			0.63				c0.68			c0.00		
v/s Ratio Perm		0.01				c0.04						
v/c Ratio		0.34	0.85			0.68	0.89			0.04		
Uniform Delay, d1		74.9	14.1			74.5	14.4			75.5		
Progression Factor		1.00	1.00			1.07	1.20			1.00		
Incremental Delay, d2		4.3	2.5			3.6	0.3			0.3		
Delay (s)		79.2	16.6			83.3	17.5			75.8		
Level of Service		E	B			F	B			E		
Approach Delay (s)			16.9				18.1			75.8		
Approach LOS			B				B			E		
Intersection Summary												
HCM 2000 Control Delay			18.2				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.85									
Actuated Cycle Length (s)			160.0				Sum of lost time (s)			25.5		
Intersection Capacity Utilization			81.0%				ICU Level of Service			D		
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 2: Ridgewood Center Drive/Laurel Hills Drive & Prince William Pkwy

04/03/2023



Movement	SBT	SBR
Lane Configurations	↕	
Traffic Volume (vph)	0	1
Future Volume (vph)	0	1
Ideal Flow (vphpl)	1900	1900
Lane Width	10	10
Grade (%)	5%	
Total Lost time (s)	6.5	
Lane Util. Factor	1.00	
Frpb, ped/bikes	0.98	
Flpb, ped/bikes	1.00	
Fr _t	0.99	
Fl _t Protected	0.96	
Satd. Flow (prot)	1595	
Fl _t Permitted	0.96	
Satd. Flow (perm)	1595	
Peak-hour factor, PHF	0.95	0.95
Adj. Flow (vph)	0	1
RTOR Reduction (vph)	12	0
Lane Group Flow (vph)	0	0
Confl. Peds. (#/hr)		13
Heavy Vehicles (%)	0%	0%
Turn Type	NA	
Protected Phases	3	
Permitted Phases		
Actuated Green, G (s)	2.2	
Effective Green, g (s)	2.2	
Actuated g/C Ratio	0.01	
Clearance Time (s)	6.5	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	21	
v/s Ratio Prot	c0.00	
v/s Ratio Perm		
v/c Ratio	0.01	
Uniform Delay, d ₁	77.8	
Progression Factor	1.00	
Incremental Delay, d ₂	0.1	
Delay (s)	78.0	
Level of Service	E	
Approach Delay (s)	78.0	
Approach LOS	E	
Intersection Summary		

HCM Unsignalized Intersection Capacity Analysis

3: Prince William Pkwy & Seeton Square

04/03/2023



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		↑↑↑	↑↑↑			↑	
Traffic Volume (veh/h)	0	3167	3315	65	0	46	
Future Volume (Veh/h)	0	3167	3315	65	0	46	
Sign Control		Free	Free		Stop		
Grade		0%	0%		4%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	0	3442	3603	71	0	50	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		None	None				
Median storage (veh)							
Upstream signal (ft)		1140	342				
pX, platoon unblocked	0.43			0.57	0.43		
vC, conflicting volume	3674			4786	1236		
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	2561			0	0		
tC, single (s)	4.1			6.8	6.9		
tC, 2 stage (s)							
tF (s)	2.2			3.5	3.3		
p0 queue free %	100			100	89		
cM capacity (veh/h)	75			583	465		
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	1147	1147	1147	1441	1441	792	50
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	71	50
cSH	1700	1700	1700	1700	1700	1700	465
Volume to Capacity	0.67	0.67	0.67	0.85	0.85	0.47	0.11
Queue Length 95th (ft)	0	0	0	0	0	0	9
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	13.7
Lane LOS							B
Approach Delay (s)	0.0			0.0			13.7
Approach LOS							B
Intersection Summary							
Average Delay			0.1				
Intersection Capacity Utilization			75.5%	ICU Level of Service		D	
Analysis Period (min)			15				

HCM 6th TWSC
3: Prince William Pkwy & Seeton Square

04/03/2023

Intersection						
Int Delay, s/veh	2.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑			↑
Traffic Vol, veh/h	0	3167	3315	65	0	46
Future Vol, veh/h	0	3167	3315	65	0	46
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	4	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	2	4	0	0
Mvmt Flow	0	3442	3603	71	0	50

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	-	0	- 0 - 1837
Stage 1	-	-	- - -
Stage 2	-	-	- - -
Critical Hdwy	-	-	- - 7.5
Critical Hdwy Stg 1	-	-	- - -
Critical Hdwy Stg 2	-	-	- - -
Follow-up Hdwy	-	-	- - 3.9
Pot Cap-1 Maneuver	0	-	- 0 ~ 46
Stage 1	0	-	- 0 -
Stage 2	0	-	- 0 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	- - ~ 46
Mov Cap-2 Maneuver	-	-	- - -
Stage 1	-	-	- - -
Stage 2	-	-	- - -

Approach	EB	WB	SB
HCM Control Delay, s	0	0	299.5
HCM LOS			F

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	46
HCM Lane V/C Ratio	-	-	-	1.087
HCM Control Delay (s)	-	-	-	299.5
HCM Lane LOS	-	-	-	F
HCM 95th %tile Q(veh)	-	-	-	4.6

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM Signalized Intersection Capacity Analysis

4: Prince William Pkwy & Old Bridge Road & Touchstone Cir

04/03/2023



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations		↔	↕	↗		↔	↕			↔	↕	↗
Traffic Volume (vph)	15	169	1291	1664	3	589	1432	44	15	1688	204	418
Future Volume (vph)	15	169	1291	1664	3	589	1432	44	15	1688	204	418
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)			0%				2%				1%	
Total Lost time (s)		7.9	5.7	4.0		7.5	5.7			9.9	9.9	7.5
Lane Util. Factor		1.00	0.95	1.00		0.97	0.91			0.91	0.91	1.00
Frbp, ped/bikes		1.00	1.00	1.00		1.00	1.00			1.00	1.00	0.99
Flpb, ped/bikes		1.00	1.00	1.00		1.00	1.00			1.00	1.00	1.00
Frt		1.00	1.00	0.85		1.00	1.00			1.00	1.00	0.85
Flt Protected		0.95	1.00	1.00		0.95	1.00			0.95	0.97	1.00
Satd. Flow (prot)		1788	3574	1583		3433	5009			3205	1639	1590
Flt Permitted		0.19	1.00	1.00		0.12	1.00			0.63	0.97	1.00
Satd. Flow (perm)		357	3574	1583		431	5009			2129	1639	1590
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	15	174	1331	1715	3	607	1476	45	15	1740	210	431
RTOR Reduction (vph)	0	0	0	0	0	0	2	0	0	0	0	40
Lane Group Flow (vph)	0	189	1331	1715	0	610	1519	0	0	1268	697	391
Confl. Peds. (#/hr)		3						7				4
Confl. Bikes (#/hr)												1
Heavy Vehicles (%)	0%	1%	1%	2%	0%	1%	2%	2%	0%	2%	0%	0%
Turn Type	custom	Prot	NA	Free	custom	Prot	NA		Perm	Split	NA	pm+ov
Protected Phases		5	2			1	6			4	4	1!
Permitted Phases	5!			Free	1!				4			4
Actuated Green, G (s)		21.1	33.3	160.0		33.5	45.3			52.1	52.1	85.6
Effective Green, g (s)		21.1	33.3	160.0		33.5	45.3			52.1	52.1	85.6
Actuated g/C Ratio		0.13	0.21	1.00		0.21	0.28			0.33	0.33	0.53
Clearance Time (s)		7.9	5.7			7.5	5.7			9.9	9.9	7.5
Vehicle Extension (s)		3.0	2.0			3.0	2.0			3.0	3.0	3.0
Lane Grp Cap (vph)		47	743	1583		90	1418			693	533	850
v/s Ratio Prot			c0.37				0.30				0.43	0.10
v/s Ratio Perm		0.53		c1.08		c1.41				c0.60		0.15
v/c Ratio		4.02	1.79	1.08		6.78	1.07			1.83	1.31	0.46
Uniform Delay, d1		69.5	63.4	80.0		63.2	57.4			54.0	54.0	23.0
Progression Factor		1.02	0.84	1.00		1.41	0.99			1.38	1.39	1.27
Incremental Delay, d2		1392.1	359.7	45.5		2602.1	33.6			377.1	147.3	0.3
Delay (s)		1462.6	412.8	125.5		2691.6	90.6			451.8	222.1	29.4
Level of Service		F	F	F		F	F			F	F	C
Approach Delay (s)			321.8				835.2				309.0	
Approach LOS			F				F				F	

Intersection Summary

HCM 2000 Control Delay	438.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	3.11		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	31.1
Intersection Capacity Utilization	120.5%	ICU Level of Service	H
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

4: Prince William Pkwy & Old Bridge Road & Touchstone Cir

04/03/2023



Movement	SBU	SBL	SBT	SBR
Lane Configurations		↵	↑↑	↗
Traffic Volume (vph)	2	54	186	209
Future Volume (vph)	2	54	186	209
Ideal Flow (vphpl)	1900	1900	1900	1900
Grade (%)			5%	
Total Lost time (s)		7.6	7.6	7.9
Lane Util. Factor		1.00	0.95	1.00
Frpb, ped/bikes		1.00	1.00	0.99
Flpb, ped/bikes		1.00	1.00	1.00
Frt		1.00	1.00	0.85
Flt Protected		0.95	1.00	1.00
Satd. Flow (prot)		1757	3485	1551
Flt Permitted		0.38	1.00	1.00
Satd. Flow (perm)		711	3485	1551
Peak-hour factor, PHF	0.97	0.97	0.97	0.97
Adj. Flow (vph)	2	56	192	215
RTOR Reduction (vph)	0	0	0	110
Lane Group Flow (vph)	0	58	192	105
Confl. Peds. (#/hr)	4			3
Confl. Bikes (#/hr)				
Heavy Vehicles (%)	0%	0%	1%	1%
Turn Type	Perm	Split	NA	pm+ov
Protected Phases		3	3	5!
Permitted Phases	3			3
Actuated Green, G (s)		10.4	10.4	31.5
Effective Green, g (s)		10.4	10.4	31.5
Actuated g/C Ratio		0.07	0.07	0.20
Clearance Time (s)		7.6	7.6	7.9
Vehicle Extension (s)		3.0	3.0	3.0
Lane Grp Cap (vph)		46	226	305
v/s Ratio Prot			0.06	0.05
v/s Ratio Perm		0.08		0.02
v/c Ratio		1.26	0.85	0.34
Uniform Delay, d1		74.8	74.0	55.4
Progression Factor		0.99	0.99	1.00
Incremental Delay, d2		213.7	23.1	0.6
Delay (s)		288.0	96.5	56.2
Level of Service		F	F	E
Approach Delay (s)			101.7	
Approach LOS			F	
Intersection Summary				

HCM Unsignalized Intersection Capacity Analysis

5: Tribe at the Glen & Old Bridge Road

04/03/2023



Movement	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations	↑↑	↑		↑↑↑		↑	
Traffic Volume (veh/h)	1676	98	0	2074	0	52	
Future Volume (Veh/h)	1676	98	0	2074	0	52	
Sign Control	Free			Free	Stop		
Grade	-3%			2%	0%		
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	
Hourly flow rate (vph)	1728	101	0	2138	0	54	
Pedestrians				46	2		
Lane Width (ft)				12.0	14.0		
Walking Speed (ft/s)				4.0	4.0		
Percent Blockage				4	0		
Right turn flare (veh)							
Median type	None			None			
Median storage (veh)							
Upstream signal (ft)	371			392			
pX, platoon unblocked				0.79	0.63	0.79	
vC, conflicting volume				1730	2443	912	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol				1402	0	373	
tC, single (s)				4.1	6.8	6.9	
tC, 2 stage (s)							
tF (s)				2.2	3.5	3.3	
p0 queue free %				100	100	89	
cM capacity (veh/h)				391	652	481	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1
Volume Total	864	864	101	713	713	713	54
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	101	0	0	0	54
cSH	1700	1700	1700	1700	1700	1700	481
Volume to Capacity	0.51	0.51	0.06	0.42	0.42	0.42	0.11
Queue Length 95th (ft)	0	0	0	0	0	0	9
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	13.4
Lane LOS							B
Approach Delay (s)	0.0			0.0			13.4
Approach LOS							B
Intersection Summary							
Average Delay				0.2			
Intersection Capacity Utilization	65.0%			ICU Level of Service			C
Analysis Period (min)	15						

HCM 6th TWSC
5: Tribe at the Glen & Old Bridge Road

04/03/2023

Intersection						
Int Delay, s/veh	0.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑		↑↑↑		↑
Traffic Vol, veh/h	1676	98	0	2074	0	52
Future Vol, veh/h	1676	98	0	2074	0	52
Conflicting Peds, #/hr	0	2	2	0	0	46
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Free	-	None	-	Stop
Storage Length	-	175	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	-3	-	-	2	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	1	0	0	2	0	0
Mvmt Flow	1728	101	0	2138	0	54

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	-	-	-	910
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	3.3
Pot Cap-1 Maneuver	-	0	0	-	0 281
Stage 1	-	0	0	-	0 -
Stage 2	-	0	0	-	0 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	270
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	21.6
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	WBT
Capacity (veh/h)	270	-	-
HCM Lane V/C Ratio	0.199	-	-
HCM Control Delay (s)	21.6	-	-
HCM Lane LOS	C	-	-
HCM 95th %tile Q(veh)	0.7	-	-

HCM Signalized Intersection Capacity Analysis

6: Troupe Street/Glen Shopping Ctr & Old Bridge Road

04/03/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗	↘		↖	↗		↖	↗
Traffic Volume (vph)	67	1566	94	137	1805	203	214	22	304	133	29	55
Future Volume (vph)	67	1566	94	137	1805	203	214	22	304	133	29	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			7%			-1%			0%	
Total Lost time (s)	7.0	6.5	8.0	7.0	6.0	7.0		8.0	8.0		7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.96		1.00	0.98		1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Fr _t	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		1.00	0.85
Fl _t Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.96	1.00		0.96	1.00
Satd. Flow (prot)	1823	3610	1567	1708	3415	1488		1794	1544		1825	1585
Fl _t Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.96	1.00		0.96	1.00
Satd. Flow (perm)	1823	3610	1567	1708	3415	1488		1794	1544		1825	1585
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	70	1631	98	143	1880	211	223	23	317	139	30	57
RTOR Reduction (vph)	0	0	29	0	0	46	0	0	180	0	0	52
Lane Group Flow (vph)	70	1631	69	143	1880	165	0	246	137	0	169	5
Confl. Peds. (#/hr)	2		2	2		7			7	5		2
Confl. Bikes (#/hr)						2						
Heavy Vehicles (%)	0%	1%	3%	2%	2%	1%	2%	0%	3%	0%	0%	0%
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Split	NA	Perm	Split	NA	Perm
Protected Phases	5	2	4	1	6	3	4	4		3	3	
Permitted Phases			2			6			4			3
Actuated Green, G (s)	11.6	71.7	98.3	18.2	78.8	93.8		26.6	26.6		15.0	15.0
Effective Green, g (s)	11.6	71.7	98.3	18.2	78.8	93.8		26.6	26.6		15.0	15.0
Actuated g/C Ratio	0.07	0.45	0.61	0.11	0.49	0.59		0.17	0.17		0.09	0.09
Clearance Time (s)	7.0	6.5	8.0	7.0	6.0	7.0		8.0	8.0		7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	132	1617	962	194	1681	872		298	256		171	148
v/s Ratio Prot	0.04	0.45	0.01	c0.08	c0.55	0.02		c0.14			c0.09	
v/s Ratio Perm			0.03			0.09			0.09			0.00
v/c Ratio	0.53	1.01	0.07	0.74	1.12	0.19		0.83	0.53		0.99	0.04
Uniform Delay, d1	71.6	44.1	12.4	68.6	40.6	15.4		64.5	61.0		72.4	65.9
Progression Factor	1.30	0.44	0.13	1.44	0.42	0.04		1.09	1.30		1.00	1.00
Incremental Delay, d2	0.4	9.0	0.0	6.1	57.3	0.0		16.6	2.1		64.7	0.1
Delay (s)	93.5	28.4	1.6	104.9	74.2	0.6		87.0	81.6		137.1	66.0
Level of Service	F	C	A	F	E	A		F	F		F	E
Approach Delay (s)		29.4			69.2			83.9			119.2	
Approach LOS		C			E			F			F	

Intersection Summary

HCM 2000 Control Delay	58.5	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	28.5
Intersection Capacity Utilization	95.7%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

7: Titania Way/Touchstone Circle & Old Bridge Road

04/03/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑	↗		↕			↖	↗
Traffic Volume (vph)	71	1881	38	20	2140	142	25	1	23	155	7	56
Future Volume (vph)	71	1881	38	20	2140	142	25	1	23	155	7	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		4%			-7%			-3%			2%	
Total Lost time (s)	8.5	8.5	8.5	8.5	8.5	8.5		7.5			7.5	7.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00			1.00	1.00
Frbp, ped/bikes	1.00	1.00	0.95	1.00	1.00	0.98		0.99			1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00			1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		0.94			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.97			0.95	1.00
Satd. Flow (prot)	1769	3503	1496	1868	3663	1619		1741			1793	1551
Flt Permitted	0.04	1.00	1.00	0.05	1.00	1.00		0.65			0.73	1.00
Satd. Flow (perm)	72	3503	1496	102	3663	1619		1157			1379	1551
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	72	1919	39	20	2184	145	26	1	23	158	7	57
RTOR Reduction (vph)	0	0	13	0	0	42	0	19	0	0	0	48
Lane Group Flow (vph)	72	1919	26	20	2184	103	0	31	0	0	165	9
Confl. Peds. (#/hr)	5		11	4		6	7		5	1		12
Confl. Bikes (#/hr)						1						1
Heavy Vehicles (%)	0%	1%	0%	0%	2%	1%	0%	0%	0%	0%	0%	0%
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases	1	6		5	2			4			8	
Permitted Phases	2		6	6		2	4			8		8
Actuated Green, G (s)	110.9	107.7	107.7	110.9	103.4	103.4		24.6			24.6	24.6
Effective Green, g (s)	110.9	107.7	107.7	110.9	103.4	103.4		24.6			24.6	24.6
Actuated g/C Ratio	0.69	0.67	0.67	0.69	0.65	0.65		0.15			0.15	0.15
Clearance Time (s)	8.5	8.5	8.5	8.5	8.5	8.5		7.5			7.5	7.5
Vehicle Extension (s)	2.0	8.0	8.0	2.0	8.0	8.0		2.0			2.0	2.0
Lane Grp Cap (vph)	129	2357	1006	106	2367	1046		177			212	238
v/s Ratio Prot	c0.03	c0.55		0.00	c0.60							
v/s Ratio Perm	0.36		0.02	0.13		0.06		0.03			c0.12	0.01
v/c Ratio	0.56	0.81	0.03	0.19	0.92	0.10		0.17			0.78	0.04
Uniform Delay, d1	37.4	18.9	8.7	19.3	24.8	10.7		58.9			65.1	57.6
Progression Factor	1.60	0.72	1.00	0.44	1.09	0.80		1.00			1.00	1.00
Incremental Delay, d2	0.9	1.0	0.0	0.1	2.7	0.1		0.2			15.0	0.0
Delay (s)	60.7	14.7	8.7	8.6	29.7	8.6		59.0			80.1	57.6
Level of Service	E	B	A	A	C	A		E			F	E
Approach Delay (s)		16.2			28.2			59.0			74.3	
Approach LOS		B			C			E			E	

Intersection Summary

HCM 2000 Control Delay	25.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	24.5
Intersection Capacity Utilization	99.4%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

8: Old Bridge Road & Brussels Way

04/03/2023



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↗		↗
Traffic Volume (veh/h)	0	2086	2220	22	0	13
Future Volume (Veh/h)	0	2086	2220	22	0	13
Sign Control		Free	Free		Stop	
Grade		7%	-1%		1%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	2267	2413	24	0	14
Pedestrians		11			11	
Lane Width (ft)		12.0			12.0	
Walking Speed (ft/s)		4.0			4.0	
Percent Blockage		1			1	
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)		685	1088			
pX, platoon unblocked	0.45				0.67	0.45
vC, conflicting volume	2448				3558	1228
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1772				885	0
tC, single (s)	4.1				6.8	7.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.5
p0 queue free %	100				100	97
cM capacity (veh/h)	159				191	458
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	SB 1
Volume Total	1134	1134	1206	1206	24	14
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	24	14
cSH	1700	1700	1700	1700	1700	458
Volume to Capacity	0.67	0.67	0.71	0.71	0.01	0.03
Queue Length 95th (ft)	0	0	0	0	0	2
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	13.1
Lane LOS						B
Approach Delay (s)	0.0		0.0			13.1
Approach LOS						B
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			74.4%		ICU Level of Service	D
Analysis Period (min)			15			

HCM 6th TWSC
8: Old Bridge Road & Brussels Way

04/03/2023

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↑		↑
Traffic Vol, veh/h	0	2086	2220	22	0	13
Future Vol, veh/h	0	2086	2220	22	0	13
Conflicting Peds, #/hr	11	0	0	11	0	11
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	225	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	7	-1	-	1	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	1	2	0	0	17
Mvmt Flow	0	2267	2413	24	0	14

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	-	0	-	0	1229
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	-	-	-	7.34
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	3.47
Pot Cap-1 Maneuver	0	-	-	-	0 144
Stage 1	0	-	-	-	0 -
Stage 2	0	-	-	-	0 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	141
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	33.4
HCM LOS			D

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	141
HCM Lane V/C Ratio	-	-	-	0.1
HCM Control Delay (s)	-	-	-	33.4
HCM Lane LOS	-	-	-	D
HCM 95th %tile Q(veh)	-	-	-	0.3

HCM Unsignalized Intersection Capacity Analysis

9: Old Bridge Ln/Church Entr & Old Bridge Road

04/03/2023



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations		↔	↕↕	↗		↔	↕↕	↗		↕↔		↗
Traffic Volume (veh/h)	1	9	2000	75	1	27	2227	1	15	0	22	3
Future Volume (Veh/h)	1	9	2000	75	1	27	2227	1	15	0	22	3
Sign Control			Free				Free			Stop		
Grade			1%				3%			0%		
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	10	2128	80	0	29	2369	1	16	0	23	3
Pedestrians			9				1			1		
Lane Width (ft)			12.0				12.0			12.0		
Walking Speed (ft/s)			4.0				4.0			4.0		
Percent Blockage			1				0			0		
Right turn flare (veh)												
Median type			None				None					
Median storage (veh)												
Upstream signal (ft)			1188				585					
pX, platoon unblocked	0.00	0.45			0.00	0.57			0.66	0.66	0.57	0.66
vC, conflicting volume	0	2379			0	2209			3400	4586	1066	3544
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0	1607			0	1611			675	2468	0	892
tC, single (s)	0.0	4.1			0.0	4.1			7.5	6.5	6.9	7.5
tC, 2 stage (s)												
tF (s)	0.0	2.2			0.0	2.2			3.5	4.0	3.3	3.5
p0 queue free %	0	95			0	88			92	100	96	98
cM capacity (veh/h)	0	183			0	234			195	17	620	131
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1	SB 2	
Volume Total	10	1064	1064	80	29	1184	1184	1	39	3	0	
Volume Left	10	0	0	0	29	0	0	0	16	3	0	
Volume Right	0	0	0	80	0	0	0	1	23	0	0	
cSH	183	1700	1700	1700	234	1700	1700	1700	327	131	1700	
Volume to Capacity	0.05	0.63	0.63	0.05	0.12	0.70	0.70	0.00	0.12	0.02	0.00	
Queue Length 95th (ft)	4	0	0	0	10	0	0	0	10	2	0	
Control Delay (s)	25.9	0.0	0.0	0.0	22.6	0.0	0.0	0.0	17.5	33.1	0.0	
Lane LOS	D				C				C	D	A	
Approach Delay (s)	0.1				0.3				17.5	33.1		
Approach LOS									C	D		
Intersection Summary												
Average Delay			0.4									
Intersection Capacity Utilization			81.1%			ICU Level of Service			D			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 9: Old Bridge Ln/Church Entr & Old Bridge Road

04/03/2023



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	0	0
Future Volume (Veh/h)	0	0
Sign Control	Stop	
Grade	-1%	
Peak Hour Factor	0.94	0.94
Hourly flow rate (vph)	0	0
Pedestrians	9	
Lane Width (ft)	10.0	
Walking Speed (ft/s)	4.0	
Percent Blockage	1	
Right turn flare (veh)		
Median type		
Median storage (veh)		
Upstream signal (ft)		
pX, platoon unblocked	0.66	0.45
vC, conflicting volume	4665	1202
vC1, stage 1 conf vol		
vC2, stage 2 conf vol		
vCu, unblocked vol	2587	0
tC, single (s)	6.5	6.9
tC, 2 stage (s)		
tF (s)	4.0	3.3
p0 queue free %	100	100
cM capacity (veh/h)	14	480
Direction, Lane #		

HCM 6th TWSC
 9: Old Bridge Ln/Church Entr & Old Bridge Road

04/03/2023

Intersection														
Int Delay, s/veh	28.5													
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↕	↕		↔	↕	↕		↔		↕		↕
Traffic Vol, veh/h	1	9	2000	75	1	27	2227	1	15	0	22	3	0	0
Future Vol, veh/h	1	9	2000	75	1	27	2227	1	15	0	22	3	0	0
Conflicting Peds, #/hr	0	9	0	1	0	1	0	9	0	0	1	0	0	9
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	-	None	-	-	-	None	-	-	None	-	-	None
Storage Length	-	365	-	340	-	225	-	230	-	-	-	0	-	0
Veh in Median Storage, #	-	-	0	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-	1	-	-	-	3	-	-	0	-	-	-1	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	0	1	0	0	0	2	0	0	0	0	0	0	0
Mvmt Flow	1	10	2128	80	1	29	2369	1	16	0	23	3	0	0

Major/Minor	Major1			Major2			Minor1			Minor2				
Conflicting Flow All	2369	2379	0	0	2128	2209	0	0	3405	4590	1066	3525	-	1203
Stage 1	-	-	-	-	-	-	-	-	2151	2151	-	2438	-	-
Stage 2	-	-	-	-	-	-	-	-	1254	2439	-	1087	-	-
Critical Hdwy	6.4	4.1	-	-	6.4	4.1	-	-	7.5	6.5	6.9	7.3	-	6.8
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	6.5	5.5	-	6.3	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	6.5	5.5	-	6.3	-	-
Follow-up Hdwy	2.5	2.2	-	-	2.5	2.2	-	-	3.5	4	3.3	3.5	-	3.3
Pot Cap-1 Maneuver	44	207	-	-	63	241	-	-	~3	1	222	~3	0	186
Stage 1	-	-	-	-	-	-	-	-	50	89	-	38	0	-
Stage 2	-	-	-	-	-	-	-	-	185	63	-	249	0	-
Platoon blocked, %			-	-			-	-						
Mov Cap-1 Maneuver	151	151	-	-	216	216	-	-	~3	1	222	~2	-	183
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	~3	1	-	~2	-	-
Stage 1	-	-	-	-	-	-	-	-	46	82	-	35	-	-
Stage 2	-	-	-	-	-	-	-	-	158	54	-	206	-	-

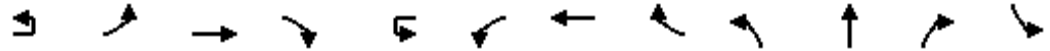
Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.3	\$ 3103.3	\$ 3083.8
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	7	151	-	-	216	-	-	2	-
HCM Lane V/C Ratio	5.623	0.07	-	-	0.138	-	-	1.596	-
HCM Control Delay (s)	\$ 3103.3	30.7	-	-	24.3	-	-	\$ 3083.8	0
HCM Lane LOS	F	D	-	-	C	-	-	F	A
HCM 95th %tile Q(veh)	6.4	0.2	-	-	0.5	-	-	1.2	-

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM Signalized Intersection Capacity Analysis
 10: Rockwood Lane/Westridge Drive & Old Bridge Road

04/03/2023



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations		↔	↕			↔	↕	↗		↕		
Traffic Volume (vph)	8	315	1701	1	9	4	1978	249	0	0	1	140
Future Volume (vph)	8	315	1701	1	9	4	1978	249	0	0	1	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)			1%				3%			0%		
Total Lost time (s)		8.6	8.6			8.6	8.6	8.6		7.3		
Lane Util. Factor		1.00	0.95			1.00	0.95	1.00		1.00		
Frbp, ped/bikes		1.00	1.00			1.00	1.00	0.98		0.99		
Flpb, ped/bikes		1.00	1.00			1.00	1.00	1.00		1.00		
Frt		1.00	1.00			1.00	1.00	0.85		0.86		
Flt Protected		0.95	1.00			0.95	1.00	1.00		1.00		
Satd. Flow (prot)		1796	3521			1778	3486	1561		1605		
Flt Permitted		0.04	1.00			0.11	1.00	1.00		1.00		
Satd. Flow (perm)		84	3521			208	3486	1561		1605		
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	8	332	1791	1	9	4	2082	262	0	0	1	147
RTOR Reduction (vph)	0	0	0	0	0	0	0	115	0	1	0	0
Lane Group Flow (vph)	0	340	1792	0	0	13	2082	147	0	0	0	0
Confl. Peds. (#/hr)		5		1		1		5			1	
Heavy Vehicles (%)	0%	0%	2%	0%	0%	0%	2%	0%	0%	0%	1%	0%
Turn Type	custom	D.P+P	NA		Perm	Perm	NA	Perm		NA		Perm
Protected Phases		1	6				2			8		
Permitted Phases	1!	2			2	2		2	8			4
Actuated Green, G (s)		107.9	116.5			89.5	89.5	89.5		27.6		
Effective Green, g (s)		107.9	116.5			89.5	89.5	89.5		27.6		
Actuated g/C Ratio		0.67	0.73			0.56	0.56	0.56		0.17		
Clearance Time (s)		8.6	8.6			8.6	8.6	8.6		7.3		
Vehicle Extension (s)		3.0	4.0			4.0	4.0	4.0		3.5		
Lane Grp Cap (vph)		253	2563			116	1949	873		276		
v/s Ratio Prot		c0.15	0.51				0.60			0.00		
v/s Ratio Perm		c0.75				0.06		0.09				
v/c Ratio		1.34	0.70			0.11	1.07	0.17		0.00		
Uniform Delay, d1		58.9	12.0			16.6	35.2	17.1		54.8		
Progression Factor		1.02	1.63			1.00	1.00	1.00		1.00		
Incremental Delay, d2		172.4	1.1			1.9	41.4	0.4		0.0		
Delay (s)		232.7	20.7			18.5	76.7	17.6		54.8		
Level of Service		F	C			B	E	B		D		
Approach Delay (s)			54.6				69.8			54.8		
Approach LOS			D				E			D		

Intersection Summary

HCM 2000 Control Delay	61.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.19		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	24.5
Intersection Capacity Utilization	122.3%	ICU Level of Service	H
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

10: Rockwood Lane/Westridge Drive & Old Bridge Road

04/03/2023



Movement	SBT	SBR
Lane Configurations	↔	↔
Traffic Volume (vph)	0	270
Future Volume (vph)	0	270
Ideal Flow (vphpl)	1900	1900
Grade (%)	-1%	
Total Lost time (s)	7.3	8.6
Lane Util. Factor	1.00	1.00
Frpb, ped/bikes	1.00	0.99
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	0.95	1.00
Satd. Flow (prot)	1814	1575
Flt Permitted	0.76	1.00
Satd. Flow (perm)	1446	1575
Peak-hour factor, PHF	0.95	0.95
Adj. Flow (vph)	0	284
RTOR Reduction (vph)	0	27
Lane Group Flow (vph)	147	257
Confl. Peds. (#/hr)		5
Heavy Vehicles (%)	0%	2%
Turn Type	NA	pm+ov
Protected Phases	4	1!
Permitted Phases		4
Actuated Green, G (s)	27.6	46.0
Effective Green, g (s)	27.6	46.0
Actuated g/C Ratio	0.17	0.29
Clearance Time (s)	7.3	8.6
Vehicle Extension (s)	3.5	3.0
Lane Grp Cap (vph)	249	452
v/s Ratio Prot		0.07
v/s Ratio Perm	c0.10	0.10
v/c Ratio	0.59	0.57
Uniform Delay, d1	61.0	48.5
Progression Factor	1.00	1.00
Incremental Delay, d2	3.9	1.6
Delay (s)	64.9	50.2
Level of Service	E	D
Approach Delay (s)	55.2	
Approach LOS	E	
Intersection Summary		

HCM Unsignalized Intersection Capacity Analysis

11: Touchstone Cir & Exxon/Glen Shopping Ctr


















04/03/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗		↑↑↑	↗		↑↑↑	
Traffic Volume (veh/h)	0	0	43	0	0	110	0	176	221	0	408	27
Future Volume (Veh/h)	0	0	43	0	0	110	0	176	221	0	408	27
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			-1%			2%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	47	0	0	120	0	191	240	0	443	29
Pedestrians		12			1			7			6	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			0			1			1	
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)								317				
pX, platoon unblocked												
vC, conflicting volume	659	902	144	357	676	71	484			432		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	659	902	144	357	676	71	484			432		
tC, single (s)	7.5	6.5	7.0	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	95	100	100	88	100			100		
cM capacity (veh/h)	302	277	860	539	374	978	1078			1137		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3	SB 4		
Volume Total	47	120	64	64	64	240	127	127	127	92		
Volume Left	0	0	0	0	0	0	0	0	0	0		
Volume Right	47	120	0	0	0	240	0	0	0	29		
cSH	860	978	1700	1700	1700	1700	1700	1700	1700	1700		
Volume to Capacity	0.05	0.12	0.04	0.04	0.04	0.14	0.07	0.07	0.07	0.05		
Queue Length 95th (ft)	4	10	0	0	0	0	0	0	0	0		
Control Delay (s)	9.4	9.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Lane LOS	A	A										
Approach Delay (s)	9.4	9.2	0.0				0.0					
Approach LOS	A	A										
Intersection Summary												
Average Delay			1.4									
Intersection Capacity Utilization			20.8%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 13: Touchstone Cir & Seeton Square/Merchant Plaza

04/03/2023

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	
Lane Configurations													
Traffic Volume (veh/h)	6	7	42	194	10	19	137	38	54	57	1	7	
Future Volume (Veh/h)	6	7	42	194	10	19	137	38	54	57	1	7	
Sign Control		Stop			Stop				Free				
Grade		-2%			0%				-1%				
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	7	8	46	211	11	21	0	41	59	62	0	8	
Pedestrians		4			3				6				
Lane Width (ft)		12.0			12.0				12.0				
Walking Speed (ft/s)		4.0			4.0				4.0				
Percent Blockage		0			0				1				
Right turn flare (veh)													
Median type		None											
Median storage (veh)													
Upstream signal (ft)		589											
pX, platoon unblocked								0.00				0.00	
vC, conflicting volume	228	294	45	280	265	64	0	74				0	124
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	228	294	45	280	265	64	0	74				0	124
tC, single (s)	7.5	6.5	7.0	7.5	6.5	6.9	0.0	4.1				0.0	4.1
tC, 2 stage (s)													
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	0.0	2.2				0.0	2.2
p0 queue free %	99	99	95	64	98	98	0	97				0	99
cM capacity (veh/h)	667	597	1003	594	620	990	0	1533				0	1472
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3					
Volume Total	61	243	41	39	82	8	45	25					
Volume Left	7	211	41	0	0	8	0	0					
Volume Right	46	21	0	0	62	0	0	3					
cSH	875	616	1533	1700	1700	1472	1700	1700					
Volume to Capacity	0.07	0.39	0.03	0.02	0.05	0.01	0.03	0.01					
Queue Length 95th (ft)	6	47	2	0	0	0	0	0					
Control Delay (s)	9.4	14.6	7.4	0.0	0.0	7.5	0.0	0.0					
Lane LOS	A	B	A				A						
Approach Delay (s)	9.4	14.6	1.9				0.8						
Approach LOS	A	B											
Intersection Summary													
Average Delay			8.2										
Intersection Capacity Utilization			42.1%		ICU Level of Service			A					
Analysis Period (min)			15										

HCM Unsignalized Intersection Capacity Analysis
 13: Touchstone Cir & Seeton Square/Merchant Plaza

04/03/2023



Movement	SBT	SBR
Lane Configurations	↑↑	
Traffic Volume (veh/h)	62	3
Future Volume (Veh/h)	62	3
Sign Control	Free	
Grade	2%	
Peak Hour Factor	0.92	0.92
Hourly flow rate (vph)	67	3
Pedestrians	1	
Lane Width (ft)	12.0	
Walking Speed (ft/s)	4.0	
Percent Blockage	0	
Right turn flare (veh)		
Median type	None	
Median storage veh)		
Upstream signal (ft)		
pX, platoon unblocked		
vC, conflicting volume		
vC1, stage 1 conf vol		
vC2, stage 2 conf vol		
vCu, unblocked vol		
tC, single (s)		
tC, 2 stage (s)		
tF (s)		
p0 queue free %		
cM capacity (veh/h)		
Direction, Lane #		

HCM 6th TWSC
 13: Touchstone Cir & Seeton Square/Merchant Plaza

04/03/2023

Intersection														
Int Delay, s/veh	13.8													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↕			↕	↕	
Traffic Vol, veh/h	6	7	42	194	10	19	137	38	54	57	1	7	62	3
Future Vol, veh/h	6	7	42	194	10	19	137	38	54	57	1	7	62	3
Conflicting Peds, #/hr	0	0	6	2	0	1	0	4	0	3	0	1	0	4
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	-	None	-	-	-	None
Storage Length	-	-	-	-	-	-	-	0	-	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	-	0	-	-	-	0	-
Grade, %	-	-2	-	-	0	-	-	-	-1	-	-	-	2	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	3	1	0	0	0	0	1	2	2	0	1	0
Mvmt Flow	7	8	46	211	11	21	149	41	59	62	1	8	67	3

Major/Minor	Minor2		Minor1		Major1			Major2						
Conflicting Flow All	507	595	45	535	565	65	71	74	0	0	121	124	0	0
Stage 1	91	91	-	473	473	-	-	-	-	-	-	-	-	-
Stage 2	416	504	-	62	92	-	-	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.1	6.76	7.52	6.5	6.9	6.4	4.1	-	-	6.44	4.1	-	-
Critical Hdwy Stg 1	6.1	5.1	-	6.52	5.5	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.1	-	6.52	5.5	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.33	3.51	4	3.3	2.5	2.2	-	-	2.52	2.2	-	-
Pot Cap-1 Maneuver	479	449	1014	431	437	992	1301	1538	-	-	1200	1475	-	-
Stage 1	921	832	-	544	562	-	-	-	-	-	-	-	-	-
Stage 2	618	576	-	945	823	-	-	-	-	-	-	-	-	-
Platoon blocked, %									-	-			-	-
Mov Cap-1 Maneuver	404	379	1006	356	369	989	1300	1300	-	-	1426	1426	-	-
Mov Cap-2 Maneuver	404	379	-	356	369	-	-	-	-	-	-	-	-	-
Stage 1	784	825	-	463	479	-	-	-	-	-	-	-	-	-
Stage 2	504	491	-	884	816	-	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	10.3		30.2		5		0.8	
HCM LOS	B		D					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1300	-	-	733	377	1426	-
HCM Lane V/C Ratio	0.146	-	-	0.082	0.643	0.006	-
HCM Control Delay (s)	8.2	-	-	10.3	30.2	7.5	-
HCM Lane LOS	A	-	-	B	D	A	-
HCM 95th %tile Q(veh)	0.5	-	-	0.3	4.3	0	-

HCM Unsignalized Intersection Capacity Analysis
 14: Touchstone Circle & Merchant Plaza/CVS

04/03/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	13	5	104	53	10	5	97	53	59	1	61	16
Future Volume (Veh/h)	13	5	104	53	10	5	97	53	59	1	61	16
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			-3%			3%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	14	5	113	58	11	5	105	58	64	1	66	17
Pedestrians		11			7			12			6	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)								350				
pX, platoon unblocked												
vC, conflicting volume	343	426	64	470	403	74	94			129		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	343	426	64	470	403	74	94			129		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	97	99	88	85	98	99	93			100		
cM capacity (veh/h)	534	479	974	389	494	969	1499			1461		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	132	74	134	93	34	50						
Volume Left	14	58	105	0	1	0						
Volume Right	113	5	0	64	0	17						
cSH	864	419	1499	1700	1461	1700						
Volume to Capacity	0.15	0.18	0.07	0.05	0.00	0.03						
Queue Length 95th (ft)	13	16	6	0	0	0						
Control Delay (s)	9.9	15.4	6.1	0.0	0.2	0.0						
Lane LOS	A	C	A		A							
Approach Delay (s)	9.9	15.4	3.6		0.1							
Approach LOS	A	C										
Intersection Summary												
Average Delay			6.3									
Intersection Capacity Utilization			30.0%		ICU Level of Service				A			
Analysis Period (min)			15									

Intersection												
Int Delay, s/veh	6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	13	5	104	53	10	5	97	53	59	1	61	16
Future Vol, veh/h	13	5	104	53	10	5	97	53	59	1	61	16
Conflicting Peds, #/hr	3	0	12	4	0	6	8	0	7	3	0	11
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	-	-	-3	-	-	3	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	2	0	0	0	0
Mvmt Flow	14	5	113	58	11	5	105	58	64	1	66	17

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	339	427	65	357	403	74	94	0	0	129	0	0
Stage 1	88	88	-	307	307	-	-	-	-	-	-	-
Stage 2	251	339	-	50	96	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	596	523	992	579	539	979	1513	-	-	1469	-	-
Stage 1	916	826	-	683	665	-	-	-	-	-	-	-
Stage 2	737	643	-	963	819	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	541	475	973	470	490	968	1499	-	-	1460	-	-
Mov Cap-2 Maneuver	541	475	-	470	490	-	-	-	-	-	-	-
Stage 1	839	818	-	628	610	-	-	-	-	-	-	-
Stage 2	662	590	-	836	811	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.9	13.6	3.5	0.1
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1499	-	-	863	492	1460	-
HCM Lane V/C Ratio	0.07	-	-	0.154	0.15	0.001	-
HCM Control Delay (s)	7.6	0.1	-	9.9	13.6	7.5	0
HCM Lane LOS	A	A	-	A	B	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0.5	0.5	0	-

HCM Unsignalized Intersection Capacity Analysis
 15: Prince William Pkwy & Chinn Park Dr

04/03/2023



Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations								
Traffic Volume (veh/h)	0	76	2258	312	0	2485		
Future Volume (Veh/h)	0	76	2258	312	0	2485		
Sign Control	Stop		Free			Free		
Grade	0%		1%			0%		
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93		
Hourly flow rate (vph)	0	82	2428	335	0	2672		
Pedestrians	3					3		
Lane Width (ft)	12.0					12.0		
Walking Speed (ft/s)	4.0					4.0		
Percent Blockage	0					0		
Right turn flare (veh)								
Median type			None			None		
Median storage (veh)								
Upstream signal (ft)			990			666		
pX, platoon unblocked	0.71	0.63			0.63			
vC, conflicting volume	3489	780			2431			
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol	829	0			330			
tC, single (s)	6.8	6.9			4.1			
tC, 2 stage (s)								
tF (s)	3.5	3.3			2.2			
p0 queue free %	100	88			100			
cM capacity (veh/h)	220	679			779			
Direction, Lane #	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3
Volume Total	82	694	694	694	682	891	891	891
Volume Left	0	0	0	0	0	0	0	0
Volume Right	82	0	0	0	335	0	0	0
cSH	679	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.12	0.41	0.41	0.41	0.40	0.52	0.52	0.52
Queue Length 95th (ft)	10	0	0	0	0	0	0	0
Control Delay (s)	11.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	B							
Approach Delay (s)	11.0	0.0				0.0		
Approach LOS	B							
Intersection Summary								
Average Delay			0.2					
Intersection Capacity Utilization			59.0%		ICU Level of Service			B
Analysis Period (min)			15					

HCM Signalized Intersection Capacity Analysis

16: Prince William Pkwy & Kenwood Dr./

School Entrance

04/03/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations		↕			↕	↕			↕↕↕	↕		↕
Traffic Volume (vph)	60	1	121	14	1	9	2	130	2496	29	5	3
Future Volume (vph)	60	1	121	14	1	9	2	130	2496	29	5	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			1%				-2%			
Total Lost time (s)		6.6			5.8	8.8		8.8	8.8	5.8		8.8
Lane Util. Factor		1.00			1.00	1.00		1.00	0.91	1.00		1.00
Frbp, ped/bikes		0.99			1.00	0.99		1.00	1.00	0.97		1.00
Flpb, ped/bikes		1.00			1.00	1.00		1.00	1.00	1.00		1.00
Frt		0.91			1.00	0.85		1.00	1.00	0.85		1.00
Flt Protected		0.98			0.96	1.00		0.95	1.00	1.00		0.95
Satd. Flow (prot)		1647			1806	1392		1805	5136	1582		1796
Flt Permitted		0.98			0.96	1.00		0.04	1.00	1.00		0.04
Satd. Flow (perm)		1647			1806	1392		84	5136	1582		76
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	63	1	127	15	1	9	2	137	2627	31	5	3
RTOR Reduction (vph)	0	46	0	0	0	8	0	0	0	10	0	0
Lane Group Flow (vph)	0	145	0	0	16	1	0	139	2627	21	0	8
Confl. Peds. (#/hr)	2		3	2		6		1		6		4
Heavy Vehicles (%)	0%	0%	1%	0%	0%	14%	0%	1%	2%	0%	0%	0%
Turn Type	Split	NA		Split	NA	pm+ov	custom	D.P+P	NA	pm+ov	custom	D.P+P
Protected Phases	3	3		4	4	5!		1	6	4		5
Permitted Phases						4	1	2		6		5!
Actuated Green, G (s)		18.2			8.0	12.2		103.8	99.6	107.6		103.8
Effective Green, g (s)		18.2			8.0	12.2		103.8	99.6	107.6		103.8
Actuated g/C Ratio		0.11			0.05	0.08		0.65	0.62	0.67		0.65
Clearance Time (s)		6.6			5.8	8.8		8.8	8.8	5.8		8.8
Vehicle Extension (s)		3.0			3.0	3.0		3.0	3.0	3.0		3.0
Lane Grp Cap (vph)		187			90	106		196	3197	1063		94
v/s Ratio Prot		c0.09			c0.01	0.00		c0.06	c0.51	0.00		0.00
v/s Ratio Perm						0.00		0.40		0.01		0.05
v/c Ratio		0.77			0.18	0.01		0.71	0.82	0.02		0.09
Uniform Delay, d1		68.9			72.8	68.3		45.5	23.3	8.7		21.9
Progression Factor		1.00			1.00	1.00		1.47	0.70	1.00		0.89
Incremental Delay, d2		18.0			0.9	0.0		8.6	1.9	0.0		0.0
Delay (s)		86.9			73.8	68.3		75.7	18.3	8.7		19.6
Level of Service		F			E	E		E	B	A		B
Approach Delay (s)		86.9			71.8				21.1			
Approach LOS		F			E				C			

Intersection Summary

HCM 2000 Control Delay	24.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	30.0
Intersection Capacity Utilization	100.3%	ICU Level of Service	G
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

16: Prince William Pkwy & Kenwood Dr./

School Entrance

04/03/2023



Movement	SBT	SBR
Lane Configurations	↑↑↑↑	↑
Traffic Volume (vph)	2360	118
Future Volume (vph)	2360	118
Ideal Flow (vphpl)	1900	1900
Grade (%)	1%	
Total Lost time (s)	8.8	6.6
Lane Util. Factor	0.91	1.00
Frpb, ped/bikes	1.00	0.98
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	5060	1572
Flt Permitted	1.00	1.00
Satd. Flow (perm)	5060	1572
Peak-hour factor, PHF	0.95	0.95
Adj. Flow (vph)	2484	124
RTOR Reduction (vph)	0	25
Lane Group Flow (vph)	2484	99
Confl. Peds. (#/hr)		3
Heavy Vehicles (%)	2%	0%
Turn Type	NA	pm+ov
Protected Phases	2	3
Permitted Phases		2
Actuated Green, G (s)	90.6	108.8
Effective Green, g (s)	90.6	108.8
Actuated g/C Ratio	0.57	0.68
Clearance Time (s)	8.8	6.6
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	2865	1068
v/s Ratio Prot	c0.49	0.01
v/s Ratio Perm		0.05
v/c Ratio	0.87	0.09
Uniform Delay, d1	29.6	8.7
Progression Factor	0.78	0.86
Incremental Delay, d2	0.4	0.0
Delay (s)	23.5	7.6
Level of Service	C	A
Approach Delay (s)	22.8	
Approach LOS	C	
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

17: Prince William Pkwy & Hillendale Road

04/03/2023



Movement	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Lane Configurations	↔↔	↔		↔↔	↑↑↑	↔	↑↑↑	↔
Traffic Volume (vph)	331	277	2	631	2326	0	1974	524
Future Volume (vph)	331	277	2	631	2326	0	1974	524
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)	2%				1%		2%	
Total Lost time (s)	6.5	8.0		8.0	5.5		5.5	6.5
Lane Util. Factor	0.97	1.00		0.97	0.91		0.91	1.00
Frbp, ped/bikes	1.00	0.99		1.00	1.00		1.00	0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00
Frt	1.00	0.85		1.00	1.00		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		1.00	1.00
Satd. Flow (prot)	3432	1546		3415	5060		5034	1565
Flt Permitted	0.95	1.00		0.29	1.00		1.00	1.00
Satd. Flow (perm)	3432	1546		1027	5060		5034	1565
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	352	295	2	671	2474	0	2100	557
RTOR Reduction (vph)	0	3	0	0	0	0	0	0
Lane Group Flow (vph)	352	292	0	673	2474	0	2100	557
Confl. Peds. (#/hr)		6		3				3
Confl. Bikes (#/hr)		1						
Heavy Vehicles (%)	1%	2%	0%	2%	2%	0%	2%	1%
Turn Type	Prot	pm+ov	custom	Prot	NA	Prot	NA	pm+ov
Protected Phases	4	5!		5	2	1	6	4
Permitted Phases		4	5!					6
Actuated Green, G (s)	33.3	47.3		14.0	114.7		92.7	126.0
Effective Green, g (s)	33.3	47.3		14.0	114.7		92.7	126.0
Actuated g/C Ratio	0.21	0.30		0.09	0.72		0.58	0.79
Clearance Time (s)	6.5	8.0		8.0	5.5		5.5	6.5
Vehicle Extension (s)	4.0	4.0		4.0	4.0		4.0	4.0
Lane Grp Cap (vph)	714	457		89	3627		2916	1232
v/s Ratio Prot	0.10	c0.06			0.49		c0.42	0.09
v/s Ratio Perm		0.13		c0.66				0.26
v/c Ratio	0.49	0.64		7.56	0.68		0.72	0.45
Uniform Delay, d1	55.9	48.9		73.0	12.5		24.3	5.6
Progression Factor	1.00	1.00		1.00	1.00		0.18	0.16
Incremental Delay, d2	0.7	3.3		2975.9	1.1		0.8	0.2
Delay (s)	56.6	52.2		3048.9	13.6		5.1	1.1
Level of Service	E	D		F	B		A	A
Approach Delay (s)	54.6				662.7		4.3	
Approach LOS	D				F		A	

Intersection Summary

HCM 2000 Control Delay	330.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.38		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	91.9%	ICU Level of Service	F
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 18: Library/Fitness Ctr/Troupe Street & Chinn Park Dr

04/03/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗		↔		↖	↗		↖	↗	
Traffic Volume (veh/h)	140	36	67	1	7	42	15	110	1	55	92	1
Future Volume (Veh/h)	140	36	67	1	7	42	15	110	1	55	92	1
Sign Control		Free			Free			Stop			Stop	
Grade		1%			-2%			-2%			3%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	152	39	73	1	8	46	16	120	1	60	100	1
Pedestrians		3			7			3			7	
Lane Width (ft)		12.0			10.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		0			0			0			1	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	61			115			433	409	49	451	459	41
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	61			115			433	409	49	451	459	41
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	90			100			96	75	100	84	77	100
cM capacity (veh/h)	1527			1483			406	478	1018	383	442	1027
Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	SB 1	SB 2					
Volume Total	191	73	55	16	121	60	101					
Volume Left	152	0	1	16	0	60	0					
Volume Right	0	73	46	0	1	0	1					
cSH	1527	1700	1483	406	480	383	444					
Volume to Capacity	0.10	0.04	0.00	0.04	0.25	0.16	0.23					
Queue Length 95th (ft)	8	0	0	3	25	14	22					
Control Delay (s)	6.2	0.0	0.1	14.2	15.0	16.1	15.5					
Lane LOS	A		A	B	C	C	C					
Approach Delay (s)	4.5		0.1	14.9		15.7						
Approach LOS				B		C						
Intersection Summary												
Average Delay			9.4									
Intersection Capacity Utilization			33.0%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM 6th TWSC
 18: Library/Fitness Ctr/Troupe Street & Chinn Park Dr

04/03/2023

Intersection												
Int Delay, s/veh	9.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔		↔		↔	↔		↔	↔	
Traffic Vol, veh/h	140	36	67	1	7	42	15	110	1	55	92	1
Future Vol, veh/h	140	36	67	1	7	42	15	110	1	55	92	1
Conflicting Peds, #/hr	1	0	3	1	0	7	2	0	7	6	0	3
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	0	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	1	-	-	-2	-	-	-2	-	-	3	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	0	0	0	0	6	0	0	0	0	4	0
Mvmt Flow	152	39	73	1	8	46	16	120	1	60	100	1

Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	61	0	0	115	0	0	433	409	49	487	459	41
Stage 1	-	-	-	-	-	-	346	346	-	40	40	-
Stage 2	-	-	-	-	-	-	87	63	-	447	419	-
Critical Hdwy	4.13	-	-	4.1	-	-	6.7	6.1	6	7.7	7.14	6.5
Critical Hdwy Stg 1	-	-	-	-	-	-	5.7	5.1	-	6.7	6.14	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.7	5.1	-	6.7	6.14	-
Follow-up Hdwy	2.227	-	-	2.2	-	-	3.5	4	3.3	3.5	4.036	3.3
Pot Cap-1 Maneuver	1536	-	-	1487	-	-	563	560	1028	456	459	1032
Stage 1	-	-	-	-	-	-	700	664	-	973	852	-
Stage 2	-	-	-	-	-	-	935	852	-	552	547	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1527	-	-	1483	-	-	417	496	1020	338	406	1023
Mov Cap-2 Maneuver	-	-	-	-	-	-	417	496	-	338	406	-
Stage 1	-	-	-	-	-	-	624	592	-	864	846	-
Stage 2	-	-	-	-	-	-	821	846	-	391	487	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	4.4		0.1		14.4		17.1	
HCM LOS					B		C	

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	417	498	1527	-	-	1483	-	-	338	409
HCM Lane V/C Ratio	0.039	0.242	0.1	-	-	0.001	-	-	0.177	0.247
HCM Control Delay (s)	14	14.5	7.6	0	-	7.4	0	-	17.9	16.7
HCM Lane LOS	B	B	A	A	-	A	A	-	C	C
HCM 95th %tile Q(veh)	0.1	0.9	0.3	-	-	0	-	-	0.6	1

Intersection															
Int Delay, s/veh	90.4														
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↕ ↑↑↑				↕ ↑↑↑			↕		↕			↕	
Traffic Vol, veh/h	3	25	2977	0	1	9	2164	67	0	0	1	37	0	13	
Future Vol, veh/h	3	25	2977	0	1	9	2164	67	0	0	1	37	0	13	
Conflicting Peds, #/hr	0	2	0	1	1	0	0	2	0	0	1	0	0	2	
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop	
RT Channelized	-	-	-	None	-	-	-	None	-	-	None	-	-	None	
Storage Length	-	465	-	-	-	450	-	450	-	-	-	-	-	-	
Veh in Median Storage, #	-	-	0	-	-	-	0	-	-	0	-	-	0	-	
Grade, %	-	-	1	-	-	-	-1	-	-	-1	-	-	5	-	
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98	98	98	
Heavy Vehicles, %	0	5	6	0	0	0	6	4	0	0	0	0	0	0	
Mvmt Flow	3	26	3038	0	1	9	2208	68	0	0	1	38	0	13	

Major/Minor	Major1			Major2			Minor1			Minor2				
Conflicting Flow All	1612	2278	0	0	2218	3039	0	0	4002	5395	1521	3504	5327	1108
Stage 1	-	-	-	-	-	-	-	-	3097	3097	-	2230	2230	-
Stage 2	-	-	-	-	-	-	-	-	905	2298	-	1274	3097	-
Critical Hdwy	5.6	5.4	-	-	5.6	5.3	-	-	6.2	6.3	7	7.4	7.5	7.6
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	7.1	5.3	-	8.3	6.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	6.5	5.3	-	7.7	6.5	-
Follow-up Hdwy	2.3	3.15	-	-	2.3	3.1	-	-	3.8	4	3.9	3.8	4	3.9
Pot Cap-1 Maneuver	204	87	-	-	93	37	-	-	4	0	98	~3	0	153
Stage 1	-	-	-	-	-	-	-	-	7	33	-	~14	43	-
Stage 2	-	-	-	-	-	-	-	-	287	85	-	113	12	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	92	92	-	-	39	39	-	-	2	0	98	~2	0	152
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	2	0	-	~2	0	-
Stage 1	-	-	-	-	-	-	-	-	5	23	-	~10	32	-
Stage 2	-	-	-	-	-	-	-	-	195	63	-	77	8	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0.6	42.1	\$ 9513.4
HCM LOS			E	F

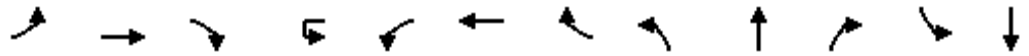
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	98	92	-	-	39	-	-	3
HCM Lane V/C Ratio	0.01	0.311	-	-	0.262	-	-	17.007
HCM Control Delay (s)	42.1	60.6	-	-	125.9	-	-	\$ 9513.4
HCM Lane LOS	E	F	-	-	F	-	-	F
HCM 95th %tile Q(veh)	0	1.2	-	-	0.9	-	-	8.3

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM Signalized Intersection Capacity Analysis

2: Ridgewood Center Drive/Laurel Hills Drive & Prince William Pkwy

05/30/2024



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations	↙	↑↑↑			↙	↑↑↑			↕			↕
Traffic Volume (vph)	0	2966	50	10	97	2195	1	42	0	11	5	0
Future Volume (vph)	0	2966	50	10	97	2195	1	42	0	11	5	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	10	10
Grade (%)		0%				0%			0%			5%
Total Lost time (s)		6.0			6.5	6.0			6.5			6.5
Lane Util. Factor		0.91			1.00	0.91			1.00			1.00
Frbp, ped/bikes		1.00			1.00	1.00			1.00			0.95
Flpb, ped/bikes		1.00			1.00	1.00			1.00			1.00
Frt		1.00			1.00	1.00			0.97			0.98
Flt Protected		1.00			0.95	1.00			0.96			0.96
Satd. Flow (prot)		4930			1805	4938			1771			1319
Flt Permitted		1.00			0.21	1.00			0.96			0.96
Satd. Flow (perm)		4930			390	4938			1771			1319
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	3224	54	11	105	2386	1	46	0	12	5	0
RTOR Reduction (vph)	0	1	0	0	0	0	0	0	56	0	0	6
Lane Group Flow (vph)	0	3277	0	0	116	2387	0	0	2	0	0	0
Confl. Peds. (#/hr)	8		1		1		10			3	2	
Heavy Vehicles (%)	0%	5%	0%	0%	0%	5%	100%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		custom	Prot	NA		Split	NA		Split	NA
Protected Phases	5	2			1	6		4	4		3	3
Permitted Phases				1								
Actuated Green, G (s)		79.4			19.5	105.4			4.6			1.0
Effective Green, g (s)		79.4			19.5	105.4			4.6			1.0
Actuated g/C Ratio		0.61			0.15	0.81			0.04			0.01
Clearance Time (s)		6.0			6.5	6.0			6.5			6.5
Vehicle Extension (s)		3.5			3.0	3.5			3.0			3.0
Lane Grp Cap (vph)		3011			58	4003			62			10
v/s Ratio Prot		c0.66				0.48			c0.00			c0.00
v/s Ratio Perm					c0.30							
v/c Ratio		1.09			2.00	0.60			0.03			0.00
Uniform Delay, d1		25.3			55.2	4.5			60.6			64.0
Progression Factor		1.00			1.00	0.98			1.00			1.00
Incremental Delay, d2		46.1			491.3	0.5			0.2			0.2
Delay (s)		71.4			546.8	4.9			60.8			64.2
Level of Service		E			F	A			E			E
Approach Delay (s)		71.4				30.0			60.8			64.2
Approach LOS		E				C			E			E

Intersection Summary		
HCM 2000 Control Delay	53.6	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	1.20	D
Actuated Cycle Length (s)	130.0	Sum of lost time (s)
Intersection Capacity Utilization	86.8%	25.5
Analysis Period (min)	15	ICU Level of Service
		E

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 2: Ridgewood Center Drive/Laurel Hills Drive & Prince William Pkwy

05/30/2024

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	1
Future Volume (vph)	1
Ideal Flow (vphpl)	1900
Lane Width	10
Grade (%)	
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	1
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	8
Heavy Vehicles (%)	100%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM 6th TWSC
 3: Prince William Parkway & Seeton Square

05/30/2024

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			↑↑↑			↑
Traffic Vol, veh/h	0	0	2256	76	0	47
Future Vol, veh/h	0	0	2256	76	0	47
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	1	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	2452	83	0	51

Major/Minor	Major2	Minor2
Conflicting Flow All	-	0 - 1268
Stage 1	-	- -
Stage 2	-	- -
Critical Hdwy	-	- 7.14
Critical Hdwy Stg 1	-	- -
Critical Hdwy Stg 2	-	- -
Follow-up Hdwy	-	- 3.92
Pot Cap-1 Maneuver	-	0 137
Stage 1	-	0 -
Stage 2	-	0 -
Platoon blocked, %	-	-
Mov Cap-1 Maneuver	-	- 137
Mov Cap-2 Maneuver	-	- -
Stage 1	-	- -
Stage 2	-	- -

Approach	WB	SB
HCM Control Delay, s	0	46.1
HCM LOS		E

Minor Lane/Major Mvmt	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	137
HCM Lane V/C Ratio	-	-	0.373
HCM Control Delay (s)	-	-	46.1
HCM Lane LOS	-	-	E
HCM 95th %tile Q(veh)	-	-	1.6

HCM 6th Signalized Intersection Summary

4: Prince William Pkwy & Old Bridge Road

07/30/2024



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	613	1131	1201	308	1154	1764
Future Volume (veh/h)	613	1131	1201	308	1154	1764
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1817	1802	1805	1835	1811	1841
Adj Flow Rate, veh/h	639	1178	1251	321	1202	1838
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	4	5	6	4	6	4
Cap, veh/h	2446	3515	1554	1623	1366	3286
Arrive On Green	0.73	0.73	0.32	0.32	0.28	0.65
Sat Flow, veh/h	3357	3482	5091	1555	4864	5191
Grp Volume(v), veh/h	639	1178	1251	321	1202	1838
Grp Sat Flow(s),veh/h/ln	1679	1161	1643	1555	1621	1675
Q Serve(g_s), s	8.3	0.0	30.3	0.0	30.7	26.0
Cycle Q Clear(g_c), s	8.3	0.0	30.3	0.0	30.7	26.0
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	2446	3515	1554	1623	1366	3286
V/C Ratio(X)	0.26	0.34	0.80	0.20	0.88	0.56
Avail Cap(c_a), veh/h	2446	3515	1554	1623	1366	3286
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	5.9	0.0	40.8	0.0	44.7	12.3
Incr Delay (d2), s/veh	0.3	0.3	3.2	0.1	8.4	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	14.1	12.3	8.0	13.0	8.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	6.2	0.3	44.0	0.1	53.0	13.0
LnGrp LOS	A	A	D	A	D	B
Approach Vol, veh/h	1817		1572			3040
Approach Delay, s/veh	2.3		35.1			28.8
Approach LOS	A		D			C
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		92.8		107.2	44.0	48.8
Change Period (Y+Rc), s		* 7.8		10.5	7.5	* 7.8
Max Green Setting (Gmax), s		* 85		28.7	36.5	* 39
Max Q Clear Time (g_c+I1), s		28.0		10.3	32.7	32.3
Green Ext Time (p_c), s		7.0		15.5	2.0	3.8

Intersection Summary

HCM 6th Ctrl Delay	22.9
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th TWSC
 5: Tribe at the Glen & Old Bridge Road

05/30/2024

Intersection						
Int Delay, s/veh	0.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑					↑
Traffic Vol, veh/h	1398	64	0	0	0	17
Future Vol, veh/h	1398	64	0	0	0	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Free	-	None	-	Stop
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	-3	-	-	2	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	6	0	0	4	0	0
Mvmt Flow	1520	70	0	0	0	18

Major/Minor	Major1		Minor1	
Conflicting Flow All	0	-	-	760
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	-	7.1
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	-	3.9
Pot Cap-1 Maneuver	-	0	0	303
Stage 1	-	0	0	-
Stage 2	-	0	0	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	303
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	NB
HCM Control Delay, s	0	17.7
HCM LOS		C

Minor Lane/Major Mvmt	NBLn1	EBT
Capacity (veh/h)	303	-
HCM Lane V/C Ratio	0.061	-
HCM Control Delay (s)	17.7	-
HCM Lane LOS	C	-
HCM 95th %tile Q(veh)	0.2	-

HCM Signalized Intersection Capacity Analysis

6: Troupe Street/Glen Shopping Ctr & Old Bridge Road

07/30/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↑↑↑		↗	↑↑↑		↗	↑	↗	↗	↑	↗
Traffic Volume (vph)	156	1240	61	89	1511	91	107	45	165	78	6	75
Future Volume (vph)	156	1240	61	89	1511	91	107	45	165	78	6	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			7%			-1%			0%	
Total Lost time (s)	7.0	6.5		7.0	6.0		4.0	8.0	8.0	7.0	7.0	7.0
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.99	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Fr _t	1.00	0.99		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Fl _t Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1823	4908		1598	4770		1724	1909	1442	1804	1900	1568
Fl _t Permitted	0.95	1.00		0.95	1.00		0.75	1.00	1.00	0.49	1.00	1.00
Satd. Flow (perm)	1823	4908		1598	4770		1367	1909	1442	935	1900	1568
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	170	1348	66	97	1642	99	116	49	179	85	7	82
RTOR Reduction (vph)	0	3	0	0	4	0	0	0	166	0	0	72
Lane Group Flow (vph)	170	1411	0	97	1737	0	116	49	13	85	7	10
Confl. Peds. (#/hr)			3			6	3		2	2		7
Heavy Vehicles (%)	0%	6%	4%	9%	4%	1%	5%	0%	11%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases							4		4	8		8
Actuated Green, G (s)	26.8	67.9		17.0	58.6		14.6	9.6	9.6	22.6	15.6	15.6
Effective Green, g (s)	26.8	67.9		17.0	58.6		14.6	9.6	9.6	22.6	15.6	15.6
Actuated g/C Ratio	0.21	0.52		0.13	0.45		0.11	0.07	0.07	0.17	0.12	0.12
Clearance Time (s)	7.0	6.5		7.0	6.0		4.0	8.0	8.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	375	2563		208	2150		167	140	106	209	228	188
v/s Ratio Prot	c0.09	c0.29		0.06	c0.36		c0.03	0.03		c0.02	0.00	
v/s Ratio Perm							c0.05		0.01	0.05		0.01
v/c Ratio	0.45	0.55		0.47	0.81		0.69	0.35	0.12	0.41	0.03	0.05
Uniform Delay, d ₁	45.2	20.8		52.3	30.8		55.1	57.2	56.3	46.7	50.5	50.7
Progression Factor	1.02	0.78		0.78	1.00		0.70	0.78	0.77	1.00	1.00	1.00
Incremental Delay, d ₂	0.6	0.6		1.2	2.6		11.1	1.4	0.5	1.3	0.1	0.1
Delay (s)	46.8	16.9		41.8	33.4		49.5	46.2	43.7	48.0	50.6	50.8
Level of Service	D	B		D	C		D	D	D	D	D	D
Approach Delay (s)		20.1			33.9			46.0			49.4	
Approach LOS		C			C			D			D	

Intersection Summary

HCM 2000 Control Delay	30.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	28.5
Intersection Capacity Utilization	71.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

7: Titania Way/Touchstone Circle & Old Bridge Road

07/30/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑	↗		↕			↕	↗
Traffic Volume (vph)	70	1497	15	14	1596	51	20	1	18	78	0	73
Future Volume (vph)	70	1497	15	14	1596	51	20	1	18	78	0	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		4%			-7%			-3%			2%	
Total Lost time (s)	8.5	8.5	8.5	8.5	8.5	8.5		7.5			7.5	7.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00			1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98		0.99			1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00			1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		0.94			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.98			0.95	1.00
Satd. Flow (prot)	1638	3338	1432	1868	3593	1576		1698			1715	1483
Flt Permitted	0.08	1.00	1.00	0.12	1.00	1.00		0.80			0.73	1.00
Satd. Flow (perm)	141	3338	1432	242	3593	1576		1386			1318	1483
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	74	1576	16	15	1680	54	21	1	19	82	0	77
RTOR Reduction (vph)	0	0	5	0	0	18	0	17	0	0	0	70
Lane Group Flow (vph)	74	1576	11	15	1680	36	0	24	0	0	82	7
Confl. Peds. (#/hr)	4		1	1		6			3	2		4
Heavy Vehicles (%)	8%	6%	8%	0%	4%	4%	6%	0%	0%	4%	0%	6%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6		6	2		2	4			8		8
Actuated Green, G (s)	98.0	90.8	90.8	87.8	85.7	85.7		12.6			12.6	12.6
Effective Green, g (s)	98.0	90.8	90.8	87.8	85.7	85.7		12.6			12.6	12.6
Actuated g/C Ratio	0.75	0.70	0.70	0.68	0.66	0.66		0.10			0.10	0.10
Clearance Time (s)	8.5	8.5	8.5	8.5	8.5	8.5		7.5			7.5	7.5
Vehicle Extension (s)	2.0	8.0	8.0	2.0	8.0	8.0		2.0			2.0	2.0
Lane Grp Cap (vph)	189	2331	1000	189	2368	1038		134			127	143
v/s Ratio Prot	c0.02	c0.47		0.00	c0.47							
v/s Ratio Perm	0.27		0.01	0.05		0.02		0.02			c0.06	0.01
v/c Ratio	0.39	0.68	0.01	0.08	0.71	0.03		0.18			0.65	0.05
Uniform Delay, d1	12.6	11.2	6.0	8.5	14.2	7.7		53.9			56.5	53.3
Progression Factor	2.97	0.50	1.00	1.57	1.29	1.00		1.00			1.00	1.00
Incremental Delay, d2	0.4	1.4	0.0	0.0	1.3	0.0		0.2			8.2	0.1
Delay (s)	37.9	7.0	6.0	13.4	19.5	7.8		54.2			64.7	53.3
Level of Service	D	A	A	B	B	A		D			E	D
Approach Delay (s)		8.4			19.1			54.2			59.2	
Approach LOS		A			B			D			E	

Intersection Summary

HCM 2000 Control Delay	16.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	24.5
Intersection Capacity Utilization	79.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th TWSC
8: Old Bridge Road & Brussels Way

05/30/2024

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↑		↑
Traffic Vol, veh/h	0	1603	1658	11	0	13
Future Vol, veh/h	0	1603	1658	11	0	13
Conflicting Peds, #/hr	7	0	0	7	0	7
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	225	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	7	-1	-	1	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	6	4	0	0	0
Mvmt Flow	0	1742	1802	12	0	14

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	-	0	-	0	915
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	-	-	-	7
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	272
Stage 1	0	-	-	-	-
Stage 2	0	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	269
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	19.1
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	269
HCM Lane V/C Ratio	-	-	-	0.053
HCM Control Delay (s)	-	-	-	19.1
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0.2

HCM 6th TWSC
 9: Old Bridge Ln/Church Entr & Old Bridge Road

05/30/2024

Intersection														
Int Delay, s/veh	29.5													
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↕↕	↕		↕	↕↕	↕		↕↕		↕		↕
Traffic Vol, veh/h	4	4	1575	20	6	11	1630	4	39	0	33	1	0	0
Future Vol, veh/h	4	4	1575	20	6	11	1630	4	39	0	33	1	0	0
Conflicting Peds, #/hr	0	5	0	4	0	4	0	5	0	0	4	0	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	-	None	-	-	-	None	-	-	None	-	-	None
Storage Length	-	365	-	340	-	225	-	230	-	-	-	0	-	0
Veh in Median Storage, #	-	-	0	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-	1	-	-	-	3	-	-	0	-	-	-1	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	0	0	6	1	0	7	4	0	0	0	0	0	0	0
Mvmt Flow	4	4	1624	21	6	11	1680	4	40	0	34	1	0	0

Major/Minor	Major1		Major2		Minor1		Minor2							
Conflicting Flow All	1680	1689	0	0	1624	1649	0	0	2523	3367	820	2551	-	850
Stage 1	-	-	-	-	-	-	-	-	1644	1644	-	1719	-	-
Stage 2	-	-	-	-	-	-	-	-	879	1723	-	832	-	-
Critical Hdwy	6.4	4.1	-	-	6.4	4.24	-	-	7.5	6.5	6.9	7.3	-	6.8
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	6.5	5.5	-	6.3	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	6.5	5.5	-	6.3	-	-
Follow-up Hdwy	2.5	2.2	-	-	2.5	2.27	-	-	3.5	4	3.3	3.5	-	3.3
Pot Cap-1 Maneuver	123	383	-	-	134	366	-	-	~ 14	8	322	16	0	315
Stage 1	-	-	-	-	-	-	-	-	106	159	-	105	0	-
Stage 2	-	-	-	-	-	-	-	-	313	145	-	350	0	-
Platoon blocked, %			-	-			-	-						
Mov Cap-1 Maneuver	186	186	-	-	212	212	-	-	~ 13	7	320	13	-	313
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	~ 13	7	-	13	-	-
Stage 1	-	-	-	-	-	-	-	-	101	152	-	100	-	-
Stage 2	-	-	-	-	-	-	-	-	285	132	-	298	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.2	\$ 1354.4	\$ 304.5
HCM LOS			F	F

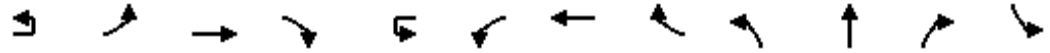
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	23	186	-	-	212	-	-	13	-
HCM Lane V/C Ratio	3.227	0.044	-	-	0.083	-	-	0.079	-
HCM Control Delay (s)	\$ 1354.4	25.2	-	-	23.5	-	-	\$ 304.5	0
HCM Lane LOS	F	D	-	-	C	-	-	F	A
HCM 95th %tile Q(veh)	9.4	0.1	-	-	0.3	-	-	0.2	-

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM Signalized Intersection Capacity Analysis

10: Rockwood Lane/Westridge Drive & Old Bridge Road

05/30/2024



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations		↖	↕			↖	↕	↗		↕		
Traffic Volume (vph)	4	167	1444	0	9	0	1376	92	0	0	0	179
Future Volume (vph)	4	167	1444	0	9	0	1376	92	0	0	0	179
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)			1%				3%			0%		
Total Lost time (s)		8.6	8.6			8.6	8.6	8.6				
Lane Util. Factor		1.00	0.95			1.00	0.95	1.00				
Frbp, ped/bikes		1.00	1.00			1.00	1.00	0.98				
Flpb, ped/bikes		1.00	1.00			1.00	1.00	1.00				
Frt		1.00	1.00			1.00	1.00	0.85				
Flt Protected		0.95	1.00			0.95	1.00	1.00				
Satd. Flow (prot)		1681	3389			1776	3387	1517				
Flt Permitted		0.07	1.00			0.15	1.00	1.00				
Satd. Flow (perm)		124	3389			286	3387	1517				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	4	182	1570	0	10	0	1496	100	0	0	0	195
RTOR Reduction (vph)	0	0	0	0	0	0	0	46	0	0	0	0
Lane Group Flow (vph)	0	186	1570	0	0	10	1496	54	0	0	0	0
Confl. Peds. (#/hr)		3		5		5		5			7	2
Heavy Vehicles (%)	0%	7%	6%	0%	0%	0%	5%	3%	0%	0%	0%	2%
Turn Type	custom	pm+pt	NA		Perm	Perm	NA	Perm				Perm
Protected Phases		1	6				2			8		
Permitted Phases	1!	6			2	2		2	8			4
Actuated Green, G (s)		90.8	90.8			69.8	69.8	69.8				
Effective Green, g (s)		90.8	90.8			69.8	69.8	69.8				
Actuated g/C Ratio		0.70	0.70			0.54	0.54	0.54				
Clearance Time (s)		8.6	8.6			8.6	8.6	8.6				
Vehicle Extension (s)		3.0	4.0			4.0	4.0	4.0				
Lane Grp Cap (vph)		235	2367			153	1818	814				
v/s Ratio Prot		0.08	c0.46				c0.44					
v/s Ratio Perm		0.48				0.03		0.04				
v/c Ratio		0.79	0.66			0.07	0.82	0.07				
Uniform Delay, d1		33.1	11.0			14.4	25.0	14.5				
Progression Factor		1.59	0.29			1.00	1.00	1.00				
Incremental Delay, d2		14.2	1.3			0.8	4.4	0.2				
Delay (s)		66.8	4.4			15.3	29.3	14.6				
Level of Service		E	A			B	C	B				
Approach Delay (s)			11.0				28.3			0.0		
Approach LOS			B				C			A		

Intersection Summary			
HCM 2000 Control Delay	23.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	24.5
Intersection Capacity Utilization	93.6%	ICU Level of Service	F
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 10: Rockwood Lane/Westridge Drive & Old Bridge Road

05/30/2024



Movement	SBT	SBR
Lane Configurations	↔	↔
Traffic Volume (vph)	0	271
Future Volume (vph)	0	271
Ideal Flow (vphpl)	1900	1900
Grade (%)	-1%	
Total Lost time (s)	7.3	8.6
Lane Util. Factor	1.00	1.00
Frpb, ped/bikes	1.00	0.99
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	0.95	1.00
Satd. Flow (prot)	1774	1575
Flt Permitted	0.76	1.00
Satd. Flow (perm)	1414	1575
Peak-hour factor, PHF	0.92	0.92
Adj. Flow (vph)	0	295
RTOR Reduction (vph)	0	34
Lane Group Flow (vph)	195	261
Confl. Peds. (#/hr)		3
Heavy Vehicles (%)	0%	2%
Turn Type	NA	pm+ov
Protected Phases	4	1!
Permitted Phases		4
Actuated Green, G (s)	23.3	35.7
Effective Green, g (s)	23.3	35.7
Actuated g/C Ratio	0.18	0.27
Clearance Time (s)	7.3	8.6
Vehicle Extension (s)	3.5	3.0
Lane Grp Cap (vph)	253	432
v/s Ratio Prot		0.06
v/s Ratio Perm	c0.14	0.11
v/c Ratio	0.77	0.60
Uniform Delay, d1	50.8	41.0
Progression Factor	1.00	1.00
Incremental Delay, d2	13.9	2.4
Delay (s)	64.7	43.4
Level of Service	E	D
Approach Delay (s)	51.9	
Approach LOS	D	
Intersection Summary		

Intersection												
Int Delay, s/veh	5.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗	↘	↗	↗		↗	↗
Traffic Vol, veh/h	0	0	18	0	0	61	17	16	13	0	31	17
Future Vol, veh/h	0	0	18	0	0	61	17	16	13	0	31	17
Conflicting Peds, #/hr	3	0	1	1	0	3	0	0	1	0	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Stop	-	-	Yield	-	-	Free	-	-	Free
Storage Length	-	-	0	-	-	0	115	-	100	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	2	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	5	1	0	2	0
Mvmt Flow	0	0	20	0	0	66	18	17	14	0	34	18

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	-	-	35	-	-	20	34	0	-	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.2	-	-	6.2	4.1	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.3	2.2	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	1044	0	0	1064	1591	-	0	0	-	0
Stage 1	0	0	-	0	0	-	-	-	0	0	-	0
Stage 2	0	0	-	0	0	-	-	-	0	0	-	0
Platoon blocked, %								-				-
Mov Cap-1 Maneuver	-	-	1043	-	-	1061	1591	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	8.5		8.6		3.8		0	
HCM LOS	A		A					

Minor Lane/Major Mvmt	NBL	NBT	EBLn1WBLn1	SBT
Capacity (veh/h)	1591	-	1043	1061
HCM Lane V/C Ratio	0.012	-	0.019	0.062
HCM Control Delay (s)	7.3	-	8.5	8.6
HCM Lane LOS	A	-	A	A
HCM 95th %tile Q(veh)	0	-	0.1	0.2

Intersection												
Int Delay, s/veh	4.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Vol, veh/h	2	1	3	19	4	3	24	23	13	5	11	10
Future Vol, veh/h	2	1	3	19	4	3	24	23	13	5	11	10
Conflicting Peds, #/hr	2	0	1	1	0	3	0	0	2	1	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-2	-	-	0	-	-	-1	-	-	2	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	7	1	0	0	0	13	0	20	2	0
Mvmt Flow	2	1	3	20	4	3	26	25	14	5	12	11

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	100	123	15	104	121	25	25	0	0	41	0	0
Stage 1	30	30	-	86	86	-	-	-	-	-	-	-
Stage 2	70	93	-	18	35	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.1	6.84	7.52	6.5	6.9	4.1	-	-	4.5	-	-
Critical Hdwy Stg 1	6.1	5.1	-	6.52	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.1	-	6.52	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.37	3.51	4	3.3	2.2	-	-	2.4	-	-
Pot Cap-1 Maneuver	886	782	1046	868	773	1052	1603	-	-	1445	-	-
Stage 1	992	877	-	915	827	-	-	-	-	-	-	-
Stage 2	945	830	-	1001	870	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	863	764	1043	849	755	1048	1600	-	-	1443	-	-
Mov Cap-2 Maneuver	863	764	-	849	755	-	-	-	-	-	-	-
Stage 1	974	873	-	899	812	-	-	-	-	-	-	-
Stage 2	920	815	-	992	866	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	8.9		9.4		2.9		1.4	
HCM LOS	A		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1600	-	-	923	851	1443	-	-
HCM Lane V/C Ratio	0.016	-	-	0.007	0.033	0.004	-	-
HCM Control Delay (s)	7.3	-	-	8.9	9.4	7.5	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-	-

HCM 6th TWSC
 14: Touchstone Circle & Merchant Plaza/CVS

05/30/2024

Intersection												
Int Delay, s/veh	1.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	1	18	4	1	0	20	97	5	0	123	7
Future Vol, veh/h	4	1	18	4	1	0	20	97	5	0	123	7
Conflicting Peds, #/hr	0	0	5	2	0	4	3	0	6	4	0	3
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	-	-	-3	-	-	3	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	22	0	0	0	4	0
Mvmt Flow	4	1	20	4	1	0	22	105	5	0	134	8

Major/Minor	Minor2		Minor1			Major1		Major2				
Conflicting Flow All	242	301	79	231	303	65	145	0	0	116	0	0
Stage 1	141	141	-	158	158	-	-	-	-	-	-	-
Stage 2	101	160	-	73	145	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.54	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.42	-	-	2.2	-	-
Pot Cap-1 Maneuver	697	615	972	710	613	992	1300	-	-	1485	-	-
Stage 1	853	784	-	834	771	-	-	-	-	-	-	-
Stage 2	900	769	-	934	781	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	682	600	966	679	598	984	1297	-	-	1478	-	-
Mov Cap-2 Maneuver	682	600	-	679	598	-	-	-	-	-	-	-
Stage 1	836	782	-	815	753	-	-	-	-	-	-	-
Stage 2	880	751	-	910	779	-	-	-	-	-	-	-

Approach	EB		WB			NB		SB		
HCM Control Delay, s	9.2		10.5			1.3		0		
HCM LOS	A		B							

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1297	-	-	879	661	1478	-	-
HCM Lane V/C Ratio	0.017	-	-	0.028	0.008	-	-	-
HCM Control Delay (s)	7.8	0	-	9.2	10.5	0	-	-
HCM Lane LOS	A	A	-	A	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	0	0	-	-

HCM Signalized Intersection Capacity Analysis

16: Prince William Pkwy & Kenwood Dr./

School Entrance

05/30/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations		↔			↔	↔			↑↑↑	↔		↔
Traffic Volume (vph)	51	1	89	33	1	32	2	27	1693	69	1	45
Future Volume (vph)	51	1	89	33	1	32	2	27	1693	69	1	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			1%				-2%			
Total Lost time (s)		6.6			5.8	8.8		8.8	8.8	5.8		8.8
Lane Util. Factor		1.00			1.00	1.00		1.00	0.91	1.00		1.00
Frbp, ped/bikes		0.99			1.00	1.00		1.00	1.00	0.98		1.00
Flpb, ped/bikes		1.00			1.00	1.00		1.00	1.00	1.00		1.00
Frt		0.91			1.00	0.85		1.00	1.00	0.85		1.00
Flt Protected		0.98			0.95	1.00		0.95	1.00	1.00		0.95
Satd. Flow (prot)		1624			1673	1488		1823	4989	1536		1712
Flt Permitted		0.98			0.95	1.00		0.05	1.00	1.00		0.08
Satd. Flow (perm)		1624			1673	1488		103	4989	1536		150
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	53	1	93	34	1	33	2	28	1764	72	1	47
RTOR Reduction (vph)	0	60	0	0	0	29	0	0	0	27	0	0
Lane Group Flow (vph)	0	87	0	0	35	4	0	30	1764	45	0	48
Confl. Peds. (#/hr)			4	2				2		2		
Heavy Vehicles (%)	5%	100%	0%	8%	0%	8%	0%	0%	5%	4%	0%	5%
Turn Type	Split	NA		Split	NA	pm+ov	custom	D.P+P	NA	pm+ov	custom	D.P+P
Protected Phases	3	3		4	4	5!		1	2	6	4	5
Permitted Phases						4	1	2		6	5!	6
Actuated Green, G (s)		13.2			8.3	13.9		78.5	72.9	81.2		78.5
Effective Green, g (s)		13.2			8.3	13.9		78.5	72.9	81.2		78.5
Actuated g/C Ratio		0.10			0.06	0.11		0.60	0.56	0.62		0.60
Clearance Time (s)		6.6			5.8	8.8		8.8	8.8	5.8		8.8
Vehicle Extension (s)		3.0			3.0	3.0		3.0	3.0	3.0		3.0
Lane Grp Cap (vph)		164			106	159		117	2797	959		157
v/s Ratio Prot		c0.05			c0.02	0.00		0.01	0.35	0.00		c0.01
v/s Ratio Perm						0.00		0.15		0.03		0.17
v/c Ratio		0.53			0.33	0.02		0.26	0.63	0.05		0.31
Uniform Delay, d1		55.5			58.2	52.0		17.9	19.4	9.4		13.1
Progression Factor		1.00			1.00	1.00		0.94	0.82	0.19		1.12
Incremental Delay, d2		3.1			1.8	0.1		1.1	1.0	0.0		0.9
Delay (s)		58.5			60.0	52.0		18.0	16.8	1.8		15.6
Level of Service		E			E	D		B	B	A		B
Approach Delay (s)		58.5			56.1				16.3			
Approach LOS		E			E				B			

Intersection Summary

HCM 2000 Control Delay	20.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	30.0
Intersection Capacity Utilization	80.6%	ICU Level of Service	D
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group



Movement	SBT	SBR
Lane Configurations	↑↑↑↑	↑
Traffic Volume (vph)	2237	50
Future Volume (vph)	2237	50
Ideal Flow (vphpl)	1900	1900
Grade (%)	1%	
Total Lost time (s)	8.8	6.6
Lane Util. Factor	0.91	1.00
Frbp, ped/bikes	1.00	0.98
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	4963	1500
Flt Permitted	1.00	1.00
Satd. Flow (perm)	4963	1500
Peak-hour factor, PHF	0.96	0.96
Adj. Flow (vph)	2330	52
RTOR Reduction (vph)	0	17
Lane Group Flow (vph)	2330	35
Confl. Peds. (#/hr)		2
Heavy Vehicles (%)	4%	5%
Turn Type	NA	pm+ov
Protected Phases	2	3
Permitted Phases		2
Actuated Green, G (s)	74.3	87.5
Effective Green, g (s)	74.3	87.5
Actuated g/C Ratio	0.57	0.67
Clearance Time (s)	8.8	6.6
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	2836	1009
v/s Ratio Prot	c0.47	0.00
v/s Ratio Perm		0.02
v/c Ratio	0.82	0.03
Uniform Delay, d1	22.5	7.1
Progression Factor	0.85	1.29
Incremental Delay, d2	2.3	0.0
Delay (s)	21.3	9.2
Level of Service	C	A
Approach Delay (s)	21.0	
Approach LOS	C	
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

17: Prince William Pkwy & Hillendale Road

05/30/2024



Movement	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Lane Configurations								
Traffic Volume (vph)	374	343	2	148	1417	0	2082	279
Future Volume (vph)	374	343	2	148	1417	0	2082	279
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)	2%				1%		2%	
Total Lost time (s)	6.5	8.0		8.0	5.5		5.5	6.5
Lane Util. Factor	0.97	1.00		0.97	0.91		0.91	1.00
Fr _t	1.00	0.85		1.00	1.00		1.00	0.85
Fl _t Protected	0.95	1.00		0.95	1.00		1.00	1.00
Satd. Flow (prot)	3399	1537		3384	4915		4938	1523
Fl _t Permitted	0.95	1.00		0.16	1.00		1.00	1.00
Satd. Flow (perm)	3399	1537		570	4915		4938	1523
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	407	373	2	161	1540	0	2263	303
RTOR Reduction (vph)	0	0	0	0	0	0	0	105
Lane Group Flow (vph)	407	373	0	163	1540	0	2263	198
Heavy Vehicles (%)	2%	4%	0%	3%	5%	0%	4%	5%
Turn Type	Prot	pm+ov	custom	Prot	NA	Prot	NA	pm+ov
Protected Phases	4	5!		5	2	1	6	4
Permitted Phases		4	5!					6
Actuated Green, G (s)	31.4	56.4		25.0	86.6		53.6	85.0
Effective Green, g (s)	31.4	56.4		25.0	86.6		53.6	85.0
Actuated g/C Ratio	0.24	0.43		0.19	0.67		0.41	0.65
Clearance Time (s)	6.5	8.0		8.0	5.5		5.5	6.5
Vehicle Extension (s)	4.0	4.0		4.0	4.0		4.0	4.0
Lane Grp Cap (vph)	820	666		109	3274		2035	995
v/s Ratio Prot	0.12	c0.11			0.31		c0.46	0.05
v/s Ratio Perm		0.14		c0.29				0.08
v/c Ratio	0.50	0.56		1.50	0.47		1.11	0.20
Uniform Delay, d ₁	42.5	27.5		52.5	10.6		38.2	9.0
Progression Factor	1.00	1.00		1.00	1.00		0.49	1.98
Incremental Delay, d ₂	0.6	1.3		264.9	0.5		55.9	0.1
Delay (s)	43.1	28.8		317.4	11.0		74.5	17.8
Level of Service	D	C		F	B		E	B
Approach Delay (s)	36.3			40.4		67.8		
Approach LOS	D			D		E		

Intersection Summary

HCM 2000 Control Delay	53.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	85.2%	ICU Level of Service	E
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group

Intersection												
Int Delay, s/veh	10.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↕		↕		↕	↕		↕	↕	
Traffic Vol, veh/h	217	6	28	1	2	20	11	41	0	9	83	5
Future Vol, veh/h	217	6	28	1	2	20	11	41	0	9	83	5
Conflicting Peds, #/hr	0	0	0	0	0	6	0	0	5	5	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	0	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	1	-	-	-2	-	-	-2	-	-	3	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	0	4	100	0	41	0	13	0	25	7	50
Mvmt Flow	236	7	30	1	2	22	12	45	0	10	90	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	30	0	0	37	0	0	543	511	12	543	530	20
Stage 1	-	-	-	-	-	-	479	479	-	21	21	-
Stage 2	-	-	-	-	-	-	64	32	-	522	509	-
Critical Hdwy	4.12	-	-	5.1	-	-	6.7	6.23	6	7.95	7.17	7
Critical Hdwy Stg 1	-	-	-	-	-	-	5.7	5.23	-	6.95	6.17	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.7	5.23	-	6.95	6.17	-
Follow-up Hdwy	2.218	-	-	3.1	-	-	3.5	4.117	3.3	3.725	4.063	3.75
Pot Cap-1 Maneuver	1583	-	-	1120	-	-	482	477	1075	381	410	933
Stage 1	-	-	-	-	-	-	603	566	-	938	865	-
Stage 2	-	-	-	-	-	-	959	850	-	457	487	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1575	-	-	1120	-	-	339	401	1071	305	345	928
Mov Cap-2 Maneuver	-	-	-	-	-	-	339	401	-	305	345	-
Stage 1	-	-	-	-	-	-	510	479	-	790	860	-
Stage 2	-	-	-	-	-	-	852	845	-	349	412	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	6.6			0.4			15.3			18.6		
HCM LOS							C			C		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	339	401	1575	-	-	1120	-	-	305	358
HCM Lane V/C Ratio	0.035	0.111	0.15	-	-	0.001	-	-	0.032	0.267
HCM Control Delay (s)	16	15.1	7.7	0	-	8.2	0	-	17.2	18.7
HCM Lane LOS	C	C	A	A	-	A	A	-	C	C
HCM 95th %tile Q(veh)	0.1	0.4	0.5	-	-	0	-	-	0.1	1.1

Intersection						
Int Delay, s/veh	0.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			↑↑↑			↑
Traffic Vol, veh/h	0	0	1646	29	0	49
Future Vol, veh/h	0	0	1646	29	0	49
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	1	0	-	0	-
Grade, %	-	0	2	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	1789	32	0	53

Major/Minor	Major2	Minor2
Conflicting Flow All	-	0
Stage 1	-	-
Stage 2	-	-
Critical Hdwy	-	-
Critical Hdwy Stg 1	-	-
Critical Hdwy Stg 2	-	-
Follow-up Hdwy	-	-
Pot Cap-1 Maneuver	-	0
Stage 1	-	0
Stage 2	-	0
Platoon blocked, %	-	-
Mov Cap-1 Maneuver	-	-
Mov Cap-2 Maneuver	-	-
Stage 1	-	-
Stage 2	-	-

Approach	WB	SB
HCM Control Delay, s	0	24.4
HCM LOS		C

Minor Lane/Major Mvmt	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	238
HCM Lane V/C Ratio	-	-	0.224
HCM Control Delay (s)	-	-	24.4
HCM Lane LOS	-	-	C
HCM 95th %tile Q(veh)	-	-	0.8

Intersection						
Int Delay, s/veh	3.4					
Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations	↘			↗		↑
Traffic Vol, veh/h	49	0	0	0	0	83
Future Vol, veh/h	49	0	0	0	0	83
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	0	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	49	0	0	0	0	83

Major/Minor	Minor1	Major2	
Conflicting Flow All	83	-	-
Stage 1	0	-	-
Stage 2	83	-	-
Critical Hdwy	6.42	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	-	-
Pot Cap-1 Maneuver	919	0	0
Stage 1	-	0	-
Stage 2	940	0	-
Platoon blocked, %			-
Mov Cap-1 Maneuver	919	-	-
Mov Cap-2 Maneuver	919	-	-
Stage 1	-	-	-
Stage 2	940	-	-

Approach	NW	SW
HCM Control Delay, s	9.1	0
HCM LOS	A	

Minor Lane/Major Mvmt	NWLn1	SWT
Capacity (veh/h)	919	-
HCM Lane V/C Ratio	0.053	-
HCM Control Delay (s)	9.1	-
HCM Lane LOS	A	-
HCM 95th %tile Q(veh)	0.2	-

1: Black Forest Ln/Reids Prospect Dr & Prince William Pkwy Performance by movement

Movement	EBU	EBL	EBT	WBU	WBL	WBT	WBR	NBR	SBL	SBR	All
Denied Del/Veh (s)	2.0	1.9	0.8		0.0	0.0	0.1	0.1	1355.0	1289.1	13.0
Total Del/Veh (s)	33.5	28.8	7.9		872.1	3.1	4.0	132.3	3431.3	3685.3	17.0

2: Ridgewood Center Drive/Laurel Hills Drive & Prince William Pkwy Performance by movement

Movement	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBR	SBL	SBR	All
Denied Del/Veh (s)	3.4	0.2	0.0	0.0	0.0	1.8	0.1	0.1	0.1	0.1	1.9
Total Del/Veh (s)	42.7	26.5	69.2	67.9	7.5	5.7	54.5	34.2	63.0	31.8	28.6

3: Prince William Parkway & Seeton Square Performance by movement

Movement	WBT	WBR	SBR	All
Denied Del/Veh (s)	0.2	0.3	0.1	0.2
Total Del/Veh (s)	1.5	0.3	4.7	1.5

4: Prince William Pkwy & Old Bridge Road Performance by movement

Movement	WBL	WBT	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.8	0.0	0.2	0.3	0.1	0.4	0.1	0.3
Total Del/Veh (s)	51.6	5.9	6.5	25.8	3.7	50.4	5.4	22.3

5: Tribe at the Glen & Old Bridge Road Performance by movement

Movement	EBT	EBR	NBR	All
Denied Del/Veh (s)	0.1	0.1	0.1	0.1
Total Del/Veh (s)	1.4	1.1	0.3	1.3

6: Troupe Street/Glen Shopping Ctr & Old Bridge Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.1	0.1	0.2	0.5	3.8
Total Del/Veh (s)	54.2	31.7	13.6	56.2	25.6	19.7	46.9	53.9	16.7	50.1	53.4	15.8

6: Troupe Street/Glen Shopping Ctr & Old Bridge Road Performance by movement

Movement	All
Denied Del/Veh (s)	0.2
Total Del/Veh (s)	29.4

7: Titania Way/Touchstone Circle & Old Bridge Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0		0.0
Total Del/Veh (s)	26.8	9.2	2.5	30.5	17.2	3.3	50.3	68.9	28.0	51.9		12.0

7: Titania Way/Touchstone Circle & Old Bridge Road Performance by movement

Movement	All
Denied Del/Veh (s)	0.0
Total Del/Veh (s)	14.7

8: Old Bridge Road & Brussels Way Performance by movement

Movement	EBT	WBT	WBR	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.1	0.0
Total Del/Veh (s)	2.9	2.0	0.6	24.7	2.5

9: Old Bridge Ln/Church Entr & Old Bridge Road Performance by movement

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBR	SBL	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.9	1.3	0.1	0.0
Total Del/Veh (s)	39.4	37.0	1.7	0.4	21.1	25.7	6.0	3.6	211.6	163.4	83.8	7.9

10: Rockwood Lane/Westridge Drive & Old Bridge Road Performance by movement

Movement	EBU	EBL	EBT	WBU	WBT	WBR	SBL	SBR	All
Denied Del/Veh (s)	0.2	0.1	0.0	2.2	0.5	2.3	0.2	0.3	0.3
Total Del/Veh (s)	49.5	49.6	7.6	39.7	28.7	3.3	47.2	28.0	21.4

11: Exxon/Glen Shopping Ctr & Touchstone Cir Performance by movement

Movement	EBR	WBR	NBL	NBT	NBR	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.1	1.5	0.0	1.7	0.0	0.0	0.4
Total Del/Veh (s)	0.7	0.8	1.5	0.2	1.1	2.1	0.7	1.0

13: Touchstone Cir & Seeton Square/Merchant Plaza Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	4.6	0.1	0.1
Total Del/Veh (s)	3.4	4.6	2.3	3.4	2.5	2.2	2.7	1.8	1.7	2.2	0.1	0.1

13: Touchstone Cir & Seeton Square/Merchant Plaza Performance by movement

Movement	All
Denied Del/Veh (s)	0.2
Total Del/Veh (s)	1.9

14: Touchstone Circle & Merchant Plaza/CVS Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1
Total Del/Veh (s)	3.7	4.9	2.6	3.5	3.5	2.4	0.6	0.4	0.2	0.1	0.8

15: Prince William Pkwy & Chinn Park Dr Performance by movement

Movement	WBT	WBR	NBT	NBR	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	0.7	17.0	6.4	9.7	0.7	3.5

16: Prince William Pkwy & Kenwood Dr./ School Entrance Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Denied Del/Veh (s)	0.2	0.1	0.2	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.2
Total Del/Veh (s)	55.2	48.4	38.0	63.4	78.7	11.6	23.6	33.5	14.5	3.6	30.4	29.0

16: Prince William Pkwy & Kenwood Dr./ School Entrance Performance by movement

Movement	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.5	0.0
Total Del/Veh (s)	20.6	4.3	19.0

17: Prince William Pkwy & Hillendale Road Performance by movement

Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.5	0.4	1.3	0.2	0.2	0.0	0.0	0.2
Total Del/Veh (s)	40.2	24.3	49.1	55.0	11.4	26.6	7.7	22.6

18: Library/Fitness Ctr/Troupe Street & Chinn Park Dr Performance by movement

Movement	EBL	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0
Total Del/Veh (s)	7.5	5.3	5.2	0.1	0.2	5.6	6.9	7.4	5.4	4.2	6.2

21: Old Bridge Rd & Touchstone Circle Performance by movement

Movement	WBT	WBR	SBR	All
Denied Del/Veh (s)	0.1	0.2	0.1	0.1
Total Del/Veh (s)	0.5	0.1	3.0	0.5

34: Prince William Pkwy & Seeton Square Performance by movement

Movement	SBR2	SET	SER	NWT	NWR	All
Denied Del/Veh (s)	0.1	0.1	0.2	0.0	0.2	0.1
Total Del/Veh (s)	1.4	8.8	6.6	15.1	13.0	11.4

39: Tribe at the Glen & Old Bridge Road Performance by movement

Movement	EBT	EBR	WBT	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.1	0.0
Total Del/Veh (s)	4.1	2.5	4.0	0.4	4.0

43: Old Bridge Road Performance by movement

Movement	EBT	WBT	WBR	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	4.0	12.5	2.2	2.3	128.6	10.3

45: Performance by movement

Movement	NWL	SWT	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	4.4	0.1	1.7

46: Prince William Pkwy Performance by movement

Movement	SET	SER	NWT	All
Denied Del/Veh (s)	0.0	0.1	0.0	0.0
Total Del/Veh (s)	1.9	1.1	3.5	2.5

Total Network Performance

Denied Del/Veh (s)	5.6
Total Del/Veh (s)	64.8

Intersection: 1: Black Forest Ln/Reids Prospect Dr & Prince William Pkwy

Movement	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	SB
Directions Served	UL	T	T	TR	UL	T	T	T	R	LTR	LTR
Maximum Queue (ft)	67	317	243	122	136	34	32	27	10	29	302
Average Queue (ft)	20	59	40	16	63	2	2	2	0	3	283
95th Queue (ft)	51	298	241	126	163	16	16	16	6	16	324
Link Distance (ft)		725	725	725		1121	1121	1121		323	294
Upstream Blk Time (%)		0	0								89
Queuing Penalty (veh)		0	0								0
Storage Bay Dist (ft)	465				450				450		
Storage Blk Time (%)		1									
Queuing Penalty (veh)		0									

Intersection: 2: Ridgewood Center Drive/Laurel Hills Drive & Prince William Pkwy

Movement	EB	EB	EB	WB	WB	WB	WB	NB	SB
Directions Served	T	T	TR	UL	T	T	TR	LTR	LTR
Maximum Queue (ft)	1076	1066	989	188	335	339	377	96	50
Average Queue (ft)	694	631	483	88	72	83	101	45	7
95th Queue (ft)	1208	1187	988	157	220	236	268	90	31
Link Distance (ft)	1121	1121	1121		1046	1046	1046	414	441
Upstream Blk Time (%)	2	1	0						
Queuing Penalty (veh)	16	5	1						
Storage Bay Dist (ft)				470					
Storage Blk Time (%)	27								
Queuing Penalty (veh)	0								

Intersection: 3: Prince William Parkway & Seeton Square

Movement	WB	SB
Directions Served	TR	R
Maximum Queue (ft)	7	64
Average Queue (ft)	0	24
95th Queue (ft)	7	53
Link Distance (ft)	171	116
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Prince William Pkwy & Old Bridge Road

Movement	WB	WB	WB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	L	R	R	R	T	T	T	R	L	L	L
Maximum Queue (ft)	161	158	164	176	181	273	272	267	114	331	345	304
Average Queue (ft)	142	141	54	75	102	208	211	220	10	258	269	221
95th Queue (ft)	156	152	164	188	212	293	300	302	86	329	347	305
Link Distance (ft)	131	131	131	131	131	244	244	244	244	285	285	285
Upstream Blk Time (%)	46	51	6	8	14	3	3	5	0	5	8	2
Queuing Penalty (veh)	161	179	20	29	49	13	13	20	0	26	39	7
Storage Bay Dist (ft)												
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 4: Prince William Pkwy & Old Bridge Road

Movement	SB	SB	SB
Directions Served	T	T	T
Maximum Queue (ft)	219	246	267
Average Queue (ft)	76	89	102
95th Queue (ft)	176	210	229
Link Distance (ft)	285	285	285
Upstream Blk Time (%)		0	0
Queuing Penalty (veh)		0	0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: Tribe at the Glen & Old Bridge Road

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 6: Troupe Street/Glen Shopping Ctr & Old Bridge Road

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	T	T	TR	L	T	T	TR	L	T	R	L
Maximum Queue (ft)	250	341	353	309	246	508	360	352	160	97	235	119
Average Queue (ft)	113	262	259	124	82	241	187	191	74	33	94	46
95th Queue (ft)	233	354	348	275	179	408	320	319	143	76	180	99
Link Distance (ft)		311	311	311		644	644	644		623	623	324
Upstream Blk Time (%)		6	5	1		0						
Queuing Penalty (veh)		30	26	4		0						
Storage Bay Dist (ft)	175				335				210			
Storage Blk Time (%)	1	32				5			0			
Queuing Penalty (veh)	5	35				4			0			

Intersection: 6: Troupe Street/Glen Shopping Ctr & Old Bridge Road

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	63	111
Average Queue (ft)	12	48
95th Queue (ft)	41	90
Link Distance (ft)	324	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		100
Storage Blk Time (%)	0	1
Queuing Penalty (veh)	0	0

Intersection: 7: Titania Way/Touchstone Circle & Old Bridge Road

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	SB	SB
Directions Served	L	T	T	R	L	T	T	R	LTR	LT	R
Maximum Queue (ft)	163	444	457	29	92	494	486	176	97	136	86
Average Queue (ft)	48	79	92	2	11	268	262	18	29	61	30
95th Queue (ft)	112	265	274	14	58	470	457	100	71	114	65
Link Distance (ft)		644	644	644		610	610		214	241	241
Upstream Blk Time (%)		0	0								
Queuing Penalty (veh)		0	0								
Storage Bay Dist (ft)	145				225			440			
Storage Blk Time (%)	0	2				11	1				
Queuing Penalty (veh)	1	1				2	1				

Intersection: 8: Old Bridge Road & Brussels Way

Movement	EB	EB	WB	WB	SB
Directions Served	T	T	T	T	R
Maximum Queue (ft)	52	58	66	65	38
Average Queue (ft)	4	4	4	3	8
95th Queue (ft)	25	27	30	24	27
Link Distance (ft)	610	610	422	422	211
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 9: Old Bridge Ln/Church Entr & Old Bridge Road

Movement	EB	EB	EB	EB	WB	WB	WB	NB	SB
Directions Served	UL	T	T	R	UL	T	T	LTR	L
Maximum Queue (ft)	24	59	64	6	42	102	115	241	25
Average Queue (ft)	4	6	5	0	9	9	8	108	2
95th Queue (ft)	16	32	31	3	31	51	52	266	12
Link Distance (ft)		422	422			489	489	321	184
Upstream Blk Time (%)								5	
Queuing Penalty (veh)								0	
Storage Bay Dist (ft)	365			340	225				
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 10: Rockwood Lane/Westridge Drive & Old Bridge Road

Movement	EB	EB	EB	WB	WB	WB	WB	SB	SB
Directions Served	UL	T	TR	UL	T	T	R	LT	R
Maximum Queue (ft)	222	293	305	96	500	484	60	250	304
Average Queue (ft)	119	98	106	6	309	279	21	119	135
95th Queue (ft)	202	214	213	64	464	434	47	207	245
Link Distance (ft)		489	489		1172	1172		438	438
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	165			300			1000		
Storage Blk Time (%)	4	1			10				
Queuing Penalty (veh)	31	3			1				

Intersection: 11: Exxon/Glen Shopping Ctr & Touchstone Cir

Movement	NB	SB
Directions Served	L	T
Maximum Queue (ft)	2	5
Average Queue (ft)	0	1
95th Queue (ft)	2	10
Link Distance (ft)	213	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	115	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 13: Touchstone Cir & Seeton Square/Merchant Plaza

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	29	45	20	8
Average Queue (ft)	5	17	1	0
95th Queue (ft)	23	44	10	5
Link Distance (ft)	102	196		
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			100	250
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 14: Touchstone Circle & Merchant Plaza/CVS

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	LT	TR	LT	TR
Maximum Queue (ft)	47	25	32	6	5	10
Average Queue (ft)	18	4	2	0	0	0
95th Queue (ft)	43	19	16	3	4	6
Link Distance (ft)	167	38	241	241	191	191
Upstream Blk Time (%)	0					
Queuing Penalty (veh)	0					
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 15: Prince William Pkwy & Chinn Park Dr

Movement	WB	NB	NB	NB	SB	SB
Directions Served	R	T	T	TR	T	T
Maximum Queue (ft)	28	3	5	41	4	4
Average Queue (ft)	7	0	0	3	0	0
95th Queue (ft)	20	3	5	22	4	4
Link Distance (ft)	628	874	874	874	178	178
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 16: Prince William Pkwy & Kenwood Dr./ School Entrance

Movement	EB	WB	WB	NB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	LT	R	UL	T	T	T	R	UL	T	T	T
Maximum Queue (ft)	206	96	66	64	376	381	381	43	126	420	414	452
Average Queue (ft)	91	30	20	21	145	153	142	12	27	229	247	280
95th Queue (ft)	175	73	51	51	277	297	290	36	82	384	390	426
Link Distance (ft)	512	287	287		701	701	701			874	874	874
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)				195				245	230			
Storage Blk Time (%)					3		2			9		17
Queuing Penalty (veh)					1		1			4		9

Intersection: 16: Prince William Pkwy & Kenwood Dr./ School Entrance

Movement	SB
Directions Served	R
Maximum Queue (ft)	77
Average Queue (ft)	6
95th Queue (ft)	55
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	235
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 17: Prince William Pkwy & Hillendale Road

Movement	EB	EB	EB	NB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	L	R	UL	L	T	T	T	T	T	T	R
Maximum Queue (ft)	170	350	311	137	187	282	243	228	554	571	557	396
Average Queue (ft)	105	181	154	38	104	169	123	114	242	251	248	49
95th Queue (ft)	207	290	263	116	167	266	220	201	487	486	477	192
Link Distance (ft)		517	517		641	641	641	641	701	701	701	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	125			475								500
Storage Blk Time (%)	1	28							5		1	
Queuing Penalty (veh)	3	52							0		3	

Intersection: 18: Library/Fitness Ctr/Troupe Street & Chinn Park Dr

Movement	EB	EB	WB	NB	NB	SB	SB
Directions Served	LT	R	LTR	L	TR	L	TR
Maximum Queue (ft)	50	2	17	28	62	51	107
Average Queue (ft)	10	0	1	7	19	9	43
95th Queue (ft)	38	2	9	25	46	35	80
Link Distance (ft)	628	628	407	108	108	623	623
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 21: Old Bridge Rd & Touchstone Circle

Movement	SB
Directions Served	R
Maximum Queue (ft)	60
Average Queue (ft)	27
95th Queue (ft)	51
Link Distance (ft)	82
Upstream Blk Time (%)	0
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 34: Prince William Pkwy & Seeton Square

Movement	SB	SE	SE	SE	SE	SE	NW	NW
Directions Served	>	T	T	T	T	T	T	T
Maximum Queue (ft)	38	66	86	52	103	15	40	54
Average Queue (ft)	2	9	10	4	4	1	1	2
95th Queue (ft)	23	41	47	28	105	9	36	38
Link Distance (ft)	236				1046	1046	285	285
Upstream Blk Time (%)					0		0	0
Queuing Penalty (veh)					0		1	1
Storage Bay Dist (ft)		150	150	150				
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 39: Tribe at the Glen & Old Bridge Road

Movement	EB	EB	EB	WB	WB	WB	NB
Directions Served	T	T	TR	T	T	T	R
Maximum Queue (ft)	126	100	73	126	66	4	12
Average Queue (ft)	15	10	4	14	6	0	1
95th Queue (ft)	70	58	39	85	75	4	10
Link Distance (ft)	246	246	246		311	311	274
Upstream Blk Time (%)					1		
Queuing Penalty (veh)					3		
Storage Bay Dist (ft)				120			
Storage Blk Time (%)				2			
Queuing Penalty (veh)				7			

Intersection: 43: Old Bridge Road

Movement	EB	EB	EB	WB	WB	WB	WB	WB	SB
Directions Served	T	T	T	T	T	T	T	TR	R
Maximum Queue (ft)	24	36	104	174	256	76	101	119	169
Average Queue (ft)	1	1	6	109	146	8	15	23	61
95th Queue (ft)	16	20	51	204	261	40	61	82	163
Link Distance (ft)	131	131	131		246	246	246	246	290
Upstream Blk Time (%)	0	0	0		4				3
Queuing Penalty (veh)	0	0	0		19				1
Storage Bay Dist (ft)				75					
Storage Blk Time (%)				25	39				
Queuing Penalty (veh)				86	132				

Intersection: 45:

Movement	NW
Directions Served	L
Maximum Queue (ft)	44
Average Queue (ft)	19
95th Queue (ft)	40
Link Distance (ft)	624
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 46: Prince William Pkwy

Movement	NW	NW	NW	NW
Directions Served	T	T	T	T
Maximum Queue (ft)	116	127	136	14
Average Queue (ft)	17	24	37	1
95th Queue (ft)	72	86	107	12
Link Distance (ft)	178	178	178	178
Upstream Blk Time (%)		0	0	
Queuing Penalty (veh)		0	0	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 1044

Intersection															
Int Delay, s/veh	3.8														
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↕ ↑↑↑				↕ ↑↑↑			↕		↕			↕	
Traffic Vol, veh/h	4	8	3075	0	3	10	3279	91	1	0	14	33	0	15	
Future Vol, veh/h	4	8	3075	0	3	10	3279	91	1	0	14	33	0	15	
Conflicting Peds, #/hr	0	2	0	1	1	0	0	2	0	0	1	0	0	2	
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop	
RT Channelized	-	-	-	None	-	-	-	None	-	-	None	-	-	None	
Storage Length	-	465	-	-	-	450	-	450	-	-	-	-	-	-	
Veh in Median Storage, #	-	-	0	-	-	-	0	-	-	0	-	-	0	-	
Grade, %	-	-	1	-	-	-	-1	-	-	-1	-	-	5	-	
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98	98	98	
Heavy Vehicles, %	0	5	6	0	0	0	6	4	0	0	0	0	0	0	
Mvmt Flow	4	8	3138	0	3	10	3346	93	1	0	14	34	0	15	

Major/Minor	Major1			Major2			Minor1			Minor2				
Conflicting Flow All	2443	3441	0	0	2291	3139	0	0	4529	6630	1571	4654	6537	1677
Stage 1	-	-	-	-	-	-	-	-	3163	3163	-	3374	3374	-
Stage 2	-	-	-	-	-	-	-	-	1366	3467	-	1280	3163	-
Critical Hdwy	5.6	5.4	-	-	5.6	5.3	-	-	6.2	6.3	7	7.4	7.5	7.6
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	7.1	5.3	-	8.3	6.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	6.5	5.3	-	7.7	6.5	-
Follow-up Hdwy	2.3	3.15	-	-	2.3	3.1	-	-	3.8	4	3.9	3.8	4	3.9
Pot Cap-1 Maneuver	69	21	-	-	84	33	-	-	2	0	91	0	0	58
Stage 1	-	-	-	-	-	-	-	-	6	31	-	~1	8	-
Stage 2	-	-	-	-	-	-	-	-	152	22	-	112	11	-
Platoon blocked, %			-	-			-	-						
Mov Cap-1 Maneuver	26	26	-	-	38	38	-	-	~1	0	91	0	0	58
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	~1	0	-	0	0	-
Stage 1	-	-	-	-	-	-	-	-	3	17	-	~1	5	-
Stage 2	-	-	-	-	-	-	-	-	73	14	-	51	6	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.9	0.6	\$ 707	189.6
HCM LOS			F	F

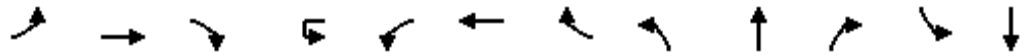
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	13	26	-	-	38	-	-	58
HCM Lane V/C Ratio	1.177	0.471	-	-	0.349	-	-	0.844
HCM Control Delay (s)	\$ 707	231.5	-	-	145.7	-	-	189.6
HCM Lane LOS	F	F	-	-	F	-	-	F
HCM 95th %tile Q(veh)	2.5	1.4	-	-	1.2	-	-	3.8

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM Signalized Intersection Capacity Analysis

2: Ridgewood Center Drive/Laurel Hills Drive & Prince William Pkwy

05/30/2024



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations	↖	↑↑↑			↖	↑↑↑			↕			↕
Traffic Volume (vph)	3	3111	9	13	17	3350	6	28	0	29	10	0
Future Volume (vph)	3	3111	9	13	17	3350	6	28	0	29	10	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	10	10
Grade (%)		0%				0%			0%			5%
Total Lost time (s)	6.5	6.0			6.5	6.0			6.5			6.5
Lane Util. Factor	1.00	0.91			1.00	0.91			1.00			1.00
Frbp, ped/bikes	1.00	1.00			1.00	1.00			0.99			0.98
Flpb, ped/bikes	1.00	1.00			1.00	1.00			1.00			1.00
Frt	1.00	1.00			1.00	1.00			0.93			0.99
Flt Protected	0.95	1.00			0.95	1.00			0.98			0.96
Satd. Flow (prot)	1805	4938			1805	4930			1712			1486
Flt Permitted	0.95	1.00			0.48	1.00			0.98			0.96
Satd. Flow (perm)	1805	4938			905	4930			1712			1486
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	3	3382	10	14	18	3641	7	30	0	32	11	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	60	0	0	12
Lane Group Flow (vph)	3	3392	0	0	32	3648	0	0	2	0	0	0
Confl. Peds. (#/hr)	8		1		1		10			3	2	
Heavy Vehicles (%)	0%	5%	0%	0%	0%	5%	100%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		custom	Prot	NA		Split	NA		Split	NA
Protected Phases	5	2			1	6		4	4		3	3
Permitted Phases				1								
Actuated Green, G (s)	1.4	119.3			8.4	126.3			4.6			2.2
Effective Green, g (s)	1.4	119.3			8.4	126.3			4.6			2.2
Actuated g/C Ratio	0.01	0.75			0.05	0.79			0.03			0.01
Clearance Time (s)	6.5	6.0			6.5	6.0			6.5			6.5
Vehicle Extension (s)	3.0	3.5			3.0	3.5			3.0			3.0
Lane Grp Cap (vph)	15	3681			47	3891			49			20
v/s Ratio Prot	0.00	0.69				c0.74			c0.00			c0.00
v/s Ratio Perm					c0.04							
v/c Ratio	0.20	0.92			0.68	0.94			0.04			0.01
Uniform Delay, d1	78.7	16.5			74.5	13.7			75.5			77.8
Progression Factor	1.00	1.00			0.95	1.65			1.00			1.00
Incremental Delay, d2	6.5	5.0			3.6	0.6			0.3			0.2
Delay (s)	85.2	21.6			74.5	23.1			75.9			78.0
Level of Service	F	C			E	C			E			E
Approach Delay (s)		21.6				23.6			75.9			78.0
Approach LOS		C				C			E			E

Intersection Summary		
HCM 2000 Control Delay	23.2	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.91	C
Actuated Cycle Length (s)	160.0	Sum of lost time (s)
Intersection Capacity Utilization	81.9%	25.5
Analysis Period (min)	15	ICU Level of Service
		D

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 2: Ridgewood Center Drive/Laurel Hills Drive & Prince William Pkwy

05/30/2024

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	1
Future Volume (vph)	1
Ideal Flow (vphpl)	1900
Lane Width	10
Grade (%)	
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	1
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	8
Heavy Vehicles (%)	100%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM 6th TWSC
 3: Prince William Parkway & Seeton Square

05/30/2024

Intersection						
Int Delay, s/veh	2.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			↑↑↑↑	↑		↑
Traffic Vol, veh/h	0	0	3340	65	0	46
Future Vol, veh/h	0	0	3340	65	0	46
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	Free	-	Stop
Storage Length	-	-	-	100	-	0
Veh in Median Storage, #	-	1	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	3630	71	0	50

Major/Minor	Major2	Minor2
Conflicting Flow All	-	0 - 1815
Stage 1	-	- -
Stage 2	-	- -
Critical Hdwy	-	- 7.14
Critical Hdwy Stg 1	-	- -
Critical Hdwy Stg 2	-	- -
Follow-up Hdwy	-	- 3.92
Pot Cap-1 Maneuver	-	0 0 58
Stage 1	-	0 0 -
Stage 2	-	0 0 -
Platoon blocked, %	-	-
Mov Cap-1 Maneuver	-	- - 58
Mov Cap-2 Maneuver	-	- - -
Stage 1	-	- - -
Stage 2	-	- - -

Approach	WB	SB
HCM Control Delay, s	0	194.3
HCM LOS		F

Minor Lane/Major Mvmt	WBT	SBLn1
Capacity (veh/h)	-	58
HCM Lane V/C Ratio	-	0.862
HCM Control Delay (s)	-	194.3
HCM Lane LOS	-	F
HCM 95th %tile Q(veh)	-	3.9

HCM 6th Signalized Intersection Summary

4: Prince William Pkwy & Old Bridge Road

07/30/2024



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	833	1641	1764	450	1460	1664
Future Volume (veh/h)	833	1641	1764	450	1460	1664
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1817	1802	1805	1835	1811	1841
Adj Flow Rate, veh/h	868	1709	1838	469	1521	1733
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	4	5	6	4	6	4
Cap, veh/h	1712	2869	1854	1378	1526	3712
Arrive On Green	0.51	0.51	0.38	0.38	0.31	0.74
Sat Flow, veh/h	3357	3482	5091	1555	4864	5191
Grp Volume(v), veh/h	868	1709	1838	469	1521	1733
Grp Sat Flow(s),veh/h/ln	1679	1161	1643	1555	1621	1675
Q Serve(g_s), s	27.3	0.0	59.4	7.9	50.0	22.0
Cycle Q Clear(g_c), s	27.3	0.0	59.4	7.9	50.0	22.0
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	1712	2869	1854	1378	1526	3712
V/C Ratio(X)	0.51	0.60	0.99	0.34	1.00	0.47
Avail Cap(c_a), veh/h	1712	2869	1854	1378	1526	3712
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.9	4.9	49.6	1.5	54.8	8.3
Incr Delay (d2), s/veh	1.1	0.9	18.9	0.7	22.2	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.9	25.5	26.9	16.5	23.0	7.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	27.0	5.8	68.6	2.2	77.0	8.8
LnGrp LOS	C	A	E	A	E	A
Approach Vol, veh/h	2577		2307			3254
Approach Delay, s/veh	12.9		55.1			40.7
Approach LOS	B		E			D
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		125.7		93.8	57.7	68.0
Change Period (Y+Rc), s		* 7.5		10.5	* 7.5	7.8
Max Green Setting (Gmax), s		* 1.2E2		25.5	* 49	60.2
Max Q Clear Time (g_c+I1), s		24.0		29.3	52.0	61.4
Green Ext Time (p_c), s		6.3		0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	36.0
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
 User approved changes to right turn type.

HCM 6th TWSC
5: Tribbe at the Glen & Old Bridge Rd

05/30/2024

Intersection						
Int Delay, s/veh	0.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑					↑
Traffic Vol, veh/h	1815	98	0	0	0	52
Future Vol, veh/h	1815	98	0	0	0	52
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Free	-	None	-	Stop
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	-3	-	-	0	2	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	6	0	0	4	0	0
Mvmt Flow	1973	107	0	0	0	57























Major/Minor	Major1		Minor1	
Conflicting Flow All	0	-	-	987
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	-	7.3
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	-	3.9
Pot Cap-1 Maneuver	-	0	0	203
Stage 1	-	0	0	-
Stage 2	-	0	0	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	203
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	NB
HCM Control Delay, s	0	29.4
HCM LOS		D

Minor Lane/Major Mvmt	NBLn1	EBT
Capacity (veh/h)	203	-
HCM Lane V/C Ratio	0.278	-
HCM Control Delay (s)	29.4	-
HCM Lane LOS	D	-
HCM 95th %tile Q(veh)	1.1	-

HCM Signalized Intersection Capacity Analysis
 6: Troupe Street/Glen Shopping Ctr & Old Bridge Road

07/30/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	313	1571	94	137	1969	179	214	27	283	138	22	226
Future Volume (vph)	313	1571	94	137	1969	179	214	27	283	138	22	226
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			7%			-1%			0%	
Total Lost time (s)	7.0	6.5		7.0	6.0		8.0	8.0	7.0	7.0	7.0	7.0
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00	1.00	1.00	1.00	1.00
Frbp, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1823	4901		1598	4749		1726	1909	1455	1802	1900	1611
Flt Permitted	0.95	1.00		0.95	1.00		0.31	1.00	1.00	0.74	1.00	1.00
Satd. Flow (perm)	1823	4901		1598	4749		572	1909	1455	1400	1900	1611
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	340	1708	102	149	2140	195	233	29	308	150	24	246
RTOR Reduction (vph)	0	4	0	0	6	0	0	0	86	0	0	93
Lane Group Flow (vph)	340	1806	0	149	2329	0	233	29	222	150	24	153
Confl. Peds. (#/hr)			3			6	3		2	2		7
Heavy Vehicles (%)	0%	6%	4%	9%	4%	1%	5%	0%	11%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA		pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	5	2		1	6		7	4	1	3	8	5
Permitted Phases							4		4	8		8
Actuated Green, G (s)	36.7	74.5		29.2	67.5		34.8	14.9	44.1	18.6	5.7	42.4
Effective Green, g (s)	36.7	74.5		29.2	67.5		34.8	14.9	44.1	18.6	5.7	42.4
Actuated g/C Ratio	0.23	0.47		0.18	0.42		0.22	0.09	0.28	0.12	0.04	0.26
Clearance Time (s)	7.0	6.5		7.0	6.0		8.0	8.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	418	2282		291	2003		283	177	401	195	67	497
v/s Ratio Prot	c0.19	c0.37		0.09	c0.49		c0.11	0.02	0.10	0.06	0.01	0.07
v/s Ratio Perm							c0.07		0.05	0.03		0.02
v/c Ratio	0.81	0.79		0.51	1.16		0.82	0.16	0.55	0.77	0.36	0.31
Uniform Delay, d1	58.4	36.2		59.0	46.2		56.9	66.8	49.5	68.2	75.4	47.1
Progression Factor	1.19	0.59		1.34	0.56		1.14	1.13	1.44	1.00	1.00	1.00
Incremental Delay, d2	6.8	1.6		0.1	73.9		15.9	0.4	1.5	16.6	3.3	0.4
Delay (s)	76.5	23.1		79.2	99.7		80.8	75.7	72.8	84.7	78.6	47.4
Level of Service	E	C		E	F		F	E	E	F	E	D
Approach Delay (s)		31.5			98.5			76.2			62.5	
Approach LOS		C			F			E			E	
Intersection Summary												
HCM 2000 Control Delay			68.0				HCM 2000 Level of Service			E		
HCM 2000 Volume to Capacity ratio			1.03									
Actuated Cycle Length (s)			160.0			Sum of lost time (s)			28.5			
Intersection Capacity Utilization			96.4%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
 7: Titania Way/Touchstone Circle & Old Bridge Road

07/30/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑	↗		↕			↕	↗
Traffic Volume (vph)	172	1913	38	20	2129	142	25	1	23	198	7	155
Future Volume (vph)	172	1913	38	20	2129	142	25	1	23	198	7	155
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		4%			-7%			-3%			2%	
Total Lost time (s)	8.5	8.5	8.5	8.5	8.5	8.5		7.5			7.5	7.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00			1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98		0.99			1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00			1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		0.94			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.98			0.95	1.00
Satd. Flow (prot)	1638	3338	1432	1868	3593	1573		1696			1723	1482
Flt Permitted	0.04	1.00	1.00	0.05	1.00	1.00		0.64			0.70	1.00
Satd. Flow (perm)	71	3338	1432	89	3593	1573		1111			1257	1482
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	181	2014	40	21	2241	149	26	1	24	208	7	163
RTOR Reduction (vph)	0	0	15	0	0	53	0	19	0	0	0	96
Lane Group Flow (vph)	181	2014	25	21	2241	96	0	32	0	0	215	67
Confl. Peds. (#/hr)	4		1	1		6			3	2		4
Heavy Vehicles (%)	8%	6%	8%	0%	4%	4%	6%	0%	0%	4%	0%	6%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6		6	2		2	4			8		8
Actuated Green, G (s)	113.2	101.4	101.4	91.8	88.5	88.5		30.8			30.8	30.8
Effective Green, g (s)	113.2	101.4	101.4	91.8	88.5	88.5		30.8			30.8	30.8
Actuated g/C Ratio	0.71	0.63	0.63	0.57	0.55	0.55		0.19			0.19	0.19
Clearance Time (s)	8.5	8.5	8.5	8.5	8.5	8.5		7.5			7.5	7.5
Vehicle Extension (s)	2.0	8.0	8.0	2.0	8.0	8.0		2.0			2.0	2.0
Lane Grp Cap (vph)	208	2115	907	87	1987	870		213			241	285
v/s Ratio Prot	c0.09	c0.60		0.00	c0.62							
v/s Ratio Perm	0.52		0.02	0.13		0.06		0.03			c0.17	0.05
v/c Ratio	0.87	0.95	0.03	0.24	1.13	0.11		0.15			0.89	0.23
Uniform Delay, d1	57.3	27.1	10.9	27.8	35.8	17.0		53.7			63.0	54.6
Progression Factor	1.29	0.63	1.00	0.83	1.08	1.00		1.00			1.00	1.00
Incremental Delay, d2	22.0	8.3	0.0	0.0	58.2	0.0		0.1			30.4	0.2
Delay (s)	96.2	25.3	11.0	23.1	96.9	17.1		53.8			93.4	54.8
Level of Service	F	C	B	C	F	B		D			F	D
Approach Delay (s)		30.8			91.4			53.8			76.8	
Approach LOS		C			F			D			E	

Intersection Summary

HCM 2000 Control Delay	63.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	24.5
Intersection Capacity Utilization	108.1%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th TWSC
8: Old Bridge Road & Brussels Way

05/30/2024

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↑		↑
Traffic Vol, veh/h	0	2134	2278	22	0	13
Future Vol, veh/h	0	2134	2278	22	0	13
Conflicting Peds, #/hr	7	0	0	7	0	7
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	225	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	7	-1	-	1	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	6	4	0	0	0
Mvmt Flow	0	2320	2476	24	0	14

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	-	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	-
Pot Cap-1 Maneuver	0	-	-
Stage 1	0	-	-
Stage 2	0	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	29.8
HCM LOS			D

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	159
HCM Lane V/C Ratio	-	-	-	0.089
HCM Control Delay (s)	-	-	-	29.8
HCM Lane LOS	-	-	-	D
HCM 95th %tile Q(veh)	-	-	-	0.3

HCM 6th TWSC
 9: Old Bridge Ln/Church Entr & Old Bridge Road

05/30/2024

Intersection														
Int Delay, s/veh	27.2													
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↕↕	↕		↕	↕↕	↕		↕↕		↕		↕
Traffic Vol, veh/h	1	9	2049	75	1	27	2285	1	15	0	22	3	0	0
Future Vol, veh/h	1	9	2049	75	1	27	2285	1	15	0	22	3	0	0
Conflicting Peds, #/hr	0	5	0	4	0	4	0	5	0	0	4	0	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	-	None	-	-	-	None	-	-	None	-	-	None
Storage Length	-	365	-	340	-	225	-	230	-	-	-	0	-	0
Veh in Median Storage, #	-	-	0	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-	1	-	-	-	3	-	-	0	-	-	-1	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	0	0	6	1	0	7	4	0	0	0	0	0	0	0
Mvmt Flow	1	9	2112	77	1	28	2356	1	15	0	23	3	0	0

Major/Minor	Major1		Major2		Minor1		Minor2							
Conflicting Flow All	2356	2362	0	0	2112	2193	0	0	3377	4556	1064	3499	-	1188
Stage 1	-	-	-	-	-	-	-	-	2136	2136	-	2419	-	-
Stage 2	-	-	-	-	-	-	-	-	1241	2420	-	1080	-	-
Critical Hdwy	6.4	4.1	-	-	6.4	4.24	-	-	7.5	6.5	6.9	7.3	-	6.8
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	6.5	5.5	-	6.3	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	6.5	5.5	-	6.3	-	-
Follow-up Hdwy	2.5	2.2	-	-	2.5	2.27	-	-	3.5	4	3.3	3.5	-	3.3
Pot Cap-1 Maneuver	44	210	-	-	64	221	-	-	~3	1	222	~3	0	190
Stage 1	-	-	-	-	-	-	-	-	52	90	-	39	0	-
Stage 2	-	-	-	-	-	-	-	-	188	64	-	251	0	-
Platoon blocked, %			-	-			-	-						
Mov Cap-1 Maneuver	152	152	-	-	200	200	-	-	~3	1	221	~2	-	189
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	~3	1	-	~2	-	-
Stage 1	-	-	-	-	-	-	-	-	48	84	-	36	-	-
Stage 2	-	-	-	-	-	-	-	-	160	55	-	210	-	-

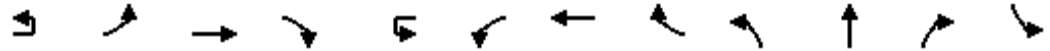
Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.3	\$ 3024.8	\$ 3053.9
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	7	152	-	-	200	-	-	2	-
HCM Lane V/C Ratio	5.449	0.068	-	-	0.144	-	-	1.546	-
HCM Control Delay (s)	\$ 3024.8	30.4	-	-	26	-	-	\$ 3053.9	0
HCM Lane LOS	F	D	-	-	D	-	-	F	A
HCM 95th %tile Q(veh)	6.2	0.2	-	-	0.5	-	-	1.1	-

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM Signalized Intersection Capacity Analysis
 10: Rockwood Lane/Westridge Drive & Old Bridge Road

05/30/2024



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations		↖	↕			↖	↕	↗		↕		
Traffic Volume (vph)	8	315	1751	1	9	4	2036	249	0	0	1	140
Future Volume (vph)	8	315	1751	1	9	4	2036	249	0	0	1	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)			1%				3%			0%		
Total Lost time (s)		8.6	8.6			8.6	8.6	8.6		7.3		
Lane Util. Factor		1.00	0.95			1.00	0.95	1.00		1.00		
Frbp, ped/bikes		1.00	1.00			1.00	1.00	0.98		0.98		
Flpb, ped/bikes		1.00	1.00			1.00	1.00	1.00		1.00		
Frt		1.00	1.00			1.00	1.00	0.85		0.86		
Flt Protected		0.95	1.00			0.95	1.00	1.00		1.00		
Satd. Flow (prot)		1681	3388			1777	3387	1515		1606		
Flt Permitted		0.04	1.00			0.09	1.00	1.00		1.00		
Satd. Flow (perm)		73	3388			166	3387	1515		1606		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	9	342	1903	1	10	4	2213	271	0	0	1	152
RTOR Reduction (vph)	0	0	0	0	0	0	0	121	0	1	0	0
Lane Group Flow (vph)	0	351	1904	0	0	14	2213	150	0	0	0	0
Confl. Peds. (#/hr)		3		5		5		5			7	2
Heavy Vehicles (%)	0%	7%	6%	0%	0%	0%	5%	3%	0%	0%	0%	2%
Turn Type	custom	pm+pt	NA		Perm	Perm	NA	Perm		NA		Perm
Protected Phases		1	6				2			8		
Permitted Phases	1!	6			2	2		2	8			4
Actuated Green, G (s)		115.8	115.8			88.8	88.8	88.8		28.3		
Effective Green, g (s)		115.8	115.8			88.8	88.8	88.8		28.3		
Actuated g/C Ratio		0.72	0.72			0.55	0.55	0.55		0.18		
Clearance Time (s)		8.6	8.6			8.6	8.6	8.6		7.3		
Vehicle Extension (s)		3.0	4.0			4.0	4.0	4.0		3.5		
Lane Grp Cap (vph)		237	2452			92	1879	840		284		
v/s Ratio Prot		c0.17	0.56				0.65			0.00		
v/s Ratio Perm		c0.90				0.08		0.10				
v/c Ratio		1.48	0.78			0.15	1.18	0.18		0.00		
Uniform Delay, d1		60.4	13.9			17.3	35.6	17.6		54.2		
Progression Factor		0.94	1.70			1.00	1.00	1.00		1.00		
Incremental Delay, d2		228.7	1.4			3.5	85.9	0.5		0.0		
Delay (s)		285.5	25.1			20.8	121.5	18.1		54.2		
Level of Service		F	C			C	F	B		D		
Approach Delay (s)			65.6				109.7			54.2		
Approach LOS			E				F			D		

Intersection Summary

HCM 2000 Control Delay	85.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.33		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	24.5
Intersection Capacity Utilization	127.3%	ICU Level of Service	H
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

10: Rockwood Lane/Westridge Drive & Old Bridge Road

05/30/2024



Movement	SBT	SBR
Lane Configurations	↕	↗
Traffic Volume (vph)	0	270
Future Volume (vph)	0	270
Ideal Flow (vphpl)	1900	1900
Grade (%)	-1%	
Total Lost time (s)	7.3	8.6
Lane Util. Factor	1.00	1.00
Frpb, ped/bikes	1.00	0.99
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	0.95	1.00
Satd. Flow (prot)	1773	1577
Flt Permitted	0.76	1.00
Satd. Flow (perm)	1413	1577
Peak-hour factor, PHF	0.92	0.92
Adj. Flow (vph)	0	293
RTOR Reduction (vph)	0	27
Lane Group Flow (vph)	152	266
Confl. Peds. (#/hr)		3
Heavy Vehicles (%)	0%	2%
Turn Type	NA	pm+ov
Protected Phases	4	1!
Permitted Phases		4
Actuated Green, G (s)	28.3	46.7
Effective Green, g (s)	28.3	46.7
Actuated g/C Ratio	0.18	0.29
Clearance Time (s)	7.3	8.6
Vehicle Extension (s)	3.5	3.0
Lane Grp Cap (vph)	249	460
v/s Ratio Prot		0.07
v/s Ratio Perm	c0.11	0.10
v/c Ratio	0.61	0.58
Uniform Delay, d1	60.8	48.3
Progression Factor	1.00	1.00
Incremental Delay, d2	4.6	1.8
Delay (s)	65.4	50.0
Level of Service	E	D
Approach Delay (s)	55.3	
Approach LOS	E	
Intersection Summary		

Intersection												
Int Delay, s/veh	5.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗	↘	↗	↗		↗	↗
Traffic Vol, veh/h	0	0	43	0	0	110	28	20	24	0	62	27
Future Vol, veh/h	0	0	43	0	0	110	28	20	24	0	62	27
Conflicting Peds, #/hr	3	0	1	1	0	3	0	0	1	0	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Stop	-	-	Yield	-	-	Free	-	-	Free
Storage Length	-	-	0	-	-	0	115	-	100	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	2	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	5	1	0	2	0
Mvmt Flow	0	0	47	0	0	120	30	22	26	0	67	29

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	-	-	68	-	-	25	67	0	-	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.2	-	-	6.2	4.1	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.3	2.2	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	1001	0	0	1057	1547	-	0	0	-	0
Stage 1	0	0	-	0	0	-	-	-	0	0	-	0
Stage 2	0	0	-	0	0	-	-	-	0	0	-	0
Platoon blocked, %								-				-
Mov Cap-1 Maneuver	-	-	1000	-	-	1054	1547	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	8.8		8.9		4.3		0	
HCM LOS	A		A					

Minor Lane/Major Mvmt	NBL	NBT	EBLn1WBLn1	SBT
Capacity (veh/h)	1547	-	1000	1054
HCM Lane V/C Ratio	0.02	-	0.047	0.113
HCM Control Delay (s)	7.4	-	8.8	8.9
HCM Lane LOS	A	-	A	A
HCM 95th %tile Q(veh)	0.1	-	0.1	0.4

HCM 6th TWSC
 13: Touchstone Cir & Seeton Square/Merchant Plaza

05/30/2024

Intersection												
Int Delay, s/veh	5.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Vol, veh/h	6	7	8	39	10	19	26	37	39	7	12	3
Future Vol, veh/h	6	7	8	39	10	19	26	37	39	7	12	3
Conflicting Peds, #/hr	2	0	1	1	0	3	0	0	2	1	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-2	-	-	0	-	-	-1	-	-	2	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	7	1	0	0	0	13	0	20	2	0
Mvmt Flow	6	8	9	42	11	20	28	40	42	8	13	3

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	118	173	11	147	153	46	18	0	0	84	0	0
Stage 1	33	33	-	119	119	-	-	-	-	-	-	-
Stage 2	85	140	-	28	34	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.1	6.84	7.52	6.5	6.9	4.1	-	-	4.5	-	-
Critical Hdwy Stg 1	6.1	5.1	-	6.52	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.1	-	6.52	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.37	3.51	4	3.3	2.2	-	-	2.4	-	-
Pot Cap-1 Maneuver	863	738	1052	810	742	1020	1612	-	-	1389	-	-
Stage 1	988	875	-	876	801	-	-	-	-	-	-	-
Stage 2	928	797	-	988	871	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	818	718	1049	781	722	1016	1609	-	-	1387	-	-
Mov Cap-2 Maneuver	818	718	-	781	722	-	-	-	-	-	-	-
Stage 1	969	868	-	859	786	-	-	-	-	-	-	-
Stage 2	879	782	-	965	864	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	9.4		9.8		1.9		2.4	
HCM LOS	A		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1609	-	-	850	824	1387	-
HCM Lane V/C Ratio	0.017	-	-	0.027	0.089	0.005	-
HCM Control Delay (s)	7.3	-	-	9.4	9.8	7.6	-
HCM Lane LOS	A	-	-	A	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	0.3	0	-

Intersection												
Int Delay, s/veh	6.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	13	52	104	53	10	5	97	159	59	1	186	16
Future Vol, veh/h	13	52	104	53	10	5	97	159	59	1	186	16
Conflicting Peds, #/hr	0	0	5	2	0	4	3	0	6	4	0	3
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	-	-	-3	-	-	3	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	22	0	0	0	4	0
Mvmt Flow	14	57	113	58	11	5	105	173	64	1	202	17

Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	522	669	118	558	645	129	222	0	0	243	0	0
Stage 1	216	216	-	421	421	-	-	-	-	-	-	-
Stage 2	306	453	-	137	224	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.54	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.42	-	-	2.2	-	-
Pot Cap-1 Maneuver	442	381	918	417	393	903	1210	-	-	1335	-	-
Stage 1	772	728	-	586	592	-	-	-	-	-	-	-
Stage 2	684	573	-	858	722	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	393	340	912	292	351	895	1207	-	-	1328	-	-
Mov Cap-2 Maneuver	393	340	-	292	351	-	-	-	-	-	-	-
Stage 1	692	726	-	524	530	-	-	-	-	-	-	-
Stage 2	597	513	-	690	720	-	-	-	-	-	-	-

Approach	EB		WB			NB			SB		
HCM Control Delay, s	14.5		19.9			2.6			0		
HCM LOS	B		C								

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1207	-	-	563	315	1328	-	-
HCM Lane V/C Ratio	0.087	-	-	0.326	0.235	0.001	-	-
HCM Control Delay (s)	8.3	0.2	-	14.5	19.9	7.7	0	-
HCM Lane LOS	A	A	-	B	C	A	A	-
HCM 95th %tile Q(veh)	0.3	-	-	1.4	0.9	0	-	-

HCM Signalized Intersection Capacity Analysis

16: Prince William Pkwy & Kenwood Dr./

School Entrance

05/30/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations		↔			↔	↔			↑↑↑	↔		↔
Traffic Volume (vph)	60	1	121	14	1	9	2	130	2496	29	5	3
Future Volume (vph)	60	1	121	14	1	9	2	130	2496	29	5	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			1%				-2%			
Total Lost time (s)		6.6			5.8	8.8		8.8	8.8	5.8		8.8
Lane Util. Factor		1.00			1.00	1.00		1.00	0.91	1.00		1.00
Frbp, ped/bikes		0.99			1.00	1.00		1.00	1.00	0.98		1.00
Flpb, ped/bikes		1.00			1.00	1.00		1.00	1.00	1.00		1.00
Frt		0.91			1.00	0.85		1.00	1.00	0.85		1.00
Flt Protected		0.98			0.96	1.00		0.95	1.00	1.00		0.95
Satd. Flow (prot)		1622			1680	1488		1823	4989	1533		1763
Flt Permitted		0.98			0.96	1.00		0.04	1.00	1.00		0.04
Satd. Flow (perm)		1622			1680	1488		85	4989	1533		75
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	62	1	126	15	1	9	2	135	2600	30	5	3
RTOR Reduction (vph)	0	46	0	0	0	8	0	0	0	10	0	0
Lane Group Flow (vph)	0	144	0	0	16	1	0	137	2600	20	0	8
Confl. Peds. (#/hr)			4	2				2		2		
Heavy Vehicles (%)	5%	100%	0%	8%	0%	8%	0%	0%	5%	4%	0%	5%
Turn Type	Split	NA		Split	NA	pm+ov	custom	D.P+P	NA	pm+ov	custom	D.P+P
Protected Phases	3	3		4	4	5!		1	6	4		5
Permitted Phases						4	1	2		6	5!	6
Actuated Green, G (s)		18.3			8.0	12.2		103.7	99.5	107.5		103.7
Effective Green, g (s)		18.3			8.0	12.2		103.7	99.5	107.5		103.7
Actuated g/C Ratio		0.11			0.05	0.08		0.65	0.62	0.67		0.65
Clearance Time (s)		6.6			5.8	8.8		8.8	8.8	5.8		8.8
Vehicle Extension (s)		3.0			3.0	3.0		3.0	3.0	3.0		3.0
Lane Grp Cap (vph)		185			84	113		196	3102	1029		92
v/s Ratio Prot		c0.09			c0.01	0.00		c0.06	c0.52	0.00		0.00
v/s Ratio Perm						0.00		0.40		0.01		0.05
v/c Ratio		0.78			0.19	0.01		0.70	0.84	0.02		0.09
Uniform Delay, d1		68.9			72.9	68.3		44.2	23.9	8.7		21.4
Progression Factor		1.00			1.00	1.00		1.45	0.67	1.00		1.11
Incremental Delay, d2		18.4			1.1	0.0		7.7	2.1	0.0		0.0
Delay (s)		87.3			74.0	68.3		71.7	18.1	8.7		23.7
Level of Service		F			E	E		E	B	A		C
Approach Delay (s)		87.3			72.0				20.7			
Approach LOS		F			E				C			

Intersection Summary

HCM 2000 Control Delay	29.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	30.0
Intersection Capacity Utilization	101.0%	ICU Level of Service	G
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group



Movement	SBT	SBR
Lane Configurations	↑↑↑↑	↑
Traffic Volume (vph)	2318	118
Future Volume (vph)	2318	118
Ideal Flow (vphpl)	1900	1900
Grade (%)	1%	
Total Lost time (s)	8.8	6.6
Lane Util. Factor	0.91	1.00
Frpb, ped/bikes	1.00	0.98
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	4963	1500
Flt Permitted	1.00	1.00
Satd. Flow (perm)	4963	1500
Peak-hour factor, PHF	0.96	0.96
Adj. Flow (vph)	2415	123
RTOR Reduction (vph)	0	25
Lane Group Flow (vph)	2415	98
Confl. Peds. (#/hr)		2
Heavy Vehicles (%)	4%	5%
Turn Type	NA	pm+ov
Protected Phases	2	3
Permitted Phases		2
Actuated Green, G (s)	90.7	109.0
Effective Green, g (s)	90.7	109.0
Actuated g/C Ratio	0.57	0.68
Clearance Time (s)	8.8	6.6
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	2813	1021
v/s Ratio Prot	0.49	0.01
v/s Ratio Perm		0.05
v/c Ratio	0.86	0.10
Uniform Delay, d1	29.2	8.7
Progression Factor	1.17	1.25
Incremental Delay, d2	0.3	0.0
Delay (s)	34.6	10.8
Level of Service	C	B
Approach Delay (s)	33.4	
Approach LOS	C	
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

17: Prince William Pkwy & Hillendale Road

05/30/2024



Movement	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Lane Configurations	↖↗	↗		↖↗	↑↑↑	↘	↑↑↑	↗
Traffic Volume (vph)	331	277	2	631	2326	0	1931	524
Future Volume (vph)	331	277	2	631	2326	0	1931	524
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)	2%				1%		2%	
Total Lost time (s)	6.5	8.0		8.0	5.5		5.5	6.5
Lane Util. Factor	0.97	1.00		0.97	0.91		0.91	1.00
Fr _t	1.00	0.85		1.00	1.00		1.00	0.85
Fl _t Protected	0.95	1.00		0.95	1.00		1.00	1.00
Satd. Flow (prot)	3399	1537		3383	4915		4938	1523
Fl _t Permitted	0.95	1.00		0.29	1.00		1.00	1.00
Satd. Flow (perm)	3399	1537		1017	4915		4938	1523
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	360	301	2	686	2528	0	2099	570
RTOR Reduction (vph)	0	3	0	0	0	0	0	0
Lane Group Flow (vph)	360	298	0	688	2528	0	2099	570
Heavy Vehicles (%)	2%	4%	0%	3%	5%	0%	4%	5%
Turn Type	Prot	pm+ov	custom	Prot	NA	Prot	NA	pm+ov
Protected Phases	4	5!		5	2	1	6	4
Permitted Phases		4	5!					6
Actuated Green, G (s)	33.9	47.9		14.0	114.1		92.1	126.0
Effective Green, g (s)	33.9	47.9		14.0	114.1		92.1	126.0
Actuated g/C Ratio	0.21	0.30		0.09	0.71		0.58	0.79
Clearance Time (s)	6.5	8.0		8.0	5.5		5.5	6.5
Vehicle Extension (s)	4.0	4.0		4.0	4.0		4.0	4.0
Lane Grp Cap (vph)	720	460		88	3505		2842	1199
v/s Ratio Prot	0.11	c0.06			c0.51		0.43	0.10
v/s Ratio Perm		0.14		c0.68				0.27
v/c Ratio	0.50	0.65		7.82	0.72		0.74	0.48
Uniform Delay, d ₁	55.6	48.7		73.0	13.6		25.1	5.8
Progression Factor	1.00	1.00		1.00	1.00		0.18	0.13
Incremental Delay, d ₂	0.7	3.5		3091.5	1.3		1.0	0.2
Delay (s)	56.3	52.2		3164.5	14.9		5.5	1.0
Level of Service	E	D		F	B		A	A
Approach Delay (s)	54.5				688.7		4.5	
Approach LOS	D				F		A	

Intersection Summary

HCM 2000 Control Delay	345.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.42		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	90.4%	ICU Level of Service	E
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group

Intersection												
Int Delay, s/veh	19.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔		↔		↔	↔		↔	↔	
Traffic Vol, veh/h	319	36	67	1	7	42	15	110	1	55	95	1
Future Vol, veh/h	319	36	67	1	7	42	15	110	1	55	95	1
Conflicting Peds, #/hr	0	0	0	0	0	6	0	0	5	5	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	0	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	1	-	-	-2	-	-	-2	-	-	3	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	0	4	100	0	41	0	13	0	25	7	50
Mvmt Flow	347	39	73	1	8	46	16	120	1	60	103	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	60	0	0	112	0	0	819	795	44	874	845	38
Stage 1	-	-	-	-	-	-	733	733	-	39	39	-
Stage 2	-	-	-	-	-	-	86	62	-	835	806	-
Critical Hdwy	4.12	-	-	5.1	-	-	6.7	6.23	6	7.95	7.17	7
Critical Hdwy Stg 1	-	-	-	-	-	-	5.7	5.23	-	6.95	6.17	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.7	5.23	-	6.95	6.17	-
Follow-up Hdwy	2.218	-	-	3.1	-	-	3.5	4.117	3.3	3.725	4.063	3.75
Pot Cap-1 Maneuver	1544	-	-	1039	-	-	325	336	1034	213	255	909
Stage 1	-	-	-	-	-	-	451	445	-	915	847	-
Stage 2	-	-	-	-	-	-	936	828	-	288	339	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1536	-	-	1039	-	-	155	253	1030	110	192	904
Mov Cap-2 Maneuver	-	-	-	-	-	-	155	253	-	110	192	-
Stage 1	-	-	-	-	-	-	341	337	-	689	842	-
Stage 2	-	-	-	-	-	-	819	823	-	140	257	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	6.1			0.2			31.2			53.5		
HCM LOS							D			F		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	155	255	1536	-	-	1039	-	-	110	194
HCM Lane V/C Ratio	0.105	0.473	0.226	-	-	0.001	-	-	0.543	0.538
HCM Control Delay (s)	30.9	31.2	8	0	-	8.5	0	-	71.2	43.3
HCM Lane LOS	D	D	A	A	-	A	A	-	F	E
HCM 95th %tile Q(veh)	0.3	2.4	0.9	-	-	0	-	-	2.5	2.8

Intersection						
Int Delay, s/veh	4.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			↑↑↑			↑
Traffic Vol, veh/h	0	0	2370	44	0	105
Future Vol, veh/h	0	0	2370	44	0	105
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	1	0	-	0	-
Grade, %	-	-3	2	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	2576	48	0	114

Major/Minor	Major2	Minor2
Conflicting Flow All	-	0 - 1312
Stage 1	-	- -
Stage 2	-	- -
Critical Hdwy	-	- 7.14
Critical Hdwy Stg 1	-	- -
Critical Hdwy Stg 2	-	- -
Follow-up Hdwy	-	- 3.92
Pot Cap-1 Maneuver	-	0 128
Stage 1	-	0 -
Stage 2	-	0 -
Platoon blocked, %	-	-
Mov Cap-1 Maneuver	-	- 128
Mov Cap-2 Maneuver	-	- -
Stage 1	-	- -
Stage 2	-	- -

Approach	WB	SB
HCM Control Delay, s	0	117.7
HCM LOS		F

Minor Lane/Major Mvmt	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	128
HCM Lane V/C Ratio	-	-	0.892
HCM Control Delay (s)	-	-	117.7
HCM Lane LOS	-	-	F
HCM 95th %tile Q(veh)	-	-	5.7

Intersection						
Int Delay, s/veh	4					
Movement	WBL	WBR	NET	NER	SWL	SWT
Lane Configurations	↘			↗		↑
Traffic Vol, veh/h	58	0	0	0	0	74
Future Vol, veh/h	58	0	0	0	0	74
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	0	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	58	0	0	0	0	74

Major/Minor	Minor1	Major2	
Conflicting Flow All	74	-	-
Stage 1	0	-	-
Stage 2	74	-	-
Critical Hdwy	6.42	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	-	-
Pot Cap-1 Maneuver	930	0	0
Stage 1	-	0	-
Stage 2	949	0	-
Platoon blocked, %			-
Mov Cap-1 Maneuver	930	-	-
Mov Cap-2 Maneuver	930	-	-
Stage 1	-	-	-
Stage 2	949	-	-

Approach	WB	SW
HCM Control Delay, s	9.1	0
HCM LOS	A	

Minor Lane/Major Mvmt	WBLn1	SWT
Capacity (veh/h)	930	-
HCM Lane V/C Ratio	0.062	-
HCM Control Delay (s)	9.1	-
HCM Lane LOS	A	-
HCM 95th %tile Q(veh)	0.2	-

1: Black Forest Ln/Reids Prospect Dr & Prince William Pkwy Performance by movement

Movement	EBU	EBL	EBT	WBU	WBL	WBT	WBR	NBL	NBR	SBL	SBR	All
Denied Del/Veh (s)	134.9	93.1	74.7	0.4	0.0	0.0	0.1		22.4	1299.9	1258.2	56.7
Total Del/Veh (s)	25.1	31.9	28.3	797.8	698.3	3.1	4.0		1075.0	2496.3	2445.5	31.6

2: Ridgewood Center Drive/Laurel Hills Drive & Prince William Pkwy Performance by movement

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBR	SBL	SBR	All
Denied Del/Veh (s)	0.3	10.9	0.2	0.0	0.0	0.0	0.9	0.1	0.1	0.1	0.1	6.2
Total Del/Veh (s)	129.5	50.5	16.5	79.7	65.6	9.6	7.5	82.1	72.8	153.4	21.0	34.2

3: Prince William Parkway & Seeton Square Performance by movement

Movement	WBT	WBR	SBR	All
Denied Del/Veh (s)	0.4	1.4	0.1	0.4
Total Del/Veh (s)	1.6	1.2	0.9	1.6

4: Prince William Pkwy & Old Bridge Road Performance by movement

Movement	WBL	WBT	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	45.8	0.0	34.4	4.6	4.5	12.1	6.8	13.7
Total Del/Veh (s)	112.9	2.1	3.6	40.8	17.9	74.3	4.5	35.8

5: Tribbe at the Glen & Old Bridge Rd Performance by movement

Movement	EBT	EBR	NBR	All
Denied Del/Veh (s)	0.1	0.3	0.1	0.1
Total Del/Veh (s)	1.5	1.5	0.3	1.4

6: Troupe Street/Glen Shopping Ctr & Old Bridge Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.1	0.4	1.0	31.9	36.6	29.8	16.9	15.6	16.9	295.0	311.1	285.9
Total Del/Veh (s)	206.7	40.1	18.5	241.9	151.5	22.2	86.6	86.2	69.8	200.9	204.2	97.1

6: Troupe Street/Glen Shopping Ctr & Old Bridge Road Performance by movement

Movement	All
Denied Del/Veh (s)	51.3
Total Del/Veh (s)	91.4

7: Titania Way/Touchstone Circle & Old Bridge Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	1.4	0.6	0.0	46.3	15.3	6.2	459.6		412.8	72.8	31.4	144.2
Total Del/Veh (s)	106.4	29.8	2.7	199.0	177.7	72.2	644.5		527.7	76.5	74.6	485.4

7: Titania Way/Touchstone Circle & Old Bridge Road Performance by movement

Movement	All
Denied Del/Veh (s)	20.2
Total Del/Veh (s)	96.0

8: Old Bridge Road & Brussels Way Performance by movement

Movement	EBT	WBT	WBR	SBR	All
Denied Del/Veh (s)	0.0	78.4	38.2	0.1	25.3
Total Del/Veh (s)	12.8	149.3	54.1	512.7	59.1

9: Old Bridge Ln/Church Entr & Old Bridge Road Performance by movement

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBR	SBL	All
Denied Del/Veh (s)		0.0	0.7	0.0		30.9	26.3	0.0	426.2	465.8	0.1	16.1
Total Del/Veh (s)		18.2	15.8	1.9		71.0	158.1	26.9	1856.0	1694.4	213.7	79.1

10: Rockwood Lane/Westridge Drive & Old Bridge Road Performance by movement

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBR	SBL	SBR	All
Denied Del/Veh (s)	6.7	1.3	0.7	0.0	991.4	1066.2	1153.9	1179.0	0.1	219.1	212.1	647.4
Total Del/Veh (s)	231.8	108.3	32.6	16.1	432.5	318.1	530.0	65.1	10.2	60.0	209.2	176.3

11: Exxon/Glen Shopping Ctr & Touchstone Cir Performance by movement

Movement	EBR	WBR	NBL	NBT	NBR	SBT	SBR	All
Denied Del/Veh (s)	1201.8	0.2	2.4	0.1	2.6	669.4	580.8	325.6
Total Del/Veh (s)	564.2	0.9	1.4	0.2	1.1	1645.6	82.9	190.8

13: Touchstone Cir & Seeton Square/Merchant Plaza Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	278.7	285.2	157.4	717.6	689.8	668.4	0.0	0.0	0.0	4.3	0.1	0.1
Total Del/Veh (s)	301.2	286.0	522.7	777.2	615.9	735.5	2.7	2.1	2.0	3.7	828.2	2.3

13: Touchstone Cir & Seeton Square/Merchant Plaza Performance by movement

Movement	All
Denied Del/Veh (s)	223.4
Total Del/Veh (s)	190.4

14: Touchstone Circle & Merchant Plaza/CVS Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	956.9	907.3	954.4	866.9	733.0	965.5	0.7	0.0	0.0		509.0	492.1
Total Del/Veh (s)	501.5	342.8	361.0	201.5	173.1	64.1	95.7	4.6	4.5		177.2	369.1

14: Touchstone Circle & Merchant Plaza/CVS Performance by movement

Movement	All
Denied Del/Veh (s)	523.8
Total Del/Veh (s)	148.4

15: Prince William Pkwy & Chinn Park Dr Performance by movement

Movement	WBR	NBT	NBR	SBT	All
Denied Del/Veh (s)	0.1	0.1	0.2	0.0	0.1
Total Del/Veh (s)	40.3	8.1	17.9	0.5	5.5

16: Prince William Pkwy & Kenwood Dr./

School Entrance Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Denied Del/Veh (s)	0.3	0.3	0.3	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.0	0.0
Total Del/Veh (s)	75.0	69.1	51.5	75.4	76.0	11.2	34.1	26.6	7.5	1.4	33.8	20.7

16: Prince William Pkwy & Kenwood Dr./

School Entrance Performance by movement

Movement	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.5	0.0
Total Del/Veh (s)	15.6	3.4	14.7

17: Prince William Pkwy & Hillendale Road Performance by movement

Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.6	0.3	837.4	984.0	979.1	0.0	0.0	535.4
Total Del/Veh (s)	55.4	21.2	359.5	477.9	9.0	13.2	7.8	57.6

18: Library/Fitness Ctr/Troupe Street & Chinn Park Dr Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0		0.2	0.1	4.6	5.5	0.1	0.0	0.0	
Total Del/Veh (s)	10.3	5.6	5.3		1.2	7.7	7.2	10.5	2.7	8.8	4.3	

18: Library/Fitness Ctr/Troupe Street & Chinn Park Dr Performance by movement

Movement	All
Denied Del/Veh (s)	1.2
Total Del/Veh (s)	8.0

21: Old Bridge Rd & Touchstone Circle Performance by movement

Movement	WBT	WBR	SBR	All
Denied Del/Veh (s)	0.2	0.3	0.1	0.2
Total Del/Veh (s)	1.4	0.2	6.2	1.6

34: Prince William Pkwy & Seeton Square Performance by movement

Movement	SBR2	SET	SER	NWT	NWR	All
Denied Del/Veh (s)	0.1	3.7	6.1	0.0	0.4	2.2
Total Del/Veh (s)	1.4	34.9	4.3	11.6	9.9	24.5

39: Tribe at the Glen & Old Bridge Road Performance by movement

Movement	EBT	EBR	WBT	NBR	All
Denied Del/Veh (s)	3.3	0.0	0.0	0.1	1.9
Total Del/Veh (s)	31.3	11.0	35.4	18.0	32.1

44: Old Bridge Road Performance by movement

Movement	EBT	WBT	WBR	SBT	SBR	All
Denied Del/Veh (s)	1.4	0.6	0.5		71.4	1.6
Total Del/Veh (s)	18.1	54.1	1.1		2262.7	53.9

45: Mohammadia Center Performance by movement

Movement	WBL	SWT	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	4.3	0.1	1.7

47: Mohammadia Center & Prince William Pkwy Performance by movement

Movement	SET	SER	NWT	All
Denied Del/Veh (s)	0.0	0.2	0.2	0.1
Total Del/Veh (s)	1.5	0.8	7.9	4.2

Total Network Performance

Denied Del/Veh (s)	328.5
Total Del/Veh (s)	151.8

Intersection: 1: Black Forest Ln/Reids Prospect Dr & Prince William Pkwy

Movement	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	SB
Directions Served	UL	T	T	TR	UL	T	T	T	R	LTR	LTR
Maximum Queue (ft)	580	770	769	746	87	20	25	29	2	183	308
Average Queue (ft)	53	401	380	232	37	1	1	1	0	84	287
95th Queue (ft)	328	987	963	734	97	11	12	14	2	216	339
Link Distance (ft)		725	725	725		1121	1121	1121		323	294
Upstream Blk Time (%)		31	14	2						2	87
Queuing Penalty (veh)		0	0	0						0	0
Storage Bay Dist (ft)	465				450				450		
Storage Blk Time (%)		34									
Queuing Penalty (veh)		4									

Intersection: 2: Ridgewood Center Drive/Laurel Hills Drive & Prince William Pkwy

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	SB
Directions Served	L	T	T	TR	UL	T	T	TR	LTR	LTR
Maximum Queue (ft)	206	1147	1157	1144	67	386	404	405	173	79
Average Queue (ft)	12	877	768	514	14	104	112	128	63	15
95th Queue (ft)	136	1472	1425	1202	46	276	291	312	135	54
Link Distance (ft)		1121	1121	1121		1050	1050	1050	415	435
Upstream Blk Time (%)		20	7	4						
Queuing Penalty (veh)		209	76	37						
Storage Bay Dist (ft)	460				470					
Storage Blk Time (%)		39				0				
Queuing Penalty (veh)		1				0				

Intersection: 3: Prince William Parkway & Seeton Square

Movement	SB
Directions Served	R
Maximum Queue (ft)	43
Average Queue (ft)	3
95th Queue (ft)	21
Link Distance (ft)	118
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 4: Prince William Pkwy & Old Bridge Road

Movement	WB	WB	WB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	L	R	R	R	T	T	T	R	L	L	L
Maximum Queue (ft)	168	165	177	185	195	294	282	278	268	337	348	332
Average Queue (ft)	134	132	16	35	53	231	241	245	99	295	312	279
95th Queue (ft)	154	147	95	148	183	307	306	307	291	326	356	338
Link Distance (ft)	127	127	127	127	127	255	255	255	255	285	285	285
Upstream Blk Time (%)	85	87	1	3	5	9	10	13	12	50	48	34
Queuing Penalty (veh)	421	429	5	15	27	49	56	71	63	256	247	174
Storage Bay Dist (ft)												
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 4: Prince William Pkwy & Old Bridge Road

Movement	SB	SB	SB
Directions Served	T	T	T
Maximum Queue (ft)	159	183	225
Average Queue (ft)	45	83	100
95th Queue (ft)	121	172	204
Link Distance (ft)	285	285	285
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: Tribbe at the Glen & Old Bridge Rd

Movement	EB
Directions Served	TR
Maximum Queue (ft)	6
Average Queue (ft)	0
95th Queue (ft)	6
Link Distance (ft)	190
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 6: Troupe Street/Glen Shopping Ctr & Old Bridge Road

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	TR	L	T	T	TR	LT	R	LT	R
Maximum Queue (ft)	250	384	381	375	445	664	600	516	454	536	339	180
Average Queue (ft)	213	337	297	218	247	618	136	119	245	280	323	146
95th Queue (ft)	319	377	463	457	593	838	415	321	418	502	402	253
Link Distance (ft)		324	324	324		649	649	649	624	624	324	
Upstream Blk Time (%)		49	25	15		67	0	0	0	3	74	
Queuing Penalty (veh)		302	155	90		514	1	0	0	7	0	
Storage Bay Dist (ft)	175				335							100
Storage Blk Time (%)	53	32				89					77	31
Queuing Penalty (veh)	281	64				122					191	54

Intersection: 7: Titania Way/Touchstone Circle & Old Bridge Road

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	SB	SB
Directions Served	L	T	T	R	L	T	T	R	LTR	LT	R
Maximum Queue (ft)	230	590	608	287	252	632	663	475	233	259	264
Average Queue (ft)	125	306	314	30	43	530	511	146	152	97	220
95th Queue (ft)	257	625	627	240	221	858	880	491	281	264	336
Link Distance (ft)		649	649	649		610	610		214	241	241
Upstream Blk Time (%)		10	10	2		59	41		52	10	77
Queuing Penalty (veh)		71	71	16		674	469		0	16	133
Storage Bay Dist (ft)	145				225			440			
Storage Blk Time (%)	19	20				82	46	0			
Queuing Penalty (veh)	179	34				17	65	0			

Intersection: 8: Old Bridge Road & Brussels Way

Movement	EB	EB	WB	WB	WB	SB
Directions Served	T	T	T	T	R	R
Maximum Queue (ft)	322	329	459	475	294	119
Average Queue (ft)	76	76	409	414	32	43
95th Queue (ft)	369	376	582	591	179	123
Link Distance (ft)	610	610	422	422		211
Upstream Blk Time (%)	5	5	69	66		2
Queuing Penalty (veh)	54	49	798	756		0
Storage Bay Dist (ft)					225	
Storage Blk Time (%)				76	2	
Queuing Penalty (veh)				17	19	

Intersection: 9: Old Bridge Ln/Church Entr & Old Bridge Road

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	SB
Directions Served	UL	T	T	R	UL	T	T	R	LTR	L
Maximum Queue (ft)	66	408	426	180	330	518	528	131	335	49
Average Queue (ft)	5	164	151	8	37	452	453	3	250	7
95th Queue (ft)	48	434	408	99	202	680	685	59	407	32
Link Distance (ft)		422	422			489	489		321	184
Upstream Blk Time (%)		8	2	0		50	52		50	
Queuing Penalty (veh)		87	17	0		580	605		0	
Storage Bay Dist (ft)	365			340	225			230		
Storage Blk Time (%)		11	5			84	80			
Queuing Penalty (veh)		1	4			24	1			

Intersection: 10: Rockwood Lane/Westridge Drive & Old Bridge Road

Movement	EB	EB	EB	WB	WB	WB	WB	NB	SB	SB
Directions Served	UL	T	TR	UL	T	T	R	LTR	LT	R
Maximum Queue (ft)	230	517	536	254	1221	1225	1050	10	453	481
Average Queue (ft)	190	419	403	24	1182	1183	580	0	196	357
95th Queue (ft)	296	623	650	183	1271	1276	1431	5	465	567
Link Distance (ft)		489	489		1172	1172		355	438	438
Upstream Blk Time (%)		17	7		84	81			11	49
Queuing Penalty (veh)		174	75		0	0			0	0
Storage Bay Dist (ft)	165			300			1000			
Storage Blk Time (%)	41	18			88	86	0			
Queuing Penalty (veh)	354	57			12	215	0			

Intersection: 11: Exxon/Glen Shopping Ctr & Touchstone Cir

Movement	EB	NB	SB	SB
Directions Served	R	L	T	R
Maximum Queue (ft)	92	5	223	179
Average Queue (ft)	64	0	182	60
95th Queue (ft)	110	4	291	218
Link Distance (ft)	91		213	213
Upstream Blk Time (%)	71		74	27
Queuing Penalty (veh)	0		22	8
Storage Bay Dist (ft)		115		
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 13: Touchstone Cir & Seeton Square/Merchant Plaza

Movement	EB	WB	NB	NB	SB	SB	SB
Directions Served	LTR	LTR	L	TR	L	T	TR
Maximum Queue (ft)	100	206	11	5	14	140	18
Average Queue (ft)	45	141	0	0	1	51	3
95th Queue (ft)	111	261	6	3	7	139	18
Link Distance (ft)	102	196		213		545	545
Upstream Blk Time (%)	25	63					
Queuing Penalty (veh)	0	0					
Storage Bay Dist (ft)			100		250		
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 14: Touchstone Circle & Merchant Plaza/CVS

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	LT	TR	LT	TR
Maximum Queue (ft)	182	53	188	153	172	214
Average Queue (ft)	148	35	58	19	53	141
95th Queue (ft)	222	51	208	125	185	272
Link Distance (ft)	167	38	241	241	191	191
Upstream Blk Time (%)	78	79	12	5	13	62
Queuing Penalty (veh)	0	0	20	8	0	0
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 15: Prince William Pkwy & Chinn Park Dr

Movement	WB	NB	NB	NB	NB
Directions Served	R	T	T	T	TR
Maximum Queue (ft)	133	55	321	405	505
Average Queue (ft)	35	4	34	47	63
95th Queue (ft)	102	47	244	303	356
Link Distance (ft)	634		874	874	874
Upstream Blk Time (%)			0	0	1
Queuing Penalty (veh)			0	0	8
Storage Bay Dist (ft)		350			
Storage Blk Time (%)			0		
Queuing Penalty (veh)			0		

Intersection: 16: Prince William Pkwy & Kenwood Dr./

School Entrance

Movement	EB	WB	WB	NB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	LT	R	UL	T	T	T	R	UL	T	T	T
Maximum Queue (ft)	322	56	42	120	246	273	292	19	27	371	377	436
Average Queue (ft)	141	14	7	43	68	85	76	1	4	137	158	204
95th Queue (ft)	280	42	28	92	191	218	212	10	18	300	321	390
Link Distance (ft)	512	287	287		701	701	701			874	874	874
Upstream Blk Time (%)	0											
Queuing Penalty (veh)	0											
Storage Bay Dist (ft)				195				245	230			
Storage Blk Time (%)				0	1		1			3		8
Queuing Penalty (veh)				0	1		0			0		10

Intersection: 16: Prince William Pkwy & Kenwood Dr./

School Entrance

Movement	SB
Directions Served	R
Maximum Queue (ft)	131
Average Queue (ft)	10
95th Queue (ft)	79
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	235
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 17: Prince William Pkwy & Hillendale Road

Movement	EB	EB	EB	NB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	L	R	UL	L	T	T	T	T	T	T	R
Maximum Queue (ft)	170	358	259	575	686	684	664	593	361	332	323	210
Average Queue (ft)	132	210	115	572	659	642	313	42	108	116	125	50
95th Queue (ft)	213	317	213	583	674	797	825	251	269	262	266	138
Link Distance (ft)		517	517		641	641	641	641	701	701	701	
Upstream Blk Time (%)					85	46	1	0				
Queuing Penalty (veh)					0	0	0	0				
Storage Bay Dist (ft)	125			475								500
Storage Blk Time (%)	4	36		80	99				0			
Queuing Penalty (veh)	6	60		252	315				0			

Intersection: 18: Library/Fitness Ctr/Troupe Street & Chinn Park Dr

Movement	EB	EB	WB	NB	NB	SB	SB
Directions Served	LT	R	LTR	L	TR	L	TR
Maximum Queue (ft)	73	7	75	27	99	76	84
Average Queue (ft)	16	0	4	10	39	25	28
95th Queue (ft)	58	5	37	30	78	63	60
Link Distance (ft)	634	634	413	107	107	624	624
Upstream Blk Time (%)					2		
Queuing Penalty (veh)					0		
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 21: Old Bridge Rd & Touchstone Circle

Movement	SB
Directions Served	R
Maximum Queue (ft)	85
Average Queue (ft)	42
95th Queue (ft)	72
Link Distance (ft)	82
Upstream Blk Time (%)	0
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 34: Prince William Pkwy & Seeton Square

Movement	SE	SE	SE	SE	SE	SE	NW	NW	NW
Directions Served	T	T	T	T	T	T	T	T	T
Maximum Queue (ft)	250	350	450	1077	609	505	51	13	21
Average Queue (ft)	157	205	226	390	52	28	1	0	0
95th Queue (ft)	306	432	556	1179	425	300	33	10	6
Link Distance (ft)				1050	1050	1050	285	285	285
Upstream Blk Time (%)				16	2	0	0		
Queuing Penalty (veh)				161	18	1	1		
Storage Bay Dist (ft)	150	150	150						
Storage Blk Time (%)	36	32	26						0
Queuing Penalty (veh)	185	162	132						0

Intersection: 39: Tribe at the Glen & Old Bridge Road

Movement	EB	EB	EB	WB	WB	WB	WB	NB
Directions Served	T	T	TR	T	T	T	T	R
Maximum Queue (ft)	291	314	312	220	351	30	3	111
Average Queue (ft)	245	233	172	212	326	1	0	20
95th Queue (ft)	330	358	368	271	425	31	3	85
Link Distance (ft)	257	257	257		324	324	324	274
Upstream Blk Time (%)	30	23	16		42			
Queuing Penalty (veh)	192	143	100		340			
Storage Bay Dist (ft)				120				
Storage Blk Time (%)				66	0			
Queuing Penalty (veh)				405	0			

Intersection: 44: Old Bridge Road

Movement	EB	EB	EB	WB	WB	WB	WB	WB	SB
Directions Served	T	T	T	T	T	T	T	TR	R
Maximum Queue (ft)	153	182	222	175	282	85	143	167	352
Average Queue (ft)	99	91	111	163	261	5	14	23	330
95th Queue (ft)	192	196	265	211	314	42	74	97	404
Link Distance (ft)	127	127	127		257	257	257	257	276
Upstream Blk Time (%)	24	19	25		75		0	0	94
Queuing Penalty (veh)	155	120	160		456		0	0	99
Storage Bay Dist (ft)				75					
Storage Blk Time (%)				84	90				
Queuing Penalty (veh)				398	428				

Intersection: 45: Mohammadia Center

Movement	WB
Directions Served	L
Maximum Queue (ft)	37
Average Queue (ft)	19
95th Queue (ft)	38
Link Distance (ft)	651
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 47: Mohammadia Center & Prince William Pkwy

Movement	SE	NW	NW	NW	NW
Directions Served	T	T	T	T	T
Maximum Queue (ft)	5	177	187	194	183
Average Queue (ft)	0	35	49	64	30
95th Queue (ft)	5	126	152	170	135
Link Distance (ft)	255	182	182	182	182
Upstream Blk Time (%)		0	1	1	7
Queuing Penalty (veh)		3	5	8	39
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Network Summary

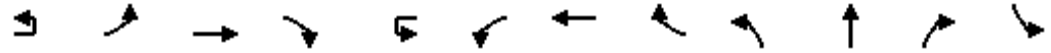
Network wide Queuing Penalty: 13989

Appendix J: Synchro™ Queue Report for Existing (2022) and Horizon Year (2045)

Lanes, Volumes, Timings

1: Black Forest Ln/Reids Prospect Dr & Prince William Pkwy

05/26/2023



Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	2	22	2480	0	1	8	1851	58	0	0	1	32
Future Volume (vph)	2	22	2480	0	1	8	1851	58	0	0	1	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	10	10	10	16
Grade (%)			1%				-1%			-1%		
Storage Length (ft)		465		0		450		450	0		0	0
Storage Lanes		1		0		1		1	0		0	0
Taper Length (ft)		175				180			25			25
Lane Util. Factor	0.91	1.00	0.91	0.91	0.91	1.00	0.91	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Flt								0.850		0.865		
Flt Protected		0.950				0.950						
Satd. Flow (prot)	0	1717	4869	0	0	1814	4918	1561	0	1542	0	0
Flt Permitted		0.950				0.950						
Satd. Flow (perm)	0	1717	4869	0	0	1814	4918	1561	0	1542	0	0
Link Speed (mph)			45				45			30		
Link Distance (ft)			756				1183			385		
Travel Time (s)			11.5				17.9			8.8		
Confl. Peds. (#/hr)		2		1	1			2			1	
Confl. Bikes (#/hr)				1								
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	0%	5%	6%	0%	0%	0%	6%	4%	0%	0%	0%	0%
Adj. Flow (vph)	2	22	2531	0	1	8	1889	59	0	0	1	33
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	24	2531	0	0	9	1889	59	0	1	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	R NA	Left	Left	Right	Left	Left	Right	Left
Median Width(ft)			12				12			0		
Link Offset(ft)			0				0			0		
Crosswalk Width(ft)			16				16			16		
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	0.99	0.99	0.99	0.99	1.09	1.09	1.09	0.88
Turning Speed (mph)	9	15		9	9	15		9	15		9	15
Sign Control			Free				Free			Stop		

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	64.0%
ICU Level of Service	C
Analysis Period (min)	15

Lanes, Volumes, Timings

1: Black Forest Ln/Reids Prospect Dr & Prince William Pkwy

05/26/2023

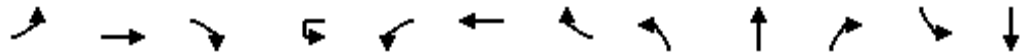


Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	0	11
Future Volume (vph)	0	11
Ideal Flow (vphpl)	1900	1900
Lane Width (ft)	16	16
Grade (%)	5%	
Storage Length (ft)		0
Storage Lanes		0
Taper Length (ft)		
Lane Util. Factor	1.00	1.00
Ped Bike Factor		
Frt	0.966	
Flt Protected	0.964	
Satd. Flow (prot)	1955	0
Flt Permitted	0.964	
Satd. Flow (perm)	1955	0
Link Speed (mph)	25	
Link Distance (ft)	367	
Travel Time (s)	10.0	
Confl. Peds. (#/hr)		2
Confl. Bikes (#/hr)		
Peak Hour Factor	0.98	0.98
Heavy Vehicles (%)	0%	0%
Adj. Flow (vph)	0	11
Shared Lane Traffic (%)		
Lane Group Flow (vph)	44	0
Enter Blocked Intersection	No	No
Lane Alignment	Left	Right
Median Width(ft)	0	
Link Offset(ft)	0	
Crosswalk Width(ft)	16	
Two way Left Turn Lane		
Headway Factor	0.88	0.88
Turning Speed (mph)		9
Sign Control	Stop	
Intersection Summary		

Lanes, Volumes, Timings

2: Ridgewood Center Drive/Laurel Hills Drive & Prince William Pkwy

05/26/2023



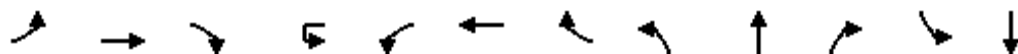
Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	0	2471	43	9	83	1881	1	36	0	10	4	0
Future Volume (vph)	0	2471	43	9	83	1881	1	36	0	10	4	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	10	10
Grade (%)		0%				0%			0%			5%
Storage Length (ft)	460		0		470		0	0		0	0	
Storage Lanes	1		0		1		0	0		0	0	
Taper Length (ft)	175				185			25			25	
Lane Util. Factor	1.00	0.91	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00	1.00			1.00			0.99
Frt		0.997							0.970			0.973
Flt Protected					0.950				0.962			0.962
Satd. Flow (prot)	1900	4927	0	0	1805	4938	0	0	1767	0	0	1337
Flt Permitted					0.381				0.962			0.962
Satd. Flow (perm)	1900	4927	0	0	724	4938	0	0	1767	0	0	1334
Right Turn on Red			Yes				Yes			Yes		
Satd. Flow (RTOR)		2							109			109
Link Speed (mph)		45				45			15			25
Link Distance (ft)		1183				1140			485			515
Travel Time (s)		17.9				17.3			22.0			14.0
Confl. Peds. (#/hr)	8		1		1		10			3	2	
Confl. Bikes (#/hr)			2									
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	5%	0%	0%	0%	5%	100%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	2686	47	10	90	2045	1	39	0	11	4	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2733	0	0	100	2046	0	0	50	0	0	5
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	R NA	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)		12				12			0			0
Link Offset(ft)		0				0			0			0
Crosswalk Width(ft)		16				16			16			16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.13	1.13
Turning Speed (mph)	15		9	9	15		9	15		9	15	
Number of Detectors	1	2		1	1	2		1	1		1	1
Detector Template												
Leading Detector (ft)	35	200		50	35	200		5	35		5	35
Trailing Detector (ft)	-5	100		0	-5	100		0	-5		0	-5
Detector 1 Position(ft)	-5	100		0	-5	100		0	-5		0	-5
Detector 1 Size(ft)	40	6		50	40	6		5	40		5	40
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 2 Position(ft)		194				194						
Detector 2 Size(ft)		6				6						

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	1
Future Volume (vph)	1
Ideal Flow (vphpl)	1900
Lane Width (ft)	10
Grade (%)	
Storage Length (ft)	0
Storage Lanes	0
Taper Length (ft)	
Lane Util. Factor	1.00
Ped Bike Factor	
Flt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	Yes
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	8
Confl. Bikes (#/hr)	
Peak Hour Factor	0.92
Heavy Vehicles (%)	100%
Adj. Flow (vph)	1
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.13
Turning Speed (mph)	9
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	

Lanes, Volumes, Timings

2: Ridgewood Center Drive/Laurel Hills Drive & Prince William Pkwy

05/26/2023



Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	
Detector 2 Type	Cl+Ex			Cl+Ex									
Detector 2 Channel													
Detector 2 Extend (s)	0.0			0.0									
Turn Type	Prot	NA		Prot	NA		Split	NA		Split	NA		
Protected Phases	5	2		1	6		4	4		3	3		
Permitted Phases													
Detector Phase	5	2		1	6		4	4		3	3		
Switch Phase													
Minimum Initial (s)	5.0	20.0		5.0	20.0		5.0	5.0		5.0	5.0		
Minimum Split (s)	11.5	26.0		11.5	26.0		42.5	42.5		11.5	11.5		
Total Split (s)	17.0	87.0		17.0	87.0		38.0	38.0		18.0	18.0		
Total Split (%)	10.6%	54.4%		10.6%	54.4%		23.8%	23.8%		11.3%	11.3%		
Maximum Green (s)	10.5	81.0		10.5	81.0		31.5	31.5		11.5	11.5		
Yellow Time (s)	4.0	5.0		4.0	5.0		3.0	3.0		3.0	3.0		
All-Red Time (s)	2.5	1.0		2.5	1.0		3.5	3.5		3.5	3.5		
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0		0.0				
Total Lost Time (s)	6.5	6.0		6.5	6.0		6.5		6.5				
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead	Lead		
Lead-Lag Optimize?													
Vehicle Extension (s)	3.0	3.5		3.0	3.5		3.0	3.0		3.0	3.0		
Recall Mode	None	C-Max		None	C-Max		None	None		None	None		
Walk Time (s)							8.0	8.0					
Flash Dont Walk (s)							28.0	28.0					
Pedestrian Calls (#/hr)							0	0					
Act Effct Green (s)	124.8				0.0	143.0		5.7		5.6			
Actuated g/C Ratio	0.78				0.00	0.89		0.04		0.04			
v/c Ratio	0.71				no cap	0.46		0.30		0.03			
Control Delay	11.0				2.1		4.5		0.4				
Queue Delay	0.0				0.0		0.0		0.0				
Total Delay	11.0				Error	2.1		4.5		0.4			
LOS	B				F	A		A		A			
Approach Delay	11.0				Err		4.5		0.4				
Approach LOS	B				F		A		A				
Queue Length 50th (ft)	456				~222	83		0		0			
Queue Length 95th (ft)	697				m#230	m113		0		0			
Internal Link Dist (ft)	1103				1060		405		435				
Turn Bay Length (ft)					470								
Base Capacity (vph)	3844				1	4414		435		197			
Starvation Cap Reductn	0				0	0		0		0			
Spillback Cap Reductn	0				0	0		0		0			
Storage Cap Reductn	0				0	0		0		0			
Reduced v/c Ratio	0.71				100.00	0.46		0.11		0.03			

Intersection Summary

Area Type: Other
 Cycle Length: 160
 Actuated Cycle Length: 160
 Offset: 31 (19%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow
 Natural Cycle: 145



Lane Group	SBR
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Lanes, Volumes, Timings

2: Ridgewood Center Drive/Laurel Hills Drive & Prince William Pkwy

05/26/2023

Control Type: Actuated-Coordinated

Maximum v/c Ratio: Err

Intersection Signal Delay: Err

Intersection LOS: F

Intersection Capacity Utilization 76.3%

ICU Level of Service D

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Ridgewood Center Drive/Laurel Hills Drive & Prince William Pkwy

↙ Ø1 17 s	→ Ø2 (R) 87 s	↘ Ø3 18 s	↖ Ø4 38 s
↗ Ø5 17 s	← Ø6 (R) 87 s		

Lanes, Volumes, Timings
 3: Prince William Pkwy & Seeton Square

05/26/2023



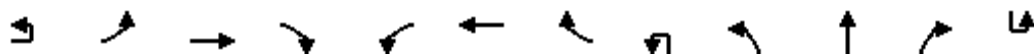
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑			↑
Traffic Volume (vph)	0	2537	1948	65	0	40
Future Volume (vph)	0	2537	1948	65	0	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		0%	0%		4%	
Lane Util. Factor	1.00	0.91	0.91	0.91	1.00	1.00
Frt			0.995			0.865
Flt Protected						
Satd. Flow (prot)	0	4988	4918	0	0	1611
Flt Permitted						
Satd. Flow (perm)	0	4988	4918	0	0	1611
Link Speed (mph)		45	45		25	
Link Distance (ft)		1140	342		289	
Travel Time (s)		17.3	5.2		7.9	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	0%	4%	5%	3%	0%	0%
Adj. Flow (vph)	0	2950	2265	76	0	47
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	2950	2341	0	0	47
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.03	1.03
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	52.4%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings

4: Prince William Pkwy & Old Bridge Road & Touchstone Cir

05/26/2023



Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (vph)	20	114	891	1512	392	885	29	5	1010	97	268	1
Future Volume (vph)	20	114	891	1512	392	885	29	5	1010	97	268	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)			0%			2%				1%		
Storage Length (ft)		325		0	285		0		0		0	
Storage Lanes		1		1	2		0		2		1	
Taper Length (ft)		85			150				185			
Lane Util. Factor	0.95	1.00	0.95	1.00	0.97	0.91	0.91	1.00	0.91	0.91	1.00	0.95
Ped Bike Factor		1.00				1.00						
Frt				0.850		0.995					0.850	
Flt Protected		0.950			0.950				0.950	0.964		
Satd. Flow (prot)	0	1790	3406	1553	3333	4871	0	0	3085	1565	1545	0
Flt Permitted		0.173			0.950				0.682	0.964		
Satd. Flow (perm)	0	326	3406	1553	3333	4871	0	0	2215	1565	1545	0
Right Turn on Red				Yes			Yes				Yes	
Satd. Flow (RTOR)				775		3					279	
Link Speed (mph)			45			45				45		
Link Distance (ft)			342			371				666		
Travel Time (s)			5.2			5.6				10.1		
Confl. Peds. (#/hr)		2					2					
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	1%	6%	4%	4%	5%	0%	0%	6%	6%	4%	0%
Adj. Flow (vph)	21	119	928	1575	408	922	30	5	1052	101	279	1
Shared Lane Traffic (%)									28%			
Lane Group Flow (vph)	0	140	928	1575	408	952	0	0	762	396	279	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	R NA	Left	Left	Right	R NA
Median Width(ft)			24			24				24		
Link Offset(ft)			0			0				0		
Crosswalk Width(ft)			16			16				16		
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.03
Turning Speed (mph)	9	15		25	15		9	9	15		9	9
Number of Detectors	1	1	3	1	1	3		1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	35	300	53	35	300		50	35	35	35	50
Trailing Detector (ft)	0	-5	100	47	-5	100		0	-5	-5	-5	0
Detector 1 Position(ft)	0	-5	100	47	-5	100		0	-5	-5	-5	0
Detector 1 Size(ft)	50	40	6	6	40	6		50	40	40	40	50
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)			197			197						
Detector 2 Size(ft)			6			6						
Detector 2 Type			Cl+Ex			Cl+Ex						
Detector 2 Channel												

Lanes, Volumes, Timings

4: Prince William Pkwy & Old Bridge Road & Touchstone Cir

05/26/2023

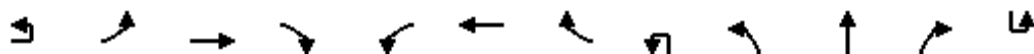


Lane Group	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (vph)	28	107	98
Future Volume (vph)	28	107	98
Ideal Flow (vphpl)	1900	1900	1900
Grade (%)		5%	
Storage Length (ft)	0		0
Storage Lanes	1		1
Taper Length (ft)	0		
Lane Util. Factor	1.00	0.95	1.00
Ped Bike Factor			0.99
Frt			0.850
Flt Protected	0.950		
Satd. Flow (prot)	1760	3451	1559
Flt Permitted	0.230		
Satd. Flow (perm)	426	3451	1537
Right Turn on Red			Yes
Satd. Flow (RTOR)			86
Link Speed (mph)		30	
Link Distance (ft)		317	
Travel Time (s)		7.2	
Confl. Peds. (#/hr)			2
Peak Hour Factor	0.96	0.96	0.96
Heavy Vehicles (%)	0%	2%	1%
Adj. Flow (vph)	29	111	102
Shared Lane Traffic (%)			
Lane Group Flow (vph)	30	111	102
Enter Blocked Intersection	No	No	No
Lane Alignment	Left	Left	Right
Median Width(ft)		24	
Link Offset(ft)		0	
Crosswalk Width(ft)		16	
Two way Left Turn Lane			
Headway Factor	1.03	1.03	1.03
Turning Speed (mph)	15		9
Number of Detectors	1	1	1
Detector Template			
Leading Detector (ft)	35	35	35
Trailing Detector (ft)	-5	-5	-5
Detector 1 Position(ft)	-5	-5	-5
Detector 1 Size(ft)	40	40	40
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel			
Detector 1 Extend (s)	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0
Detector 2 Position(ft)			
Detector 2 Size(ft)			
Detector 2 Type			
Detector 2 Channel			

Lanes, Volumes, Timings

4: Prince William Pkwy & Old Bridge Road & Touchstone Cir

05/26/2023



Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU
Detector 2 Extend (s)			0.0			0.0						
Detector 3 Position(ft)			294			294						
Detector 3 Size(ft)			6			6						
Detector 3 Type			Cl+Ex			Cl+Ex						
Detector 3 Channel												
Detector 3 Extend (s)			0.0			0.0						
Turn Type		Prot	NA	Free	Prot	NA		Split	NA	pm+ov		
Protected Phases		5	2		1	6		4	4		1	
Permitted Phases				Free								4
Detector Phase		5	2		1	6		4	4		4	
Switch Phase												
Minimum Initial (s)		5.0	20.0		5.0	20.0		5.0	5.0		5.0	
Minimum Split (s)		12.9	25.7		12.5	48.7		50.9	50.9		12.5	
Total Split (s)		31.0	49.0		35.0	53.0		51.0	51.0		35.0	
Total Split (%)		19.4%	30.6%		21.9%	33.1%		31.9%	31.9%		21.9%	
Maximum Green (s)		23.1	43.3		27.5	47.3		41.1	41.1		27.5	
Yellow Time (s)		3.8	4.7		3.8	4.6		4.9	4.9		3.8	
All-Red Time (s)		4.1	1.0		3.7	1.1		5.0	5.0		3.7	
Lost Time Adjust (s)		0.0	0.0		0.0	0.0		0.0	0.0		0.0	
Total Lost Time (s)		7.9	5.7		7.5	5.7		9.9	9.9		7.5	
Lead/Lag		Lead	Lag		Lead	Lag		Lag	Lag		Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0	2.0		3.0	2.0		3.0	3.0		3.0	
Recall Mode		None	C-Max		None	C-Max		None	None		None	
Walk Time (s)						9.0		8.0	8.0			
Flash Dont Walk (s)						34.0		33.0	33.0			
Pedestrian Calls (#/hr)						0		0	0			
Act Effct Green (s)		0.0	46.6	160.0	24.2	47.3		41.1	41.1		75.2	
Actuated g/C Ratio		0.00	0.29	1.00	0.15	0.30		0.26	0.26		0.47	
v/c Ratio		no cap	0.94	1.01	0.81	0.66		7.19	0.99		0.32	
Control Delay			60.1	45.9	73.2	40.0		2811.2	82.7		1.2	
Queue Delay			0.0	0.0	0.0	0.0		0.0	0.0		0.0	
Total Delay		Error	60.1	45.9	73.2	40.0		2811.2	82.7		1.2	
LOS		F	E	D	E	D		F	F		A	
Approach Delay			Err			50.0			1513.7			
Approach LOS			F			D			F			
Queue Length 50th (ft)		~309	504	~1300	183	338		~856	386		0	
Queue Length 95th (ft)		m#432	#673	#1430	246	348		#975	#683		2	
Internal Link Dist (ft)			262			291			586			
Turn Bay Length (ft)		325			285							
Base Capacity (vph)		1	992	1553	572	1442		106	402		873	
Starvation Cap Reductn		0	0	0	0	0		0	0		0	
Spillback Cap Reductn		0	0	0	0	0		0	0		0	
Storage Cap Reductn		0	0	0	0	0		0	0		0	
Reduced v/c Ratio		140.00	0.94	1.01	0.71	0.66		7.19	0.99		0.32	

Intersection Summary

Area Type: Other
 Cycle Length: 160

Lanes, Volumes, Timings

4: Prince William Pkwy & Old Bridge Road & Touchstone Cir

05/26/2023



Lane Group	SBL	SBT	SBR
Detector 2 Extend (s)			
Detector 3 Position(ft)			
Detector 3 Size(ft)			
Detector 3 Type			
Detector 3 Channel			
Detector 3 Extend (s)			
Turn Type	Split	NA	pm+ov
Protected Phases	3	3	5
Permitted Phases			3
Detector Phase	3	3	3
Switch Phase			
Minimum Initial (s)	5.0	5.0	5.0
Minimum Split (s)	12.6	12.6	12.9
Total Split (s)	25.0	25.0	31.0
Total Split (%)	15.6%	15.6%	19.4%
Maximum Green (s)	17.4	17.4	23.1
Yellow Time (s)	3.3	3.3	3.8
All-Red Time (s)	4.3	4.3	4.1
Lost Time Adjust (s)	0.0	0.0	0.0
Total Lost Time (s)	7.6	7.6	7.9
Lead/Lag	Lead	Lead	Lead
Lead-Lag Optimize?			
Vehicle Extension (s)	3.0	3.0	3.0
Recall Mode	None	None	None
Walk Time (s)			
Flash Dont Walk (s)			
Pedestrian Calls (#/hr)			
Act Effct Green (s)	0.0	17.4	40.2
Actuated g/C Ratio	0.00	0.11	0.25
v/c Ratio	no cap	0.30	0.23
Control Delay		69.1	6.3
Queue Delay		0.0	0.0
Total Delay	Error	69.1	6.3
LOS	F	E	A
Approach Delay		Err	
Approach LOS		F	
Queue Length 50th (ft)	~65	57	6
Queue Length 95th (ft)	m#128	m81	m23
Internal Link Dist (ft)		237	
Turn Bay Length (ft)			
Base Capacity (vph)	1	375	453
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	30.00	0.30	0.23
Intersection Summary			

Lanes, Volumes, Timings

4: Prince William Pkwy & Old Bridge Road & Touchstone Cir

05/26/2023

Actuated Cycle Length: 160

Offset: 32 (20%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: Err

Intersection Signal Delay: Err

Intersection LOS: F

Intersection Capacity Utilization 96.2%

ICU Level of Service F

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.







Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Prince William Pkwy & Old Bridge Road & Touchstone Cir

 Ø1	 Ø2 (R)	 Ø3	 Ø4
35 s	49 s	25 s	51 s
 Ø5	 Ø6 (R)		
31 s	53 s		

Lanes, Volumes, Timings
5: Tribe at the Glen & Old Bridge Road

05/26/2023



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑		↑↑↑		↑
Traffic Volume (vph)	1132	55	0	1306	0	14
Future Volume (vph)	1132	55	0	1306	0	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	14	14
Grade (%)	-3%			2%	0%	
Storage Length (ft)		175	0		0	0
Storage Lanes		1	0		0	1
Taper Length (ft)			25		25	
Lane Util. Factor	0.95	1.00	1.00	0.91	1.00	1.00
Fr _t		0.850				0.865
Flt Protected						
Satd. Flow (prot)	3457	1639	0	4938	0	1753
Flt Permitted						
Satd. Flow (perm)	3457	1639	0	4938	0	1753
Link Speed (mph)	45			45	15	
Link Distance (ft)	371			392	332	
Travel Time (s)	5.6			5.9	15.1	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	6%	0%	0%	4%	0%	0%
Adj. Flow (vph)	1364	66	0	1573	0	17
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1364	66	0	1573	0	17
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			24	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.98	0.98	1.01	1.01	0.92	0.92
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	41.3%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings

6: Troupe Street/Glen Shopping Ctr & Old Bridge Road

05/26/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	1078	52	86	1199	77	92	8	169	45	12	15
Future Volume (vph)	16	1078	52	86	1199	77	92	8	169	45	12	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			7%			-1%			0%	
Storage Length (ft)	175		210	335		0	0		0	0		100
Storage Lanes	1		1	1		1	0		1	0		1
Taper Length (ft)	75			110			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.98			0.96		1.00	0.99		1.00	0.97
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950				0.956			0.962	
Satd. Flow (prot)	1823	3440	1568	1598	3350	1543	0	1745	1462	0	1828	1615
Flt Permitted	0.950			0.950				0.956			0.962	
Satd. Flow (perm)	1823	3440	1544	1598	3350	1484	0	1740	1441	0	1825	1560
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			75			82			184			126
Link Speed (mph)		45			45			25				15
Link Distance (ft)		392			720			722				387
Travel Time (s)		5.9			10.9			19.7				17.6
Confl. Peds. (#/hr)			3			6	3		2	2		7
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	6%	4%	9%	4%	1%	5%	0%	11%	0%	0%	0%
Adj. Flow (vph)	17	1172	57	93	1303	84	100	9	184	49	13	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	17	1172	57	93	1303	84	0	109	184	0	62	16
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	1.05	1.05	1.05	0.99	0.99	0.99	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1	1	1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	35	206	53	35	206	53	35	35	35	5	35	35
Trailing Detector (ft)	-5	200	47	-5	200	47	-5	-5	-5	0	-5	-5
Detector 1 Position(ft)	-5	200	47	-5	200	47	-5	-5	-5	0	-5	-5
Detector 1 Size(ft)	40	6	6	40	6	6	40	40	40	5	40	40
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Split	NA	Perm	Split	NA	Perm
Protected Phases	5	2	4	1	6	3	4	4		3	3	
Permitted Phases			2			6			4			3
Detector Phase	5	2	2	1	6	6	4	4	4	3	3	3

Lanes, Volumes, Timings

6: Troupe Street/Glen Shopping Ctr & Old Bridge Road

05/26/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	7.0	15.0	7.0	7.0	15.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	14.0	30.5	48.0	14.0	32.0	14.0	48.0	48.0	48.0	14.0	14.0	14.0
Total Split (s)	23.0	75.0	40.0	23.0	75.0	22.0	40.0	40.0	40.0	22.0	22.0	22.0
Total Split (%)	14.4%	46.9%	25.0%	14.4%	46.9%	13.8%	25.0%	25.0%	25.0%	13.8%	13.8%	13.8%
Maximum Green (s)	16.0	68.5	32.0	16.0	69.0	15.0	32.0	32.0	32.0	15.0	15.0	15.0
Yellow Time (s)	4.5	5.5	3.5	4.0	5.0	3.0	3.5	3.5	3.5	3.0	3.0	3.0
All-Red Time (s)	2.5	1.0	4.5	3.0	1.0	4.0	4.5	4.5	4.5	4.0	4.0	4.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	7.0	6.5	8.0	7.0	6.0	7.0		8.0	8.0		7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None
Walk Time (s)		7.0	8.0		7.0		8.0	8.0	8.0			
Flash Dont Walk (s)		17.0	32.0		19.0		32.0	32.0	32.0			
Pedestrian Calls (#/hr)		0	0		0		0	0	0			
Act Effct Green (s)	7.6	93.2	107.1	14.7	106.3	114.9		15.4	15.4		11.0	11.0
Actuated g/C Ratio	0.05	0.58	0.67	0.09	0.66	0.72		0.10	0.10		0.07	0.07
v/c Ratio	0.20	0.59	0.05	0.64	0.59	0.08		0.65	0.60		0.50	0.07
Control Delay	75.9	21.5	2.7	107.1	11.4	0.4		96.0	28.5		84.4	0.6
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	75.9	21.6	2.7	107.1	11.5	0.4		96.0	28.5		84.4	0.6
LOS	E	C	A	F	B	A		F	C		F	A
Approach Delay		21.4			16.8			53.6			67.2	
Approach LOS		C			B			D			E	
Queue Length 50th (ft)	18	281	4	82	493	7		115	37		64	0
Queue Length 95th (ft)	m29	m357	m10	144	684	0		181	103		114	0
Internal Link Dist (ft)		312			640			642			307	
Turn Bay Length (ft)	175		210	335								100
Base Capacity (vph)	182	2003	1060	170	2226	1092		349	435		171	260
Starvation Cap Reductn	0	106	0	0	68	0		0	0		0	0
Spillback Cap Reductn	0	0	0	0	0	0		0	0		0	0
Storage Cap Reductn	0	0	0	0	0	0		0	0		0	0
Reduced v/c Ratio	0.09	0.62	0.05	0.55	0.60	0.08		0.31	0.42		0.36	0.06

Intersection Summary

Area Type:	Other
Cycle Length:	160
Actuated Cycle Length:	160
Offset:	28 (18%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow
Natural Cycle:	130
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.65
Intersection Signal Delay:	23.4
Intersection LOS:	C
Intersection Capacity Utilization:	70.0%
ICU Level of Service:	C
Analysis Period (min):	15
m Volume for 95th percentile queue is metered by upstream signal.	

Lanes, Volumes, Timings

6: Troupe Street/Glen Shopping Ctr & Old Bridge Road

05/26/2023

Splits and Phases: 6: Troupe Street/Glen Shopping Ctr & Old Bridge Road

 Ø1	 Ø2 (R)	 Ø3	 Ø4
23 s	75 s	22 s	40 s
 Ø5	 Ø6 (R)		
23 s	75 s		

Lanes, Volumes, Timings

7: Titania Way/Touchstone Circle & Old Bridge Road

05/26/2023



Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	3	11	1265	13	9	12	1320	51	17	1	15	56
Future Volume (vph)	3	11	1265	13	9	12	1320	51	17	1	15	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)			4%				-7%			-3%		
Storage Length (ft)		145		0		225		440	0		0	0
Storage Lanes		1		1		1		1	0		0	0
Taper Length (ft)		85				90			25			25
Lane Util. Factor	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor				0.98				0.98		0.99		
Frt				0.850				0.850		0.938		
Flt Protected		0.950				0.950				0.975		
Satd. Flow (prot)	0	1662	3338	1465	0	1868	3593	1607	0	1698	0	0
Flt Permitted		0.169				0.178				0.807		
Satd. Flow (perm)	0	296	3338	1432	0	350	3593	1573	0	1406	0	0
Right Turn on Red				Yes				Yes			Yes	
Satd. Flow (RTOR)				89				89		16		
Link Speed (mph)			45				45			20		
Link Distance (ft)			720				685			276		
Travel Time (s)			10.9				10.4			9.4		
Confl. Peds. (#/hr)		4		1		1		6			3	2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	8%	6%	8%	0%	0%	4%	4%	6%	0%	0%	4%
Adj. Flow (vph)	3	12	1332	14	9	13	1389	54	18	1	16	59
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	15	1332	14	0	22	1389	54	0	35	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	R NA	Left	Left	Right	Left	Left	Right	Left
Median Width(ft)			12				12			0		
Link Offset(ft)			0				0			0		
Crosswalk Width(ft)			16				16			16		
Two way Left Turn Lane												
Headway Factor	1.03	1.03	1.03	1.03	0.96	0.96	0.96	0.96	0.98	0.98	0.98	1.01
Turning Speed (mph)	9	15		9	9	15		9	15		9	15
Number of Detectors	1	1	1	1	1	1	1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	35	206	53	50	35	206	53	35	35		5
Trailing Detector (ft)	0	-5	200	47	0	-5	200	47	-5	-5		0
Detector 1 Position(ft)	0	-5	200	47	0	-5	200	47	-5	-5		0
Detector 1 Size(ft)	50	40	6	6	50	40	6	6	40	40		5
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Turn Type		pm+pt	NA	Perm		pm+pt	NA	Perm	Perm	NA		Perm
Protected Phases		1	6			5	2			4		
Permitted Phases		6		6		2		2	4			8
Detector Phase		1	6	6		5	2	2	4	4		8

Lanes, Volumes, Timings

7: Titania Way/Touchstone Circle & Old Bridge Road

05/26/2023



Lane Group	SBT	SBR
Lane Configurations	↔	↗
Traffic Volume (vph)	0	22
Future Volume (vph)	0	22
Ideal Flow (vphpl)	1900	1900
Grade (%)	2%	
Storage Length (ft)		0
Storage Lanes		1
Taper Length (ft)		
Lane Util. Factor	1.00	1.00
Ped Bike Factor	1.00	0.98
Frt		0.850
Flt Protected	0.950	
Satd. Flow (prot)	1718	1508
Flt Permitted	0.734	
Satd. Flow (perm)	1324	1482
Right Turn on Red		Yes
Satd. Flow (RTOR)		95
Link Speed (mph)	30	
Link Distance (ft)	350	
Travel Time (s)	8.0	
Confl. Peds. (#/hr)		4
Peak Hour Factor	0.95	0.95
Heavy Vehicles (%)	0%	6%
Adj. Flow (vph)	0	23
Shared Lane Traffic (%)		
Lane Group Flow (vph)	59	23
Enter Blocked Intersection	No	No
Lane Alignment	Left	Right
Median Width(ft)	0	
Link Offset(ft)	0	
Crosswalk Width(ft)	16	
Two way Left Turn Lane		
Headway Factor	1.01	1.01
Turning Speed (mph)		9
Number of Detectors	1	1
Detector Template		
Leading Detector (ft)	35	35
Trailing Detector (ft)	-5	-5
Detector 1 Position(ft)	-5	-5
Detector 1 Size(ft)	40	40
Detector 1 Type	Cl+Ex	Cl+Ex
Detector 1 Channel		
Detector 1 Extend (s)	0.0	0.0
Detector 1 Queue (s)	0.0	0.0
Detector 1 Delay (s)	0.0	0.0
Turn Type	NA	Perm
Protected Phases	8	
Permitted Phases		8
Detector Phase	8	8

Lanes, Volumes, Timings

7: Titania Way/Touchstone Circle & Old Bridge Road

05/26/2023



Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Switch Phase												
Minimum Initial (s)		5.0	20.0	20.0		5.0	20.0	20.0	5.0	5.0		5.0
Minimum Split (s)		13.5	33.5	33.5		13.5	38.5	38.5	43.5	43.5		41.5
Total Split (s)		19.0	97.0	97.0		19.0	97.0	97.0	44.0	44.0		44.0
Total Split (%)		11.9%	60.6%	60.6%		11.9%	60.6%	60.6%	27.5%	27.5%		27.5%
Maximum Green (s)		10.5	88.5	88.5		10.5	88.5	88.5	36.5	36.5		36.5
Yellow Time (s)		5.5	5.5	5.5		5.5	5.5	5.5	3.5	3.5		3.5
All-Red Time (s)		3.0	3.0	3.0		3.0	3.0	3.0	4.0	4.0		4.0
Lost Time Adjust (s)		0.0	0.0	0.0		0.0	0.0	0.0		0.0		
Total Lost Time (s)		8.5	8.5	8.5		8.5	8.5	8.5		7.5		
Lead/Lag		Lead	Lag	Lag		Lead	Lag	Lag				
Lead-Lag Optimize?												
Vehicle Extension (s)		2.0	8.0	8.0		2.0	8.0	8.0	2.0	2.0		2.0
Recall Mode		None	C-Max	C-Max		None	C-Max	C-Max	None	None		None
Walk Time (s)			7.0	7.0			7.0	7.0	8.0	8.0		7.0
Flash Dont Walk (s)			18.0	18.0			23.0	23.0	28.0	28.0		27.0
Pedestrian Calls (#/hr)			0	0			0	0	0	0		0
Act Effct Green (s)		129.9	128.6	128.6		131.7	131.3	131.3		11.4		
Actuated g/C Ratio		0.81	0.80	0.80		0.82	0.82	0.82		0.07		
v/c Ratio		0.05	0.50	0.01		0.07	0.47	0.04		0.30		
Control Delay		1.8	2.9	0.0		2.4	7.0	0.4		49.8		
Queue Delay		0.0	0.0	0.0		0.0	0.0	0.0		0.0		
Total Delay		1.8	2.9	0.0		2.4	7.0	0.4		49.8		
LOS		A	A	A		A	A	A		D		
Approach Delay			2.9				6.7			49.8		
Approach LOS			A				A			D		
Queue Length 50th (ft)		1	69	0		2	224	0		19		
Queue Length 95th (ft)		m2	100	m0		m4	479	m4		56		
Internal Link Dist (ft)			640				605			196		
Turn Bay Length (ft)		145				225		440				
Base Capacity (vph)		335	2682	1168		392	2948	1307		333		
Starvation Cap Reductn		0	0	0		0	0	0		0		
Spillback Cap Reductn		0	0	0		0	64	0		0		
Storage Cap Reductn		0	0	0		0	0	0		0		
Reduced v/c Ratio		0.04	0.50	0.01		0.06	0.48	0.04		0.11		

Intersection Summary

Area Type: Other

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 38 (24%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.61

Intersection Signal Delay: 7.2

Intersection LOS: A

Intersection Capacity Utilization 69.9%

ICU Level of Service C

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Lanes, Volumes, Timings

7: Titania Way/Touchstone Circle & Old Bridge Road

05/26/2023

Splits and Phases: 7: Titania Way/Touchstone Circle & Old Bridge Road



Lanes, Volumes, Timings

7: Titania Way/Touchstone Circle & Old Bridge Road

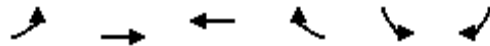
05/26/2023



Lane Group	SBT	SBR
Switch Phase		
Minimum Initial (s)	5.0	5.0
Minimum Split (s)	41.5	41.5
Total Split (s)	44.0	44.0
Total Split (%)	27.5%	27.5%
Maximum Green (s)	36.5	36.5
Yellow Time (s)	3.5	3.5
All-Red Time (s)	4.0	4.0
Lost Time Adjust (s)	0.0	0.0
Total Lost Time (s)	7.5	7.5
Lead/Lag		
Lead-Lag Optimize?		
Vehicle Extension (s)	2.0	2.0
Recall Mode	None	None
Walk Time (s)	7.0	7.0
Flash Dont Walk (s)	27.0	27.0
Pedestrian Calls (#/hr)	0	0
Act Effct Green (s)	11.6	11.6
Actuated g/C Ratio	0.07	0.07
v/c Ratio	0.61	0.12
Control Delay	97.3	1.2
Queue Delay	0.0	0.0
Total Delay	97.3	1.2
LOS	F	A
Approach Delay	70.3	
Approach LOS	E	
Queue Length 50th (ft)	61	0
Queue Length 95th (ft)	111	0
Internal Link Dist (ft)	270	
Turn Bay Length (ft)		
Base Capacity (vph)	302	411
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	1
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.20	0.06
Intersection Summary		

Lanes, Volumes, Timings
8: Old Bridge Road & Brussels Way

05/26/2023



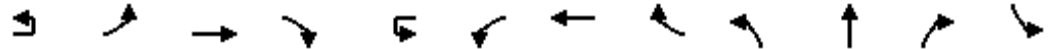
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↗		↗
Traffic Volume (vph)	0	1345	1381	10	0	11
Future Volume (vph)	0	1345	1381	10	0	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		7%	-1%		1%	
Storage Length (ft)	0			225	0	0
Storage Lanes	0			1	0	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor						
Flt				0.850		0.865
Flt Protected						
Satd. Flow (prot)	0	3286	3489	1623	0	1635
Flt Permitted						
Satd. Flow (perm)	0	3286	3489	1623	0	1635
Link Speed (mph)		45	45		25	
Link Distance (ft)		685	503		275	
Travel Time (s)		10.4	7.6		7.5	
Confl. Peds. (#/hr)	7			7		7
Peak Hour Factor	0.59	0.59	0.59	0.59	0.59	0.59
Heavy Vehicles (%)	0%	6%	4%	0%	0%	0%
Adj. Flow (vph)	0	2280	2341	17	0	19
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	2280	2341	17	0	19
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.05	1.05	0.99	0.99	1.01	1.01
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	50.3%
ICU Level of Service	A
Analysis Period (min)	15

Lanes, Volumes, Timings
 9: Old Bridge Ln/Church Entr & Old Bridge Road

05/26/2023



Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	3	3	1322	17	5	10	1354	3	34	0	28	1
Future Volume (vph)	3	3	1322	17	5	10	1354	3	34	0	28	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	10
Grade (%)			1%				3%			0%		
Storage Length (ft)		365		340		225		230	0		0	0
Storage Lanes		1		1		1		1	0		0	1
Taper Length (ft)		60				105			25			25
Lane Util. Factor	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Fr _t				0.850				0.850		0.939		
Fl _t Protected		0.950				0.950				0.973		0.950
Satd. Flow (prot)	0	1796	3389	1591	0	1699	3419	1591	0	1736	0	1693
Fl _t Permitted		0.950				0.950				0.973		0.950
Satd. Flow (perm)	0	1796	3389	1591	0	1699	3419	1591	0	1736	0	1693
Link Speed (mph)			45				45			25		
Link Distance (ft)			503				585			390		
Travel Time (s)			7.6				8.9			10.6		
Confl. Peds. (#/hr)		5		4		4		5			4	
Confl. Bikes (#/hr)				1								
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	0%	6%	1%	0%	7%	4%	0%	0%	0%	0%	0%
Adj. Flow (vph)	3	3	1363	18	5	10	1396	3	35	0	29	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	6	1363	18	0	15	1396	3	0	64	0	1
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	R NA	Left	Left	Right	Left	Left	Right	Left
Median Width(ft)			12				12			10		
Link Offset(ft)			0				0			0		
Crosswalk Width(ft)			16				16			16		
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.02	1.02	1.02	1.02	1.00	1.00	1.00	1.09
Turning Speed (mph)	9	15		9	9	15		9	15		9	15
Sign Control			Free				Free			Stop		

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	57.3%
ICU Level of Service	B
Analysis Period (min)	15

Lanes, Volumes, Timings
 9: Old Bridge Ln/Church Entr & Old Bridge Road

05/26/2023



Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	0	0
Future Volume (vph)	0	0
Ideal Flow (vphpl)	1900	1900
Lane Width (ft)	10	10
Grade (%)	-1%	
Storage Length (ft)		0
Storage Lanes		1
Taper Length (ft)		
Lane Util. Factor	1.00	1.00
Ped Bike Factor		
Flt		
Flt Protected		
Satd. Flow (prot)	0	1782
Flt Permitted		
Satd. Flow (perm)	0	1782
Link Speed (mph)	15	
Link Distance (ft)	247	
Travel Time (s)	11.2	
Confl. Peds. (#/hr)		5
Confl. Bikes (#/hr)		
Peak Hour Factor	0.97	0.97
Heavy Vehicles (%)	0%	0%
Adj. Flow (vph)	0	0
Shared Lane Traffic (%)		
Lane Group Flow (vph)	0	0
Enter Blocked Intersection	No	No
Lane Alignment	Left	Right
Median Width(ft)	10	
Link Offset(ft)	0	
Crosswalk Width(ft)	16	
Two way Left Turn Lane		
Headway Factor	1.09	1.09
Turning Speed (mph)		9
Sign Control	Stop	
Intersection Summary		

Lanes, Volumes, Timings

10: Rockwood Lane/Westridge Drive & Old Bridge Road

05/26/2023



Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	3	143	1210	0	8	0	1137	78	0	0	0	154
Future Volume (vph)	3	143	1210	0	8	0	1137	78	0	0	0	154
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)			1%				3%			0%		
Storage Length (ft)		165		0		300		1000	0		0	0
Storage Lanes		1		0		1		1	0		0	0
Taper Length (ft)		65				115			25			25
Lane Util. Factor	0.95	1.00	0.95	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						1.00		0.98				
Frt								0.850				
Flt Protected		0.950				0.950						
Satd. Flow (prot)	0	1681	3389	0	0	1778	3387	1544	0	1900	0	0
Flt Permitted		0.152				0.209						
Satd. Flow (perm)	0	269	3389	0	0	390	3387	1515	0	1900	0	0
Right Turn on Red				Yes				Yes			Yes	
Satd. Flow (RTOR)								88				
Link Speed (mph)			45				45			25		
Link Distance (ft)			585				1227			407		
Travel Time (s)			8.9				18.6			11.1		
Confl. Peds. (#/hr)		3		5		5		5			7	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	7%	6%	0%	0%	0%	5%	3%	0%	0%	0%	2%
Adj. Flow (vph)	3	155	1315	0	9	0	1236	85	0	0	0	167
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	158	1315	0	0	9	1236	85	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	R NA	Left	Left	Right	Left	Left	Right	Left
Median Width(ft)			12				12			0		
Link Offset(ft)			0				0			0		
Crosswalk Width(ft)			16				16			16		
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.02	1.02	1.02	1.02	1.00	1.00	1.00	0.99
Turning Speed (mph)	9	15		9	9	15		9	15		9	15
Number of Detectors	1	1	3		1	1	3	1	1	1		1
Detector Template												
Leading Detector (ft)	50	35	330		50	35	330	35	0	35		0
Trailing Detector (ft)	0	-5	110		0	-5	110	-5	0	-5		0
Detector 1 Position(ft)	0	-5	110		0	-5	110	-5	0	-5		0
Detector 1 Size(ft)	50	40	6		50	40	6	40	0	40		0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0
Detector 2 Position(ft)			217				217					
Detector 2 Size(ft)			6				6					
Detector 2 Type			Cl+Ex				Cl+Ex					
Detector 2 Channel												

Lanes, Volumes, Timings

10: Rockwood Lane/Westridge Drive & Old Bridge Road

05/26/2023



Lane Group	SBT	SBR
Lane Configurations	↕	↗
Traffic Volume (vph)	0	232
Future Volume (vph)	0	232
Ideal Flow (vphpl)	1900	1900
Grade (%)	-1%	
Storage Length (ft)		0
Storage Lanes		1
Taper Length (ft)		
Lane Util. Factor	1.00	1.00
Ped Bike Factor	1.00	0.99
Frt		0.850
Flt Protected	0.950	
Satd. Flow (prot)	1778	1591
Flt Permitted	0.757	
Satd. Flow (perm)	1413	1569
Right Turn on Red		Yes
Satd. Flow (RTOR)		38
Link Speed (mph)	35	
Link Distance (ft)	497	
Travel Time (s)	9.7	
Confl. Peds. (#/hr)		3
Peak Hour Factor	0.92	0.92
Heavy Vehicles (%)	0%	2%
Adj. Flow (vph)	0	252
Shared Lane Traffic (%)		
Lane Group Flow (vph)	167	252
Enter Blocked Intersection	No	No
Lane Alignment	Left	Right
Median Width(ft)	25	
Link Offset(ft)	0	
Crosswalk Width(ft)	16	
Two way Left Turn Lane		
Headway Factor	0.99	0.99
Turning Speed (mph)		9
Number of Detectors	1	1
Detector Template		
Leading Detector (ft)	35	35
Trailing Detector (ft)	-5	-5
Detector 1 Position(ft)	-5	-5
Detector 1 Size(ft)	40	40
Detector 1 Type	Cl+Ex	Cl+Ex
Detector 1 Channel		
Detector 1 Extend (s)	0.0	0.0
Detector 1 Queue (s)	0.0	0.0
Detector 1 Delay (s)	0.0	0.0
Detector 2 Position(ft)		
Detector 2 Size(ft)		
Detector 2 Type		
Detector 2 Channel		

Lanes, Volumes, Timings

10: Rockwood Lane/Westridge Drive & Old Bridge Road

05/26/2023



Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Detector 2 Extend (s)			0.0				0.0					
Detector 3 Position(ft)			324				324					
Detector 3 Size(ft)			6				6					
Detector 3 Type			Cl+Ex				Cl+Ex					
Detector 3 Channel												
Detector 3 Extend (s)			0.0				0.0					
Turn Type	pm+pt		NA			Perm	NA	Perm				Perm
Protected Phases		1	6				2			8		
Permitted Phases		6				2		2	8			4
Detector Phase		1	6			2	2	2	8	8		4
Switch Phase												
Minimum Initial (s)		5.0	20.0			20.0	20.0	20.0	5.0	5.0		5.0
Minimum Split (s)		13.6	28.6			42.6	42.6	42.6	37.3	37.3		12.3
Total Split (s)		25.0	105.0			80.0	80.0	80.0	55.0	55.0		55.0
Total Split (%)		15.6%	65.6%			50.0%	50.0%	50.0%	34.4%	34.4%		34.4%
Maximum Green (s)		16.4	96.4			71.4	71.4	71.4	47.7	47.7		47.7
Yellow Time (s)		5.2	5.2			5.2	5.2	5.2	3.9	3.9		3.9
All-Red Time (s)		3.4	3.4			3.4	3.4	3.4	3.4	3.4		3.4
Lost Time Adjust (s)		0.0	0.0			0.0	0.0	0.0		0.0		
Total Lost Time (s)		8.6	8.6			8.6	8.6	8.6		7.3		
Lead/Lag		Lead				Lag	Lag	Lag				
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0	4.0			4.0	4.0	4.0	3.5	3.5		3.5
Recall Mode		None	C-Max			C-Max	C-Max	C-Max	None	None		None
Walk Time (s)						7.0	7.0	7.0	7.0	7.0		
Flash Dont Walk (s)						27.0	27.0	27.0	23.0	23.0		
Pedestrian Calls (#/hr)						0	0	0	0	0		
Act Effct Green (s)		118.5	118.5			98.1	98.1	98.1				
Actuated g/C Ratio		0.74	0.74			0.61	0.61	0.61				
v/c Ratio		0.52	0.52			0.04	0.60	0.09				
Control Delay		14.2	11.9			16.8	21.9	3.2				
Queue Delay		0.0	0.0			0.0	0.0	0.0				
Total Delay		14.2	11.9			16.8	21.9	3.2				
LOS		B	B			B	C	A				
Approach Delay			12.1				20.6					
Approach LOS			B				C					
Queue Length 50th (ft)		57	313			4	397	0				
Queue Length 95th (ft)		93	557			15	577	27				
Internal Link Dist (ft)			505				1147			327		
Turn Bay Length (ft)		165				300		1000				
Base Capacity (vph)		343	2510			239	2076	962				
Starvation Cap Reductn		0	0			0	0	0				
Spillback Cap Reductn		0	0			0	0	0				
Storage Cap Reductn		0	0			0	0	0				
Reduced v/c Ratio		0.46	0.52			0.04	0.60	0.09				

Intersection Summary

Area Type: Other
 Cycle Length: 160

Lanes, Volumes, Timings
 10: Rockwood Lane/Westridge Drive & Old Bridge Road

05/26/2023



Lane Group	SBT	SBR
Detector 2 Extend (s)		
Detector 3 Position(ft)		
Detector 3 Size(ft)		
Detector 3 Type		
Detector 3 Channel		
Detector 3 Extend (s)		
Turn Type	NA	pm+ov
Protected Phases	4	1
Permitted Phases		4
Detector Phase	4	4
Switch Phase		
Minimum Initial (s)	5.0	5.0
Minimum Split (s)	12.3	13.6
Total Split (s)	55.0	25.0
Total Split (%)	34.4%	15.6%
Maximum Green (s)	47.7	16.4
Yellow Time (s)	3.9	5.2
All-Red Time (s)	3.4	3.4
Lost Time Adjust (s)	0.0	0.0
Total Lost Time (s)	7.3	8.6
Lead/Lag		Lead
Lead-Lag Optimize?		
Vehicle Extension (s)	3.5	3.0
Recall Mode	None	None
Walk Time (s)		
Flash Dont Walk (s)		
Pedestrian Calls (#/hr)		
Act Effct Green (s)	25.6	36.1
Actuated g/C Ratio	0.16	0.23
v/c Ratio	0.74	0.65
Control Delay	82.5	48.3
Queue Delay	0.0	0.0
Total Delay	82.5	48.3
LOS	F	D
Approach Delay	61.9	
Approach LOS	E	
Queue Length 50th (ft)	169	191
Queue Length 95th (ft)	241	251
Internal Link Dist (ft)	417	
Turn Bay Length (ft)		
Base Capacity (vph)	421	514
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.40	0.49
Intersection Summary		

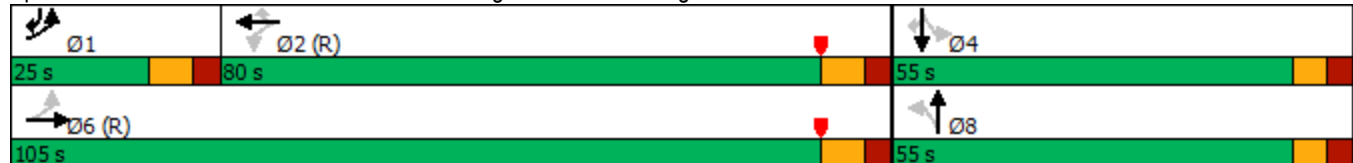
Lanes, Volumes, Timings

10: Rockwood Lane/Westridge Drive & Old Bridge Road

05/26/2023

Actuated Cycle Length: 160	
Offset: 128 (80%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow	
Natural Cycle: 95	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.74	
Intersection Signal Delay: 22.1	Intersection LOS: C
Intersection Capacity Utilization 85.6%	ICU Level of Service E
Analysis Period (min) 15	























Splits and Phases: 10: Rockwood Lane/Westridge Drive & Old Bridge Road



Lanes, Volumes, Timings

11: Touchstone Cir & Exxon/Glen Shopping Ctr

05/26/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								  			   	
Traffic Volume (vph)	0	0	18	0	0	61	0	134	107	0	216	17
Future Volume (vph)	0	0	18	0	0	61	0	134	107	0	216	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			-1%			2%	
Storage Length (ft)	0		0	0		0	50		0	30		10
Storage Lanes	0		1	0		1	1		1	1		1
Taper Length (ft)	25			25			95			85		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.86	0.86
Ped Bike Factor												
Frt			0.865			0.865			0.850		0.989	
Flt Protected												
Satd. Flow (prot)	0	0	1644	0	0	1644	0	4965	1607	0	6283	0
Flt Permitted												
Satd. Flow (perm)	0	0	1644	0	0	1644	0	4965	1607	0	6283	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		125			186			317			272	
Travel Time (s)		2.8			4.2			7.2			6.2	
Confl. Peds. (#/hr)	3		1	1		3			1			3
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	5%	1%	0%	2%	0%
Adj. Flow (vph)	0	0	21	0	0	72	0	158	126	0	254	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	21	0	0	72	0	158	126	0	274	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.99	0.99	0.99	1.01	1.01	1.01
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	15.3%						ICU Level of Service A					
Analysis Period (min)	15											

Lanes, Volumes, Timings
 13: Touchstone Cir & Seeton Square/Merchant Plaza

05/26/2023

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	2	1	16	87	4	3	78	47	44	26	5	52
Future Volume (vph)	2	1	16	87	4	3	78	47	44	26	5	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			0%				-1%			2%
Storage Length (ft)	0		0	0		0		0		0	250	
Storage Lanes	0		0	0		0		1		0	1	
Taper Length (ft)	25			25				25			150	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.95	0.95	1.00	0.95
Ped Bike Factor												
Frt		0.885			0.996				0.944			0.975
Flt Protected		0.995			0.956			0.950			0.950	
Satd. Flow (prot)	0	1595	0	0	1792	0	0	1814	3167	0	1489	3427
Flt Permitted		0.995			0.956			0.950			0.950	
Satd. Flow (perm)	0	1595	0	0	1792	0	0	1814	3167	0	1489	3427
Link Speed (mph)		30			15				30			30
Link Distance (ft)		151			241				272			577
Travel Time (s)		3.4			11.0				6.2			13.1
Confl. Peds. (#/hr)	2		1	1		3				2	1	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	7%	1%	0%	0%	0%	0%	13%	0%	20%	2%
Adj. Flow (vph)	2	1	17	94	4	3	84	51	47	28	5	56
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	20	0	0	101	0	0	135	75	0	5	67
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	R NA	Left	Left	Right	Left	Left
Median Width(ft)		0			0				24			24
Link Offset(ft)		0			0				0			0
Crosswalk Width(ft)		16			16				16			16
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	1.00	1.00	1.00	0.99	0.99	0.99	0.99	1.01	1.01
Turning Speed (mph)	15		9	15		9	9	15		9	15	
Sign Control		Stop			Stop				Free			Free

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	32.3%
ICU Level of Service	A
Analysis Period (min)	15

Lanes, Volumes, Timings
 13: Touchstone Cir & Seeton Square/Merchant Plaza

05/26/2023

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	10
Future Volume (vph)	10
Ideal Flow (vphpl)	1900
Grade (%)	
Storage Length (ft)	0
Storage Lanes	0
Taper Length (ft)	
Lane Util. Factor	0.95
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	2
Peak Hour Factor	0.93
Heavy Vehicles (%)	0%
Adj. Flow (vph)	11
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.01
Turning Speed (mph)	9
Sign Control	
Intersection Summary	

Lanes, Volumes, Timings
 14: Touchstone Circle & Merchant Plaza/CVS

05/26/2023

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	1	18	4	1	0	20	38	5	0	56	7
Future Volume (vph)	4	1	18	4	1	0	20	38	5	0	56	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			-3%			3%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor												
Fr _t		0.896						0.988			0.983	
Fl _t Protected		0.991			0.963			0.984				
Satd. Flow (prot)	0	1687	0	0	1830	0	0	3330	0	0	3376	0
Fl _t Permitted		0.991			0.963			0.984				
Satd. Flow (perm)	0	1687	0	0	1830	0	0	3330	0	0	3376	0
Link Speed (mph)		15			15			30			30	
Link Distance (ft)		206			90			350			223	
Travel Time (s)		9.4			4.1			8.0			5.1	
Confl. Peds. (#/hr)			5	2		4	3		6	4		3
Peak Hour Factor	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	22%	0%	0%	0%	4%	0%
Adj. Flow (vph)	7	2	30	7	2	0	33	63	8	0	93	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	39	0	0	9	0	0	104	0	0	105	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.98	0.98	0.98	1.02	1.02	1.02
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	20.3%						ICU Level of Service A					
Analysis Period (min)	15											

Lanes, Volumes, Timings
 15: Prince William Pkwy & Chinn Park Dr

05/26/2023



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↑↑↑			↑↑↑
Traffic Volume (vph)	0	19	1361	162	0	2016
Future Volume (vph)	0	19	1361	162	0	2016
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%		1%			0%
Storage Length (ft)	0	0		0	0	
Storage Lanes	0	1		0	0	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.86	0.86	1.00	0.91
Fr _t		0.865	0.984			
Fl _t Protected						
Satd. Flow (prot)	0	1550	6365	0	0	5187
Fl _t Permitted						
Satd. Flow (perm)	0	1550	6365	0	0	5187
Link Speed (mph)	30		45			45
Link Distance (ft)	763		990			666
Travel Time (s)	17.3		15.0			10.1
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	0%	6%	0%	5%	0%	0%
Adj. Flow (vph)	0	22	1583	188	0	2344
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	22	1771	0	0	2344
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	0		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.01	1.01	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	42.3%
ICU Level of Service	A
Analysis Period (min)	15

Lanes, Volumes, Timings

16: Prince William Pkwy & Kenwood Dr./

School Entrance

05/26/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations		↕			↕	↕			↑↑↑	↕		↕
Traffic Volume (vph)	44	1	76	28	1	27	2	23	1451	59	1	43
Future Volume (vph)	44	1	76	28	1	27	2	23	1451	59	1	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			1%				-2%			
Storage Length (ft)	0		0	0		0		195		245		230
Storage Lanes	0		0	0		1		1		1		1
Taper Length (ft)	25			25				200				200
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	0.91	1.00	0.91	1.00
Ped Bike Factor		0.99			1.00					0.98		
Frt		0.915				0.850				0.850		
Flt Protected		0.982			0.954			0.950				0.950
Satd. Flow (prot)	0	1621	0	0	1674	1488	0	1823	4989	1568	0	1712
Flt Permitted		0.982			0.954			0.067				0.134
Satd. Flow (perm)	0	1621	0	0	1671	1488	0	129	4989	1531	0	242
Right Turn on Red			Yes			Yes				Yes		
Satd. Flow (RTOR)		42				85				85		
Link Speed (mph)		25			25				45			
Link Distance (ft)		579			360				769			
Travel Time (s)		15.8			9.8				11.7			
Confl. Peds. (#/hr)			4	2				2		2		
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	5%	100%	0%	8%	0%	8%	0%	0%	5%	4%	0%	5%
Adj. Flow (vph)	46	1	79	29	1	28	2	24	1511	61	1	45
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	126	0	0	30	28	0	26	1511	61	0	46
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	R NA	Left	Left	Right	R NA	Left
Median Width(ft)		0			0				16			
Link Offset(ft)		0			0				0			
Crosswalk Width(ft)		10			16				10			
Two way Left Turn Lane												
Headway Factor	1.02	1.02	1.02	1.01	1.01	1.01	0.99	0.99	0.99	0.99	1.01	1.01
Turning Speed (mph)	15		9	15		9	9	15		9	9	15
Number of Detectors	1	1		1	1	1	1	1	1	1	1	1
Detector Template		Thru		Left	Thru	Right				Right		Left
Leading Detector (ft)	35	35		20	35	35	50	35	206	46	35	35
Trailing Detector (ft)	-5	-5		0	-5	-5	0	-5	200	40	-5	-5
Detector 1 Position(ft)	-5	-5		0	-5	-5	0	-5	200	40	-5	-5
Detector 1 Size(ft)	40	40		20	40	40	50	40	6	6	40	40
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	Split	NA		Split	NA	pm+ov		D.P+P	NA	pm+ov		D.P+P
Protected Phases	3	3		4	4	5		1	6	4		5
Permitted Phases						4		2		6		6
Detector Phase	3	3		4	4	5		1	6	4		5

Lanes, Volumes, Timings

16: Prince William Pkwy & Kenwood Dr./

School Entrance

05/26/2023



Lane Group	SBT	SBR
Lane Configurations	↑↑↑↑	↑
Traffic Volume (vph)	1924	48
Future Volume (vph)	1924	48
Ideal Flow (vphpl)	1900	1900
Grade (%)	1%	
Storage Length (ft)		235
Storage Lanes		1
Taper Length (ft)		
Lane Util. Factor	0.91	1.00
Ped Bike Factor		0.98
Frt		0.850
Flt Protected		
Satd. Flow (prot)	4963	1530
Flt Permitted		
Satd. Flow (perm)	4963	1493
Right Turn on Red		Yes
Satd. Flow (RTOR)		79
Link Speed (mph)	45	
Link Distance (ft)	990	
Travel Time (s)	15.0	
Confl. Peds. (#/hr)		2
Peak Hour Factor	0.96	0.96
Heavy Vehicles (%)	4%	5%
Adj. Flow (vph)	2004	50
Shared Lane Traffic (%)		
Lane Group Flow (vph)	2004	50
Enter Blocked Intersection	No	No
Lane Alignment	Left	Right
Median Width(ft)	16	
Link Offset(ft)	0	
Crosswalk Width(ft)	10	
Two way Left Turn Lane		
Headway Factor	1.01	1.01
Turning Speed (mph)		9
Number of Detectors	1	1
Detector Template		
Leading Detector (ft)	206	46
Trailing Detector (ft)	200	40
Detector 1 Position(ft)	200	40
Detector 1 Size(ft)	6	6
Detector 1 Type	Cl+Ex	Cl+Ex
Detector 1 Channel		
Detector 1 Extend (s)	0.0	0.0
Detector 1 Queue (s)	0.0	0.0
Detector 1 Delay (s)	0.0	0.0
Turn Type	NA	pm+ov
Protected Phases	2	3
Permitted Phases		2
Detector Phase	2	2

Lanes, Volumes, Timings

16: Prince William Pkwy & Kenwood Dr./

School Entrance

05/26/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	7.0		7.0	15.0	10.0		7.0
Minimum Split (s)	43.6	43.6		43.8	43.8	15.8		15.8	24.8	43.8		15.8
Total Split (s)	24.0	24.0		32.0	32.0	20.0		27.0	84.0	32.0		20.0
Total Split (%)	15.0%	15.0%		20.0%	20.0%	12.5%		16.9%	52.5%	20.0%		12.5%
Maximum Green (s)	17.4	17.4		26.2	26.2	11.2		18.2	75.2	26.2		11.2
Yellow Time (s)	3.1	3.1		3.1	3.1	4.9		4.9	4.9	3.1		4.9
All-Red Time (s)	3.5	3.5		2.7	2.7	3.9		3.9	3.9	2.7		3.9
Lost Time Adjust (s)		0.0			0.0	0.0		0.0	0.0	0.0		0.0
Total Lost Time (s)		6.6			5.8	8.8		8.8	8.8	5.8		8.8
Lead/Lag	Lead	Lead		Lag	Lag	Lead		Lead	Lag	Lag		Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		3.0	3.0	3.0		3.0
Recall Mode	None	None		None	None	None		None	C-Max	None		None
Walk Time (s)	8.0	8.0		8.0	8.0			7.0	8.0			
Flash Dont Walk (s)	29.0	29.0		30.0	30.0			9.0	30.0			
Pedestrian Calls (#/hr)	0	0		0	0			0	0			
Act Effct Green (s)		13.8			10.3	20.3		112.6	104.9	116.2		110.8
Actuated g/C Ratio		0.09			0.06	0.13		0.70	0.66	0.73		0.69
v/c Ratio		0.71			0.28	0.11		0.16	0.46	0.05		0.20
Control Delay		68.0			78.1	0.8		8.6	13.6	0.1		13.2
Queue Delay		0.0			0.0	0.0		0.0	0.0	0.0		0.0
Total Delay		68.0			78.1	0.8		8.6	13.6	0.1		13.2
LOS		E			E	A		A	B	A		B
Approach Delay		68.0			40.8				13.0			
Approach LOS		E			D				B			
Queue Length 50th (ft)		87			31	0		8	227	1		19
Queue Length 95th (ft)		161			68	0		19	242	1		m23
Internal Link Dist (ft)		499			280				689			
Turn Bay Length (ft)								195		245		230
Base Capacity (vph)		213			274	296		287	3270	1255		274
Starvation Cap Reductn		0			0	0		0	0	0		0
Spillback Cap Reductn		0			0	0		0	0	0		0
Storage Cap Reductn		0			0	0		0	0	0		0
Reduced v/c Ratio		0.59			0.11	0.09		0.09	0.46	0.05		0.17

Intersection Summary

Area Type:	Other
Cycle Length:	160
Actuated Cycle Length:	160
Offset:	140 (88%), Referenced to phase 2:NBSB and 6:NBSB, Start of Yellow
Natural Cycle:	145
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.71
Intersection Signal Delay:	21.4
Intersection LOS:	C
Intersection Capacity Utilization:	74.3%
ICU Level of Service:	D
Analysis Period (min):	15
m Volume for 95th percentile queue is metered by upstream signal.	

Lanes, Volumes, Timings

16: Prince William Pkwy & Kenwood Dr./

School Entrance

05/26/2023

Splits and Phases: 16: Prince William Pkwy & Kenwood Dr./

School Entrance





Lane Group	SBT	SBR
Switch Phase		
Minimum Initial (s)	15.0	10.0
Minimum Split (s)	28.8	43.6
Total Split (s)	77.0	24.0
Total Split (%)	48.1%	15.0%
Maximum Green (s)	68.2	17.4
Yellow Time (s)	4.9	3.1
All-Red Time (s)	3.9	3.5
Lost Time Adjust (s)	0.0	0.0
Total Lost Time (s)	8.8	6.6
Lead/Lag	Lag	Lead
Lead-Lag Optimize?		
Vehicle Extension (s)	3.0	3.0
Recall Mode	C-Max	None
Walk Time (s)	7.0	8.0
Flash Dont Walk (s)	13.0	29.0
Pedestrian Calls (#/hr)	0	0
Act Effct Green (s)	108.3	124.3
Actuated g/C Ratio	0.68	0.78
v/c Ratio	0.60	0.04
Control Delay	25.3	0.1
Queue Delay	0.0	0.0
Total Delay	25.3	0.1
LOS	C	A
Approach Delay	24.4	
Approach LOS	C	
Queue Length 50th (ft)	569	0
Queue Length 95th (ft)	m610	m0
Internal Link Dist (ft)	910	
Turn Bay Length (ft)		235
Base Capacity (vph)	3359	1181
Starvation Cap Reductn	0	0
Spillback Cap Reductn	109	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.62	0.04
Intersection Summary		

Lanes, Volumes, Timings
 17: Prince William Pkwy & Hillendale Road

05/26/2023



Lane Group	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Lane Configurations	↖↗	↗		↖↗	↑↑↑	↘	↑↑↑	↗
Traffic Volume (vph)	321	294	2	126	1214	0	1791	239
Future Volume (vph)	321	294	2	126	1214	0	1791	239
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)	2%				1%		2%	
Storage Length (ft)	125	0		475		350		500
Storage Lanes	1	1		1		1		1
Taper Length (ft)	45			100		165		
Lane Util. Factor	0.97	1.00	0.91	0.97	0.91	1.00	0.91	1.00
Ped Bike Factor								0.99
Frt		0.850						0.850
Flt Protected	0.950			0.950				
Satd. Flow (prot)	3399	1537	0	3384	4915	1881	4938	1523
Flt Permitted	0.950			0.286				
Satd. Flow (perm)	3399	1537	0	1019	4915	1881	4938	1504
Right Turn on Red		Yes						Yes
Satd. Flow (RTOR)		5						263
Link Speed (mph)	25				45		45	
Link Distance (ft)	586				666		769	
Travel Time (s)	16.0				10.1		11.7	
Confl. Bikes (#/hr)								2
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	2%	4%	0%	3%	5%	0%	4%	5%
Adj. Flow (vph)	353	323	2	138	1334	0	1968	263
Shared Lane Traffic (%)								
Lane Group Flow (vph)	353	323	0	140	1334	0	1968	263
Enter Blocked Intersection	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	R NA	Left	Left	R NA	Left	Right
Median Width(ft)	30				30		24	
Link Offset(ft)	0				0		0	
Crosswalk Width(ft)	10				10		10	
Two way Left Turn Lane								
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (mph)	15	9	9	15		9		9
Number of Detectors	1	1	1	1	1	1	1	1
Detector Template								
Leading Detector (ft)	35	35	50	35	206	35	206	46
Trailing Detector (ft)	-5	-5	0	-5	200	-5	200	40
Detector 1 Position(ft)	-5	-5	0	-5	200	-5	200	40
Detector 1 Size(ft)	40	40	50	40	6	40	6	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel								
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	Prot	pm+ov		Prot	NA	Prot	NA	pm+ov
Protected Phases	4	5		5	2	1	6	4
Permitted Phases		4						6
Detector Phase	4	4		5	2	1	6	6

Lanes, Volumes, Timings
 17: Prince William Pkwy & Hillendale Road

05/26/2023



Lane Group	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Switch Phase								
Minimum Initial (s)	10.0	7.0		7.0	15.0	7.0	15.0	10.0
Minimum Split (s)	46.5	15.0		15.0	20.5	13.5	34.5	46.5
Total Split (s)	50.0	22.0		22.0	93.0	17.0	88.0	50.0
Total Split (%)	31.3%	13.8%		13.8%	58.1%	10.6%	55.0%	31.3%
Maximum Green (s)	43.5	14.0		14.0	87.5	10.5	82.5	43.5
Yellow Time (s)	3.5	4.0		4.0	4.5	4.0	4.5	3.5
All-Red Time (s)	3.0	4.0		4.0	1.0	2.5	1.0	3.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	8.0		8.0	5.5	6.5	5.5	6.5
Lead/Lag		Lead		Lead	Lag	Lead	Lag	
Lead-Lag Optimize?								
Vehicle Extension (s)	4.0	4.0		4.0	4.0	3.0	4.0	4.0
Recall Mode	None	None		None	C-Max	None	C-Max	None
Walk Time (s)	8.0						7.0	8.0
Flash Dont Walk (s)	32.0						22.0	32.0
Pedestrian Calls (#/hr)	0						0	0
Act Effct Green (s)	35.3	55.8		0.0	112.7		90.7	125.0
Actuated g/C Ratio	0.22	0.35		0.00	0.70		0.57	0.78
v/c Ratio	0.47	0.60		no cap	0.39		0.70	0.21
Control Delay	55.4	46.4			10.5		17.0	1.4
Queue Delay	0.0	0.0			0.0		0.1	0.0
Total Delay	55.4	46.4		Error	10.5		17.1	1.4
LOS	E	D		F	B		B	A
Approach Delay	51.1				Err		15.2	
Approach LOS	D				F		B	
Queue Length 50th (ft)	165	272		~156	197		626	5
Queue Length 95th (ft)	205	353		#233	260		724	16
Internal Link Dist (ft)	506				586		689	
Turn Bay Length (ft)	125			475				500
Base Capacity (vph)	924	529		1	3462		2799	1236
Starvation Cap Reductn	0	0		0	0		75	0
Spillback Cap Reductn	0	0		0	0		0	0
Storage Cap Reductn	0	0		0	0		0	0
Reduced v/c Ratio	0.38	0.61		140.00	0.39		0.72	0.21

Intersection Summary



Area Type: Other
 Cycle Length: 160
 Actuated Cycle Length: 160
 Offset: 150 (94%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: Err
 Intersection Signal Delay: Err Intersection LOS: F
 Intersection Capacity Utilization 76.6% ICU Level of Service D
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.

Lanes, Volumes, Timings
 17: Prince William Pkwy & Hillendale Road

05/26/2023

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.




















Splits and Phases: 17: Prince William Pkwy & Hillendale Road

 Ø1 17 s	 Ø2 (R) 93 s	 Ø4 50 s
 Ø5 22 s	 Ø6 (R) 88 s	

Lanes, Volumes, Timings

18: Library/Fitness Ctr/Troupe Street & Chinn Park Dr

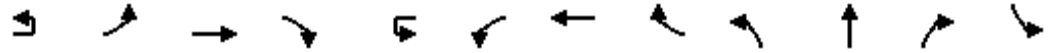
05/26/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	106	5	24	1	2	17	9	35	0	8	71	4
Future Volume (vph)	106	5	24	1	2	17	9	35	0	8	71	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	10	10	10	12	12	12	12	12	12
Grade (%)		1%			-2%			-2%			3%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt			0.850		0.885							0.993
Flt Protected		0.955			0.998		0.950			0.950		
Satd. Flow (prot)	0	1772	1545	0	1141	0	1823	1698	0	1422	1703	0
Flt Permitted		0.955			0.998		0.950			0.950		
Satd. Flow (perm)	0	1772	1545	0	1141	0	1823	1698	0	1422	1703	0
Link Speed (mph)		30			30			30			25	
Link Distance (ft)		763			462			148			722	
Travel Time (s)		17.3			10.5			3.4			19.7	
Confl. Peds. (#/hr)						6			5	5		1
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74
Heavy Vehicles (%)	2%	0%	4%	100%	0%	41%	0%	13%	0%	25%	7%	50%
Adj. Flow (vph)	143	7	32	1	3	23	12	47	0	11	96	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	150	32	0	27	0	12	47	0	11	101	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.08	1.08	1.08	0.99	0.99	0.99	1.02	1.02	1.02
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	27.6%						ICU Level of Service A					
Analysis Period (min)	15											

Lanes, Volumes, Timings

1: Black Forest Ln/Reids Prospect Dr & Prince William Pkwy

05/26/2023



Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations		↔	↑↑↑			↔	↑↑↑	↔		↔		
Traffic Volume (vph)	3	7	2572	0	2	9	2732	78	1	0	12	28
Future Volume (vph)	3	7	2572	0	2	9	2732	78	1	0	12	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	10	10	10	16
Grade (%)			1%				-1%			-1%		
Storage Length (ft)		465		0		450		450	0		0	0
Storage Lanes		1		0		1		1	0		0	0
Taper Length (ft)		175				180			25			25
Lane Util. Factor	0.91	1.00	0.91	0.91	0.91	1.00	0.91	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Flt								0.850		0.875		
Flt Protected		0.950				0.950				0.996		
Satd. Flow (prot)	0	1605	5060	0	0	1814	5061	1623	0	1553	0	0
Flt Permitted		0.950				0.950				0.996		
Satd. Flow (perm)	0	1605	5060	0	0	1814	5061	1623	0	1553	0	0
Link Speed (mph)			45				45			30		
Link Distance (ft)			756				1183			385		
Travel Time (s)			11.5				17.9			8.8		
Confl. Peds. (#/hr)		9		3		3		9			3	
Confl. Bikes (#/hr)				2				5			1	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	17%	2%	0%	0%	0%	3%	0%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)			0%				0%			0%		
Adj. Flow (vph)	3	7	2679	0	2	9	2846	81	1	0	13	29
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	10	2679	0	0	11	2846	81	0	14	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	R NA	Left	Left	Right	Left	Left	Right	Left
Median Width(ft)			12				12			0		
Link Offset(ft)			0				0			0		
Crosswalk Width(ft)			16				16			16		
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	0.99	0.99	0.99	0.99	1.09	1.09	1.09	0.88
Turning Speed (mph)	9	15		9	9	15		9	15		9	15
Sign Control			Free				Free			Stop		

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	69.8%
ICU Level of Service	C
Analysis Period (min)	15

Lanes, Volumes, Timings

1: Black Forest Ln/Reids Prospect Dr & Prince William Pkwy

05/26/2023

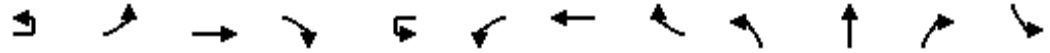


Lane Group	SBT	SBR
Lane Configurations	↕	
Traffic Volume (vph)	0	13
Future Volume (vph)	0	13
Ideal Flow (vphpl)	1900	1900
Lane Width (ft)	16	16
Grade (%)	5%	
Storage Length (ft)		0
Storage Lanes		0
Taper Length (ft)		
Lane Util. Factor	1.00	1.00
Ped Bike Factor		
Frt	0.956	
Flt Protected	0.967	
Satd. Flow (prot)	1941	0
Flt Permitted	0.967	
Satd. Flow (perm)	1941	0
Link Speed (mph)	25	
Link Distance (ft)	367	
Travel Time (s)	10.0	
Confl. Peds. (#/hr)		9
Confl. Bikes (#/hr)		2
Peak Hour Factor	0.96	0.96
Growth Factor	100%	100%
Heavy Vehicles (%)	0%	0%
Bus Blockages (#/hr)	0	0
Parking (#/hr)		
Mid-Block Traffic (%)	0%	
Adj. Flow (vph)	0	14
Shared Lane Traffic (%)		
Lane Group Flow (vph)	43	0
Enter Blocked Intersection	No	No
Lane Alignment	Left	Right
Median Width(ft)	0	
Link Offset(ft)	0	
Crosswalk Width(ft)	16	
Two way Left Turn Lane		
Headway Factor	0.88	0.88
Turning Speed (mph)		9
Sign Control	Stop	
Intersection Summary		

Lanes, Volumes, Timings

2: Ridgewood Center Drive/Laurel Hills Drive & Prince William Pkwy

05/26/2023



Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations		↔	↑↑↑			↔	↑↑↑			↔		
Traffic Volume (vph)	2	2	2602	8	11	14	2794	5	24	0	25	9
Future Volume (vph)	2	2	2602	8	11	14	2794	5	24	0	25	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	10
Grade (%)			0%				0%			0%		
Storage Length (ft)		460		0		470		0	0		0	0
Storage Lanes		1		0		1		0	0		0	0
Taper Length (ft)		175				185			25			25
Lane Util. Factor	0.91	1.00	0.91	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00	1.00			1.00	1.00			0.99		
Fr _t										0.931		
Fl _t Protected		0.950				0.950				0.976		
Satd. Flow (prot)	0	1805	5083	0	0	1805	5085	0	0	1713	0	0
Fl _t Permitted		0.952				0.381				0.976		
Satd. Flow (perm)	0	1808	5083	0	0	724	5085	0	0	1713	0	0
Right Turn on Red				Yes				Yes			Yes	
Satd. Flow (RTOR)										175		
Link Speed (mph)			45				45			15		
Link Distance (ft)			1183				1140			485		
Travel Time (s)			17.9				17.3			22.0		
Confl. Peds. (#/hr)		13		3		3		14			4	1
Confl. Bikes (#/hr)												
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	2%	14%	0%	0%	2%	0%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)			0%				0%			0%		
Adj. Flow (vph)	2	2	2739	8	12	15	2941	5	25	0	26	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	4	2747	0	0	27	2946	0	0	51	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	R NA	Left	Left	Right	Left	Left	Right	Left
Median Width(ft)			12				12			0		
Link Offset(ft)			0				0			0		
Crosswalk Width(ft)			16				16			16		
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.13
Turning Speed (mph)	9	15		9	9	15		9	15		9	15
Number of Detectors	1	1	2		1	1	2		1	1		1
Detector Template												
Leading Detector (ft)	50	35	200		50	35	200		5	35		5
Trailing Detector (ft)	0	-5	100		0	-5	100		0	-5		0
Turn Type		Prot	NA			Prot	NA		Split	NA		Split
Protected Phases		5	2			1	6		4	4		3
Permitted Phases												
Detector Phase		5	2			1	6		4	4		3
Switch Phase												

Lanes, Volumes, Timings

2: Ridgewood Center Drive/Laurel Hills Drive & Prince William Pkwy

05/26/2023



Lane Group	SBT	SBR
Lane Configurations	↕	
Traffic Volume (vph)	0	1
Future Volume (vph)	0	1
Ideal Flow (vphpl)	1900	1900
Lane Width (ft)	10	10
Grade (%)	5%	
Storage Length (ft)		0
Storage Lanes		0
Taper Length (ft)		
Lane Util. Factor	1.00	1.00
Ped Bike Factor	0.99	
Frt	0.986	
Flt Protected	0.957	
Satd. Flow (prot)	1624	0
Flt Permitted	0.957	
Satd. Flow (perm)	1622	0
Right Turn on Red		Yes
Satd. Flow (RTOR)	175	
Link Speed (mph)	25	
Link Distance (ft)	515	
Travel Time (s)	14.0	
Confl. Peds. (#/hr)		13
Confl. Bikes (#/hr)		
Peak Hour Factor	0.95	0.95
Growth Factor	100%	100%
Heavy Vehicles (%)	0%	0%
Bus Blockages (#/hr)	0	0
Parking (#/hr)		
Mid-Block Traffic (%)	0%	
Adj. Flow (vph)	0	1
Shared Lane Traffic (%)		
Lane Group Flow (vph)	10	0
Enter Blocked Intersection	No	No
Lane Alignment	Left	Right
Median Width(ft)	0	
Link Offset(ft)	0	
Crosswalk Width(ft)	16	
Two way Left Turn Lane		
Headway Factor	1.13	1.13
Turning Speed (mph)		9
Number of Detectors	1	
Detector Template		
Leading Detector (ft)	35	
Trailing Detector (ft)	-5	
Turn Type	NA	
Protected Phases	3	
Permitted Phases		
Detector Phase	3	
Switch Phase		

Lanes, Volumes, Timings

2: Ridgewood Center Drive/Laurel Hills Drive & Prince William Pkwy

05/26/2023



Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Minimum Initial (s)		5.0	20.0			5.0	20.0		5.0	5.0		5.0
Minimum Split (s)		11.5	26.0			11.5	26.0		42.5	42.5		11.5
Total Split (s)		17.0	48.0			17.0	48.0		18.0	18.0		17.0
Total Split (%)		17.0%	48.0%			17.0%	48.0%		18.0%	18.0%		17.0%
Maximum Green (s)		10.5	42.0			10.5	42.0		11.5	11.5		10.5
Yellow Time (s)		4.0	5.0			4.0	5.0		3.0	3.0		3.0
All-Red Time (s)		2.5	1.0			2.5	1.0		3.5	3.5		3.5
Lost Time Adjust (s)		0.0	0.0			0.0	0.0			0.0		
Total Lost Time (s)		6.5	6.0			6.5	6.0			6.5		
Lead/Lag		Lead	Lag			Lead	Lag		Lag	Lag		Lead
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0	3.5			3.0	3.5		3.0	3.0		3.0
Minimum Gap (s)		3.0	3.5			3.0	3.5		3.0	3.0		3.0
Time Before Reduce (s)		0.0	0.0			0.0	0.0		0.0	0.0		0.0
Time To Reduce (s)		0.0	0.0			0.0	0.0		0.0	0.0		0.0
Recall Mode		None	C-Max			None	C-Max		None	None		None
Walk Time (s)									8.0	8.0		
Flash Dont Walk (s)									28.0	28.0		
Pedestrian Calls (#/hr)									0	0		
Act Effct Green (s)		10.5	64.8			0.0	75.0			5.7		
Actuated g/C Ratio		0.10	0.65			0.00	0.75			0.06		
v/c Ratio		no cap	0.83			no cap	0.77			0.19		
Control Delay			18.3				7.0			1.6		
Queue Delay			0.0				0.0			0.0		
Total Delay		Error	18.3			Error	7.0			1.6		
LOS		F	B			F	A			A		
Approach Delay			Err				Err			1.6		
Approach LOS			F				F			A		
Queue Length 50th (ft)		~5	443			~75	75			0		
Queue Length 95th (ft)		#29	#781			m#84	m382			0		
Internal Link Dist (ft)			1103				1060			405		
Turn Bay Length (ft)		460				470						
Base Capacity (vph)		1	3294			1	3814			351		
Starvation Cap Reductn		0	0			0	0			0		
Spillback Cap Reductn		0	0			0	0			0		
Storage Cap Reductn		0	0			0	0			0		
Reduced v/c Ratio		4.00	0.83			27.00	0.77			0.15		

Intersection Summary

Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	77 (77%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow
Natural Cycle:	145
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	Err
Intersection Signal Delay:	Err
Intersection LOS:	F
Intersection Capacity Utilization:	71.9%
ICU Level of Service:	C
Analysis Period (min):	15

Lanes, Volumes, Timings

2: Ridgewood Center Drive/Laurel Hills Drive & Prince William Pkwy

05/26/2023



Lane Group	SBT	SBR
Minimum Initial (s)	5.0	
Minimum Split (s)	11.5	
Total Split (s)	17.0	
Total Split (%)	17.0%	
Maximum Green (s)	10.5	
Yellow Time (s)	3.0	
All-Red Time (s)	3.5	
Lost Time Adjust (s)	0.0	
Total Lost Time (s)	6.5	
Lead/Lag	Lead	
Lead-Lag Optimize?		
Vehicle Extension (s)	3.0	
Minimum Gap (s)	3.0	
Time Before Reduce (s)	0.0	
Time To Reduce (s)	0.0	
Recall Mode	None	
Walk Time (s)		
Flash Dont Walk (s)		
Pedestrian Calls (#/hr)		
Act Effct Green (s)	5.6	
Actuated g/C Ratio	0.06	
v/c Ratio	0.04	
Control Delay	0.3	
Queue Delay	0.0	
Total Delay	0.3	
LOS	A	
Approach Delay	0.3	
Approach LOS	A	
Queue Length 50th (ft)	0	
Queue Length 95th (ft)	0	
Internal Link Dist (ft)	435	
Turn Bay Length (ft)		
Base Capacity (vph)	327	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.03	
Intersection Summary		

Lanes, Volumes, Timings

2: Ridgewood Center Drive/Laurel Hills Drive & Prince William Pkwy

05/26/2023

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Ridgewood Center Drive/Laurel Hills Drive & Prince William Pkwy

 Ø1  17 s	 Ø2 (R)  48 s	 Ø3  17 s	 Ø4  18 s
 Ø5  17 s	 Ø6 (R)  48 s		

Lanes, Volumes, Timings

3: Prince William Pkwy & Seeton Square

05/26/2023



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑			↗
Traffic Volume (vph)	0	2714	2841	55	0	39
Future Volume (vph)	0	2714	2841	55	0	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		4%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	0	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.91	0.91	0.91	1.00	1.00
Ped Bike Factor						
Flt			0.997			0.865
Flt Protected						
Satd. Flow (prot)	0	5187	5068	0	0	1611
Flt Permitted						
Satd. Flow (perm)	0	5187	5068	0	0	1611
Link Speed (mph)		45	45		25	
Link Distance (ft)		1140	342		289	
Travel Time (s)		17.3	5.2		7.9	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	2%	4%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	0	3435	3596	70	0	49
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	3435	3666	0	0	49
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.03	1.03
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	66.1%
ICU Level of Service	C
Analysis Period (min)	15

Lanes, Volumes, Timings

4: Prince William Pkwy & Old Bridge Road & Touchstone Cir

05/26/2023



Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations		↔	↕	↗		↔	↕	↗		↔	↕	↗
Traffic Volume (vph)	13	169	1106	1426	2	504	1227	44	13	1447	182	358
Future Volume (vph)	13	169	1106	1426	2	504	1227	44	13	1447	182	358
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)			0%				2%				1%	
Storage Length (ft)		325		0		285		0		0		0
Storage Lanes		1		1		2		0		2		1
Taper Length (ft)		85				150				185		
Lane Util. Factor	0.95	1.00	0.95	1.00	0.91	0.97	0.91	0.91	1.00	0.91	0.91	1.00
Ped Bike Factor		1.00					1.00					0.98
Frt				0.850			0.995					0.850
Flt Protected		0.950				0.950				0.950	0.967	
Satd. Flow (prot)	0	1788	3574	1583	0	3432	5005	0	0	3205	1641	1607
Flt Permitted		0.221				0.140				0.631	0.967	
Satd. Flow (perm)	0	416	3574	1583	0	506	5005	0	0	2129	1641	1578
Right Turn on Red				Yes				Yes				Yes
Satd. Flow (RTOR)				485			3					227
Link Speed (mph)			45				45				45	
Link Distance (ft)			342				371				666	
Travel Time (s)			5.2				5.6				10.1	
Confl. Peds. (#/hr)		3						7				4
Confl. Bikes (#/hr)								1				
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	1%	1%	2%	0%	1%	2%	2%	0%	2%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)			0%				0%				0%	
Adj. Flow (vph)	13	174	1140	1470	2	520	1265	45	13	1492	188	369
Shared Lane Traffic (%)										27%		
Lane Group Flow (vph)	0	187	1140	1470	0	522	1310	0	0	1102	591	369
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	R NA	Left	Left	Right	R NA	Left	Left	Right
Median Width(ft)			24				24				24	
Link Offset(ft)			0				0				0	
Crosswalk Width(ft)			16				16				16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (mph)	9	15		25	9	15		9	9	15		9
Number of Detectors	1	1	3	1	1	1	3		1	1	1	1
Detector Template												
Leading Detector (ft)	50	35	300	53	50	35	300		50	35	35	35
Trailing Detector (ft)	0	-5	100	47	0	-5	100		0	-5	-5	-5
Turn Type		Prot	NA	Free		Prot	NA			Split	NA	pm+ov
Protected Phases		5	2			1	6			4	4	1
Permitted Phases				Free								4
Detector Phase		5	2			1	6			4	4	4
Switch Phase												

Lanes, Volumes, Timings

4: Prince William Pkwy & Old Bridge Road & Touchstone Cir

05/26/2023



Lane Group	SBU	SBL	SBT	SBR
Lane Configurations		↵	↑↑	↗
Traffic Volume (vph)	2	54	186	209
Future Volume (vph)	2	54	186	209
Ideal Flow (vphpl)	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12
Grade (%)			5%	
Storage Length (ft)		0		0
Storage Lanes		1		1
Taper Length (ft)		0		
Lane Util. Factor	0.95	1.00	0.95	1.00
Ped Bike Factor		1.00		0.98
Frt				0.850
Flt Protected		0.950		
Satd. Flow (prot)	0	1760	3485	1559
Flt Permitted		0.244		
Satd. Flow (perm)	0	451	3485	1532
Right Turn on Red				Yes
Satd. Flow (RTOR)				110
Link Speed (mph)			30	
Link Distance (ft)			317	
Travel Time (s)			7.2	
Confl. Peds. (#/hr)	4			3
Confl. Bikes (#/hr)				
Peak Hour Factor	0.97	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	1%	1%
Bus Blockages (#/hr)	0	0	0	0
Parking (#/hr)				
Mid-Block Traffic (%)			0%	
Adj. Flow (vph)	2	56	192	215
Shared Lane Traffic (%)				
Lane Group Flow (vph)	0	58	192	215
Enter Blocked Intersection	No	No	No	No
Lane Alignment	R NA	Left	Left	Right
Median Width(ft)			24	
Link Offset(ft)			0	
Crosswalk Width(ft)			16	
Two way Left Turn Lane				
Headway Factor	1.03	1.03	1.03	1.03
Turning Speed (mph)	9	15		9
Number of Detectors	1	1	1	1
Detector Template				
Leading Detector (ft)	50	35	35	35
Trailing Detector (ft)	0	-5	-5	-5
Turn Type		Split	NA	pm+ov
Protected Phases		3	3	5
Permitted Phases				3
Detector Phase		3	3	3
Switch Phase				

Lanes, Volumes, Timings

4: Prince William Pkwy & Old Bridge Road & Touchstone Cir

05/26/2023



Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Minimum Initial (s)		5.0	20.0			5.0	20.0			5.0	5.0	5.0
Minimum Split (s)		12.9	25.7			12.5	48.7			50.9	50.9	12.5
Total Split (s)		26.0	70.0			36.0	80.0			70.0	70.0	36.0
Total Split (%)		13.0%	35.0%			18.0%	40.0%			35.0%	35.0%	18.0%
Maximum Green (s)		18.1	64.3			28.5	74.3			60.1	60.1	28.5
Yellow Time (s)		3.8	4.7			3.8	4.6			4.9	4.9	3.8
All-Red Time (s)		4.1	1.0			3.7	1.1			5.0	5.0	3.7
Lost Time Adjust (s)		0.0	0.0			0.0	0.0			0.0	0.0	0.0
Total Lost Time (s)		7.9	5.7			7.5	5.7			9.9	9.9	7.5
Lead/Lag		Lead	Lag			Lead	Lag			Lag	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0	2.0			3.0	2.0			3.0	3.0	3.0
Minimum Gap (s)		3.0	2.0			3.0	2.0			3.0	3.0	3.0
Time Before Reduce (s)		0.0	0.0			0.0	0.0			0.0	0.0	0.0
Time To Reduce (s)		0.0	0.0			0.0	0.0			0.0	0.0	0.0
Recall Mode		None	C-Max			None	C-Max			None	None	None
Walk Time (s)						9.0				8.0	8.0	
Flash Dont Walk (s)						34.0				33.0	33.0	
Pedestrian Calls (#/hr)						0				0	0	
Act Effct Green (s)		0.0	64.3	200.0		0.0	74.3			60.1	60.1	91.0
Actuated g/C Ratio		0.00	0.32	1.00		0.00	0.37			0.30	0.30	0.46
v/c Ratio		no cap	0.99	0.93		no cap	0.70			11.24	1.20	0.44
Control Delay			88.6	22.6			30.3			4632.0	152.1	22.4
Queue Delay			0.0	0.0			0.5			0.0	0.0	0.0
Total Delay		Error	88.6	22.6		Error	30.8			4632.0	152.1	22.4
LOS		F	F	C		F	C			F	F	C
Approach Delay			Err			Err					2523.1	
Approach LOS			F			F					F	
Queue Length 50th (ft)		~514	735	534		~734	323			~1519	~1032	264
Queue Length 95th (ft)		m#629	#940	509		#861	448			#1669	#1320	380
Internal Link Dist (ft)			262				291				586	
Turn Bay Length (ft)		325				285						
Base Capacity (vph)		1	1149	1583		1	1861			98	493	845
Starvation Cap Reductn		0	0	0		0	204			0	0	0
Spillback Cap Reductn		0	0	0		0	0			0	0	0
Storage Cap Reductn		0	0	0		0	0			0	0	0
Reduced v/c Ratio		187.00	0.99	0.93		522.00	0.79			11.24	1.20	0.44

Intersection Summary

Area Type:	Other
Cycle Length:	200
Actuated Cycle Length:	200
Offset:	60 (30%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow
Natural Cycle:	140
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	Err
Intersection Signal Delay:	Err
Intersection LOS:	F
Intersection Capacity Utilization:	116.0%
ICU Level of Service:	H
Analysis Period (min):	15

Lanes, Volumes, Timings

4: Prince William Pkwy & Old Bridge Road & Touchstone Cir

05/26/2023



Lane Group	SBU	SBL	SBT	SBR
Minimum Initial (s)		5.0	5.0	5.0
Minimum Split (s)		12.6	12.6	12.9
Total Split (s)		24.0	24.0	26.0
Total Split (%)		12.0%	12.0%	13.0%
Maximum Green (s)		16.4	16.4	18.1
Yellow Time (s)		3.3	3.3	3.8
All-Red Time (s)		4.3	4.3	4.1
Lost Time Adjust (s)		0.0	0.0	0.0
Total Lost Time (s)		7.6	7.6	7.9
Lead/Lag		Lead	Lead	Lead
Lead-Lag Optimize?				
Vehicle Extension (s)		3.0	3.0	3.0
Minimum Gap (s)		3.0	3.0	3.0
Time Before Reduce (s)		0.0	0.0	0.0
Time To Reduce (s)		0.0	0.0	0.0
Recall Mode		None	None	None
Walk Time (s)				
Flash Dont Walk (s)				
Pedestrian Calls (#/hr)				
Act Effct Green (s)		0.0	16.4	34.2
Actuated g/C Ratio		0.00	0.08	0.17
v/c Ratio		no cap	0.67	0.61
Control Delay			103.5	24.7
Queue Delay			0.0	0.0
Total Delay		Error	103.5	24.7
LOS		F	F	C
Approach Delay			Err	
Approach LOS			F	
Queue Length 50th (ft)		~162	133	61
Queue Length 95th (ft)		m#249	m166	m93
Internal Link Dist (ft)			237	
Turn Bay Length (ft)				
Base Capacity (vph)		1	285	355
Starvation Cap Reductn		0	0	0
Spillback Cap Reductn		0	0	0
Storage Cap Reductn		0	0	0
Reduced v/c Ratio		58.00	0.67	0.61
Intersection Summary				

Lanes, Volumes, Timings

4: Prince William Pkwy & Old Bridge Road & Touchstone Cir

05/26/2023

~ Volume exceeds capacity, queue is theoretically infinite.

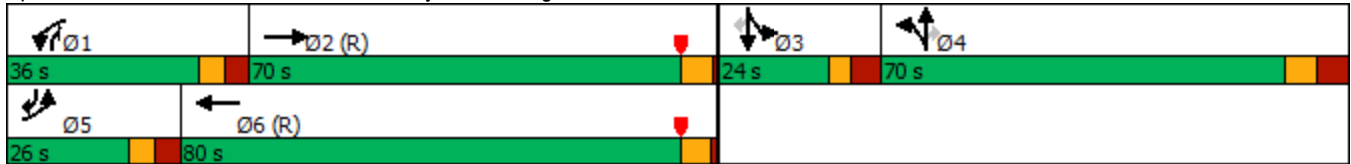
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Prince William Pkwy & Old Bridge Road & Touchstone Cir



Lanes, Volumes, Timings
5: Tribe at the Glen & Old Bridge Road

05/26/2023



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑		↑↑↑		↑
Traffic Volume (vph)	1436	84	0	1777	0	45
Future Volume (vph)	1436	84	0	1777	0	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	14	14
Grade (%)	-3%			2%	0%	
Storage Length (ft)		175	0		0	0
Storage Lanes		1	0		0	1
Taper Length (ft)			25		25	
Lane Util. Factor	0.95	1.00	1.00	0.91	1.00	1.00
Ped Bike Factor						
Flt		0.850				0.865
Flt Protected						
Satd. Flow (prot)	3628	1639	0	5034	0	1753
Flt Permitted						
Satd. Flow (perm)	3628	1639	0	5034	0	1753
Link Speed (mph)	45			45	15	
Link Distance (ft)	371			392	332	
Travel Time (s)	5.6			5.9	15.1	
Confl. Peds. (#/hr)		2	2			2
Confl. Bikes (#/hr)						
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	1%	0%	0%	2%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	1480	87	0	1832	0	46
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1480	87	0	1832	0	46
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			24	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.98	0.98	1.01	1.01	0.92	0.92
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	























Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	50.3%
ICU Level of Service	A
Analysis Period (min)	15

Lanes, Volumes, Timings

6: Troupe Street/Glen Shopping Ctr & Old Bridge Road

05/26/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	1342	81	118	1547	174	183	19	260	114	25	47
Future Volume (vph)	58	1342	81	118	1547	174	183	19	260	114	25	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		-2%			7%			-1%			0%	
Storage Length (ft)	175		210	335		0	0		0	0		100
Storage Lanes	1		1	1		1	0		1	0		1
Taper Length (ft)	75			110			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.99	1.00		0.95			0.98		1.00	0.98
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950				0.957			0.961	
Satd. Flow (prot)	1823	3610	1584	1708	3415	1543	0	1795	1576	0	1826	1615
Flt Permitted	0.950			0.950				0.957			0.961	
Satd. Flow (perm)	1822	3610	1560	1706	3415	1470	0	1795	1541	0	1818	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			61			121			145			101
Link Speed (mph)		45			45			25			15	
Link Distance (ft)		392			720			722			387	
Travel Time (s)		5.9			10.9			19.7			17.6	
Confl. Peds. (#/hr)	2		2	2		7			7	5		2
Confl. Bikes (#/hr)						2						
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	1%	3%	2%	2%	1%	2%	0%	3%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	60	1398	84	123	1611	181	191	20	271	119	26	49
Shared Lane Traffic (%)												
Lane Group Flow (vph)	60	1398	84	123	1611	181	0	211	271	0	145	49
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	1.05	1.05	1.05	0.99	0.99	0.99	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1	1	1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	35	206	53	35	206	53	35	35	35	5	35	35
Trailing Detector (ft)	-5	200	47	-5	200	47	-5	-5	-5	0	-5	-5
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Split	NA	Perm	Split	NA	Perm
Protected Phases	5	2	4	1	6	3	4	4		3	3	
Permitted Phases			2			6			4			3
Detector Phase	5	2	2	1	6	6	4	4	4	3	3	3
Switch Phase												

Lanes, Volumes, Timings

6: Troupe Street/Glen Shopping Ctr & Old Bridge Road

05/26/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	7.0	15.0	10.0	7.0	15.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	14.0	30.5	48.0	14.0	32.0	17.0	48.0	48.0	48.0	17.0	17.0	17.0
Total Split (s)	20.0	117.0	36.0	25.0	122.0	22.0	36.0	36.0	36.0	22.0	22.0	22.0
Total Split (%)	10.0%	58.5%	18.0%	12.5%	61.0%	11.0%	18.0%	18.0%	18.0%	11.0%	11.0%	11.0%
Maximum Green (s)	13.0	110.5	28.0	18.0	116.0	15.0	28.0	28.0	28.0	15.0	15.0	15.0
Yellow Time (s)	4.5	5.5	3.5	4.0	5.0	3.0	3.5	3.5	3.5	3.0	3.0	3.0
All-Red Time (s)	2.5	1.0	4.5	3.0	1.0	4.0	4.5	4.5	4.5	4.0	4.0	4.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	7.0	6.5	8.0	7.0	6.0	7.0		8.0	8.0		7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None
Walk Time (s)		7.0	8.0		7.0		8.0	8.0	8.0			
Flash Dont Walk (s)		17.0	32.0		19.0		32.0	32.0	32.0			
Pedestrian Calls (#/hr)		0	0		0		0	0	0			
Act Effct Green (s)	11.1	113.1	137.9	17.1	119.5	133.5		26.3	26.3		15.0	15.0
Actuated g/C Ratio	0.06	0.57	0.69	0.09	0.60	0.67		0.13	0.13		0.08	0.08
v/c Ratio	0.59	0.69	0.08	0.84	0.79	0.18		0.89	0.83		1.07	0.23
Control Delay	111.2	12.9	0.2	152.0	14.2	0.8		116.0	54.1		177.2	2.5
Queue Delay	0.0	0.5	0.0	0.0	0.4	0.0		0.0	0.0		0.0	0.0
Total Delay	111.2	13.4	0.2	152.0	14.6	0.8		116.0	54.1		177.2	2.5
LOS	F	B	A	F	B	A		F	D		F	A
Approach Delay		16.5			22.1			81.2			133.1	
Approach LOS		B			C			F			F	
Queue Length 50th (ft)	81	233	1	154	1021	14		275	169		~208	0
Queue Length 95th (ft)	m94	m236	m0	m#254	560	9		#424	#308		#375	0
Internal Link Dist (ft)		312			640			642			307	
Turn Bay Length (ft)	175		210	335								100
Base Capacity (vph)	118	2040	1097	153	2040	1027		251	340		136	212
Starvation Cap Reductn	0	255	0	0	112	0		0	0		0	0
Spillback Cap Reductn	0	0	0	0	0	0		0	0		0	0
Storage Cap Reductn	0	0	0	0	0	0		0	0		0	0
Reduced v/c Ratio	0.51	0.78	0.08	0.80	0.84	0.18		0.84	0.80		1.07	0.23

Intersection Summary

Area Type: Other

Cycle Length: 200

Actuated Cycle Length: 200

Offset: 82 (41%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.07

Intersection Signal Delay: 32.1

Intersection LOS: C

Intersection Capacity Utilization 87.1%

ICU Level of Service E

Analysis Period (min) 15

Lanes, Volumes, Timings

6: Troupe Street/Glen Shopping Ctr & Old Bridge Road

05/26/2023

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: Troupe Street/Glen Shopping Ctr & Old Bridge Road

↙ Ø1 25 s	→ Ø2 (R) 117 s	↖ Ø3 22 s	↗ Ø4 36 s
↖ Ø5 20 s	← Ø6 (R) 122 s		

Lanes, Volumes, Timings

7: Titania Way/Touchstone Circle & Old Bridge Road

05/26/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	71	1612	33	17	1833	142	22	1	20	155	7	56
Future Volume (vph)	71	1612	33	17	1833	142	22	1	20	155	7	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		4%			-7%			-3%				2%
Storage Length (ft)	145		0	225		440	0		0	0		0
Storage Lanes	1		1	1		1	0		0	0		1
Taper Length (ft)	85			90			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.94			0.98		0.99			1.00	0.97
Frt			0.850			0.850		0.937				0.850
Flt Protected	0.950			0.950				0.975			0.954	
Satd. Flow (prot)	1769	3503	1583	1868	3663	1655	0	1745	0	0	1794	1599
Flt Permitted	0.067			0.107				0.570			0.742	
Satd. Flow (perm)	125	3503	1483	210	3663	1615	0	1016	0	0	1394	1546
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			71			145		18				76
Link Speed (mph)		45			45			20				30
Link Distance (ft)		720			685			276				350
Travel Time (s)		10.9			10.4			9.4				8.0
Confl. Peds. (#/hr)	5		11	4		6	7		5	1		12
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	1%	0%	0%	2%	1%	0%	0%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%				0%
Adj. Flow (vph)	72	1645	34	17	1870	145	22	1	20	158	7	57
Shared Lane Traffic (%)												
Lane Group Flow (vph)	72	1645	34	17	1870	145	0	43	0	0	165	57
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0				0
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.03	1.03	1.03	0.96	0.96	0.96	0.98	0.98	0.98	1.01	1.01	1.01
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1	1	1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	35	206	53	35	206	53	35	35		5	35	35
Trailing Detector (ft)	-5	200	47	-5	200	47	-5	-5		0	-5	-5
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases	1	6		5	2			4				8
Permitted Phases	2		6	6		2	4			8		8
Detector Phase	1	6	6	5	2	2	4	4		8	8	8
Switch Phase												

Lanes, Volumes, Timings

7: Titania Way/Touchstone Circle & Old Bridge Road

05/26/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	5.0	20.0	20.0	5.0	20.0	20.0	5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	13.5	33.5	33.5	13.5	38.5	38.5	43.5	43.5		41.5	41.5	41.5
Total Split (s)	20.0	142.0	142.0	20.0	142.0	142.0	38.0	38.0		38.0	38.0	38.0
Total Split (%)	10.0%	71.0%	71.0%	10.0%	71.0%	71.0%	19.0%	19.0%		19.0%	19.0%	19.0%
Maximum Green (s)	11.5	133.5	133.5	11.5	133.5	133.5	30.5	30.5		30.5	30.5	30.5
Yellow Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	4.0	4.0		4.0	4.0	4.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0	0.0
Total Lost Time (s)	8.5	8.5	8.5	8.5	8.5	8.5		7.5			7.5	7.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	8.0	8.0	2.0	8.0	8.0	2.0	2.0		2.0	2.0	2.0
Minimum Gap (s)	2.0	8.0	8.0	2.0	8.0	8.0	2.0	2.0		2.0	2.0	2.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0	8.0	8.0		7.0	7.0	7.0
Flash Dont Walk (s)		18.0	18.0		23.0	23.0	28.0	28.0		27.0	27.0	27.0
Pedestrian Calls (#/hr)		0	0		0	0	0	0		0	0	0
Act Effct Green (s)	148.7	149.0	149.0	152.1	141.8	141.8		26.8			26.8	26.8
Actuated g/C Ratio	0.74	0.74	0.74	0.76	0.71	0.71		0.13			0.13	0.13
v/c Ratio	0.48	0.63	0.03	0.08	0.72	0.12		0.28			0.89	0.21
Control Delay	22.4	6.1	0.1	3.1	17.5	0.6		52.6			125.3	7.4
Queue Delay	0.0	0.0	0.0	0.0	0.1	0.0		0.0			0.0	0.0
Total Delay	22.4	6.1	0.1	3.1	17.7	0.6		52.6			125.3	7.4
LOS	C	A	A	A	B	A		D			F	A
Approach Delay		6.7			16.3			52.6			95.0	
Approach LOS		A			B			D			F	
Queue Length 50th (ft)	16	221	0	2	1056	8		29			214	0
Queue Length 95th (ft)	m44	m266	m0	m3	1202	m9		76			#337	27
Internal Link Dist (ft)		640			605			196			270	
Turn Bay Length (ft)	145			225		440						
Base Capacity (vph)	190	2609	1122	258	2597	1187		170			212	300
Starvation Cap Reductn	0	29	0	0	0	0		0			0	0
Spillback Cap Reductn	0	0	0	0	130	0		0			0	2
Storage Cap Reductn	0	0	0	0	0	0		0			0	0
Reduced v/c Ratio	0.38	0.64	0.03	0.07	0.76	0.12		0.25			0.78	0.19

Intersection Summary

Area Type: Other

Cycle Length: 200

Actuated Cycle Length: 200

Offset: 81 (41%), Referenced to phase 2:EBWB and 6:EBWB, Start of Yellow

Natural Cycle: 130

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.89

Intersection Signal Delay: 16.9

Intersection LOS: B

Intersection Capacity Utilization 91.8%

ICU Level of Service F

Analysis Period (min) 15

Lanes, Volumes, Timings

7: Titania Way/Touchstone Circle & Old Bridge Road

05/26/2023

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: Titania Way/Touchstone Circle & Old Bridge Road

 Ø1 20 s	 Ø2 (R) 142 s	 Ø4 38 s
 Ø5 20 s	 Ø6 (R) 142 s	 Ø8 38 s

Lanes, Volumes, Timings
8: Old Bridge Road & Brussels Way

05/26/2023



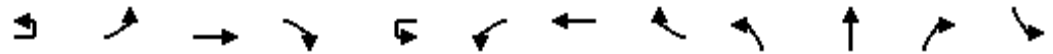
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↗		↗
Traffic Volume (vph)	0	1787	1903	19	0	11
Future Volume (vph)	0	1787	1903	19	0	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		7%	-1%		1%	
Storage Length (ft)	0			225	0	0
Storage Lanes	0			1	0	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor						
Flt				0.850		0.865
Flt Protected						
Satd. Flow (prot)	0	3449	3557	1623	0	1398
Flt Permitted						
Satd. Flow (perm)	0	3449	3557	1623	0	1398
Link Speed (mph)		45	45		25	
Link Distance (ft)		685	503		275	
Travel Time (s)		10.4	7.6		7.5	
Confl. Peds. (#/hr)	11			11		11
Confl. Bikes (#/hr)						
Peak Hour Factor	0.68	0.68	0.68	0.68	0.68	0.68
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	1%	2%	0%	0%	17%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	0	2628	2799	28	0	16
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	2628	2799	28	0	16
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.05	1.05	0.99	0.99	1.01	1.01
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	65.7%
ICU Level of Service	C
Analysis Period (min)	15

Lanes, Volumes, Timings
 9: Old Bridge Ln/Church Entr & Old Bridge Road

05/26/2023



Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	1	8	1714	64	1	23	1908	1	13	0	19	2
Future Volume (vph)	1	8	1714	64	1	23	1908	1	13	0	19	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	10
Grade (%)			1%				3%			0%		
Storage Length (ft)		365		340		225		230	0		0	0
Storage Lanes		1		1		1		1	0		0	1
Taper Length (ft)		60				105			25			25
Lane Util. Factor	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Fr _t				0.850				0.850		0.921		
Fl _t Protected		0.950				0.950				0.980		0.950
Satd. Flow (prot)	0	1796	3556	1607	0	1778	3486	1591	0	1715	0	1693
Fl _t Permitted		0.950				0.950				0.980		0.950
Satd. Flow (perm)	0	1796	3556	1607	0	1778	3486	1591	0	1715	0	1693
Link Speed (mph)			45				45			25		
Link Distance (ft)			503				585			390		
Travel Time (s)			7.6				8.9			10.6		
Confl. Peds. (#/hr)		9		1		1		9			1	
Confl. Bikes (#/hr)								3				
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	1%	0%	0%	0%	2%	0%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)			0%				0%			0%		
Adj. Flow (vph)	1	9	1823	68	1	24	2030	1	14	0	20	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	10	1823	68	0	25	2030	1	0	34	0	2
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	R NA	Left	Left	Right	Left	Left	Right	Left
Median Width(ft)			12				12			10		
Link Offset(ft)			0				0			0		
Crosswalk Width(ft)			16				16			16		
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.02	1.02	1.02	1.02	1.00	1.00	1.00	1.09
Turning Speed (mph)	9	15		9	9	15		9	15		9	15
Sign Control			Free				Free			Stop		

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	72.3%
ICU Level of Service	C
Analysis Period (min)	15

Lanes, Volumes, Timings
 9: Old Bridge Ln/Church Entr & Old Bridge Road

05/26/2023

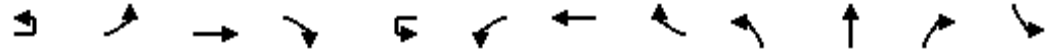


Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	0	0
Future Volume (vph)	0	0
Ideal Flow (vphpl)	1900	1900
Lane Width (ft)	10	10
Grade (%)	-1%	
Storage Length (ft)		0
Storage Lanes		1
Taper Length (ft)		
Lane Util. Factor	1.00	1.00
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)	0	1782
Flt Permitted		
Satd. Flow (perm)	0	1782
Link Speed (mph)	15	
Link Distance (ft)	247	
Travel Time (s)	11.2	
Confl. Peds. (#/hr)		9
Confl. Bikes (#/hr)		
Peak Hour Factor	0.94	0.94
Growth Factor	100%	100%
Heavy Vehicles (%)	0%	0%
Bus Blockages (#/hr)	0	0
Parking (#/hr)		
Mid-Block Traffic (%)	0%	
Adj. Flow (vph)	0	0
Shared Lane Traffic (%)		
Lane Group Flow (vph)	0	0
Enter Blocked Intersection	No	No
Lane Alignment	Left	Right
Median Width(ft)	10	
Link Offset(ft)	0	
Crosswalk Width(ft)	16	
Two way Left Turn Lane		
Headway Factor	1.09	1.09
Turning Speed (mph)		9
Sign Control	Stop	
Intersection Summary		

Lanes, Volumes, Timings

10: Rockwood Lane/Westridge Drive & Old Bridge Road

05/26/2023



Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	7	270	1458	1	8	3	1695	214	0	0	1	120
Future Volume (vph)	7	270	1458	1	8	3	1695	214	0	0	1	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)			1%				3%			0%		
Storage Length (ft)		165		0		300		1000	0		0	0
Storage Lanes		1		0		1		1	0		0	0
Taper Length (ft)		65				115			25			25
Lane Util. Factor	0.95	1.00	0.95	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			1.00			1.00		0.98		0.99		
Frt								0.850		0.865		
Flt Protected		0.950				0.950						
Satd. Flow (prot)	0	1796	3522	0	0	1778	3486	1591	0	1605	0	0
Flt Permitted		0.036				0.167						
Satd. Flow (perm)	0	68	3522	0	0	312	3486	1558	0	1605	0	0
Right Turn on Red				Yes				Yes			Yes	
Satd. Flow (RTOR)								225		77		
Link Speed (mph)			45				45			25		
Link Distance (ft)			585				1227			407		
Travel Time (s)			8.9				18.6			11.1		
Confl. Peds. (#/hr)		5		1		1		5			1	
Confl. Bikes (#/hr)												
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	2%	0%	0%	0%	2%	0%	0%	0%	1%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)			0%				0%			0%		
Adj. Flow (vph)	7	284	1535	1	8	3	1784	225	0	0	1	126
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	291	1536	0	0	11	1784	225	0	1	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	R NA	Left	Left	Right	Left	Left	Right	Left
Median Width(ft)			12				12			0		
Link Offset(ft)			0				0			0		
Crosswalk Width(ft)			16				16			16		
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.02	1.02	1.02	1.02	1.00	1.00	1.00	0.99
Turning Speed (mph)	9	15		9	9	15		9	15		9	15
Number of Detectors	1	1	3		1	1	3	1	1	1		1
Detector Template												
Leading Detector (ft)	50	35	330		50	35	330	35	0	35		0
Trailing Detector (ft)	0	-5	110		0	-5	110	-5	0	-5		0
Turn Type		D,P+P	NA			Perm	NA	Perm		NA		Perm
Protected Phases		1	6				2			8		
Permitted Phases		2				2		2	8			4
Detector Phase		1	6			2	2	2	8	8		4
Switch Phase												

Lanes, Volumes, Timings

10: Rockwood Lane/Westridge Drive & Old Bridge Road

05/26/2023



Lane Group	SBT	SBR
Lane Configurations	↕	↗
Traffic Volume (vph)	0	231
Future Volume (vph)	0	231
Ideal Flow (vphpl)	1900	1900
Lane Width (ft)	12	12
Grade (%)	-1%	
Storage Length (ft)		0
Storage Lanes		1
Taper Length (ft)		
Lane Util. Factor	1.00	1.00
Ped Bike Factor		0.98
Frt		0.850
Flt Protected	0.950	
Satd. Flow (prot)	1814	1591
Flt Permitted	0.757	
Satd. Flow (perm)	1445	1566
Right Turn on Red		Yes
Satd. Flow (RTOR)		31
Link Speed (mph)	35	
Link Distance (ft)	497	
Travel Time (s)	9.7	
Confl. Peds. (#/hr)		5
Confl. Bikes (#/hr)		
Peak Hour Factor	0.95	0.95
Growth Factor	100%	100%
Heavy Vehicles (%)	0%	2%
Bus Blockages (#/hr)	0	0
Parking (#/hr)		
Mid-Block Traffic (%)	0%	
Adj. Flow (vph)	0	243
Shared Lane Traffic (%)		
Lane Group Flow (vph)	126	243
Enter Blocked Intersection	No	No
Lane Alignment	Left	Right
Median Width(ft)	25	
Link Offset(ft)	0	
Crosswalk Width(ft)	16	
Two way Left Turn Lane		
Headway Factor	0.99	0.99
Turning Speed (mph)		9
Number of Detectors	1	1
Detector Template		
Leading Detector (ft)	35	35
Trailing Detector (ft)	-5	-5
Turn Type	NA	pm+ov
Protected Phases	4	1
Permitted Phases		4
Detector Phase	4	4
Switch Phase		

Lanes, Volumes, Timings

10: Rockwood Lane/Westridge Drive & Old Bridge Road

05/26/2023



Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Minimum Initial (s)		5.0	20.0			20.0	20.0	20.0	5.0	5.0		5.0
Minimum Split (s)		13.6	28.6			42.6	42.6	42.6	37.3	37.3		12.3
Total Split (s)		50.0	162.0			112.0	112.0	112.0	38.0	38.0		38.0
Total Split (%)		25.0%	81.0%			56.0%	56.0%	56.0%	19.0%	19.0%		19.0%
Maximum Green (s)		41.4	153.4			103.4	103.4	103.4	30.7	30.7		30.7
Yellow Time (s)		5.2	5.2			5.2	5.2	5.2	3.9	3.9		3.9
All-Red Time (s)		3.4	3.4			3.4	3.4	3.4	3.4	3.4		3.4
Lost Time Adjust (s)		0.0	0.0			0.0	0.0	0.0		0.0		
Total Lost Time (s)		8.6	8.6			8.6	8.6	8.6		7.3		
Lead/Lag		Lead				Lag	Lag	Lag				
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0	4.0			4.0	4.0	4.0	3.5	3.5		3.5
Minimum Gap (s)		3.0	4.0			4.0	4.0	4.0	3.5	3.5		3.5
Time Before Reduce (s)		0.0	0.0			0.0	0.0	0.0	0.0	0.0		0.0
Time To Reduce (s)		0.0	0.0			0.0	0.0	0.0	0.0	0.0		0.0
Recall Mode		None	C-Max			C-Max	C-Max	C-Max	None	None		None
Walk Time (s)						7.0	7.0	7.0	7.0	7.0		
Flash Dont Walk (s)						27.0	27.0	27.0	23.0	23.0		
Pedestrian Calls (#/hr)						0	0	0	0	0		
Act Effct Green (s)		148.8	157.4			115.7	115.7	115.7		26.7		
Actuated g/C Ratio		0.74	0.79			0.58	0.58	0.58		0.13		
v/c Ratio		0.87	0.55			0.06	0.88	0.23		0.00		
Control Delay		82.0	12.4			23.6	43.9	3.0		0.0		
Queue Delay		0.0	0.0			0.0	0.0	0.0		0.0		
Total Delay		82.0	12.4			23.6	43.9	3.0		0.0		
LOS		F	B			C	D	A		A		
Approach Delay			23.5				39.2					
Approach LOS			C				D					
Queue Length 50th (ft)		305	604			6	1065	0		0		
Queue Length 95th (ft)		410	752			22	#1390	48		0		
Internal Link Dist (ft)			505				1147			327		
Turn Bay Length (ft)		165				300		1000				
Base Capacity (vph)		410	2771			180	2017	996		311		
Starvation Cap Reductn		0	0			0	0	0		0		
Spillback Cap Reductn		0	0			0	0	0		0		
Storage Cap Reductn		0	0			0	0	0		0		
Reduced v/c Ratio		0.71	0.55			0.06	0.88	0.23		0.00		

Intersection Summary

Area Type:	Other
Cycle Length:	200
Actuated Cycle Length:	200
Offset:	7 (4%), Referenced to phase 2:EBWB and 6:EBT, Start of Yellow
Natural Cycle:	145
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.88
Intersection Signal Delay:	34.6
Intersection LOS:	C
Intersection Capacity Utilization:	109.5%
ICU Level of Service:	H
Analysis Period (min):	15

Lanes, Volumes, Timings

10: Rockwood Lane/Westridge Drive & Old Bridge Road

05/26/2023



Lane Group	SBT	SBR
Minimum Initial (s)	5.0	5.0
Minimum Split (s)	12.3	13.6
Total Split (s)	38.0	50.0
Total Split (%)	19.0%	25.0%
Maximum Green (s)	30.7	41.4
Yellow Time (s)	3.9	5.2
All-Red Time (s)	3.4	3.4
Lost Time Adjust (s)	0.0	0.0
Total Lost Time (s)	7.3	8.6
Lead/Lag		Lead
Lead-Lag Optimize?		
Vehicle Extension (s)	3.5	3.0
Minimum Gap (s)	3.5	3.0
Time Before Reduce (s)	0.0	0.0
Time To Reduce (s)	0.0	0.0
Recall Mode	None	None
Walk Time (s)		
Flash Dont Walk (s)		
Pedestrian Calls (#/hr)		
Act Effct Green (s)	26.7	58.5
Actuated g/C Ratio	0.13	0.29
v/c Ratio	0.65	0.50
Control Delay	97.9	47.3
Queue Delay	0.0	0.0
Total Delay	97.9	47.3
LOS	F	D
Approach Delay	64.6	
Approach LOS	E	
Queue Length 50th (ft)	159	216
Queue Length 95th (ft)	239	283
Internal Link Dist (ft)	417	
Turn Bay Length (ft)		
Base Capacity (vph)	221	510
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.57	0.48
Intersection Summary		

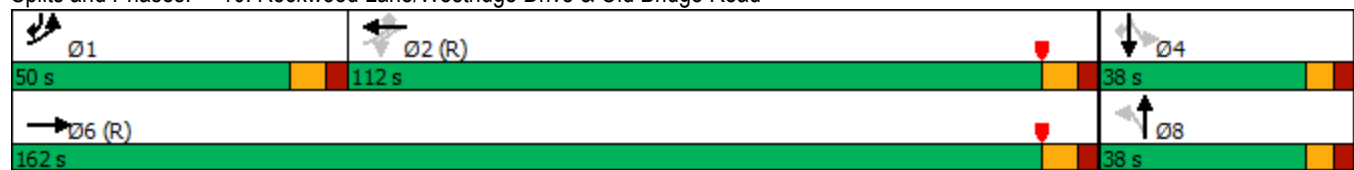
Lanes, Volumes, Timings

10: Rockwood Lane/Westridge Drive & Old Bridge Road

05/26/2023

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 10: Rockwood Lane/Westridge Drive & Old Bridge Road



Lanes, Volumes, Timings

11: Touchstone Cir & Exxon/Glen Shopping Ctr

05/26/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗		↑↑↑	↗		↑↑↑	
Traffic Volume (vph)	0	0	43	0	0	110	0	176	221	0	408	27
Future Volume (vph)	0	0	43	0	0	110	0	176	221	0	408	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			-1%				2%
Storage Length (ft)	0		0	0		0	50		0	30		10
Storage Lanes	0		1	0		1	1		1	1		1
Taper Length (ft)	25			25			95			85		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.86	0.86
Ped Bike Factor												
Flt			0.865			0.865			0.850		0.991	
Flt Protected												
Satd. Flow (prot)	0	0	1596	0	0	1644	0	5161	1623	0	6353	0
Flt Permitted												
Satd. Flow (perm)	0	0	1596	0	0	1644	0	5161	1623	0	6353	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		125			186			317			272	
Travel Time (s)		2.8			4.2			7.2			6.2	
Confl. Peds. (#/hr)	5		7			6	7		1	1		12
Confl. Bikes (#/hr)												
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	3%	0%	0%	0%	0%	1%	0%	0%	1%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	0	0	51	0	0	129	0	207	260	0	480	32
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	51	0	0	129	0	207	260	0	512	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.99	0.99	0.99	1.01	1.01	1.01
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	20.8%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings
 13: Touchstone Cir & Seeton Square/Merchant Plaza

05/26/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations		↕			↕			↕	↕			↕
Traffic Volume (vph)	6	7	42	194	10	19	137	38	54	57	1	7
Future Volume (vph)	6	7	42	194	10	19	137	38	54	57	1	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		-2%			0%				-1%			
Storage Length (ft)	0		0	0		0		0		0		250
Storage Lanes	0		0	0		0		1		0		1
Taper Length (ft)	25			25				25				150
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.95	0.95	0.95	1.00
Ped Bike Factor												
Fr _t		0.898			0.988				0.923			
Fl _t Protected		0.994			0.958			0.950				0.950
Satd. Flow (prot)	0	1675	0	0	1783	0	0	1814	3299	0	0	1783
Fl _t Permitted		0.994			0.958			0.950				0.950
Satd. Flow (perm)	0	1675	0	0	1783	0	0	1814	3299	0	0	1783
Link Speed (mph)		30			15				30			
Link Distance (ft)		151			241				272			
Travel Time (s)		3.4			11.0				6.2			
Confl. Peds. (#/hr)			6	2		1		4		3		1
Confl. Bikes (#/hr)												
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	1.00	0.91
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	3%	1%	0%	0%	0%	0%	1%	2%	2%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%				0%			
Adj. Flow (vph)	7	8	46	213	11	21	151	42	59	63	1	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	61	0	0	245	0	0	193	122	0	0	9
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	R NA	Left	Left	Right	R NA	Left
Median Width(ft)		0			0				24			
Link Offset(ft)		0			0				0			
Crosswalk Width(ft)		16			16				16			
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	1.00	1.00	1.00	0.99	0.99	0.99	0.99	1.01	1.01
Turning Speed (mph)	15		9	15		9	9	15		9	9	15
Sign Control		Stop			Stop				Free			

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	42.1%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings
 13: Touchstone Cir & Seeton Square/Merchant Plaza

05/26/2023



Lane Group	SBT	SBR
Lane Configurations	↑↑	
Traffic Volume (vph)	62	3
Future Volume (vph)	62	3
Ideal Flow (vphpl)	1900	1900
Lane Width (ft)	12	12
Grade (%)	2%	
Storage Length (ft)		0
Storage Lanes		0
Taper Length (ft)		
Lane Util. Factor	0.95	0.95
Ped Bike Factor		
Frt	0.994	
Flt Protected		
Satd. Flow (prot)	3519	0
Flt Permitted		
Satd. Flow (perm)	3519	0
Link Speed (mph)	30	
Link Distance (ft)	577	
Travel Time (s)	13.1	
Confl. Peds. (#/hr)		4
Confl. Bikes (#/hr)		
Peak Hour Factor	0.91	0.91
Growth Factor	100%	100%
Heavy Vehicles (%)	1%	0%
Bus Blockages (#/hr)	0	0
Parking (#/hr)		
Mid-Block Traffic (%)	0%	
Adj. Flow (vph)	68	3
Shared Lane Traffic (%)		
Lane Group Flow (vph)	71	0
Enter Blocked Intersection	No	No
Lane Alignment	Left	Right
Median Width(ft)	24	
Link Offset(ft)	0	
Crosswalk Width(ft)	16	
Two way Left Turn Lane		
Headway Factor	1.01	1.01
Turning Speed (mph)		9
Sign Control	Free	
Intersection Summary		

Lanes, Volumes, Timings
 14: Touchstone Circle & Merchant Plaza/CVS

05/26/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	13	5	104	53	10	5	97	53	59	1	61	16
Future Volume (vph)	13	5	104	53	10	5	97	53	59	1	61	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			-3%			3%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor												
Fr _t		0.885			0.989			0.958			0.969	
Fl _t Protected		0.995			0.963			0.977			0.999	
Satd. Flow (prot)	0	1673	0	0	1810	0	0	3412	0	0	3442	0
Fl _t Permitted		0.995			0.963			0.977			0.999	
Satd. Flow (perm)	0	1673	0	0	1810	0	0	3412	0	0	3442	0
Link Speed (mph)		15			15			30			30	
Link Distance (ft)		206			90			350			223	
Travel Time (s)		9.4			4.1			8.0			5.1	
Confl. Peds. (#/hr)	3		12	4		6	8		7	3		11
Confl. Bikes (#/hr)												4
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	14	6	116	59	11	6	108	59	66	1	68	18
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	136	0	0	76	0	0	233	0	0	87	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.98	0.98	0.98	1.02	1.02	1.02
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary
 Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 30.0% ICU Level of Service A
 Analysis Period (min) 15

Lanes, Volumes, Timings
15: Prince William Pkwy & Chinn Park Dr

05/26/2023



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	65	1935	267	0	2129
Future Volume (vph)	0	65	1935	267	0	2129
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		1%			0%
Storage Length (ft)	0	0		0	0	
Storage Lanes	0	1		0	0	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.86	0.86	1.00	0.91
Ped Bike Factor						
Flt		0.865	0.982			
Flt Protected						
Satd. Flow (prot)	0	1611	6268	0	0	5085
Flt Permitted						
Satd. Flow (perm)	0	1611	6268	0	0	5085
Link Speed (mph)	30		45			45
Link Distance (ft)	763		990			666
Travel Time (s)	17.3		15.0			10.1
Confl. Peds. (#/hr)		3		3	3	
Confl. Bikes (#/hr)				1		
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	2%	2%	1%	0%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Adj. Flow (vph)	0	70	2081	287	0	2289
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	70	2368	0	0	2289
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	0		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.01	1.01	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	52.1%
ICU Level of Service	A
Analysis Period (min)	15

Lanes, Volumes, Timings

16: Prince William Pkwy & Kenwood Dr./

School Entrance

05/26/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations		↕			↕	↗		↖	↑↑↑	↗		↖
Traffic Volume (vph)	51	1	104	12	1	8	2	111	2139	25	4	2
Future Volume (vph)	51	1	104	12	1	8	2	111	2139	25	4	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		3%			1%				-2%			
Storage Length (ft)	0		0	0		0		195		245		230
Storage Lanes	0		0	0		1		1		1		1
Taper Length (ft)	25			25				200				200
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	0.91	1.00	0.91	1.00
Ped Bike Factor		0.99			1.00	0.98				0.96		
Frt		0.910				0.850				0.850		
Flt Protected		0.984			0.956			0.950				0.950
Satd. Flow (prot)	0	1646	0	0	1807	1410	0	1805	5136	1631	0	1796
Flt Permitted		0.984			0.956			0.054				0.050
Satd. Flow (perm)	0	1645	0	0	1803	1380	0	103	5136	1573	0	95
Right Turn on Red			Yes			Yes				Yes		
Satd. Flow (RTOR)		40				68				68		
Link Speed (mph)		25			25				45			
Link Distance (ft)		579			360				769			
Travel Time (s)		15.8			9.8				11.7			
Confl. Peds. (#/hr)	2		3	2		6		1		6		4
Confl. Bikes (#/hr)												
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	1%	0%	0%	14%	0%	1%	2%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%				0%			
Adj. Flow (vph)	54	1	109	13	1	8	2	117	2252	26	4	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	164	0	0	14	8	0	119	2252	26	0	6
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	R NA	Left	Left	Right	R NA	Left
Median Width(ft)		0			0				16			
Link Offset(ft)		0			0				0			
Crosswalk Width(ft)		10			16				10			
Two way Left Turn Lane												
Headway Factor	1.02	1.02	1.02	1.01	1.01	1.01	0.99	0.99	0.99	0.99	1.01	1.01
Turning Speed (mph)	15		9	15		9	9	15		9	9	15
Number of Detectors	1	1		1	1	1	1	1	1	1	1	1
Detector Template		Thru		Left	Thru	Right				Right		Left
Leading Detector (ft)	35	35		20	35	35	50	35	206	46	35	20
Trailing Detector (ft)	-5	-5		0	-5	-5	0	-5	200	40	-5	0
Turn Type	Split	NA		Split	NA	pm+ov		D.P+P	NA	pm+ov		D.P+P
Protected Phases	3	3		4	4	5		1	6	4		5
Permitted Phases						4		2		6		6
Detector Phase	3	3		4	4	5		1	6	4		5
Switch Phase												

Lanes, Volumes, Timings

16: Prince William Pkwy & Kenwood Dr./

School Entrance

05/26/2023



Lane Group	SBT	SBR
Lane Configurations	↑↑↑	↑
Traffic Volume (vph)	2022	101
Future Volume (vph)	2022	101
Ideal Flow (vphpl)	1900	1900
Lane Width (ft)	12	12
Grade (%)	1%	
Storage Length (ft)		235
Storage Lanes		1
Taper Length (ft)		
Lane Util. Factor	0.91	1.00
Ped Bike Factor		0.97
Fr _t		0.850
Flt Protected		
Satd. Flow (prot)	5060	1607
Flt Permitted		
Satd. Flow (perm)	5060	1562
Right Turn on Red		Yes
Satd. Flow (RTOR)		79
Link Speed (mph)	45	
Link Distance (ft)	990	
Travel Time (s)	15.0	
Confl. Peds. (#/hr)		3
Confl. Bikes (#/hr)		
Peak Hour Factor	0.95	0.95
Growth Factor	100%	100%
Heavy Vehicles (%)	2%	0%
Bus Blockages (#/hr)	0	0
Parking (#/hr)		
Mid-Block Traffic (%)	0%	
Adj. Flow (vph)	2128	106
Shared Lane Traffic (%)		
Lane Group Flow (vph)	2128	106
Enter Blocked Intersection	No	No
Lane Alignment	Left	Right
Median Width(ft)	16	
Link Offset(ft)	0	
Crosswalk Width(ft)	10	
Two way Left Turn Lane		
Headway Factor	1.01	1.01
Turning Speed (mph)		9
Number of Detectors	1	1
Detector Template		
Leading Detector (ft)	206	46
Trailing Detector (ft)	200	40
Turn Type	NA	pm+ov
Protected Phases	2	3
Permitted Phases		2
Detector Phase	2	2
Switch Phase		

Lanes, Volumes, Timings

16: Prince William Pkwy & Kenwood Dr./

School Entrance

05/26/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Minimum Initial (s)	10.0	10.0		10.0	10.0	7.0		7.0	15.0	10.0		7.0
Minimum Split (s)	43.6	43.6		43.8	43.8	15.8		15.8	24.8	43.8		15.8
Total Split (s)	29.0	29.0		25.0	25.0	26.0		26.0	120.0	25.0		26.0
Total Split (%)	14.5%	14.5%		12.5%	12.5%	13.0%		13.0%	60.0%	12.5%		13.0%
Maximum Green (s)	22.4	22.4		19.2	19.2	17.2		17.2	111.2	19.2		17.2
Yellow Time (s)	3.1	3.1		3.1	3.1	4.9		4.9	4.9	3.1		4.9
All-Red Time (s)	3.5	3.5		2.7	2.7	3.9		3.9	3.9	2.7		3.9
Lost Time Adjust (s)		0.0			0.0	0.0		0.0	0.0	0.0		0.0
Total Lost Time (s)		6.6			5.8	8.8		8.8	8.8	5.8		8.8
Lead/Lag	Lead	Lead		Lag	Lag	Lead		Lead	Lag	Lag		Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		3.0	3.0	3.0		3.0
Minimum Gap (s)	3.0	3.0		3.0	3.0	3.0		3.0	3.0	3.0		3.0
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0
Recall Mode	None	None		None	None	None		None	C-Max	None		None
Walk Time (s)	8.0	8.0		8.0	8.0				7.0	8.0		
Flash Dont Walk (s)	29.0	29.0		30.0	30.0				9.0	30.0		
Pedestrian Calls (#/hr)	0	0		0	0				0	0		
Act Effct Green (s)		19.3			10.0	12.6		143.9	143.2	154.2		147.4
Actuated g/C Ratio		0.10			0.05	0.06		0.72	0.72	0.77		0.74
v/c Ratio		0.85			0.16	0.05		0.64	0.61	0.02		0.05
Control Delay		99.9			95.2	0.6		45.0	17.3	0.0		7.7
Queue Delay		0.0			0.0	0.0		0.0	1.0	0.0		0.0
Total Delay		99.9			95.2	0.6		45.0	18.3	0.0		7.7
LOS		F			F	A		D	B	A		A
Approach Delay		99.9			60.8				19.4			
Approach LOS		F			E				B			
Queue Length 50th (ft)		163			18	0		64	635	0		1
Queue Length 95th (ft)		#272			47	0		144	685	0		m2
Internal Link Dist (ft)		499			280				689			
Turn Bay Length (ft)								195		245		230
Base Capacity (vph)		219			173	220		222	3677	1284		218
Starvation Cap Reductn		0			0	0		0	1044	0		0
Spillback Cap Reductn		0			0	0		0	0	0		0
Storage Cap Reductn		0			0	0		0	0	0		0
Reduced v/c Ratio		0.75			0.08	0.04		0.54	0.86	0.02		0.03

Intersection Summary

Area Type:	Other
Cycle Length:	200
Actuated Cycle Length:	200
Offset:	134 (67%), Referenced to phase 2:NBSB and 6:NBSB, Start of Yellow
Natural Cycle:	145
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.85
Intersection Signal Delay:	22.0
Intersection LOS:	C
Intersection Capacity Utilization:	92.0%
ICU Level of Service:	F
Analysis Period (min):	15

Lanes, Volumes, Timings

16: Prince William Pkwy & Kenwood Dr./

School Entrance

05/26/2023



Lane Group	SBT	SBR
Minimum Initial (s)	15.0	10.0
Minimum Split (s)	28.8	43.6
Total Split (s)	120.0	29.0
Total Split (%)	60.0%	14.5%
Maximum Green (s)	111.2	22.4
Yellow Time (s)	4.9	3.1
All-Red Time (s)	3.9	3.5
Lost Time Adjust (s)	0.0	0.0
Total Lost Time (s)	8.8	6.6
Lead/Lag	Lag	Lead
Lead-Lag Optimize?		
Vehicle Extension (s)	3.0	3.0
Minimum Gap (s)	3.0	3.0
Time Before Reduce (s)	0.0	0.0
Time To Reduce (s)	0.0	0.0
Recall Mode	C-Max	None
Walk Time (s)	7.0	8.0
Flash Dont Walk (s)	13.0	29.0
Pedestrian Calls (#/hr)	0	0
Act Effct Green (s)	130.5	152.0
Actuated g/C Ratio	0.65	0.76
v/c Ratio	0.64	0.09
Control Delay	19.6	1.7
Queue Delay	0.0	0.0
Total Delay	19.6	1.7
LOS	B	A
Approach Delay	18.7	
Approach LOS	B	
Queue Length 50th (ft)	564	6
Queue Length 95th (ft)	423	m2
Internal Link Dist (ft)	910	
Turn Bay Length (ft)		235
Base Capacity (vph)	3302	1210
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.64	0.09
Intersection Summary		

Lanes, Volumes, Timings

16: Prince William Pkwy & Kenwood Dr./

School Entrance

05/26/2023

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 16: Prince William Pkwy & Kenwood Dr./ School Entrance

 Ø1 26 s	 Ø2 (R) 120 s	 Ø3 29 s	 Ø4 25 s
 Ø5 26 s	 Ø6 (R) 120 s		

Lanes, Volumes, Timings
17: Prince William Pkwy & Hillendale Road

05/26/2023



Lane Group	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Lane Configurations	↔↔	↗		↔↔	↑↑↑	↘	↑↑↑	↗
Traffic Volume (vph)	283	238	2	541	1994	0	1691	449
Future Volume (vph)	283	238	2	541	1994	0	1691	449
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12
Grade (%)	2%				1%		2%	
Storage Length (ft)	125	0		475		350		500
Storage Lanes	1	1		1		1		1
Taper Length (ft)	45			100		165		
Lane Util. Factor	0.97	1.00	0.91	0.97	0.91	1.00	0.91	1.00
Ped Bike Factor		0.98		1.00				0.98
Frt		0.850						0.850
Flt Protected	0.950			0.950				
Satd. Flow (prot)	3432	1567	0	3416	5060	1881	5034	1583
Flt Permitted	0.950			0.286				
Satd. Flow (perm)	3432	1537	0	1028	5060	1881	5034	1558
Right Turn on Red		Yes						Yes
Satd. Flow (RTOR)		9						478
Link Speed (mph)	25				45		45	
Link Distance (ft)	586				666		769	
Travel Time (s)	16.0				10.1		11.7	
Confl. Peds. (#/hr)		6		3				3
Confl. Bikes (#/hr)		1						
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	1%	2%	0%	2%	2%	0%	2%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0
Parking (#/hr)								
Mid-Block Traffic (%)	0%				0%		0%	
Adj. Flow (vph)	301	253	2	576	2121	0	1799	478
Shared Lane Traffic (%)								
Lane Group Flow (vph)	301	253	0	578	2121	0	1799	478
Enter Blocked Intersection	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	R NA	Left	Left	R NA	Left	Right
Median Width(ft)	30				30		24	
Link Offset(ft)	0				0		0	
Crosswalk Width(ft)	10				10		10	
Two way Left Turn Lane								
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (mph)	15	9	9	15		9		9
Number of Detectors	1	1	1	1	1	1	1	1
Detector Template								
Leading Detector (ft)	35	35	50	35	206	35	206	46
Trailing Detector (ft)	-5	-5	0	-5	200	-5	200	40
Turn Type	Prot	pm+ov		Prot	NA	Prot	NA	pm+ov
Protected Phases	4	5		5	2	1	6	4
Permitted Phases		4						6
Detector Phase	4	4		5	2	1	6	6
Switch Phase								

Lanes, Volumes, Timings
 17: Prince William Pkwy & Hillendale Road

05/26/2023



Lane Group	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Minimum Initial (s)	10.0	7.0		7.0	15.0	7.0	15.0	10.0
Minimum Split (s)	46.5	15.0		15.0	20.5	13.5	34.5	46.5
Total Split (s)	50.0	22.0		22.0	93.0	17.0	88.0	50.0
Total Split (%)	31.3%	13.8%		13.8%	58.1%	10.6%	55.0%	31.3%
Maximum Green (s)	43.5	14.0		14.0	87.5	10.5	82.5	43.5
Yellow Time (s)	3.5	4.0		4.0	4.5	4.0	4.5	3.5
All-Red Time (s)	3.0	4.0		4.0	1.0	2.5	1.0	3.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	8.0		8.0	5.5	6.5	5.5	6.5
Lead/Lag		Lead		Lead	Lag	Lead	Lag	
Lead-Lag Optimize?								
Vehicle Extension (s)	4.0	4.0		4.0	4.0	3.0	4.0	4.0
Minimum Gap (s)	4.0	4.0		4.0	4.0	3.0	4.0	4.0
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Recall Mode	None	None		None	C-Max	None	C-Max	None
Walk Time (s)	8.0						7.0	8.0
Flash Dont Walk (s)	32.0						22.0	32.0
Pedestrian Calls (#/hr)	0						0	0
Act Effct Green (s)	28.9	41.4		0.0	119.1		97.1	125.0
Actuated g/C Ratio	0.18	0.26		0.00	0.74		0.61	0.78
v/c Ratio	0.49	0.62		no cap	0.56		0.59	0.36
Control Delay	60.5	50.3			10.4		21.1	1.0
Queue Delay	0.0	0.0			0.0		0.5	0.1
Total Delay	60.5	50.3		Error	10.4		21.5	1.1
LOS	E	D		F	B		C	A
Approach Delay	55.9				Err		17.3	
Approach LOS	E				F		B	
Queue Length 50th (ft)	147	210		~645	327		407	0
Queue Length 95th (ft)	182	278		#769	449		521	18
Internal Link Dist (ft)	506				586		689	
Turn Bay Length (ft)	125			475				500
Base Capacity (vph)	933	481		1	3766		3054	1326
Starvation Cap Reductn	0	0		0	0		708	198
Spillback Cap Reductn	0	0		0	0		0	0
Storage Cap Reductn	0	0		0	0		0	0
Reduced v/c Ratio	0.32	0.53		578.00	0.56		0.77	0.42

Intersection Summary

Area Type:	Other
Cycle Length:	160
Actuated Cycle Length:	160
Offset:	150 (94%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle:	110
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	Err
Intersection Signal Delay:	Err
Intersection LOS:	F
Intersection Capacity Utilization:	81.5%
ICU Level of Service:	D
Analysis Period (min):	15

Lanes, Volumes, Timings
 17: Prince William Pkwy & Hillendale Road

05/26/2023

- ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 17: Prince William Pkwy & Hillendale Road

 Ø1	 Ø2 (R)	 Ø4
17 s	93 s	50 s
 Ø5	 Ø6 (R)	
22 s	88 s	

Lanes, Volumes, Timings

18: Library/Fitness Ctr/Troupe Street & Chinn Park Dr

05/26/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗		↔		↖	↗		↖	↗	
Traffic Volume (vph)	120	31	57	1	6	36	13	94	1	47	79	1
Future Volume (vph)	120	31	57	1	6	36	13	94	1	47	79	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	10	10	10	12	12	12	12	12	12
Grade (%)		1%			-2%			-2%				3%
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Fr _t			0.850		0.886			0.999			0.998	
Fl _t Protected		0.962			0.999		0.950			0.950		
Satd. Flow (prot)	0	1776	1607	0	1509	0	1823	1917	0	1778	1797	0
Fl _t Permitted		0.962			0.999		0.950			0.950		
Satd. Flow (perm)	0	1776	1607	0	1509	0	1823	1917	0	1778	1797	0
Link Speed (mph)		30			30			30			25	
Link Distance (ft)		763			462			148			722	
Travel Time (s)		17.3			10.5			3.4			19.7	
Confl. Peds. (#/hr)	1		3	1		7	2		7	6		3
Confl. Bikes (#/hr)						1						1
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	0%	0%	0%	0%	6%	0%	0%	0%	0%	4%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	143	37	68	1	7	43	15	112	1	56	94	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	180	68	0	51	0	15	113	0	56	95	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.08	1.08	1.08	0.99	0.99	0.99	1.02	1.02	1.02
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

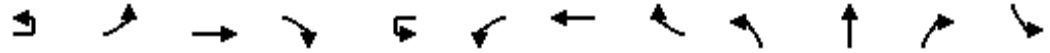
Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	31.3%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings

1: Black Forest Ln/Reids Prospect Dr & Prince William Pkwy

05/30/2024



Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations		↖	↑↑↑			↖	↑↑↑	↖		↕		
Traffic Volume (vph)	3	25	2977	0	1	9	2164	67	0	0	1	37
Future Volume (vph)	3	25	2977	0	1	9	2164	67	0	0	1	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	10	10	10	16
Grade (%)			1%				-1%			-1%		
Storage Length (ft)		465		0		450		450	0		0	0
Storage Lanes		1		0		1		1	0		0	0
Taper Length (ft)		175				180			25			25
Lane Util. Factor	0.91	1.00	0.91	0.91	0.91	1.00	0.91	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Fr _t								0.850		0.865		
Fl _t Protected		0.950				0.950						
Satd. Flow (prot)	0	1719	4869	0	0	1814	4918	1561	0	1542	0	0
Fl _t Permitted		0.950				0.950						
Satd. Flow (perm)	0	1719	4869	0	0	1814	4918	1561	0	1542	0	0
Link Speed (mph)			45				45			30		
Link Distance (ft)			756				1183			385		
Travel Time (s)			11.5				17.9			8.8		
Confl. Peds. (#/hr)		2		1	1			2			1	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	0%	5%	6%	0%	0%	0%	6%	4%	0%	0%	0%	0%
Adj. Flow (vph)	3	26	3038	0	1	9	2208	68	0	0	1	38
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	29	3038	0	0	10	2208	68	0	1	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	R NA	Left	Left	Right	Left	Left	Right	Left
Median Width(ft)			12				12			0		
Link Offset(ft)			0				0			0		
Crosswalk Width(ft)			16				16			16		
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	0.99	0.99	0.99	0.99	1.09	1.09	1.09	0.88
Turning Speed (mph)	9	15		9	9	15		9	15		9	15
Sign Control			Free				Free			Stop		

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	74.0%
ICU Level of Service	D
Analysis Period (min)	15

Lanes, Volumes, Timings

1: Black Forest Ln/Reids Prospect Dr & Prince William Pkwy

05/30/2024

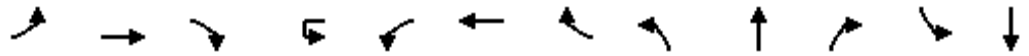


Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	0	13
Future Volume (vph)	0	13
Ideal Flow (vphpl)	1900	1900
Lane Width (ft)	16	16
Grade (%)	5%	
Storage Length (ft)		0
Storage Lanes		0
Taper Length (ft)		
Lane Util. Factor	1.00	1.00
Ped Bike Factor		
Frt	0.966	
Flt Protected	0.964	
Satd. Flow (prot)	1955	0
Flt Permitted	0.964	
Satd. Flow (perm)	1955	0
Link Speed (mph)	25	
Link Distance (ft)	367	
Travel Time (s)	10.0	
Confl. Peds. (#/hr)		2
Peak Hour Factor	0.98	0.98
Heavy Vehicles (%)	0%	0%
Adj. Flow (vph)	0	13
Shared Lane Traffic (%)		
Lane Group Flow (vph)	51	0
Enter Blocked Intersection	No	No
Lane Alignment	Left	Right
Median Width(ft)	0	
Link Offset(ft)	0	
Crosswalk Width(ft)	16	
Two way Left Turn Lane		
Headway Factor	0.88	0.88
Turning Speed (mph)		9
Sign Control	Stop	
Intersection Summary		

Lanes, Volumes, Timings

2: Ridgewood Center Drive/Laurel Hills Drive & Prince William Pkwy

05/30/2024



Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations	↵	↑↑↑			↵	↑↑↑			↕			↕
Traffic Volume (vph)	0	2966	50	10	97	2195	1	42	0	11	5	0
Future Volume (vph)	0	2966	50	10	97	2195	1	42	0	11	5	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	10	10
Grade (%)		0%				0%			0%			5%
Storage Length (ft)	460		0		470		0	0		0	0	
Storage Lanes	1		0		1		0	0		0	0	
Taper Length (ft)	175				185			25			25	
Lane Util. Factor	1.00	0.91	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00	1.00			1.00			0.99
Frt		0.998							0.972			0.977
Flt Protected					0.950				0.962			0.960
Satd. Flow (prot)	1900	4932	0	0	1805	4938	0	0	1771	0	0	1373
Flt Permitted					0.205				0.962			0.960
Satd. Flow (perm)	1900	4932	0	0	389	4938	0	0	1771	0	0	1371
Right Turn on Red			Yes				Yes			Yes		
Satd. Flow (RTOR)		2							189			189
Link Speed (mph)		45				45			15			25
Link Distance (ft)		1183				1119			485			515
Travel Time (s)		17.9				17.0			22.0			14.0
Confl. Peds. (#/hr)	8		1		1		10			3	2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	5%	0%	0%	0%	5%	100%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	3224	54	11	105	2386	1	46	0	12	5	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	3278	0	0	116	2387	0	0	58	0	0	6
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	R NA	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)		36				36			0			0
Link Offset(ft)		0				0			0			0
Crosswalk Width(ft)		16				16			16			16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.13	1.13
Turning Speed (mph)	15		9	9	15		9	15		9	15	
Number of Detectors	1	2		1	1	2		1	1		1	1
Detector Template												
Leading Detector (ft)	35	200		50	35	200		5	35		5	35
Trailing Detector (ft)	-5	100		0	-5	100		0	-5		0	-5
Detector 1 Position(ft)	-5	100		0	-5	100		0	-5		0	-5
Detector 1 Size(ft)	40	6		50	40	6		5	40		5	40
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 2 Position(ft)		194				194						
Detector 2 Size(ft)		6				6						
Detector 2 Type		Cl+Ex				Cl+Ex						

Lanes, Volumes, Timings

2: Ridgewood Center Drive/Laurel Hills Drive & Prince William Pkwy

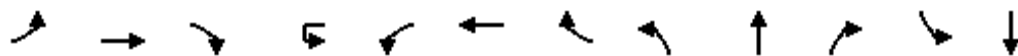
05/30/2024

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	1
Future Volume (vph)	1
Ideal Flow (vphpl)	1900
Lane Width (ft)	10
Grade (%)	
Storage Length (ft)	0
Storage Lanes	0
Taper Length (ft)	
Lane Util. Factor	1.00
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	Yes
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	8
Peak Hour Factor	0.92
Heavy Vehicles (%)	100%
Adj. Flow (vph)	1
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.13
Turning Speed (mph)	9
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	

Lanes, Volumes, Timings

2: Ridgewood Center Drive/Laurel Hills Drive & Prince William Pkwy

05/30/2024



Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Detector 2 Channel												
Detector 2 Extend (s)		0.0				0.0						
Turn Type	Prot	NA		custom	Prot	NA		Split	NA		Split	NA
Protected Phases	5	2			1	6		4	4		3	3
Permitted Phases				1								
Detector Phase	5	2		1	1	6		4	4		3	3
Switch Phase												
Minimum Initial (s)	5.0	20.0		5.0	5.0	20.0		5.0	5.0		5.0	5.0
Minimum Split (s)	11.5	26.0		11.5	11.5	26.0		42.5	42.5		11.5	11.5
Total Split (s)	15.0	50.0		26.0	26.0	61.0		42.5	42.5		11.5	11.5
Total Split (%)	11.5%	38.5%		20.0%	20.0%	46.9%		32.7%	32.7%		8.8%	8.8%
Maximum Green (s)	8.5	44.0		19.5	19.5	55.0		36.0	36.0		5.0	5.0
Yellow Time (s)	4.0	5.0		4.0	4.0	5.0		3.0	3.0		3.0	3.0
All-Red Time (s)	2.5	1.0		2.5	2.5	1.0		3.5	3.5		3.5	3.5
Lost Time Adjust (s)	0.0	0.0			0.0	0.0			0.0			0.0
Total Lost Time (s)	6.5	6.0			6.5	6.0			6.5			6.5
Lead/Lag	Lead	Lag		Lead	Lead	Lag		Lag	Lag		Lead	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.5		3.0	3.0	3.5		3.0	3.0		3.0	3.0
Recall Mode	None	C-Max		None	None	C-Max		None	None		None	None
Walk Time (s)								8.0	8.0			
Flash Dont Walk (s)								28.0	28.0			
Pedestrian Calls (#/hr)								0	0			
Act Effct Green (s)		85.9			19.5	113.1			5.7			5.0
Actuated g/C Ratio		0.66			0.15	0.87			0.04			0.04
v/c Ratio		1.01			2.00	0.56			0.22			0.03
Control Delay		39.9			520.2	3.5			2.0			0.2
Queue Delay		0.0			0.0	0.0			0.0			0.0
Total Delay		39.9			520.2	3.5			2.0			0.2
LOS		D			F	A			A			A
Approach Delay		39.9				27.5			2.0			0.2
Approach LOS		D				C			A			A
Queue Length 50th (ft)		~973			~150	55			0			0
Queue Length 95th (ft)		#1279			m#237	489			0			0
Internal Link Dist (ft)		1103				1039			405			435
Turn Bay Length (ft)					470							
Base Capacity (vph)		3260			58	4297			627			234
Starvation Cap Reductn		0			0	0			0			0
Spillback Cap Reductn		0			0	0			0			0
Storage Cap Reductn		0			0	0			0			0
Reduced v/c Ratio		1.01			2.00	0.56			0.09			0.03

Intersection Summary

Area Type:	Other
Cycle Length:	130
Actuated Cycle Length:	130
Offset:	1 (1%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow
Natural Cycle:	145
Control Type:	Actuated-Coordinated



Lane Group	SBR
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Lanes, Volumes, Timings

2: Ridgewood Center Drive/Laurel Hills Drive & Prince William Pkwy

05/30/2024

Maximum v/c Ratio: 2.00

Intersection Signal Delay: 34.2 Intersection LOS: C

Intersection Capacity Utilization 86.8% ICU Level of Service E







Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

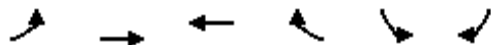
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Ridgewood Center Drive/Laurel Hills Drive & Prince William Pkwy

 Ø1 26 s	 Ø2 (R) 50 s	 Ø3 11.5 s	 Ø4 42.5 s
 Ø5 15 s	 Ø6 (R) 61 s		

Lanes, Volumes, Timings 3: Prince William Parkway & Seeton Square

05/30/2024



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			↑↑↑			↗
Traffic Volume (vph)	0	0	2256	76	0	47
Future Volume (vph)	0	0	2256	76	0	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			100	0	0
Storage Lanes	0			0	0	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.91	0.91	1.00	1.00
Frt			0.995			0.865
Flt Protected						
Satd. Flow (prot)	0	0	5060	0	0	1611
Flt Permitted						
Satd. Flow (perm)	0	0	5060	0	0	1611
Link Speed (mph)		25	45		45	
Link Distance (ft)		218	197		168	
Travel Time (s)		5.9	3.0		2.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	2452	83	0	51
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	2535	0	0	51
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 55.3% ICU Level of Service B
 Analysis Period (min) 15

Lanes, Volumes, Timings
 4: Prince William Pkwy & Old Bridge Road

07/30/2024



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	613	1131	1201	308	1154	1764
Future Volume (vph)	613	1131	1201	308	1154	1764
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	2%		1%			0%
Lane Util. Factor	0.97	0.76	0.91	1.00	0.94	0.91
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3333	3472	4869	1545	4802	4988
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	3333	3472	4869	1545	4802	4988
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		45			45
Link Distance (ft)	240		378			313
Travel Time (s)	3.6		5.7			4.7
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	4%	5%	6%	4%	6%	4%
Adj. Flow (vph)	639	1178	1251	321	1202	1838
Shared Lane Traffic (%)						
Lane Group Flow (vph)	639	1178	1251	321	1202	1838
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	24		36			36
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Number of Detectors	1	3	1	1	1	1
Detector Template						
Leading Detector (ft)	35	300	35	35	35	53
Trailing Detector (ft)	-5	100	-5	-5	-5	47
Detector 1 Position(ft)	-5	100	-5	-5	-5	47
Detector 1 Size(ft)	40	6	40	40	40	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		197				
Detector 2 Size(ft)		6				
Detector 2 Type		Cl+Ex				
Detector 2 Channel						
Detector 2 Extend (s)		0.0				
Detector 3 Position(ft)		294				
Detector 3 Size(ft)		6				
Detector 3 Type		Cl+Ex				
Detector 3 Channel						

Lanes, Volumes, Timings
4: Prince William Pkwy & Old Bridge Road

05/30/2024



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Detector 3 Extend (s)	0.0					
Turn Type	Prot	pt+ov	NA	pt+ov	Prot	NA
Protected Phases	4	4 5	6	6 4	5	2
Permitted Phases						
Detector Phase	4	4 5	6	6 4	5	2
Switch Phase						
Minimum Initial (s)	5.0		20.0		5.0	20.0
Minimum Split (s)	16.7		48.8		12.5	26.0
Total Split (s)	37.0		49.0		44.0	93.0
Total Split (%)	28.5%		37.7%		33.8%	71.5%
Maximum Green (s)	26.5		41.2		36.5	87.2
Yellow Time (s)	4.6		4.7		3.9	4.8
All-Red Time (s)	5.9		3.1		3.6	1.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0
Total Lost Time (s)	10.5		7.8		7.5	5.8
Lead/Lag			Lag			Lead
Lead-Lag Optimize?						Yes
Vehicle Extension (s)	3.0		3.0		3.0	2.0
Recall Mode	C-Max		Min		Max	Max
Act Effct Green (s)	26.5	70.5	41.2	78.2	36.5	87.2
Actuated g/C Ratio	0.20	0.54	0.32	0.60	0.28	0.67
v/c Ratio	0.94	0.63	0.81	0.35	0.89	0.55
Control Delay	90.6	18.0	38.0	24.1	40.9	5.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	90.6	18.0	38.0	24.1	40.9	5.5
LOS	F	B	D	C	D	A
Approach Delay	43.5		35.2			19.5
Approach LOS	D		D			B
Queue Length 50th (ft)	279	166	396	249	313	203
Queue Length 95th (ft)	#402	253	457	355	m292	m30
Internal Link Dist (ft)	160		298			233
Turn Bay Length (ft)						
Base Capacity (vph)	679	1882	1543	929	1348	3345
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.94	0.63	0.81	0.35	0.89	0.55

Intersection Summary	
Area Type:	Other
Cycle Length:	130
Actuated Cycle Length:	130
Offset:	75 (58%), Referenced to phase 4:WBL, Start of Yellow
Natural Cycle:	120
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.94
Intersection Signal Delay:	30.1
Intersection LOS:	C
Intersection Capacity Utilization:	84.1%
ICU Level of Service:	E
Analysis Period (min):	15

Lanes, Volumes, Timings

4: Prince William Pkwy & Old Bridge Road

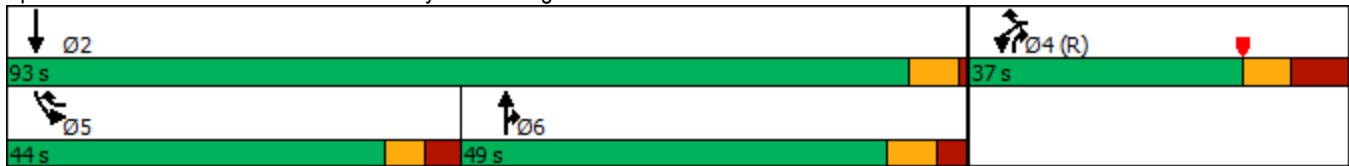
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95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Prince William Pkwy & Old Bridge Road



Lanes, Volumes, Timings
5: Tribe at the Glen & Old Bridge Road

05/30/2024



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑					↗
Traffic Volume (vph)	1398	64	0	0	0	17
Future Volume (vph)	1398	64	0	0	0	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	14	14
Grade (%)	-3%			2%	0%	
Lane Util. Factor	0.91	0.91	1.00	1.00	1.00	1.00
Fr _t	0.993					0.865
Fl _t Protected						
Satd. Flow (prot)	4944	0	0	0	0	1753
Fl _t Permitted						
Satd. Flow (perm)	4944	0	0	0	0	1753
Link Speed (mph)	45			45	15	
Link Distance (ft)	174			161	108	
Travel Time (s)	2.6			2.4	4.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	6%	0%	0%	4%	0%	0%
Adj. Flow (vph)	1520	70	0	0	0	18
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1590	0	0	0	0	18
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.98	0.98	1.01	1.01	0.92	0.92
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	38.4%
ICU Level of Service	A
Analysis Period (min)	15

Lanes, Volumes, Timings

6: Troupe Street/Glen Shopping Ctr & Old Bridge Road

07/30/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	156	1240	61	89	1511	91	107	45	165	78	6	75
Future Volume (vph)	156	1240	61	89	1511	91	107	45	165	78	6	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			7%			-1%			0%	
Storage Length (ft)	175		0	335		0	210		0	0		100
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	75			110			110			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00		1.00		0.99	1.00		0.98
Frt		0.993			0.991				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1823	4908	0	1598	4768	0	1728	1909	1462	1805	1900	1615
Flt Permitted	0.950			0.950			0.753			0.493		
Satd. Flow (perm)	1823	4908	0	1598	4768	0	1365	1909	1442	935	1900	1586
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			8				179			122
Link Speed (mph)		45			45			25				15
Link Distance (ft)		386			720			722				387
Travel Time (s)		5.8			10.9			19.7				17.6
Confl. Peds. (#/hr)			3			6	3		2	2		7
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	6%	4%	9%	4%	1%	5%	0%	11%	0%	0%	0%
Adj. Flow (vph)	170	1348	66	97	1642	99	116	49	179	85	7	82
Shared Lane Traffic (%)												
Lane Group Flow (vph)	170	1414	0	97	1741	0	116	49	179	85	7	82
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12				12
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	1.05	1.05	1.05	0.99	0.99	0.99	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	35	206		35	206		35	35	35	5	35	35
Trailing Detector (ft)	-5	200		-5	200		-5	-5	-5	0	-5	-5
Detector 1 Position(ft)	-5	200		-5	200		-5	-5	-5	0	-5	-5
Detector 1 Size(ft)	40	6		40	6		40	40	40	5	40	40
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	Prot	NA		Prot	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases							4		4	8		8
Detector Phase	5	2		1	6		7	4	4	3	8	8

Lanes, Volumes, Timings
6: Troupe Street/Glen Shopping Ctr & Old Bridge Road

07/30/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	7.0	15.0		7.0	15.0		4.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	14.0	30.5		14.0	32.0		8.0	48.0	48.0	14.0	14.0	14.0
Total Split (s)	14.0	54.0		14.0	54.0		9.0	48.0	48.0	14.0	53.0	53.0
Total Split (%)	10.8%	41.5%		10.8%	41.5%		6.9%	36.9%	36.9%	10.8%	40.8%	40.8%
Maximum Green (s)	7.0	47.5		7.0	48.0		5.0	40.0	40.0	7.0	46.0	46.0
Yellow Time (s)	4.5	5.5		4.0	5.0		3.5	3.5	3.5	3.0	3.0	3.0
All-Red Time (s)	2.5	1.0		3.0	1.0		0.5	4.5	4.5	4.0	4.0	4.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	6.5		7.0	6.0		4.0	8.0	8.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max		None	None	None	None	None	None
Walk Time (s)		7.0			7.0			8.0	8.0			
Flash Dont Walk (s)		17.0			19.0			32.0	32.0			
Pedestrian Calls (#/hr)		0			0			0	0			
Act Effct Green (s)	26.8	67.9		17.0	58.5		18.6	9.6	9.6	22.6	15.6	15.6
Actuated g/C Ratio	0.21	0.52		0.13	0.45		0.14	0.07	0.07	0.17	0.12	0.12
v/c Ratio	0.45	0.55		0.47	0.81		0.56	0.35	0.66	0.41	0.03	0.28
Control Delay	51.2	17.3		46.6	33.5		41.9	50.3	17.2	50.2	48.7	4.7
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.2	17.3		46.6	33.5		41.9	50.3	17.2	50.2	48.7	4.7
LOS	D	B		D	C		D	D	B	D	D	A
Approach Delay		20.9			34.2			30.2			28.7	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	150	161		76	257		64	37	41	62	5	0
Queue Length 95th (ft)	m185	218		m123	380		93	m59	47	106	20	16
Internal Link Dist (ft)		306			640			642			307	
Turn Bay Length (ft)	175			335			210					100
Base Capacity (vph)	375	2566		208	2151		209	587	567	209	672	640
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	63		0	0		0	0	2	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.56		0.47	0.81		0.56	0.08	0.32	0.41	0.01	0.13

Intersection Summary

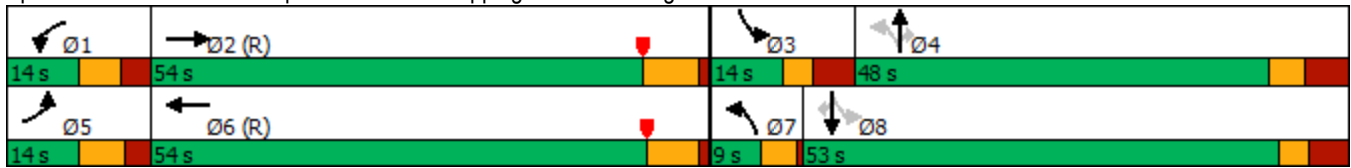
Area Type:	Other
Cycle Length:	130
Actuated Cycle Length:	130
Offset:	127 (98%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow
Natural Cycle:	130
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.81
Intersection Signal Delay:	28.3
Intersection LOS:	C
Intersection Capacity Utilization:	71.3%
ICU Level of Service:	C
Analysis Period (min):	15
m Volume for 95th percentile queue is metered by upstream signal.	

Lanes, Volumes, Timings

6: Troupe Street/Glen Shopping Ctr & Old Bridge Road

07/30/2024

Splits and Phases: 6: Troupe Street/Glen Shopping Ctr & Old Bridge Road



Lanes, Volumes, Timings

7: Titania Way/Touchstone Circle & Old Bridge Road

07/30/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	1497	15	14	1596	51	20	1	18	78	0	73
Future Volume (vph)	70	1497	15	14	1596	51	20	1	18	78	0	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		4%			-7%			-3%			2%	
Storage Length (ft)	145		0	225		440	0		0	0		0
Storage Lanes	1		1	1		1	0		0	0		1
Taper Length (ft)	85			90			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.98			0.98		0.99			1.00	0.98
Frt			0.850			0.850		0.937				0.850
Flt Protected	0.950			0.950				0.975			0.950	
Satd. Flow (prot)	1638	3338	1465	1868	3593	1607	0	1697	0	0	1718	1508
Flt Permitted	0.082			0.123				0.796			0.730	
Satd. Flow (perm)	141	3338	1432	242	3593	1576	0	1386	0	0	1318	1483
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			109			109		19				117
Link Speed (mph)		45			45			20				30
Link Distance (ft)		720			685			276				350
Travel Time (s)		10.9			10.4			9.4				8.0
Confl. Peds. (#/hr)	4		1	1		6			3	2		4
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	8%	6%	8%	0%	4%	4%	6%	0%	0%	4%	0%	6%
Adj. Flow (vph)	74	1576	16	15	1680	54	21	1	19	82	0	77
Shared Lane Traffic (%)												
Lane Group Flow (vph)	74	1576	16	15	1680	54	0	41	0	0	82	77
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0				0
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.03	1.03	1.03	0.96	0.96	0.96	0.98	0.98	0.98	1.01	1.01	1.01
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1	1	1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	35	206	53	35	206	53	35	35		5	35	35
Trailing Detector (ft)	-5	200	47	-5	200	47	-5	-5		0	-5	-5
Detector 1 Position(ft)	-5	200	47	-5	200	47	-5	-5		0	-5	-5
Detector 1 Size(ft)	40	6	6	40	6	6	40	40		5	40	40
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6		6	2		2	4			8		8
Detector Phase	1	6	6	5	2	2	4	4		8	8	8

Lanes, Volumes, Timings

7: Titania Way/Touchstone Circle & Old Bridge Road

07/30/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	5.0	20.0	20.0	5.0	20.0	20.0	5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	13.5	33.5	33.5	13.5	38.5	38.5	43.5	43.5		41.5	41.5	41.5
Total Split (s)	13.5	73.0	73.0	13.5	73.0	73.0	43.5	43.5		43.5	43.5	43.5
Total Split (%)	10.4%	56.2%	56.2%	10.4%	56.2%	56.2%	33.5%	33.5%		33.5%	33.5%	33.5%
Maximum Green (s)	5.0	64.5	64.5	5.0	64.5	64.5	36.0	36.0		36.0	36.0	36.0
Yellow Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	4.0	4.0		4.0	4.0	4.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0	0.0
Total Lost Time (s)	8.5	8.5	8.5	8.5	8.5	8.5		7.5			7.5	7.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	8.0	8.0	2.0	8.0	8.0	2.0	2.0		2.0	2.0	2.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0	8.0	8.0		7.0	7.0	7.0
Flash Dont Walk (s)		18.0	18.0		23.0	23.0	28.0	28.0		27.0	27.0	27.0
Pedestrian Calls (#/hr)		0	0		0	0	0	0		0	0	0
Act Effct Green (s)	99.7	95.9	95.9	90.7	85.7	85.7		12.6			12.6	12.6
Actuated g/C Ratio	0.77	0.74	0.74	0.70	0.66	0.66		0.10			0.10	0.10
v/c Ratio	0.39	0.64	0.01	0.06	0.71	0.05		0.27			0.65	0.31
Control Delay	17.8	6.5	0.0	7.9	21.4	2.9		37.0			77.8	5.6
Queue Delay	0.0	0.6	0.0	0.0	0.0	0.0		0.0			0.0	0.0
Total Delay	17.8	7.1	0.0	7.9	21.4	2.9		37.0			77.8	5.6
LOS	B	A	A	A	C	A		D			E	A
Approach Delay		7.5			20.7			37.0			42.8	
Approach LOS		A			C			D			D	
Queue Length 50th (ft)	7	29	0	4	438	0		17			68	0
Queue Length 95th (ft)	39	353	m0	m8	603	m4		52			118	16
Internal Link Dist (ft)		640			605			196			270	
Turn Bay Length (ft)	145			225		440						
Base Capacity (vph)	191	2462	1085	232	2367	1075		397			364	495
Starvation Cap Reductn	0	462	0	0	0	0		0			0	0
Spillback Cap Reductn	0	0	0	0	0	0		0			0	0
Storage Cap Reductn	0	0	0	0	0	0		0			0	0
Reduced v/c Ratio	0.39	0.79	0.01	0.06	0.71	0.05		0.10			0.23	0.16

Intersection Summary

Area Type:	Other
Cycle Length:	130
Actuated Cycle Length:	130
Offset:	34 (26%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle:	120
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.71
Intersection Signal Delay:	15.8
Intersection LOS:	B
Intersection Capacity Utilization:	79.8%
ICU Level of Service:	D
Analysis Period (min):	15
m Volume for 95th percentile queue is metered by upstream signal.	

Lanes, Volumes, Timings

7: Titania Way/Touchstone Circle & Old Bridge Road

07/30/2024

Splits and Phases: 7: Titania Way/Touchstone Circle & Old Bridge Road

 Ø1 13.5 s	 Ø2 (R) 73 s	 Ø4 43.5 s
 Ø5 13.5 s	 Ø6 (R) 73 s	 Ø8 43.5 s

Lanes, Volumes, Timings
8: Old Bridge Road & Brussels Way

05/30/2024



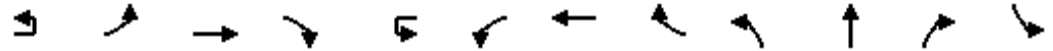
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↗		↗
Traffic Volume (vph)	0	1603	1658	11	0	13
Future Volume (vph)	0	1603	1658	11	0	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		7%	-1%		1%	
Storage Length (ft)	0			225	0	0
Storage Lanes	0			1	0	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor						
Fr _t				0.850		0.865
Fl _t Protected						
Satd. Flow (prot)	0	3286	3489	1623	0	1635
Fl _t Permitted						
Satd. Flow (perm)	0	3286	3489	1623	0	1635
Link Speed (mph)		45	45		25	
Link Distance (ft)		685	503		275	
Travel Time (s)		10.4	7.6		7.5	
Confl. Peds. (#/hr)	7			7		7
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	6%	4%	0%	0%	0%
Adj. Flow (vph)	0	1742	1802	12	0	14
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1742	1802	12	0	14
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.05	1.05	0.99	0.99	1.01	1.01
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	57.9%
ICU Level of Service	B
Analysis Period (min)	15

Lanes, Volumes, Timings
 9: Old Bridge Ln/Church Entr & Old Bridge Road

05/30/2024



Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations		↖	↗	↖		↖	↗	↖		↕		↖
Traffic Volume (vph)	4	4	1575	20	6	11	1630	4	39	0	33	1
Future Volume (vph)	4	4	1575	20	6	11	1630	4	39	0	33	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	10
Grade (%)			1%				3%			0%		
Storage Length (ft)		365		340		225		230	0		0	0
Storage Lanes		1		1		1		1	0		0	1
Taper Length (ft)		60				105			25			25
Lane Util. Factor	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Fr _t				0.850				0.850		0.938		
Fl _t Protected		0.950				0.950				0.974		0.950
Satd. Flow (prot)	0	1796	3389	1591	0	1701	3419	1591	0	1736	0	1693
Fl _t Permitted		0.950				0.950				0.974		0.950
Satd. Flow (perm)	0	1796	3389	1591	0	1701	3419	1591	0	1736	0	1693
Link Speed (mph)			45				45			25		
Link Distance (ft)			503				585			390		
Travel Time (s)			7.6				8.9			10.6		
Confl. Peds. (#/hr)		5		4		4		5			4	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	0%	6%	1%	0%	7%	4%	0%	0%	0%	0%	0%
Adj. Flow (vph)	4	4	1624	21	6	11	1680	4	40	0	34	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	8	1624	21	0	17	1680	4	0	74	0	1
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	R NA	Left	Left	Right	Left	Left	Right	Left
Median Width(ft)			12				12			10		
Link Offset(ft)			0				0			0		
Crosswalk Width(ft)			16				16			16		
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.02	1.02	1.02	1.02	1.00	1.00	1.00	1.09
Turning Speed (mph)	9	15		9	9	15		9	15		9	15
Sign Control			Free				Free			Stop		

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	65.4%
ICU Level of Service	C
Analysis Period (min)	15

Lanes, Volumes, Timings
 9: Old Bridge Ln/Church Entr & Old Bridge Road

05/30/2024

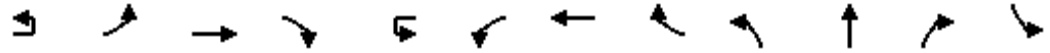


Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	0	0
Future Volume (vph)	0	0
Ideal Flow (vphpl)	1900	1900
Lane Width (ft)	10	10
Grade (%)	-1%	
Storage Length (ft)		0
Storage Lanes		1
Taper Length (ft)		
Lane Util. Factor	1.00	1.00
Ped Bike Factor		
Flt		
Flt Protected		
Satd. Flow (prot)	0	1782
Flt Permitted		
Satd. Flow (perm)	0	1782
Link Speed (mph)	15	
Link Distance (ft)	247	
Travel Time (s)	11.2	
Confl. Peds. (#/hr)		5
Peak Hour Factor	0.97	0.97
Heavy Vehicles (%)	0%	0%
Adj. Flow (vph)	0	0
Shared Lane Traffic (%)		
Lane Group Flow (vph)	0	0
Enter Blocked Intersection	No	No
Lane Alignment	Left	Right
Median Width(ft)	10	
Link Offset(ft)	0	
Crosswalk Width(ft)	16	
Two way Left Turn Lane		
Headway Factor	1.09	1.09
Turning Speed (mph)		9
Sign Control	Stop	
Intersection Summary		

Lanes, Volumes, Timings

10: Rockwood Lane/Westridge Drive & Old Bridge Road

05/30/2024



Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	4	167	1444	0	9	0	1376	92	0	0	0	179
Future Volume (vph)	4	167	1444	0	9	0	1376	92	0	0	0	179
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)			1%				3%			0%		
Storage Length (ft)		165		0		300		1000	0		0	0
Storage Lanes		1		0		1		1	0		0	0
Taper Length (ft)		65				115			25			25
Lane Util. Factor	0.95	1.00	0.95	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						1.00		0.98				
Frt								0.850				
Flt Protected		0.950				0.950						
Satd. Flow (prot)	0	1681	3389	0	0	1778	3387	1544	0	1900	0	0
Flt Permitted		0.070				0.153						
Satd. Flow (perm)	0	124	3389	0	0	286	3387	1517	0	1900	0	0
Right Turn on Red				Yes				Yes			Yes	
Satd. Flow (RTOR)								108				
Link Speed (mph)			45				45			25		
Link Distance (ft)			585				1227			407		
Travel Time (s)			8.9				18.6			11.1		
Confl. Peds. (#/hr)		3		5		5		5			7	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	7%	6%	0%	0%	0%	5%	3%	0%	0%	0%	2%
Adj. Flow (vph)	4	182	1570	0	10	0	1496	100	0	0	0	195
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	186	1570	0	0	10	1496	100	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	R NA	Left	Left	Right	Left	Left	Right	Left
Median Width(ft)			12				12			0		
Link Offset(ft)			0				0			0		
Crosswalk Width(ft)			16				16			16		
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.02	1.02	1.02	1.02	1.00	1.00	1.00	0.99
Turning Speed (mph)	9	15		9	9	15		9	15		9	15
Number of Detectors	1	1	3		1	1	3	1	1	1		1
Detector Template												
Leading Detector (ft)	50	35	330		50	35	330	35	0	35		0
Trailing Detector (ft)	0	-5	110		0	-5	110	-5	0	-5		0
Detector 1 Position(ft)	0	-5	110		0	-5	110	-5	0	-5		0
Detector 1 Size(ft)	50	40	6		50	40	6	40	0	40		0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0
Detector 2 Position(ft)			217				217					
Detector 2 Size(ft)			6				6					
Detector 2 Type			Cl+Ex				Cl+Ex					
Detector 2 Channel												

Lanes, Volumes, Timings

10: Rockwood Lane/Westridge Drive & Old Bridge Road

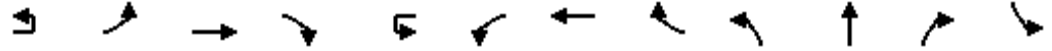
05/30/2024



Lane Group	SBT	SBR
Lane Configurations	↕	↗
Traffic Volume (vph)	0	271
Future Volume (vph)	0	271
Ideal Flow (vphpl)	1900	1900
Grade (%)	-1%	
Storage Length (ft)		0
Storage Lanes		1
Taper Length (ft)		
Lane Util. Factor	1.00	1.00
Ped Bike Factor	1.00	0.99
Frt		0.850
Flt Protected	0.950	
Satd. Flow (prot)	1778	1591
Flt Permitted	0.757	
Satd. Flow (perm)	1413	1568
Right Turn on Red		Yes
Satd. Flow (RTOR)		47
Link Speed (mph)	35	
Link Distance (ft)	497	
Travel Time (s)	9.7	
Confl. Peds. (#/hr)		3
Peak Hour Factor	0.92	0.92
Heavy Vehicles (%)	0%	2%
Adj. Flow (vph)	0	295
Shared Lane Traffic (%)		
Lane Group Flow (vph)	195	295
Enter Blocked Intersection	No	No
Lane Alignment	Left	Right
Median Width(ft)	25	
Link Offset(ft)	0	
Crosswalk Width(ft)	16	
Two way Left Turn Lane		
Headway Factor	0.99	0.99
Turning Speed (mph)		9
Number of Detectors	1	1
Detector Template		
Leading Detector (ft)	35	35
Trailing Detector (ft)	-5	-5
Detector 1 Position(ft)	-5	-5
Detector 1 Size(ft)	40	40
Detector 1 Type	Cl+Ex	Cl+Ex
Detector 1 Channel		
Detector 1 Extend (s)	0.0	0.0
Detector 1 Queue (s)	0.0	0.0
Detector 1 Delay (s)	0.0	0.0
Detector 2 Position(ft)		
Detector 2 Size(ft)		
Detector 2 Type		
Detector 2 Channel		

Lanes, Volumes, Timings
 10: Rockwood Lane/Westridge Drive & Old Bridge Road

05/30/2024



Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Detector 2 Extend (s)			0.0				0.0					
Detector 3 Position(ft)			324				324					
Detector 3 Size(ft)			6				6					
Detector 3 Type			Cl+Ex				Cl+Ex					
Detector 3 Channel												
Detector 3 Extend (s)			0.0				0.0					
Turn Type	custom	pm+pt	NA		Perm	Perm	NA	Perm				Perm
Protected Phases		1	6				2			8		
Permitted Phases	1!	6			2	2		2	8			4
Detector Phase	1	1	6		2	2	2	2	8	8		4
Switch Phase												
Minimum Initial (s)	5.0	5.0	20.0		20.0	20.0	20.0	20.0	5.0	5.0		5.0
Minimum Split (s)	13.6	13.6	28.6		42.6	42.6	42.6	42.6	37.3	37.3		12.3
Total Split (s)	22.0	22.0	92.7		70.7	70.7	70.7	70.7	37.3	37.3		37.3
Total Split (%)	16.9%	16.9%	71.3%		54.4%	54.4%	54.4%	54.4%	28.7%	28.7%		28.7%
Maximum Green (s)	13.4	13.4	84.1		62.1	62.1	62.1	62.1	30.0	30.0		30.0
Yellow Time (s)	5.2	5.2	5.2		5.2	5.2	5.2	5.2	3.9	3.9		3.9
All-Red Time (s)	3.4	3.4	3.4		3.4	3.4	3.4	3.4	3.4	3.4		3.4
Lost Time Adjust (s)		0.0	0.0				0.0	0.0		0.0		
Total Lost Time (s)		8.6	8.6				8.6	8.6		8.6		7.3
Lead/Lag	Lead	Lead			Lag	Lag	Lag	Lag				
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	4.0		4.0	4.0	4.0	4.0	3.5	3.5		3.5
Recall Mode	None	None	C-Max		C-Max	C-Max	C-Max	C-Max	None	None		None
Walk Time (s)					7.0	7.0	7.0	7.0	7.0	7.0		
Flash Dont Walk (s)					27.0	27.0	27.0	27.0	23.0	23.0		
Pedestrian Calls (#/hr)					0	0	0	0	0	0		
Act Effct Green (s)		90.8	90.8			69.8	69.8	69.8				
Actuated g/C Ratio		0.70	0.70			0.54	0.54	0.54				
v/c Ratio		0.79	0.66			0.07	0.82	0.12				
Control Delay		60.0	4.7			19.0	31.1	3.1				
Queue Delay		0.0	0.0			0.0	0.0	0.0				
Total Delay		60.0	4.7			19.0	31.1	3.1				
LOS		E	A			B	C	A				
Approach Delay			10.6				29.2					
Approach LOS			B				C					
Queue Length 50th (ft)		76	94			4	544	0				
Queue Length 95th (ft)		#216	116			16	#773	27				
Internal Link Dist (ft)			505				1147			327		
Turn Bay Length (ft)		165				300		1000				
Base Capacity (vph)		247	2366			153	1818	864				
Starvation Cap Reductn		0	0			0	0	0				
Spillback Cap Reductn		0	0			0	0	0				
Storage Cap Reductn		0	0			0	0	0				
Reduced v/c Ratio		0.75	0.66			0.07	0.82	0.12				

Intersection Summary

Area Type: Other
 Cycle Length: 130

Lanes, Volumes, Timings

10: Rockwood Lane/Westridge Drive & Old Bridge Road

05/30/2024



Lane Group	SBT	SBR
Detector 2 Extend (s)		
Detector 3 Position(ft)		
Detector 3 Size(ft)		
Detector 3 Type		
Detector 3 Channel		
Detector 3 Extend (s)		
Turn Type	NA	pm+ov
Protected Phases	4	1!
Permitted Phases		4
Detector Phase	4	4
Switch Phase		
Minimum Initial (s)	5.0	5.0
Minimum Split (s)	12.3	13.6
Total Split (s)	37.3	22.0
Total Split (%)	28.7%	16.9%
Maximum Green (s)	30.0	13.4
Yellow Time (s)	3.9	5.2
All-Red Time (s)	3.4	3.4
Lost Time Adjust (s)	0.0	0.0
Total Lost Time (s)	7.3	8.6
Lead/Lag		Lead
Lead-Lag Optimize?		
Vehicle Extension (s)	3.5	3.0
Recall Mode	None	None
Walk Time (s)		
Flash Dont Walk (s)		
Pedestrian Calls (#/hr)		
Act Effct Green (s)	23.3	34.4
Actuated g/C Ratio	0.18	0.26
v/c Ratio	0.77	0.65
Control Delay	70.1	35.9
Queue Delay	0.0	0.0
Total Delay	70.1	35.9
LOS	E	D
Approach Delay	49.5	
Approach LOS	D	
Queue Length 50th (ft)	158	166
Queue Length 95th (ft)	232	238
Internal Link Dist (ft)	417	
Turn Bay Length (ft)		
Base Capacity (vph)	326	513
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.60	0.58
Intersection Summary		

Lanes, Volumes, Timings

10: Rockwood Lane/Westridge Drive & Old Bridge Road

05/30/2024

Actuated Cycle Length: 130

Offset: 47 (36%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow

Natural Cycle: 115

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 23.3

Intersection LOS: C

Intersection Capacity Utilization 93.6%

ICU Level of Service F

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.




















! Phase conflict between lane groups.

Splits and Phases: 10: Rockwood Lane/Westridge Drive & Old Bridge Road



Lanes, Volumes, Timings
 11: Exxon/Glen Shopping Ctr & Touchstone Cir

05/30/2024

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	18	0	0	61	17	16	13	0	31	17
Future Volume (vph)	0	0	18	0	0	61	17	16	13	0	31	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			0%			2%	
Storage Length (ft)	0		0	0		0	115		100	0		0
Storage Lanes	0		1	0		1	1		1	0		1
Taper Length (ft)	25			25			100			85		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt			0.865			0.865			0.850			0.850
Flt Protected							0.950					
Satd. Flow (prot)	0	0	1644	0	0	1644	1805	1810	1599	0	1844	1599
Flt Permitted							0.950					
Satd. Flow (perm)	0	0	1644	0	0	1644	1805	1810	1599	0	1844	1599
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		125			186			404			272	
Travel Time (s)		2.8			4.2			9.2			6.2	
Confl. Peds. (#/hr)	3		1	1		3			1			3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	5%	1%	0%	2%	0%
Adj. Flow (vph)	0	0	20	0	0	66	18	17	14	0	34	18
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	20	0	0	66	18	17	14	0	34	18
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.01	1.01	1.01
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	15.3%
ICU Level of Service	A
Analysis Period (min)	15

Lanes, Volumes, Timings
 13: Touchstone Cir & Seeton Square/Merchant Plaza

05/30/2024

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	1	3	19	4	3	24	23	13	5	11	10
Future Volume (vph)	2	1	3	19	4	3	24	23	13	5	11	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			0%			-1%			2%	
Storage Length (ft)	0		0	0		0	100		0	250		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25			25			100			150		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor												
Frt		0.932			0.985			0.946			0.928	
Flt Protected		0.984			0.964		0.950			0.950		
Satd. Flow (prot)	0	1700	0	0	1791	0	1814	3168	0	1489	3282	0
Flt Permitted		0.984			0.964		0.950			0.950		
Satd. Flow (perm)	0	1700	0	0	1791	0	1814	3168	0	1489	3282	0
Link Speed (mph)		30			15			30			30	
Link Distance (ft)		151			241			272			577	
Travel Time (s)		3.4			11.0			6.2			13.1	
Confl. Peds. (#/hr)	2		1	1		3			2	1		2
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	7%	1%	0%	0%	0%	13%	0%	20%	2%	0%
Adj. Flow (vph)	2	1	3	20	4	3	26	25	14	5	12	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	6	0	0	27	0	26	39	0	5	23	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	1.00	1.00	1.00	0.99	0.99	0.99	1.01	1.01	1.01
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	19.3%						ICU Level of Service A					
Analysis Period (min)	15											

Lanes, Volumes, Timings
 14: Touchstone Circle & Merchant Plaza/CVS

05/30/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	4	1	18	4	1	0	20	97	5	0	123	7
Future Volume (vph)	4	1	18	4	1	0	20	97	5	0	123	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			-3%			3%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor												
Fr _t		0.892						0.994			0.992	
Fl _t Protected		0.992			0.962			0.992				
Satd. Flow (prot)	0	1681	0	0	1828	0	0	3485	0	0	3399	0
Fl _t Permitted		0.992			0.962			0.992				
Satd. Flow (perm)	0	1681	0	0	1828	0	0	3485	0	0	3399	0
Link Speed (mph)		15			15			30			30	
Link Distance (ft)		206			90			350			223	
Travel Time (s)		9.4			4.1			8.0			5.1	
Confl. Peds. (#/hr)			5	2		4	3		6	4		3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	22%	0%	0%	0%	4%	0%
Adj. Flow (vph)	4	1	20	4	1	0	22	105	5	0	134	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	25	0	0	5	0	0	132	0	0	142	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.98	0.98	0.98	1.02	1.02	1.02
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	24.7%						ICU Level of Service A					
Analysis Period (min)	15											

Lanes, Volumes, Timings
 15: Prince William Pkwy & Chinn Park Dr

05/30/2024



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↑↑↑↘			↑↑↑
Traffic Volume (vph)	0	22	1475	283	0	2328
Future Volume (vph)	0	22	1475	283	0	2328
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%		1%			0%
Storage Length (ft)	0	0		0	0	
Storage Lanes	0	1		0	0	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.86	0.86	1.00	0.91
Fr _t		0.865	0.976			
Fl _t Protected						
Satd. Flow (prot)	0	1550	6296	0	0	5187
Fl _t Permitted						
Satd. Flow (perm)	0	1550	6296	0	0	5187
Link Speed (mph)	30		45			45
Link Distance (ft)	763		990			215
Travel Time (s)	17.3		15.0			3.3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	6%	0%	5%	0%	0%
Adj. Flow (vph)	0	24	1603	308	0	2530
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	24	1911	0	0	2530
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	0		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.01	1.01	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	48.3%
ICU Level of Service	A
Analysis Period (min)	15

Lanes, Volumes, Timings

16: Prince William Pkwy & Kenwood Dr./

School Entrance

05/30/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations		↕			↕	↕			↕	↕↕↕	↕	↕
Traffic Volume (vph)	51	1	89	33	1	32	2	27	1693	69	1	45
Future Volume (vph)	51	1	89	33	1	32	2	27	1693	69	1	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			1%				-2%			
Storage Length (ft)	0		0	0		0		195		245		230
Storage Lanes	0		0	0		1		1		1		1
Taper Length (ft)	25			25				200				200
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	0.91	1.00	0.91	1.00
Ped Bike Factor		0.99			1.00			1.00		0.98		
Frt		0.915				0.850				0.850		
Flt Protected		0.982			0.954			0.950				0.950
Satd. Flow (prot)	0	1624	0	0	1673	1488	0	1823	4989	1568	0	1712
Flt Permitted		0.982			0.954			0.054				0.083
Satd. Flow (perm)	0	1624	0	0	1671	1488	0	104	4989	1532	0	150
Right Turn on Red			Yes			Yes				Yes		
Satd. Flow (RTOR)		67				104				104		
Link Speed (mph)		25			25				45			
Link Distance (ft)		579			360				769			
Travel Time (s)		15.8			9.8				11.7			
Confl. Peds. (#/hr)			4	2				2		2		
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	5%	100%	0%	8%	0%	8%	0%	0%	5%	4%	0%	5%
Adj. Flow (vph)	53	1	93	34	1	33	2	28	1764	72	1	47
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	147	0	0	35	33	0	30	1764	72	0	48
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	R NA	Left	Left	Right	R NA	Left
Median Width(ft)		0			0				16			
Link Offset(ft)		0			0				0			
Crosswalk Width(ft)		10			16				10			
Two way Left Turn Lane												
Headway Factor	1.02	1.02	1.02	1.01	1.01	1.01	0.99	0.99	0.99	0.99	1.01	1.01
Turning Speed (mph)	15		9	15		9	9	15		9	9	15
Number of Detectors	1	1		1	1	1	1	1	1	1	1	1
Detector Template		Thru		Left	Thru	Right				Right		Left
Leading Detector (ft)	35	35		20	35	35	50	35	206	46	35	35
Trailing Detector (ft)	-5	-5		0	-5	-5	0	-5	200	40	-5	-5
Detector 1 Position(ft)	-5	-5		0	-5	-5	0	-5	200	40	-5	-5
Detector 1 Size(ft)	40	40		20	40	40	50	40	6	6	40	40
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	Split	NA		Split	NA	pm+ov	custom	D.P+P	NA	pm+ov	custom	D.P+P
Protected Phases	3	3		4	4	5!			1	6	4	5
Permitted Phases						4	1	2		6	5!	6
Detector Phase	3	3		4	4	5	1	1	6	4	5	5

Lanes, Volumes, Timings

16: Prince William Pkwy & Kenwood Dr./

School Entrance

05/30/2024



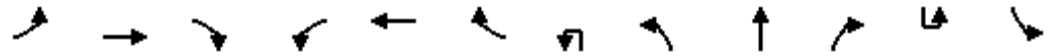
Lane Group	SBT	SBR
Lane Configurations	↑↑↑↑	↑
Traffic Volume (vph)	2237	50
Future Volume (vph)	2237	50
Ideal Flow (vphpl)	1900	1900
Grade (%)	1%	
Storage Length (ft)		235
Storage Lanes		1
Taper Length (ft)		
Lane Util. Factor	0.91	1.00
Ped Bike Factor		0.98
Frt		0.850
Flt Protected		
Satd. Flow (prot)	4963	1530
Flt Permitted		
Satd. Flow (perm)	4963	1495
Right Turn on Red		Yes
Satd. Flow (RTOR)		97
Link Speed (mph)	45	
Link Distance (ft)	990	
Travel Time (s)	15.0	
Confl. Peds. (#/hr)		2
Peak Hour Factor	0.96	0.96
Heavy Vehicles (%)	4%	5%
Adj. Flow (vph)	2330	52
Shared Lane Traffic (%)		
Lane Group Flow (vph)	2330	52
Enter Blocked Intersection	No	No
Lane Alignment	Left	Right
Median Width(ft)	16	
Link Offset(ft)	0	
Crosswalk Width(ft)	10	
Two way Left Turn Lane		
Headway Factor	1.01	1.01
Turning Speed (mph)		9
Number of Detectors	1	1
Detector Template		
Leading Detector (ft)	206	46
Trailing Detector (ft)	200	40
Detector 1 Position(ft)	200	40
Detector 1 Size(ft)	6	6
Detector 1 Type	Cl+Ex	Cl+Ex
Detector 1 Channel		
Detector 1 Extend (s)	0.0	0.0
Detector 1 Queue (s)	0.0	0.0
Detector 1 Delay (s)	0.0	0.0
Turn Type	NA	pm+ov
Protected Phases	2	3
Permitted Phases		2
Detector Phase	2	2

Lanes, Volumes, Timings

16: Prince William Pkwy & Kenwood Dr./

School Entrance

05/30/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	7.0	7.0	7.0	15.0	10.0	7.0	7.0
Minimum Split (s)	43.6	43.6		43.8	43.8	15.8	15.8	15.8	24.8	43.8	15.8	15.8
Total Split (s)	43.6	43.6		43.8	43.8	15.8	15.8	15.8	26.8	43.8	15.8	15.8
Total Split (%)	33.5%	33.5%		33.7%	33.7%	12.2%	12.2%	12.2%	20.6%	33.7%	12.2%	12.2%
Maximum Green (s)	37.0	37.0		38.0	38.0	7.0	7.0	7.0	18.0	38.0	7.0	7.0
Yellow Time (s)	3.1	3.1		3.1	3.1	4.9	4.9	4.9	4.9	3.1	4.9	4.9
All-Red Time (s)	3.5	3.5		2.7	2.7	3.9	3.9	3.9	3.9	2.7	3.9	3.9
Lost Time Adjust (s)		0.0			0.0	0.0		0.0	0.0	0.0		0.0
Total Lost Time (s)		6.6			5.8	8.8		8.8	8.8	5.8		8.8
Lead/Lag	Lead	Lead		Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lead	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	None	C-Max	None	None	None
Walk Time (s)	8.0	8.0		8.0	8.0				7.0	8.0		
Flash Dont Walk (s)	29.0	29.0		30.0	30.0				9.0	30.0		
Pedestrian Calls (#/hr)	0	0		0	0				0	0		
Act Effct Green (s)		13.2			10.3	19.9		83.2	75.9	87.1		81.5
Actuated g/C Ratio		0.10			0.08	0.15		0.64	0.58	0.67		0.63
v/c Ratio		0.66			0.27	0.10		0.19	0.61	0.07		0.27
Control Delay		43.9			61.6	0.7		11.4	17.3	0.2		13.7
Queue Delay		0.0			0.0	0.0		0.0	0.0	0.0		0.0
Total Delay		43.9			61.6	0.7		11.4	17.3	0.2		13.7
LOS		D			E	A		B	B	A		B
Approach Delay		43.9			32.0				16.5			
Approach LOS		D			C				B			
Queue Length 50th (ft)		65			28	0		8	431	0		14
Queue Length 95th (ft)		132			63	0		m17	529	2		m29
Internal Link Dist (ft)		499			280				689			
Turn Bay Length (ft)								195		245		230
Base Capacity (vph)		510			489	315		159	2911	1261		177
Starvation Cap Reductn		0			0	0		0	0	0		0
Spillback Cap Reductn		0			0	0		0	0	0		0
Storage Cap Reductn		0			0	0		0	0	0		0
Reduced v/c Ratio		0.29			0.07	0.10		0.19	0.61	0.06		0.27

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 6 (5%), Referenced to phase 2:NBSB and 6:NBSB, Start of Yellow
 Natural Cycle: 145
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.77
 Intersection Signal Delay: 19.6
 Intersection LOS: B
 Intersection Capacity Utilization 80.6%
 ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.



Lane Group	SBT	SBR
Switch Phase		
Minimum Initial (s)	15.0	10.0
Minimum Split (s)	28.8	43.6
Total Split (s)	26.8	43.6
Total Split (%)	20.6%	33.5%
Maximum Green (s)	18.0	37.0
Yellow Time (s)	4.9	3.1
All-Red Time (s)	3.9	3.5
Lost Time Adjust (s)	0.0	0.0
Total Lost Time (s)	8.8	6.6
Lead/Lag	Lag	Lead
Lead-Lag Optimize?		
Vehicle Extension (s)	3.0	3.0
Recall Mode	C-Max	None
Walk Time (s)	7.0	8.0
Flash Dont Walk (s)	13.0	29.0
Pedestrian Calls (#/hr)	0	0
Act Effct Green (s)	79.0	94.4
Actuated g/C Ratio	0.61	0.73
v/c Ratio	0.77	0.05
Control Delay	20.8	0.2
Queue Delay	0.0	0.0
Total Delay	20.8	0.2
LOS	C	A
Approach Delay	20.2	
Approach LOS	C	
Queue Length 50th (ft)	464	0
Queue Length 95th (ft)	#812	m1
Internal Link Dist (ft)	910	
Turn Bay Length (ft)		235
Base Capacity (vph)	3016	1115
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.77	0.05
Intersection Summary		

Lanes, Volumes, Timings

16: Prince William Pkwy & Kenwood Dr./


School Entrance

05/30/2024

m Volume for 95th percentile queue is metered by upstream signal.

! Phase conflict between lane groups.

Splits and Phases: 16: Prince William Pkwy & Kenwood Dr./ School Entrance

 Ø1 15.8 s	 Ø2 (R)	 Ø3 43.6 s	 Ø4 43.8 s
 Ø5 15.8 s	 Ø6 (R)		

Lanes, Volumes, Timings
 17: Prince William Pkwy & Hillendale Road

05/30/2024



Lane Group	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Lane Configurations								
Traffic Volume (vph)	374	343	2	148	1417	0	2082	279
Future Volume (vph)	374	343	2	148	1417	0	2082	279
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)	2%				1%		2%	
Storage Length (ft)	125	0		475		350		500
Storage Lanes	1	1		1		1		1
Taper Length (ft)	45			100		165		
Lane Util. Factor	0.97	1.00	0.91	0.97	0.91	1.00	0.91	1.00
Fr _t		0.850						0.850
Fl _t Protected	0.950			0.950				
Satd. Flow (prot)	3399	1537	0	3384	4915	1881	4938	1523
Fl _t Permitted	0.950			0.160				
Satd. Flow (perm)	3399	1537	0	570	4915	1881	4938	1523
Right Turn on Red		Yes						Yes
Satd. Flow (RTOR)								303
Link Speed (mph)	25				45		45	
Link Distance (ft)	586				666		769	
Travel Time (s)	16.0				10.1		11.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	4%	0%	3%	5%	0%	4%	5%
Adj. Flow (vph)	407	373	2	161	1540	0	2263	303
Shared Lane Traffic (%)								
Lane Group Flow (vph)	407	373	0	163	1540	0	2263	303
Enter Blocked Intersection	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	R NA	Left	Left	R NA	Left	Right
Median Width(ft)	30				30		24	
Link Offset(ft)	0				0		0	
Crosswalk Width(ft)	10				10		10	
Two way Left Turn Lane								
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (mph)	15	9	9	15		9		9
Number of Detectors	1	1	1	1	1	1	1	1
Detector Template								
Leading Detector (ft)	35	35	50	35	206	35	206	46
Trailing Detector (ft)	-5	-5	0	-5	200	-5	200	40
Detector 1 Position(ft)	-5	-5	0	-5	200	-5	200	40
Detector 1 Size(ft)	40	40	50	40	6	40	6	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel								
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	Prot	pm+ov	custom	Prot	NA	Prot	NA	pm+ov
Protected Phases	4	5!		5	2	1	6	4
Permitted Phases		4	5!					6
Detector Phase	4	4	5	5	2	1	6	6
Switch Phase								
Minimum Initial (s)	10.0	7.0	7.0	7.0	15.0	7.0	15.0	10.0

Lanes, Volumes, Timings
17: Prince William Pkwy & Hillendale Road

05/30/2024



Lane Group	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Minimum Split (s)	46.5	15.0	15.0	15.0	20.5	13.5	34.5	46.5
Total Split (s)	46.5	33.0	33.0	33.0	70.0	13.5	50.5	46.5
Total Split (%)	35.8%	25.4%	25.4%	25.4%	53.8%	10.4%	38.8%	35.8%
Maximum Green (s)	40.0	25.0	25.0	25.0	64.5	7.0	45.0	40.0
Yellow Time (s)	3.5	4.0	4.0	4.0	4.5	4.0	4.5	3.5
All-Red Time (s)	3.0	4.0	4.0	4.0	1.0	2.5	1.0	3.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	8.0		8.0	5.5	6.5	5.5	6.5
Lead/Lag		Lead	Lead	Lead	Lag	Lead	Lag	
Lead-Lag Optimize?								
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	3.0	4.0	4.0
Recall Mode	None	None	None	None	C-Max	None	C-Max	None
Walk Time (s)	8.0						7.0	8.0
Flash Dont Walk (s)	32.0						22.0	32.0
Pedestrian Calls (#/hr)	0						0	0
Act Effct Green (s)	31.4	62.9		25.0	86.6		53.6	90.5
Actuated g/C Ratio	0.24	0.48		0.19	0.67		0.41	0.70
v/c Ratio	0.50	0.50		1.50	0.47		1.11	0.26
Control Delay	43.7	24.7		301.6	11.8		77.6	1.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	43.7	24.7		301.6	11.8		77.6	1.8
LOS	D	C		F	B		E	A
Approach Delay	34.6				39.6		68.7	
Approach LOS	C				D		E	
Queue Length 50th (ft)	153	209		~97	213		~782	20
Queue Length 95th (ft)	186	259		#173	301		#980	m36
Internal Link Dist (ft)	506				586		689	
Turn Bay Length (ft)	125			475				500
Base Capacity (vph)	1045	736		109	3272		2034	1152
Starvation Cap Reductn	0	0		0	0		0	0
Spillback Cap Reductn	0	0		0	0		0	0
Storage Cap Reductn	0	0		0	0		0	0
Reduced v/c Ratio	0.39	0.51		1.50	0.47		1.11	0.26

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 14 (11%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
 Natural Cycle: 120
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.50
 Intersection Signal Delay: 53.6 Intersection LOS: D
 Intersection Capacity Utilization 85.2% ICU Level of Service E
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.



Lanes, Volumes, Timings

17: Prince William Pkwy & Hillendale Road

05/30/2024

m Volume for 95th percentile queue is metered by upstream signal.
 ! Phase conflict between lane groups.




















Splits and Phases: 17: Prince William Pkwy & Hillendale Road

 Ø1 13.5 s	 Ø2 (R) 70 s	 Ø4 46.5 s
 Ø5 33 s	 Ø6 (R) 50.5 s	

Lanes, Volumes, Timings

18: Library/Fitness Ctr/Troupe Street & Chinn Park Dr

05/30/2024

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	217	6	28	1	2	20	11	41	0	9	83	5
Future Volume (vph)	217	6	28	1	2	20	11	41	0	9	83	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	10	10	10	12	12	12	12	12	12
Grade (%)		1%			-2%			-2%			3%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt			0.850		0.881							0.992
Flt Protected		0.954			0.998		0.950			0.950		
Satd. Flow (prot)	0	1769	1545	0	1124	0	1823	1698	0	1422	1699	0
Flt Permitted		0.954			0.998		0.950			0.950		
Satd. Flow (perm)	0	1769	1545	0	1124	0	1823	1698	0	1422	1699	0
Link Speed (mph)		30			30			30			25	
Link Distance (ft)		763			462			148			722	
Travel Time (s)		17.3			10.5			3.4			19.7	
Confl. Peds. (#/hr)						6			5	5		1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	0%	4%	100%	0%	41%	0%	13%	0%	25%	7%	50%
Adj. Flow (vph)	236	7	30	1	2	22	12	45	0	10	90	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	243	30	0	25	0	12	45	0	10	95	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.08	1.08	1.08	0.99	0.99	0.99	1.02	1.02	1.02
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	33.9%						ICU Level of Service A					
Analysis Period (min)	15											

Lanes, Volumes, Timings
 21: Old Bridge Rd & Touchstone Circle

05/30/2024




















Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			↑↑↑			↗
Traffic Volume (vph)	0	0	1646	29	0	49
Future Volume (vph)	0	0	1646	29	0	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		0%	2%		0%	
Lane Util. Factor	1.00	1.00	0.91	0.91	1.00	1.00
Frt			0.997			0.865
Flt Protected						
Satd. Flow (prot)	0	0	5019	0	0	1611
Flt Permitted						
Satd. Flow (perm)	0	0	5019	0	0	1611
Link Speed (mph)		30	30		30	
Link Distance (ft)		141	151		134	
Travel Time (s)		3.2	3.4		3.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	1789	32	0	53
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	1821	0	0	53
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.01	1.01	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	42.4%
ICU Level of Service	A
Analysis Period (min)	15

Lanes, Volumes, Timings
 34: Prince William Pkwy & Seeton Square

05/30/2024

											
Lane Group	SBL	SBR	SBR2	SEL	SET	SER	NWL	NWT	NWR	NEL	NER
Lane Configurations					6			  			
Traffic Volume (vph)	0	0	47	0	2909	83	0	2256	76	0	0
Future Volume (vph)	0	0	47	0	2909	83	0	2256	76	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)	4%				0%			0%		0%	
Storage Length (ft)	0	0		150		325	0		100	0	0
Storage Lanes	0	1		3		1	0		1	0	0
Taper Length (ft)	25			300			25			25	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.76	1.00	1.00	0.91	1.00	1.00	1.00
Frt			0.865			0.850			0.850		
Flt Protected											
Satd. Flow (prot)	0	0	1579	0	8494	1583	0	5085	1583	0	0
Flt Permitted											
Satd. Flow (perm)	0	0	1579	0	8494	1583	0	5085	1583	0	0
Link Speed (mph)	25				45			45		30	
Link Distance (ft)	289				1119			313		211	
Travel Time (s)	7.9				17.0			4.7		4.8	
Peak Hour Factor	0.92	1.00	0.92	0.92	0.92	1.00	1.00	0.92	0.92	1.00	1.00
Adj. Flow (vph)	0	0	51	0	3162	83	0	2452	83	0	0
Shared Lane Traffic (%)											
Lane Group Flow (vph)	0	0	51	0	3162	83	0	2452	83	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Right	Left	Left	Right	Left	Left	Right	Left	Right
Median Width(ft)	0				0			0		0	
Link Offset(ft)	0				0			0		0	
Crosswalk Width(ft)	16				16			16		16	
Two way Left Turn Lane											
Headway Factor	1.03	1.03	1.03	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	9	15		9	15		9	15	9
Sign Control	Stop				Free			Free		Stop	
Intersection Summary											
Area Type:	Other										
Control Type:	Unsignalized										
Intersection Capacity Utilization	53.6%					ICU Level of Service A					
Analysis Period (min)	15										

Lanes, Volumes, Timings
 39: Tribe at the Glen & Old Bridge Road

05/30/2024



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑			↑↑↑		↗
Traffic Volume (vph)	1398	64	0	1741	0	17
Future Volume (vph)	1398	64	0	1741	0	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	14	14
Grade (%)	-3%			2%	0%	
Storage Length (ft)		0	120		0	0
Storage Lanes		0	1		0	1
Taper Length (ft)			100		25	
Lane Util. Factor	0.91	0.91	1.00	0.86	1.00	1.00
Frt	0.993					0.865
Flt Protected						
Satd. Flow (prot)	4944	0	0	6222	0	1753
Flt Permitted						
Satd. Flow (perm)	4944	0	0	6222	0	1753
Link Speed (mph)	45			45	15	
Link Distance (ft)	319			386	332	
Travel Time (s)	4.8			5.8	15.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	6%	0%	0%	4%	0%	0%
Adj. Flow (vph)	1520	70	0	1892	0	18
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1590	0	0	1892	0	18
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.98	0.98	1.01	1.01	0.92	0.92
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	38.4%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings
43: Old Bridge Road

05/30/2024



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑↑			↗
Traffic Volume (vph)	0	1462	1695	29	0	49
Future Volume (vph)	0	1462	1695	29	0	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		-3%	2%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	0	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.91	0.81	0.81	1.00	1.00
Frt			0.997			0.865
Flt Protected						
Satd. Flow (prot)	0	5162	7446	0	0	1611
Flt Permitted						
Satd. Flow (perm)	0	5162	7446	0	0	1611
Link Speed (mph)		45	45		30	
Link Distance (ft)		240	319		404	
Travel Time (s)		3.6	4.8		9.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1589	1842	32	0	53
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1589	1874	0	0	53
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	0.98	0.98	1.01	1.01	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	31.6%			ICU Level of Service A		
Analysis Period (min)	15					

Lanes, Volumes, Timings

45:

05/30/2024



Lane Group	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Volume (vph)	49	0	0	0	0	83
Future Volume (vph)	49	0	0	0	0	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr						
Flt Protected	0.950					
Satd. Flow (prot)	1770	0	0	1863	0	1863
Flt Permitted	0.950					
Satd. Flow (perm)	1770	0	0	1863	0	1863
Link Speed (mph)	30		30			30
Link Distance (ft)	727		202			211
Travel Time (s)	16.5		4.6			4.8
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	49	0	0	0	0	83
Shared Lane Traffic (%)						
Lane Group Flow (vph)	49	0	0	0	0	83
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	14.4%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings
46: Prince William Pkwy

05/30/2024



Lane Group	EBL	EBR	SET	SER	NWL	NWT
Lane Configurations		↑	↑↑↑	↑		↑↑↑
Traffic Volume (vph)	0	0	2328	49	0	1497
Future Volume (vph)	0	0	2328	49	0	1497
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%		0%			1%
Storage Length (ft)	0	0		100	0	
Storage Lanes	0	1		1	0	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.91	1.00	1.00	0.86
Fr _t				0.850		
Fl _t Protected						
Satd. Flow (prot)	0	1863	5085	1583	0	6376
Fl _t Permitted						
Satd. Flow (perm)	0	1863	5085	1583	0	6376
Link Speed (mph)	30		45			45
Link Distance (ft)	727		378			215
Travel Time (s)	16.5		5.7			3.3
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	2328	49	0	1497
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	2328	49	0	1497
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	0		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.01	1.01
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	48.3%			ICU Level of Service A		
Analysis Period (min)	15					

Lanes, Volumes, Timings

1: Black Forest Ln/Reids Prospect Dr & Prince William Pkwy

05/30/2024



Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations		↖	↑↑↑			↖	↑↑↑	↖		↕		
Traffic Volume (vph)	4	8	3075	0	3	10	3279	91	1	0	14	33
Future Volume (vph)	4	8	3075	0	3	10	3279	91	1	0	14	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	10	10	10	16
Grade (%)			1%				-1%			-1%		
Storage Length (ft)		465		0		450		450	0		0	0
Storage Lanes		1		0		1		1	0		0	0
Taper Length (ft)		175				180			25			25
Lane Util. Factor	0.91	1.00	0.91	0.91	0.91	1.00	0.91	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Fr _t								0.850		0.874		
Fl _t Protected		0.950				0.950				0.997		
Satd. Flow (prot)	0	1738	4869	0	0	1814	4918	1561	0	1553	0	0
Fl _t Permitted		0.950				0.950				0.997		
Satd. Flow (perm)	0	1738	4869	0	0	1814	4918	1561	0	1553	0	0
Link Speed (mph)			45				45			30		
Link Distance (ft)			756				1183			385		
Travel Time (s)			11.5				17.9			8.8		
Confl. Peds. (#/hr)		2		1	1			2			1	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	0%	5%	6%	0%	0%	0%	6%	4%	0%	0%	0%	0%
Adj. Flow (vph)	4	8	3138	0	3	10	3346	93	1	0	14	34
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	12	3138	0	0	13	3346	93	0	15	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	R NA	Left	Left	Right	Left	Left	Right	Left
Median Width(ft)			12				12			0		
Link Offset(ft)			0				0			0		
Crosswalk Width(ft)			16				16			16		
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	0.99	0.99	0.99	0.99	1.09	1.09	1.09	0.88
Turning Speed (mph)	9	15		9	9	15		9	15		9	15
Sign Control			Free				Free			Stop		

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 79.8%

ICU Level of Service D

Analysis Period (min) 15

Lanes, Volumes, Timings

1: Black Forest Ln/Reids Prospect Dr & Prince William Pkwy

05/30/2024

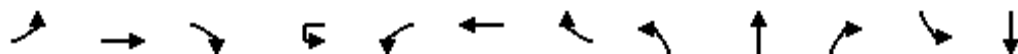


Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	0	15
Future Volume (vph)	0	15
Ideal Flow (vphpl)	1900	1900
Lane Width (ft)	16	16
Grade (%)	5%	
Storage Length (ft)		0
Storage Lanes		0
Taper Length (ft)		
Lane Util. Factor	1.00	1.00
Ped Bike Factor		
Frt	0.959	
Flt Protected	0.966	
Satd. Flow (prot)	1945	0
Flt Permitted	0.966	
Satd. Flow (perm)	1945	0
Link Speed (mph)	25	
Link Distance (ft)	367	
Travel Time (s)	10.0	
Confl. Peds. (#/hr)		2
Peak Hour Factor	0.98	0.98
Heavy Vehicles (%)	0%	0%
Adj. Flow (vph)	0	15
Shared Lane Traffic (%)		
Lane Group Flow (vph)	49	0
Enter Blocked Intersection	No	No
Lane Alignment	Left	Right
Median Width(ft)	0	
Link Offset(ft)	0	
Crosswalk Width(ft)	16	
Two way Left Turn Lane		
Headway Factor	0.88	0.88
Turning Speed (mph)		9
Sign Control	Stop	
Intersection Summary		

Lanes, Volumes, Timings

2: Ridgewood Center Drive/Laurel Hills Drive & Prince William Pkwy

05/30/2024



Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations	↙	↑↑↑			↙	↑↑↑			↕			↕
Traffic Volume (vph)	3	3111	9	13	17	3350	6	28	0	29	10	0
Future Volume (vph)	3	3111	9	13	17	3350	6	28	0	29	10	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	10	10
Grade (%)		0%				0%			0%			5%
Storage Length (ft)	460		0		470		0	0		0	0	
Storage Lanes	1		0		1		0	0		0	0	
Taper Length (ft)	175				185			25			25	
Lane Util. Factor	1.00	0.91	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00			1.00	1.00			0.99			0.99
Fr _t									0.930			0.989
Fl _t Protected	0.950				0.950				0.976			0.956
Satd. Flow (prot)	1805	4940	0	0	1805	4931	0	0	1710	0	0	1503
Fl _t Permitted	0.950				0.476				0.976			0.956
Satd. Flow (perm)	1805	4940	0	0	904	4931	0	0	1710	0	0	1500
Right Turn on Red			Yes				Yes			Yes		
Satd. Flow (RTOR)									109			109
Link Speed (mph)		45				45			15			25
Link Distance (ft)		1183				1122			485			515
Travel Time (s)		17.9				17.0			22.0			14.0
Confl. Peds. (#/hr)	8		1		1		10			3	2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	5%	0%	0%	0%	5%	100%	0%	0%	0%	0%	0%
Adj. Flow (vph)	3	3382	10	14	18	3641	7	30	0	32	11	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	3	3392	0	0	32	3648	0	0	62	0	0	12
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	R NA	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)		36				36			0			0
Link Offset(ft)		0				0			0			0
Crosswalk Width(ft)		16				16			16			16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.13	1.13
Turning Speed (mph)	15		9	9	15		9	15		9	15	
Number of Detectors	1	2		1	1	2		1	1		1	1
Detector Template												
Leading Detector (ft)	35	200		50	35	200		5	35		5	35
Trailing Detector (ft)	-5	100		0	-5	100		0	-5		0	-5
Detector 1 Position(ft)	-5	100		0	-5	100		0	-5		0	-5
Detector 1 Size(ft)	40	6		50	40	6		5	40		5	40
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 2 Position(ft)		194				194						
Detector 2 Size(ft)		6				6						
Detector 2 Type		Cl+Ex				Cl+Ex						

Lanes, Volumes, Timings

2: Ridgewood Center Drive/Laurel Hills Drive & Prince William Pkwy

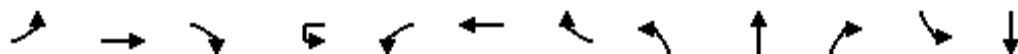
05/30/2024

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	1
Future Volume (vph)	1
Ideal Flow (vphpl)	1900
Lane Width (ft)	10
Grade (%)	
Storage Length (ft)	0
Storage Lanes	0
Taper Length (ft)	
Lane Util. Factor	1.00
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	Yes
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	8
Peak Hour Factor	0.92
Heavy Vehicles (%)	100%
Adj. Flow (vph)	1
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.13
Turning Speed (mph)	9
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	

Lanes, Volumes, Timings

2: Ridgewood Center Drive/Laurel Hills Drive & Prince William Pkwy

05/30/2024



Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Detector 2 Channel												
Detector 2 Extend (s)		0.0				0.0						
Turn Type	Prot	NA		custom	Prot	NA		Split	NA		Split	NA
Protected Phases	5	2			1	6		4	4		3	3
Permitted Phases				1								
Detector Phase	5	2		1	1	6		4	4		3	3
Switch Phase												
Minimum Initial (s)	5.0	20.0		5.0	5.0	20.0		5.0	5.0		5.0	5.0
Minimum Split (s)	11.5	26.0		11.5	11.5	26.0		42.5	42.5		11.5	11.5
Total Split (s)	23.0	87.0		17.0	17.0	81.0		38.0	38.0		18.0	18.0
Total Split (%)	14.4%	54.4%		10.6%	10.6%	50.6%		23.8%	23.8%		11.3%	11.3%
Maximum Green (s)	16.5	81.0		10.5	10.5	75.0		31.5	31.5		11.5	11.5
Yellow Time (s)	4.0	5.0		4.0	4.0	5.0		3.0	3.0		3.0	3.0
All-Red Time (s)	2.5	1.0		2.5	2.5	1.0		3.5	3.5		3.5	3.5
Lost Time Adjust (s)	0.0	0.0			0.0	0.0			0.0			0.0
Total Lost Time (s)	6.5	6.0			6.5	6.0			6.5			6.5
Lead/Lag	Lead	Lag		Lead	Lead	Lag		Lag	Lag		Lead	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.5		3.0	3.0	3.5		3.0	3.0		3.0	3.0
Recall Mode	None	C-Max		None	None	C-Max		None	None		None	None
Walk Time (s)								8.0	8.0			
Flash Dont Walk (s)								28.0	28.0			
Pedestrian Calls (#/hr)								0	0			
Act Effct Green (s)	6.0	127.0			9.8	137.9			5.7			5.6
Actuated g/C Ratio	0.04	0.79			0.06	0.86			0.04			0.04
v/c Ratio	0.04	0.87			0.58	0.86			0.37			0.08
Control Delay	75.3	18.3			73.5	15.4			6.6			0.9
Queue Delay	0.0	0.0			0.0	0.0			0.0			0.0
Total Delay	75.3	18.3			73.5	15.4			6.6			0.9
LOS	E	B			E	B			A			A
Approach Delay		18.3				15.9			6.6			0.9
Approach LOS		B				B			A			A
Queue Length 50th (ft)	3	805			33	790			0			0
Queue Length 95th (ft)	16	1216			m35	m758			2			0
Internal Link Dist (ft)		1103				1042			405			435
Turn Bay Length (ft)	460				470							
Base Capacity (vph)	186	3921			59	4251			424			209
Starvation Cap Reductn	0	0			0	0			0			0
Spillback Cap Reductn	0	0			0	0			0			0
Storage Cap Reductn	0	0			0	0			0			0
Reduced v/c Ratio	0.02	0.87			0.54	0.86			0.15			0.06

Intersection Summary

Area Type: Other

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 31 (19%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow

Natural Cycle: 145

Control Type: Actuated-Coordinated



Lane Group	SBR
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Lanes, Volumes, Timings

2: Ridgewood Center Drive/Laurel Hills Drive & Prince William Pkwy

05/30/2024

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 17.0

Intersection LOS: B

Intersection Capacity Utilization 81.9%

ICU Level of Service D

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Ridgewood Center Drive/Laurel Hills Drive & Prince William Pkwy

↙ Ø1	→ Ø2 (R)	↘ Ø3	↙ Ø4
17 s	87 s	18 s	38 s
↖ Ø5	← Ø6 (R)		
23 s	81 s		

Lanes, Volumes, Timings
 3: Prince William Parkway & Seeton Square

05/30/2024























Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			↑↑↑↑	↗		↘
Traffic Volume (vph)	0	0	3340	65	0	46
Future Volume (vph)	0	0	3340	65	0	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			100	0	0
Storage Lanes	0			1	0	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.91	1.00	1.00	1.00
Frt				0.850		0.865
Flt Protected						
Satd. Flow (prot)	0	0	5085	1583	0	1611
Flt Permitted						
Satd. Flow (perm)	0	0	5085	1583	0	1611
Link Speed (mph)		45	45		25	
Link Distance (ft)		238	229		170	
Travel Time (s)		3.6	3.5		4.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	3630	71	0	50
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	3630	71	0	50
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	74.5%
ICU Level of Service	D
Analysis Period (min)	15

Lanes, Volumes, Timings
4: Prince William Pkwy & Old Bridge Road

07/30/2024

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	 	 	  		  	  
Traffic Volume (vph)	833	1641	1764	450	1460	1664
Future Volume (vph)	833	1641	1764	450	1460	1664
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	2%		1%			0%
Lane Util. Factor	0.97	0.76	0.91	1.00	0.94	0.91
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3333	3472	4869	1545	4802	4988
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	3333	3472	4869	1545	4802	4988
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		45		45	
Link Distance (ft)	228		371		313	
Travel Time (s)	3.5		5.6		4.7	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	4%	5%	6%	4%	6%	4%
Adj. Flow (vph)	868	1709	1838	469	1521	1733
Shared Lane Traffic (%)						
Lane Group Flow (vph)	868	1709	1838	469	1521	1733
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	24		36		36	
Link Offset(ft)	0		0		0	
Crosswalk Width(ft)	16		16		16	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Number of Detectors	1	3	1	1	1	1
Detector Template						
Leading Detector (ft)	35	300	35	35	35	53
Trailing Detector (ft)	-5	100	-5	-5	-5	47
Detector 1 Position(ft)	-5	100	-5	-5	-5	47
Detector 1 Size(ft)	40	6	40	40	40	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		197				
Detector 2 Size(ft)		6				
Detector 2 Type		Cl+Ex				
Detector 2 Channel						
Detector 2 Extend (s)		0.0				
Detector 3 Position(ft)		294				
Detector 3 Size(ft)		6				
Detector 3 Type		Cl+Ex				
Detector 3 Channel						

Lanes, Volumes, Timings
4: Prince William Pkwy & Old Bridge Road

07/30/2024



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Detector 3 Extend (s)	0.0					
Turn Type	Prot	pt+ov	NA	pm+ov	Prot	NA
Protected Phases	4	4 5	6	4	5	2
Permitted Phases	6					
Detector Phase	4	4 5	6	4	5	2
Switch Phase						
Minimum Initial (s)	5.0		20.0	5.0	5.0	20.0
Minimum Split (s)	16.7		48.8	16.7	12.5	26.0
Total Split (s)	36.0		68.0	36.0	56.0	124.0
Total Split (%)	22.5%		42.5%	22.5%	35.0%	77.5%
Maximum Green (s)	25.5		60.2	25.5	48.5	118.2
Yellow Time (s)	4.6		4.7	4.6	3.9	4.8
All-Red Time (s)	5.9		3.1	5.9	3.6	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	10.5		7.8	10.5	7.5	5.8
Lead/Lag			Lead	Lag		
Lead-Lag Optimize?			Yes	Yes		
Vehicle Extension (s)	3.0		3.0	3.0	3.0	2.0
Recall Mode	C-Max		Max	C-Max	Min	Max
Act Effct Green (s)	25.5	81.5	60.2	93.5	48.5	118.2
Actuated g/C Ratio	0.16	0.51	0.38	0.58	0.30	0.74
v/c Ratio	1.63	0.97	1.00	0.52	1.05	0.47
Control Delay	319.6	23.7	58.2	20.2	74.3	6.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	319.6	23.7	58.2	20.2	74.3	6.9
LOS	F	C	E	C	E	A
Approach Delay	123.4		50.5			38.4
Approach LOS	F		D			D
Queue Length 50th (ft)	~682	807	~615	180	~610	107
Queue Length 95th (ft)	m#638	m132	#816	272	#698	161
Internal Link Dist (ft)	148		291			233
Turn Bay Length (ft)						
Base Capacity (vph)	531	1768	1831	902	1455	3684
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.63	0.97	1.00	0.52	1.05	0.47

Intersection Summary	
Area Type:	Other
Cycle Length:	160
Actuated Cycle Length:	160
Offset:	60 (38%), Referenced to phase 4:WBL, Start of Yellow
Natural Cycle:	150
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	1.63
Intersection Signal Delay:	68.7
Intersection LOS:	E
Intersection Capacity Utilization:	107.1%
ICU Level of Service:	G
Analysis Period (min):	15

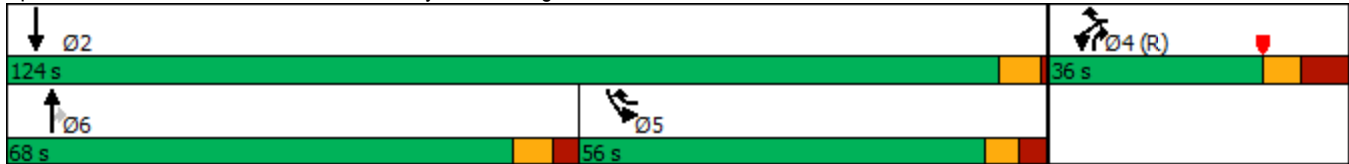
Lanes, Volumes, Timings

4: Prince William Pkwy & Old Bridge Road

07/30/2024

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Prince William Pkwy & Old Bridge Road



Lanes, Volumes, Timings
5: Tribbe at the Glen & Old Bridge Rd

05/30/2024



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑					↗
Traffic Volume (vph)	1815	98	0	0	0	52
Future Volume (vph)	1815	98	0	0	0	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-3%			0%	2%	
Lane Util. Factor	0.91	0.91	1.00	1.00	1.00	1.00
Frt	0.992					0.865
Flt Protected						
Satd. Flow (prot)	4941	0	0	0	0	1627
Flt Permitted						
Satd. Flow (perm)	4941	0	0	0	0	1627
Link Speed (mph)	45			45	15	
Link Distance (ft)	218			184	117	
Travel Time (s)	3.3			2.8	5.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	6%	0%	0%	4%	0%	0%
Adj. Flow (vph)	1973	107	0	0	0	57
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2080	0	0	0	0	57
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.98	0.98	1.00	1.00	1.01	1.01
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	























Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	47.2%
ICU Level of Service	A
Analysis Period (min)	15

Lanes, Volumes, Timings

6: Troupe Street/Glen Shopping Ctr & Old Bridge Road

07/30/2024

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	313	1571	94	137	1969	179	214	27	283	138	22	226
Future Volume (vph)	313	1571	94	137	1969	179	214	27	283	138	22	226
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			7%			-1%			0%	
Storage Length (ft)	175		0	335		0	0		0	0		100
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	75			110			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00		1.00		0.99	1.00		0.98
Frt		0.992			0.987				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1823	4903	0	1598	4747	0	1728	1909	1462	1805	1900	1615
Flt Permitted	0.950			0.950			0.315			0.738		
Satd. Flow (perm)	1823	4903	0	1598	4747	0	571	1909	1441	1399	1900	1586
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8			10				119			126
Link Speed (mph)		45			45			25				15
Link Distance (ft)		392			720			722				387
Travel Time (s)		5.9			10.9			19.7				17.6
Confl. Peds. (#/hr)			3			6	3		2	2		7
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	6%	4%	9%	4%	1%	5%	0%	11%	0%	0%	0%
Adj. Flow (vph)	340	1708	102	149	2140	195	233	29	308	150	24	246
Shared Lane Traffic (%)												
Lane Group Flow (vph)	340	1810	0	149	2335	0	233	29	308	150	24	246
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12				12
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	1.05	1.05	1.05	0.99	0.99	0.99	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	35	206		35	206		35	35	35	5	35	35
Trailing Detector (ft)	-5	200		-5	200		-5	-5	-5	0	-5	-5
Detector 1 Position(ft)	-5	200		-5	200		-5	-5	-5	0	-5	-5
Detector 1 Size(ft)	40	6		40	6		40	40	40	5	40	40
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	Prot	NA		Prot	NA		pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	5	2		1	6		7	4	1	3	8	5
Permitted Phases							4		4	8		8
Detector Phase	5	2		1	6		7	4	1	3	8	5

Lanes, Volumes, Timings

6: Troupe Street/Glen Shopping Ctr & Old Bridge Road

07/30/2024

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: Troupe Street/Glen Shopping Ctr & Old Bridge Road



Lanes, Volumes, Timings

7: Titania Way/Touchstone Circle & Old Bridge Road

07/30/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑	↗		↕			↖	↗
Traffic Volume (vph)	172	1913	38	20	2129	142	25	1	23	198	7	155
Future Volume (vph)	172	1913	38	20	2129	142	25	1	23	198	7	155
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		4%			-7%			-3%			2%	
Storage Length (ft)	145		0	225		440	0		0	0		0
Storage Lanes	1		1	1		1	0		0	0		1
Taper Length (ft)	85			90			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.98			0.98		0.99			1.00	0.98
Frt			0.850			0.850		0.936				0.850
Flt Protected	0.950			0.950				0.975			0.954	
Satd. Flow (prot)	1638	3338	1465	1868	3593	1607	0	1695	0	0	1728	1508
Flt Permitted	0.041			0.045				0.639			0.696	
Satd. Flow (perm)	71	3338	1432	88	3593	1573	0	1111	0	0	1257	1482
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			89			118		24				119
Link Speed (mph)		45			45			20				30
Link Distance (ft)		720			685			276				350
Travel Time (s)		10.9			10.4			9.4				8.0
Confl. Peds. (#/hr)	4		1	1		6			3	2		4
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	8%	6%	8%	0%	4%	4%	6%	0%	0%	4%	0%	6%
Adj. Flow (vph)	181	2014	40	21	2241	149	26	1	24	208	7	163
Shared Lane Traffic (%)												
Lane Group Flow (vph)	181	2014	40	21	2241	149	0	51	0	0	215	163
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0				0
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.03	1.03	1.03	0.96	0.96	0.96	0.98	0.98	0.98	1.01	1.01	1.01
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1	1	1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	35	206	53	35	206	53	35	35		5	35	35
Trailing Detector (ft)	-5	200	47	-5	200	47	-5	-5		0	-5	-5
Detector 1 Position(ft)	-5	200	47	-5	200	47	-5	-5		0	-5	-5
Detector 1 Size(ft)	40	6	6	40	6	6	40	40		5	40	40
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6		6	2		2	4			8		8
Detector Phase	1	6	6	5	2	2	4	4		8	8	8

Lanes, Volumes, Timings

7: Titania Way/Touchstone Circle & Old Bridge Road

07/30/2024

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

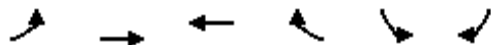
Splits and Phases: 7: Titania Way/Touchstone Circle & Old Bridge Road



Lanes, Volumes, Timings

8: Old Bridge Road & Brussels Way

05/30/2024



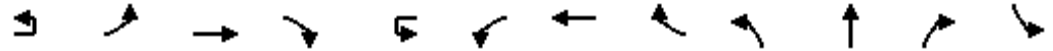
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↗		↗
Traffic Volume (vph)	0	2134	2278	22	0	13
Future Volume (vph)	0	2134	2278	22	0	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		7%	-1%		1%	
Storage Length (ft)	0			225	0	0
Storage Lanes	0			1	0	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor						
Fr _t				0.850		0.865
Fl _t Protected						
Satd. Flow (prot)	0	3286	3489	1623	0	1635
Fl _t Permitted						
Satd. Flow (perm)	0	3286	3489	1623	0	1635
Link Speed (mph)		45	45		25	
Link Distance (ft)		685	503		275	
Travel Time (s)		10.4	7.6		7.5	
Confl. Peds. (#/hr)	7			7		7
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	6%	4%	0%	0%	0%
Adj. Flow (vph)	0	2320	2476	24	0	14
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	2320	2476	24	0	14
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.05	1.05	0.99	0.99	1.01	1.01
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	75.1%
ICU Level of Service	D
Analysis Period (min)	15

Lanes, Volumes, Timings
 9: Old Bridge Ln/Church Entr & Old Bridge Road

05/30/2024



Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations		↖	↗	↘		↖	↗	↘		↕		↖
Traffic Volume (vph)	1	9	2049	75	1	27	2285	1	15	0	22	3
Future Volume (vph)	1	9	2049	75	1	27	2285	1	15	0	22	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	10
Grade (%)			1%				3%			0%		
Storage Length (ft)		365		340		225		230	0		0	0
Storage Lanes		1		1		1		1	0		0	1
Taper Length (ft)		60				105			25			25
Lane Util. Factor	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Fr _t				0.850				0.850		0.918		
Fl _t Protected		0.950				0.950				0.981		0.950
Satd. Flow (prot)	0	1796	3389	1591	0	1665	3419	1591	0	1711	0	1693
Fl _t Permitted		0.950				0.950				0.981		0.950
Satd. Flow (perm)	0	1796	3389	1591	0	1665	3419	1591	0	1711	0	1693
Link Speed (mph)			45				45			25		
Link Distance (ft)			503				585			390		
Travel Time (s)			7.6				8.9			10.6		
Confl. Peds. (#/hr)		5		4		4		5			4	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	0%	6%	1%	0%	7%	4%	0%	0%	0%	0%	0%
Adj. Flow (vph)	1	9	2112	77	1	28	2356	1	15	0	23	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	10	2112	77	0	29	2356	1	0	38	0	3
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	R NA	Left	Left	Right	Left	Left	Right	Left
Median Width(ft)			12				12			10		
Link Offset(ft)			0				0			0		
Crosswalk Width(ft)			16				16			16		
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.02	1.02	1.02	1.02	1.00	1.00	1.00	1.09
Turning Speed (mph)	9	15		9	9	15		9	15		9	15
Sign Control			Free				Free			Stop		

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	82.6%
ICU Level of Service	E
Analysis Period (min)	15

Lanes, Volumes, Timings
 9: Old Bridge Ln/Church Entr & Old Bridge Road

05/30/2024

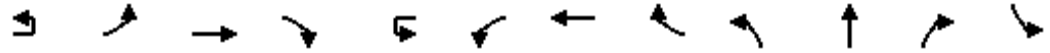


Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	0	0
Future Volume (vph)	0	0
Ideal Flow (vphpl)	1900	1900
Lane Width (ft)	10	10
Grade (%)	-1%	
Storage Length (ft)		0
Storage Lanes		1
Taper Length (ft)		
Lane Util. Factor	1.00	1.00
Ped Bike Factor		
Flt		
Flt Protected		
Satd. Flow (prot)	0	1782
Flt Permitted		
Satd. Flow (perm)	0	1782
Link Speed (mph)	15	
Link Distance (ft)	247	
Travel Time (s)	11.2	
Confl. Peds. (#/hr)		5
Peak Hour Factor	0.97	0.97
Heavy Vehicles (%)	0%	0%
Adj. Flow (vph)	0	0
Shared Lane Traffic (%)		
Lane Group Flow (vph)	0	0
Enter Blocked Intersection	No	No
Lane Alignment	Left	Right
Median Width(ft)	10	
Link Offset(ft)	0	
Crosswalk Width(ft)	16	
Two way Left Turn Lane		
Headway Factor	1.09	1.09
Turning Speed (mph)		9
Sign Control	Stop	
Intersection Summary		

Lanes, Volumes, Timings

10: Rockwood Lane/Westridge Drive & Old Bridge Road

05/30/2024

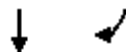


Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	8	315	1751	1	9	4	2036	249	0	0	1	140
Future Volume (vph)	8	315	1751	1	9	4	2036	249	0	0	1	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)			1%				3%			0%		
Storage Length (ft)		165		0		300		1000	0		0	0
Storage Lanes		1		0		1		1	0		0	0
Taper Length (ft)		65				115			25			25
Lane Util. Factor	0.95	1.00	0.95	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			1.00					0.98		0.98		
Frt								0.850		0.865		
Flt Protected		0.950				0.950						
Satd. Flow (prot)	0	1681	3389	0	0	1778	3387	1544	0	1606	0	0
Flt Permitted		0.041				0.089						
Satd. Flow (perm)	0	73	3389	0	0	167	3387	1515	0	1606	0	0
Right Turn on Red				Yes				Yes			Yes	
Satd. Flow (RTOR)								271		97		
Link Speed (mph)			45				45			25		
Link Distance (ft)			585				1227			407		
Travel Time (s)			8.9				18.6			11.1		
Confl. Peds. (#/hr)		3		5		5		5			7	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	7%	6%	0%	0%	0%	5%	3%	0%	0%	0%	2%
Adj. Flow (vph)	9	342	1903	1	10	4	2213	271	0	0	1	152
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	351	1904	0	0	14	2213	271	0	1	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	R NA	Left	Left	Right	Left	Left	Right	Left
Median Width(ft)			12				12			0		
Link Offset(ft)			0				0			0		
Crosswalk Width(ft)			16				16			16		
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.02	1.02	1.02	1.02	1.00	1.00	1.00	0.99
Turning Speed (mph)	9	15		9	9	15		9	15		9	15
Number of Detectors	1	1	3		1	1	3	1	1	1		1
Detector Template												
Leading Detector (ft)	50	35	330		50	35	330	35	0	35		0
Trailing Detector (ft)	0	-5	110		0	-5	110	-5	0	-5		0
Detector 1 Position(ft)	0	-5	110		0	-5	110	-5	0	-5		0
Detector 1 Size(ft)	50	40	6		50	40	6	40	0	40		0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0
Detector 2 Position(ft)			217				217					
Detector 2 Size(ft)			6				6					
Detector 2 Type			Cl+Ex				Cl+Ex					
Detector 2 Channel												

Lanes, Volumes, Timings

10: Rockwood Lane/Westridge Drive & Old Bridge Road

05/30/2024



Lane Group	SBT	SBR
Lane Configurations	↕	↗
Traffic Volume (vph)	0	270
Future Volume (vph)	0	270
Ideal Flow (vphpl)	1900	1900
Grade (%)	-1%	
Storage Length (ft)		0
Storage Lanes		1
Taper Length (ft)		
Lane Util. Factor	1.00	1.00
Ped Bike Factor	1.00	0.99
Frt		0.850
Flt Protected	0.950	
Satd. Flow (prot)	1778	1591
Flt Permitted	0.757	
Satd. Flow (perm)	1413	1569
Right Turn on Red		Yes
Satd. Flow (RTOR)		38
Link Speed (mph)	35	
Link Distance (ft)	497	
Travel Time (s)	9.7	
Confl. Peds. (#/hr)		3
Peak Hour Factor	0.92	0.92
Heavy Vehicles (%)	0%	2%
Adj. Flow (vph)	0	293
Shared Lane Traffic (%)		
Lane Group Flow (vph)	152	293
Enter Blocked Intersection	No	No
Lane Alignment	Left	Right
Median Width(ft)	25	
Link Offset(ft)	0	
Crosswalk Width(ft)	16	
Two way Left Turn Lane		
Headway Factor	0.99	0.99
Turning Speed (mph)		9
Number of Detectors	1	1
Detector Template		
Leading Detector (ft)	35	35
Trailing Detector (ft)	-5	-5
Detector 1 Position(ft)	-5	-5
Detector 1 Size(ft)	40	40
Detector 1 Type	Cl+Ex	Cl+Ex
Detector 1 Channel		
Detector 1 Extend (s)	0.0	0.0
Detector 1 Queue (s)	0.0	0.0
Detector 1 Delay (s)	0.0	0.0
Detector 2 Position(ft)		
Detector 2 Size(ft)		
Detector 2 Type		
Detector 2 Channel		

Lanes, Volumes, Timings

10: Rockwood Lane/Westridge Drive & Old Bridge Road

05/30/2024



Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Detector 2 Extend (s)			0.0				0.0					
Detector 3 Position(ft)			324				324					
Detector 3 Size(ft)			6				6					
Detector 3 Type			Cl+Ex				Cl+Ex					
Detector 3 Channel												
Detector 3 Extend (s)			0.0				0.0					
Turn Type	custom	pm+pt	NA		Perm	Perm	NA	Perm		NA		Perm
Protected Phases		1	6				2			8		
Permitted Phases	1!	6			2	2		2	8			4
Detector Phase	1	1	6		2	2	2	2	8	8		4
Switch Phase												
Minimum Initial (s)	5.0	5.0	20.0		20.0	20.0	20.0	20.0	5.0	5.0		5.0
Minimum Split (s)	13.6	13.6	28.6		42.6	42.6	42.6	42.6	37.3	37.3		12.3
Total Split (s)	27.0	27.0	105.0		78.0	78.0	78.0	78.0	55.0	55.0		55.0
Total Split (%)	16.9%	16.9%	65.6%		48.8%	48.8%	48.8%	48.8%	34.4%	34.4%		34.4%
Maximum Green (s)	18.4	18.4	96.4		69.4	69.4	69.4	69.4	47.7	47.7		47.7
Yellow Time (s)	5.2	5.2	5.2		5.2	5.2	5.2	5.2	3.9	3.9		3.9
All-Red Time (s)	3.4	3.4	3.4		3.4	3.4	3.4	3.4	3.4	3.4		3.4
Lost Time Adjust (s)		0.0	0.0				0.0	0.0		0.0		
Total Lost Time (s)		8.6	8.6				8.6	8.6		7.3		
Lead/Lag	Lead	Lead			Lag	Lag	Lag	Lag				
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	4.0		4.0	4.0	4.0	4.0	3.5	3.5		3.5
Recall Mode	None	None	C-Max		C-Max	C-Max	C-Max	C-Max	None	None		None
Walk Time (s)					7.0	7.0	7.0	7.0	7.0	7.0		
Flash Dont Walk (s)					27.0	27.0	27.0	27.0	23.0	23.0		
Pedestrian Calls (#/hr)					0	0	0	0	0	0		
Act Effct Green (s)		115.8	115.8			88.8	88.8	88.8		28.3		
Actuated g/C Ratio		0.72	0.72			0.56	0.56	0.56		0.18		
v/c Ratio		1.48	0.78			0.15	1.18	0.28		0.00		
Control Delay		263.5	27.8			25.6	118.9	2.9		0.0		
Queue Delay		0.0	0.0			0.0	0.0	0.0		0.0		
Total Delay		263.5	27.8			25.6	118.9	2.9		0.0		
LOS		F	C			C	F	A		A		
Approach Delay			64.5				105.8					
Approach LOS			E				F					
Queue Length 50th (ft)		~452	1038			7	~1451	0		0		
Queue Length 95th (ft)		m#557	1168			26	#1692	49		0		
Internal Link Dist (ft)			505				1147			327		
Turn Bay Length (ft)		165				300		1000				
Base Capacity (vph)		237	2452			92	1879	961		546		
Starvation Cap Reductn		0	0			0	0	0		0		
Spillback Cap Reductn		0	0			0	0	0		0		
Storage Cap Reductn		0	0			0	0	0		0		
Reduced v/c Ratio		1.48	0.78			0.15	1.18	0.28		0.00		

Intersection Summary

Area Type: Other
 Cycle Length: 160

Lanes, Volumes, Timings

10: Rockwood Lane/Westridge Drive & Old Bridge Road

05/30/2024



Lane Group	SBT	SBR
Detector 2 Extend (s)		
Detector 3 Position(ft)		
Detector 3 Size(ft)		
Detector 3 Type		
Detector 3 Channel		
Detector 3 Extend (s)		
Turn Type	NA	pm+ov
Protected Phases	4	1!
Permitted Phases		4
Detector Phase	4	4
Switch Phase		
Minimum Initial (s)	5.0	5.0
Minimum Split (s)	12.3	13.6
Total Split (s)	55.0	27.0
Total Split (%)	34.4%	16.9%
Maximum Green (s)	47.7	18.4
Yellow Time (s)	3.9	5.2
All-Red Time (s)	3.4	3.4
Lost Time Adjust (s)	0.0	0.0
Total Lost Time (s)	7.3	8.6
Lead/Lag		Lead
Lead-Lag Optimize?		
Vehicle Extension (s)	3.5	3.0
Recall Mode	None	None
Walk Time (s)		
Flash Dont Walk (s)		
Pedestrian Calls (#/hr)		
Act Effct Green (s)	28.3	45.4
Actuated g/C Ratio	0.18	0.28
v/c Ratio	0.61	0.62
Control Delay	70.2	42.2
Queue Delay	0.0	0.0
Total Delay	70.2	42.2
LOS	E	D
Approach Delay	51.7	
Approach LOS	D	
Queue Length 50th (ft)	149	215
Queue Length 95th (ft)	213	284
Internal Link Dist (ft)	417	
Turn Bay Length (ft)		
Base Capacity (vph)	421	560
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.36	0.52
Intersection Summary		

Lanes, Volumes, Timings

10: Rockwood Lane/Westridge Drive & Old Bridge Road

05/30/2024

Actuated Cycle Length: 160

Offset: 128 (80%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.48

Intersection Signal Delay: 83.2 Intersection LOS: F

Intersection Capacity Utilization 127.3% ICU Level of Service H

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

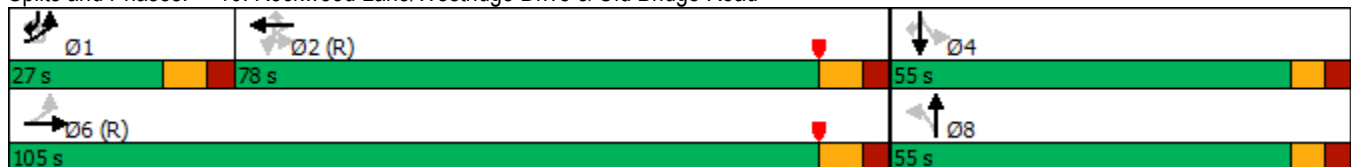
95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.




















! Phase conflict between lane groups.

Splits and Phases: 10: Rockwood Lane/Westridge Drive & Old Bridge Road



Lanes, Volumes, Timings
 11: Exxon/Glen Shopping Ctr & Touchstone Cir

05/30/2024

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	43	0	0	110	28	20	24	0	62	27
Future Volume (vph)	0	0	43	0	0	110	28	20	24	0	62	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			0%			2%	
Storage Length (ft)	0		0	0		0	115		100	0		0
Storage Lanes	0		1	0		1	1		1	0		1
Taper Length (ft)	25			25			100			85		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt			0.865			0.865			0.850			0.850
Flt Protected							0.950					
Satd. Flow (prot)	0	0	1644	0	0	1644	1805	1810	1599	0	1844	1599
Flt Permitted							0.950					
Satd. Flow (perm)	0	0	1644	0	0	1644	1805	1810	1599	0	1844	1599
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		125			186			389			272	
Travel Time (s)		2.8			4.2			8.8			6.2	
Confl. Peds. (#/hr)	3		1	1		3			1			3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	5%	1%	0%	2%	0%
Adj. Flow (vph)	0	0	47	0	0	120	30	22	26	0	67	29
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	47	0	0	120	30	22	26	0	67	29
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.01	1.01	1.01
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	18.1%
ICU Level of Service	A
Analysis Period (min)	15

Lanes, Volumes, Timings
 13: Touchstone Cir & Seeton Square/Merchant Plaza

05/30/2024

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	7	8	39	10	19	26	37	39	7	12	3
Future Volume (vph)	6	7	8	39	10	19	26	37	39	7	12	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			0%			-1%			2%	
Storage Length (ft)	0		0	0		0	100		0	250		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25			25			100			150		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor												
Frt		0.947			0.963			0.923			0.972	
Flt Protected		0.987			0.972		0.950			0.950		
Satd. Flow (prot)	0	1746	0	0	1768	0	1814	3149	0	1489	3418	0
Flt Permitted		0.987			0.972		0.950			0.950		
Satd. Flow (perm)	0	1746	0	0	1768	0	1814	3149	0	1489	3418	0
Link Speed (mph)		30			15			30			30	
Link Distance (ft)		151			241			272			577	
Travel Time (s)		3.4			11.0			6.2			13.1	
Confl. Peds. (#/hr)	2		1	1		3			2	1		2
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	7%	1%	0%	0%	0%	13%	0%	20%	2%	0%
Adj. Flow (vph)	6	8	9	42	11	20	28	40	42	8	13	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	23	0	0	73	0	28	82	0	8	16	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	1.00	1.00	1.00	0.99	0.99	0.99	1.01	1.01	1.01
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	23.0%						ICU Level of Service A					
Analysis Period (min)	15											

Lanes, Volumes, Timings
 14: Touchstone Circle & Merchant Plaza/CVS

05/30/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	13	52	104	53	10	5	97	159	59	1	186	16
Future Volume (vph)	13	52	104	53	10	5	97	159	59	1	186	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			-3%			3%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor												
Frt		0.917			0.991			0.972			0.988	
Flt Protected		0.996			0.962			0.985				
Satd. Flow (prot)	0	1735	0	0	1811	0	0	3286	0	0	3389	0
Flt Permitted		0.996			0.962			0.985				
Satd. Flow (perm)	0	1735	0	0	1811	0	0	3286	0	0	3389	0
Link Speed (mph)		15			15			30			30	
Link Distance (ft)		206			90			350			223	
Travel Time (s)		9.4			4.1			8.0			5.1	
Confl. Peds. (#/hr)			5	2		4	3		6	4		3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	22%	0%	0%	0%	4%	0%
Adj. Flow (vph)	14	57	113	58	11	5	105	173	64	1	202	17
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	184	0	0	74	0	0	342	0	0	220	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.98	0.98	0.98	1.02	1.02	1.02
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	45.4%
ICU Level of Service	A
Analysis Period (min)	15

Lanes, Volumes, Timings
 15: Prince William Pkwy & Chinn Park Dr

05/30/2024



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	76	2086	484	0	2439
Future Volume (vph)	0	76	2086	484	0	2439
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%		1%			0%
Storage Length (ft)	0	0		0	0	
Storage Lanes	0	1		0	0	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.86	0.86	1.00	0.91
Fr _t		0.865	0.972			
Fl _t Protected						
Satd. Flow (prot)	0	1550	6262	0	0	5187
Fl _t Permitted						
Satd. Flow (perm)	0	1550	6262	0	0	5187
Link Speed (mph)	30		45			45
Link Distance (ft)	763		990			222
Travel Time (s)	17.3		15.0			3.4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	6%	0%	5%	0%	0%
Adj. Flow (vph)	0	83	2267	526	0	2651
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	83	2793	0	0	2651
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	0		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.01	1.01	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	50.5%
ICU Level of Service	A
Analysis Period (min)	15

Lanes, Volumes, Timings

16: Prince William Pkwy & Kenwood Dr./

School Entrance

05/30/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations		↕			↕	↕			↕↕↕	↕		↕
Traffic Volume (vph)	60	1	121	14	1	9	2	130	2496	29	5	3
Future Volume (vph)	60	1	121	14	1	9	2	130	2496	29	5	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			1%				-2%			
Storage Length (ft)	0		0	0		0		195		245		230
Storage Lanes	0		0	0		1		1		1		1
Taper Length (ft)	25			25				200				200
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	0.91	1.00	0.91	1.00
Ped Bike Factor		0.99			1.00					0.98		
Frt		0.910				0.850				0.850		
Flt Protected		0.984			0.955			0.950				0.950
Satd. Flow (prot)	0	1621	0	0	1679	1488	0	1823	4989	1568	0	1763
Flt Permitted		0.984			0.955			0.044				0.040
Satd. Flow (perm)	0	1621	0	0	1676	1488	0	84	4989	1531	0	74
Right Turn on Red			Yes			Yes				Yes		
Satd. Flow (RTOR)		52				85				85		
Link Speed (mph)		25			25				45			
Link Distance (ft)		579			360				769			
Travel Time (s)		15.8			9.8				11.7			
Confl. Peds. (#/hr)			4	2				2		2		
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	5%	100%	0%	8%	0%	8%	0%	0%	5%	4%	0%	5%
Adj. Flow (vph)	63	1	126	15	1	9	2	135	2600	30	5	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	190	0	0	16	9	0	137	2600	30	0	8
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	R NA	Left	Left	Right	R NA	Left
Median Width(ft)		0			0				16			
Link Offset(ft)		0			0				0			
Crosswalk Width(ft)		10			16				10			
Two way Left Turn Lane												
Headway Factor	1.02	1.02	1.02	1.01	1.01	1.01	0.99	0.99	0.99	0.99	1.01	1.01
Turning Speed (mph)	15		9	15		9	9	15		9	9	15
Number of Detectors	1	1		1	1	1	1	1	1	1	1	1
Detector Template		Thru		Left	Thru	Right				Right		Left
Leading Detector (ft)	35	35		20	35	35	50	35	206	46	35	35
Trailing Detector (ft)	-5	-5		0	-5	-5	0	-5	200	40	-5	-5
Detector 1 Position(ft)	-5	-5		0	-5	-5	0	-5	200	40	-5	-5
Detector 1 Size(ft)	40	40		20	40	40	50	40	6	6	40	40
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	Split	NA		Split	NA	pm+ov	custom	D.P+P	NA	pm+ov	custom	D.P+P
Protected Phases	3	3		4	4	5!		1	6	4		5
Permitted Phases						4	1	2		6	5!	6
Detector Phase	3	3		4	4	5	1	1	6	4	5	5

Lanes, Volumes, Timings

16: Prince William Pkwy & Kenwood Dr./

School Entrance

05/30/2024



Lane Group	SBT	SBR
Lane Configurations	↑↑↑↑	↑
Traffic Volume (vph)	2318	118
Future Volume (vph)	2318	118
Ideal Flow (vphpl)	1900	1900
Grade (%)	1%	
Storage Length (ft)		235
Storage Lanes		1
Taper Length (ft)		
Lane Util. Factor	0.91	1.00
Ped Bike Factor		0.98
Frt		0.850
Flt Protected		
Satd. Flow (prot)	4963	1530
Flt Permitted		
Satd. Flow (perm)	4963	1493
Right Turn on Red		Yes
Satd. Flow (RTOR)		79
Link Speed (mph)	45	
Link Distance (ft)	990	
Travel Time (s)	15.0	
Confl. Peds. (#/hr)		2
Peak Hour Factor	0.96	0.96
Heavy Vehicles (%)	4%	5%
Adj. Flow (vph)	2415	123
Shared Lane Traffic (%)		
Lane Group Flow (vph)	2415	123
Enter Blocked Intersection	No	No
Lane Alignment	Left	Right
Median Width(ft)	16	
Link Offset(ft)	0	
Crosswalk Width(ft)	10	
Two way Left Turn Lane		
Headway Factor	1.01	1.01
Turning Speed (mph)		9
Number of Detectors	1	1
Detector Template		
Leading Detector (ft)	206	46
Trailing Detector (ft)	200	40
Detector 1 Position(ft)	200	40
Detector 1 Size(ft)	6	6
Detector 1 Type	Cl+Ex	Cl+Ex
Detector 1 Channel		
Detector 1 Extend (s)	0.0	0.0
Detector 1 Queue (s)	0.0	0.0
Detector 1 Delay (s)	0.0	0.0
Turn Type	NA	pm+ov
Protected Phases	2	3
Permitted Phases		2
Detector Phase	2	2

Lanes, Volumes, Timings

16: Prince William Pkwy & Kenwood Dr./

School Entrance

05/30/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	7.0	7.0	7.0	15.0	10.0	7.0	7.0
Minimum Split (s)	43.6	43.6		43.8	43.8	15.8	15.8	15.8	24.8	43.8	15.8	15.8
Total Split (s)	29.0	29.0		32.0	32.0	20.0	27.0	27.0	79.0	32.0	20.0	20.0
Total Split (%)	18.1%	18.1%		20.0%	20.0%	12.5%	16.9%	16.9%	49.4%	20.0%	12.5%	12.5%
Maximum Green (s)	22.4	22.4		26.2	26.2	11.2	18.2	18.2	70.2	26.2	11.2	11.2
Yellow Time (s)	3.1	3.1		3.1	3.1	4.9	4.9	4.9	4.9	3.1	4.9	4.9
All-Red Time (s)	3.5	3.5		2.7	2.7	3.9	3.9	3.9	3.9	2.7	3.9	3.9
Lost Time Adjust (s)		0.0			0.0	0.0		0.0	0.0	0.0		0.0
Total Lost Time (s)		6.6			5.8	8.8		8.8	8.8	5.8		8.8
Lead/Lag	Lead	Lead		Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lead	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	None	C-Max	None	None	None
Walk Time (s)	8.0	8.0		8.0	8.0				7.0	8.0		
Flash Dont Walk (s)	29.0	29.0		30.0	30.0				9.0	30.0		
Pedestrian Calls (#/hr)	0	0		0	0				0	0		
Act Effct Green (s)		18.3			10.0	19.6		104.9	104.2	115.2		108.4
Actuated g/C Ratio		0.11			0.06	0.12		0.66	0.65	0.72		0.68
v/c Ratio		0.82			0.15	0.04		0.70	0.80	0.03		0.06
Control Delay		76.8			74.7	0.2		69.0	17.8	0.0		10.2
Queue Delay		0.0			0.0	0.0		0.0	0.2	0.0		0.0
Total Delay		76.8			74.7	0.2		69.0	18.0	0.0		10.2
LOS		E			E	A		E	B	A		B
Approach Delay		76.8			47.9				20.3			
Approach LOS		E			D				C			
Queue Length 50th (ft)		144			16	0		100	887	0		3
Queue Length 95th (ft)		234			43	0		m166	696	m0		m4
Internal Link Dist (ft)		499			280				689			
Turn Bay Length (ft)								195		245		230
Base Capacity (vph)		271			274	293		255	3249	1230		169
Starvation Cap Reductn		0			0	0		0	121	0		0
Spillback Cap Reductn		0			0	0		0	0	0		0
Storage Cap Reductn		0			0	0		0	0	0		0
Reduced v/c Ratio		0.70			0.06	0.03		0.54	0.83	0.02		0.05

Intersection Summary

Area Type: Other

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 140 (88%), Referenced to phase 2:NBSB and 6:NBSB, Start of Yellow

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 28.9

Intersection LOS: C

Intersection Capacity Utilization 101.0%

ICU Level of Service G

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

! Phase conflict between lane groups.

Lanes, Volumes, Timings

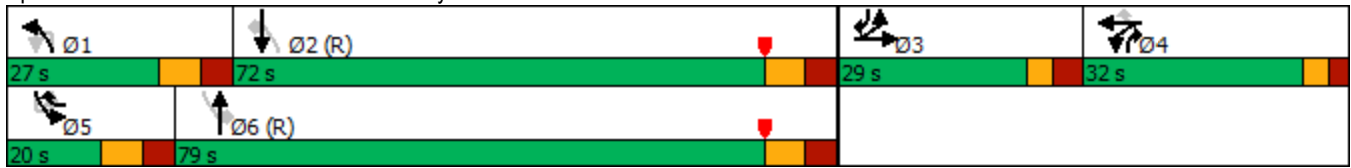
16: Prince William Pkwy & Kenwood Dr./

School Entrance

05/30/2024

Splits and Phases: 16: Prince William Pkwy & Kenwood Dr./

School Entrance





Lane Group	SBT	SBR
Switch Phase		
Minimum Initial (s)	15.0	10.0
Minimum Split (s)	28.8	43.6
Total Split (s)	72.0	29.0
Total Split (%)	45.0%	18.1%
Maximum Green (s)	63.2	22.4
Yellow Time (s)	4.9	3.1
All-Red Time (s)	3.9	3.5
Lost Time Adjust (s)	0.0	0.0
Total Lost Time (s)	8.8	6.6
Lead/Lag	Lag	Lead
Lead-Lag Optimize?		
Vehicle Extension (s)	3.0	3.0
Recall Mode	C-Max	None
Walk Time (s)	7.0	8.0
Flash Dont Walk (s)	13.0	29.0
Pedestrian Calls (#/hr)	0	0
Act Effct Green (s)	91.9	112.4
Actuated g/C Ratio	0.57	0.70
v/c Ratio	0.85	0.11
Control Delay	36.0	3.8
Queue Delay	0.0	0.0
Total Delay	36.0	3.8
LOS	D	A
Approach Delay	34.4	
Approach LOS	C	
Queue Length 50th (ft)	815	8
Queue Length 95th (ft)	m733	m45
Internal Link Dist (ft)	910	
Turn Bay Length (ft)		235
Base Capacity (vph)	2851	1076
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.85	0.11
Intersection Summary		

Lanes, Volumes, Timings
 17: Prince William Pkwy & Hillendale Road

05/30/2024



Lane Group	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Lane Configurations	↔↔	↔		↔↔	↑↑↑	↔	↑↑↑	↔
Traffic Volume (vph)	331	277	2	631	2326	0	1931	524
Future Volume (vph)	331	277	2	631	2326	0	1931	524
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)	2%				1%		2%	
Storage Length (ft)	125	0		475		350		500
Storage Lanes	1	1		1		1		1
Taper Length (ft)	45			100		165		
Lane Util. Factor	0.97	1.00	0.91	0.97	0.91	1.00	0.91	1.00
Fr _t		0.850						0.850
Fl _t Protected	0.950			0.950				
Satd. Flow (prot)	3399	1537	0	3383	4915	1881	4938	1523
Fl _t Permitted	0.950			0.286				
Satd. Flow (perm)	3399	1537	0	1018	4915	1881	4938	1523
Right Turn on Red		Yes						Yes
Satd. Flow (RTOR)		4						
Link Speed (mph)	25				45		45	
Link Distance (ft)	586				666		769	
Travel Time (s)	16.0				10.1		11.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	4%	0%	3%	5%	0%	4%	5%
Adj. Flow (vph)	360	301	2	686	2528	0	2099	570
Shared Lane Traffic (%)								
Lane Group Flow (vph)	360	301	0	688	2528	0	2099	570
Enter Blocked Intersection	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	R NA	Left	Left	R NA	Left	Right
Median Width(ft)	30				30		24	
Link Offset(ft)	0				0		0	
Crosswalk Width(ft)	10				10		10	
Two way Left Turn Lane								
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (mph)	15	9	9	15		9		9
Number of Detectors	1	1	1	1	1	1	1	1
Detector Template								
Leading Detector (ft)	35	35	50	35	206	35	206	46
Trailing Detector (ft)	-5	-5	0	-5	200	-5	200	40
Detector 1 Position(ft)	-5	-5	0	-5	200	-5	200	40
Detector 1 Size(ft)	40	40	50	40	6	40	6	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel								
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	Prot	pm+ov	custom	Prot	NA	Prot	NA	pm+ov
Protected Phases	4	5!		5	2	1	6	4
Permitted Phases		4	5!					6
Detector Phase	4	4	5	5	2	1	6	6
Switch Phase								
Minimum Initial (s)	10.0	7.0	7.0	7.0	15.0	7.0	15.0	10.0


Lanes, Volumes, Timings

17: Prince William Pkwy & Hillendale Road

05/30/2024

m Volume for 95th percentile queue is metered by upstream signal.
 ! Phase conflict between lane groups.




















Splits and Phases: 17: Prince William Pkwy & Hillendale Road

 Ø1 17 s	 Ø2 (R) 93 s	 Ø4 50 s
 Ø5 22 s	 Ø6 (R) 88 s	

Lanes, Volumes, Timings

18: Library/Fitness Ctr/Troupe Street & Chinn Park Dr

05/30/2024

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	319	36	67	1	7	42	15	110	1	55	95	1
Future Volume (vph)	319	36	67	1	7	42	15	110	1	55	95	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	10	10	10	12	12	12	12	12	12
Grade (%)		1%			-2%			-2%			3%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt			0.850		0.887			0.999				0.999
Flt Protected		0.957			0.999		0.950			0.950		
Satd. Flow (prot)	0	1777	1545	0	1166	0	1823	1698	0	1422	1741	0
Flt Permitted		0.957			0.999		0.950			0.950		
Satd. Flow (perm)	0	1777	1545	0	1166	0	1823	1698	0	1422	1741	0
Link Speed (mph)		30			30			30			25	
Link Distance (ft)		763			462			148			722	
Travel Time (s)		17.3			10.5			3.4			19.7	
Confl. Peds. (#/hr)						6			5	5		1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	0%	4%	100%	0%	41%	0%	13%	0%	25%	7%	50%
Adj. Flow (vph)	347	39	73	1	8	46	16	120	1	60	103	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	386	73	0	55	0	16	121	0	60	104	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.08	1.08	1.08	0.99	0.99	0.99	1.02	1.02	1.02
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	42.7%						ICU Level of Service A					
Analysis Period (min)	15											

Lanes, Volumes, Timings
 21: Old Bridge Rd & Touchstone Circle

05/30/2024



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			↑↑↑			↗
Traffic Volume (vph)	0	0	2370	44	0	105
Future Volume (vph)	0	0	2370	44	0	105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		-3%	2%		0%	
Lane Util. Factor	1.00	1.00	0.91	0.91	1.00	1.00
Frt			0.997			0.865
Flt Protected						
Satd. Flow (prot)	0	0	5019	0	0	1611
Flt Permitted						
Satd. Flow (perm)	0	0	5019	0	0	1611
Link Speed (mph)		45	45		30	
Link Distance (ft)		209	242		134	
Travel Time (s)		3.2	3.7		3.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	2576	48	0	114
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	2624	0	0	114
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	0.98	0.98	1.01	1.01	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	59.9%
ICU Level of Service	B
Analysis Period (min)	15

Lanes, Volumes, Timings
 34: Prince William Pkwy & Seeton Square

05/30/2024

Lane Group	SBL	SBR	SBR2	SEL	SET	SER	NWL	NWT	NWR	NEL	NER
Lane Configurations					6						
Traffic Volume (vph)	0	0	46	0	3089	74	0	3340	65	0	0
Future Volume (vph)	0	0	46	0	3089	74	0	3340	65	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)	4%				0%			0%		0%	
Storage Length (ft)	0	0		150		350	0		100	0	0
Storage Lanes	0	1		3		1	0		1	0	0
Taper Length (ft)	25			300			25			25	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.76	1.00	1.00	0.91	1.00	1.00	1.00
Fr _t			0.865			0.850			0.850		
Flt Protected											
Satd. Flow (prot)	0	0	1579	0	8494	1583	0	5085	1583	0	0
Flt Permitted											
Satd. Flow (perm)	0	0	1579	0	8494	1583	0	5085	1583	0	0
Link Speed (mph)	25				45			45		30	
Link Distance (ft)	289				1122			313		194	
Travel Time (s)	7.9				17.0			4.7		4.4	
Peak Hour Factor	0.92	1.00	0.92	0.92	0.92	1.00	1.00	0.92	0.92	1.00	1.00
Adj. Flow (vph)	0	0	50	0	3358	74	0	3630	71	0	0
Shared Lane Traffic (%)											
Lane Group Flow (vph)	0	0	50	0	3358	74	0	3630	71	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Right	Left	Left	Right	Left	Left	Right	Left	Right
Median Width(ft)	0				0			0		0	
Link Offset(ft)	0				0			0		0	
Crosswalk Width(ft)	16				16			16		16	
Two way Left Turn Lane											
Headway Factor	1.03	1.03	1.03	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	9	15		9	15		9	15	9
Sign Control	Stop				Free			Free		Stop	
Intersection Summary											
Area Type:	Other										
Control Type:	Unsignalized										
Intersection Capacity Utilization	74.5%					ICU Level of Service D					
Analysis Period (min)	15										

Lanes, Volumes, Timings
 39: Tribe at the Glen & Old Bridge Road

05/30/2024



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑			↑↑↑		↗
Traffic Volume (vph)	1815	98	0	2430	0	52
Future Volume (vph)	1815	98	0	2430	0	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	14	14
Grade (%)	-3%			2%	0%	
Storage Length (ft)		0	120		0	0
Storage Lanes		0	1		0	1
Taper Length (ft)			100		25	
Lane Util. Factor	0.91	0.91	1.00	0.86	1.00	1.00
Frt	0.992					0.865
Flt Protected						
Satd. Flow (prot)	4941	0	0	6222	0	1753
Flt Permitted						
Satd. Flow (perm)	4941	0	0	6222	0	1753
Link Speed (mph)	45			45	15	
Link Distance (ft)	328			392	332	
Travel Time (s)	5.0			5.9	15.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	6%	0%	0%	4%	0%	0%
Adj. Flow (vph)	1973	107	0	2641	0	57
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2080	0	0	2641	0	57
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.98	0.98	1.01	1.01	0.92	0.92
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	47.2%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings
44: Old Bridge Road

05/30/2024



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑↑			↗
Traffic Volume (vph)	0	1913	2370	44	0	105
Future Volume (vph)	0	1913	2370	44	0	105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		-3%	2%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	0	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.91	0.81	0.81	1.00	1.00
Fr _t			0.997			0.865
Fl _t Protected						
Satd. Flow (prot)	0	5162	7446	0	0	1611
Fl _t Permitted						
Satd. Flow (perm)	0	5162	7446	0	0	1611
Link Speed (mph)		45	45		30	
Link Distance (ft)		228	328		389	
Travel Time (s)		3.5	5.0		8.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	2079	2576	48	0	114
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	2079	2624	0	0	114
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	0.98	0.98	1.01	1.01	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	41.2%			ICU Level of Service A		
Analysis Period (min)	15					

Lanes, Volumes, Timings
45: Mohammadia Center

05/30/2024



Lane Group	WBL	WBR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Volume (vph)	58	0	0	0	0	74
Future Volume (vph)	58	0	0	0	0	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr						
Flt Protected	0.950					
Satd. Flow (prot)	1770	0	0	1863	0	1863
Flt Permitted	0.950					
Satd. Flow (perm)	1770	0	0	1863	0	1863
Link Speed (mph)	30		30			30
Link Distance (ft)	746		129			194
Travel Time (s)	17.0		2.9			4.4
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	58	0	0	0	0	74
Shared Lane Traffic (%)						
Lane Group Flow (vph)	58	0	0	0	0	74
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	13.9%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings
 47: Mohammadia Center & Prince William Pkwy

05/30/2024




Lane Group	SET	SER	NWL	NWT	NEL	NER
Lane Configurations	↑↑↑	↑		↑↑↑		↑
Traffic Volume (vph)	2439	58	0	2162	0	0
Future Volume (vph)	2439	58	0	2162	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			1%	0%	
Storage Length (ft)		100	0		0	0
Storage Lanes		1	0		0	1
Taper Length (ft)			25		25	
Lane Util. Factor	0.91	1.00	1.00	0.86	1.00	1.00
Fr _t		0.850				
Flt Protected						
Satd. Flow (prot)	5085	1583	0	6376	0	1863
Flt Permitted						
Satd. Flow (perm)	5085	1583	0	6376	0	1863
Link Speed (mph)	45			45	30	
Link Distance (ft)	371			222	746	
Travel Time (s)	5.6			3.4	17.0	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	2439	58	0	2162	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2439	58	0	2162	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.01	1.01	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	50.5%			ICU Level of Service A		
Analysis Period (min)	15					

Appendix K: Left Turn Phase Analysis

Traffic Engineering

**LEFT-TURN PHASE SELECTION ENGINEERING ASSESSMENT
WORKBOOK**



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Technical Discipline

Intersection Information

Intersection: Prince William Parkway & Old Bridge Road	
Operations Region: Northern	Locality: Prince William County
Intersection Node:	Reference #:
Prepared by: Katie Flood	Date: 9/29/2022
Reviewed by:	Date: Click here to enter a date.
Assessment Origin: <input type="checkbox"/> New Signal <input checked="" type="checkbox"/> Rebuild – Modification <input type="checkbox"/> Operations – Timing Study <input type="checkbox"/> Other:	

Intersection Characteristics & Left-Turn Phasing Mode(s)

	Speed Limit	# of Exclusive LT Lanes - Existing	# of Exclusive LT Lanes - Proposed	# of Shared LT Lanes	Existing LT Phasing:	Proposed LT Phasing:
NB Approach	45	2	0	0	Protected (Split)	N/A
SB Approach	30	1	0	0	Protected (Split)	N/A
EB Approach	45	1	3	0	Protected	Protected
WB Approach	45	2	2	0	Protected	Protected

Additional information (if necessary): In the future proposed scenario, the intersection will be reconfigured – the existing eastbound approach will be the future southbound approach, the existing westbound and northbound approaches will remain, the existing southbound approach will no longer be a part of the signalized intersection.

Intersection Engineering Assessment

Protected left-turn phasing is required since each approach with left turns will have more than one left turn lane.

WORKSHEET 1 - NB Approach Evaluation

Place "X" for Factors	<p>When making Left-Turn phasing decisions, the engineer should document their consideration of the factors in boxes 1-7 that most influence left-turn phase selection. Additional factors may be considered and documentation of those factors can be included in box 8. It is not necessary to consider all items if one (or more) items clearly support a specific Left-Turn phasing decision. Refer to VDOT's "Guidance for Determination and Documentation of Left-Turn Phasing" when completing this worksheet.</p>
<input type="checkbox"/>	<p>1) Turn Lanes & Intersection Geometry</p> <p>a. Number of Left turn Lanes: Exclusive – XX Shared - XX</p> <p>b. Concurrent opposing Left-Turn movements possible within intersection? Choose an item.</p> <p>c. Intersection geometry commentary: Click here to enter text.</p>
<input type="checkbox"/>	<p>2) Sight Distance</p> <p>a. Measured sight distance at stop line: Click here to enter text.</p> <p>b. Sight distance speed evaluated: Click here to enter text.</p> <p>c. AASHTO sight distance requirement: Click here to enter text.</p> <p>d. AASHTO sight distance met at stop line? Choose an item.</p> <p>e. Sight distance commentary: Click here to enter text.</p>
<input type="checkbox"/>	<p>3) Correctable Left-Turn Crashes</p> <p>a. Total approach Left-Turn crashes or crash rate(s): Click here to enter text.</p> <p>b. Time period evaluated and source of information: Click here to enter text.</p> <p>c. Left turn crash commentary: Click here to enter text.</p>
<input type="checkbox"/>	<p>4) Crossing Distance & Opposing Lanes</p> <p>a. Number of lanes to be crossed: Through - XX Right-Turn - XX</p> <p>b. Measured crossing width: Click here to enter text.</p> <p>c. Crossing distance commentary: Click here to enter text.</p>
<input type="checkbox"/>	<p>5) Critical Crossing Gaps</p> <p>a. Cross product: Max. - XXXXXX Min. - XXXXXX Peak hour(s) - XXXXXX Traffic volume source: Click here to enter text.</p> <p>b. Optional gap study results: Click here to enter text.</p> <p>c. Critical crossing gap commentary: Click here to enter text.</p>
<input type="checkbox"/>	<p>6) Friction of Receiving Facility</p> <p>a. Number of receiving lanes: XX Receiving lane width(s): XX</p> <p>b. Other features of receiving lanes: Click here to enter text.</p> <p>c. Receiving facility commentary: Click here to enter text.</p>
<input type="checkbox"/>	<p>7) Display Consistency, Other Modes, and Network Considerations</p> <p>a. Signal display and operational consistency: Click here to enter text.</p> <p>b. Pedestrian, bicycle and/or other mode considerations: Click here to enter text.</p> <p>c. Operational impacts of phasing modes: Click here to enter text.</p> <p>d. Additional commentary: Click here to enter text.</p>
<input type="checkbox"/>	<p>8) Other Factors</p> <p>Click here to enter text.</p>

NB Approach Engineering Assessment

[There are no proposed left turn lanes for the northbound approach. No phasing evaluation is needed for the approach.](#)

WORKSHEET 2 - SB Approach Evaluation

Place "X" for Factors	<p><i>When making left-turn phasing decisions, the engineer should document their consideration of the factors in boxes 1-7 that most influence left-turn phase selection. Additional factors may be considered and documentation of those factors can be included in box 8. It is not necessary to consider all items if one (or more) items clearly support a specific left-turn phasing decision. Refer to VDOT's "Guidance for Determination and Documentation of Left-Turn Phasing" when completing this worksheet.</i></p>
<input type="checkbox"/>	<p>1) Turn Lanes & Intersection Geometry</p> <p>a. Number of Left-Turn Lanes: Exclusive - XX Shared - XX</p> <p>b. Concurrent opposing left-turn movements possible within intersection? Choose an item.</p> <p>c. Intersection geometry commentary: Click here to enter text.</p>
<input type="checkbox"/>	<p>2) Sight Distance</p> <p>a. Measured sight distance at stop line: Click here to enter text.</p> <p>b. Sight distance speed evaluated: Click here to enter text.</p> <p>c. AASHTO sight distance requirement: Click here to enter text.</p> <p>d. AASHTO sight distance met at stop line? Choose an item.</p> <p>e. Sight distance commentary: Click here to enter text.</p>
<input type="checkbox"/>	<p>3) Correctable Left-Turn Crashes</p> <p>a. Total approach left-turn crashes or crash rate(s): Click here to enter text.</p> <p>b. Time period evaluated and source of information: Click here to enter text.</p> <p>c. Left turn crash commentary: Click here to enter text.</p>
<input type="checkbox"/>	<p>4) Crossing Distance & Opposing Lanes</p> <p>a. Number of lanes to be crossed: Through - XX Right-Turn - XX</p> <p>b. Measured crossing width: Click here to enter text.</p> <p>c. Crossing distance commentary: Click here to enter text.</p>
<input type="checkbox"/>	<p>5) Critical Crossing Gaps</p> <p>a. Cross product: Max. - XXXXXX Min. - XXXXXX Peak hour(s) - XXXXXX Traffic volume source: Click here to enter text.</p> <p>b. Optional gap study results: Click here to enter text.</p> <p>c. Critical crossing gap commentary: Click here to enter text.</p>
<input type="checkbox"/>	<p>6) Friction of Receiving Facility</p> <p>a. Number of receiving lanes: XX Receiving lane width(s): XX</p> <p>b. Other features of receiving lanes: Click here to enter text.</p> <p>c. Receiving facility commentary: Click here to enter text.</p>
<input type="checkbox"/>	<p>7) Display Consistency, Other Modes, and Network Considerations</p> <p>a. Signal display and operational consistency: Click here to enter text.</p> <p>b. Pedestrian, bicycle and/or other mode considerations: Click here to enter text.</p> <p>c. Operational impacts of phasing modes: Click here to enter text.</p> <p>d. Additional commentary: Click here to enter text.</p>
<input type="checkbox"/>	<p>8) Other Factors</p> <p>Click here to enter text.</p>

SB Approach Engineering Assessment

[There are no proposed left turn lanes for the southbound approach. No phasing evaluation is needed for the approach.](#)

WORKSHEET 3 - EB Approach

Place "X" for Factors	<p>When making left-turn phasing decisions, the engineer should document their consideration of the factors in boxes 1-7 that most influence left-turn phase selection. Additional factors may be considered and documentation of those factors can be included in box 8. It is not necessary to consider all items if one (or more) items clearly support a specific left-turn phasing decision. Refer to VDOT's "Guidance for Determination and Documentation of Left-Turn Phasing" when completing this worksheet.</p>
<input checked="" type="checkbox"/>	<p>1) Turn Lanes & Intersection Geometry</p> <p>a. Number of Left turn Lanes: Exclusive - 3 Shared - 0</p> <p>b. Concurrent opposing left-turn movements possible within intersection? No</p> <p>c. Intersection geometry commentary: Since there are three exclusive left turn lanes for the approach, protected left turn phasing is required.</p>
<input type="checkbox"/>	<p>2) Sight Distance</p> <p>a. Measured sight distance at stop line: Click here to enter text.</p> <p>b. Sight distance speed evaluated: Click here to enter text.</p> <p>c. AASHTO sight distance requirement: Click here to enter text.</p> <p>d. AASHTO sight distance met at stop line? Choose an item.</p> <p>e. Sight distance commentary: Click here to enter text.</p>
<input type="checkbox"/>	<p>3) Correctable Left-Turn Crashes</p> <p>a. Total approach left-turn crashes or crash rate(s): Click here to enter text.</p> <p>b. Time period evaluated and source of information: Click here to enter text.</p> <p>c. Left turn crash commentary: Click here to enter text.</p>
<input type="checkbox"/>	<p>4) Crossing Distance & Opposing Lanes</p> <p>a. Number of lanes to be crossed: Through - XX Right-Turn - XX</p> <p>b. Measured crossing width: Click here to enter text.</p> <p>c. Crossing distance commentary: Click here to enter text.</p>
<input type="checkbox"/>	<p>5) Critical Crossing Gaps</p> <p>a. Cross product: Max. - XXXXXX Min. - XXXXXX Peak hour(s) - XXXXXX Traffic volume source: Click here to enter text.</p> <p>b. Optional gap study results: Click here to enter text.</p> <p>c. Critical crossing gap commentary: Click here to enter text.</p>
<input type="checkbox"/>	<p>6) Friction of Receiving Facility</p> <p>a. Number of receiving lanes: XX Receiving lane width(s): XX</p> <p>b. Other features of receiving lanes: Click here to enter text.</p> <p>c. Receiving facility commentary: Click here to enter text.</p>
<input type="checkbox"/>	<p>7) Display Consistency, Other Modes, and Network Considerations</p> <p>a. Signal display and operational consistency: Click here to enter text.</p> <p>b. Pedestrian, bicycle and/or other mode considerations: Click here to enter text.</p> <p>c. Operational impacts of phasing modes: Click here to enter text.</p> <p>d. Additional commentary: Click here to enter text.</p>
<input type="checkbox"/>	<p>8) Other Factors</p> <p>Click here to enter text.</p>

EB Approach Engineering Assessment

Since there are three exclusive left turn lanes for the approach, protected left turn phasing is required.

WORKSHEET 4 - WB Approach

Place "X" for Factors	When making left-turn phasing decisions, the engineer should document their consideration of the factors in boxes 1-7 that most influence left-turn phase selection. Additional factors may be considered and documentation of those factors can be included in box 8. It is not necessary to consider all items if one (or more) items clearly support a specific left-turn phasing decision. Refer to VDOT's "Guidance for Determination and Documentation of Left-Turn Phasing" when completing this worksheet.
<input checked="" type="checkbox"/>	1) Turn Lanes & Intersection Geometry a. Number of Left turn Lanes: Exclusive - 2 Shared - 0 b. Concurrent opposing left-turn movements possible within intersection? No c. Intersection geometry commentary: Since there are two exclusive left turn lanes for the approach, protected left-turn phasing is required.
<input type="checkbox"/>	2) Sight Distance a. Measured sight distance at stop line: Click here to enter text. b. Sight distance speed evaluated: Click here to enter text. c. AASHTO sight distance requirement: Click here to enter text. d. AASHTO sight distance met at stop line? Choose an item. e. Sight distance commentary: Click here to enter text.
<input type="checkbox"/>	3) Correctable Left-Turn Crashes a. Total approach left-turn crashes or crash rate(s): Click here to enter text. b. Time period evaluated and source of information: Click here to enter text. c. Left turn crash commentary: Click here to enter text.
<input type="checkbox"/>	4) Crossing Distance & Opposing Lanes a. Number of lanes to be crossed: Through - XX Right-Turn - XX b. Measured crossing width: Click here to enter text. c. Crossing distance commentary: Click here to enter text.
<input type="checkbox"/>	5) Critical Crossing Gaps a. Cross product: Max. - XXXXXX Min. - XXXXXX Peak hour(s) - XXXXXX Traffic volume source: Click here to enter text. b. Optional gap study results: Click here to enter text. c. Critical crossing gap commentary: Click here to enter text.
<input checked="" type="checkbox"/>	6) Friction of Receiving Facility a. Number of receiving lanes: 3 Receiving lane width(s): 12' b. Other features of receiving lanes: Click here to enter text. c. Receiving facility commentary: Click here to enter text.
<input checked="" type="checkbox"/>	7) Display Consistency, Other Modes, and Network Considerations a. Signal display and operational consistency: Click here to enter text. b. Pedestrian, bicycle and/or other mode considerations: There is a proposed pedestrian crossing across the westbound and northbound approaches. The westbound crossing is a shared use path – both pedestrians and bikes can cross. c. Operational impacts of phasing modes: Click here to enter text. d. Additional commentary: Click here to enter text.
<input type="checkbox"/>	8) Other Factors Click here to enter text.

WB Approach Engineering Assessment

Since there are two exclusive left turn lanes for the approach, protected left-turn phasing is required.

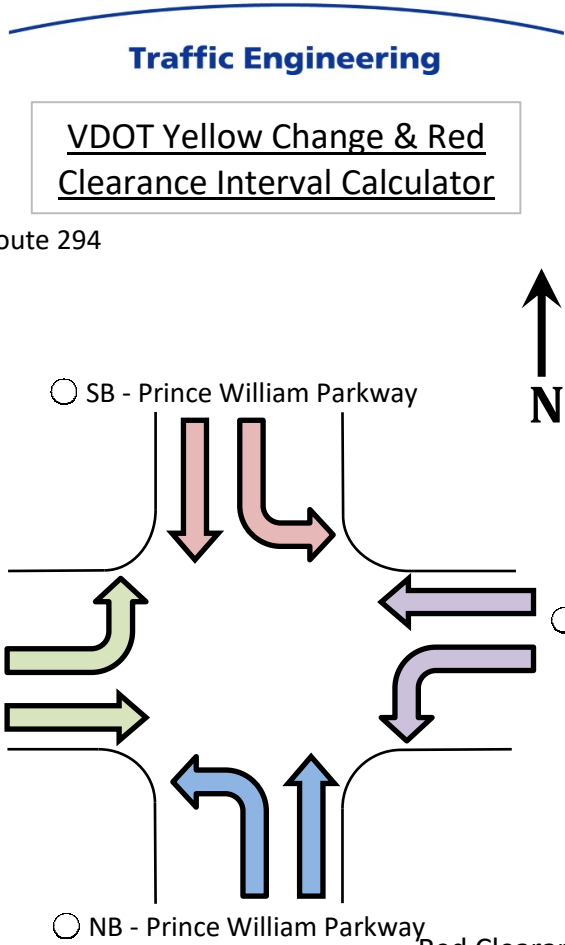
Appendix L: Clearance Interval Calculations

Intersection Information:

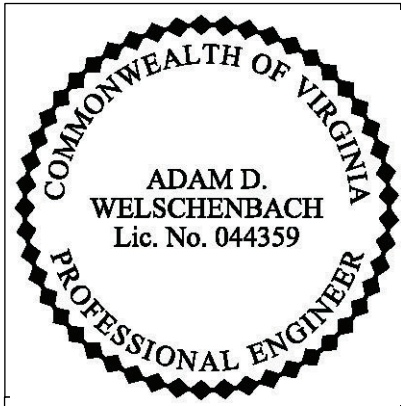
Operations Region: Northern
 Locality: Prince William County
 Intersection Node: N/A
 Reference #: N/A
 NB/SB Street: Prince William Parkway - Route 294
 EB/WB Street: Old Bridge Road

Additional Notes:

○ EB - Old Bridge Road



VDOT Yellow Change & Red Clearance Interval Calculator



Name: Adam Welschenbach
 Company: Rinker Design Associates
 Date: 8/27/2024
 Implementation Date:
 By:

Yellow Change Interval:

$$Y = t + \frac{1.47 * V}{2a + 64.4g} \quad a = 10 \text{ ft/s}^2 \quad t = 1 \text{ s}$$

Red Clearance Interval:

$$R = \frac{w + L}{1.47 * V} - 1 \quad V_{LTS} \text{ is used in place of } V \text{ for calculation of } R_{lt}$$

Approach - Street - Movement	V (mph)*	V data	g	V _{LTS} (mph)*	L (ft)*	w (ft)*	Y (s)**	R (s)**
NB - Prince William Parkway - Through	52	SL + 7	0.01		20	295	4.7	3.1
NB - Prince William Parkway - Left	40	SL - 5	0.01	20	20		3.8	
SB - Prince William Parkway - Through	52	SL + 7	0.00		20	115	4.8	0.8 (1.0)
SB - Prince William Parkway - Left	40	SL - 5	0.00	20	20	115	3.9	3.6
EB - Old Bridge Road - Through								
EB - Old Bridge Road - Left								
WB - Old Bridge Road - Through	52	SL + 7	0.02		20	163	4.6	1.4
WB - Old Bridge Road - Left	40	SL - 5	0.02	20	20	182	3.8	5.9

Engineering judgment applied for all numbers in red and italics. Provide supporting documentation.
**** Calculated intervals in blue indicate values below the minimum required time. ****

Phase Street - Movement	Right Turn Overlap	Left Turn Phase Type	Y Output Phase Adjusted	R Output Phase Adjusted	Controller Input Y	Controller Input R
2 SB - Prince William Parkway - Through			4.8	1.0	4.8	1.0
4 WB - Old Bridge Road - Through		Split - Separate Signals	4.6	5.9	4.6	5.9
5 SB - Prince William Parkway - Left	B - WBR	Protected	3.9	3.6	3.9	3.6
6 NB - Prince William Parkway - Through			4.7	3.1	4.7	3.1

Appendix M: Safety Analysis



MEMORANDUM

SUBJECT: Route 294 (Prince William Parkway) & Old Bridge Road Crash Modification Factors

DATE: Tuesday, April 11, 2023

The purpose of this memo is to review potential safety benefits by realigning the existing Prince William Parkway & Old Bridge Road intersection, a conventional four-leg signalized intersection, as a T configuration.

Safety Analysis

AASHTO's Highway Safety Manual (HSM) presents a variety of quantitative methods for estimating crash frequency or severity for various facility types. This quantitative safety analysis focuses on the review of available crash modification factors (CMFs) and their application to the conversion from a conventional four-leg intersection to two T-intersections, as requested by VDOT in the review of the Prince William Parkway & Old Bridge Road Traffic Analysis.

Intersection Reconfiguration

The existing Prince William Parkway & Old Bridge Road/Touchstone Circle intersection is a conventional 4-leg signalized intersection. With the existing configuration, drivers traveling northbound must turn left to stay on Prince William Parkway.

This project will realign Prince William Parkway (Rte. 294) as a 6-lane roadway and realign Old Bridge Road (Rte. 641) as a 4-lane roadway to meet at a T-intersection. The Prince William Parkway realignment will be the primary thru movement with 11 and/or 12-foot lanes, a variable-width raised median, a 5-foot sidewalk along the eastbound lanes, and a 10-foot shared use path (SUP) along the westbound lanes. The Old Bridge Road realignment will be the secondary movement with 11 and/or 12-foot lanes, a raised median, and 5-foot sidewalks on both sides of the roadway. The project includes access management, turn lanes, intersection improvements, and a signal modification at the main T-intersection. A Service Road will be provided along the eastbound lanes of Prince William Parkway to reduce driveway entrances.

Existing Crashes

Crash data was collected from 2018 through 2020 for Prince William Parkway & Old Bridge Road/Touchstone Circle and between the intersection and the adjacent intersection in each direction. In the three-year period there were 51 reported crashes, which ranged in severity from property damage to personal body injury.

Figure 1 illustrates the crash types that occurred in the three-year period. As shown in **Figure 1**, the majority of crashes occurred along the approaches to the intersection, rather than within the existing intersection.



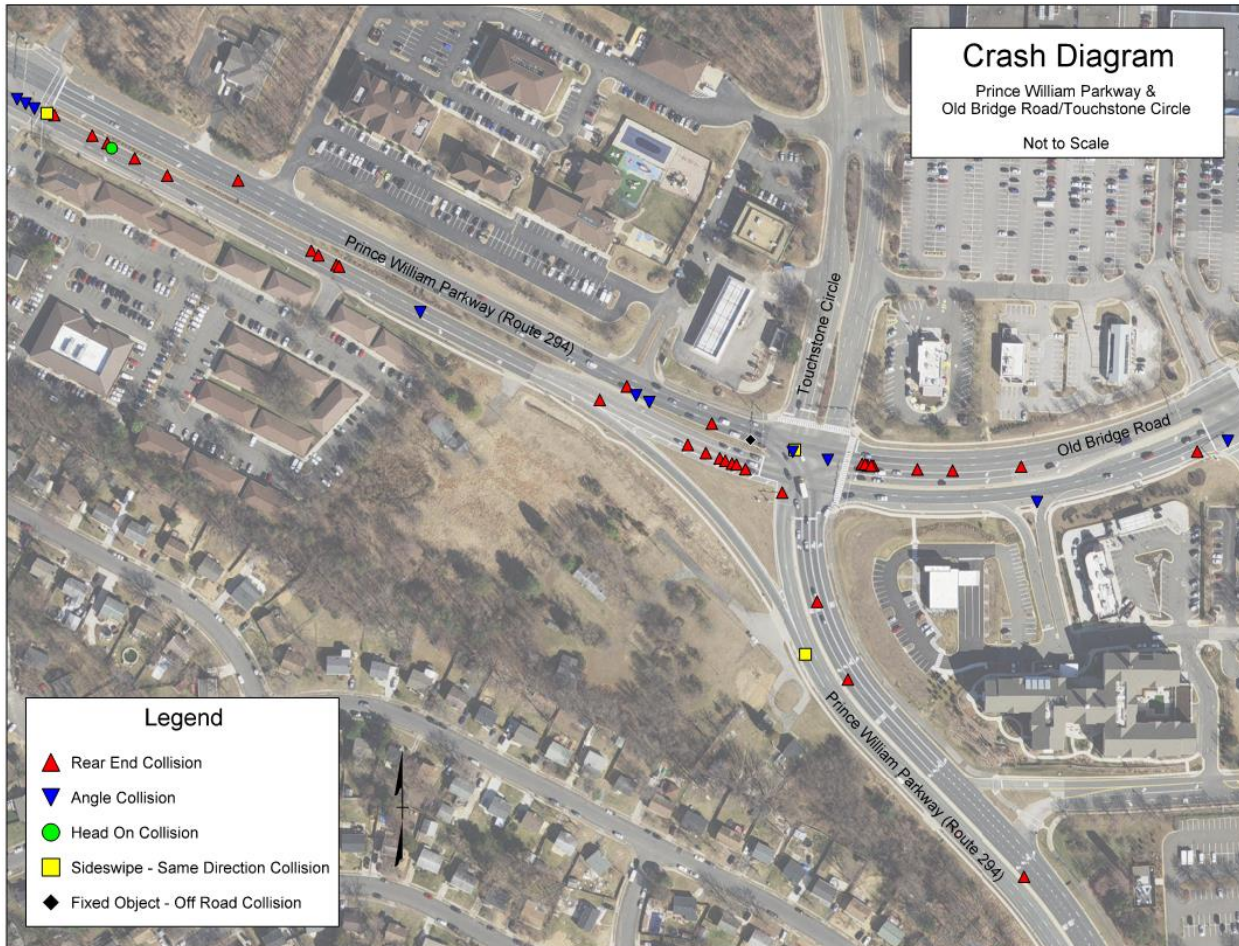


Figure 1: Crash Diagram

Crash Modification Factors

This project will realign Prince William Parkway (Rte. 294) as a 6-lane roadway and realign Old Bridge Road (Rte. 641) as a 4-lane roadway to meet at a signalized T-intersection, and offset Touchstone Circle to meet Old Bridge Road as a stop-controlled T-intersection. VDOT's Virginia State Preferred CMF List was utilized to select countermeasures that meet the proposed design elements of the intersection. A summary of individual design elements that may contribute to safety within the Prince William Parkway & Old Bridge Road project limits is discussed below. The realignment of Prince William Parkway as a through movement, from the existing left-turn movement is difficult to quantify the benefits for since it is not a typical upgrade. Countermeasures were selected using the most closely related design elements. **Table 1** summarizes the relevant CMFs.

Table 1: CMF Summary & Predicted Crash Frequency

Design Element	Crash Type (Severity)	CMF	Existing Crash Frequency (crashes/yr)	Predicted Crash Frequency (crashes/yr)
Change Number of Approaches with Left-Turn Lanes from 4 Approaches to 3 Approaches	All	1.23	17	20.91 (+3.91)
Change the Number of Approaches with Right-Turn Lanes from 3 Approaches to 2 Approaches	All	1.04	17	17.68 (+0.68)
Channelize Right Turn	All	0.88	17	14.96 (-2.04)
Add Median Pedestrian Island	Vehicle-Pedestrian	0.75	0	0
Convert 4-leg Intersection to Two Offset T-Intersections	All	1	8	8 (+0.00)
Pavement Resurfacing - Urban	All	0.929	6	5.57 (-0.43)

A summary of individual design elements that may contribute to safety along Prince William and Old Bridge Road is discussed below.

- The number of approaches with left-turn lanes would be reduced from 4 approaches to 2 approaches with the Build Alternative. The Virginia State Preferred CMF List provided by VDOT describes the relationship between predicted crash frequency and the change in number of approaches with left-turn lanes. Based on this, the predicted crash frequency for all crash types may increase by approximately 23% or 3-4 crashes per year.
- The number of approaches with right-turn lanes would be reduced from 3 approaches to 2 approaches with the Build Alternative. The Virginia State Preferred CMF List provided by VDOT describes the relationship between predicted crash frequency and the change in number of approaches with right-turn lanes. Based on this, the predicted crash frequency for all crash types may increase by approximately 4% or less than one crash per year.
- A channelized right-turn lane will be added in the northbound direction in the Build Alternative. The Virginia State Preferred CMF List provided by VDOT shows the crash modification factor as 0.88 for all severities. Based on this, the predicted crash frequency for all crash types may decrease by approximately 12% or 2-3 crashes per year.

- Median pedestrian islands will be added with the Build Alternative. The Virginia State Preferred CMF List shows the crash modification as 0.75 for vehicle-pedestrian crashes. However, there have been no vehicle-pedestrian crashes within the study area. Therefore, this design element is not expected to make a difference in crash frequency.
- Along with the intersection reconfiguration, pavement resurfacing will take place along approaches to the Prince William Parkway & Old Bridge Road intersection. Over the three-year crash history, about 6 crashes occurred each year in areas that will be milled and overlaid. The predicted crash frequency is expected to be reduced by 0-1 crashes per year.

Conclusion

As noted above, a number of the elements of the project would provide safety benefits to the Prince William Parkway & Old Bridge Road intersection by reducing the potential for crashes, while others have the potential to increase crashes. The potential increase in crashes from the reduction of turn lanes may be offset by the other design elements.

