

final report

August 14, 2020

Traffic Impact Study

*Medical Office Building
2800 Breckenridge Lane
Louisville, KY*

Prepared for

**Louisville Metro Planning Commission
Kentucky Transportation Cabinet**



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INTRODUCTION

The development plan for 2800 Breckenridge Lane in Louisville, KY shows a medical office building with 125,373 square feet. The site is currently occupied by the Breckenridge Inn. **Figure 1** displays a map of the site. Access to the site will be from Deebet Drive. The purpose of this study is to examine the traffic impacts of the development upon the adjacent highway system. For this study, the impact area was defined to be the intersections of Breckenridge Lane with Deebet Drive/Hillbrook Drive, and Taylorsville Road. This study builds upon the Advanced ENT and Allergy Traffic Impact Study dated April 9, 2018.



Figure 1. Site Map

EXISTING CONDITIONS

Breckenridge Lane (KY 1932) is a state-maintained road with an estimated 2020 ADT of 30,000 vehicles per day between Taylorsville Road (KY 155) and I 264, as provided by a Kentucky Transportation Cabinet 2015 count at station 152. The road has four twelve-foot lanes, curb and gutter, and center turn lane. The speed limit is 35 mph. There are sidewalks. The intersections with Deebet Drive/Hillbrook Drive, Taylorsville Road are controlled with a traffic signal. Breckenridge Lane is served by TARC.

The turning movement count data for the intersections are the “Build” volumes from the Advanced ENT and Allergy Traffic Impact Study dated April 9, 2018. **Figure 2** illustrates the a.m. and p.m. peak hour traffic volumes.

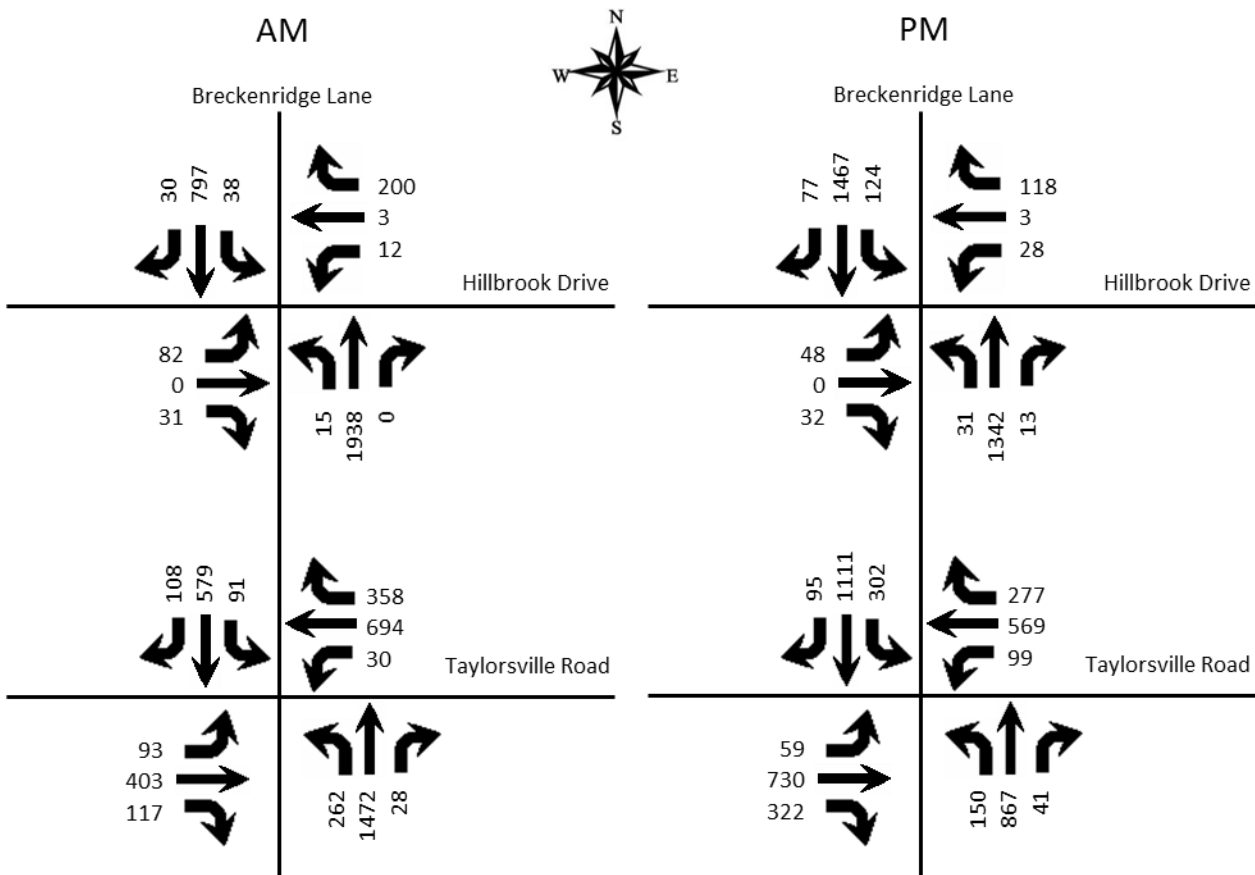


Figure 2. Existing Peak Hour Volumes

TRIP GENERATION

The Institute of Transportation Engineers [Trip Generation Manual](#), 10th Edition contains trip generation rates for a wide range of developments. The land use of “Medical-Dental Office (720)” was reviewed and determined to be the best match. The trip generation for the 123-room hotel are shown as subtracted in the table. The trip generation results are listed in **Table 1**. The trips were assigned to the highway network using the percentages shown in **Figure 3**. **Figure 4** shows the trips generated by this development and distributed throughout the road network during the peak hours. **Figure 5** displays the individual turning movements for the peak hours when the development is completed.

Table 1. Peak Hour Trips Generated by Site

Land Use	A.M. Peak Hour			P.M. Peak Hour		
	Trips	In	Out	Trips	In	Out
Medical-Dental Office (125,373 sq. ft.)	273	213	60	427	120	307
Hotel (123 rooms)	56	33	23	66	34	32
NEW TRIPS	217	180	43	361	86	284



Figure 3. Trip Distribution Percentages

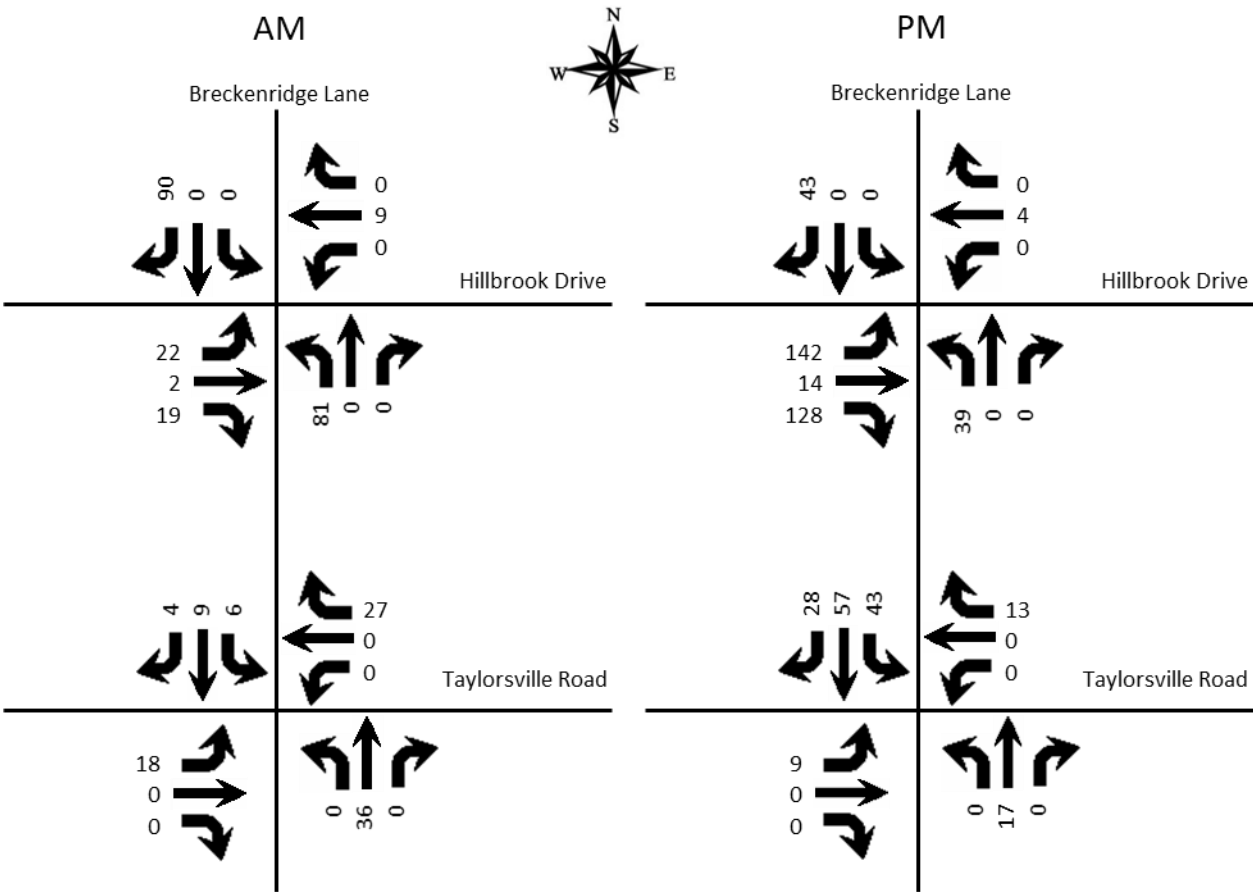


Figure 4. Peak Hour Trips Generated by Site

Figure 5. Build Peak Hour Trips

ANALYSIS

The qualitative measure of operation for a roadway facility or intersection is evaluated by assigning a “Level of Service”. Level of Service is a ranking scale from A through F, “A” is the best operating condition and “F” is the worst. Level of Service results depend upon the facility that is analyzed. In this case, the Level of Service is based upon the total delay experienced at an intersection.

To evaluate the impact of the proposed development, the vehicle delays at the intersections were determined using procedures detailed in the Highway Capacity Manual, 6th edition. Future delays and Level of Service were determined for the intersections using Synchro (version 10.1) software. The delays and Level of Service are summarized in **Table 2**.

Traffic volumes on Breckenridge Lane have shown a decline since 2009. Therefore, the analysis years of 2021 and 2031 are the same.

Table 2. Level of Service Results

	A.M.			P.M.		
Approach	2020 No Build	2021 & 2031 Build	Add Left Turn	2020 No Build	2021 & 2031 Build	Add Left Turn
Breckenridge Lane at Hillbrook Drive	D 43.0	D 46.9	C 29.6	C 34.0	E 73.2	D 41.9
Deebet Drive Eastbound	F 125.1	F 180.7	E 73.8	E 68.2	F 202.1	E 71.7
Hillbrook Drive Westbound	F 136.2	F 147.0	E 70.2	E 79.4	F 330.2	E 61.9
Breckenridge Lane Northbound	D 39.2	D 38.2	C 28.3	D 47.1	C 33.2	C 24.5
Breckenridge Lane Southbound	B 17.9	C 20.3	B 15.7	B 17.3	E 60.6	D 52.9
Breckenridge Lane at Taylorsville Rd	F 104.9	F 108.8	F 108.8	E 71.7	E 75.5	E 75.5
Taylorsville Road Eastbound	F 194.8	F 193.3	F 193.3	F 95.9	F 95.8	F 95.8
Taylorsville Road Westbound	F 90.7	F 99.4	F 99.4	D 50.6	D 53.4	D 53.4
Breckenridge Lane Northbound	E 63.4	E 64.2	E 64.2	E 72.2	E 73.3	E 73.3
Breckenridge Lane Southbound	E 59.6	E 61.7	E 61.7	E 66.4	E 76.1	E 76.1

Key: Level of Service, Delay in seconds per vehicle

To mitigate the increase in delays on Deebet Drive caused by the increase in volume from this development, a separate left turn lane on Deebet Drive at Breckenridge Lane will be needed. The left lane needs to be 325 feet long, the center lane needs to be 50 feet long and the right turn lane needs to be 75 feet long.

CONCLUSIONS

Based upon the volume of traffic generated by the development there will be an impact to the existing highway network. The impact can be successfully mitigated by adding a dedicated left turn lane on Deebet Drive.






















APPENDIX

SYNCHRO Reports

HCM 6th Signalized Intersection Summary

8: Breckenridge Ln/KY 1932 & Deebet Dr/Hillbrook Dr

04/09/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	82	0	31	12	3	200	15	1938	3	38	797	30
Future Volume (veh/h)	82	0	31	12	3	200	15	1938	3	38	797	30
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	85	0	32	12	3	208	16	2019	3	40	830	31
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	90	0	391	21	13	181	399	2267	3	115	2206	82
Arrive On Green	0.25	0.00	0.25	0.25	0.25	0.25	0.02	0.62	0.62	0.02	0.63	0.63
Sat Flow, veh/h	204	0	1585	0	53	733	1781	3641	5	1781	3493	130
Grp Volume(v), veh/h	85	0	32	223	0	0	16	985	1037	40	422	439
Grp Sat Flow(s), veh/h/ln	204	0	1585	786	0	0	1781	1777	1869	1781	1777	1847
Q Serve(g_s), s	0.0	0.0	2.8	0.0	0.0	0.0	0.6	84.5	84.6	1.5	20.7	20.7
Cycle Q Clear(g_c), s	44.4	0.0	2.8	44.4	0.0	0.0	0.6	84.5	84.6	1.5	20.7	20.7
Prop In Lane	1.00		1.00	0.05		0.93	1.00		0.00	1.00		0.07
Lane Grp Cap(c), veh/h	90	0	391	215	0	0	399	1106	1164	115	1122	1166
V/C Ratio(X)	0.94	0.00	0.08	1.04	0.00	0.00	0.04	0.89	0.89	0.35	0.38	0.38
Avail Cap(c_a), veh/h	90	0	391	215	0	0	565	1106	1164	265	1122	1166
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	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	76.9	0.0	52.1	64.7	0.0	0.0	12.9	28.8	28.8	36.0	16.0	16.0
Incr Delay (d2), s/veh	75.7	0.0	0.1	71.4	0.0	0.0	0.0	10.8	10.4	1.8	1.0	0.9
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	5.9	0.0	1.1	13.2	0.0	0.0	0.2	38.2	40.1	1.1	8.8	9.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	152.6	0.0	52.2	136.2	0.0	0.0	13.0	39.6	39.2	37.8	17.0	17.0
LnGrp LOS	F	A	D	F	A	A	B	D	D	D	B	B
Approach Vol, veh/h	117			223			2038			901		
Approach Delay, s/veh	125.1			136.2			39.2			17.9		
Approach LOS	F			F			D			B		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.8	118.2		51.0	9.3	119.7		51.0				
Change Period (Y+Rc), s	6.5	* 6.1		6.6	6.5	* 6.1		6.6				
Max Green Setting (Gmax), s	19.5	* 97		44.4	19.5	* 97		44.4				
Max Q Clear Time (g_c+I1), s	3.5	86.6		46.4	2.6	0.0		46.4				
Green Ext Time (p_c), s	0.1	8.5		0.0	0.0	0.0		0.0				

Intersection Summary

HCM 6th Ctrl Delay 43.0

























HCM 6th LOS D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
504: Breckenridge Ln & Taylorsville Rd






















04/09/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL2	SBL	SBR	NWL	NWR	NWR2
Lane Configurations												
Traffic Volume (veh/h)	93	403	117	30	694	358	91	579	108	262	1472	28
Future Volume (veh/h)	93	403	117	30	694	358	91	579	108	262	1472	28
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	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	97	420	122	31	723	373	95	95	0	273	0	0
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	116	311	139	373	823	367	113	113		460		
Arrive On Green	0.07	0.09	0.09	0.21	0.23	0.23	0.06	0.06	0.00	0.26	0.00	0.00
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	1781	1585	1781	0	0
Grp Volume(v), veh/h	97	420	122	31	723	373	95	95	0	273	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1781	1585	1781	0	0
Q Serve(g_s), s	9.7	15.8	13.7	2.5	35.3	41.7	9.5	9.5	0.0	24.2	0.0	0.0
Cycle Q Clear(g_c), s	9.7	15.8	13.7	2.5	35.3	41.7	9.5	9.5	0.0	24.2	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.00	0.00
Lane Grp Cap(c), veh/h	116	311	139	373	823	367	113	113		460		
V/C Ratio(X)	0.84	1.35	0.88	0.08	0.88	1.02	0.84	0.84		0.59		
Avail Cap(c_a), veh/h	175	843	376	373	823	367	153	153		460		
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	0.98	0.98	0.98	1.00	1.00	0.00	0.56	0.00	0.00
Uniform Delay (d), s/veh	83.2	82.1	81.2	57.3	66.7	69.2	83.3	83.3	0.0	58.5	0.0	0.0
Incr Delay (d2), s/veh	19.1	162.4	15.8	0.1	10.5	50.5	24.6	24.6	0.0	1.2	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	5.1	14.3	6.2	1.2	17.2	22.0	5.2	5.2	0.0	11.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	102.3	244.5	97.0	57.4	77.2	119.7	108.0	108.0	0.0	59.6	0.0	0.0
LnGrp LOS	F	F	F	E	E	F	F	F		E		
Approach Vol, veh/h		639			1127		698	698	A	273	A	A
Approach Delay, s/veh		194.8			90.7		63.4	63.4		59.6		
Approach LOS		F			F		E	E		E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	19.0	95.0	43.9	22.1	54.0	60.0	18.0	48.0				
Change Period (Y+Rc), s	7.5	7.5	* 6.3	* 6.3	7.5	7.5	* 6.3	* 6.3				
Max Green Setting (Gmax), s	15.5	77.5	* 17	* 43	40.5	52.5	* 18	* 42				
Max Q Clear Time (g_c+I1), s	11.5	0.0	4.5	15.7	26.2	0.0	11.7	43.7				
Green Ext Time (p_c), s	0.1	0.0	0.0	0.1	0.7	0.0	0.1	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			104.9									
HCM 6th LOS			F									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												
Unsignalized Delay for [NWR2, SBR] is excluded from calculations of the approach delay and intersection delay.												

HCM 6th Signalized Intersection Summary

























8: Breckenridge Ln & Deebet Dr/Hillbrook Dr & KY 1932

04/09/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL2	SBL	SBR	NWL	NWR	NWR2
Lane Configurations								 			 	
Traffic Volume (veh/h)	48	0	32	28	3	118	124	1432	77	31	1303	13
Future Volume (veh/h)	48	0	32	28	3	118	124	1432	77	31	1303	13
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	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	50	0	33	29	3	123	129	129	80	32	14	14
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	128	0	273	43	18	140	236	236	129	233	25	25
Arrive On Green	0.17	0.00	0.17	0.17	0.17	0.17	0.03	0.03	0.70	0.01	0.23	0.23
Sat Flow, veh/h	511	0	1585	109	102	813	1781	1781	185	1781	36	36
Grp Volume(v), veh/h	50	0	33	155	0	0	129	129	794	32	728	728
Grp Sat Flow(s),veh/h/ln	511	0	1585	1024	0	0	1781	1781	1837	1781	1864	1864
Q Serve(g_s), s	0.0	0.0	3.2	8.9	0.0	0.0	3.9	3.9	41.3	1.0	62.5	62.5
Cycle Q Clear(g_c), s	19.3	0.0	3.2	28.2	0.0	0.0	3.9	3.9	41.3	1.0	62.5	62.5
Prop In Lane	1.00		1.00	0.19		0.79	1.00	1.00	0.10	1.00	0.02	0.02
Lane Grp Cap(c), veh/h	128	0	273	200	0	0	236	236	1283	233	1279	1279
V/C Ratio(X)	0.39	0.00	0.12	0.77	0.00	0.00	0.55	0.55	0.62	0.14	0.57	0.57
Avail Cap(c_a), veh/h	257	0	435	358	0	0	417	417	1283	436	1279	1279
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	69.6	0.0	62.9	73.2	0.0	0.0	23.6	23.6	14.4	12.7	46.0	46.0
Incr Delay (d2), s/veh	1.9	0.0	0.2	6.2	0.0	0.0	2.0	2.0	2.2	0.3	1.8	1.8
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	2.2	0.0	1.3	7.5	0.0	0.0	2.9	2.9	17.5	0.4	32.1	32.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	71.5	0.0	63.1	79.4	0.0	0.0	25.6	25.6	16.6	12.9	47.8	47.8
LnGrp LOS	E	A	E	E	A	A	C	C	B	B	D	D
Approach Vol, veh/h	83			155			1701		1701		1403	
Approach Delay, s/veh	68.2			79.4			17.3		17.3		47.1	
Approach LOS	E			E			B		B		D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.7	129.6		37.7	10.5	131.9		37.7				
Change Period (Y+Rc), s	6.5	* 6.1		6.6	6.5	* 6.1		6.6				
Max Green Setting (Gmax), s	24.5	* 87		49.4	24.5	* 87		49.4				
Max Q Clear Time (g_c+I1), s	5.9	64.5		21.3	3.0	0.0		30.2				
Green Ext Time (p_c), s	0.3	9.7		0.3	0.0	0.0		0.8				
Intersection Summary												
HCM 6th Ctrl Delay	34.0											
HCM 6th LOS	C											
Notes												

HCM 6th Signalized Intersection Summary
504: Breckenridge Ln & Taylorsville Rd




















04/09/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	59	730	322	99	569	277	150	867	41	302	1111	95
Future Volume (veh/h)	59	730	322	99	569	277	150	867	41	302	1111	95
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	61	760	335	103	593	289	156	903	0	315	1157	0
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	77	785	350	121	872	389	296	1320		332	1392	
Arrive On Green	0.04	0.22	0.22	0.14	0.49	0.49	0.05	0.12	0.00	0.19	0.39	0.00
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	3647	0	1781	3554	1585
Grp Volume(v), veh/h	61	760	335	103	593	289	156	903	0	315	1157	0
Grp Sat Flow(s), veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1777	0	1781	1777	1585
Q Serve(g_s), s	6.1	38.1	37.6	10.2	22.9	26.3	15.3	43.8	0.0	31.5	52.9	0.0
Cycle Q Clear(g_c), s	6.1	38.1	37.6	10.2	22.9	26.3	15.3	43.8	0.0	31.5	52.9	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	77	785	350	121	872	389	296	1320		332	1392	
V/C Ratio(X)	0.79	0.97	0.96	0.85	0.68	0.74	0.53	0.68		0.95	0.83	
Avail Cap(c_a), veh/h	165	843	376	165	872	389	296	1320		341	1392	
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.99	0.99	0.99	0.73	0.73	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	85.3	69.5	69.2	76.9	40.4	41.3	78.2	68.9	0.0	72.3	49.4	0.0
Incr Delay (d2), s/veh	16.3	22.7	34.1	25.4	2.1	7.4	1.3	2.1	0.0	34.8	5.9	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	3.2	19.8	18.5	5.2	8.8	9.5	7.5	21.5	0.0	17.6	24.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	101.6	92.1	103.3	102.4	42.5	48.7	79.4	71.0	0.0	107.2	55.3	0.0
LnGrp LOS	F	F	F	F	D	D	E	E		F	E	
Approach Vol, veh/h		1156			985			1059	A		1472	A
Approach Delay, s/veh		95.9			50.6			72.2			66.4	
Approach LOS		F			D			E			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	41.1	74.3	18.5	46.1	37.4	78.0	14.1	50.5				
Change Period (Y+Rc), s	7.5	7.5	* 6.3	* 6.3	7.5	7.5	* 6.3	* 6.3				
Max Green Setting (Gmax), s	34.5	58.5	* 17	* 43	22.5	70.5	* 17	* 43				
Max Q Clear Time (g_c+I1), s	33.5	45.8	12.2	39.6	17.3	0.0	8.1	28.3				
Green Ext Time (p_c), s	0.1	2.5	0.1	0.2	0.2	0.0	0.1	0.3				
Intersection Summary												
HCM 6th Ctrl Delay			71.7									
HCM 6th LOS			E									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												
Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.												

HCM 6th Signalized Intersection Summary























8: Breckenridge Ln/KY 1932 & Deebet Dr/Hillbrook Dr

08/14/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	104	2	50	12	12	200	96	1938	3	38	797	120
Future Volume (veh/h)	104	2	50	12	12	200	96	1938	3	38	797	120
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	108	2	52	12	12	208	100	2019	3	40	830	125
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	89	1	391	21	20	175	376	2267	3	115	1901	286
Arrive On Green	0.25	0.25	0.25	0.25	0.25	0.25	0.03	0.62	0.62	0.02	0.61	0.61
Sat Flow, veh/h	201	5	1585	0	82	709	1781	3641	5	1781	3097	466
Grp Volume(v), veh/h	110	0	52	232	0	0	100	985	1037	40	476	479
Grp Sat Flow(s),veh/h/ln	206	0	1585	791	0	0	1781	1777	1869	1781	1777	1786
Q Serve(g_s), s	0.0	0.0	4.6	0.0	0.0	0.0	3.8	84.5	84.6	1.5	25.5	25.5
Cycle Q Clear(g_c), s	44.4	0.0	4.6	44.4	0.0	0.0	3.8	84.5	84.6	1.5	25.5	25.5
Prop In Lane	0.98		1.00	0.05		0.90	1.00		0.00	1.00		0.26
Lane Grp Cap(c), veh/h	90	0	391	216	0	0	376	1106	1164	115	1091	1096
V/C Ratio(X)	1.22	0.00	0.13	1.07	0.00	0.00	0.27	0.89	0.89	0.35	0.44	0.44
Avail Cap(c_a), veh/h	90	0	391	216	0	0	511	1106	1164	265	1091	1096
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	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	77.4	0.0	52.8	64.8	0.0	0.0	14.1	28.8	28.8	35.7	18.3	18.3
Incr Delay (d2), s/veh	163.6	0.0	0.2	82.2	0.0	0.0	0.4	10.8	10.4	1.8	1.3	1.3
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	8.4	0.0	1.9	14.0	0.0	0.0	1.6	38.2	40.1	1.0	10.9	11.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	241.0	0.0	53.0	147.0	0.0	0.0	14.4	39.6	39.2	37.5	19.6	19.6
LnGrp LOS	F	A	D	F	A	A	B	D	D	D	B	B
Approach Vol, veh/h	162			232			2122			995		
Approach Delay, s/veh	180.7			147.0			38.2			20.3		
Approach LOS	F			F			D			C		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.8	118.2		51.0	12.4	116.6		51.0				
Change Period (Y+Rc), s	6.5	* 6.1		6.6	6.5	* 6.1		6.6				
Max Green Setting (Gmax), s	19.5	* 97		44.4	19.5	* 97		44.4				
Max Q Clear Time (g_c+I1), s	3.5	86.6		46.4	5.8	0.0		46.4				
Green Ext Time (p_c), s	0.1	8.5		0.0	0.2	0.0		0.0				
Intersection Summary												
HCM 6th Ctrl Delay	46.9											
HCM 6th LOS	D											

HCM 6th Signalized Intersection Summary
504: Breckenridge Ln & Taylorsville Rd

08/14/2020

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL2	SBL	SBR	NWL	NWR	NWR2	
Lane Configurations													
Traffic Volume (veh/h)	111	403	117	30	694	385	97	588	112	262	1508	28	
Future Volume (veh/h)	111	403	117	30	694	385	97	588	112	262	1508	28	
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	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	116	420	122	31	723	401	101	101	0	273	0	0	
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	
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2	
Cap, veh/h	135	311	139	392	823	367	120	120		441			
Arrive On Green	0.08	0.09	0.09	0.22	0.23	0.23	0.07	0.07	0.00	0.25	0.00	0.00	
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	1781	1585	1781	0	0	
Grp Volume(v), veh/h	116	420	122	31	723	401	101	101	0	273	0	0	
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1781	1585	1781	0	0	
Q Serve(g_s), s	11.6	15.8	13.7	2.5	35.3	41.7	10.1	10.1	0.0	24.5	0.0	0.0	
Cycle Q Clear(g_c), s	11.6	15.8	13.7	2.5	35.3	41.7	10.1	10.1	0.0	24.5	0.0	0.0	
Prop In Lane	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.00	0.00	
Lane Grp Cap(c), veh/h	135	311	139	392	823	367	120	120		441			
V/C Ratio(X)	0.86	1.35	0.88	0.08	0.88	1.09	0.84	0.84		0.62			
Avail Cap(c_a), veh/h	175	843	376	392	823	367	153	153		441			
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	0.98	0.98	0.98	1.00	1.00	0.00	0.56	0.00	0.00	
Uniform Delay (d), s/veh	82.2	82.1	81.2	55.7	66.7	69.2	83.0	83.0	0.0	60.2	0.0	0.0	
Incr Delay (d2), s/veh	26.9	162.4	15.8	0.1	10.5	73.5	27.3	27.3	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	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	6.4	14.3	6.2	1.1	17.2	24.4	5.6	5.6	0.0	11.3	0.0	0.0	
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	109.1	244.5	97.0	55.8	77.2	142.7	110.4	110.4	0.0	61.7	0.0	0.0	
LnGrp LOS	F	F	F	E	E	F	F	F		E			
Approach Vol, veh/h	658			1155			713		713	A	273	A	A
Approach Delay, s/veh	193.3			99.4			64.2		64.2		61.7		
Approach LOS	F			F			E		E		E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	19.6	92.5	45.9	22.1	52.1	60.0	19.9	48.0					
Change Period (Y+Rc), s	7.5	7.5	* 6.3	* 6.3	7.5	7.5	* 6.3	* 6.3					
Max Green Setting (Gmax), s	15.5	77.5	* 17	* 43	40.5	52.5	* 18	* 42					
Max Q Clear Time (g_c+I1), s	12.1	0.0	4.5	15.7	26.5	0.0	13.6	43.7					
Green Ext Time (p_c), s	0.1	0.0	0.0	0.1	0.7	0.0	0.1	0.0					
Intersection Summary													
HCM 6th Ctrl Delay	108.8												
HCM 6th LOS	F												

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NWR2, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary

8: Breckenridge Ln & Deebet Dr/Hillbrook Dr & KY 1932

























08/16/2020

	EBL	EBT	EBR	WBL	WBT	WBR	SBL2	SBL	SBR	NWL	NWR	NWR2
Movement												
Lane Configurations		↗	↘		↗	↘	↗	↘	↗	↘	↗	↘
Traffic Volume (veh/h)	190	14	160	28	7	118	124	1467	120	70	1342	13
Future Volume (veh/h)	190	14	160	28	7	118	124	1467	120	70	1342	13
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	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	198	15	167	29	7	123	129	129	125	73	14	14
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	137	7	435	24	18	63	192	192	161	164	20	20
Arrive On Green	0.27	0.27	0.27	0.27	0.27	0.27	0.04	0.04	0.59	0.01	0.19	0.19
Sat Flow, veh/h	359	27	1585	0	67	229	1781	1781	273	1781	35	35
Grp Volume(v), veh/h	213	0	167	159	0	0	129	129	833	73	750	750
Grp Sat Flow(s),veh/h/ln	386	0	1585	296	0	0	1781	1781	1821	1781	1864	1864
Q Serve(g_s), s	0.0	0.0	15.4	0.0	0.0	0.0	5.4	5.4	62.1	3.0	67.6	67.6
Cycle Q Clear(g_c), s	49.4	0.0	15.4	49.4	0.0	0.0	5.4	5.4	62.1	3.0	67.6	67.6
Prop In Lane	0.93		1.00	0.18		0.77	1.00	1.00	0.15	1.00	0.02	0.02
Lane Grp Cap(c), veh/h	145	0	435	105	0	0	192	192	1076	164	1075	1075
V/C Ratio(X)	1.47	0.00	0.38	1.52	0.00	0.00	0.67	0.67	0.77	0.45	0.70	0.70
Avail Cap(c_a), veh/h	145	0	435	105	0	0	359	359	1076	357	1075	1075
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	71.9	0.0	53.0	55.2	0.0	0.0	33.3	33.3	27.8	28.3	58.2	58.2
Incr Delay (d2), s/veh	246.7	0.0	0.6	275.0	0.0	0.0	4.0	4.0	5.4	1.9	3.8	3.8
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	16.7	0.0	6.3	11.7	0.0	0.0	3.3	3.3	28.3	1.4	35.3	35.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	318.6	0.0	53.5	330.2	0.0	0.0	37.4	37.4	33.2	30.2	62.0	62.0
LnGrp LOS	F	A	D	F	A	A	D	D	C	C	E	E
Approach Vol, veh/h		380			159		1782	1782		1485		
Approach Delay, s/veh		202.1			330.2		33.2	33.2		60.6		
Approach LOS		F			F		C	C		E		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	14.1	109.9		56.0	11.5	112.5		56.0				
Change Period (Y+Rc), s	6.5	* 6.1		6.6	6.5	* 6.1		6.6				
Max Green Setting (Gmax), s	24.5	* 87		49.4	24.5	* 87		49.4				
Max Q Clear Time (g_c+I1), s	7.4	69.6		51.4	5.0	0.0		51.4				
Green Ext Time (p_c), s	0.3	8.8		0.0	0.1	0.0		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			73.2									
HCM 6th LOS			E									
Notes												

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
504: Breckenridge Ln & Taylorsville Rd

08/16/2020

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (veh/h)	68	730	322	99	569	290	150	884	41	345	1168	123	
Future Volume (veh/h)	68	730	322	99	569	290	150	884	41	345	1168	123	
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	71	760	335	103	593	302	156	921	0	359	1217	0	
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	
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2	
Cap, veh/h	88	785	350	121	850	379	296	1302		341	1392		
Arrive On Green	0.05	0.22	0.22	0.14	0.48	0.48	0.05	0.12	0.00	0.19	0.39	0.00	
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	3647	0	1781	3554	1585	
Grp Volume(v), veh/h	71	760	335	103	593	302	156	921	0	359	1217	0	
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1777	0	1781	1777	1585	
Q Serve(g_s), s	7.1	38.1	37.6	10.2	23.5	28.9	15.3	44.8	0.0	34.5	57.0	0.0	
Cycle Q Clear(g_c), s	7.1	38.1	37.6	10.2	23.5	28.9	15.3	44.8	0.0	34.5	57.0	0.0	
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.00	1.00		1.00	
Lane Grp Cap(c), veh/h	88	785	350	121	850	379	296	1302		341	1392		
V/C Ratio(X)	0.80	0.97	0.96	0.85	0.70	0.80	0.53	0.71		1.05	0.87		
Avail Cap(c_a), veh/h	165	843	376	165	850	379	296	1302		341	1392		
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	0.33	0.33	0.33	1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	1.00	0.99	0.99	0.99	0.73	0.73	0.00	1.00	1.00	0.00	
Uniform Delay (d), s/veh	84.7	69.5	69.2	76.9	41.8	43.2	78.2	69.9	0.0	72.8	50.7	0.0	
Incr Delay (d2), s/veh	15.5	22.7	34.1	25.4	2.5	11.2	1.3	2.4	0.0	62.9	7.9	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	3.7	19.8	18.5	5.2	9.1	10.9	7.5	22.1	0.0	21.7	26.8	0.0	
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	100.1	92.1	103.3	102.4	44.3	54.4	79.4	72.3	0.0	135.6	58.6	0.0	
LnGrp LOS	F	F	F	F	D	D	E	E		F	E		
Approach Vol, veh/h	1166			998			1077			A	1576		A
Approach Delay, s/veh	95.8			53.4			73.3				76.1		
Approach LOS	F			D			E				E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	42.0	73.4	18.5	46.1	37.4	78.0	15.2	49.4					
Change Period (Y+Rc), s	7.5	7.5	* 6.3	* 6.3	7.5	7.5	* 6.3	* 6.3					
Max Green Setting (Gmax), s	34.5	58.5	* 17	* 43	22.5	70.5	* 17	* 43					
Max Q Clear Time (g_c+I1), s	36.5	46.8	12.2	39.6	17.3	0.0	9.1	30.9					
Green Ext Time (p_c), s	0.0	2.5	0.1	0.2	0.2	0.0	0.1	0.3					

Intersection Summary

HCM 6th Ctrl Delay	75.5
HCM 6th LOS	E

Notes










* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Sunday, August 16, 2020
3:18 PM

HCM 6th Signalized Intersection Summary

8: Breckenridge Ln/KY 1932 & Deebet Dr/Hillbrook Dr

08/16/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	104	2	50	12	12	200	96	1938	3	38	797	120
Future Volume (veh/h)	104	2	50	12	12	200	96	1938	3	38	797	120
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	108	2	52	12	12	208	100	2019	3	40	830	125
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	162	378	321	30	25	290	409	2428	4	136	2046	308
Arrive On Green	0.20	0.20	0.20	0.20	0.20	0.20	0.03	0.67	0.67	0.02	0.66	0.66
Sat Flow, veh/h	1161	1870	1585	42	123	1431	1781	3641	5	1781	3097	466
Grp Volume(v), veh/h	108	2	52	232	0	0	100	985	1037	40	476	479
Grp Sat Flow(s), veh/h/ln	1161	1870	1585	1596	0	0	1781	1777	1869	1781	1777	1786
Q Serve(g_s), s	9.8	0.2	4.9	6.8	0.0	0.0	3.3	74.6	74.7	1.3	22.4	22.4
Cycle Q Clear(g_c), s	34.1	0.2	4.9	24.3	0.0	0.0	3.3	74.6	74.7	1.3	22.4	22.4
Prop In Lane	1.00		1.00	0.05		0.90	1.00		0.00	1.00		0.26
Lane Grp Cap(c), veh/h	162	378	321	344	0	0	409	1185	1247	136	1174	1180
V/C Ratio(X)	0.67	0.01	0.16	0.67	0.00	0.00	0.24	0.83	0.83	0.29	0.41	0.41
Avail Cap(c_a), veh/h	213	461	391	414	0	0	548	1185	1247	286	1174	1180
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	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	76.0	57.3	59.2	66.9	0.0	0.0	10.8	22.4	22.4	27.7	14.2	14.2
Incr Delay (d2), s/veh	4.9	0.0	0.2	3.3	0.0	0.0	0.3	6.9	6.6	1.2	1.0	1.0
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	5.2	0.1	2.0	10.3	0.0	0.0	1.3	32.2	33.8	0.9	9.3	9.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	81.0	57.3	59.4	70.2	0.0	0.0	11.1	29.3	29.0	28.9	15.2	15.2
LnGrp LOS	F	E	E	E	A	A	B	C	C	C	B	B
Approach Vol, veh/h	162			232			2122			995		
Approach Delay, s/veh	73.8			70.2			28.3			15.7		
Approach LOS	E			E			C			B		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.8	126.2		43.0	11.9	125.0		43.0				
Change Period (Y+Rc), s	6.5	* 6.1		6.6	6.5	* 6.1		6.6				
Max Green Setting (Gmax), s	19.5	* 97		44.4	19.5	* 97		44.4				
Max Q Clear Time (g_c+I1), s	3.3	76.7		36.1	5.3	0.0		26.3				
Green Ext Time (p_c), s	0.1	14.9		0.3	0.2	0.0		1.3				

Intersection Summary

HCM 6th Ctrl Delay	29.6
HCM 6th LOS	C













Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary

8: Breckenridge Ln & Deebet Dr/Hillbrook Dr & KY 1932

08/16/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL2	SBL	SBR	NWL	NWR	NWR2
Lane Configurations												
Traffic Volume (veh/h)	190	14	160	28	7	118	124	1467	120	70	1342	13
Future Volume (veh/h)	190	14	160	28	7	118	124	1467	120	70	1342	13
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	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	198	15	167	29	7	123	129	129	125	73	14	14
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	256	408	346	70	29	260	211	211	177	194	22	22
Arrive On Green	0.22	0.22	0.22	0.22	0.22	0.22	0.04	0.04	0.65	0.01	0.21	0.21
Sat Flow, veh/h	1260	1870	1585	213	135	1189	1781	1781	273	1781	35	35
Grp Volume(v), veh/h	198	15	167	159	0	0	129	129	833	73	750	750
Grp Sat Flow(s),veh/h/ln	1260	1870	1585	1538	0	0	1781	1781	1821	1781	1864	1864
Q Serve(g_s), s	20.5	1.1	16.6	6.9	0.0	0.0	4.6	4.6	53.4	2.6	66.0	66.0
Cycle Q Clear(g_c), s	36.2	1.1	16.6	15.7	0.0	0.0	4.6	4.6	53.4	2.6	66.0	66.0
Prop In Lane	1.00		1.00	0.18		0.77	1.00	1.00	0.15	1.00	0.02	0.02
Lane Grp Cap(c), veh/h	256	408	346	359	0	0	211	211	1180	194	1188	1188
V/C Ratio(X)	0.77	0.04	0.48	0.44	0.00	0.00	0.61	0.61	0.71	0.38	0.63	0.63
Avail Cap(c_a), veh/h	327	513	435	444	0	0	386	386	1180	388	1188	1188
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	72.2	55.5	61.5	61.0	0.0	0.0	28.5	28.5	20.6	20.7	51.8	51.8
Incr Delay (d2), s/veh	8.5	0.0	1.0	0.9	0.0	0.0	2.9	2.9	3.6	1.2	2.6	2.6
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	9.7	0.6	6.9	6.5	0.0	0.0	3.1	3.1	23.4	1.2	34.2	34.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	80.7	55.5	62.5	61.9	0.0	0.0	31.4	31.4	24.1	21.9	54.4	54.4
LnGrp LOS	F	E	E	E	A	A	C	C	C	C	D	D
Approach Vol, veh/h	380			159			1782			1485		
Approach Delay, s/veh	71.7			61.9			24.5			52.9		
Approach LOS	E			E			C			D		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	13.3	120.8		45.9	11.4	122.8		45.9				
Change Period (Y+Rc), s	6.5	* 6.1		6.6	6.5	* 6.1		6.6				
Max Green Setting (Gmax), s	24.5	* 87		49.4	24.5	* 87		49.4				
Max Q Clear Time (g_c+I1), s	6.6	68.0		38.2	4.6	0.0		17.7				
Green Ext Time (p_c), s	0.3	9.2		1.0	0.1	0.0		1.0				

Intersection Summary

HCM 6th Ctrl Delay	41.9
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.