final report

December 22, 2021
Revised January 12, 2022

Traffic Impact Study

Apartments
Old Preston Highway (KY 6304)
Louisville, KY

Prepared for

Louisville Metro Planning Commission
Kentucky Transportation Cabinet

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INTRODUCTION

The development plan for apartments on Old Preston Highway shows 174 apartment units. **Figure 1** displays a map of the site. Access to the development will be on Old Preston Highway. 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 Old Preston Highway and Maple Springs Drive and the proposed entrance. Additionally, Louisville Metro requested analysis of the Preston Highway intersections with Commerce Crossings Drive and Interchange Drive, as an update to the traffic impact study dated October 7, 2021.

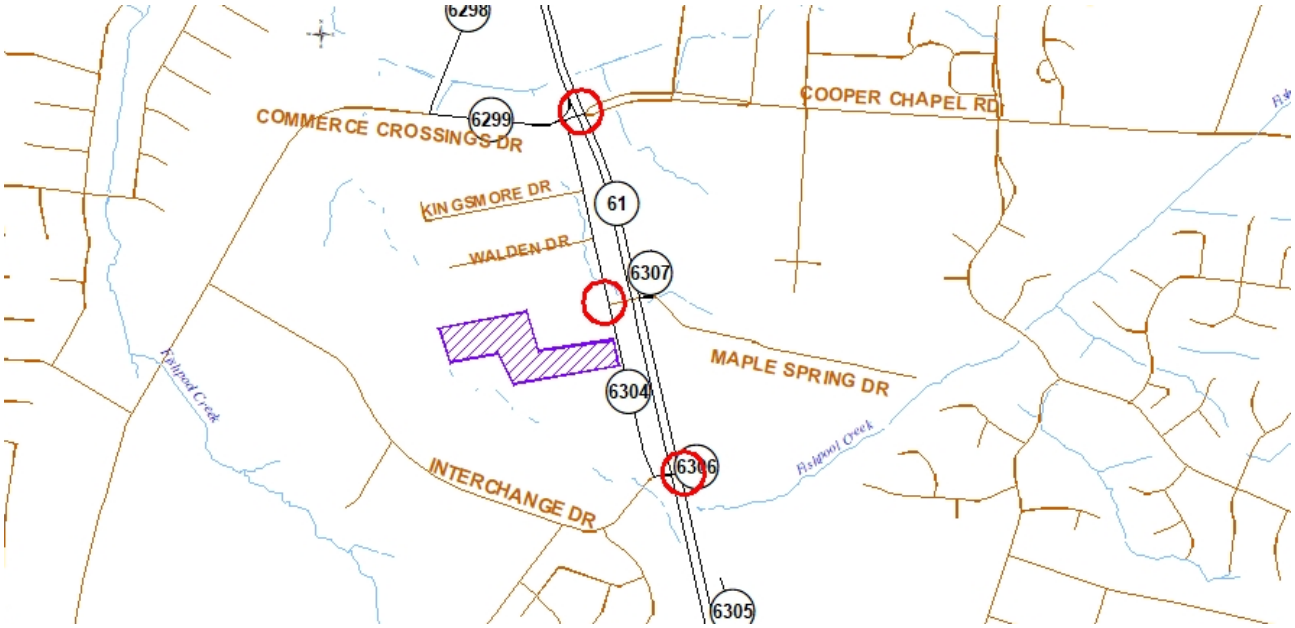

Figure 1. Site Map

EXISTING CONDITIONS

Old Preston Highway, KY 6304, is a state-maintained road with an estimated 2021 ADT of 400 vehicles per day between Commerce Crossing Drive and Interchange Drive, as provided by the Kentucky Transportation Cabinet at station 042. The road is a two-lane highway with ten-foot lanes, a one-foot shoulder (provided by the Kentucky Transportation Cabinet). The speed limit is 35 mph. There are no sidewalks. The intersection with Maple Spring Drive is controlled with a stop sign on Maple Spring Drive.

Peak hour traffic count for the intersection was obtained on Tuesday, August 24, 2021. The a.m. peak hour occurred between 7:15 and 8:15 and the p.m. occurred between 4:45 and 5:45. **Figure 2** illustrates the existing a.m. and p.m. peak hour traffic volumes. The Preston Highway counts were made April 13, 2021. **Figure 3** illustrates the Preston Highway peak hour volumes. The Appendix contains the full count data.

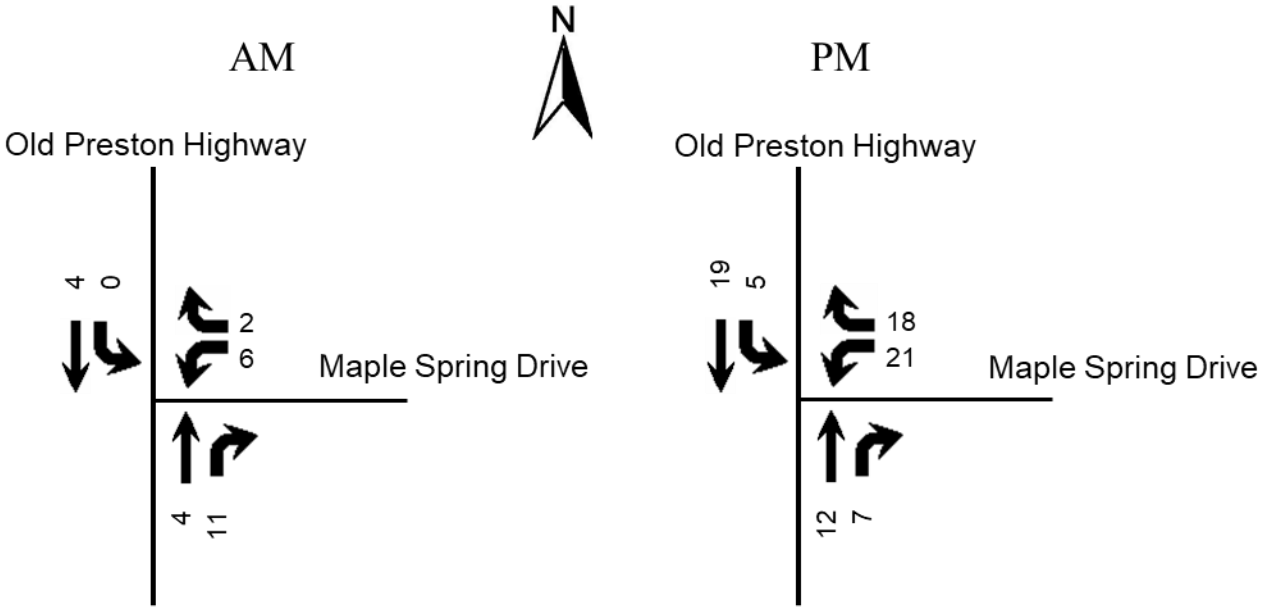

Figure 2. Existing Peak Hour Volumes Old Preston

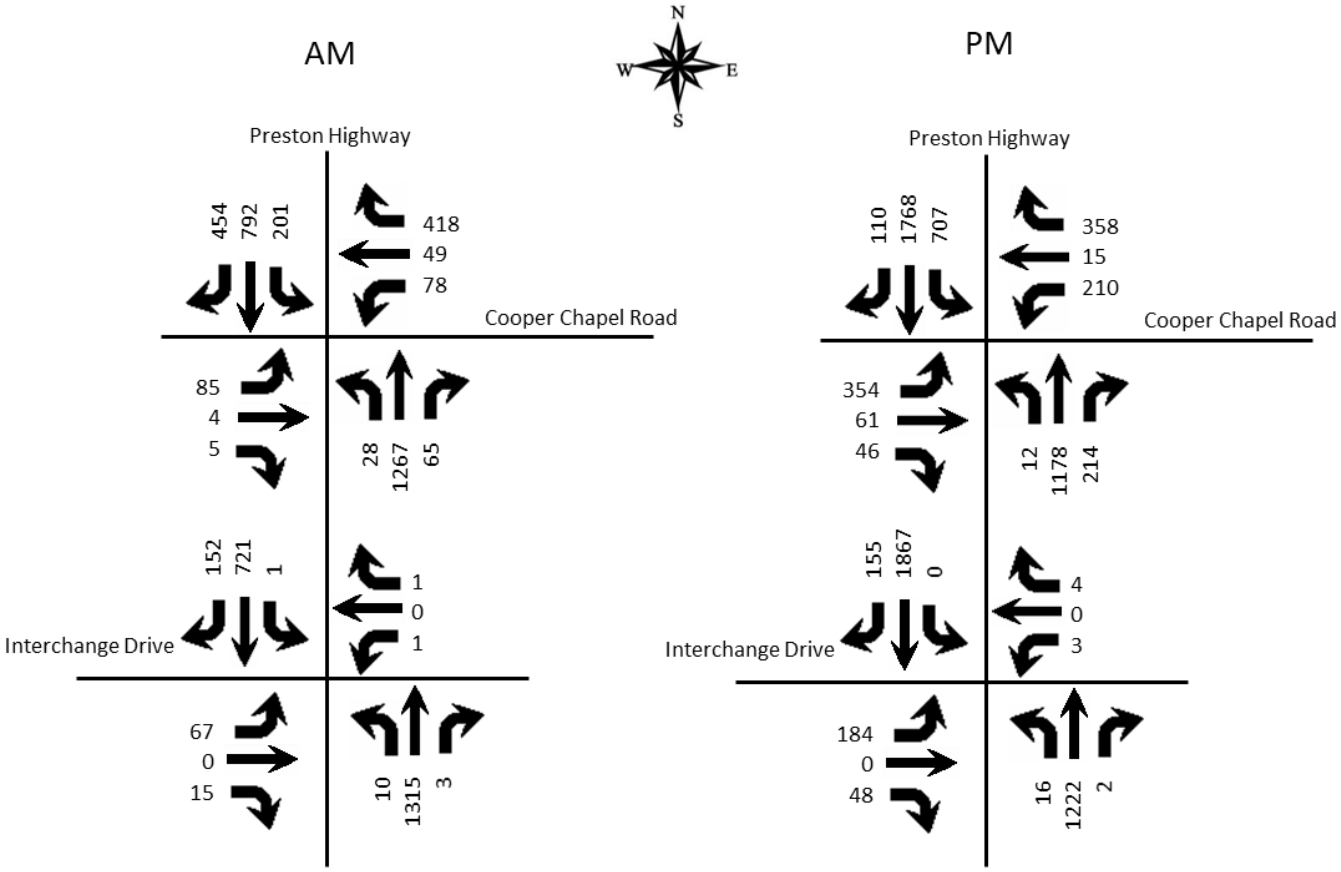

Figure 3. Existing Peak Hour Volumes Preston Highway

FUTURE CONDITIONS

The project completion date is 2024. An annual growth rate of 1.0 percent was applied to the 2021 volumes on Old Preston Highway. **Figure 4** displays the 2024 No Build peak hour volumes. For Preston Highway one half percent annual growth in traffic was added to the 2021 volumes as well as the trip generation from the proposed Thornton's and Chick Fil A. The no build volumes in **Figure 5** are the build volumes from the previously mention October 7, 2021 traffic impact study, plus the growth rate to arrive at 2024 from 2022.

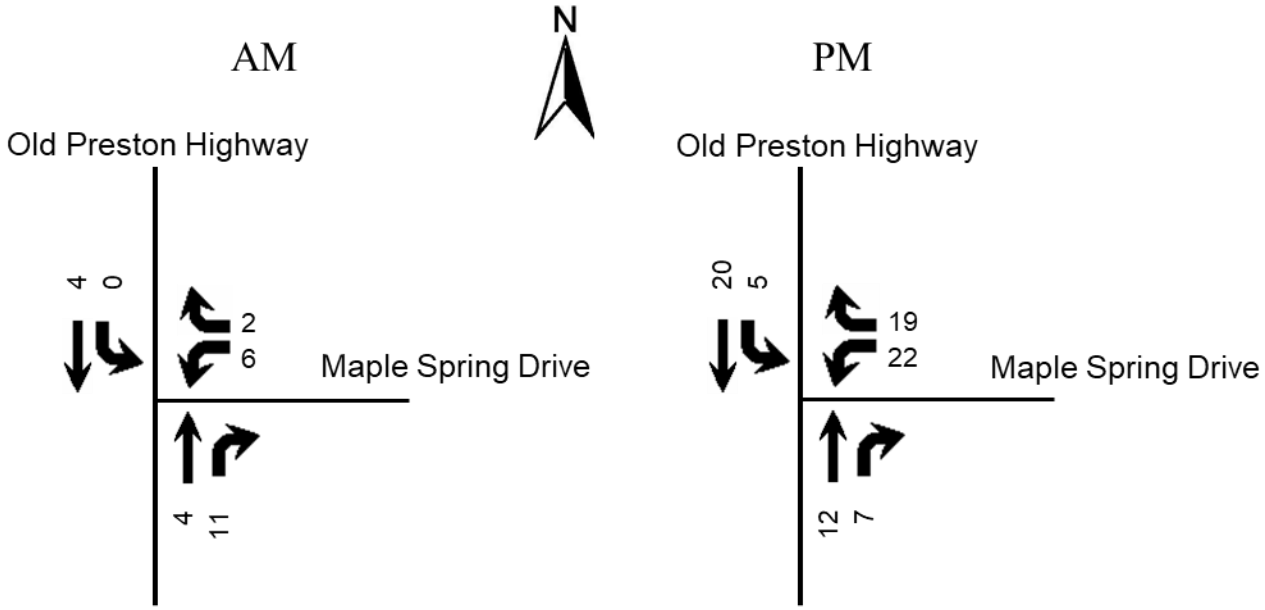

Figure 4. 2024 No Build Peak Hour Volumes Old Preston

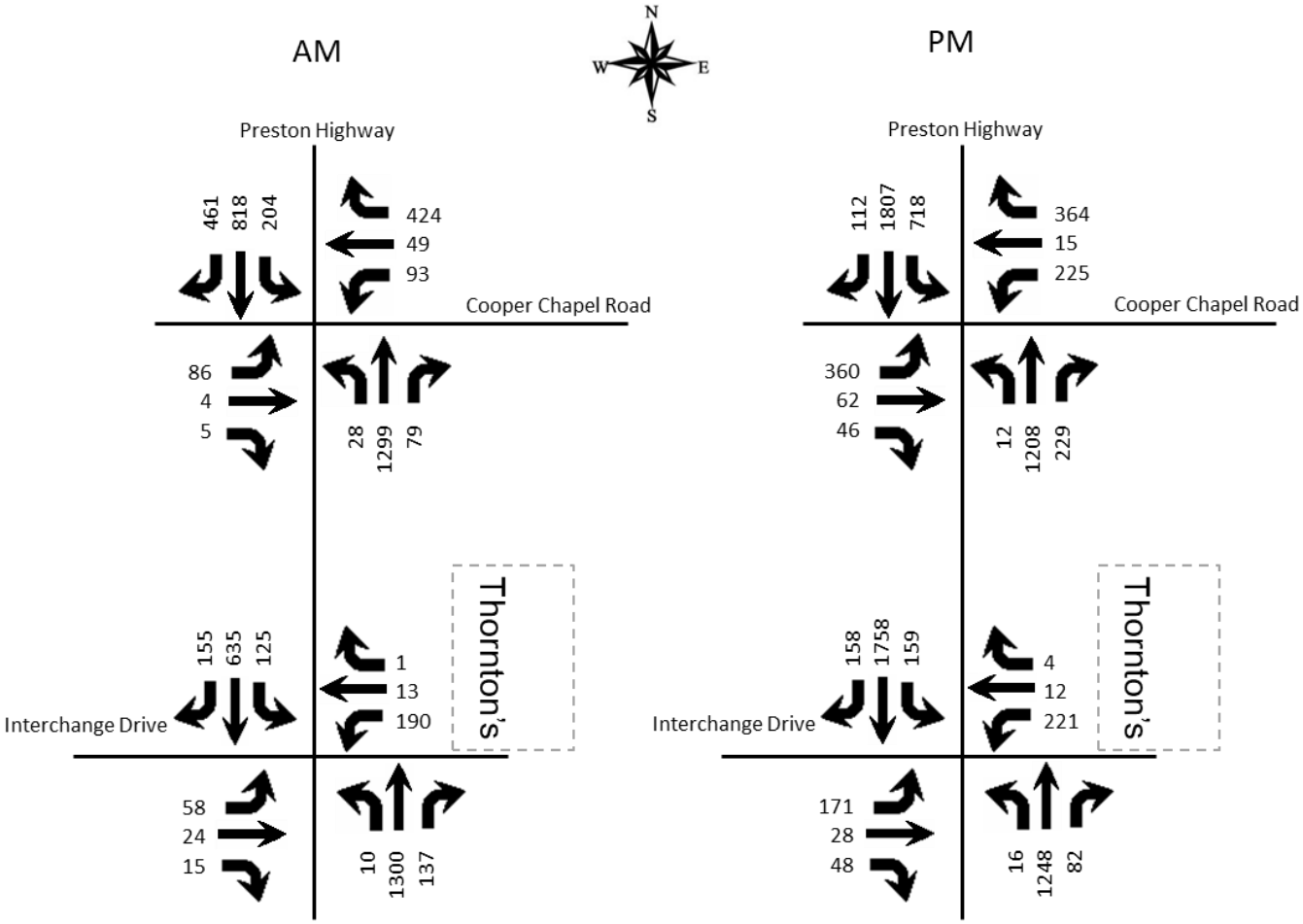

Figure 5. 2024 No Build Peak Hour Volumes Preston Highway

TRIP GENERATION

The Institute of Transportation Engineers Trip Generation Manual, 11th Edition contains trip generation rates for a wide range of developments. The land use of "Multi-family (Low-Rise) (220)" was reviewed and determined to be the best match. The trip generation results are listed in **Table 1**. The trips were assigned to the highway network with the percentages shown in **Figure 6**. **Figure 7** shows the trips generated by this development and distributed throughout the road network during the peak hours. **Figures 8 and 9** display the individual turning movements for the peak hours when the development is completed. Traffic to the north have been assigned to use Interchange Drive for analysis of a worst-case scenario.

Table 1. Peak Hour Trips Generated by Site

	A.M. Peak Hour			P.M. Peak Hour		
Land Use	**Trips**	**In**	**Out**	**Trips**	**In**	**Out**
Multi-family (Mid-Rise) 174 units	77	18	59	95	60	35

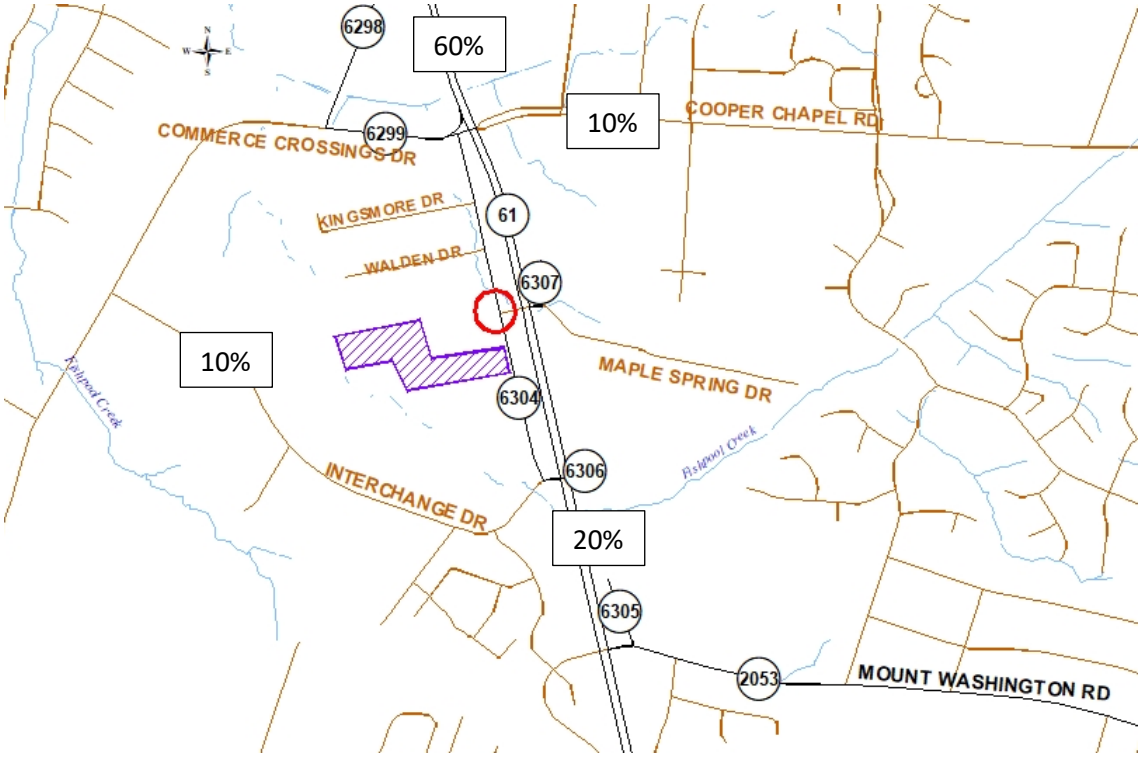

Figure 6. Trip Distribution Percentages

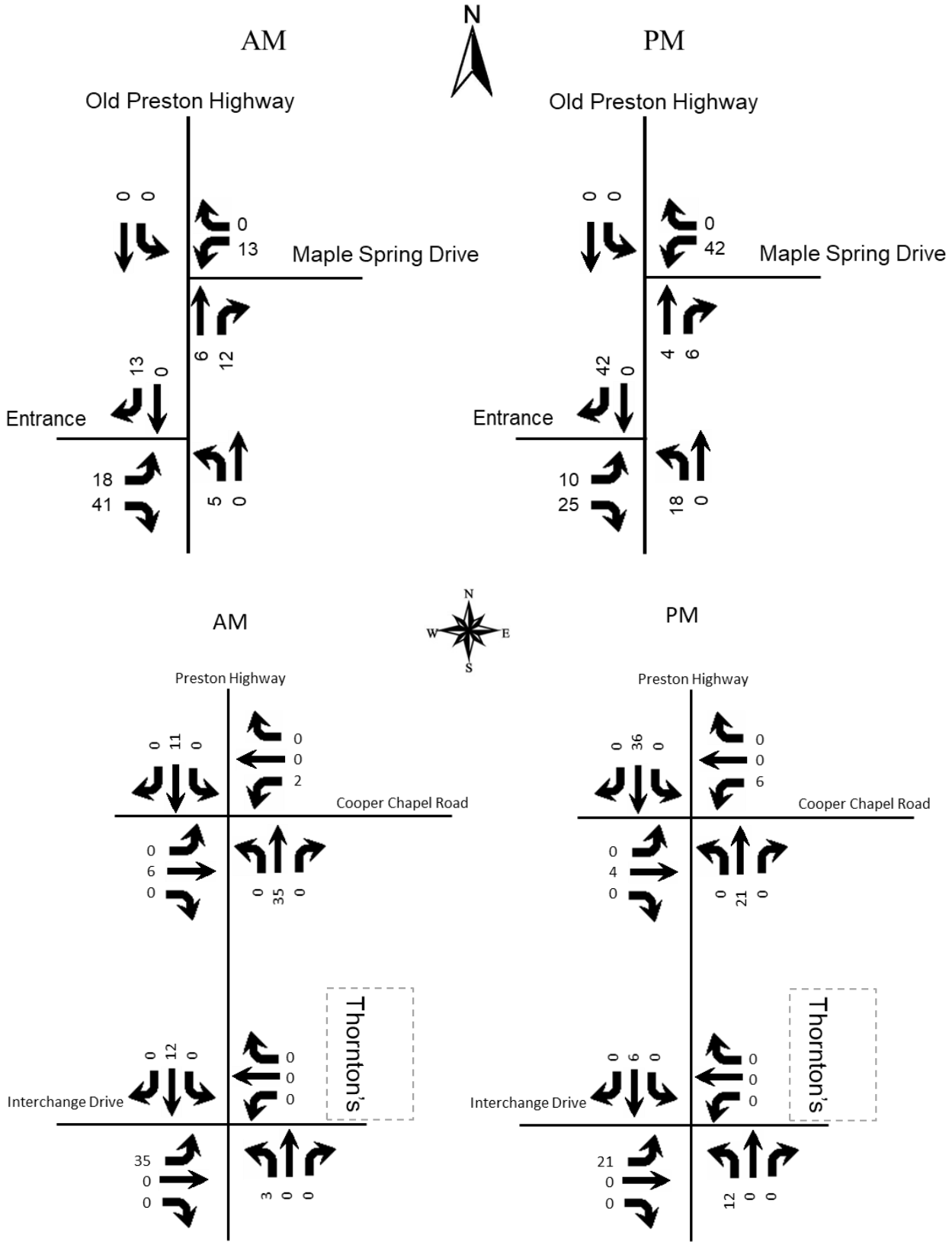

Figure 7. Peak Hour Trips Generated by Site

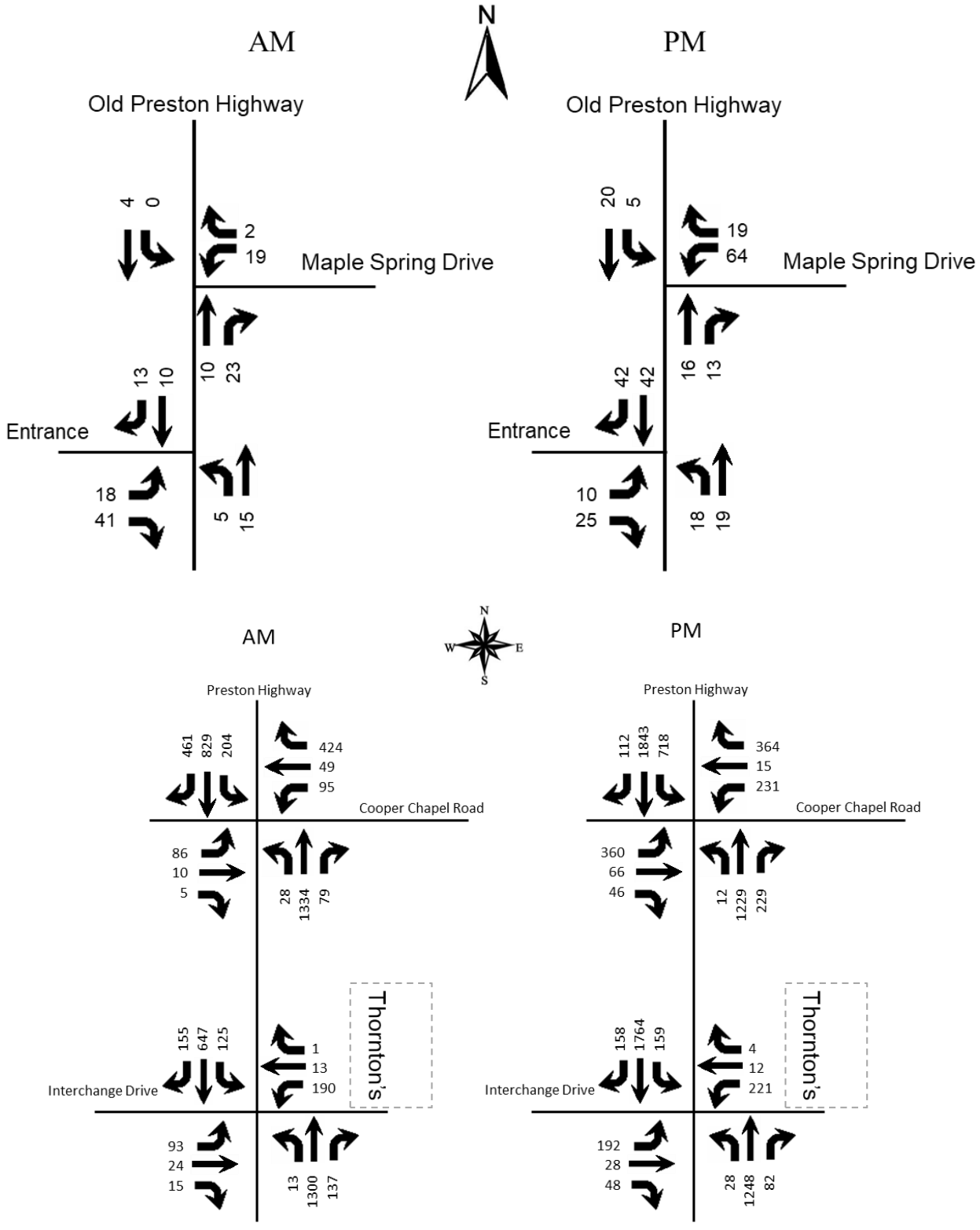

Figure 8. 2025 Build Peak Hour Volumes

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 for lanes at stop-controlled intersections.

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 the HCS Streets (version 7.9.5) software. The delays and Level of Service are summarized in **Table 2**.

Table 2. Peak Hour Level of Service

	A.M.			P.M.		
Approach	2021 Existing	2024 No Build	2024 Build	2021 Existing	2024 No Build	2024 Build
Old Preston at Maple Spring Drive						
Maple Spring Drive Westbound	A 8.7	A 8.7	A 8.8	A 8.8	A 8.8	A 9.1
Old Preston Southbound	A 7.2	A 7.2	A 7.3	A 7.2	A 7.2	A 7.3
Old Preston at Entrance						
Entrance Eastbound			A 8.8			A 8.9
Old Preston Northbound (left)			A 7.3			A 7.4
Preston Highway at Cooper Chapel Road	**C 29.6**	**C 29.2**	**C 29.5**	**D 43.6**	**D 36.6**	**D 36.6**
Commerce Crossings Eastbound	E 59.2	E 56.0	E 56.4	E 77.6	E 77.5	E 77.5
Cooper Chapel Road Westbound	D 43.1	D 41.2	D 42.3	E 60.3	E 60.3	E 60.5
Preston Highway Northbound	C 25.6	C 25.3	C 25.4	D 52.7	C 25.6	C 25.9
Preston Highway Southbound	C 25.5	C 25.4	C 25.5	C 29.1	C 29.4	C 29.2
Preston Highway at Interchange Drive	**A 7.4**	**C 25.8**	**C 28.7**	**B 19.3**	**D 39.5**	**D 40.4**
Interchange Drive Eastbound	E 72.6	E 74.8	E 74.1	E 75.0	E 74.5	E 75.4
Entrance Westbound	F 87.9	F 68.2	E 68.2	F 84.8	E 79.1	E 79.1
Preston Highway Northbound	A 4.1	B 17.5	C 21.2	A 8.8	C 30.1	C 30.6
Preston Highway Southbound	A 5.9	C 22.6	C 23.8	B 19.2	D 36.4	D 37.4

Key: Level of Service, Delay in seconds per vehicle

The entrance was evaluated for turn lanes using the Kentucky Transportation Cabinet Highway Design Guidance Manual dated July, 2020. The volume warrant is not met for turn lanes at the entrance.

CONCLUSIONS

Based upon the volume of traffic generated by the development and the amount of traffic forecasted for the year 2024 there will be a slight impact to the existing highway network. No improvements are needed to the roadway network to mitigate the impact.

APPENDIX

Traffic Counts

Classified Turn Movement Count || All vehicles

Marr Traffic DATA COLLECTION
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Jefferson County, KY

Site 1 of 1
Old Preston Hwy (South)
Old Preston Hwy (North)

Maple Spring Dr

Date
Tuesday, August 24, 2021

Lat/Long
38.099733°, -85.671889°

Weather
Fair
87°F

0700 - 0900 (Weekday 2h Session) (08-24-2021)
All vehicles

	Northbound				Southbound				Westbound				
	Old Preston Hwy (South)				Old Preston Hwy (North)				Maple Spring Dr				
TIME	Thru 1.1	Right 1.2	U-Turn 1.3	App Total	Left 1.4	Thru 1.5	U-Turn 1.6	App Total	Left 1.7	Right 1.8	U-Turn 1.9	App Total	Int Total
0700 - 0715	1	3	0	4	0	2	0	2	0	0	0	0	6
0715 - 0730	2	2	0	4	0	0	0	0	0	1	0	1	5
0730 - 0745	1	3	0	4	0	2	0	2	2	0	0	2	8
0745 - 0800	0	1	0	1	0	4	0	4	3	1	0	4	9
Hourly Total	4	9	0	**13**	0	8	0	**8**	5	2	0	**7**	**28**
0800 - 0815	1	5	0	6	0	0	0	0	1	0	0	1	7
0815 - 0830	0	3	0	3	0	0	0	0	0	0	0	0	3
0830 - 0845	1	4	0	5	0	1	0	1	0	0	0	0	6
0845 - 0900	2	4	0	6	1	1	0	2	0	0	0	0	8
Hourly Total	4	16	0	**20**	1	2	0	**3**	1	0	0	**1**	**24**
Grand Total	8	25	0	**33**	1	10	0	**11**	6	2	0	**8**	**52**
Approach %	24.24	75.76	0.00	-	9.09	90.91	0.00	-	75.00	25.00	0.00	-	
Intersection %	15.38	48.08	0.00	63.46	1.92	19.23	0.00	21.15	11.54	3.85	0.00	15.38	
PHF	0.50	0.55	0.00	**0.63**	0.00	0.38	0.00	**0.38**	0.50	0.50	0.00	**0.50**	**0.81**

1600 - 1800 (Weekday 2h Session) (08-24-2021)
All vehicles

	Northbound				Southbound				Westbound				
	Old Preston Hwy (South)				Old Preston Hwy (North)				Maple Spring Dr				
TIME	Thru 1.1	Right 1.2	U-Turn 1.3	App Total	Left 1.4	Thru 1.5	U-Turn 1.6	App Total	Left 1.7	Right 1.8	U-Turn 1.9	App Total	Int Total
1600 - 1615	1	2	0	3	2	6	0	8	2	7	0	9	20
1615 - 1630	4	5	0	9	0	4	0	4	3	2	0	5	18
1630 - 1645	1	2	0	3	0	3	0	3	1	4	0	5	11
1645 - 1700	3	1	0	4	2	3	0	5	8	5	0	13	22
Hourly Total	9	10	0	**19**	4	16	0	**20**	14	18	0	**32**	**71**
1700 - 1715	1	2	0	3	1	3	0	4	5	6	0	11	18
1715 - 1730	3	0	0	3	2	6	0	8	4	4	0	8	19
1730 - 1745	5	4	0	9	0	7	0	7	4	3	0	7	23
1745 - 1800	6	1	0	7	0	5	0	5	3	0	0	3	15
Hourly Total	15	7	0	**22**	3	21	0	**24**	16	13	0	**29**	**75**
Grand Total	24	17	0	**41**	7	37	0	**44**	30	31	0	**61**	**146**
Approach %	58.54	41.46	0.00	-	15.91	84.09	0.00	-	49.18	50.82	0.00	-	
Intersection %	16.44	11.64	0.00	28.08	4.79	25.34	0.00	30.14	20.55	21.23	0.00	41.78	
PHF	0.60	0.44	0.00	**0.53**	0.63	0.68	0.00	**0.75**	0.66	0.75	0.00	**0.75**	**0.89**

Classified Turn Movement Count || All vehicles

Marr Traffic DATA COLLECTION
www.marrtraffic.com

Preston Highway, KY

Site 1 of 3
KY-61 Preston Hwy (South)
KY-61 Preston Hwy (North)
Commerce Crossings Dr
Cooper Chapel Rd

Date
Tuesday, April 13, 2021

Weather
Cloudy
61°F

Lat/Long
38.103518°, -85.672625°

0700 - 0900 (Weekday 2h Session) (13-04-2021)
All vehicles

	Northbound					Southbound					Eastbound					Westbound					
	KY-61 Preston Hwy (South)					KY-61 Preston Hwy (North)					Commerce Crossings Dr					Cooper Chapel Rd					
	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Int
TIME	1.1	1.2	1.3	1.4	Total	1.5	1.6	1.7	1.8	Total	1.9	1.10	1.11	1.12	Total	1.13	1.14	1.15	1.16	Total	Total
0700 - 0715	2	306	13	0	321	25	144	88	1	258	20	0	2	0	22	15	9	130	0	154	755
0715 - 0730	8	327	16	0	351	34	189	86	1	310	23	1	2	0	26	16	8	109	0	133	820
0730 - 0745	5	365	19	0	389	56	191	93	0	340	24	1	1	0	26	9	14	117	0	140	895
0745 - 0800	10	298	15	0	323	59	221	173	0	453	13	1	1	0	15	24	16	97	0	137	928
Hourly Total	25	1296	63	0	**1384**	174	745	440	2	**1361**	80	3	6	0	**89**	64	47	453	0	**564**	**3398**
0800 - 0815	5	277	15	0	297	52	191	102	0	345	25	1	1	0	27	29	11	95	0	135	804
0815 - 0830	6	259	18	0	283	54	155	67	0	276	15	1	3	0	19	21	3	82	0	106	684
0830 - 0845	4	267	26	0	297	39	187	59	0	285	15	5	2	0	22	28	3	106	0	137	741
0845 - 0900	6	253	25	0	284	44	199	51	0	294	28	3	3	0	34	38	7	84	0	129	741
Hourly Total	21	1056	84	0	**1161**	189	732	279	0	**1200**	83	10	9	0	**102**	116	24	367	0	**507**	**2970**
Grand Total	46	2352	147	0	**2545**	363	1477	719	2	**2561**	163	13	15	0	**191**	180	71	820	0	**1071**	**6368**
Approach %	1.81	92.42	5.78	0.00	-	14.17	57.67	28.07	0.08	-	85.34	6.81	7.85	0.00	-	16.81	6.63	76.56	0.00	-	
Intersection %	0.72	36.93	2.31	0.00	39.97	5.70	23.19	11.29	0.03	40.22	2.56	0.20	0.24	0.00	3.00	2.83	1.11	12.88	0.00	16.82	
PHF	0.70	0.87	0.86	0.00	**0.87**	0.85	0.90	0.66	0.25	**0.80**	0.85	1.00	0.63	0.00	**0.87**	0.67	0.77	0.89	0.00	**0.97**	**0.93**

1600 - 1800 (Weekday 2h Session) (13-04-2021)
All vehicles

	Northbound					Southbound					Eastbound					Westbound					
	KY-61 Preston Hwy (South)					KY-61 Preston Hwy (North)					Commerce Crossings Dr					Cooper Chapel Rd					
	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Int
TIME	1.1	1.2	1.3	1.4	Total	1.5	1.6	1.7	1.8	Total	1.9	1.10	1.11	1.12	Total	1.13	1.14	1.15	1.16	Total	Total
1600 - 1615	1	297	49	0	347	173	436	46	2	657	97	12	8	0	117	45	5	116	0	166	1287
1615 - 1630	3	261	55	0	319	173	411	48	1	633	60	18	10	0	88	60	4	113	0	177	1217
1630 - 1645	4	313	57	0	374	159	380	35	2	576	120	22	17	0	159	45	4	93	1	143	1252
1645 - 1700	1	297	50	1	349	186	445	26	0	657	61	11	9	0	81	54	4	78	0	136	1223
Hourly Total	9	1168	211	1	**1389**	691	1672	155	5	**2523**	338	63	44	0	**445**	204	17	400	1	**622**	**4979**
1700 - 1715	2	272	51	0	325	156	454	39	0	649	122	15	14	0	151	56	6	87	0	149	1274
1715 - 1730	4	296	56	0	356	206	489	10	1	706	51	13	6	0	70	54	1	100	0	155	1287
1730 - 1745	5	300	47	0	352	158	435	28	1	622	60	8	7	0	75	62	1	109	0	172	1221
1745 - 1800	2	280	58	0	340	119	401	23	0	543	36	6	4	0	46	52	3	96	0	151	1080
Hourly Total	13	1148	212	0	**1373**	639	1779	100	2	**2520**	269	42	31	0	**342**	224	11	392	0	**627**	**4862**
Grand Total	22	2316	423	1	**2762**	1330	3451	255	7	**5043**	607	105	75	0	**787**	428	28	792	1	**1249**	**9841**
Approach %	0.80	83.85	15.31	0.04	-	26.37	68.43	5.06	0.14	-	77.13	13.34	9.53	0.00	-	34.27	2.24	63.41	0.08	-	
Intersection %	0.22	23.53	4.30	0.01	28.07	13.51	35.07	2.59	0.07	51.24	6.17	1.07	0.76	0.00	8.00	4.35	0.28	8.05	0.01	12.69	
PHF	0.69	0.94	0.94	0.25	**0.94**	0.86	0.90	0.71	0.38	**0.92**	0.73	0.69	0.68	0.00	**0.72**	0.93	0.63	0.90	0.25	**0.94**	**0.98**

Classified Turn Movement Count || All vehicles

Marr Traffic DATA COLLECTION
www.marrtraffic.com

Preston Highway, KY

Site 2 of 3
KY-61 Preston Hwy (South)
KY-61 Preston Hwy (North)
Old Preston Hwy
Local Rd

Date
Tuesday, April 13, 2021

Weather
Cloudy
61°F

Lat/Long
38.096348°, -85.670213°

0700 - 0900 (Weekday 2h Session) (13-04-2021)
All vehicles

	Northbound					Southbound					Eastbound					Westbound					
	KY-61 Preston Hwy (South)					KY-61 Preston Hwy (North)					Old Preston Hwy					Local Rd					
	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Int
TIME	2.1	2.2	2.3	2.4	Total	2.5	2.6	2.7	2.8	Total	2.9	2.10	2.11	2.12	Total	2.13	2.14	2.15	2.16	Total	Total
0700 - 0715	5	314	0	0	319	0	100	52	0	152	23	0	2	0	25	0	0	0	0	0	496
0715 - 0730	0	331	0	0	331	0	147	65	0	212	22	0	2	0	24	0	0	0	0	0	567
0730 - 0745	4	398	1	0	403	0	175	33	0	208	19	0	3	0	22	1	0	0	0	1	634
0745 - 0800	4	299	1	1	305	0	199	32	0	231	14	0	7	0	21	0	0	1	0	1	558
Hourly Total	13	1342	2	1	**1358**	0	621	182	0	**803**	78	0	14	0	**92**	1	0	1	0	**2**	**2255**
0800 - 0815	0	287	1	1	289	0	200	22	1	223	12	0	3	0	15	0	0	0	0	0	527
0815 - 0830	2	257	0	0	259	1	167	14	0	182	9	0	0	0	9	0	0	0	0	0	450
0830 - 0845	0	283	0	0	283	1	198	13	0	212	20	0	3	0	23	0	0	0	0	0	518
0845 - 0900	2	279	1	0	282	0	234	16	0	250	11	0	1	1	13	0	0	0	0	0	545
Hourly Total	4	1106	2	1	**1113**	2	799	65	1	**867**	52	0	7	1	**60**	0	0	0	0	**0**	**2040**
Grand Total	17	2448	4	2	**2471**	2	1420	247	1	**1670**	130	0	21	1	**152**	1	0	1	0	**2**	**4295**
Approach %	0.69	99.07	0.16	0.08	-	0.12	85.03	14.79	0.06	-	85.53	0.00	13.82	0.66	-	50.00	0.00	50.00	0.00	-	
Intersection %	0.40	57.00	0.09	0.05	57.53	0.05	33.06	5.75	0.02	38.88	3.03	0.00	0.49	0.02	3.54	0.02	0.00	0.02	0.00	0.05	
PHF	0.50	0.83	0.75	0.50	**0.82**	0.00	0.90	0.58	0.25	**0.95**	0.76	0.00	0.54	0.00	**0.85**	0.25	0.00	0.25	0.00	**0.50**	**0.90**

1600 - 1800 (Weekday 2h Session) (13-04-2021)
All vehicles

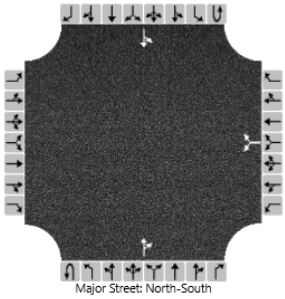
	Northbound					Southbound					Eastbound					Westbound					
	KY-61 Preston Hwy (South)					KY-61 Preston Hwy (North)					Old Preston Hwy					Local Rd					
	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Int
TIME	2.1	2.2	2.3	2.4	Total	2.5	2.6	2.7	2.8	Total	2.9	2.10	2.11	2.12	Total	2.13	2.14	2.15	2.16	Total	Total
1600 - 1615	0	295	2	0	297	0	391	32	0	423	67	0	15	0	82	1	1	1	0	3	805
1615 - 1630	6	289	2	0	297	1	467	29	0	497	36	0	16	0	52	0	0	3	0	3	849
1630 - 1645	1	310	0	0	311	0	424	33	2	459	62	0	17	0	79	0	0	1	0	1	850
1645 - 1700	1	325	1	0	327	0	445	45	0	490	44	0	13	0	57	1	0	1	0	2	876
Hourly Total	8	1219	5	0	**1232**	1	1727	139	2	**1869**	209	0	61	0	**270**	2	1	6	0	**9**	**3380**
1700 - 1715	3	286	0	0	289	0	464	35	0	499	43	0	12	0	55	1	0	2	0	3	846
1715 - 1730	3	296	1	2	302	0	481	39	0	520	45	0	13	0	58	1	0	1	0	2	882
1730 - 1745	7	315	0	0	322	0	477	36	0	513	52	0	10	0	62	0	0	0	0	0	897
1745 - 1800	7	297	0	1	305	0	397	41	0	438	35	0	3	0	38	0	0	0	0	0	781
Hourly Total	20	1194	1	3	**1218**	0	1819	151	0	**1970**	175	0	38	0	**213**	2	0	3	0	**5**	**3406**
Grand Total	28	2413	6	3	**2450**	1	3546	290	2	**3839**	384	0	99	0	**483**	4	1	9	0	**14**	**6786**
Approach %	1.14	98.49	0.24	0.12	-	0.03	92.37	7.55	0.05	-	79.50	0.00	20.50	0.00	-	28.57	7.14	64.29	0.00	-	
Intersection %	0.41	35.56	0.09	0.04	36.10	0.01	52.25	4.27	0.03	56.57	5.66	0.00	1.46	0.00	7.12	0.06	0.01	0.13	0.00	0.21	
PHF	0.50	0.94	0.50	0.25	**0.95**	0.00	0.97	0.86	0.00	**0.97**	0.88	0.00	0.92	0.00	**0.94**	0.75	0.00	0.50	0.00	**0.58**	**0.98**

HCS Reports

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DBZ	Intersection	Old Preston at Maple Spri
Agency/Co.	Diane B Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	12/22/2021	East/West Street	Maple Springs Dr
Analysis Year	2021	North/South Street	Old Preston
Time Analyzed	AM Peak	Peak Hour Factor	0.81
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Old Preston Apt		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						6		2			4	11		0	4	
Percent Heavy Vehicles (%)						17		0						0		
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.57		6.20						4.10		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.65		3.30						2.20		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							10							0		
Capacity, c (veh/h)							990							1611		
v/c Ratio							0.01							0.00		
95% Queue Length, Q_{95} (veh)							0.0							0.0		
Control Delay (s/veh)							8.7							7.2		
Level of Service (LOS)							A							A		
Approach Delay (s/veh)						8.7								0.0		
Approach LOS						A										

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HCS7 Two-Way Stop-Control Report

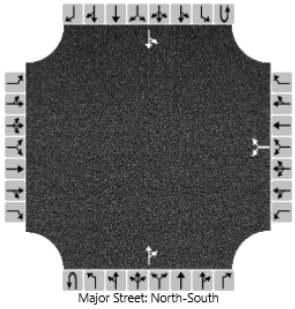
General Information

Analyst	DBZ
Agency/Co.	Diane B Zimmerman Traffic Engineering
Date Performed	12/22/2021
Analysis Year	2024
Time Analyzed	AM Peak No Build
Intersection Orientation	North-South
Project Description	Old Preston Apt

Site Information

Intersection	Old Preston at Maple Spri
Jurisdiction	
East/West Street	Maple Springs Dr
North/South Street	Old Preston
Peak Hour Factor	0.81
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						6		2			4	11		0	4	
Percent Heavy Vehicles (%)						17		0						0		
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.57		6.20						4.10		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.65		3.30						2.20		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							10							0		
Capacity, c (veh/h)							990							1611		
v/c Ratio							0.01							0.00		
95% Queue Length, Q_{95} (veh)							0.0							0.0		
Control Delay (s/veh)							8.7							7.2		
Level of Service (LOS)							A							A		
Approach Delay (s/veh)						8.7							0.0			
Approach LOS						A										

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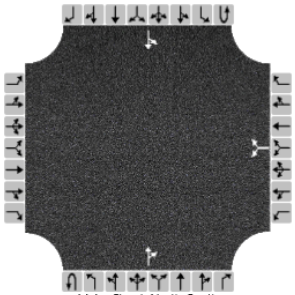
HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DBZ	Intersection	Old Preston at Maple Spri
Agency/Co.	Diane B Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	1/12/2021	East/West Street	Maple Springs Dr
Analysis Year	2024	North/South Street	Old Preston
Time Analyzed	AM Peak Build	Peak Hour Factor	0.81
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Old Preston Apt		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						19		2			10	23		0	4	
Percent Heavy Vehicles (%)						5		0						0		
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.45		6.20						4.10		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.55		3.30						2.20		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							26							0		
Capacity, c (veh/h)							982							1582		
v/c Ratio							0.03							0.00		
95% Queue Length, Q_{95} (veh)							0.1							0.0		
Control Delay (s/veh)							8.8							7.3		
Level of Service (LOS)							A							A		
Approach Delay (s/veh)						8.8								0.0		
Approach LOS						A										

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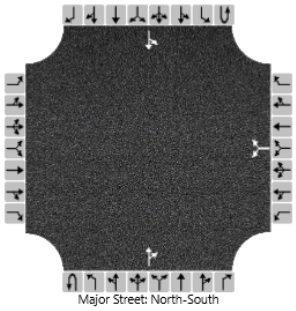
HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DBZ	Intersection	Old Preston at Maple Spri
Agency/Co.	Diane B Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	12/22/2021	East/West Street	Maple Springs Dr
Analysis Year	2021	North/South Street	Old Preston
Time Analyzed	PM Peak	Peak Hour Factor	0.89
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Old Preston Apt		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						21		18			12	7		5	19	
Percent Heavy Vehicles (%)						0		6						0		
Proportion Time Blocked																
Percent Grade (%)							0									
Right Turn Channelized																
Median Type | Storage			Undivided													

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.40		6.26						4.10		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.50		3.35						2.20		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							44							6		
Capacity, c (veh/h)							1000							1607		
v/c Ratio							0.04							0.00		
95% Queue Length, Q_{95} (veh)							0.1							0.0		
Control Delay (s/veh)							8.8							7.2		
Level of Service (LOS)							A							A		
Approach Delay (s/veh)							8.8							1.5		
Approach LOS							A									

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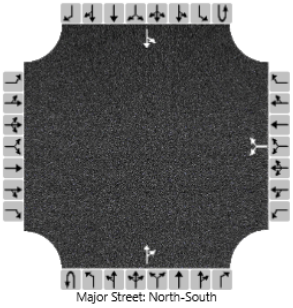
HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DBZ	Intersection	Old Preston at Maple Spri
Agency/Co.	Diane B Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	12/22/2021	East/West Street	Maple Springs Dr
Analysis Year	2024	North/South Street	Old Preston
Time Analyzed	PM Peak No Build	Peak Hour Factor	0.89
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Old Preston Apt		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						22		19			12	7		5	20	
Percent Heavy Vehicles (%)						0		6						0		
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.40		6.26						4.10		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.50		3.35						2.20		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							46							6		
Capacity, c (veh/h)							999							1607		
v/c Ratio							0.05							0.00		
95% Queue Length, Q_{95} (veh)							0.1							0.0		
Control Delay (s/veh)							8.8							7.2		
Level of Service (LOS)							A							A		
Approach Delay (s/veh)						8.8								1.5		
Approach LOS						A										

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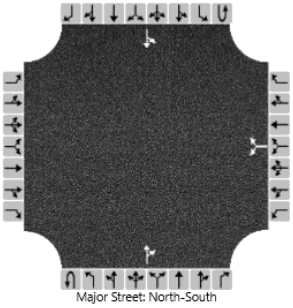
HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DBZ	Intersection	Old Preston at Maple Spri
Agency/Co.	Diane B Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	1/12/2022	East/West Street	Maple Springs Dr
Analysis Year	2024	North/South Street	Old Preston
Time Analyzed	PM Peak Build	Peak Hour Factor	0.89
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Old Preston Apt		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						64		19			16	13		5	20	
Percent Heavy Vehicles (%)						0		6						0		
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.40		6.26						4.10		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.50		3.35						2.20		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							93							6		
Capacity, c (veh/h)							969							1593		
v/c Ratio							0.10							0.00		
95% Queue Length, Q_{95} (veh)							0.3							0.0		
Control Delay (s/veh)							9.1							7.3		
Level of Service (LOS)							A							A		
Approach Delay (s/veh)						9.1							1.5			
Approach LOS						A										

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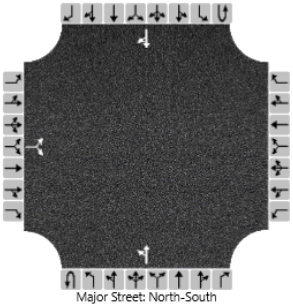
HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DBZ	Intersection	Entrance
Agency/Co.	Diane B Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	1/12/2022	East/West Street	Entrance
Analysis Year	2024	North/South Street	Old Preston
Time Analyzed	AM Peak	Peak Hour Factor	0.81
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Old Preston Apt		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		18		41						5	15				10	13
Percent Heavy Vehicles (%)		0		0						0						
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.40		6.20						4.10						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.50		3.30						2.20						

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			73							6						
Capacity, c (veh/h)			1029							1598						
v/c Ratio			0.07							0.00						
95% Queue Length, Q_{95} (veh)			0.2							0.0						
Control Delay (s/veh)			8.8							7.3						
Level of Service (LOS)			A							A						
Approach Delay (s/veh)	8.8								1.8							
Approach LOS	A															

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HCS7 Two-Way Stop-Control Report

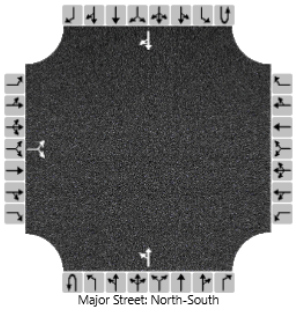
General Information

Analyst	DBZ
Agency/Co.	Diane B Zimmerman Traffic Engineering
Date Performed	1/12/2022
Analysis Year	2024
Time Analyzed	PM Peak
Intersection Orientation	North-South
Project Description	Old Preston Apt

Site Information

Intersection	Entrance
Jurisdiction	
East/West Street	Entrance
North/South Street	Old Preston
Peak Hour Factor	0.89
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		10		25						18	19				42	42
Percent Heavy Vehicles (%)		0		0						0						
Proportion Time Blocked																
Percent Grade (%)		0														
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.40		6.20						4.10						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.50		3.30						2.20						

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			39							20						
Capacity, c (veh/h)			952							1512						
v/c Ratio			0.04							0.01						
95% Queue Length, Q_{95} (veh)			0.1							0.0						
Control Delay (s/veh)			8.9							7.4						
Level of Service (LOS)			A							A						
Approach Delay (s/veh)		8.9								3.7						
Approach LOS		A														

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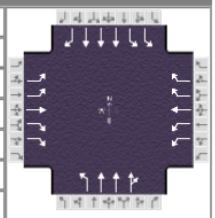
HCS7 Signalized Intersection Results Summary

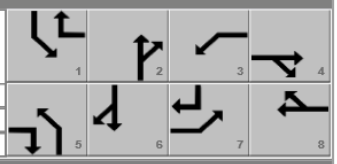
General Information				Intersection Information	
Agency	Diane B. Zimmerman Traffic Engineering			Duration, h	0.250
Analyst	DBZ	Analysis Date	Jun 2, 2021	Area Type	Other
Jurisdiction		Time Period	AM Peak	PHF	0.91
Urban Street	Preston Highway	Analysis Year	2021	Analysis Period	1> 7:15
Intersection	Cooper Chapel Road	File Name	AM 21 Preston.xus		
Project Description	Old Preston Apt				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	85	4	5	78	49	418	28	1267	65	201	792	454

Signal Information			
Cycle, s	125.7	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	6.0	4.9	58.3	7.0	24.4	0.0	
Yellow	3.5	0.0	4.3	3.5	3.6	0.0	
Red	3.0	0.0	1.9	3.0	2.4	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	2.0	3.0	2.0	3.0	2.0	4.0	2.0	3.0
Phase Duration, s	13.5	30.4	13.5	30.4	12.5	64.5	17.4	69.3
Change Period, (*Y+R c*), s	6.5	6.0	6.5	6.0	6.5	6.2	6.5	6.2
Max Allow Headway (*MAH*), s	5.6	5.8	5.1	5.8	3.0	4.9	4.0	4.9
Queue Clearance Time (*g s*), s	5.5	2.2	5.1	19.7	4.1	25.7	10.0	15.3
Green Extension Time (*g e*), s	0.7	4.2	0.4	4.6	0.0	32.6	0.8	34.0
Phase Call Probability	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Max Out Probability	0.00	0.03	0.00	0.01	0.00	0.21	0.00	0.17

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	93	4	5	86	54	459	30	964	469	221	870	169
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1647	1900	1425	1675	1900	1403	1753	1856	1807	1689	1658	1585
Queue Service Time (*g s*), s	3.5	0.2	0.2	3.1	3.0	17.7	2.1	23.7	23.7	8.0	13.3	6.6
Cycle Queue Clearance Time (*g c*), s	3.5	0.2	0.2	3.1	3.0	17.7	2.1	23.7	23.7	8.0	13.3	6.6
Green Ratio (*g/C*)	0.06	0.19	0.24	0.06	0.19	0.28	0.05	0.46	0.46	0.09	0.50	0.56
Capacity (*c*), veh/h	183	368	688	186	368	786	84	1721	838	292	2499	885
Volume-to-Capacity Ratio (*X*)	0.509	0.012	0.008	0.460	0.146	0.584	0.360	0.560	0.560	0.756	0.348	0.191
Back of Queue (*Q*), ft/ln (95 th percentile)	73.4	5.1	2.9	65	63.9	258.3	42.8	371	356.9	163.1	218.2	102.5
Back of Queue (*Q*), veh/ln (95 th percentile)	2.8	0.2	0.1	2.5	2.6	10.2	1.7	14.5	14.3	6.3	8.4	4.0
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.22	0.51
Uniform Delay (*d 1*), s/veh	57.7	41.0	36.3	57.6	42.1	39.0	58.0	24.4	24.4	56.2	18.9	13.7
Incremental Delay (*d 2*), s/veh	3.7	0.0	0.0	2.4	0.3	1.1	0.8	0.3	0.7	4.0	0.1	0.1
Initial Queue Delay (*d 3*), 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
Control Delay (*d*), s/veh	61.4	41.0	36.3	60.0	42.4	40.1	58.8	24.8	25.1	60.1	19.0	13.9
Level of Service (LOS)	E	D	D	E	D	D	E	C	C	E	B	B
Approach Delay, s/veh / LOS	59.2	E		43.1	D		25.6	C		25.5	C	
Intersection Delay, s/veh / LOS	29.6						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.60	C	3.28	C	2.57	C	2.42	B
Bicycle LOS Score / LOS	0.66	A	1.48	A	1.31	A	1.18	A

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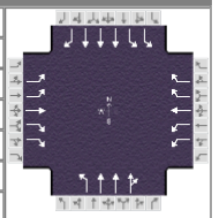
HCS7 Signalized Intersection Results Summary

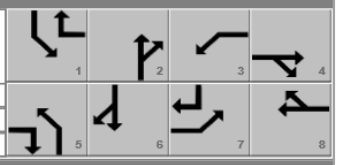
General Information				Intersection Information	
Agency	Diane B. Zimmerman Traffic Engineering			Duration, h	0.250
Analyst	DBZ	Analysis Date	Dec 23, 2021	Area Type	Other
Jurisdiction		Time Period	AM Peak	PHF	0.91
Urban Street	Preston Highway	Analysis Year	2024 No Build	Analysis Period	1> 7:15
Intersection	Cooper Chapel Road	File Name	AM 24 Preston NB.xus		
Project Description	Old Preston Apt				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	86	4	5	93	49	424	28	1299	79	204	818	461

Signal Information			
Cycle, s	119.9	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	6.0	4.6	53.3	7.0	23.8	0.0
Yellow	3.5	0.0	4.3	3.5	3.6	0.0
Red	3.0	0.0	1.9	3.0	2.4	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	2.0	3.0	2.0	3.0	2.0	4.0	2.0	3.0
Phase Duration, s	13.5	29.8	13.5	29.8	12.5	59.5	17.1	64.1
Change Period, ($Y+R_c$), s	6.5	6.0	6.5	6.0	6.5	6.2	6.5	6.2
Max Allow Headway (*MAH*), s	5.6	5.8	5.1	5.8	3.0	4.9	4.0	4.9
Queue Clearance Time (g_s), s	5.3	2.2	5.6	19.0	3.8	22.7	9.8	15.7
Green Extension Time (g_e), s	0.7	4.3	0.5	4.7	0.0	30.6	0.8	31.3
Phase Call Probability	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Max Out Probability	0.00	0.03	0.00	0.01	0.00	0.16	0.00	0.14

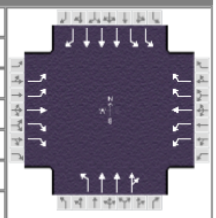
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	95	4	5	102	54	466	27	879	426	224	899	177
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1647	1900	1425	1675	1900	1403	1753	1856	1799	1689	1658	1585
Queue Service Time (g_s), s	3.3	0.2	0.2	3.6	2.8	17.0	1.8	20.7	20.7	7.8	13.7	6.9
Cycle Queue Clearance Time (g_c), s	3.3	0.2	0.2	3.6	2.8	17.0	1.8	20.7	20.7	7.8	13.7	6.9
Green Ratio (*g/C*)	0.06	0.20	0.25	0.06	0.20	0.29	0.05	0.44	0.44	0.09	0.48	0.54
Capacity (*c*), veh/h	192	377	708	195	377	805	88	1651	800	299	2404	859
Volume-to-Capacity Ratio (*X*)	0.492	0.012	0.008	0.523	0.143	0.579	0.302	0.532	0.533	0.749	0.374	0.206
Back of Queue (*Q*), ft/ln (95 th percentile)	70.2	4.8	2.7	74.1	60.2	248.8	35.5	330.5	317	156.7	223	106.3
Back of Queue (*Q*), veh/ln (95 th percentile)	2.6	0.2	0.1	2.8	2.4	9.8	1.4	12.9	12.7	6.0	8.6	4.2
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.28	0.22	0.53
Uniform Delay (d_1), s/veh	54.8	38.7	34.0	54.9	39.7	36.6	55.0	24.2	24.2	53.4	19.5	14.2
Incremental Delay (d_2), s/veh	3.3	0.0	0.0	2.9	0.3	1.1	0.6	0.3	0.7	3.8	0.1	0.2
Initial Queue Delay (d_3), 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
Control Delay (*d*), s/veh	58.1	38.7	34.0	57.8	40.0	37.7	55.6	24.6	24.9	57.1	19.7	14.4
Level of Service (LOS)	E	D	C	E	D	D	E	C	C	E	B	B
Approach Delay, s/veh / LOS	56.0	E		41.2	D		25.3	C		25.4	C	
Intersection Delay, s/veh / LOS	29.2						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.60	C	3.28	C	2.57	C	2.42	B
Bicycle LOS Score / LOS	0.66	A	1.51	B	1.34	A	1.20	A

 HCS™ Streets Version 7.9.5 Generated: 12/23/2021 3:44:18 PM

HCS7 Signalized Intersection Results Summary

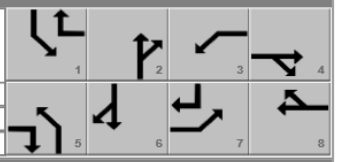
General Information				Intersection Information	
Agency	Diane B. Zimmerman Traffic Engineering			Duration, h	0.250
Analyst	DBZ	Analysis Date	Jan 12, 2022	Area Type	Other
Jurisdiction		Time Period	AM Peak	PHF	0.91
Urban Street	Preston Highway	Analysis Year	2024 Build	Analysis Period	1> 7:15
Intersection	Cooper Chapel Road	File Name	AM 24 Preston B.xus		
Project Description	Old Preston Apt				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	86	10	5	95	49	424	28	1334	79	204	829	461

Signal Information			
Cycle, s	122.4	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	6.0	4.8	55.3	7.0	24.2	0.0	
Yellow	3.5	0.0	4.3	3.5	3.6	0.0	
Red	3.0	0.0	1.9	3.0	2.4	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	2.0	3.0	2.0	3.0	2.0	4.0	2.0	3.0
Phase Duration, s	13.5	30.2	13.5	30.2	12.5	61.5	17.3	66.3
Change Period, ($Y+R_c$), s	6.5	6.0	6.5	6.0	6.5	6.2	6.5	6.2
Max Allow Headway (*MAH*), s	5.6	5.8	5.1	5.8	3.0	4.9	4.0	4.9
Queue Clearance Time (g_s), s	5.4	2.6	5.7	19.4	3.8	23.6	9.9	16.0
Green Extension Time (g_e), s	0.7	4.3	0.5	4.7	0.0	31.7	0.8	32.6
Phase Call Probability	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Max Out Probability	0.00	0.03	0.00	0.01	0.00	0.18	0.00	0.15

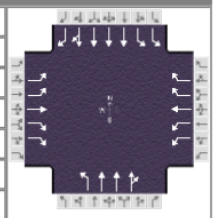
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	95	11	5	104	54	466	27	902	437	224	911	177
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1647	1900	1425	1675	1900	1403	1753	1856	1800	1689	1658	1585
Queue Service Time (g_s), s	3.4	0.6	0.2	3.7	2.9	17.4	1.8	21.6	21.6	7.9	14.0	7.0
Cycle Queue Clearance Time (g_c), s	3.4	0.6	0.2	3.7	2.9	17.4	1.8	21.6	21.6	7.9	14.0	7.0
Green Ratio (*g/C*)	0.06	0.20	0.25	0.06	0.20	0.29	0.05	0.45	0.45	0.09	0.49	0.55
Capacity (*c*), veh/h	188	375	703	191	375	802	86	1676	813	298	2441	868
Volume-to-Capacity Ratio (*X*)	0.502	0.029	0.008	0.546	0.143	0.581	0.309	0.538	0.538	0.753	0.373	0.204
Back of Queue (*Q*), ft/ln (95 th percentile)	71.9	12.3	2.8	77.8	61.7	253.9	36.4	343.3	329.3	160.5	227.7	107.2
Back of Queue (*Q*), veh/ln (95 th percentile)	2.7	0.5	0.1	3.0	2.5	10.0	1.4	13.4	13.2	6.2	8.8	4.2
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.29	0.23	0.54
Uniform Delay (d_1), s/veh	56.1	39.7	34.9	56.2	40.6	37.5	56.3	24.3	24.4	54.6	19.5	14.1
Incremental Delay (d_2), s/veh	3.5	0.0	0.0	3.3	0.3	1.1	0.6	0.3	0.7	3.9	0.1	0.2
Initial Queue Delay (d_3), 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
Control Delay (*d*), s/veh	59.6	39.7	34.9	59.5	40.9	38.6	56.9	24.7	25.0	58.4	19.6	14.3
Level of Service (LOS)	E	D	C	E	D	D	E	C	C	E	B	B
Approach Delay, s/veh / LOS	56.4	E		42.3	D		25.4	C		25.5	C	
Intersection Delay, s/veh / LOS	29.5						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.60	C	3.28	C	2.57	C	2.42	B
Bicycle LOS Score / LOS	0.67	A	1.52	B	1.36	A	1.21	A

 HCS™ Streets Version 7.9.5 Generated: 1/12/2022 3:18:12 PM

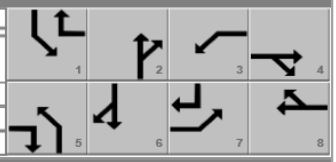
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Diane B. Zimmerman Traffic Engineering			Duration, h	0.250
Analyst	DBZ	Analysis Date	Jun 2, 2021	Area Type	Other
Jurisdiction		Time Period	PM Peak	PHF	0.98
Urban Street	Preston Highway	Analysis Year	2021	Analysis Period	1> 4:45
Intersection	Cooper Chapel Rd	File Name	PM 21 Preston.xus		
Project Description	Old Preston Apt				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	354	61	46	210	15	358	12	1178	214	707	1768	110

Signal Information					EB			WB			NB			SB		
Cycle, s	180.0	Reference Phase	2													
Offset, s	0	Reference Point	End	Green	6.0	28.1		67.8		14.5	2.6		22.8			
Uncoordinated	No	Simult. Gap E/W	On	Yellow	3.5	3.5		4.3		3.5	3.5		3.6			
Force Mode	Fixed	Simult. Gap N/S	On	Red	3.0	3.0		1.9		3.0	3.0		2.4			



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	2.0	3.0	2.0	3.0	2.0	4.0	2.0	3.0
Phase Duration, s	30.1	38.0	21.0	28.8	12.5	74.0	47.1	108.6
Change Period, ($Y+R_c$), s	6.5	6.0	6.5	6.0	6.5	6.2	6.5	6.2
Max Allow Headway (*MAH*), s	5.6	5.7	5.1	5.7	3.0	0.0	4.0	0.0
Queue Clearance Time (g_s), s	20.9	7.0	13.1	19.3	3.3		38.1	
Green Extension Time (g_e), s	2.7	4.2	1.3	3.5	0.0	0.0	2.4	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	1.00		1.00	
Max Out Probability	0.00	0.00	0.00	0.04	0.00		0.09	

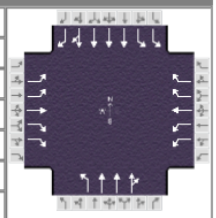
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	361	62	47	214	15	365	12	947	435	721	1804	112
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1675	1900	1425	1702	1900	1414	1697	1885	1733	1743	1870	1409
Queue Service Time (g_s), s	18.9	5.0	2.4	11.1	1.3	17.3	1.3	38.6	38.2	36.1	15.5	2.7
Cycle Queue Clearance Time (g_c), s	18.9	5.0	2.4	11.1	1.3	17.3	1.3	38.6	38.2	36.1	15.5	2.7
Green Ratio (*g/C*)	0.13	0.18	0.21	0.08	0.13	0.35	0.03	0.38	0.38	0.23	0.57	0.70
Capacity (*c*), veh/h	439	337	601	274	241	996	57	1420	653	805	4255	986
Volume-to-Capacity Ratio (*X*)	0.823	0.184	0.078	0.783	0.063	0.367	0.211	0.667	0.667	0.896	0.424	0.114
Back of Queue (*Q*), ft/ln (95 th percentile)	350.2	111.7	39.3	227.6	28.7	257.3	26.9	635.5	592.1	593.2	230.1	40.7
Back of Queue (*Q*), veh/ln (95 th percentile)	13.4	4.5	1.6	8.8	1.1	10.2	1.0	25.2	23.7	23.5	9.1	1.4
Queue Storage Ratio (*RQ*) (95 th percentile)	0.78	0.25	0.31	0.57	0.05	0.74	0.06	0.53	0.50	1.08	0.23	0.20
Uniform Delay (d_1), s/veh	76.2	62.9	57.0	81.2	69.2	43.4	87.5	49.7	48.5	67.1	11.2	4.8
Incremental Delay (d_2), s/veh	6.5	0.4	0.1	6.7	0.2	0.4	0.6	2.2	4.8	9.4	0.3	0.2
Initial Queue Delay (d_3), 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
Control Delay (*d*), s/veh	82.7	63.3	57.1	87.9	69.3	43.7	88.1	51.9	53.3	76.5	11.6	5.0
Level of Service (LOS)	F	E	E	F	E	D	F	D	D	E	B	A
Approach Delay, s/veh / LOS	77.6	E		60.3	E		52.7	D		29.1	C	
Intersection Delay, s/veh / LOS	43.6						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.75	C	2.99	C	2.59	C	2.42	B
Bicycle LOS Score / LOS	1.26	A	1.47	A	1.28	A	1.58	B

 HCS™ Streets Version 7.9.5 Generated: 12/24/2021 3:50:03 PM

HCS7 Signalized Intersection Results Summary

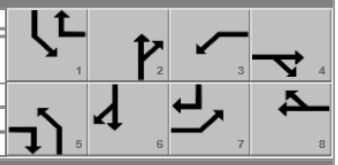
General Information				Intersection Information	
Agency	Diane B. Zimmerman Traffic Engineering			Duration, h	0.250
Analyst	DBZ	Analysis Date	Dec 23, 2021	Area Type	Other
Jurisdiction		Time Period	PM Peak	PHF	0.98
Urban Street	Preston Highway	Analysis Year	2024 No Build	Analysis Period	1> 4:45
Intersection	Cooper Chapel Rd	File Name	PM 24 NB Preston.xus		
Project Description	Old Preston Apt				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	360	62	46	225	15	364	12	1208	229	718	1807	112

Signal Information			
Cycle, s	180.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	6.0	28.6	66.7	15.3	2.1	23.1
Yellow	3.5	3.5	4.3	3.5	3.5	3.6
Red	3.0	3.0	1.9	3.0	3.0	2.4



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	2.0	3.0	2.0	3.0	2.0	4.0	2.0	3.0
Phase Duration, s	30.4	37.7	21.8	29.1	12.5	72.9	47.6	108.0
Change Period, (*Y+R c*), s	6.5	6.0	6.5	6.0	6.5	6.2	6.5	6.2
Max Allow Headway (*MAH*), s	5.6	5.7	5.1	5.7	3.0	0.0	4.0	0.0
Queue Clearance Time (*g s*), s	21.2	7.1	13.9	19.5	3.2		38.7	
Green Extension Time (*g e*), s	2.7	4.3	1.4	3.6	0.0	0.0	2.4	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	1.00		1.00	
Max Out Probability	0.01	0.00	0.00	0.04	0.00		0.14	

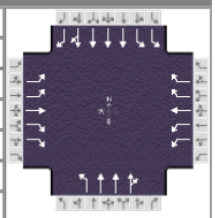
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	367	63	47	230	15	371	11	894	410	733	1844	114
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1675	1900	1425	1702	1900	1414	1697	1885	1728	1743	1870	1409
Queue Service Time (*g s*), s	19.2	5.1	2.4	11.9	1.3	17.5	1.2	25.2	23.8	36.7	16.3	2.8
Cycle Queue Clearance Time (*g c*), s	19.2	5.1	2.4	11.9	1.3	17.5	1.2	25.2	23.8	36.7	16.3	2.8
Green Ratio (*g/C*)	0.13	0.18	0.21	0.09	0.13	0.36	0.03	0.37	0.37	0.23	0.57	0.70
Capacity (*c*), veh/h	445	334	596	290	244	1008	57	1398	640	815	4230	984
Volume-to-Capacity Ratio (*X*)	0.825	0.189	0.079	0.791	0.063	0.369	0.192	0.640	0.640	0.899	0.436	0.116
Back of Queue (*Q*), ft/ln (95 th percentile)	354.8	113.8	39.4	240.1	28.6	259.8	24.5	307.6	262.5	603.3	238.6	42.1
Back of Queue (*Q*), veh/ln (95 th percentile)	13.5	4.6	1.6	9.3	1.1	10.3	0.9	12.2	10.5	23.9	9.4	1.5
Queue Storage Ratio (*RQ*) (95 th percentile)	0.79	0.25	0.31	0.60	0.05	0.74	0.06	0.26	0.22	1.10	0.24	0.21
Uniform Delay (*d 1*), s/veh	76.0	63.2	57.2	80.8	69.0	42.9	87.5	23.7	21.3	66.9	11.6	4.9
Incremental Delay (*d 2*), s/veh	6.5	0.4	0.1	6.5	0.2	0.4	0.4	1.5	3.3	10.0	0.3	0.2
Initial Queue Delay (*d 3*), 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
Control Delay (*d*), s/veh	82.5	63.6	57.3	87.3	69.1	43.3	87.9	25.2	24.6	76.9	12.0	5.1
Level of Service (LOS)	F	E	E	F	E	D	F	C	C	E	B	A
Approach Delay, s/veh / LOS	77.5	E		60.3	E		25.6	C		29.4	C	
Intersection Delay, s/veh / LOS	36.6						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.75	C	2.99	C	2.59	C	2.42	B
Bicycle LOS Score / LOS	1.28	A	1.50	B	1.30	A	1.60	B

 HCS™ Streets Version 7.9.5 Generated: 12/24/2021 3:50:03 PM

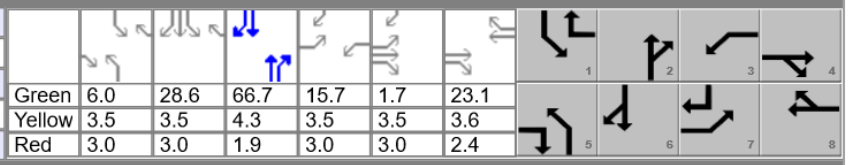
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Diane B. Zimmerman Traffic Engineering			Duration, h	0.250
Analyst	DBZ	Analysis Date	Jan 12, 2022	Area Type	Other
Jurisdiction		Time Period	PM Peak	PHF	0.98
Urban Street	Preston Highway	Analysis Year	2024 Build	Analysis Period	1> 4:45
Intersection	Cooper Chapel Rd	File Name	PM 24 B Preston.xus		
Project Description	Old Preston Apt				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	360	66	46	231	15	364	12	1229	229	718	1843	112

Signal Information			
Cycle, s	180.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	6.0	28.6	66.7	15.7	1.7	23.1
Yellow	3.5	3.5	4.3	3.5	3.5	3.6
Red	3.0	3.0	1.9	3.0	3.0	2.4

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	2.0	3.0	2.0	3.0	2.0	4.0	2.0	3.0
Phase Duration, s	30.4	37.3	22.2	29.1	12.5	72.9	47.6	108.0
Change Period, (*Y+R c*), s	6.5	6.0	6.5	6.0	6.5	6.2	6.5	6.2
Max Allow Headway (*MAH*), s	5.6	5.7	5.1	5.7	3.0	0.0	4.0	0.0
Queue Clearance Time (*g s*), s	21.2	7.5	14.2	19.5	3.1		38.7	
Green Extension Time (*g e*), s	2.7	4.3	1.5	3.6	0.0	0.0	2.4	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	1.00		1.00	
Max Out Probability	0.01	0.00	0.00	0.04	0.00		0.14	

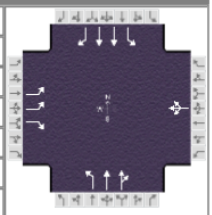
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	367	67	47	236	15	371	11	900	413	733	1881	114
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1675	1900	1425	1702	1900	1414	1697	1885	1730	1743	1870	1409
Queue Service Time (*g s*), s	19.2	5.5	2.4	12.2	1.3	17.5	1.1	25.7	24.3	36.7	16.8	2.8
Cycle Queue Clearance Time (*g c*), s	19.2	5.5	2.4	12.2	1.3	17.5	1.1	25.7	24.3	36.7	16.8	2.8
Green Ratio (*g/C*)	0.13	0.17	0.21	0.09	0.13	0.36	0.03	0.37	0.37	0.23	0.57	0.70
Capacity (*c*), veh/h	445	331	591	297	244	1008	57	1397	641	815	4229	984
Volume-to-Capacity Ratio (*X*)	0.825	0.204	0.079	0.794	0.063	0.369	0.191	0.644	0.645	0.899	0.445	0.116
Back of Queue (*Q*), ft/ln (95 th percentile)	354.8	121.7	39.5	244.8	28.6	259.8	24.3	314.5	265.6	603.3	243.2	42.2
Back of Queue (*Q*), veh/ln (95 th percentile)	13.5	4.9	1.6	9.5	1.1	10.3	0.9	12.5	10.6	23.9	9.6	1.5
Queue Storage Ratio (*RQ*) (95 th percentile)	0.79	0.27	0.32	0.61	0.05	0.74	0.06	0.26	0.22	1.10	0.24	0.21
Uniform Delay (*d 1*), s/veh	76.0	63.6	57.5	80.6	68.9	42.9	87.5	24.1	21.6	66.9	11.7	4.9
Incremental Delay (*d 2*), s/veh	6.5	0.4	0.1	6.5	0.2	0.4	0.4	1.5	3.3	10.0	0.3	0.2
Initial Queue Delay (*d 3*), 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
Control Delay (*d*), s/veh	82.5	64.1	57.6	87.1	69.1	43.3	87.9	25.6	24.9	76.9	12.0	5.1
Level of Service (LOS)	F	E	E	F	E	D	F	C	C	E	B	A
Approach Delay, s/veh / LOS	77.5	E		60.5	E		25.9	C		29.2	C	
Intersection Delay, s/veh / LOS	36.6						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.75	C	2.99	C	2.59	C	2.42	B
Bicycle LOS Score / LOS	1.28	A	1.51	B	1.31	A	1.61	B

 HCS™ Streets Version 7.9.5 Generated: 1/12/2022 3:24:12 PM

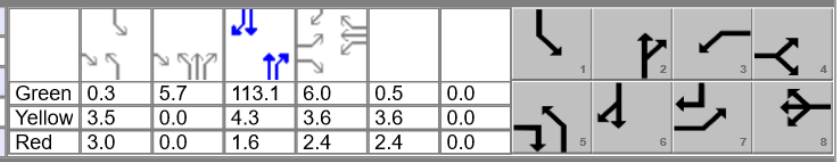
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Diane B. Zimmerman Traffic Engineering			Duration, h	0.250
Analyst	DBZ	Analysis Date	Jun 2, 2021	Area Type	Other
Jurisdiction		Time Period	AM Peak	PHF	0.90
Urban Street	Preston Highway	Analysis Year	2021	Analysis Period	1> 7:15
Intersection	Interchange Drive	File Name	AM 21 Preston.xus		
Project Description	Old Preston Apt				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	67		15	1	0	1	10	1315	3	1	721	152

Signal Information			
Cycle, s	150.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	Off
Force Mode	Fixed	Simult. Gap N/S	On



Green	0.3	5.7	113.1	6.0	0.5	0.0						
Yellow	3.5	0.0	4.3	3.6	3.6	0.0						
Red	3.0	0.0	1.6	2.4	2.4	0.0						

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		9.0		12.0	2.0	4.0	2.0	3.0
Phase Duration, s		12.0		6.5	12.5	124.7	6.8	119.0
Change Period, ($Y+R_c$), s		6.0		6.0	6.5	5.9	6.5	5.9
Max Allow Headway (*MAH*), s		4.0		3.1	4.0	0.0	4.0	0.0
Queue Clearance Time (g_s), s				2.2	3.0		2.1	
Green Extension Time (g_e), s		0.0		0.0	0.0	0.0	0.0	0.0
Phase Call Probability				0.09	1.00		0.04	
Max Out Probability				0.00	0.00		0.00	

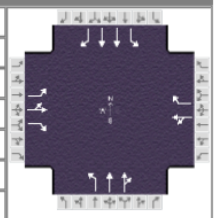
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7		14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	74		17		2		11	700	700	1	782	165
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1661		1359		1704		1527	1856	1854	1810	1724	1585
Queue Service Time (g_s), s	3.3		1.7		0.2		1.0	12.5	12.5	0.1	10.8	3.6
Cycle Queue Clearance Time (g_c), s	3.3		1.7		0.2		1.0	12.5	12.5	0.1	10.8	3.6
Green Ratio (*g/C*)	0.04		0.08		0.00		0.04	0.79	0.79	0.00	0.75	0.79
Capacity (*c*), veh/h	133		109		6		61	1470	1468	3	2599	1258
Volume-to-Capacity Ratio (*X*)	0.560		0.153		0.368		0.174	0.477	0.477	0.338	0.301	0.131
Back of Queue (*Q*), ft/ln (95 th percentile)	68.7		31.4		4.8		21.6	138.8	135.5	3.8	158.9	43.6
Back of Queue (*Q*), veh/ln (95 th percentile)	2.6		1.1		0.2		0.7	5.4	5.4	0.2	6.1	1.7
Queue Storage Ratio (*RQ*) (95 th percentile)	0.17		0.52		0.00		0.09	0.00	0.00	0.04	0.00	0.15
Uniform Delay (d_1), s/veh	70.7		64.3		74.6		71.7	2.8	2.8	74.8	5.9	3.6
Incremental Delay (d_2), s/veh	3.7		0.6		13.3		0.9	0.8	0.8	49.9	0.3	0.2
Initial Queue Delay (d_3), s/veh	0.0		0.0		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	74.4		64.9		87.9		72.6	3.6	3.6	124.7	6.2	3.8
Level of Service (LOS)	E		E		F		E	A	A	F	A	A
Approach Delay, s/veh / LOS	72.6		E	87.9		F	4.1		A	5.9		A
Intersection Delay, s/veh / LOS	7.4						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.33	B	2.49	B	1.62	B	2.05	B
Bicycle LOS Score / LOS		F	0.49	A	1.70	B	1.29	A

 HCS™ Streets Version 7.9.5 Generated: 12/23/2021 3:44:18 PM

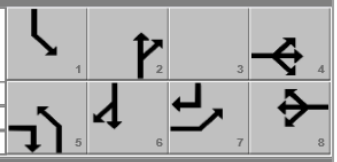
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Diane B. Zimmerman Traffic Engineering			Duration, h	0.250
Analyst	DBZ	Analysis Date	Dec 23, 2021	Area Type	Other
Jurisdiction		Time Period	AM Peak	PHF	0.90
Urban Street	Preston Highway	Analysis Year	2024 No Build	Analysis Period	1> 7:15
Intersection	Interchange Drive	File Name	AM 24 Preston NB.xus		
Project Description	Old Preston Apt				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	58	24	15	190	13	1	10	1300	137	125	635	155

Signal Information												
Cycle, s	150.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	Off									
Force Mode	Fixed	Simult. Gap N/S	On									
				Green	6.0	0.9	83.6	7.9	20.7	0.0		
				Yellow	3.5	3.5	4.3	3.6	3.6	0.0		
				Red	3.0	3.0	1.6	2.4	2.4	0.0		



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		9.0		11.0	2.0	4.0	2.0	3.0
Phase Duration, s		13.9		26.7	12.5	89.5	19.9	96.9
Change Period, (*Y+R c*), s		6.0		6.0	6.5	5.9	6.5	5.9
Max Allow Headway (*MAH*), s		4.0		3.0	4.0	0.0	4.0	0.0
Queue Clearance Time (*g s*), s		7.6		20.3	3.0		13.0	
Green Extension Time (*g e*), s		0.3		0.4	0.0	0.0	0.4	0.0
Phase Call Probability		1.00		1.00	1.00		1.00	
Max Out Probability		0.00		0.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	64	27	17		226	1	10	710	691	135	688	168
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1711	1900	1359		1815	1610	1527	1856	1793	1810	1724	1585
Queue Service Time (*g s*), s	5.6	2.0	1.7		18.3	0.1	1.0	33.2	32.7	11.0	14.7	6.1
Cycle Queue Clearance Time (*g c*), s	5.6	2.0	1.7		18.3	0.1	1.0	33.2	32.7	11.0	14.7	6.1
Green Ratio (*g/C*)	0.05	0.05	0.09		0.14	0.14	0.04	0.56	0.56	0.09	0.61	0.66
Capacity (*c*), veh/h	90	100	126		251	222	61	1034	999	162	2092	1045
Volume-to-Capacity Ratio (*X*)	0.715	0.267	0.132		0.900	0.005	0.160	0.687	0.692	0.836	0.329	0.161
Back of Queue (*Q*), ft/ln (95 th percentile)	125.6	45.2	30.8		335.3	1.6	20	405.2	368.7	228.4	242.6	93.4
Back of Queue (*Q*), veh/ln (95 th percentile)	4.8	1.8	1.1		13.4	0.1	0.7	15.8	14.7	9.1	9.3	3.7
Queue Storage Ratio (*RQ*) (95 th percentile)	0.31	0.00	0.51		0.00	0.00	0.08	0.00	0.00	2.28	0.00	0.31
Uniform Delay (*d 1*), s/veh	69.9	68.3	62.5		63.6	55.8	72.4	15.0	14.2	67.2	14.5	9.7
Incremental Delay (*d 2*), s/veh	10.1	1.4	0.5		4.7	0.0	0.8	2.5	2.6	10.0	0.4	0.3
Initial Queue Delay (*d 3*), s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	80.0	69.7	63.0		68.3	55.8	73.2	17.5	16.9	77.2	14.9	10.0
Level of Service (LOS)	F	E	E		E	E	E	B	B	E	B	B
Approach Delay, s/veh / LOS	74.8	E		68.2	E		17.5	B		22.6	C	
Intersection Delay, s/veh / LOS	25.8						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.32	B	2.49	B	1.91	B	2.09	B
Bicycle LOS Score / LOS	0.67	A	0.86	A	1.81	B	1.33	A

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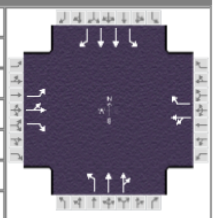
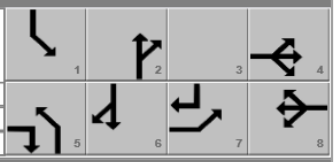
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Diane B. Zimmerman Traffic Engineering			Duration, h	0.250
Analyst	DBZ	Analysis Date	Jan 12, 2022	Area Type	Other
Jurisdiction		Time Period	AM Peak	PHF	0.90
Urban Street	Preston Highway	Analysis Year	2024 Build	Analysis Period	1> 7:15
Intersection	Interchange Drive	File Name	AM 24 Preston B.xus		
Project Description	Old Preston Apt				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	93	24	15	190	13	1	13	1300	137	125	647	155

Signal Information			
Cycle, s	150.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	Off
Force Mode	Fixed	Simult. Gap N/S	On



Green	6.0	0.9		80.1	11.4	20.7	0.0					
Yellow	3.5	3.5		4.3	3.6	3.6	0.0					
Red	3.0	3.0		1.6	2.4	2.4	0.0					

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		9.0		11.0	2.0	4.0	2.0	3.0
Phase Duration, s		17.4		26.7	12.5	86.0	19.9	93.4
Change Period, (*Y+R c*), s		6.0		6.0	6.5	5.9	6.5	5.9
Max Allow Headway (*MAH*), s		4.0		3.0	4.0	0.0	4.0	0.0
Queue Clearance Time (*g s*), s		10.9		20.3	3.2		13.1	
Green Extension Time (*g e*), s		0.5		0.4	0.0	0.0	0.4	0.0
Phase Call Probability		1.00		1.00	1.00		1.00	
Max Out Probability		0.00		0.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	103	27	17		226	1	13	709	690	136	701	168
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1711	1900	1359		1815	1610	1527	1856	1793	1810	1724	1585
Queue Service Time (*g s*), s	8.9	2.0	1.6		18.3	0.1	1.2	37.0	36.3	11.1	16.0	6.1
Cycle Queue Clearance Time (*g c*), s	8.9	2.0	1.6		18.3	0.1	1.2	37.0	36.3	11.1	16.0	6.1
Green Ratio (*g/C*)	0.08	0.08	0.12		0.14	0.14	0.04	0.53	0.53	0.09	0.58	0.66
Capacity (*c*), veh/h	130	144	157		251	222	61	990	957	162	2012	1045
Volume-to-Capacity Ratio (*X*)	0.796	0.185	0.106		0.900	0.005	0.207	0.716	0.720	0.836	0.349	0.161
Back of Queue (*Q*), ft/ln (95 th percentile)	199.6	43.3	29.8		335.3	1.6	26	473.9	429.6	228.4	261.9	93.5
Back of Queue (*Q*), veh/ln (95 th percentile)	7.6	1.7	1.0		13.4	0.1	0.9	18.5	17.2	9.1	10.0	3.7
Queue Storage Ratio (*RQ*) (95 th percentile)	0.50	0.00	0.50		0.00	0.00	0.10	0.00	0.00	2.28	0.00	0.31
Uniform Delay (*d 1*), s/veh	68.2	65.0	59.4		63.6	55.8	72.3	18.2	17.1	67.2	16.3	9.7
Incremental Delay (*d 2*), s/veh	10.5	0.6	0.3		4.7	0.0	1.1	3.0	3.1	10.0	0.4	0.3
Initial Queue Delay (*d 3*), s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	78.7	65.6	59.6		68.3	55.8	73.4	21.2	20.3	77.2	16.8	10.0
Level of Service (LOS)	E	E	E		E	E	E	C	C	E	B	B
Approach Delay, s/veh / LOS	74.1	E		68.2	E		21.2	C		23.8	C	
Intersection Delay, s/veh / LOS	28.7						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.32	B	2.49	B	1.91	B	2.09	B
Bicycle LOS Score / LOS	0.73	A	0.86	A	1.82	B	1.34	A

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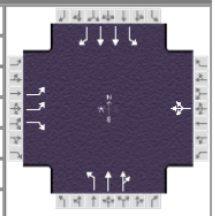
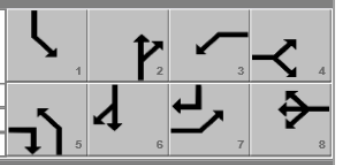
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Diane B. Zimmerman Traffic Engineering			Duration, h	0.250
Analyst	DBZ	Analysis Date	Jun 2, 2021	Area Type	Other
Jurisdiction		Time Period	PM Peak	PHF	0.98
Urban Street	Preston Highway	Analysis Year	2021	Analysis Period	1> 4:45
Intersection	Interchange Dr	File Name	PM 21 Preston.xus		
Project Description	Old Preston Apt				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	184		48	3	0	4	16	1222	2	0	1867	155

Signal Information			
Cycle, s	180.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	3.4	126.2	20.0	6.0	0.0	0.0
Yellow	3.5	4.3	3.6	3.6	0.0	0.0
Red	3.0	1.6	2.4	2.4	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		9.0		12.0	2.0	4.0	2.0	3.0
Phase Duration, s		26.0		12.0	9.9	142.0	0.0	132.1
Change Period, (*Y+R c*), s		6.0		6.0	6.5	5.9	6.5	5.9
Max Allow Headway (*MAH*), s		4.0		3.1	4.0	0.0	0.0	0.0
Queue Clearance Time (*g s*), s				2.7	3.6			
Green Extension Time (*g e*), s		0.0		0.0	0.0	0.0	0.0	0.0
Phase Call Probability				1.00	0.56			
Max Out Probability				0.00	0.00			

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7		14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	188		49		7		16	630	629	0	1846	153
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1757		1610		1690		1810	1885	1884	1810	1781	1598
Queue Service Time (*g s*), s	9.0		4.9		0.7		1.6	19.9	19.9	0.0	61.1	3.8
Cycle Queue Clearance Time (*g c*), s	9.0		4.9		0.7		1.6	19.9	19.9	0.0	61.1	3.8
Green Ratio (*g/C*)	0.11		0.13		0.03		0.02	0.76	0.76		0.70	0.81
Capacity (*c*), veh/h	390		209		56		34	1425	1425	1	2497	1298
Volume-to-Capacity Ratio (*X*)	0.481		0.234		0.127		0.486	0.442	0.442	0.000	0.739	0.118
Back of Queue (*Q*), ft/ln (95 th percentile)	183.7		91.7		14.6		37.6	268.5	266.1	0	788.8	48.1
Back of Queue (*Q*), veh/ln (95 th percentile)	7.3		3.7		0.6		1.5	10.7	10.6	0.0	31.1	1.9
Queue Storage Ratio (*RQ*) (95 th percentile)	0.46		1.53		0.00		0.15	0.00	0.00	0.00	0.00	0.16
Uniform Delay (*d 1*), s/veh	75.1		70.3		84.5		88.8	6.9	6.9	0.0	19.0	3.7
Incremental Delay (*d 2*), s/veh	0.9		0.6		0.4		7.5	0.7	0.7	0.0	1.5	0.1
Initial Queue Delay (*d 3*), s/veh	0.0		0.0		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	76.0		70.9		84.8		96.3	7.6	7.6	0.0	20.5	3.8
Level of Service (LOS)	E		E		F		F	A	A		C	A
Approach Delay, s/veh / LOS	75.0	E		84.8	F		8.8	A		19.2	B	
Intersection Delay, s/veh / LOS	19.3						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.33	B	2.49	B	1.64	B	2.07	B
Bicycle LOS Score / LOS		F	0.50	A	1.53	B	2.19	B

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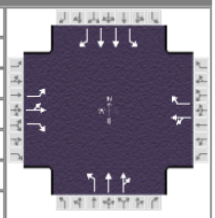
HCS7 Signalized Intersection Results Summary

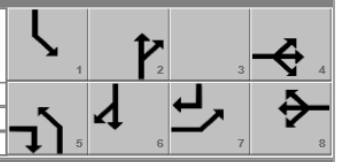
General Information				Intersection Information	
Agency	Diane B. Zimmerman Traffic Engineering			Duration, h	0.250
Analyst	DBZ	Analysis Date	Dec 23, 2021	Area Type	Other
Jurisdiction		Time Period	PM Peak	PHF	0.98
Urban Street	Preston Highway	Analysis Year	2024 No Build	Analysis Period	1> 4:45
Intersection	Interchange Dr	File Name	PM 24 NB Preston.xus		
Project Description	Old Preston Apt				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	171	28	48	221	12	4	16	1248	82	159	1758	158

Signal Information			
Cycle, s	180.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	8.0	3.3	92.2	20.0	25.5	0.0	
Yellow	3.5	3.5	4.3	3.6	3.6	0.0	
Red	3.0	3.0	1.6	2.4	2.4	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		9.0		11.0	2.0	4.0	2.0	3.0
Phase Duration, s		26.0		31.5	14.5	98.1	24.4	108.0
Change Period, ($Y+R_c$), s		6.0		6.0	6.5	5.9	6.5	5.9
Max Allow Headway (*MAH*), s		4.0		3.0	4.0	0.0	3.0	0.0
Queue Clearance Time (g_s), s		11.8		25.1	3.5		17.6	
Green Extension Time (g_e), s		0.8		0.4	0.0	0.0	0.2	0.0
Phase Call Probability		1.00		1.00	1.00		1.00	
Max Out Probability		0.00		0.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	105	98	49		238	4	15	636	624	157	1738	156
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810	1836	1610		1814	1610	1810	1885	1844	1810	1781	1598
Queue Service Time (g_s), s	9.8	9.1	4.8		23.1	0.4	1.5	41.7	40.6	15.6	72.3	5.0
Cycle Queue Clearance Time (g_c), s	9.8	9.1	4.8		23.1	0.4	1.5	41.7	40.6	15.6	72.3	5.0
Green Ratio (*g/C*)	0.11	0.11	0.16		0.15	0.15	0.04	0.51	0.51	0.10	0.57	0.68
Capacity (*c*), veh/h	211	204	250		267	228	80	966	945	190	2019	1083
Volume-to-Capacity Ratio (*X*)	0.496	0.482	0.196		0.889	0.018	0.188	0.659	0.660	0.830	0.861	0.144
Back of Queue (*Q*), ft/ln (95 th percentile)	202.6	193.4	88.5		408.8	7.2	31.4	606.4	566.5	307.4	965.9	74.2
Back of Queue (*Q*), veh/ln (95 th percentile)	8.1	7.7	3.5		16.4	0.3	1.3	24.1	22.7	12.3	38.0	2.9
Queue Storage Ratio (*RQ*) (95 th percentile)	0.51	0.00	1.47		0.00	0.00	0.13	0.00	0.00	3.07	0.00	0.25
Uniform Delay (d_1), s/veh	74.5	74.7	66.2		75.3	66.4	83.8	27.7	26.0	87.5	29.5	7.9
Incremental Delay (d_2), s/veh	1.8	1.8	0.4		4.0	0.0	0.8	2.5	2.6	3.1	4.5	0.2
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	76.3	76.4	66.6		79.3	66.5	84.6	30.2	28.6	90.6	34.0	8.1
Level of Service (LOS)	E	E	E		E	E	F	C	C	F	C	A
Approach Delay, s/veh / LOS	74.5	E		79.1	E		30.1	C		36.4	D	
Intersection Delay, s/veh / LOS	39.5						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.33	B	2.49	B	1.92	B	2.10	B
Bicycle LOS Score / LOS	0.90	A	0.89	A	1.62	B	2.23	B

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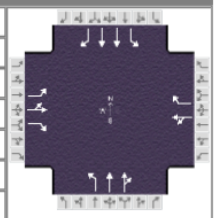
HCS7 Signalized Intersection Results Summary

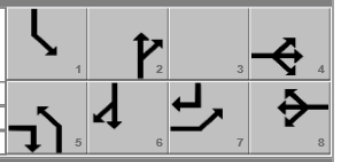
General Information				Intersection Information	
Agency	Diane B. Zimmerman Traffic Engineering			Duration, h	0.250
Analyst	DBZ	Analysis Date	Jan 12, 2022	Area Type	Other
Jurisdiction		Time Period	PM Peak	PHF	0.98
Urban Street	Preston Highway	Analysis Year	2024 Build	Analysis Period	1> 4:45
Intersection	Interchange Dr	File Name	PM 24 B Preston.xus		
Project Description	Old Preston Apt				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	192	28	48	221	12	4	28	1248	82	159	1764	158

Signal Information			
Cycle, s	180.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	8.0	3.6	92.0	20.0	25.5	0.0	
Yellow	3.5	3.5	4.3	3.6	3.6	0.0	
Red	3.0	3.0	1.6	2.4	2.4	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		9.0		11.0	2.0	4.0	2.0	3.0
Phase Duration, s		26.0		31.5	14.5	97.9	24.6	108.0
Change Period, (*Y+R c*), s		6.0		6.0	6.5	5.9	6.5	5.9
Max Allow Headway (*MAH*), s		4.0		3.0	4.0	0.0	3.0	0.0
Queue Clearance Time (*g s*), s		13.0		25.1	4.6		17.9	
Green Extension Time (*g e*), s		0.9		0.4	0.1	0.0	0.2	0.0
Phase Call Probability		1.00		1.00	1.00		1.00	
Max Out Probability		0.00		0.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	118	107	49		238	4	26	631	618	160	1774	159
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810	1834	1610		1814	1610	1810	1885	1844	1810	1781	1598
Queue Service Time (*g s*), s	11.0	9.9	4.8		23.1	0.4	2.6	41.3	40.2	15.9	75.4	5.1
Cycle Queue Clearance Time (*g c*), s	11.0	9.9	4.8		23.1	0.4	2.6	41.3	40.2	15.9	75.4	5.1
Green Ratio (*g/C*)	0.11	0.11	0.16		0.15	0.15	0.04	0.51	0.51	0.11	0.57	0.68
Capacity (*c*), veh/h	211	204	250		267	228	80	963	942	192	2019	1083
Volume-to-Capacity Ratio (*X*)	0.557	0.525	0.196		0.889	0.018	0.327	0.655	0.656	0.832	0.878	0.147
Back of Queue (*Q*), ft/ln (95 th percentile)	223.9	207.6	88.5		408.8	7.2	55.1	601.5	561.8	310.5	1006.1	74.9
Back of Queue (*Q*), veh/ln (95 th percentile)	9.0	8.3	3.5		16.4	0.3	2.2	23.9	22.5	12.4	39.6	3.0
Queue Storage Ratio (*RQ*) (95 th percentile)	0.56	0.00	1.47		0.00	0.00	0.22	0.00	0.00	3.11	0.00	0.25
Uniform Delay (*d 1*), s/veh	75.1	75.1	66.2		75.3	66.4	84.3	27.7	26.1	87.1	30.1	7.9
Incremental Delay (*d 2*), s/veh	2.3	2.1	0.4		4.0	0.0	1.7	2.5	2.5	3.1	5.2	0.3
Initial Queue Delay (*d 3*), s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	77.4	77.1	66.6		79.3	66.5	86.0	30.2	28.6	90.3	35.2	8.1
Level of Service (LOS)	E	E	E		E	E	F	C	C	F	D	A
Approach Delay, s/veh / LOS	75.4	E		79.1	E		30.6	C		37.4	D	
Intersection Delay, s/veh / LOS	40.4						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.33	B	2.49	B	1.92	B	2.10	B
Bicycle LOS Score / LOS	0.94	A	0.89	A	1.63	B	2.24	B

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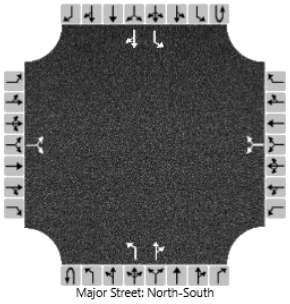
HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DBZ	Intersection	Herr Lane at Wesboro
Agency/Co.	Diane B Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	10/30/2020	East/West Street	Wesboro
Analysis Year	2025	North/South Street	Herr Lane
Time Analyzed	PM Peak Build	Peak Hour Factor	0.94
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Providence Point		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	1	0	0	1	1	0
Configuration			LR				LR			L		TR		L		TR
Volume (veh/h)		10		17		21		25		26	536	45		64	690	8
Percent Heavy Vehicles (%)		0		0		0		4		0				0		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Left Only								1							

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2		7.1		6.2		4.1				4.1		
Critical Headway (sec)		7.10		6.20		7.10		6.24		4.10				4.10		
Base Follow-Up Headway (sec)		3.5		3.3		3.5		3.3		2.2				2.2		
Follow-Up Headway (sec)		3.50		3.30		3.50		3.34		2.20				2.20		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			29				49			28				68		
Capacity, c (veh/h)			291				421			874				972		
v/c Ratio			0.10				0.12			0.03				0.07		
95% Queue Length, Q_{95} (veh)			0.3				0.4			0.1				0.2		
Control Delay (s/veh)			18.7				14.7			9.3				9.0		
Level of Service (LOS)			C				B			A				A		
Approach Delay (s/veh)	18.7				14.7				0.4				0.8			
Approach LOS	C				B											

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HCS7 Two-Way Stop-Control Report

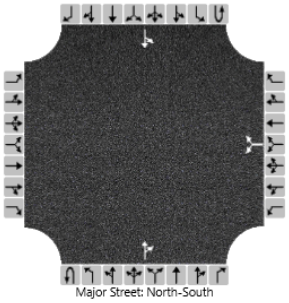
General Information

Analyst	DBZ
Agency/Co.	Diane B Zimmerman Traffic Engineering
Date Performed	7/23/2020
Analysis Year	2035
Time Analyzed	PM Peak No Build
Intersection Orientation	North-South
Project Description	Providence Point

Site Information

Intersection	Herr Lane at Wesboro
Jurisdiction	
East/West Street	Wesboro
North/South Street	Herr Lane
Peak Hour Factor	0.94
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						21		25			535	45		64	707	
Percent Heavy Vehicles (%)						0		4						0		
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.40		6.24						4.10		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.50		3.34						2.20		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							49							68		
Capacity, c (veh/h)							269							973		
v/c Ratio							0.18							0.07		
95% Queue Length, Q_{95} (veh)							0.7							0.2		
Control Delay (s/veh)							21.4							9.0		
Level of Service (LOS)							C							A		
Approach Delay (s/veh)						21.4								1.7		
Approach LOS						C										

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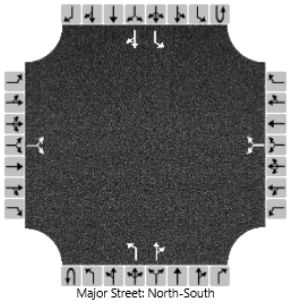
HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DBZ	Intersection	Herr Lane at Wesboro
Agency/Co.	Diane B Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	10/30/2020	East/West Street	Wesboro
Analysis Year	2035	North/South Street	Herr Lane
Time Analyzed	PM Peak Build	Peak Hour Factor	0.94
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Providence Point		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	1	0	0	1	1	0
Configuration			LR				LR			L		TR		L		TR
Volume (veh/h)		10		17		21		25		26	562	45		64	734	8
Percent Heavy Vehicles (%)		0		0		0		4		0				0		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Left Only								1							

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2		7.1		6.2		4.1				4.1		
Critical Headway (sec)		7.10		6.20		7.10		6.24		4.10				4.10		
Base Follow-Up Headway (sec)		3.5		3.3		3.5		3.3		2.2				2.2		
Follow-Up Headway (sec)		3.50		3.30		3.50		3.34		2.20				2.20		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			29				49			28				68		
Capacity, c (veh/h)			273				392			839				949		
v/c Ratio			0.11				0.12			0.03				0.07		
95% Queue Length, Q_{95} (veh)			0.3				0.4			0.1				0.2		
Control Delay (s/veh)			19.7				15.5			9.4				9.1		
Level of Service (LOS)			C				C			A				A		
Approach Delay (s/veh)	19.7				15.5				0.4				0.7			
Approach LOS	C				C											

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