

final report

July 6, 2020

Traffic Impact Study

*Liberty Financial
7602 Bardstown Road
Louisville, KY*

Prepared for

**Louisville Metro Planning Commission
Kentucky Transportation Cabinet**



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INTRODUCTION

The development plan for Liberty National on Bardstown Road in Louisville, KY shows a bank with 5,735 square feet. **Figure 1** displays a map of the site. Access to the bank will be from a proposed right-in/right-out on Bardstown Road, and full access driveway on Bartley 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 intersection of Bardstown Road with Southpointe Boulevard/Bartley Drive.



Figure 1. Site Map

EXISTING CONDITIONS

Bardstown Road, US 31E, is maintained by the Kentucky Transportation Cabinet (KYTC) with an estimated 2020ADT of 47,000 vehicles per day between I 265 and Cedar Creek Road, as estimated from the March 3, 2020 turning movement count at Cedar Creek Road. The road is a four-lane highway with twelve-foot lanes, a center turn lane and eight-foot paved shoulders. An additional northbound lane begins near the entrance of Bates Elementary School. The speed limit is 50 mph. There are no sidewalks. The intersection with Southpointe Boulevard Lane is controlled with a traffic signal. There are dual left turn lanes on the southbound and westbound approaches. The northbound has right turn lanes.

Peak hour traffic counts for the Bartley Drive were obtained on September 22, 2015. The volumes for Bardstown Road were obtained March 3, 2020. The a.m. peak hour occurred between 7:15 and 8:15 a.m. The p.m. peak occurred between 4:45 and 5:45 p.m. **Figure 2** illustrates the existing a.m. and p.m. peak hour traffic volumes. The full counts are included in the appendix.

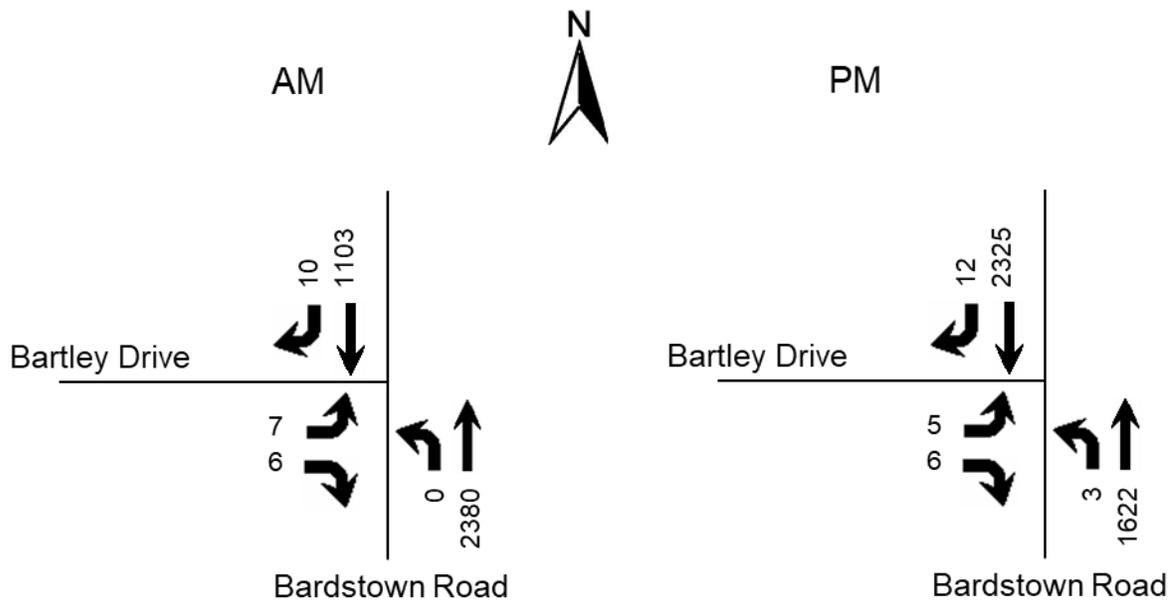


Figure 2. Existing (2020) Peak Hour Volumes

FUTURE CONDITIONS

The project completion date is 2021. An annual growth rate of 0.5 percent was applied to 2020 traffic volumes on Bardstown Road. This is based upon a review of historical traffic counts at the intersection. **Figure 3** displays the 2021 No Build peak hour volumes. For purposes of this analysis, Southpointe Commons is assumed to be fully developed. The traffic volumes shown on Southpointe Boulevard were generated from the development plan dated January 22, 2020 and the general plan dated May 20, 2010. The trip generation and distribution is shown in the appendix.

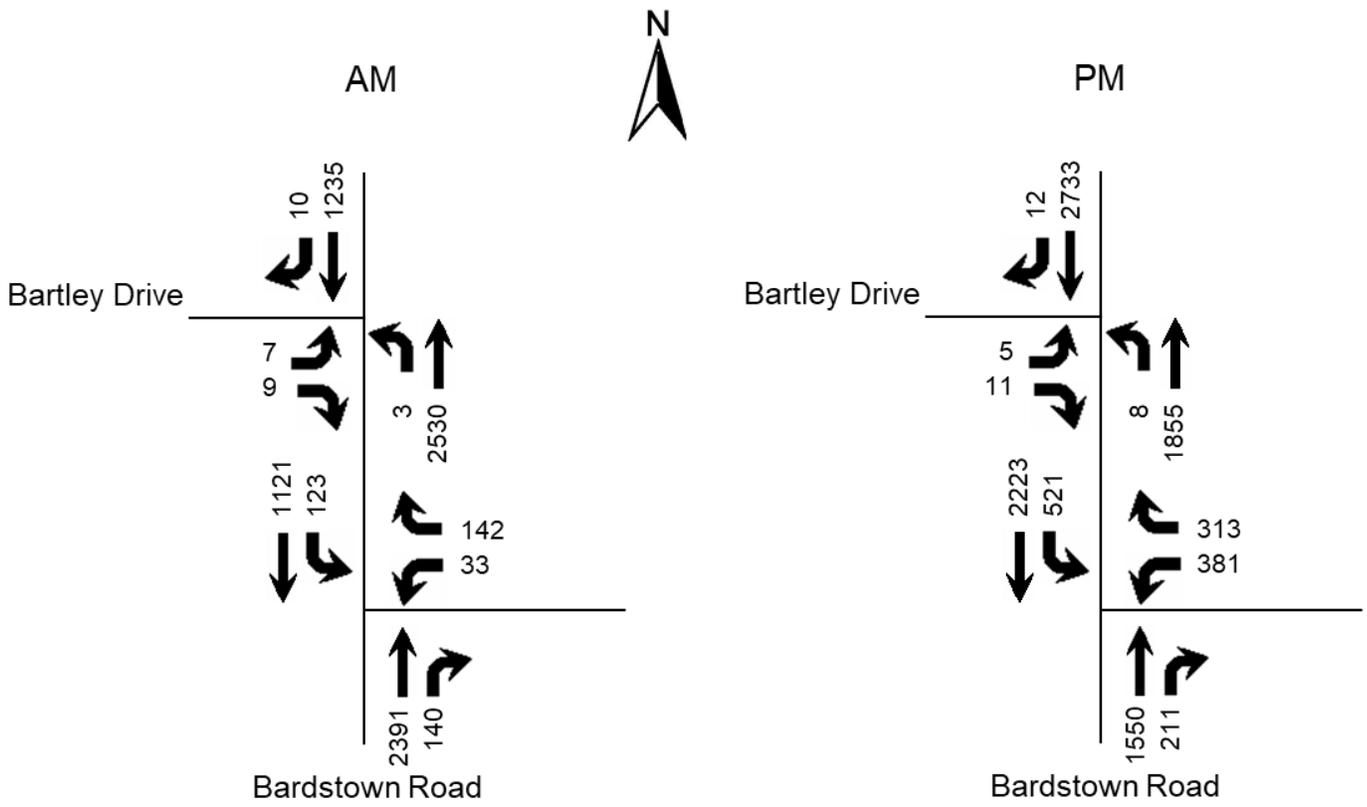


Figure 3. No Build 2021 Peak Hour Volumes

TRIP GENERATION

The Institute of Transportation Engineers Trip Generation Manual, 10th Edition contains trip generation rates for a wide range of land uses. The land use of “Drive-In Bank (912)” was reviewed and determined to be the best match. The trip generation results are listed in **Table 1**. The new trips were assigned to the highway network with the percentages shown in **Figure 4**. **Figure 5** shows the trips generated by this development and distributed throughout the road network during the peak hours. **Figure 6** 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
Bank (5,735 sq. ft.)	54	30	24	117	58	59

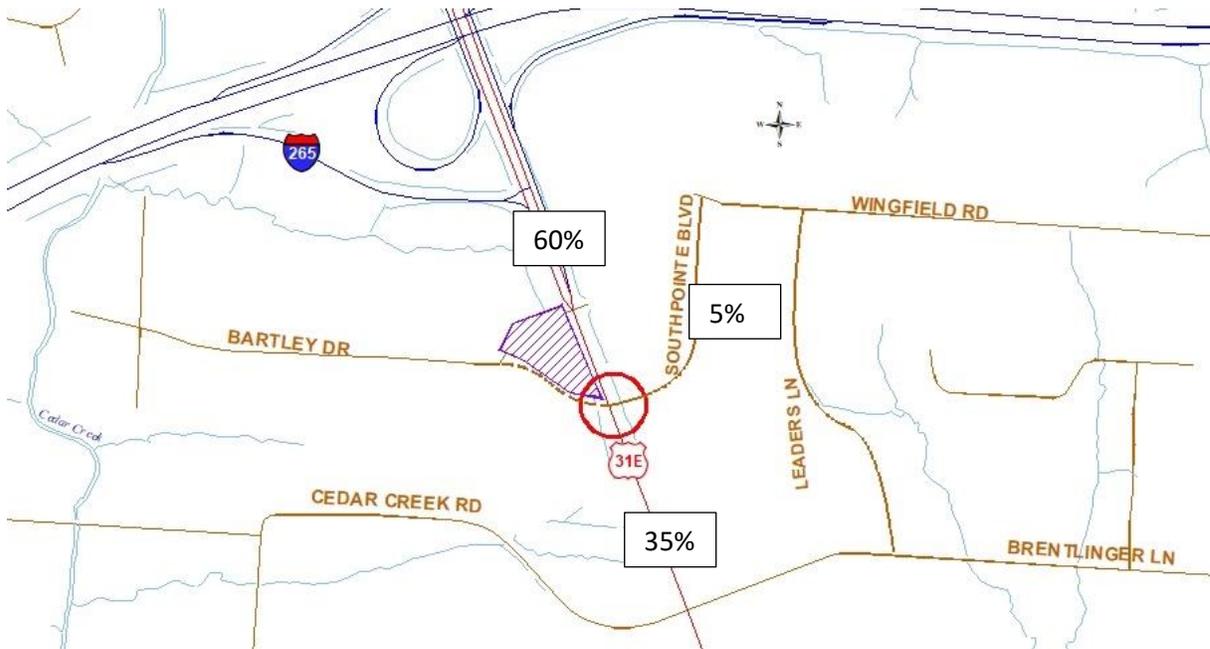


Figure 4. Trip Distribution Percentages

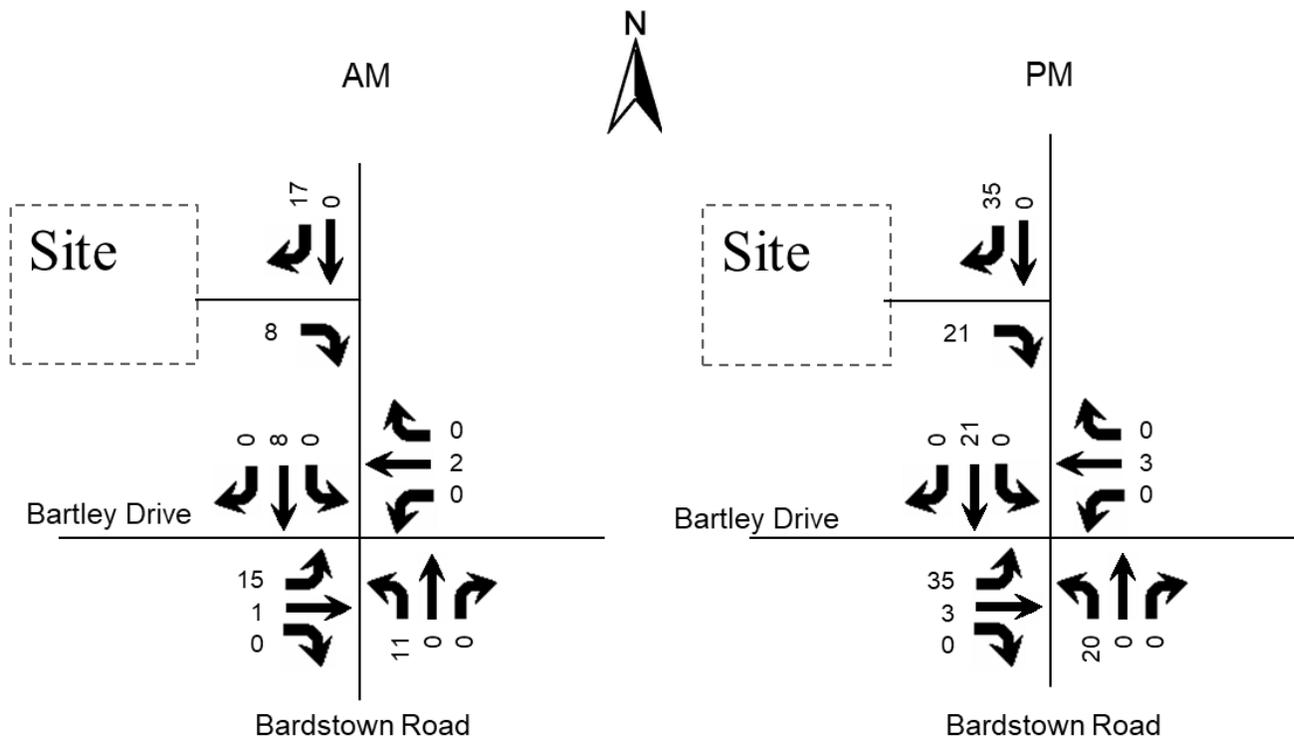


Figure 5. Peak Hour Trips Generated by Site

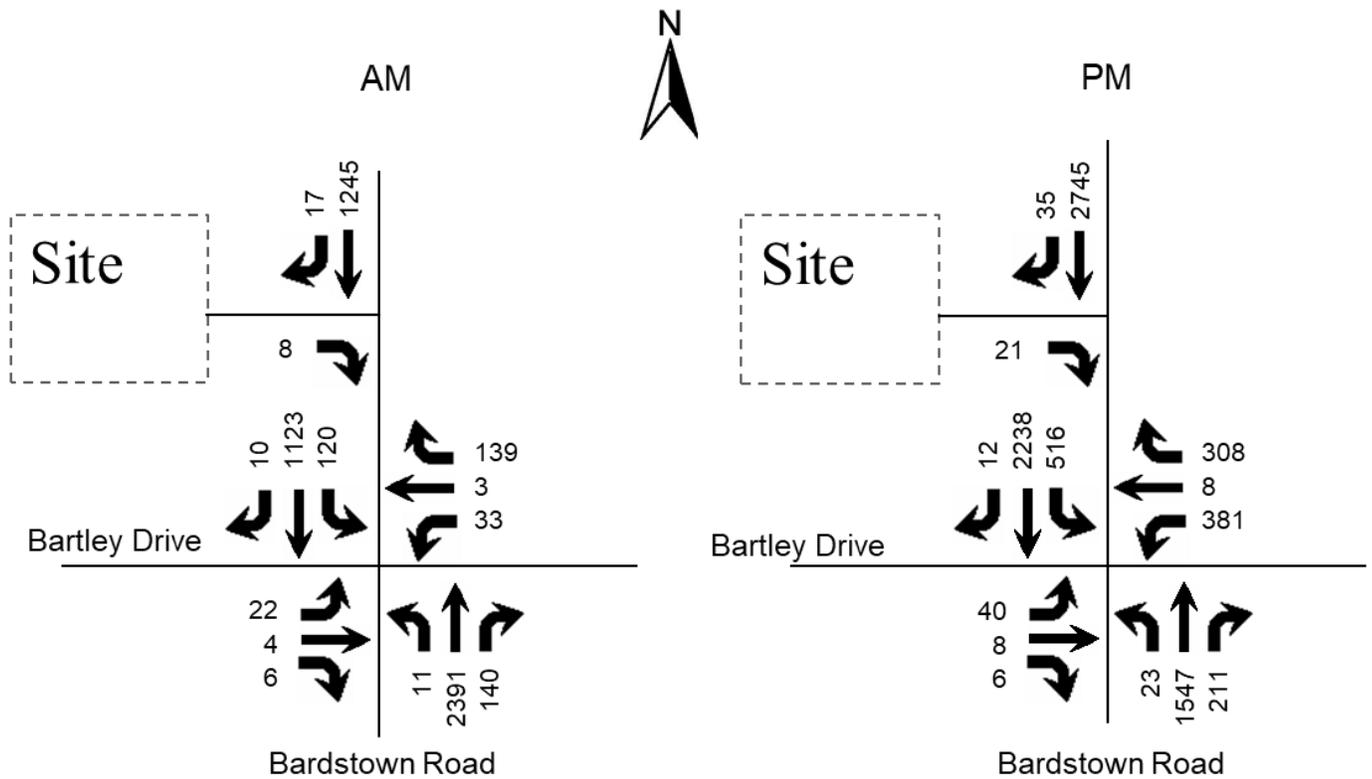


Figure 6. Build 2021 Peak Hour Volumes

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 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 the HCS Streets (version 7.8.5) software. The delays and Level of Service are summarized in **Table 2**.

Table 2. Peak Hour Level of Service

Approach	A.M.		P.M.	
	2021 No Build	2021 Build	2021 No Build	2021 Build
Bardstown Road at Bartley/Southpointe	A 8.5	B 18.8	C 20.9	D 43.7
Bartley Drive Eastbound	NA	F 94.2	NA	F 125.6
Southpointe Boulevard Westbound	E 79.4	E 77.1	F 95.4	F 90.9
Bardstown Road Northbound	A 6.0	B 10.4	A 7.6	B 16.7
Bardstown Road Southbound	A 2.8	C 24.5	A 9.6	D 45.6

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 March, 2017. The traffic impact policy requires using volumes for ten years beyond build-out, or 2031. The 2031 volumes were determined by applying a 0.5 percent annual growth rate from 2020. **Figure 7** illustrates the 2031 No Build volumes. **Figure 8** illustrates the 2031 Build Volumes. Using the volumes in Figure 8, a right turn lane is required at the entrance on Bardstown Road. A right turn lane at Bartley Drive is not required because adding the turn lane does not improve the level of service. **Table 3** summarizes the delay and Level of Service for 2031.

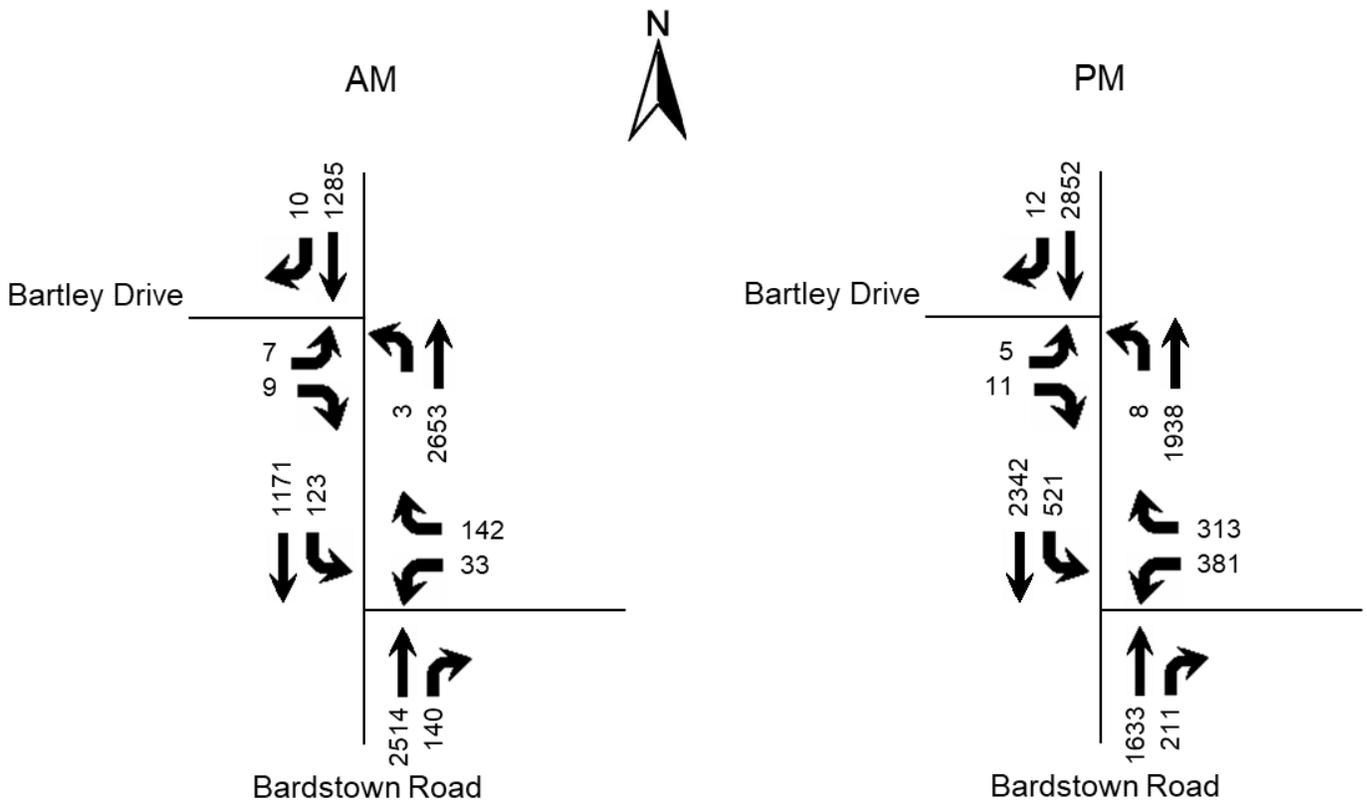


Figure 7. 2031 No Build Peak Hour Volumes

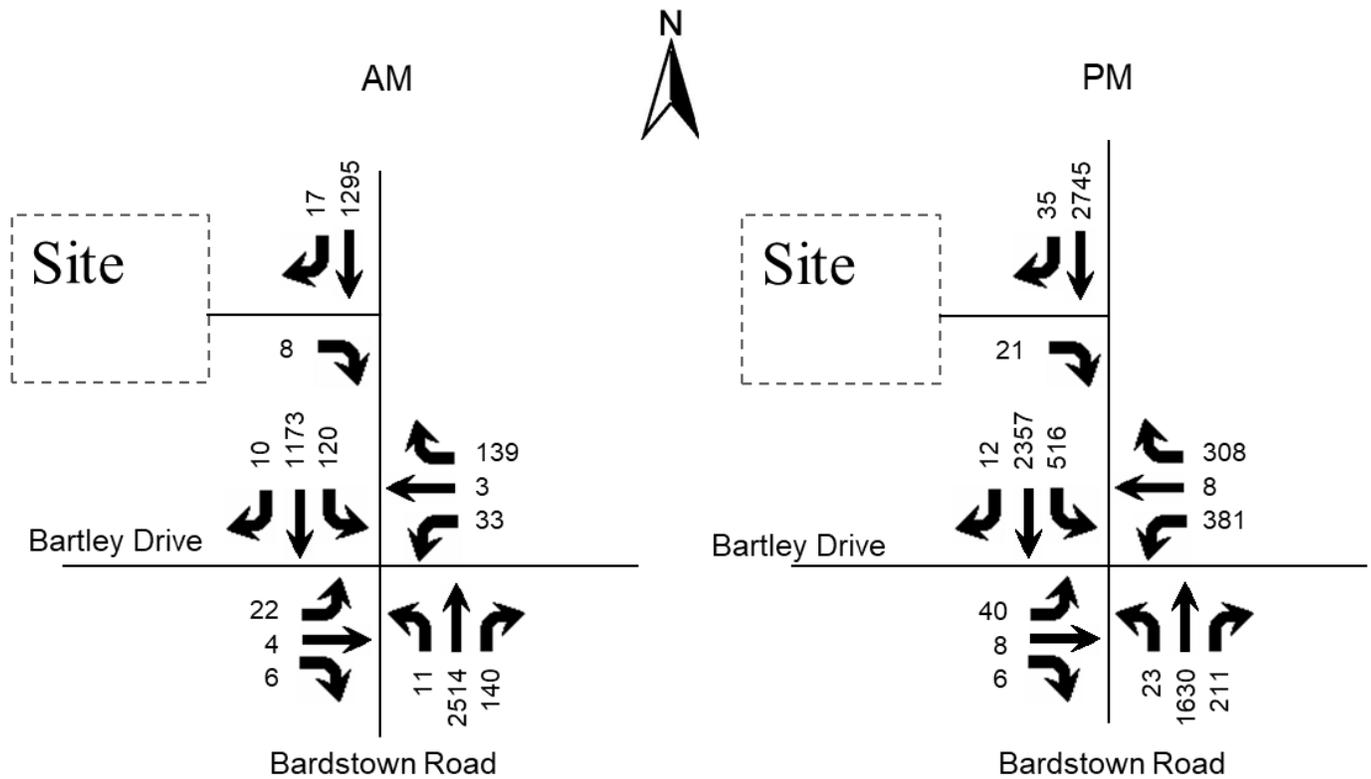


Figure 8. 2031 Build Peak Hour Volumes

Table 3. Peak Hour Level of Service

Approach	A.M.		P.M.	
	2031 No Build	2031 Build	2031 No Build	2031 Build
Bardstown Road at Bartley/Southpointe	A 8.5	B 18.8	C 20.9	D 46.4
Bartley Drive Eastbound	NA	F 94.2	NA	F 125.6
Southpointe Boulevard Westbound	E 79.4	E 77.4	F 95.6	F 91.2
Bardstown Road Northbound	A 6.0	B 10.4	A 7.5	C 20.8
Bardstown Road Southbound	A 2.8	C 24.3	A 9.7	D 48.1

Key: Level of Service, Delay in seconds per vehicle

CONCLUSIONS

Based upon the volume of traffic generated by the development and the amount of traffic forecasted for the year 2021 and 2031, there will be an impact to the existing highway network. The delays experienced in the area will increase within acceptable limits. A right turn lane will be required at the entrance on Bardstown Road.

APPENDIX

Liberty Financial
7602 Bardstown Road
Traffic Impact Study

Traffic Counts

Jefferson County (Louisville), KY
Classified Turn Movement Count



Marr Traffic
Transportation Data Collection

41 Peabody Street, Nashville, TN 37210
10 Glenlake Parkway, Suite 130, Atlanta, GA 30328
555 Fayetteville Street, Suite 201, Raleigh, NC 27601
1229 South Shelby Street, Louisville, KY 40203
6565 North MacArthur Boulevard, Suite 225, Dallas, TX 75039

hello@marrtraffic.com
www.marrtraffic.com

Site 3 of 3
US-150 Bardstown Rd (North)
Brentlinger Ln
US-150 Bardstown Rd (South)
Cedar Creek Rd

Lat/Long 38.134142°, -85.579609°
Weather Fair
55°F

Date
Tuesday, March 3, 2020

	Southbound					Westbound					Northbound					Eastbound					Int				
	US-150 Bardstown Rd (North)					Brentlinger Ln					US-150 Bardstown Rd (South)					Cedar Creek Rd									
	U-Turn	Left	Thru	Right	Peds	App	U-Turn	Left	Thru	Right	Peds	App	U-Turn	Left	Thru	Right	Peds	App	U-Turn	Left		Thru	Right	Peds	App
0700 - 0715	0	25	184	7	0	216	0	4	1	60	0	65	0	1	522	14	0	537	0	45	10	3	0	58	876
0715 - 0730	0	14	222	7	0	243	0	6	1	50	0	57	0	1	556	14	0	571	0	34	10	13	0	57	928
0730 - 0745	0	18	239	13	0	270	0	13	3	46	0	62	0	1	521	22	0	544	0	25	12	4	0	41	917
0745 - 0800	0	36	266	11	0	313	0	11	1	51	0	63	0	2	503	27	1	533	0	23	11	4	0	38	947
0800 - 0815	0	24	254	5	0	283	0	14	2	44	0	60	0	5	510	21	0	536	0	17	6	5	0	28	907
0815 - 0830	0	38	216	9	0	263	0	9	4	35	0	48	0	1	482	21	0	504	0	18	13	4	0	35	850
0830 - 0845	0	29	190	9	0	228	0	13	5	70	0	88	0	4	447	22	0	473	0	26	10	7	0	43	832
0845 - 0900	0	69	187	9	0	265	0	17	10	77	0	104	0	2	376	18	0	396	0	15	12	3	0	30	795
1600 - 1615	0	50	468	17	0	535	0	55	16	69	0	140	0	3	298	7	0	308	0	12	3	6	0	21	1004
1615 - 1630	0	41	509	11	0	561	0	70	9	37	0	116	0	7	350	12	0	369	0	19	8	8	0	35	1081
1630 - 1645	0	38	523	14	0	575	0	57	16	41	0	114	0	5	353	13	0	371	0	20	7	10	0	37	1097
1645 - 1700	0	35	489	14	0	538	0	69	5	35	0	109	1	8	349	16	0	374	0	12	6	12	0	30	1051
1700 - 1715	0	34	536	14	0	584	0	66	9	39	0	114	0	9	362	13	0	384	0	17	9	9	0	35	1117
1715 - 1730	0	48	534	14	0	596	0	69	13	38	0	120	0	6	359	19	0	384	0	8	6	11	0	25	1125
1730 - 1745	0	44	549	14	0	607	0	72	10	36	0	118	0	7	345	15	0	367	0	22	8	8	0	38	1130
1745 - 1800	0	49	441	20	0	510	0	60	19	26	0	105	0	6	318	19	0	343	0	15	4	6	0	25	983
0715 - 0730	0	14	222	7	0	243	0	6	1	50	0	57	0	1	556	14	0	571	0	34	10	13	0	57	928
0730 - 0745	0	18	239	13	0	270	0	13	3	46	0	62	0	1	521	22	0	544	0	25	12	4	0	41	917
0745 - 0800	0	36	266	11	0	313	0	11	1	51	0	63	0	2	503	27	1	533	0	23	11	4	0	38	947
0800 - 0815	0	24	254	5	0	283	0	14	2	44	0	60	0	5	510	21	0	536	0	17	6	5	0	28	907
AM PEAK	0	92	981	36	0	1109	0	44	7	191	0	242	0	9	2090	84	1	2184	0	99	39	26	0	164	3699
1645 - 1700	0	35	489	14	0	538	0	69	5	35	0	109	1	8	349	16	0	374	0	12	6	12	0	30	1051
1700 - 1715	0	34	536	14	0	584	0	66	9	39	0	114	0	9	362	13	0	384	0	17	9	9	0	35	1117
1715 - 1730	0	48	534	14	0	596	0	69	13	38	0	120	0	6	359	19	0	384	0	8	6	11	0	25	1125
1730 - 1745	0	44	549	14	0	607	0	72	10	36	0	118	0	7	345	15	0	367	0	22	8	8	0	38	1130
PM PEAK	0	161	2108	56	0	2325	0	276	37	148	0	461	1	30	1415	63	0	1509	0	59	29	40	0	128	4423

Diane B. Zimmerman Traffic Engineering, LLC
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Counted by: A Wolak

File Name : BartleyAM
Site Code : 00922151
Start Date : 9/22/2015
Page No : 1

Groups Printed- Unshifted

Start Time	Bardstown Road From North				Brentlinger Drive From East				From South				Bartley Drive From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	0	0	4	4	0	0	5	5	0	0	0	0	0	0	2	2	11
07:15 AM	1	0	4	5	0	0	9	9	0	0	0	0	1	0	3	4	18
07:30 AM	0	0	0	0	2	0	4	6	0	0	0	0	3	0	1	4	10
07:45 AM	2	0	2	4	1	0	3	4	0	0	0	0	3	0	0	3	11
Total	3	0	10	13	3	0	21	24	0	0	0	0	7	0	6	13	50
08:00 AM	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
08:15 AM	2	0	1	3	0	0	3	3	1	0	1	2	1	0	0	1	9
08:30 AM	2	0	2	4	0	0	0	0	0	0	1	1	2	0	3	5	10
08:45 AM	0	0	0	0	1	0	3	4	1	0	2	3	1	0	3	4	11
Total	5	0	3	8	1	0	6	7	2	0	4	6	4	0	6	10	31
Grand Total	8	0	13	21	4	0	27	31	2	0	4	6	11	0	12	23	81
Apprch %	38.1	0	61.9		12.9	0	87.1		33.3	0	66.7		47.8	0	52.2		
Total %	9.9	0	16	25.9	4.9	0	33.3	38.3	2.5	0	4.9	7.4	13.6	0	14.8	28.4	

Start Time	Bardstown Road From North				Brentlinger Drive From East				From South				Bartley Drive From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	4	4	0	0	5	5	0	0	0	0	0	0	2	2	11
07:15 AM	1	0	4	5	0	0	9	9	0	0	0	0	1	0	3	4	18
07:30 AM	0	0	0	0	2	0	4	6	0	0	0	0	3	0	1	4	10
07:45 AM	2	0	2	4	1	0	3	4	0	0	0	0	3	0	0	3	11
Total Volume	3	0	10	13	3	0	21	24	0	0	0	0	7	0	6	13	50
% App. Total	23.1	0	76.9		12.5	0	87.5		0	0	0		53.8	0	46.2		
PHF	.375	.000	.625	.650	.375	.000	.583	.667	.000	.000	.000	.000	.583	.000	.500	.813	.694

File Name : BartleyPM
Site Code : 00922152
Start Date : 9/22/2015
Page No : 1

Counted by: A Wolak

Groups Printed- Unshifted

Start Time	Bardstown Road From North				Brentlinger Drive From East				Bardstown Road From South				Bartely Drive From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
04:00 PM	6	0	0	6	1	0	4	5	3	0	0	3	0	0	0	0	14
04:15 PM	3	0	3	6	0	0	2	2	1	0	0	1	1	0	1	2	11
04:30 PM	4	0	1	5	1	0	5	6	0	0	1	1	0	0	1	1	13
04:45 PM	6	0	4	10	0	0	1	1	0	0	2	2	1	0	1	2	15
Total	19	0	8	27	2	0	12	14	4	0	3	7	2	0	3	5	53
05:00 PM	4	0	3	7	1	0	1	2	1	0	1	2	1	0	2	3	14
05:15 PM	2	0	2	4	0	0	3	3	0	0	0	0	1	0	0	1	8
05:30 PM	4	0	4	8	0	0	2	2	1	0	3	4	2	0	2	4	18
05:45 PM	3	0	3	6	1	0	4	5	1	0	1	2	1	0	2	3	16
Total	13	0	12	25	2	0	10	12	3	0	5	8	5	0	6	11	56
Grand Total	32	0	20	52	4	0	22	26	7	0	8	15	7	0	9	16	109
Apprch %	61.5	0	38.5		15.4	0	84.6		46.7	0	53.3		43.8	0	56.2		
Total %	29.4	0	18.3	47.7	3.7	0	20.2	23.9	6.4	0	7.3	13.8	6.4	0	8.3	14.7	

Start Time	Bardstown Road From North				Brentlinger Drive From East				Bardstown Road From South				Bartely Drive From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	4	0	3	7	1	0	1	2	1	0	1	2	1	0	2	3	14
05:15 PM	2	0	2	4	0	0	3	3	0	0	0	0	1	0	0	1	8
05:30 PM	4	0	4	8	0	0	2	2	1	0	3	4	2	0	2	4	18
05:45 PM	3	0	3	6	1	0	4	5	1	0	1	2	1	0	2	3	16
Total Volume	13	0	12	25	2	0	10	12	3	0	5	8	5	0	6	11	56
% App. Total	52	0	48		16.7	0	83.3		37.5	0	62.5		45.5	0	54.5		
PHF	.813	.000	.750	.781	.500	.000	.625	.600	.750	.000	.417	.500	.625	.000	.750	.688	.778

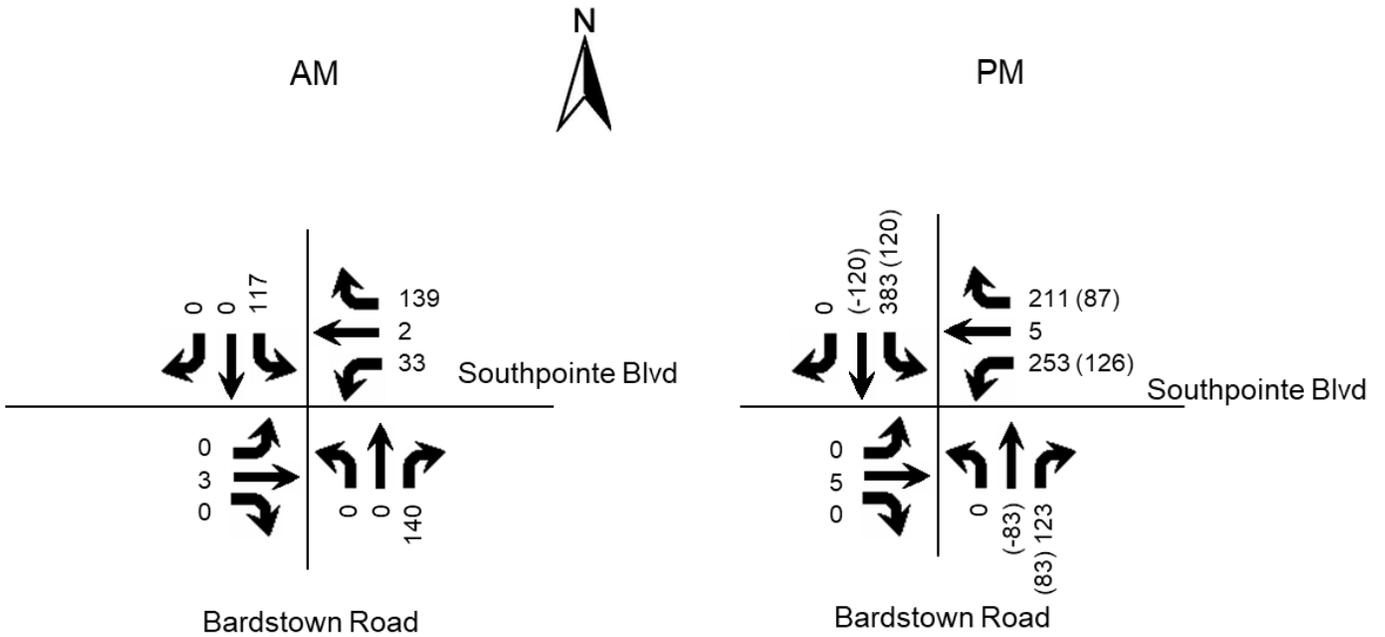
Southpointe Commons

AM Peak Hour

Land use	ITE Code	Intensity	Rate/EQ	% IN	% Out	Total Trips			Pass-by Trips		New Trips		
						In	Out	Total	%	Volume	In	Out	Total
Home Improvement	862	121,000 sf	$T = 1.57(X)$	0.57	0.43	108	82	190	0%	0	108	82	190
Shopping Center	820	166,660 sf	$T = 0.50(X)+151.78$	0.62	0.38	146	89	235	0%	0	146	89	235
Movie Theater	445	52,542 sf	0	0	0	0	0	0	0%	0	0	0	0
Fast Casual	930	4,429 sf	$T = 2.07 (X)$	0.67	0.33	6	3	9	0%	0	6	3	9
Total						260	174	434	0.0%	0	260	174	434

PM Peak Hour

Land use	ITE Code	Intensity				Total Trips			Pass-by Trips		New Trips		
						In	Out	Total	%	Volume	In	Out	Total
Home Improvement	862	121,000 sf	$T = 2.33(X)$	0.49	0.51	138	144	282	42%	118	80	84	164
Shopping Center	820	166,660 sf	$\ln(T) = 0.74\ln(X) + 2.89$	0.48	0.52	381	412	793	34%	270	251	272	523
Movie Theater	445	52,542 sf	$T = 4.91(X)$	0.62	0.38	160	98	258	0%	0	160	98	258
Fast Casual	930	4,429 sf	$T = 14.13 (X)$	0.55	0.45	35	28	63	43%	27	20	16	36
Total						714	682	1,396	29.7%	415	511	469	981



HCS Reports

HCS7 Signalized Intersection Results Summary															
General Information							Intersection Information								
Agency	DBZ Traffic						Duration, h	0.250							
Analyst	DBZ		Analysis Date	Jul 6, 2020			Area Type	Other							
Jurisdiction			Time Period	AM Peak			PHF	0.95							
Urban Street	Bardstown Road		Analysis Year	2021 No Build			Analysis Period	1> 7:15							
Intersection	Bartley/Southpointe		File Name	AM NB 21.xus											
Project Description	Liberty Financial														
Demand Information				EB			WB			NB			SB		
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h							33		143	2391	140	123	1121		
Signal Information															
Cycle, s	180.0	Reference Phase	2												
Offset, s	0	Reference Point	End												
Uncoordinated	No	Simult. Gap E/W	On	Green	6.0	140.8	12.0	0.0	0.0	0.0					
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	3.5	5.1	3.6	0.0	0.0	0.0					
				Red	3.0	3.0	3.0	0.0	0.0	0.0					
Timer Results				EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT				
Assigned Phase							8		2	1	6				
Case Number							9.0		7.3	1.0	4.0				
Phase Duration, s							18.6		148.9	12.5	161.4				
Change Period, (Y+R _c), s							6.6		8.1	6.5	8.1				
Max Allow Headway (MAH), s							5.3		0.0	5.1	0.0				
Queue Clearance Time (g _s), s							11.2			3.2					
Green Extension Time (g _e), s							0.8		0.0	0.6	0.0				
Phase Call Probability							1.00			1.00					
Max Out Probability							0.02			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							3		18		2	12	1		6
Adjusted Flow Rate (v), veh/h							35		151		2294	134	123	1122	
Adjusted Saturation Flow Rate (s), veh/h/ln							1730		1403		1698	1585	1702	1781	
Queue Service Time (g _s), s							1.7		9.2		27.4	1.7	1.2	9.4	
Cycle Queue Clearance Time (g _c), s							1.7		9.2		27.4	1.7	1.2	9.4	
Green Ratio (g/C)							0.07		0.10		0.78	0.85	0.83	0.85	
Capacity (c), veh/h							231		280		3986	1346	393	3033	
Volume-to-Capacity Ratio (X)							0.151		0.537		0.576	0.100	0.313	0.370	
Back of Queue (Q), ft/ln (95 th percentile)							35.6		156.3		295.1	19.4	24.5	113.9	
Back of Queue (Q), veh/ln (95 th percentile)							1.4		6.2		11.6	0.8	1.0	4.5	
Queue Storage Ratio (RQ) (95 th percentile)							0.24		0.39		0.27	0.10	0.06	0.13	
Uniform Delay (d ₁), s/veh							79.2		77.0		5.9	1.5	6.6	2.0	
Incremental Delay (d ₂), s/veh							0.4		2.3		0.3	0.1	0.6	0.3	
Initial Queue Delay (d ₃), s/veh							0.0		0.0		0.0	0.0	0.0	0.0	
Control Delay (d), s/veh							79.6		79.3		6.2	1.5	7.2	2.3	
Level of Service (LOS)							E		E		A	A	A	A	
Approach Delay, s/veh / LOS				0.0			79.4	E		6.0	A		2.8	A	
Intersection Delay, s/veh / LOS							8.5						A		
Multimodal Results				EB			WB			NB			SB		
Pedestrian LOS Score / LOS				2.49		B	2.63		C	2.37		B	0.63		A
Bicycle LOS Score / LOS									F	1.95		B	1.57		B

HCS7 Signalized Intersection Results Summary

General Information				Intersection Information																							
Agency	DBZ Traffic			Duration, h	0.250																						
Analyst	DBZ			Analysis Date	Jul 6, 2020																						
Jurisdiction				Area Type	Other																						
Urban Street	Bardstown Road			Time Period	AM Peak																						
Intersection	Bartley/Southpointe			Analysis Year	2021 Build																						
Project Description	Liberty Financial			File Name	AM B 21.xus																						
Demand Information				EB			WB			NB			SB														
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R												
Demand (v), veh/h				22	4	6	33	3	139	11	2391	140	120	1123	10												
Signal Information																											
Cycle, s	180.0	Reference Phase	2																								
Offset, s	0	Reference Point	End																								
Uncoordinated	No	Simult. Gap E/W	On	Green	2.5	6.3	126.7	4.9	11.8	0.0																	
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	3.5	0.0	5.1	3.6	3.6	0.0																	
				Red	3.0	0.0	3.0	3.0	3.0	0.0																	
Timer Results				EBL			EBT			WBL			WBT			NBL			NBT			SBL			SBT		
Assigned Phase							4						8			5			2			1			6		
Case Number							10.0						9.0			1.1			3.0			2.0			4.0		
Phase Duration, s							11.5						18.4			9.0			134.8			15.3			141.1		
Change Period, (Y+R c), s							6.6						6.6			6.5			8.1			6.5			8.1		
Max Allow Headway (MAH), s							5.2						5.3			5.1			0.0			5.1			0.0		
Queue Clearance Time (g s), s							4.3						10.8			2.3						8.1					
Green Extension Time (g e), s							0.0						1.0			0.0			0.0			0.6			0.0		
Phase Call Probability							0.81						1.00			0.41						1.00					
Max Out Probability							0.01						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				23	11		35	3	146	11	2284	134	119	564	562												
Adjusted Saturation Flow Rate (s), veh/h/ln				1781	1688		1781	1870	1403	1781	1698	1585	1702	1870	1864												
Queue Service Time (g s), s				2.3	1.1		3.3	0.3	8.8	0.3	36.7	2.1	6.1	30.8	30.6												
Cycle Queue Clearance Time (g c), s				2.3	1.1		3.3	0.3	8.8	0.3	36.7	2.1	6.1	30.8	30.6												
Green Ratio (g/C)				0.03	0.03		0.07	0.07	0.11	0.72	0.70	0.77	0.05	0.74	0.74												
Capacity (c), veh/h				48	46		117	123	321	343	3587	1220	166	1382	1378												
Volume-to-Capacity Ratio (X)				0.479	0.230		0.297	0.026	0.456	0.031	0.637	0.110	0.720	0.408	0.408												
Back of Queue (Q), ft/ln (95 th percentile)				55.1	24.1		73.6	6.5	148.2	5.5	418.7	29.1	130.6	525.3	520.2												
Back of Queue (Q), veh/ln (95 th percentile)				2.2	1.0		2.9	0.3	5.8	0.2	16.5	1.1	5.1	20.7	20.5												
Queue Storage Ratio (RQ) (95 th percentile)				0.18	0.08		0.49	0.03	0.37	0.04	0.38	0.15	0.33	0.58	0.58												
Uniform Delay (d 1), s/veh				86.3	85.7		80.1	78.7	74.5	9.3	10.5	2.7	81.0	17.0	16.8												
Incremental Delay (d 2), s/veh				10.1	3.6		2.0	0.1	1.4	0.0	0.4	0.1	7.7	0.8	0.9												
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				96.4	89.3		82.1	78.8	75.9	9.3	10.9	2.8	88.7	17.8	17.6												
Level of Service (LOS)				F	F		F	E	E	A	B	A	F	B	B												
Approach Delay, s/veh / LOS				94.2		F	77.1		E	10.4		B	24.5		C												
Intersection Delay, s/veh / LOS				18.8						B																	
Multimodal Results				EB			WB			NB			SB														
Pedestrian LOS Score / LOS				2.63		C	2.63		C	2.39		B	1.87		B												
Bicycle LOS Score / LOS				0.54		A	0.79		A	1.96		B	1.58		B												

HCS7 Signalized Intersection Results Summary

General Information				Intersection Information				Diagram							
Agency	DBZ Traffic			Duration, h	0.250										
Analyst	DBZ			Analysis Date	Jul 6, 2020										
Jurisdiction				Time Period	AM Peak										
Urban Street	Bardstown Road			Analysis Year	2031 No Build										
Intersection	Bartley/Southpointe			File Name	AM NB 31.xus										
Project Description	Liberty Financial														
Demand Information				EB			WB			NB			SB		
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h							33	142		2514	140		123	1171	
Signal Information															
Cycle, s	180.0	Reference Phase	2	Green	6.0	140.9	11.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Offset, s	0	Reference Point	End	Yellow	3.5	5.1	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uncoordinated	No	Simult. Gap E/W	On	Red	3.0	3.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Force Mode	Fixed	Simult. Gap N/S	On												
Timer Results				EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT				
Assigned Phase							8		2	1	6				
Case Number							9.0		7.3	1.0	4.0				
Phase Duration, s							18.5		149.0	12.5	161.5				
Change Period, (Y+R _c), s							6.6		8.1	6.5	8.1				
Max Allow Headway (MAH), s							5.3		0.0	5.1	0.0				
Queue Clearance Time (g _s), s							11.1			3.1					
Green Extension Time (g _e), s							0.8		0.0	0.6	0.0				
Phase Call Probability							1.00			1.00					
Max Out Probability							0.02			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							3	18		2	12	1	6		
Adjusted Flow Rate (v), veh/h							35	149		2300	128	118	1127		
Adjusted Saturation Flow Rate (s), veh/h/ln							1730	1403		1698	1585	1702	1781		
Queue Service Time (g _s), s							1.7	9.1		27.5	1.6	1.1	9.4		
Cycle Queue Clearance Time (g _c), s							1.7	9.1		27.5	1.6	1.1	9.4		
Green Ratio (g/C)							0.07	0.10		0.78	0.85	0.83	0.85		
Capacity (c), veh/h							229	279		3988	1346	392	3034		
Volume-to-Capacity Ratio (X)							0.151	0.535		0.577	0.095	0.302	0.371		
Back of Queue (Q), ft/ln (95 th percentile)							35.6	155.2		296.7	18.5	23.3	115.3		
Back of Queue (Q), veh/ln (95 th percentile)							1.4	6.1		11.7	0.7	0.9	4.5		
Queue Storage Ratio (RQ) (95 th percentile)							0.24	0.39		0.27	0.09	0.06	0.13		
Uniform Delay (d ₁), s/veh							79.3	77.1		5.9	1.5	6.5	2.0		
Incremental Delay (d ₂), s/veh							0.4	2.3		0.3	0.1	0.6	0.3		
Initial Queue Delay (d ₃), s/veh							0.0	0.0		0.0	0.0	0.0	0.0		
Control Delay (d), s/veh							79.7	79.3		6.2	1.5	7.1	2.3		
Level of Service (LOS)							E	E		A	A	A	A		
Approach Delay, s/veh / LOS				0.0			79.4	E	6.0	A	2.8	A			
Intersection Delay, s/veh / LOS				8.5				A							
Multimodal Results				EB			WB			NB			SB		
Pedestrian LOS Score / LOS				2.49	B	2.63	C	2.37	B	0.63	A				
Bicycle LOS Score / LOS							F	2.02	B	1.61	B				

HCS7 Signalized Intersection Results Summary

General Information				Intersection Information																							
Agency	DBZ Traffic			Duration, h	0.250																						
Analyst	DBZ			Analysis Date	Jul 6, 2020								Area Type	Other													
Jurisdiction				Time Period	AM Peak								PHF	0.95													
Urban Street	Bardstown Road			Analysis Year	2031 Build								Analysis Period	1> 7:15													
Intersection	Bartley/Southpointe			File Name	AM B 31.xus																						
Project Description	Liberty Financial																										
Demand Information				EB			WB			NB			SB														
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R												
Demand (v), veh/h				22	4	6	33	3	139	11	2514	140	120	1173	10												
Signal Information																											
Cycle, s	180.0	Reference Phase	2																								
Offset, s	0	Reference Point	End																								
Uncoordinated	No	Simult. Gap E/W	On	Green	2.4	6.1	127.0	4.9	11.8	0.0																	
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	3.5	0.0	5.1	3.6	3.6	0.0																	
				Red	3.0	0.0	3.0	3.0	3.0	0.0																	
Timer Results				EBL			EBT			WBL			WBT			NBL			NBT			SBL			SBT		
Assigned Phase							4						8			5			2			1			6		
Case Number							10.0						9.0			1.1			3.0			2.0			4.0		
Phase Duration, s							11.5						18.4			8.9			135.1			15.0			141.2		
Change Period, (Y+R _c), s							6.6						6.6			6.5			8.1			6.5			8.1		
Max Allow Headway (MAH), s							5.2						5.3			5.1			0.0			5.1			0.0		
Queue Clearance Time (g _s), s							4.3						10.8			2.3						7.9					
Green Extension Time (g _e), s							0.0						1.0			0.0			0.0			0.6			0.0		
Phase Call Probability							0.81						1.00			0.39						1.00					
Max Out Probability							0.01						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				23	11		35	3	146	10	2291	128	115	566	565												
Adjusted Saturation Flow Rate (s), veh/h/ln				1781	1688		1781	1870	1403	1781	1698	1585	1702	1870	1865												
Queue Service Time (g _s), s				2.3	1.1		3.3	0.3	8.8	0.3	36.8	2.0	5.9	30.9	30.7												
Cycle Queue Clearance Time (g _c), s				2.3	1.1		3.3	0.3	8.8	0.3	36.8	2.0	5.9	30.9	30.7												
Green Ratio (g/C)				0.03	0.03		0.07	0.07	0.11	0.72	0.71	0.77	0.05	0.74	0.74												
Capacity (c), veh/h				48	46		117	123	317	341	3595	1222	161	1383	1379												
Volume-to-Capacity Ratio (X)				0.479	0.230		0.297	0.026	0.462	0.029	0.637	0.104	0.714	0.409	0.409												
Back of Queue (Q), ft/ln (95 th percentile)				55.1	24.1		73.6	6.5	148.5	5.2	420.3	27.6	125.6	526.8	521.9												
Back of Queue (Q), veh/ln (95 th percentile)				2.2	1.0		2.9	0.3	5.8	0.2	16.5	1.1	4.9	20.7	20.5												
Queue Storage Ratio (RQ) (95 th percentile)				0.18	0.08		0.49	0.03	0.37	0.03	0.38	0.14	0.31	0.59	0.58												
Uniform Delay (d ₁), s/veh				86.3	85.7		80.1	78.7	74.7	9.3	10.4	2.7	81.1	17.0	16.8												
Incremental Delay (d ₂), s/veh				10.1	3.6		2.0	0.1	1.5	0.0	0.4	0.1	7.7	0.9	0.9												
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				96.4	89.3		82.1	78.8	76.2	9.3	10.9	2.8	88.8	17.8	17.6												
Level of Service (LOS)				F	F		F	E	E	A	B	A	F	B	B												
Approach Delay, s/veh / LOS				94.2		F	77.4		E	10.4		B	24.3		C												
Intersection Delay, s/veh / LOS				18.8						B																	
Multimodal Results				EB			WB			NB			SB														
Pedestrian LOS Score / LOS				2.63		C	2.63		C	2.39		B	1.87		B												
Bicycle LOS Score / LOS				0.54		A	0.79		A	2.03		B	1.62		B												

HCS7 Signalized Intersection Results Summary

General Information				Intersection Information				Diagram							
Agency	DBZ Traffic			Duration, h	0.250										
Analyst	DBZ			Analysis Date	Jul 6, 2020										
Jurisdiction				Time Period	PM Peak										
Urban Street	Bardstown Road			Analysis Year	2021 No Build										
Intersection	Bartley/Wingfield			File Name	PM NB 21.xus										
Project Description	Liberty Financial			Analysis Period	1> 4:45										
Demand Information				EB			WB			NB		SB			
Approach Movement				L	T	R	L	T	R	L	T	R			
Demand (v), veh/h							381		313	1550	211	521	2223		
Signal Information															
Cycle, s	225.0	Reference Phase	2	Green	11.7	165.2	29.2	0.0	0.0	0.0	0.0	0.0	0.0		
Offset, s	0	Reference Point	End	Yellow	3.5	4.7	3.6	0.0	0.0	0.0	0.0	0.0	0.0		
Uncoordinated	No	Simult. Gap E/W	On	Red	2.7	1.5	3.0	0.0	0.0	0.0	0.0	0.0	0.0		
Force Mode	Fixed	Simult. Gap N/S	On												
Timer Results				EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT				
Assigned Phase							8		2	1	6				
Case Number							9.0		7.3	1.0	4.0				
Phase Duration, s							35.8		171.4	17.9	189.2				
Change Period, (Y+R c), s							6.6		6.2	6.2	6.2				
Max Allow Headway (MAH), s							3.2		0.0	3.1	0.0				
Queue Clearance Time (g s), s							27.4			10.4					
Green Extension Time (g e), s							1.8		0.0	1.3	0.0				
Phase Call Probability							1.00			1.00					
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			
Assigned Movement							3		18	2	12	1	6		
Adjusted Flow Rate (v), veh/h							397		326	1457	198	537	2291		
Adjusted Saturation Flow Rate (s), veh/h/ln							1730		1403	1698	1585	1730	1795		
Queue Service Time (g s), s							25.4		24.2	19.3	2.0	8.4	69.4		
Cycle Queue Clearance Time (g c), s							25.4		24.2	19.3	2.0	8.4	69.4		
Green Ratio (g/C)							0.13		0.18	0.73	0.86	0.79	0.81		
Capacity (c), veh/h							448		509	3740	1369	717	2920		
Volume-to-Capacity Ratio (X)							0.885		0.640	0.390	0.145	0.749	0.785		
Back of Queue (Q), ft/ln (95 th percentile)							446.9		350.2	271.8	24.7	104	680.5		
Back of Queue (Q), veh/ln (95 th percentile)							17.6		13.8	10.7	1.0	4.1	27.0		
Queue Storage Ratio (RQ) (95 th percentile)							1.49		0.88	0.34	0.12	0.26	0.76		
Uniform Delay (d 1), s/veh							96.3		85.3	8.2	1.0	9.5	9.3		
Incremental Delay (d 2), s/veh							7.0		0.5	0.3	0.2	0.2	0.3		
Initial Queue Delay (d 3), s/veh							0.0		0.0	0.0	0.0	0.0	0.0		
Control Delay (d), s/veh							103.2		85.8	8.4	1.2	9.6	9.6		
Level of Service (LOS)							F		F	A	A	A	A		
Approach Delay, s/veh / LOS				0.0			95.4		F	7.6		A	9.6	A	
Intersection Delay, s/veh / LOS				20.9				C							
Multimodal Results				EB			WB			NB		SB			
Pedestrian LOS Score / LOS				2.50		C	2.64		C	2.39		B	0.65		A
Bicycle LOS Score / LOS									F	1.50		A	2.85		C

HCS7 Signalized Intersection Results Summary

General Information													Intersection Information			
Agency	DBZ Traffic			Duration, h	0.250											
Analyst	DBZ			Analysis Date	Jul 6, 2020			Area Type	Other							
Jurisdiction				Time Period	PM Peak			PHF	0.96							
Urban Street	Bardstown Road			Analysis Year	2021 Build			Analysis Period	1> 4:45							
Intersection	Bartley/Wingfield			File Name	PM B 21.xus											
Project Description	Liberty Financial															

Demand Information		EB			WB			NB			SB		
Approach Movement		L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h		40	8	6	381	8	308	23	1547	211	516	2238	12

Signal Information				Signal Diagram									
Cycle, s	225.0	Reference Phase	2										
Offset, s	177	Reference Point	End										
Uncoordinated	No	Simult. Gap E/W	On										
Force Mode	Fixed	Simult. Gap N/S	On										
Green	4.4	8.3	136.5	7.1	34.3	0.0							
Yellow	3.5	3.5	5.1	3.6	3.6	0.0							
Red	3.0	3.0	3.0	3.0	3.0	0.0							

Timer Results		EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase			4		8	5	2	1	6
Case Number			10.0		9.0	1.1	3.0	1.1	4.0
Phase Duration, s			13.7		40.9	10.9	144.6	25.8	159.4
Change Period, (Y+R c), s			6.6		6.6	6.5	8.1	6.5	8.1
Max Allow Headway (MAH), s			5.1		5.2	5.1	0.0	5.1	0.0
Queue Clearance Time (g s), s			7.2		31.8	3.0		14.9	
Green Extension Time (g e), s			0.1		2.5	0.1	0.0	4.4	0.0
Phase Call Probability			0.97		1.00	0.74		1.00	
Max Out Probability			0.00		0.74	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		42	15		242	163	321	21	1438	196	580	1264	1264
Adjusted Saturation Flow Rate (s), veh/h/ln		1781	1736		1781	1786	1575	1781	1698	1585	1730	1885	1882
Queue Service Time (g s), s		5.2	1.8		29.8	19.2	19.4	1.0	27.9	6.0	12.9	147.8	148.6
Cycle Queue Clearance Time (g c), s		5.2	1.8		29.8	19.2	19.4	1.0	27.9	6.0	12.9	147.8	148.6
Green Ratio (g/C)		0.03	0.03		0.15	0.15	0.24	0.63	0.61	0.76	0.71	0.68	0.68
Capacity (c), veh/h		57	55		280	272	750	67	3091	1203	737	1276	1274
Volume-to-Capacity Ratio (X)		0.737	0.265		0.866	0.599	0.428	0.317	0.465	0.163	0.786	0.990	0.992
Back of Queue (Q), ft/ln (95 th percentile)		128.5	41.1		558.4	360.2	321.1	36.7	389.7	162.3	273.4	2016	2043.2
Back of Queue (Q), veh/ln (95 th percentile)		5.1	1.6		22.0	14.2	12.6	1.4	15.3	6.4	10.8	80.0	80.4
Queue Storage Ratio (RQ) (95 th percentile)		0.43	0.14		1.86	1.20	0.80	0.24	0.49	0.81	0.68	2.24	2.25
Uniform Delay (d 1), s/veh		108.0	106.4		92.5	88.5	72.7	57.8	17.2	5.6	21.5	35.9	35.6
Incremental Delay (d 2), s/veh		23.0	3.6		21.1	3.4	0.6	2.8	0.4	0.2	1.3	14.9	15.3
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		131.0	110.0		113.6	91.9	73.3	60.6	17.6	5.8	22.7	50.9	50.9
Level of Service (LOS)		F	F		F	F	E	E	B	A	C	D	D
Approach Delay, s/veh / LOS		125.6		F	90.9		F	16.7		B	45.6		D
Intersection Delay, s/veh / LOS		43.7						D					

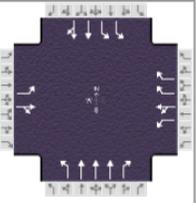
Multimodal Results		EB		WB		NB		SB	
Pedestrian LOS Score / LOS		2.63	C	2.64	C	2.42	B	1.90	B
Bicycle LOS Score / LOS		0.58	A	1.69	B	1.51	B	2.86	C

HCS7 Signalized Intersection Results Summary

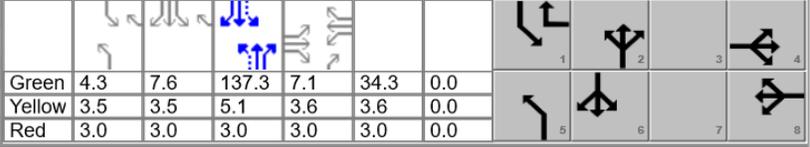
General Information				Intersection Information				Diagram							
Agency	DBZ Traffic			Duration, h	0.250										
Analyst	DBZ			Analysis Date	Jul 6, 2020										
Jurisdiction				Area Type	Other										
Urban Street	Bardstown Road			Time Period	PM Peak										
Intersection	Bartley/Wingfield			PHF	0.96										
Project Description	Liberty Financial			Analysis Year	2031 No Build							Analysis Period	1> 4:45		
File Name	PM NB 31.xus														
Demand Information				EB			WB			NB			SB		
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h							381	313		1633	211	521	2342		
Signal Information															
Cycle, s	225.0	Reference Phase	2	Green	11.2	165.7	29.2	0.0	0.0	0.0	0.0	1	2	3	4
Offset, s	0	Reference Point	End	Yellow	3.5	4.7	3.6	0.0	0.0	0.0	0.0	5	6	7	8
Uncoordinated	No	Simult. Gap E/W	On	Red	2.7	1.5	3.0	0.0	0.0	0.0	0.0				
Force Mode	Fixed	Simult. Gap N/S	On												
Timer Results				EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT				
Assigned Phase							8		2	1	6				
Case Number							9.0		7.3	1.0	4.0				
Phase Duration, s							35.8		171.9	17.4	189.2				
Change Period, (Y+R c), s							6.6		6.2	6.2	6.2				
Max Allow Headway (MAH), s							3.2		0.0	3.1	0.0				
Queue Clearance Time (g s), s							27.4			10.0					
Green Extension Time (g e), s							1.8		0.0	1.2	0.0				
Phase Call Probability							1.00			1.00					
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							3	18		2	12	1	6		
Adjusted Flow Rate (v), veh/h							397	326		1466	189	515	2313		
Adjusted Saturation Flow Rate (s), veh/h/ln							1730	1403		1698	1585	1730	1795		
Queue Service Time (g s), s							25.4	24.3		19.3	1.9	8.0	71.4		
Cycle Queue Clearance Time (g c), s							25.4	24.3		19.3	1.9	8.0	71.4		
Green Ratio (g/C)							0.13	0.18		0.74	0.87	0.79	0.81		
Capacity (c), veh/h							448	503		3751	1373	706	2920		
Volume-to-Capacity Ratio (X)							0.885	0.648		0.391	0.138	0.729	0.792		
Back of Queue (Q), ft/ln (95 th percentile)							446.9	351.1		272.9	23.2	99.6	699.1		
Back of Queue (Q), veh/ln (95 th percentile)							17.6	13.8		10.7	0.9	3.9	27.7		
Queue Storage Ratio (RQ) (95 th percentile)							1.49	0.88		0.34	0.12	0.25	0.78		
Uniform Delay (d 1), s/veh							96.3	85.8		8.1	1.0	9.2	9.5		
Incremental Delay (d 2), s/veh							7.0	0.5		0.3	0.2	0.1	0.3		
Initial Queue Delay (d 3), s/veh							0.0	0.0		0.0	0.0	0.0	0.0		
Control Delay (d), s/veh							103.2	86.3		8.4	1.1	9.3	9.8		
Level of Service (LOS)							F	F		A	A	A	A		
Approach Delay, s/veh / LOS				0.0			95.6	F	7.5	A	9.7	A			
Intersection Delay, s/veh / LOS							20.9				C				
Multimodal Results				EB			WB			NB			SB		
Pedestrian LOS Score / LOS				2.50	C	2.64	C	2.39	B	0.65	A				
Bicycle LOS Score / LOS							F	1.54	B	2.95	C				

HCS7 Signalized Intersection Results Summary

General Information													Intersection Information			
Agency	DBZ Traffic												Duration, h	0.250		
Analyst	DBZ												Analysis Date	Jul 6, 2020		
Jurisdiction													Area Type	Other		
Urban Street	Bardstown Road												PHF	0.96		
Intersection	Bartley/Wingfield												Analysis Period	1> 4:45		
Project Description	Liberty Financial												File Name	PM B 31.xus		



Demand Information		EB			WB			NB			SB		
Approach Movement		L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h		40	8	6	381	8	308	23	1630	211	516	2357	12

Signal Information				Signal Timing (s)																				
Cycle, s	225.0	Reference Phase	2	Green	4.3	7.6	137.3	7.1	34.3	0.0	Yellow	3.5	3.5	5.1	3.6	3.6	0.0	Red	3.0	3.0	3.0	3.0	3.0	0.0
Offset, s	177	Reference Point	End																					
Uncoordinated	No	Simult. Gap E/W	On																					
Force Mode	Fixed	Simult. Gap N/S	On																					

Timer Results		EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase			4		8	5	2	1	6
Case Number			10.0		9.0	1.1	3.0	1.1	4.0
Phase Duration, s			13.7		40.9	10.8	145.4	24.9	159.5
Change Period, (Y+R _c), s			6.6		6.6	6.5	8.1	6.5	8.1
Max Allow Headway (MAH), s			5.1		5.2	5.1	0.0	5.1	0.0
Queue Clearance Time (g _s), s			7.2		31.8	3.0		14.2	
Green Extension Time (g _e), s			0.1		2.5	0.1	0.0	4.2	0.0
Phase Call Probability			0.97		1.00	0.72		1.00	
Max Out Probability			0.00		0.74	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		42	15		242	163	321	20	1447	187	556	1276	1276
Adjusted Saturation Flow Rate (s), veh/h/ln		1781	1736		1781	1786	1575	1781	1698	1585	1730	1885	1882
Queue Service Time (g _s), s		5.2	1.8		29.8	19.2	19.5	1.0	32.8	5.9	12.2	151.9	152.4
Cycle Queue Clearance Time (g _c), s		5.2	1.8		29.8	19.2	19.5	1.0	32.8	5.9	12.2	151.9	152.4
Green Ratio (g/C)		0.03	0.03		0.15	0.15	0.23	0.63	0.61	0.76	0.71	0.68	0.68
Capacity (c), veh/h		57	55		280	272	738	66	3110	1209	708	1277	1275
Volume-to-Capacity Ratio (X)		0.737	0.265		0.866	0.599	0.435	0.308	0.465	0.155	0.785	0.999	1.001
Back of Queue (Q), ft/ln (95 th percentile)		128.5	41.1		558.4	360.2	322.6	35.5	476.5	164.1	290.5	2083.3	2108.8
Back of Queue (Q), veh/ln (95 th percentile)		5.1	1.6		22.0	14.2	12.7	1.4	18.8	6.5	11.4	82.7	83.0
Queue Storage Ratio (RQ) (95 th percentile)		0.43	0.14		1.86	1.20	0.81	0.24	0.60	0.82	0.73	2.31	2.32
Uniform Delay (d ₁), s/veh		108.0	106.4		92.5	88.5	73.4	58.0	21.7	5.7	23.4	36.2	36.2
Incremental Delay (d ₂), s/veh		23.0	3.6		21.1	3.4	0.6	3.0	0.4	0.2	1.3	16.8	17.3
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		131.0	110.0		113.6	91.9	74.0	61.0	22.1	5.9	24.7	53.0	53.4
Level of Service (LOS)		F	F		F	F	E	E	C	A	C	D	F
Approach Delay, s/veh / LOS		125.6		F	91.2		F	20.8		C	48.1		D
Intersection Delay, s/veh / LOS		46.4						D					

Multimodal Results		EB			WB			NB			SB		
Pedestrian LOS Score / LOS		2.63		C	2.64		C	2.42		B	1.90		B
Bicycle LOS Score / LOS		0.58		A	1.69		B	1.56		B	2.97		C