



ALDRIDGE TRANSPORTATION CONSULTANTS, LLC
Advanced Transportation Planning and Traffic Engineering

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March 15, 2021

Mr. Matt Jenkins
Richmond American Homes
4350 S. Monaco Street,
Denver, CO 80237

Re: Transportation Impact Study
Patriot Village – Security-Widefield, Colorado

Dear Mr. Jenkins:

Aldridge Transportation Consultants (ATC) is pleased to present this Traffic Impact Study regarding the proposed development of Patriot Village in Security-Widefield.

ATC is professional service firm specializing in traffic engineering and transportation planning. ATC's principal, John M.W. Aldridge, is a Colorado licensed professional engineer. In the past 20 years, ATC has prepared over 1,000 traffic impact studies, designed over 100 traffic signals, and has provided expert witness testimony on engineering design and access issues on multi-million dollar interchange and highway projects in Kansas and Colorado.

ATC appreciates the opportunity to be of service. Please call if you have any questions. We can be reached at 303-703-9112.



Respectfully submitted,

Aldridge Transportation Consultants, LLC

John M.W. Aldridge, P.E.
Principal




Signature Page

The attached traffic report and supporting information were prepared under my responsible charge and they comport with the standard of care. So far as is consistent with the standard of care, said report was prepared in general conformance with the criteria established by the County for traffic reports.



Aldridge Transportation Consultants, LLC


John M.W. Aldridge, P.E.
Principal

I, Matthew T Jenkins, Director of Land Acquisition for Richmond American Homes, have read and will comply with all the commitments made on my behalf within this report.

Signature and date

Mr. Matthew T. Jenkins
Director of Land Acquisition
Richmond American Homes
4350 S. Monaco Street,
Denver, CO 80237



1. PROJECT DESCRIPTION

Richmond American Homes is proposing to construct 98 single family homes on the south side of Cable Lane and Alturas Dr. in Security-Widefield, Colorado. Figure 1 below shows the location of the site, site plan, and the adjacent streets and intersections. Note that the lot layout and lot count shown is up to date at the writing of this study. It is subject to change as planning and development moves forward.



Figure 1



2. GENERAL EXISTING CONDITIONS

The site will be primarily accessed by the Bradley Road and Alturas Dr. intersection. Bradley Road is a four-lane Principal Arterial. It carries approximately 12,000 ADT and is posted at 40 mph. There are sections of attached sidewalk and no bike lanes. Alturas Dr. is a low volume Collector street. It carries under 400 ADT and is posted at 25 mph. It has attached sidewalk on both sides of the street. Cable Lane is a two-lane narrow paved Local St. that carries very little traffic likely about 100 ADT.

The intersection of Bradley Road and Alturas Dr. is two-way stop-sign controlled. It features a 300-foot left turn deceleration lane and a 200-foot right turn deceleration lane. The Alturas Dr. approach consists of a shared through and left turn lane and an exclusive right turn lane.

The AM and PM peak hours at the intersection of Bradley Road and Alturas Dr. were counted on Tuesday, March 9, 2021 by All Traffic Data. The counts are attached.

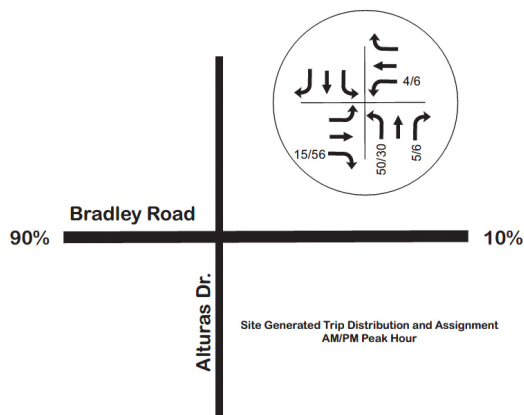
3. DEVELOPMENT SITE CHARACTERISTICS

The trip generation for the residential development is defined in Table 1. It is based on the rates and values found in the *ITE Trip Generation Manual, 10th Edition* for Category Single-Family ITE Code 210. The ATD and AM/PM Peak Hour site generation is shown in Table 1. There are no fixed route transit options in this area.

Table 1

ITE CODE	LAND USE	UNIT	QUANTITY	ADT	WEEKDAY					
					AM			PM		
					IN	OUT	TOTAL	IN	OUT	TOTAL
210	Single Family	DU	98	9.44	0.19	0.56		0.63	0.37	
				925	19	55	74	62	36	98
Total Trips				925	19	55	74	62	36	98

The PM peak hour is the heaviest time of traffic on the highway and the development. It is considered the design hour volume (DHV) for operations and geometric design purposes.



The distribution of the site generated traffic mirrors that of the existing movements at the intersection. Generally, the directional split is 10 percent to the east and 90 percent to the west. The assignment of the traffic is shown in the graphic to the left.



4. FUTURE CONDITIONS

A review of the *2016 El Paso Major Transportation Corridors Plan Update* revealed only one area on Bradley Road with an existing and 2040 forecasted volume. It shows a 12,000 ADT existing volume and a 2040 volume of 19,800 ADT. That equates to a 2.5% per annum growth. The 3-year growth factor is 1.08 and the 20-year growth factor is 1.65.

The 2040 improvement plan shows no projects on this section of Bradley Road. It does indicate that Bradley Road will be widened to four-lanes from Academy Blvd. to Hancock Expy. and that Grinnell St. will be widened to four-lanes from Powers Blvd. to Bradley Road.

5. PROJECT IMPACTS

ATC uses Synchro v.10 for operations analyses. The Synchro v.10 methodologies are based on the **Highway Capacity Manual, 6th Edition** (HCM). The Synchro HCM reports in the appendix are for reference. LOS is letter rating from A to F. LOS A indicates free-flow traffic conditions and no delay at intersections. LOS F is heavy traffic congestion with significant delay. LOS is provided for the overall operations at signalized intersections. LOS D is generally the benchmark for acceptable signalized intersection operations during the weekday peak hours. The critical movement, not the overall, provides the LOS rating for unsignalized intersections. The critical movement is generally a left turn from the minor approach. Caution is advised when evaluating the LOS at unsignalized intersections particularly when LOS F shows. In cases of a LOS F, the HCM suggests that other evaluation measures should be considered such as the volume over capacity ratio and the 95th percentile queue length to make the most effective traffic control decision. LOS F at unsignalized intersections is considered normal for the weekday peak hour particularly when the v/c ratio and the 95th percentile queue length are acceptable.

Level of Service Summary										
LOS/Delay(secs) - 95th%ile queue length (veh)										
Intersection	Existing		2024 Background		2024 TOTAL		2040 Background		2040 TOTAL	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Unsignalized										
Bradley Road/Alturas Dr.	D/26.0 0.3	E/41.6 0.3	D/28.4 0.4	E/47.2 0.3	E/41.5 2	F/73.9 1.9	F/65.0 0.9	F/134.3 0.8	F/185.1 5.1	F/>300 4.4

The intersection currently operates at LOS D/E based on the critical movement which in this case is the northbound left turn and will continue to do so in 2024 background condition. The HCM specifies that LOS D is the minimum acceptable LOS. However, per the Highway Capacity Manual, this is an acceptable operating condition through 2024 as the volume over capacity ratios are below 1 and only 1-2 cars will queue in the 95th percentile queue. In the 2040 background conditions, the intersection will operate within acceptable operations as the 95th percentile queue length is one vehicle, and the v/c ratio is approximately 0.25. In the 2040 AM and PM Total condition, acceptable operating conditions is not reported. The v/c ratio is over 1 and the queues are 5 and 6 vehicles.

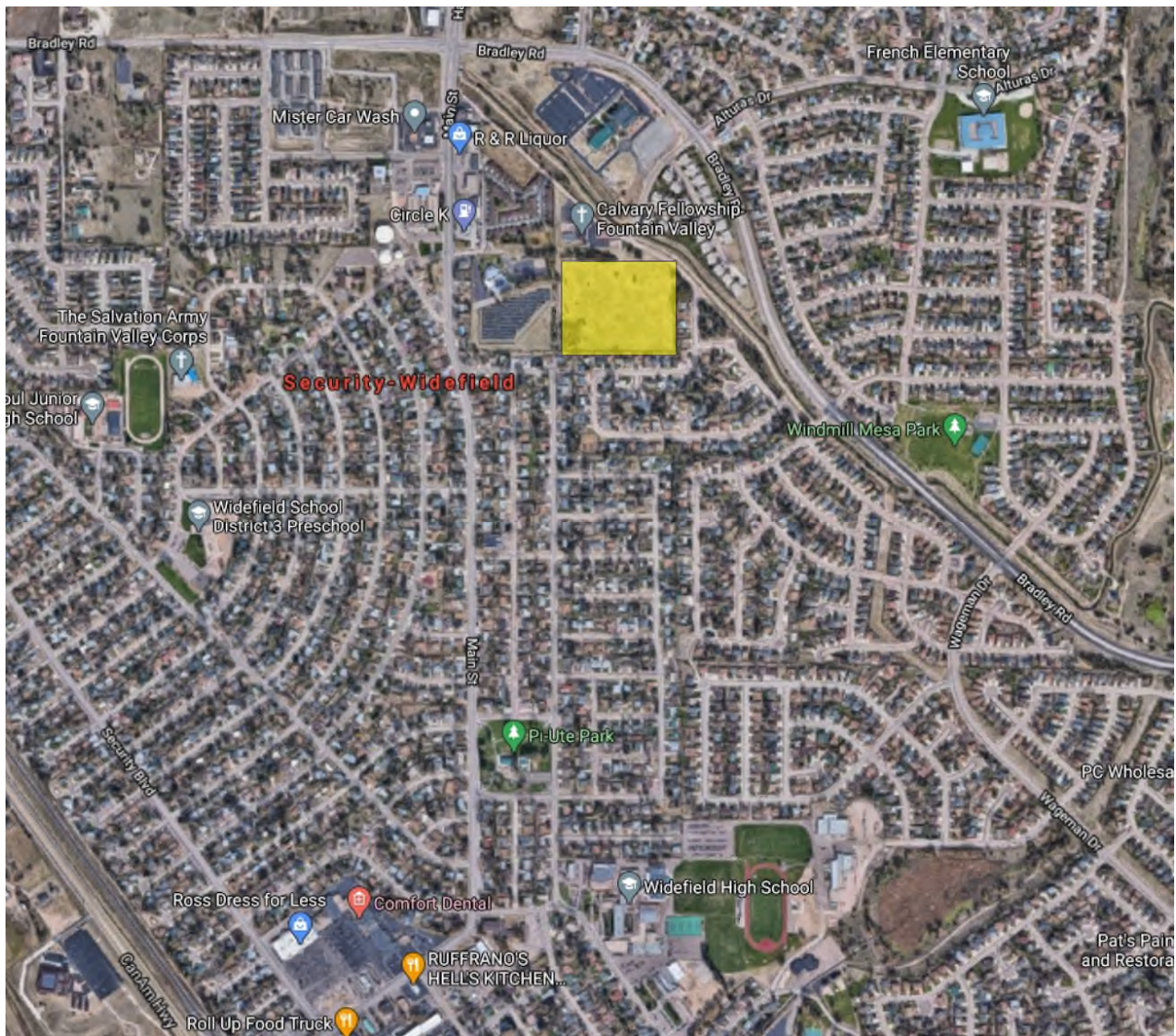
Traffic signal control is not warranted now but could be in the future conditions, particularly if the surrounding area develops and adds more traffic to the intersection. There is no point in doing a complete traffic signal warrant analysis as the peak hour volume on the minor street approach is well below what is



required to meet any volume warrant (MUTCD Warrants 1-3). The intersection should, however, be periodically monitored for warrant volumes, operational delay, and crashes.

PEDESTRIAN AND BICYCLE IMPACT EVALUATIONS

Presently there are limited sidewalks and no bike lanes along the frontage of Bradley Road. There are sidewalks but no bike lanes on Alturas Dr. The map below shows the site in yellow and the location of the three schools that would be attended by students in Patriot Village. French Elementary School is approximately one-half mile miles to the east. Sproul Junior High School is about the same distance to the west. Widefield High School is about three quarters of a mile to the south. Students here would be bussed or allowed to use personal vehicles. There are no grocery stores within a mile of the site.





6. MITIGATION MEASURES

No mitigation measures are necessary to Bradley Road or Alturas Dr. to accommodate the trip generation from Patriot Village safely and efficiently. The site plan does indicate that Cable Lane extending east from Alturas Dr. to Hunters Run will be reconstructed to match the cross-section of Hunters Run.

Traffic signal control is not warranted currently but it is anticipated to be in the future should the forecast increase in volume on Bradley Road be realized.

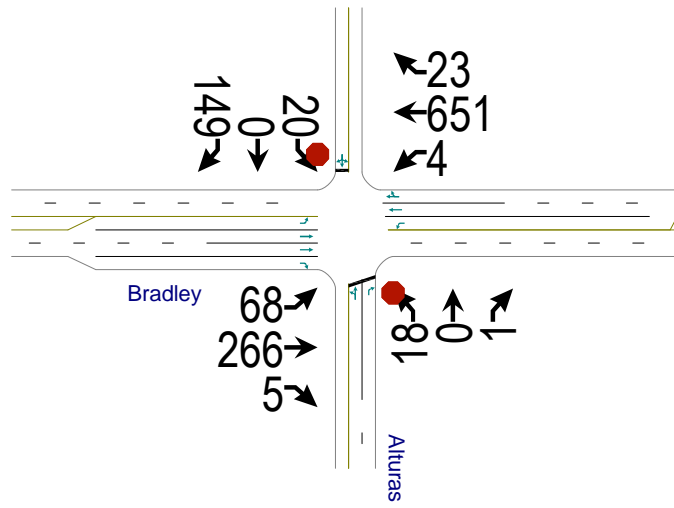
Patriot Village will be assessed a County Road Impact Fee of \$3,830.00 per dwelling unit. The purpose of the program is to develop a process to identify transportation improvements needed to accommodate growth, to allocate fairly the costs of transportation improvements among new developments, and to ensure the proper and timely accounting of improvements and funds. The program does not include all roads in the unincorporated County, only higher traffic roads that provide for regional travel.

7. CONCLUSIONS AND RECOMMENDED IMPROVEMENTS SUMMARY

The study and operations analyses contained herein provides evidence that the recommended access locations and type will function within acceptable traffic engineering parameters promulgated by FHWA, AASHTO, MUTCD, CDOT, and El Paso County. The access locations and type are essential for safe and smooth transitions on and off the highway and to reduce to the greatest extent unnecessary on-site circulation. In my professional opinion, the transportation facilities will be adequate and available to serve the proposed development within one year of the full build out of the project and that it meets or exceeds the applicable adopted level of service provided the El Paso County Engineering Criteria Manual.



APPENDIX

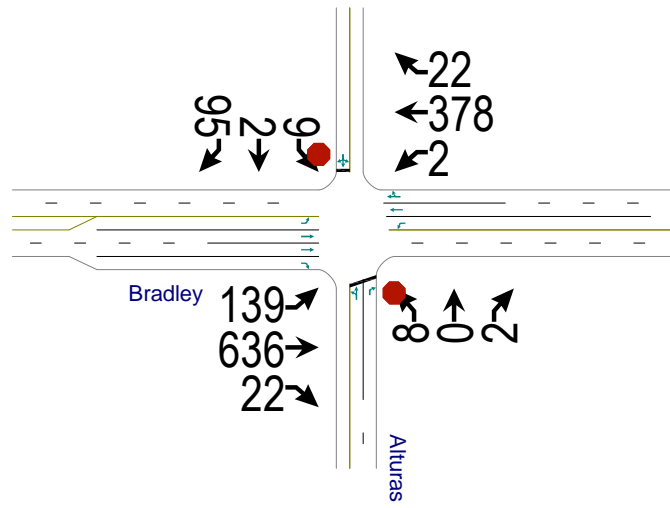


Intersection												
Int Delay, s/veh	3.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑			↘	↗		↔	
Traffic Vol, veh/h	68	266	5	4	651	23	18	0	1	20	0	149
Future Vol, veh/h	68	266	5	4	651	23	18	0	1	20	0	149
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	200	300	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	74	289	5	4	708	25	20	0	1	22	0	162

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	733	0	0	294	0	0	799	1178	145	1022	1171	367
Stage 1	-	-	-	-	-	-	437	437	-	729	729	-
Stage 2	-	-	-	-	-	-	362	741	-	293	442	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	868	-	-	1264	-	-	276	189	876	190	191	630
Stage 1	-	-	-	-	-	-	568	578	-	380	426	-
Stage 2	-	-	-	-	-	-	629	421	-	691	575	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	868	-	-	1264	-	-	191	172	876	177	174	630
Mov Cap-2 Maneuver	-	-	-	-	-	-	191	172	-	177	174	-
Stage 1	-	-	-	-	-	-	520	529	-	348	425	-
Stage 2	-	-	-	-	-	-	466	420	-	631	526	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.9			0			25.1			16.9		
HCM LOS							D			C		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	191	876	868	-	-	1264	-	-	484
HCM Lane V/C Ratio	0.102	0.001	0.085	-	-	0.003	-	-	0.38
HCM Control Delay (s)	26	9.1	9.5	-	-	7.9	-	-	16.9
HCM Lane LOS	D	A	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.3	0	0.3	-	-	0	-	-	1.8

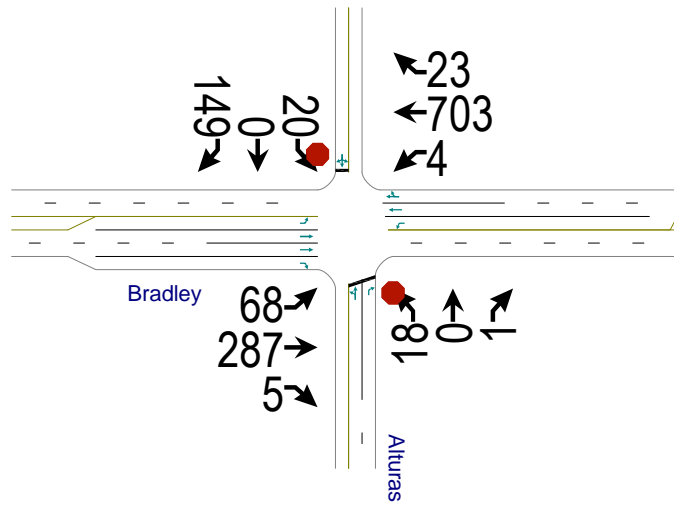


Intersection												
Int Delay, s/veh	2.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	139	636	22	2	378	22	8	0	2	9	2	95
Future Vol, veh/h	139	636	22	2	378	22	8	0	2	9	2	95
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	200	300	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	151	691	24	2	411	24	9	0	2	10	2	103

Major/Minor	Major1		Major2		Minor1			Minor2				
Conflicting Flow All	435	0	0	715	0	0	1204	1432	346	1075	1444	218
Stage 1	-	-	-	-	-	-	993	993	-	427	427	-
Stage 2	-	-	-	-	-	-	211	439	-	648	1017	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1121	-	-	881	-	-	140	133	650	174	131	786
Stage 1	-	-	-	-	-	-	263	322	-	576	584	-
Stage 2	-	-	-	-	-	-	771	576	-	425	313	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1121	-	-	881	-	-	107	115	650	155	113	786
Mov Cap-2 Maneuver	-	-	-	-	-	-	107	115	-	155	113	-
Stage 1	-	-	-	-	-	-	227	279	-	498	583	-
Stage 2	-	-	-	-	-	-	666	575	-	367	271	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	1.5		0		35.4		13.5	
HCM LOS					E		B	

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	107	650	1121	-	-	881	-	-	539
HCM Lane V/C Ratio	0.081	0.003	0.135	-	-	0.002	-	-	0.214
HCM Control Delay (s)	41.6	10.6	8.7	-	-	9.1	-	-	13.5
HCM Lane LOS	E	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.3	0	0.5	-	-	0	-	-	0.8

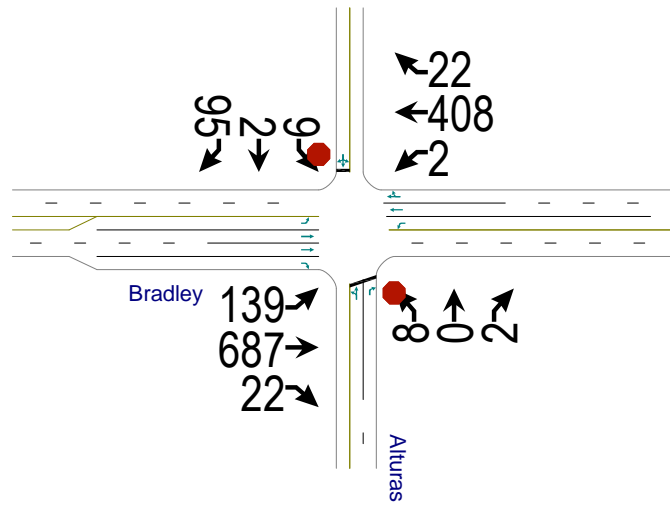


Intersection												
Int Delay, s/veh	3.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑↑	↗	↖	↑↑			↖	↗		↕	
Traffic Vol, veh/h	68	266	5	4	651	23	18	0	1	20	0	149
Future Vol, veh/h	68	266	5	4	651	23	18	0	1	20	0	149
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	200	300	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	74	312	5	4	764	25	20	0	1	22	0	162

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	789	0	0	317	0	0	850	1257	156	1089	1250	395
Stage 1	-	-	-	-	-	-	460	460	-	785	785	-
Stage 2	-	-	-	-	-	-	390	797	-	304	465	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	827	-	-	1240	-	-	254	170	862	170	172	604
Stage 1	-	-	-	-	-	-	551	564	-	352	402	-
Stage 2	-	-	-	-	-	-	606	397	-	681	561	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	827	-	-	1240	-	-	173	154	862	158	156	604
Mov Cap-2 Maneuver	-	-	-	-	-	-	173	154	-	158	156	-
Stage 1	-	-	-	-	-	-	502	514	-	321	401	-
Stage 2	-	-	-	-	-	-	442	396	-	619	511	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.8			0			27.4			18.3		
HCM LOS							D			C		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	173	862	827	-	-	1240	-	-	453
HCM Lane V/C Ratio	0.113	0.001	0.089	-	-	0.004	-	-	0.406
HCM Control Delay (s)	28.4	9.2	9.8	-	-	7.9	-	-	18.3
HCM Lane LOS	D	A	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.4	0	0.3	-	-	0	-	-	1.9

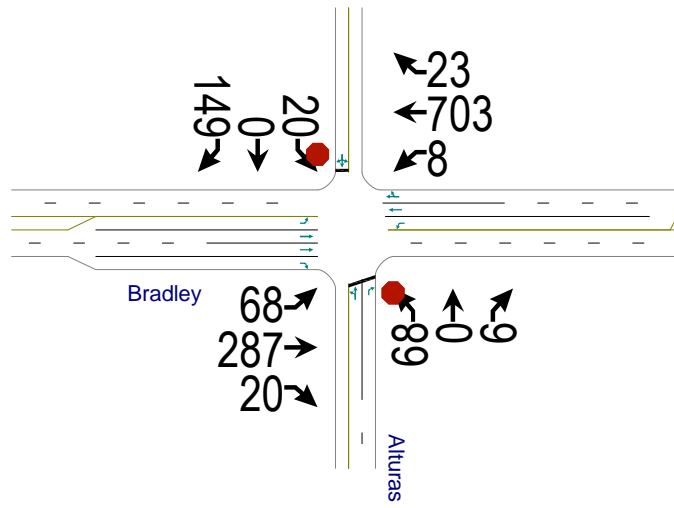


Intersection												
Int Delay, s/veh	2.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗	↗	↘	↗	↗		↘	↗		↔	
Traffic Vol, veh/h	139	636	22	2	378	22	8	0	2	9	2	95
Future Vol, veh/h	139	636	22	2	378	22	8	0	2	9	2	95
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	200	300	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	151	747	24	2	444	24	9	0	2	10	2	103

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	468	0	0	771	0	0	1276	1521	374	1136	1533	234
Stage 1	-	-	-	-	-	-	1049	1049	-	460	460	-
Stage 2	-	-	-	-	-	-	227	472	-	676	1073	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1090	-	-	840	-	-	124	117	623	157	115	768
Stage 1	-	-	-	-	-	-	243	303	-	551	564	-
Stage 2	-	-	-	-	-	-	755	557	-	409	295	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1090	-	-	840	-	-	94	101	623	140	99	768
Mov Cap-2 Maneuver	-	-	-	-	-	-	94	101	-	140	99	-
Stage 1	-	-	-	-	-	-	209	261	-	474	563	-
Stage 2	-	-	-	-	-	-	649	556	-	351	254	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.4			0			39.9			14.1		
HCM LOS							E			B		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	94	623	1090	-	-	840	-	-	509
HCM Lane V/C Ratio	0.093	0.003	0.139	-	-	0.003	-	-	0.226
HCM Control Delay (s)	47.2	10.8	8.8	-	-	9.3	-	-	14.1
HCM Lane LOS	E	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.3	0	0.5	-	-	0	-	-	0.9

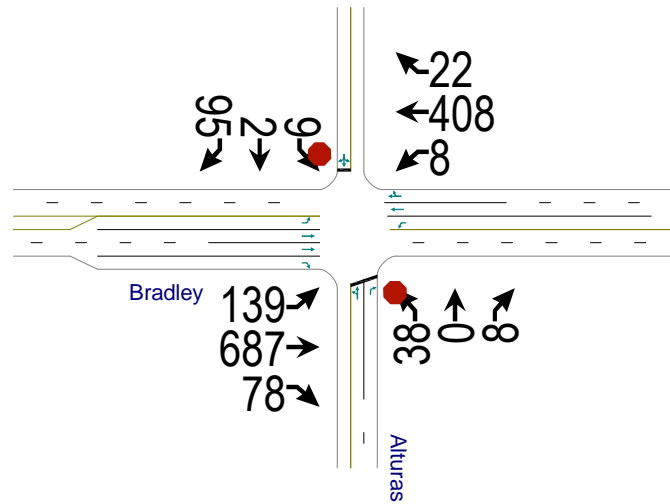


Intersection												
Int Delay, s/veh	5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑			↙	↗		↔	
Traffic Vol, veh/h	68	266	20	8	651	23	68	0	6	20	0	149
Future Vol, veh/h	68	266	20	8	651	23	68	0	6	20	0	149
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	200	300	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	74	312	22	9	764	25	74	0	7	22	0	162

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	789	0	0	334	0	0	860	1267	156	1099	1277	395
Stage 1	-	-	-	-	-	-	460	460	-	795	795	-
Stage 2	-	-	-	-	-	-	400	807	-	304	482	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	827	-	-	1222	-	-	250	168	862	167	165	604
Stage 1	-	-	-	-	-	-	551	564	-	347	398	-
Stage 2	-	-	-	-	-	-	597	392	-	681	552	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	827	-	-	1222	-	-	170	152	862	153	149	604
Mov Cap-2 Maneuver	-	-	-	-	-	-	170	152	-	153	149	-
Stage 1	-	-	-	-	-	-	502	514	-	316	395	-
Stage 2	-	-	-	-	-	-	434	389	-	615	503	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.8			0.1			38.9			18.5		
HCM LOS							E			C		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	170	862	827	-	-	1222	-	-	448
HCM Lane V/C Ratio	0.435	0.008	0.089	-	-	0.007	-	-	0.41
HCM Control Delay (s)	41.5	9.2	9.8	-	-	8	-	-	18.5
HCM Lane LOS	E	A	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	2	0	0.3	-	-	0	-	-	2

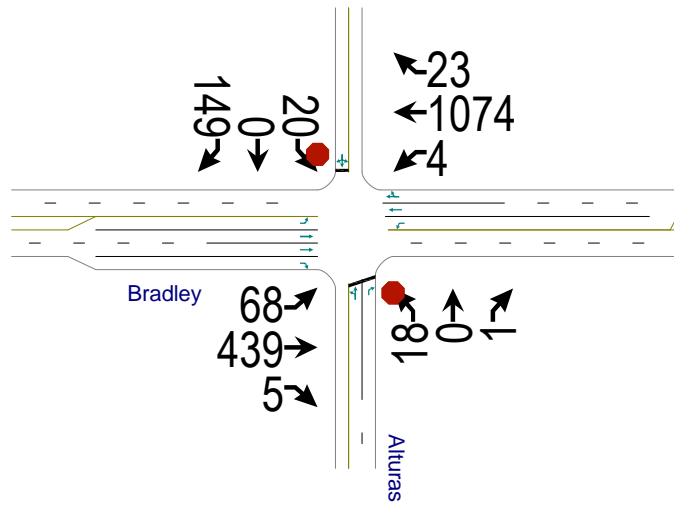


Intersection												
Int Delay, s/veh	3.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑			↘	↗		↔	
Traffic Vol, veh/h	139	636	78	8	378	22	38	0	8	9	2	95
Future Vol, veh/h	139	636	78	8	378	22	38	0	8	9	2	95
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	200	300	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	151	747	85	9	444	24	41	0	9	10	2	103

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	468	0	0	832	0	0	1290	1535	374	1150	1608	234
Stage 1	-	-	-	-	-	-	1049	1049	-	474	474	-
Stage 2	-	-	-	-	-	-	241	486	-	676	1134	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1090	-	-	796	-	-	121	115	623	153	104	768
Stage 1	-	-	-	-	-	-	243	303	-	540	556	-
Stage 2	-	-	-	-	-	-	741	549	-	409	276	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1090	-	-	796	-	-	91	98	623	134	89	768
Mov Cap-2 Maneuver	-	-	-	-	-	-	91	98	-	134	89	-
Stage 1	-	-	-	-	-	-	209	261	-	465	550	-
Stage 2	-	-	-	-	-	-	632	543	-	347	238	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.4			0.2			62.9			14.4		
HCM LOS							F			B		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	91	623	1090	-	-	796	-	-	497
HCM Lane V/C Ratio	0.454	0.014	0.139	-	-	0.011	-	-	0.232
HCM Control Delay (s)	73.9	10.9	8.8	-	-	9.6	-	-	14.4
HCM Lane LOS	F	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	1.9	0	0.5	-	-	0	-	-	0.9

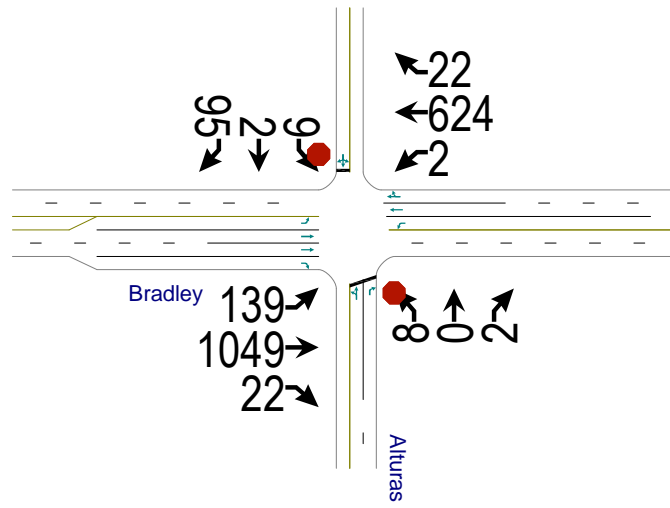


Intersection												
Int Delay, s/veh	5.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↗	↖	↗			↖	↗		↔	
Traffic Vol, veh/h	68	266	5	4	651	23	18	0	1	20	0	149
Future Vol, veh/h	68	266	5	4	651	23	18	0	1	20	0	149
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	200	300	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	74	477	5	4	1168	25	20	0	1	22	0	162

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1193	0	0	482	0	0	1217	1826	239	1576	1819	597
Stage 1	-	-	-	-	-	-	625	625	-	1189	1189	-
Stage 2	-	-	-	-	-	-	592	1201	-	387	630	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	581	-	-	1077	-	-	137	76	762	74	77	446
Stage 1	-	-	-	-	-	-	439	475	-	199	260	-
Stage 2	-	-	-	-	-	-	460	256	-	608	473	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	581	-	-	1077	-	-	79	66	762	67	67	446
Mov Cap-2 Maneuver	-	-	-	-	-	-	79	66	-	67	67	-
Stage 1	-	-	-	-	-	-	383	415	-	174	259	-
Stage 2	-	-	-	-	-	-	292	255	-	530	413	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.6			0			62.1			43.7		
HCM LOS							F			E		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	79	762	581	-	-	1077	-	-	267
HCM Lane V/C Ratio	0.248	0.001	0.127	-	-	0.004	-	-	0.688
HCM Control Delay (s)	65	9.7	12.1	-	-	8.4	-	-	43.7
HCM Lane LOS	F	A	B	-	-	A	-	-	E
HCM 95th %tile Q(veh)	0.9	0	0.4	-	-	0	-	-	4.6

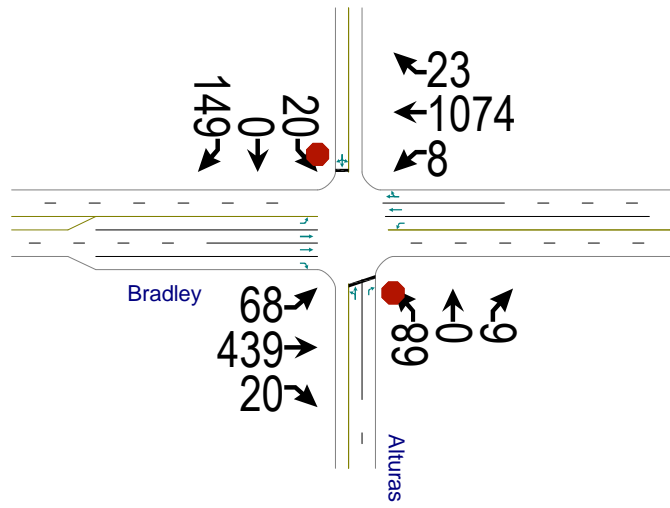


Intersection												
Int Delay, s/veh	2.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑			↙	↗		↔	
Traffic Vol, veh/h	139	636	22	2	378	22	8	0	2	9	2	95
Future Vol, veh/h	139	636	22	2	378	22	8	0	2	9	2	95
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	200	300	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	151	1141	24	2	678	24	9	0	2	10	2	103

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	702	0	0	1165	0	0	1787	2149	571	1567	2161	351
Stage 1	-	-	-	-	-	-	1443	1443	-	694	694	-
Stage 2	-	-	-	-	-	-	344	706	-	873	1467	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	891	-	-	595	-	-	51	48	464	75	47	645
Stage 1	-	-	-	-	-	-	139	196	-	399	442	-
Stage 2	-	-	-	-	-	-	645	437	-	311	190	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	891	-	-	595	-	-	36	40	464	65	39	645
Mov Cap-2 Maneuver	-	-	-	-	-	-	36	40	-	65	39	-
Stage 1	-	-	-	-	-	-	116	163	-	332	441	-
Stage 2	-	-	-	-	-	-	537	436	-	257	158	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.1			0			110			22.9		
HCM LOS							F			C		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	36	464	891	-	-	595	-	-	315
HCM Lane V/C Ratio	0.242	0.005	0.17	-	-	0.004	-	-	0.366
HCM Control Delay (s)	134.3	12.8	9.9	-	-	11.1	-	-	22.9
HCM Lane LOS	F	B	A	-	-	B	-	-	C
HCM 95th %tile Q(veh)	0.8	0	0.6	-	-	0	-	-	1.6

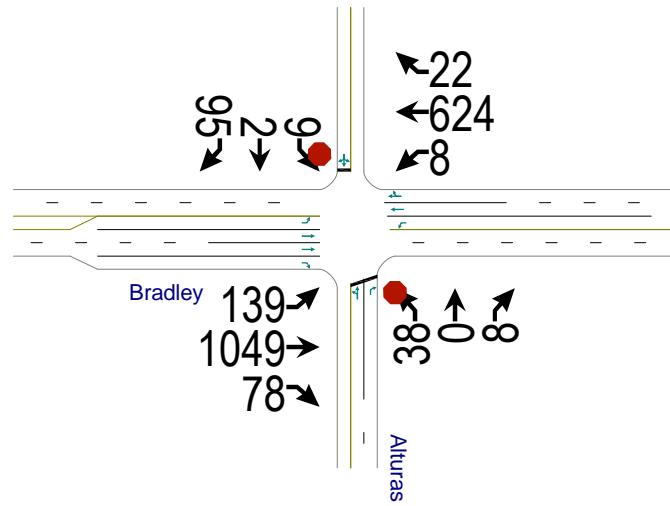


Intersection												
Int Delay, s/veh	11.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗	↗	↘	↗	↗		↘	↗		↔	
Traffic Vol, veh/h	68	266	20	8	651	23	68	0	6	20	0	149
Future Vol, veh/h	68	266	20	8	651	23	68	0	6	20	0	149
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	200	300	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	74	477	22	9	1168	25	74	0	7	22	0	162

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1193	0	0	499	0	0	1227	1836	239	1586	1846	597
Stage 1	-	-	-	-	-	-	625	625	-	1199	1199	-
Stage 2	-	-	-	-	-	-	602	1211	-	387	647	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	581	-	-	1061	-	-	134	75	762	73	74	446
Stage 1	-	-	-	-	-	-	439	475	-	197	257	-
Stage 2	-	-	-	-	-	-	453	253	-	608	465	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	581	-	-	1061	-	-	77	65	762	65	64	446
Mov Cap-2 Maneuver	-	-	-	-	-	-	77	65	-	65	64	-
Stage 1	-	-	-	-	-	-	383	415	-	172	255	-
Stage 2	-	-	-	-	-	-	286	251	-	526	406	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.6			0.1			170.9			45.2		
HCM LOS							F			E		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	77	762	581	-	-	1061	-	-	263
HCM Lane V/C Ratio	0.96	0.009	0.127	-	-	0.008	-	-	0.698
HCM Control Delay (s)	185.1	9.8	12.1	-	-	8.4	-	-	45.2
HCM Lane LOS	F	A	B	-	-	A	-	-	E
HCM 95th %tile Q(veh)	5.1	0	0.4	-	-	0	-	-	4.7



Intersection												
Int Delay, s/veh	9.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗	↗	↘	↗	↗		↘	↗		↔	
Traffic Vol, veh/h	139	636	78	8	378	22	38	0	8	9	2	95
Future Vol, veh/h	139	636	78	8	378	22	38	0	8	9	2	95
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	200	300	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	151	1141	85	9	678	24	41	0	9	10	2	103

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	702	0	0	1226	0	0	1801	2163	571	1581	2236	351
Stage 1	-	-	-	-	-	-	1443	1443	-	708	708	-
Stage 2	-	-	-	-	-	-	358	720	-	873	1528	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	891	-	-	564	-	-	50	47	464	73	42	645
Stage 1	-	-	-	-	-	-	139	196	-	392	436	-
Stage 2	-	-	-	-	-	-	633	430	-	311	178	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	891	-	-	564	-	-	~ 34	38	464	62	34	645
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 34	38	-	62	34	-
Stage 1	-	-	-	-	-	-	116	163	-	326	429	-
Stage 2	-	-	-	-	-	-	521	423	-	253	148	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.1			0.1			\$ 336.5			24.1		
HCM LOS							F			C		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	34	464	891	-	-	564	-	-	302
HCM Lane V/C Ratio	1.215	0.019	0.17	-	-	0.015	-	-	0.382
HCM Control Delay (s)	\$ 404.6	12.9	9.9	-	-	11.5	-	-	24.1
HCM Lane LOS	F	B	A	-	-	B	-	-	C
HCM 95th %tile Q(veh)	4.4	0.1	0.6	-	-	0	-	-	1.7

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

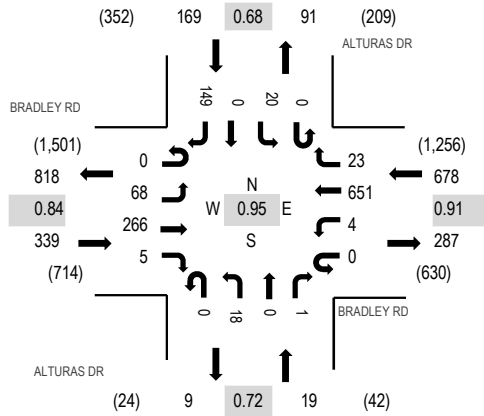
Location: 1 ALTURAS DR & BRADLEY RD AM

Date: Tuesday, March 9, 2021

Peak Hour: 07:00 AM - 08:00 AM

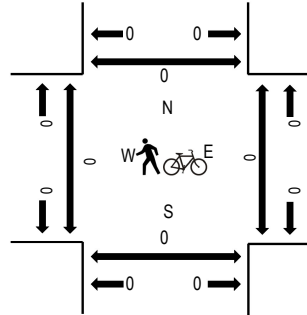
Peak 15-Minutes: 07:30 AM - 07:45 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles on Crosswalk



Traffic Counts

Interval Start Time	BRADLEY RD Eastbound				BRADLEY RD Westbound				ALTURAS DR Northbound				ALTURAS DR Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
7:00 AM	0	13	53	0	0	2	183	2	0	5	0	0	0	3	0	49	310	1,205	0	0	0	0
7:15 AM	0	23	68	2	0	0	154	9	0	4	0	1	0	4	0	32	297	1,183	0	0	0	0
7:30 AM	0	19	78	1	0	0	164	7	0	4	0	0	0	6	0	38	317	1,200	0	0	0	0
7:45 AM	0	13	67	2	0	2	150	5	0	5	0	0	0	7	0	30	281	1,190	0	0	0	0
8:00 AM	0	10	94	2	1	0	142	5	0	2	0	1	0	4	1	26	288	1,159	0	0	0	0
8:15 AM	0	36	84	1	0	3	125	18	0	6	0	2	0	7	1	31	314		0	0	0	0
8:30 AM	0	15	56	1	0	2	146	16	0	4	0	0	0	16	2	49	307		0	0	0	0
8:45 AM	0	12	62	2	0	0	114	6	0	6	0	2	0	14	0	32	250		0	0	0	0
Count Total	0	141	562	11	1	9	1,178	68	0	36	0	6	0	61	4	287	2,364		0	0	0	0
Peak Hour	0	68	266	5	0	4	651	23	0	18	0	1	0	20	0	149	1,205		0	0	0	0



ALL TRAFFIC DATA SERVICES

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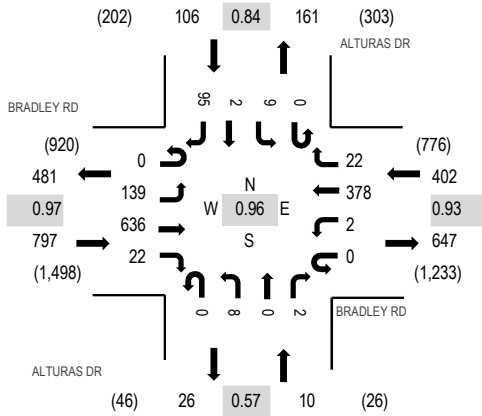
Location: 1 ALTURAS DR & BRADLEY RD PM

Date: Tuesday, March 9, 2021

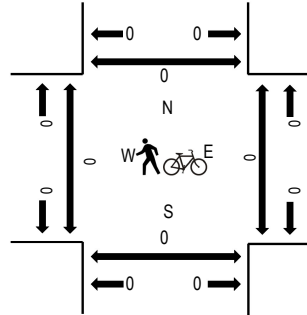
Peak Hour: 04:45 PM - 05:45 PM

Peak 15-Minutes: 05:15 PM - 05:30 PM

Peak Hour - All Vehicles



Peak Hour - Pedestrians/Bicycles on Crosswalk



Note: Total study counts contained in parentheses.

Traffic Counts

Interval Start Time	BRADLEY RD Eastbound				BRADLEY RD Westbound				ALTURAS DR Northbound				ALTURAS DR Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	0	29	150	3	0	0	97	7	0	3	0	0	0	3	1	21	314	1,256	1	0	0	0
4:15 PM	0	26	156	2	1	0	75	7	0	5	0	2	0	5	0	27	306	1,244	0	0	0	0
4:30 PM	0	35	139	8	0	1	87	4	0	2	0	2	0	3	0	18	299	1,282	0	0	1	0
4:45 PM	0	34	166	5	0	1	95	4	0	2	0	0	0	4	2	24	337	1,315	0	0	0	0
5:00 PM	0	35	149	4	0	0	83	5	0	0	0	1	0	2	0	23	302	1,246	0	0	0	0
5:15 PM	0	38	161	7	0	0	102	6	0	3	0	1	0	0	0	26	344		0	0	0	0
5:30 PM	0	32	160	6	0	1	98	7	0	3	0	0	0	3	0	22	332		0	0	0	0
5:45 PM	0	30	118	5	1	0	91	3	0	1	1	0	0	6	0	12	268		0	0	0	0
Count Total	0	259	1,199	40	2	3	728	43	0	19	1	6	0	26	3	173	2,502		1	0	1	0
Peak Hour	0	139	636	22	0	2	378	22	0	8	0	2	0	9	2	95	1,315		0	0	0	0