



ALDRIDGE TRANSPORTATION CONSULTANTS, LLC
Advanced Transportation Planning and Traffic Engineering

John M.W. Aldridge, P.E.
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March 21, 2021

Mr. Chris Perdue, P.E.
Strategic Site Design
88 Inverness Circle East, Suite E101
Englewood, CO 80130

RE: Traffic Impact Study
Pioneer Village Phase 1 – Keenesburg, Colorado

Dear Mr. Perdue,

Aldridge Transportation Consultants (ATC) is pleased to present this Traffic Impact Study for the proposed Phase 1 development of Pioneer Village in Keenesburg.

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 1,500 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





County’s 2045 Plan, the interchange is slated for improvement in the long-range category – 2036 to 2045.

24-hour traffic counts including vehicle classification and speed were taken by All Traffic Data on March 18, 2021 in clear conditions. The truck percentage is approximately 34 percent (12 percent are heavy trucks i.e. semi-tractor trailers) and the 85th percentile speed is 65 mph. The 24-hour counts, classification, and speed tables are attached in the appendix.

The County’s 2045 Plan forecasts a daily volume on 19,200 in this section. It also shows an overall truck percentage of 34 percent. The capacity of the roadway is listed at 28,800 ADT.

B. TRIP GENERATION AND DESIGN HOUR VOLUMES

The following table presents the trip generation from the project based on average rates and values found in the ITE Trip Generation Manual, 10th Edition. The table shows for each area and total the average daily traffic and the AM and PM peak hour trip generation.

Trip Generation Worksheet								
Parcel ITE CODE	LAND USE	UNIT	QUANTITY	ADT	AM		PM	
					IN	OUT	IN	OUT
Area 1	Single-Family	DU	138	9.44	0.19	0.55	0.63	0.37
210	Detached			1303	26	76	87	51
Area 2	Single-Family	DU	249	9.44	0.19	0.55	0.63	0.37
210	Detached			2351	47	137	157	92
Area 3	Single-Family	DU	152	9.44	0.19	0.55	0.63	0.37
210	Detached			1435	29	84	96	56
Area 4	Single-Family	DU	123	9.44	0.19	0.55	0.63	0.37
210	Detached			1161	23	68	77	46
Subtotal				6249	126	364	417	245
Area 17	Single-Family	DU	233	9.44	0.19	0.55	0.63	0.37
210	Detached			2200	44	128	147	86
Area 21	Single-Family	DU	337	9.44	0.19	0.55	0.63	0.37
210	Detached			3181	64	185	212	125
Total Trips				11630	234	678	776	456

The Phase 1 land use plan analyzed herein contains 1,232 residential units



C. TRIP DISTRIBUTION

All trips will be distributed to WCR-49. At WCR-49 70 percent are programmed to/from the south and 30% are programmed to/from the north. This is consistent with the Master Plan and the County's 2045 Plan.

D. TRIP ASSIGNMENT

The trip assignment assumes full development of each planning area. Trip volumes were assigned to each access based on density and orientation to the adjacent streets and intersections. The following graphics in Figure 2 show the trip assignment and the current peak hour volumes on WCR-49. Note that the access to WCR-49 from the anticipated roadway at WCR-24 did not register enough traffic for analysis.

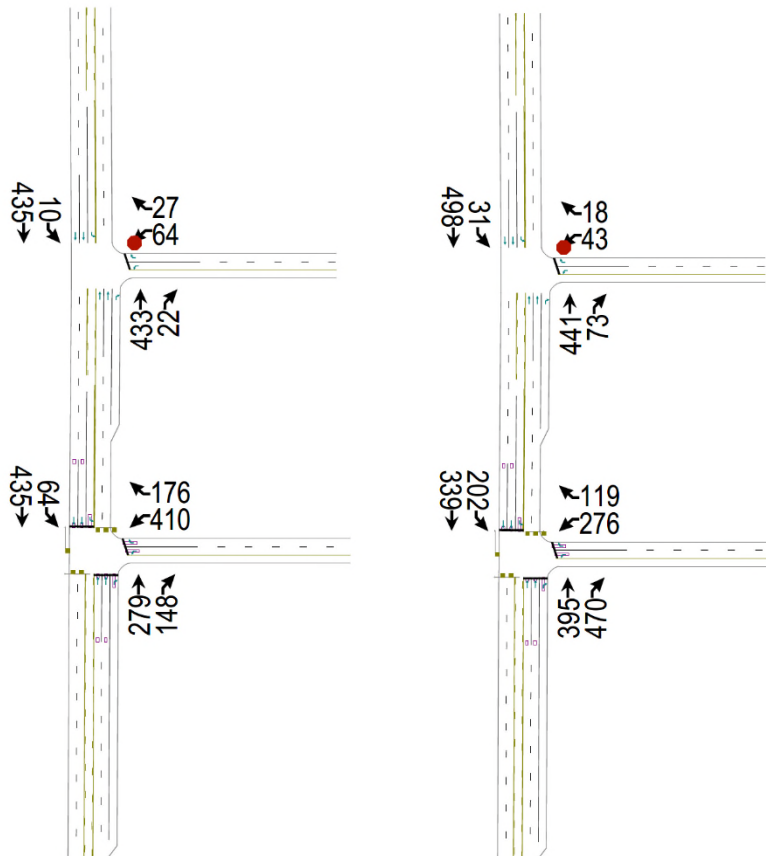


Figure 2 AM and PM Trip Assignment



E. LEVEL OF SERVICE

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 is shown. 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.

Unsignalized Intersection LOS Summary						
LOS/Control Delay (secs) A=0-10, B=>10-15, C=>15-25, D=>25-35, E=>35-50, F=>50						
Intersection	Existing		2023 Background		2023 Total	
	AM	PM	AM	PM	AM	PM
WCR-49/North Access	n/a	n/a	n/a	n/a	B	B

Signalized Intersection LOS Summary						
LOS/Control Delay (secs) A=0-10, B=>10-20, C=>20-35, D=>35-55, E=>55-80, F=>80						
Intersection	Existing		2022 Background		2022 Total	
	AM	PM	AM	PM	AM	PM
WCR-49/South Access	n/a	n/a	n/a	n/a	B	B

F. MITIGATION RECOMMENDATIONS

The development plan proposes three new access location to WCR-49. The most southerly one will experience the most traffic as it will serve the expected 70 percent directional distribution. The analysis herein shows that the intersection will require traffic signal control to avoid significant delay, queuing, and to reduce crash probabilities. The middle access which is 1,440 feet north of is planned as a full movement, but it will manage far less traffic and operate at an acceptable LOS B/B in the AM and PM peak hours,



respectively, as an unsignalized intersection. The third access is the most northerly and not likely to experience a significant amount of traffic. It should be full movement. Note though it is slightly off the quarter mile spacing requirement of 1,320 feet at 1,200 feet. However, this will not create an operational or safety problem.

The distance requirements from the WCR-49 Access Control Plan are shown in the following table.

Access Element	Arterial	Collector	Local
Minimum Distance between Intersections: Signalized	2640 ft	NA	NA
Unsignalized	1320 ft	1320 ft	330 ft
Minimum Distance between Low Volume Accesses	660 ft	660 ft	150 ft
Minimum Distance between Low Volume Access & Intersection	660 ft	660 ft	330 ft
Minimum Distance between Driveways	660 ft	330 ft	75 ft
Minimum Distance between Low Volume Access & Driveway	660 ft	330 ft	150 ft
Minimum Corner Clearance between Driveways & Intersections	660 ft	330 ft	330 ft

Each intersection requires left turn and right turn deceleration lanes. The left turn lane can be incorporated into the existing two-way center left turn lane. The right turn lane would have to be constructed according to the following standards. In this case the deceleration lane needs to be 800 feet with a 25:1 (275 feet for an 11-foot lane) transition taper.

Acceleration/Deceleration Lane Design Criteria										
Posted Speed Limit (MPH)	25	30	35	40	45	50	55	60	65	70
Deceleration Length (ft)	180	250	310	370	435	500	600	700	800	900
Acceleration Length (ft)	N/A	190	270	380	550	760	960	1170	1380	1590
Transition Taper (Ratio)	7.5:1	8:1	10:1	12:1	13.5:1	15:1	18.5:1	25:1	25:1	25:1
Straight Taper (Ratio)	15:1	15:1	20:1	30:1	45:1	20:1	55:1	60:1	65:1	70:1

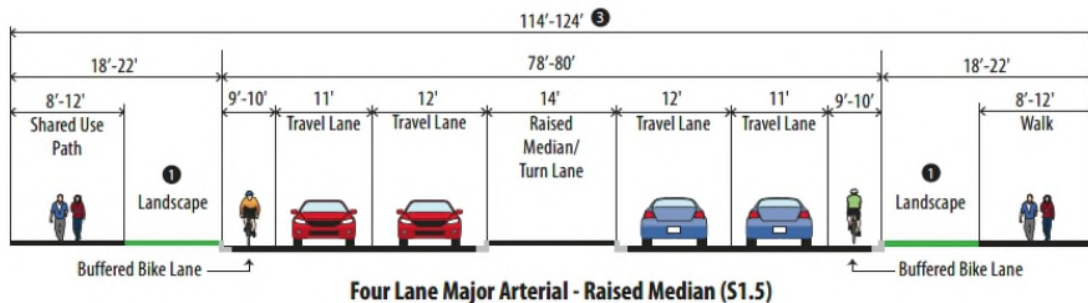
Internally, the street layout in Phase 1 is primarily consisting of two-lane collectors. Pioneer Parkway will be built to Major or Minor Arterial standard in future phases. Recommended roadway cross-sections are provided in the Master Plan and in the recent Weld County 2045 Transportation Plan also provides recommended collector cross-sections.



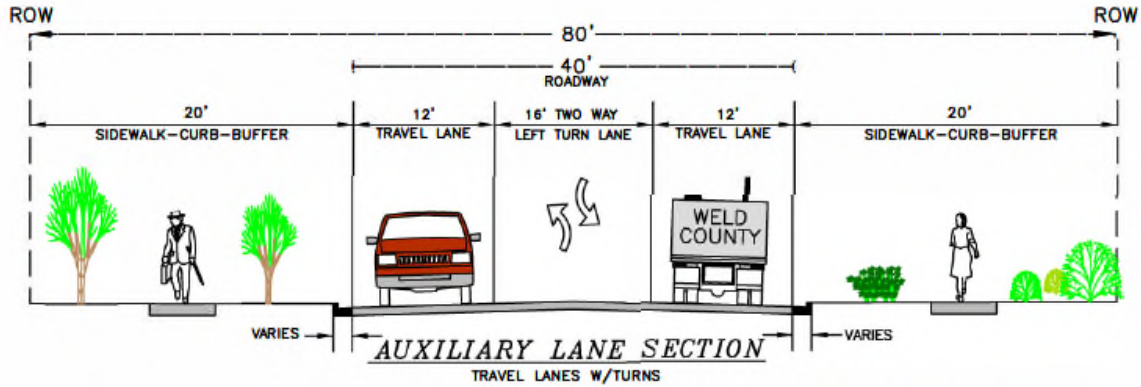
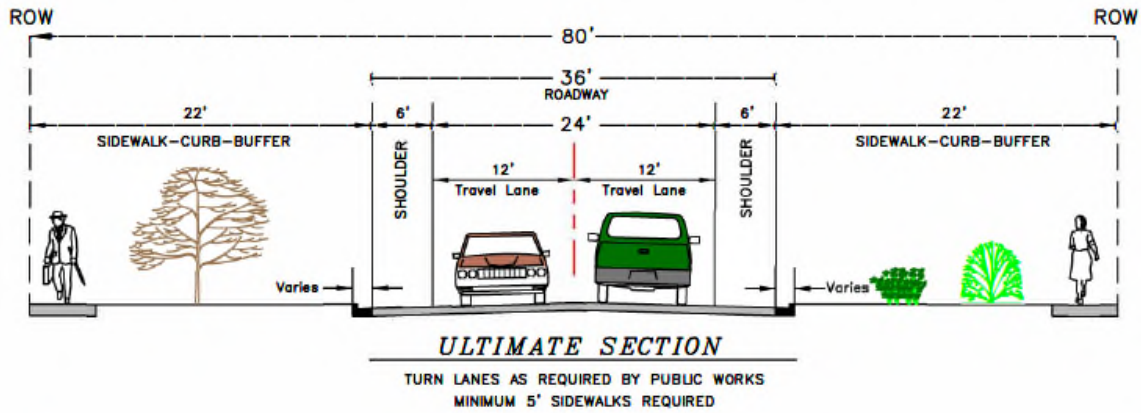
Major arterials should have limited access, typically via signalized or unsignalized, at grade intersections at one-half mile spacing. Arterials provide relatively high speed, unimpeded, regional connections. There may be direct access where they pass by existing homes and businesses, but future development should provide internal street systems and limit or prohibit individual direct access to the arterial. These facilities are designed to accommodate trucks and other large vehicles.

Minor arterials also have limited access but may provide direct access to properties if no other reasonable form of access exists. Intersections are at grade and may be signalized. Minor arterials provide relatively unimpeded connections within the community and distribute traffic to higher classification roadways. These facilities are designed to accommodate trucks and other large vehicles.

The cross-section shown below is an example of a 4-lane Major Arterial. It can be redesigned to be context sensitive i.e., shared use paths vs. separate bike lanes.



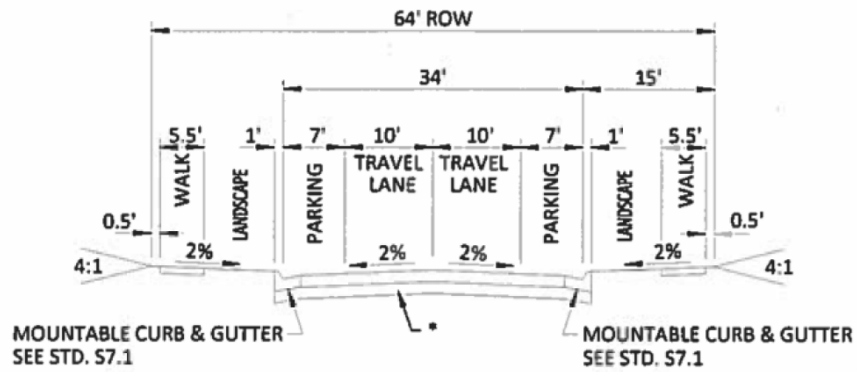
Collectors provide connections between local streets and arterials and usually retain continuity through neighborhoods. While they may provide direct access to abutting properties, residential driveway access is typically discouraged. Intersections are at-grade and have some form of traffic control (stop signs). The Phase 1 street layout provides a system of collectors that enhances the grid network and minimizes discontinuous, curvilinear alignments. The following Collector cross-sections are from the Weld County 2045 Transportation Plan.



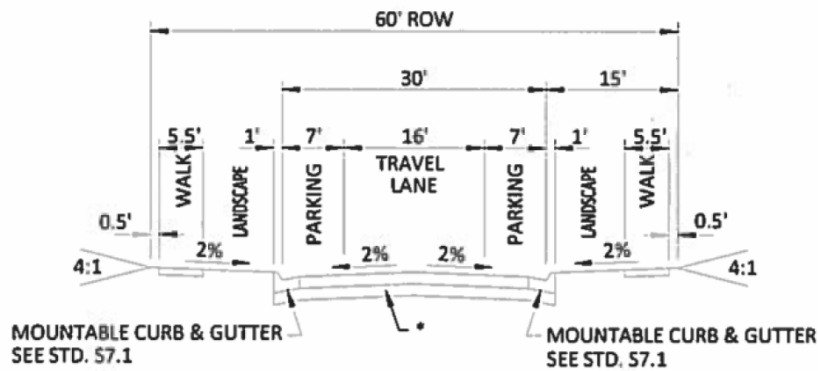
Both above can be modified to fit a particular situation, i.e., inclusion of bike lanes and/or parking lanes.

Local streets serve the highest level of access, providing direct driveway access to adjacent properties and carrying traffic to the collectors. Local streets can be of limited continuity and may be designed to discourage through traffic.

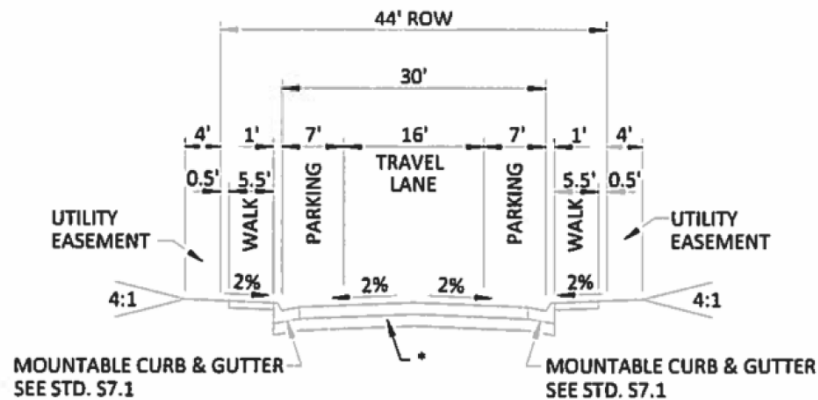
Local residential streets can be configured to specific situations such as daily volume and cul-de-sacs. Generally, the right-of-way is around 60 feet. The following presents options allowed by the City of Aurora. Type 1 is very typical as it allows vehicles in opposing directions to pass comfortably, parking on both sides, landscaped buffer, and detached sidewalks. Types 2 and 3 have narrower street widths which may require one of the vehicles opposing directions to pull over and/or stop to allow the opposing vehicle to pass. There is also the option to attach the sidewalk and eschew a landscaped buffer. This would reduce the right-of-way requirement to around 50 feet.



LOCAL STREET TYPE 1

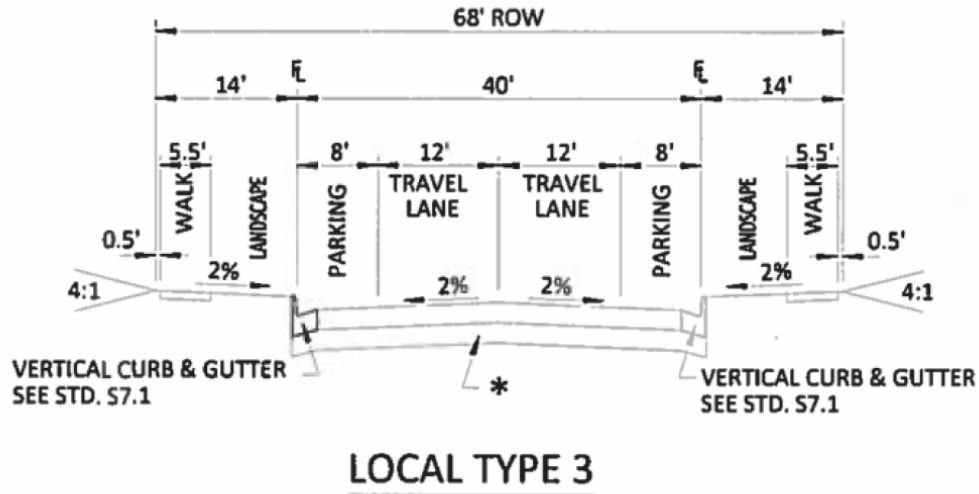


LOCAL STREET TYPE 2



LOCAL STREET TYPE 2 ALTERNATE

RESIDENTIAL CUL-DE-SAC LESS THAN 250' IN LENGTH ONLY.



G. CONCLUSION

Based on the analysis presented herein, we find that traffic generated by the development of Phase 1 of Pioneer Village with the requested entitlement of 1,232 residential units can be absorbed by the adjacent streets and intersections and operate at an acceptable level of service on condition that the access locations and type and street improvements recommended by this traffic impact study are implemented.



APPENDIX

Intersection

Int Delay, s/veh 1.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↕↕	↗	↘	↕↕
Traffic Vol, veh/h	64	27	433	22	10	435
Future Vol, veh/h	64	27	433	22	10	435
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	200	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	70	29	471	24	11	473

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	730	236	0
Stage 1	471	-	-
Stage 2	259	-	-
Critical Hdwy	6.84	6.94	-
Critical Hdwy Stg 1	5.84	-	-
Critical Hdwy Stg 2	5.84	-	-
Follow-up Hdwy	3.52	3.32	-
Pot Cap-1 Maneuver	357	766	-
Stage 1	594	-	-
Stage 2	761	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	353	766	-
Mov Cap-2 Maneuver	459	-	-
Stage 1	594	-	-
Stage 2	753	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.9	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	459	766	1065
HCM Lane V/C Ratio	-	-	0.152	0.038	0.01
HCM Control Delay (s)	-	-	14.2	9.9	8.4
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.5	0.1	0

Intersection

Int Delay, s/veh	1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↕	↗	↘	↕
Traffic Vol, veh/h	43	18	441	73	31	498
Future Vol, veh/h	43	18	441	73	31	498
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	200	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	47	20	479	79	34	541













Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	818	240	0	0	558
Stage 1	479	-	-	-	-
Stage 2	339	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14
Critical Hdwy Stg 1	5.84	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22
Pot Cap-1 Maneuver	314	761	-	-	1009
Stage 1	589	-	-	-	-
Stage 2	693	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	303	761	-	-	1009
Mov Cap-2 Maneuver	423	-	-	-	-
Stage 1	589	-	-	-	-
Stage 2	669	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.2	0	0.5
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT
Capacity (veh/h)	-	-	423	761
HCM Lane V/C Ratio	-	-	0.11	0.026
HCM Control Delay (s)	-	-	14.6	9.9
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.4	0.1



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	276	119	395	470	202	339
Future Volume (veh/h)	276	119	395	470	202	339
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	300	129	429	511	220	368
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	367	327	2380	1062	472	2380
Arrive On Green	0.21	0.21	0.67	0.67	0.67	0.67
Sat Flow, veh/h	1781	1585	3647	1585	596	3647
Grp Volume(v), veh/h	300	129	429	511	220	368
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1585	596	1777
Q Serve(g_s), s	11.6	5.1	3.3	11.4	15.9	2.8
Cycle Q Clear(g_c), s	11.6	5.1	3.3	11.4	19.2	2.8
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	367	327	2380	1062	472	2380
V/C Ratio(X)	0.82	0.40	0.18	0.48	0.47	0.15
Avail Cap(c_a), veh/h	799	711	2380	1062	472	2380
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.5	24.8	4.5	5.8	8.1	4.4
Incr Delay (d2), s/veh	4.5	0.8	0.2	1.6	3.3	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.2	1.9	1.0	3.3	2.1	0.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	32.0	25.6	4.7	7.4	11.4	4.5
LnGrp LOS	C	C	A	A	B	A
Approach Vol, veh/h	429		940			588
Approach Delay, s/veh	30.0		6.1			7.1
Approach LOS	C		A			A
Timer - Assigned Phs		2			6	8
Phs Duration (G+Y+Rc), s		53.0			53.0	19.4
Change Period (Y+Rc), s		4.5			4.5	4.5
Max Green Setting (Gmax), s		48.5			48.5	32.5
Max Q Clear Time (g_c+I1), s		13.4			21.2	13.6
Green Ext Time (p_c), s		5.4			5.2	1.3
Intersection Summary						
HCM 6th Ctrl Delay			11.7			
HCM 6th LOS			B			

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	410	176	279	148	64	435
Future Volume (veh/h)	410	176	279	148	64	435
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	446	191	303	161	70	473
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	547	486	1887	842	582	1887
Arrive On Green	0.31	0.31	0.53	0.53	0.53	0.53
Sat Flow, veh/h	1781	1585	3647	1585	928	3647
Grp Volume(v), veh/h	446	191	303	161	70	473
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1585	928	1777
Q Serve(g_s), s	12.9	5.3	2.4	2.9	2.3	4.0
Cycle Q Clear(g_c), s	12.9	5.3	2.4	2.9	4.7	4.0
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	547	486	1887	842	582	1887
V/C Ratio(X)	0.82	0.39	0.16	0.19	0.12	0.25
Avail Cap(c_a), veh/h	1652	1470	1887	842	582	1887
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.8	15.2	6.7	6.8	7.9	7.0
Incr Delay (d2), s/veh	3.0	0.5	0.2	0.5	0.4	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.1	1.8	0.8	0.9	0.4	1.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	20.8	15.7	6.9	7.3	8.3	7.4
LnGrp LOS	C	B	A	A	A	A
Approach Vol, veh/h			464			543
Approach Delay, s/veh			7.0			7.5
Approach LOS			A			A
Timer - Assigned Phs		2			6	8
Phs Duration (G+Y+Rc), s		34.0			34.0	21.5
Change Period (Y+Rc), s		4.5			4.5	4.5
Max Green Setting (Gmax), s		29.5			29.5	51.5
Max Q Clear Time (g_c+I1), s		4.9			6.7	14.9
Green Ext Time (p_c), s		2.5			3.6	2.2
Intersection Summary						
HCM 6th Ctrl Delay			11.9			
HCM 6th LOS			B			

All Traffic Data Services
www.alltrafficdata.net

Date Start: 18-Mar-21
Site Code: 1
Station ID: 1
WCR 49 N.O. WCR 22

Start Time	18-Mar-21 Thu	NB	SB	Total						
12:00 AM		32	18	50						
01:00		24	27	51						
02:00		14	31	45						
03:00		32	48	80						
04:00		43	137	180						
05:00		127	328	455						
06:00		279	435	714						
07:00		249	394	643						
08:00		239	324	563						
09:00		211	313	524						
10:00		198	287	485						
11:00		217	242	459						
12:00 PM		211	234	445						
01:00		226	238	464						
02:00		257	254	511						
03:00		337	283	620						
04:00		351	308	659						
05:00		395	339	734						
06:00		253	220	473						
07:00		152	139	291						
08:00		119	99	218						
09:00		79	50	129						
10:00		76	53	129						
11:00		48	24	72						
Total		4169	4825	8994						
Percent		46.4%	53.6%							
AM Peak	-	06:00	06:00	-	-	-	-	-	-	06:00
Vol.	-	279	435	-	-	-	-	-	-	714
PM Peak	-	17:00	17:00	-	-	-	-	-	-	17:00
Vol.	-	395	339	-	-	-	-	-	-	734
Grand Total		4169	4825							8994
Percent		46.4%	53.6%							
ADT		ADT 8,994	AADT 8,994							

All Traffic Data Services
www.alltrafficdata.net

Date Start: 18-Mar-21
Site Code: 1
Station ID: 1
WCR 49 N.O. WCR 22

NB

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	85th Percent	95th Percent
03/18/21	2	0	0	0	0	2	0	1	4	4	15	2	0	2	32	64	66
01:00	2	0	0	0	0	0	1	1	0	13	6	1	0	0	24	62	64
02:00	2	0	0	0	0	0	1	0	1	5	1	3	0	1	14	66	68
03:00	1	0	0	0	0	1	1	1	3	15	9	0	0	1	32	62	64
04:00	0	0	0	0	0	0	1	1	7	12	16	4	1	1	43	64	68
05:00	1	0	0	0	0	0	0	1	10	50	44	13	5	3	127	64	69
06:00	5	0	0	0	0	1	1	2	18	115	97	31	8	1	279	64	69
07:00	13	0	0	0	0	2	2	4	15	83	81	29	12	8	249	65	69
08:00	12	0	1	0	0	1	1	3	31	97	57	19	15	2	239	64	71
09:00	8	0	0	0	0	1	2	6	26	82	56	21	4	5	211	64	68
10:00	10	0	0	0	0	0	1	7	21	92	47	16	2	2	198	63	67
11:00	9	0	0	0	0	2	3	2	37	90	58	11	4	1	217	63	66
12 PM	6	0	0	0	0	0	1	5	21	91	52	29	4	2	211	65	68
13:00	16	1	0	0	0	0	1	5	30	82	60	19	9	3	226	64	69
14:00	16	0	0	0	0	2	2	9	33	93	61	29	10	2	257	65	69
15:00	11	0	0	0	0	0	0	6	41	144	89	35	9	2	337	64	68
16:00	8	0	1	0	0	0	0	6	33	161	104	31	5	2	351	64	67
17:00	10	0	0	0	0	0	3	3	22	163	118	47	25	4	395	66	71
18:00	4	0	0	0	0	0	0	1	17	88	92	34	12	5	253	66	69
19:00	7	0	0	0	0	0	1	4	13	61	45	15	4	2	152	64	68
20:00	10	0	0	0	0	1	2	4	14	37	37	10	4	0	119	64	69
21:00	3	0	0	0	0	0	2	0	4	42	17	8	1	2	79	64	68
22:00	10	0	0	0	0	0	0	0	8	29	20	7	2	0	76	64	68
23:00	0	0	0	0	0	0	3	1	1	21	15	4	3	0	48	64	70
Total	166	1	2	0	0	13	29	73	410	1670	1197	418	139	51	4169		
Percent	4.0%	0.0%	0.0%	0.0%	0.0%	0.3%	0.7%	1.8%	9.8%	40.1%	28.7%	10.0%	3.3%	1.2%			
AM Peak	07:00		08:00			00:00	11:00	10:00	11:00	06:00	06:00	06:00	08:00	07:00	06:00		
Vol.	13		1			2	3	7	37	115	97	31	15	8	279		
PM Peak	13:00	13:00	16:00			14:00	17:00	14:00	15:00	17:00	17:00	17:00	17:00	18:00	17:00		
Vol.	16	1	1			2	3	9	41	163	118	47	25	5	395		
Grand Total	166	1	2	0	0	13	29	73	410	1670	1197	418	139	51	4169		
Percent	4.0%	0.0%	0.0%	0.0%	0.0%	0.3%	0.7%	1.8%	9.8%	40.1%	28.7%	10.0%	3.3%	1.2%			

15th Percentile : 54 MPH
50th Percentile : 59 MPH
85th Percentile : 64 MPH
95th Percentile : 69 MPH

Statistics
10 MPH Pace Speed : 56-65 MPH
Number in Pace : 2867
Percent in Pace : 68.8%
Number of Vehicles > 65 MPH : 608
Percent of Vehicles > 65 MPH : 14.6%
Mean Speed(Average) : 58 MPH

All Traffic Data Services
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Date Start: 18-Mar-21
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Station ID: 1
WCR 49 N.O. WCR 22

SB

Start Time	1	16	21	26	31	36	41	46	51	56	61	66	71	76	85th Percent	95th Percent	
	15	20	25	30	35	40	45	50	55	60	65	70	75	999	Total	Percent	
03/18/21	2	0	0	0	0	0	1	0	4	5	4	2	0	0	18	64	67
01:00	8	0	0	0	0	0	0	0	3	10	3	3	0	0	27	63	67
02:00	3	0	0	0	0	0	0	1	7	10	9	1	0	0	31	62	64
03:00	12	0	0	0	0	0	0	0	1	17	14	4	0	0	48	63	66
04:00	23	0	0	0	0	0	0	2	6	33	58	12	1	2	137	64	67
05:00	54	0	0	0	0	0	0	1	12	83	127	41	7	3	328	64	68
06:00	79	1	0	1	0	0	1	5	12	118	170	38	8	2	435	64	68
07:00	72	0	0	2	0	0	1	1	12	100	148	49	7	2	394	64	68
08:00	47	0	0	0	0	0	3	0	10	93	108	48	10	5	324	66	69
09:00	48	0	3	2	2	0	1	5	8	64	143	28	8	1	313	64	68
10:00	34	0	3	0	3	0	0	5	15	85	95	37	9	1	287	65	69
11:00	25	0	0	0	0	1	1	2	6	81	86	29	10	1	242	65	69
12 PM	20	0	0	0	0	0	1	0	9	51	83	48	12	10	234	67	70
13:00	19	0	0	1	0	0	0	1	8	51	99	38	16	5	238	67	71
14:00	20	0	0	0	0	0	0	2	6	57	103	44	13	9	254	67	70
15:00	15	0	0	0	0	0	0	2	14	51	127	49	19	6	283	67	71
16:00	15	0	0	0	0	0	0	0	4	49	140	68	17	15	308	68	70
17:00	33	1	0	0	1	0	0	0	5	72	136	62	17	12	339	67	70
18:00	18	0	0	0	0	0	0	0	4	49	96	42	7	4	220	66	69
19:00	13	0	0	0	0	0	0	1	6	43	55	18	2	1	139	64	68
20:00	14	0	0	0	0	0	0	5	11	25	32	8	1	3	99	64	67
21:00	4	0	0	0	0	0	1	0	5	14	20	3	1	2	50	64	67
22:00	13	0	0	0	0	0	0	2	8	13	14	2	0	1	53	62	64
23:00	3	0	0	0	0	0	0	1	0	10	9	1	0	0	24	63	64
Total	594	2	6	6	6	1	10	36	176	1184	1879	675	165	85	4825		
Percent	12.3%	0.0%	0.1%	0.1%	0.1%	0.0%	0.2%	0.7%	3.6%	24.5%	38.9%	14.0%	3.4%	1.8%			
AM Peak	06:00	06:00	09:00	07:00	10:00	11:00	08:00	06:00	10:00	06:00	06:00	07:00	08:00	08:00	06:00		
Vol.	79	1	3	2	3	1	3	5	15	118	170	49	10	5	435		
PM Peak	17:00	17:00		13:00	17:00		12:00	20:00	15:00	17:00	16:00	16:00	15:00	16:00	17:00		
Vol.	33	1		1	1		1	5	14	72	140	68	19	15	339		
Grand Total	594	2	6	6	6	1	10	36	176	1184	1879	675	165	85	4825		
Percent	12.3%	0.0%	0.1%	0.1%	0.1%	0.0%	0.2%	0.7%	3.6%	24.5%	38.9%	14.0%	3.4%	1.8%			

15th Percentile : 51 MPH
50th Percentile : 60 MPH
85th Percentile : 65 MPH
95th Percentile : 69 MPH

Statistics
10 MPH Pace Speed : 56-65 MPH
Number in Pace : 3063
Percent in Pace : 63.5%
Number of Vehicles > 65 MPH : 925
Percent of Vehicles > 65 MPH : 19.2%
Mean Speed(Average) : 55 MPH

All Traffic Data Services
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Date Start: 18-Mar-21
Site Code: 1
Station ID: 1
WCR 49 N.O. WCR 22

NB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
03/18/21	0	23	0	1	1	0	0	0	6	1	0	0	0	32
01:00	0	16	1	0	1	2	0	0	2	1	0	0	1	24
02:00	0	4	0	1	2	0	0	0	6	1	0	0	0	14
03:00	0	13	5	0	2	2	0	2	7	1	0	0	0	32
04:00	0	15	6	0	9	0	1	1	10	0	0	0	1	43
05:00	0	68	22	0	18	0	0	5	13	1	0	0	0	127
06:00	0	148	39	0	45	3	0	12	28	3	0	0	1	279
07:00	0	148	34	1	26	3	0	8	22	4	0	1	2	249
08:00	0	136	33	3	29	6	0	14	16	1	0	0	1	239
09:00	0	107	29	4	15	5	0	17	27	7	0	0	0	211
10:00	0	106	25	2	14	6	1	13	23	6	0	1	1	198
11:00	0	129	27	1	9	6	1	14	24	3	1	0	2	217
12 PM	0	127	34	1	12	5	1	8	20	3	0	0	0	211
13:00	0	142	25	1	22	3	0	8	22	0	0	0	3	226
14:00	0	161	36	1	16	5	0	11	20	6	0	1	0	257
15:00	0	239	38	1	21	3	1	9	18	3	1	0	3	337
16:00	0	236	50	0	23	4	1	10	25	2	0	0	0	351
17:00	0	276	50	1	22	4	0	13	26	3	0	0	0	395
18:00	0	180	31	1	13	0	1	3	19	3	0	0	2	253
19:00	0	107	15	1	11	0	0	2	14	2	0	0	0	152
20:00	0	71	11	1	6	1	0	8	16	5	0	0	0	119
21:00	0	58	6	0	4	0	0	1	8	2	0	0	0	79
22:00	0	45	5	1	8	1	0	4	7	2	0	0	3	76
23:00	0	34	1	0	1	1	0	0	10	0	0	0	1	48
Day Total	0	2589	523	22	330	60	7	163	389	60	2	3	21	4169
Percent	0.0%	62.1%	12.5%	0.5%	7.9%	1.4%	0.2%	3.9%	9.3%	1.4%	0.0%	0.1%	0.5%	
AM Peak		06:00	06:00	09:00	06:00	08:00	04:00	09:00	06:00	09:00	11:00	07:00	07:00	06:00
Vol.		148	39	4	45	6	1	17	28	7	1	1	2	279
PM Peak		17:00	16:00	12:00	16:00	12:00	12:00	17:00	17:00	14:00	15:00	14:00	13:00	17:00
Vol.		276	50	1	23	5	1	13	26	6	1	1	3	395
Grand Total	0	2589	523	22	330	60	7	163	389	60	2	3	21	4169
Percent	0.0%	62.1%	12.5%	0.5%	7.9%	1.4%	0.2%	3.9%	9.3%	1.4%	0.0%	0.1%	0.5%	

All Traffic Data Services

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Date Start: 18-Mar-21
 Site Code: 1
 Station ID: 1
 WCR 49 N.O. WCR 22

SB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
03/18/21	0	10	0	1	1	1	0	1	4	0	0	0	0	18
01:00	0	11	3	0	0	0	0	0	7	6	0	0	0	27
02:00	0	10	2	0	0	2	0	0	13	4	0	0	0	31
03:00	0	30	5	0	1	2	0	2	5	2	0	0	1	48
04:00	0	101	9	1	6	1	0	1	9	6	0	0	3	137
05:00	1	227	47	1	25	6	2	5	8	5	0	0	1	328
06:00	2	293	52	2	40	8	1	4	15	7	0	1	10	435
07:00	1	281	37	1	23	12	1	7	16	9	0	0	6	394
08:00	0	205	38	4	20	10	3	8	22	8	0	0	6	324
09:00	0	186	40	10	21	8	3	6	24	9	0	1	5	313
10:00	0	169	39	2	26	9	0	15	18	4	0	1	4	287
11:00	0	129	29	2	26	6	0	10	33	6	0	1	0	242
12 PM	0	130	31	3	24	5	0	9	25	4	0	0	3	234
13:00	0	136	24	3	20	10	0	13	24	6	0	0	2	238
14:00	0	152	33	1	27	5	0	10	21	4	0	0	1	254
15:00	0	165	45	4	27	3	2	15	14	3	0	0	5	283
16:00	0	194	53	1	30	1	0	9	18	2	0	0	0	308
17:00	0	212	37	0	50	4	0	13	13	7	0	0	3	339
18:00	0	148	24	1	17	3	2	3	15	3	0	2	2	220
19:00	0	94	12	0	8	3	0	5	12	3	0	0	2	139
20:00	0	62	10	2	7	4	0	2	7	5	0	0	0	99
21:00	0	32	6	1	4	0	0	0	6	0	0	0	1	50
22:00	0	31	4	0	1	2	0	2	7	4	0	0	2	53
23:00	0	14	2	0	0	1	0	0	5	0	0	0	2	24
Day Total	4	3022	582	40	404	106	14	140	341	107	0	6	59	4825
Percent	0.1%	62.6%	12.1%	0.8%	8.4%	2.2%	0.3%	2.9%	7.1%	2.2%	0.0%	0.1%	1.2%	
AM Peak	06:00	06:00	06:00	09:00	06:00	07:00	08:00	10:00	11:00	07:00		06:00	06:00	06:00
Vol.	2	293	52	10	40	12	3	15	33	9		1	10	435
PM Peak		17:00	16:00	15:00	17:00	13:00	15:00	15:00	12:00	17:00		18:00	15:00	17:00
Vol.		212	53	4	50	10	2	15	25	7		2	5	339
Grand Total	4	3022	582	40	404	106	14	140	341	107	0	6	59	4825
Percent	0.1%	62.6%	12.1%	0.8%	8.4%	2.2%	0.3%	2.9%	7.1%	2.2%	0.0%	0.1%	1.2%	