FUSS & O'NEILL

October 19, 2020

Mr. Severino Bovino
Vice President
Kratzert, Jones & Associates, Inc.
PO Box 337
Milldale (Southington), CT 06467

Re: Preliminary Traffic Review
Proposed Medical Office Building at Cava Restaurant Site
1615 West Street, Southington, Connecticut
Fuss & O'Neill Reference No. 20200854.A10

Dear Mr. Bovino:

This letter will serve to summarize the expected increase in traffic generation and potential traffic impacts resulting from the proposed 14,820 square foot medical office building adjacent to Cava Restaurant at 1615 West Street (SR 229) in Southington, Connecticut. The expanded site will include 179 parking spaces and site access will continue to be provided via the two existing driveways that service the Cava Restaurant. The existing north site driveway is proposed to remain full access while the south driveway is proposed to be converted into an entrance only driveway. A site location map is shown in *Figure 1* of the attached documents.

Trip Generation

Trip generation projections for the proposed medical office were calculated using rates provided in the latest edition of the Institute of Transportation Engineers (ITE), Trip Generation Manual (10th Edition). This manual is an industry accepted resource for determining traffic generation for a wide variety of land uses. The existing Cava Restaurant site generation was calculated using the ITE land use code 931 "Quality Restaurant". The ITE manual indicates that the existing 1,693 square foot restaurant generates zero (0) trips in the weekday morning peak hour as it is not open and 13 trips (9 entering, 4 exiting) in the weekday afternoon peak hour of adjacent street traffic..

The proposed medical office building trip generation was calculated using the ITE land use code 720 "Medical-Dental Office Building". The ITE manual indicates that the proposed 14,820 square foot development is expected to generate 41 trips (32 entering, 9 exiting) in the weekday morning peak hour, and 65 trips (23 entering, 42 exiting) in the weekday afternoon peak hour. The breakdown of trip generation for each land use type is summarized in *Table No. 1* below.

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New Hampshire
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Table 1

Peak Hour Site Generated Traffic Volumes
Cava Restaurant Site Medical Office Expansion
Southington, Connecticut

Land Use	Trip Generation		
	Trips Entering	Trips Exiting	Total Trips
1,693 SF Existing Quality Restaurant (Cava)			
Morning Peak Hour	-	-	-
Afternoon Peak Hour	9	4	13
14,820 SF Proposed Medical Office			
Morning Peak Hour	32	9	41
Afternoon Peak Hour	14	38	52
Total Trips			
Morning Peak Hour	32	9	41
Afternoon Peak Hour	23	42	65

Note: Trip generation based on Rates per Land Use Codes 931 "Quality Restaurant" and 720 "Medical-Dental Office Building" as published in ITE's *Trip Generation,* 10th Edition.

Traffic Impact Summary

Capacity analysis for the unsignalized intersections of Route 229 at the southern and northern site driveways was conducted using Synchro Professional Software, version 10.0.

In discussing unsignalized intersection capacity analysis results, level of service (LOS) is used to describe the operating condition of the intersection.

LOS is a measure of the delay experienced by stopped vehicles at an intersection. LOS is rated on a scale from A to F, with A describing a condition of very low delay (less than 10 seconds per vehicle), and F describing a condition where delays will exceed 50 seconds per vehicle for unsignalized intersections. Delay is described as a measure of driver discomfort, frustration, fuel consumption, and lost travel time. Therefore, intersections with longer delay times are less acceptable to most drivers.

These definition for LOS, as well as the methodology for conducting unsignalized intersection capacity analyses, are taken from the "Highway Capacity Manual, 6th Edition" published by the Transportation Research Board.

Using the above referenced methodologies, the weekday morning and afternoon peak hour background and combined capacity analysis was conducted for the unsignalized intersections of Route 229 at the existing southern and northern site driveways.

Table No. 2 presents a summary of the levels of service at the unsignalized intersection, for both background and combined conditions traffic volume. The determination of the traffic impact from the proposed development is made through a comparison of the Background Condition LOS (with only the existing Cava restaurant) versus the Combined Condition LOS (with the proposed medical office building and existing Cava restaurant).

Table 2

Unsignalized Intersection Level of Service Summary
Cava Restaurant Site Medical Office Expansion
Southington, Connecticut

Unsignalized Intersections	Weekday Morning Peak Hour		Weekday Afternoon Peak Hour	
	Background	Combined	Background	Combined
Route 229 at Southern Site Driveway				
NB Right Turn in	LOS A	LOS A	LOS A	LOS A
SB Left Turn in	LOS A	LOS A	LOS A	LOS A
WB Site Driveway Approach	LOS A	N/A	LOS F	N/A
Route 229 at Northern Site Driveway				
NB Right Turn in	LOS A	LOS A	LOS A	LOS A
SB Left Turn in	LOS A	LOS A	LOS A	LOS A
WB Site Driveway Approach	LOS A	LOS D	LOS B	LOS F

For the southbound approaches along Route 229, vehicles experience an efficient LOS A operation when turning left into the site. Vehicles travelling northbound on Route 229 and turning right into the site are free flow and also operate at LOS A as they do not experience any delay. The proposed development expansion will result in no reduction in these LOS in the combined condition during both peak hours.

The southern site driveway approach to Route 229 operates at LOS A and LOS F during the weekday morning and afternoon peak hours respectively under background conditions. Under combined conditions, this driveway will be converted into an entrance only driveway and will therefore not experience any exiting traffic.

The northern site driveway approach operates to Route 229 operates efficiently at LOS A and LOS B during the weekday during the weekday morning and afternoon peak hours respectively under background conditions. Under combined conditions, this approach will experience an increase in delay but continue to operate at an acceptable LOS D during the weekday morning peak hour. This approach operates with peak hour delay at LOS F during the weekday afternoon peak hour, a similar operation to what the southern driveway exit experiences today. It should be noted that any vehicles experiencing delay exiting the site during the afternoon peak hour are stored on site and do not affect traffic operations on Route 229. Vehicles are able to exit during gaps in traffic on Route 229 that occur as a result of the nearby coordinated traffic signals along the corridor.

Background and Combined Condition 95th percentile (design) queue lengths were reviewed at the study intersections. The 95th percentile (design) vehicles queue lengths represent the maximum queue lengths that can be expected at each of the critical approach lanes of the study intersection. *Table Nos. 3 & 4* provide a summary of the queue lengths of for the critical lanes at each intersection.

The analysis revealed minimal peak hour queues of less than one vehicle length on each of the site driveway intersection approaches as a result of the proposed development expansion with the exception of the northern site driveway exit which is expected to experience a queue of up to two to three vehicle lengths during the afternoon peak hour.

The background traffic volumes, site traffic distribution, and combined traffic volumes can be found in *Figures 2-5* of the attached documents. Copies of the synchro analysis worksheets can also be found amongst the attached documents.

Table 3

Weekday Morning Peak Hour Queue Length Summary
Cava Restaurant Site Medical Office Expansion
Southington, Connecticut

Intersection	Approach Lane	2022 Background Queue	2022 Combined Queue	Storage Length
Route 229 at Southern Site Driveway	NB Right Turn SB Left Turn WB Left/Right Turn	0 Feet 0 Feet 0 Feet	0 Feet 5 Feet 0 Feet	>50 Feet >50 Feet 50 Feet
Route 229 at Northern Site Driveway	NB Right Turn SB Left Turn WB Left/Right Turn	0 Feet 0 Feet 0 Feet	0 Feet 5 Feet 5 Feet	>50 Feet >50 Feet 50 Feet

NOTE: Values indicated represent 95th percentile (design) vehicle queue lengths. Values are rounded to the nearest 5 feet.

Table 4

Weekday Afternoon Peak Hour Queue Length Summary
Cava Restaurant Site Medical Office Expansion
Southington, Connecticut

Intersection	Approach Lane	2022 Background Queue	2022 Combined Queue	Storage Length
Route 229 at Southern Site Driveway	NB Right Turn SB Left Turn WB Left/Right Turn	0 Feet 0 Feet 5 Feet	0 Feet 0 Feet 0 Feet	>50 Feet >50 Feet 50 Feet
Route 229 at Northern Site Driveway	NB Right Turn SB Left Turn WB Left/Right Turn	0 Feet 0 Feet 0 Feet	0 Feet 5 Feet 50 Feet	>50 Feet >50 Feet 50 Feet

NOTE: Values indicated represent 95th percentile (design) vehicle queue lengths. Values are rounded to the nearest 5 feet.

Left Turn Treatment Warrants

The warrants for provision of a left turn treatment on Route 229 southbound at the site driveways were reviewed in accordance with the Figure 11-5e in the CTDOT Highway Design Manual. Currently, Route 229 provides only one southbound travel lane approximately 13 feet in width and a 4 to 5 foot shoulder. This total width of 17 to 18 feet is marginal for southbound through vehicle bypass capability of a vehicle is waiting to turn left into one of the site driveways. As shown in the attached Figure 11-5e, the advancing and opposing traffic volumes on Route 229 warrant left turn treatment for southbound vehicles waiting to turn left into the site. Restriping the roadway and/or provision of a 2 foot sliver widening on Route 229 should be considered to provide the minimum 20 feet of southbound travel lane and shoulder width required for southbound bypass width.

Conclusion

Overall the proposed development expansion will result in a minor increase in traffic at both site driveway intersections during morning and afternoon peak hours. Both site driveways are expected to continue to operate at acceptable LOS for vehicles turning into the site. Vehicles turning out of the site will operate at an acceptable LOS during the morning peak hour but will experience delay during the afternoon peak hour. It should be noted that any vehicles experiencing delay exiting the site during the afternoon peak hour of adjacent street traffic are stored on site and do not affect traffic operations on Route 229. Vehicles are able to exit during gaps in traffic on Route 229 that occur as a result of the nearby coordinated traffic signals along the corridor. Vehicles exiting the site outside of the adjacent street peak hours (i.e. during midday hours or during the early evening restaurant peak hour) will experience significantly less delay.

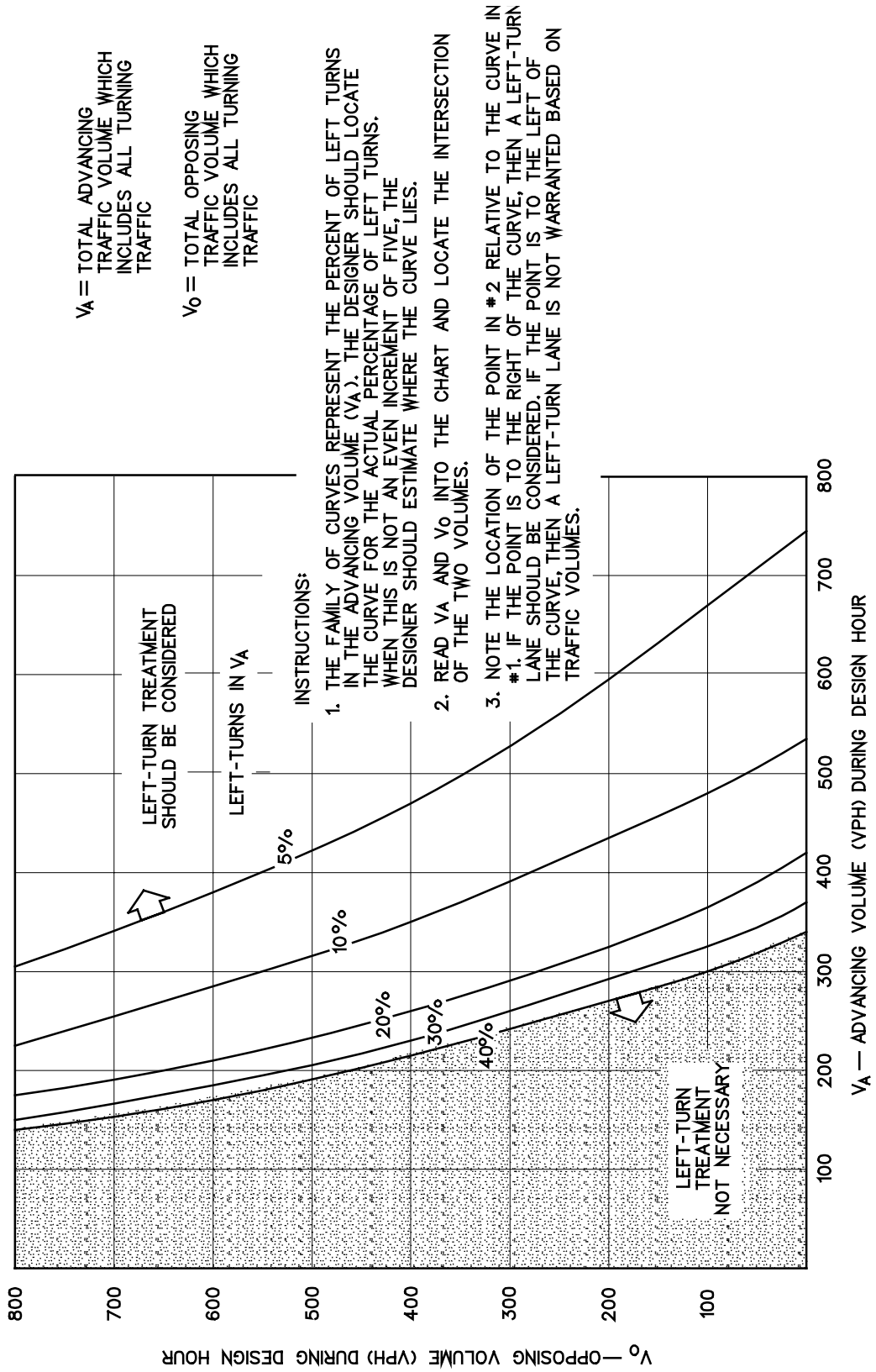
The volume of traffic on Route 229 does warrant left turn treatment for southbound traffic at the site driveways in accordance with the guidance published in the CTDOT Highway Design Manual. As such, options for restriping Route 229 and/or sliver widening the roadway should be considered as the southbound travel lane and shoulder lane widths are currently marginal for left turn bypass. The extents and limits of the bypass widening will be determined by the CTDOT District 1 office as part of the Encroachment Permit Review process.

We trust that this information is sufficient for preliminary review. Please contact us if you have any questions of require any additional information.

Sincerely,

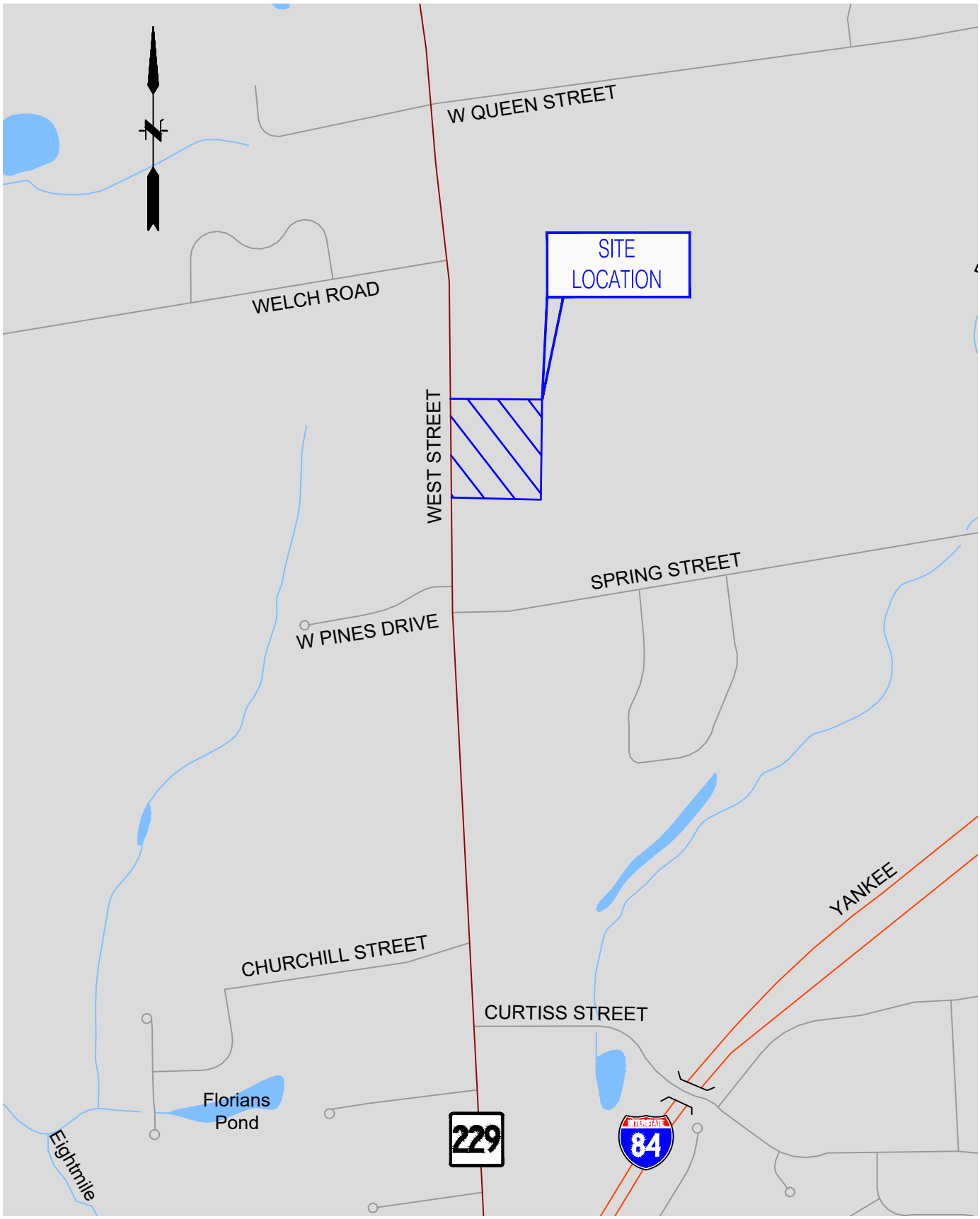
Mark G. Vertucci, PE, PTOE
Vice President

Attachment: CTDOT Highway Design Manual Figure 11-5e (Volume Guidelines for Left Turn Lanes at Unsignalized Intersections on Two Lane Highways (45 mph))
Site Location Figure
Traffic Volume Figures
Synchro Analysis Reports



VOLUME GUIDELINES FOR LEFT-TURN LANES AT UNSIGNALIZED INTERSECTIONS ON 2-LANE HIGHWAYS (45 mph)

Figure 11-5E



0 500 1000
SCALE: 1" = 1000'

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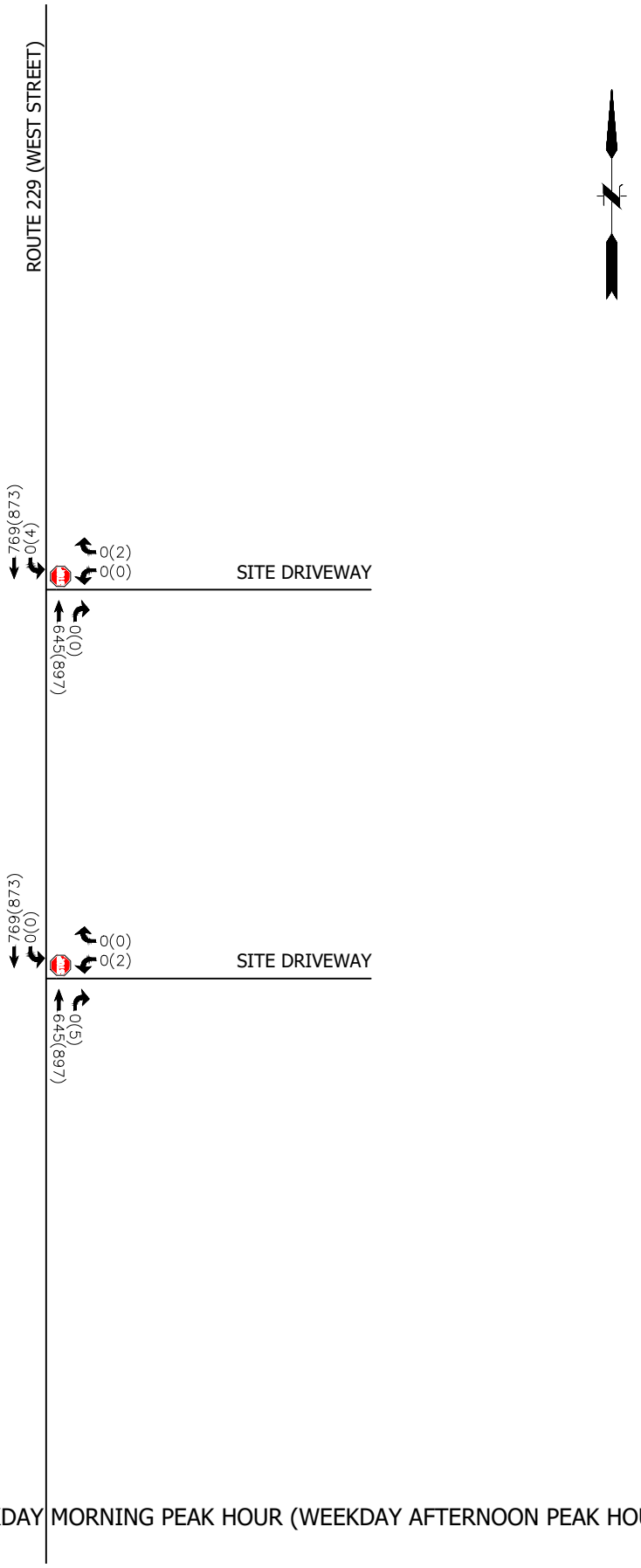
FIGURE 1: SITE LOCATION PLAN

PROJ. NO: 20200854.A10 CAVA RESTAURANT SITE MEDICAL OFFICE EXPANSION OCOTBER 2020



XX(XX) = WEEKDAY MORNING PEAK HOUR (WEEKDAY AFTERNOON PEAK HOUR)

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FIGURE 2: 2022 BACKGROUND TRAFFIC VOLUMES

PROJ. NO: 20200854.A10 ROUTE 229 (WEST ST) AT SITE DRIVEWAYS OCTOBER 2020

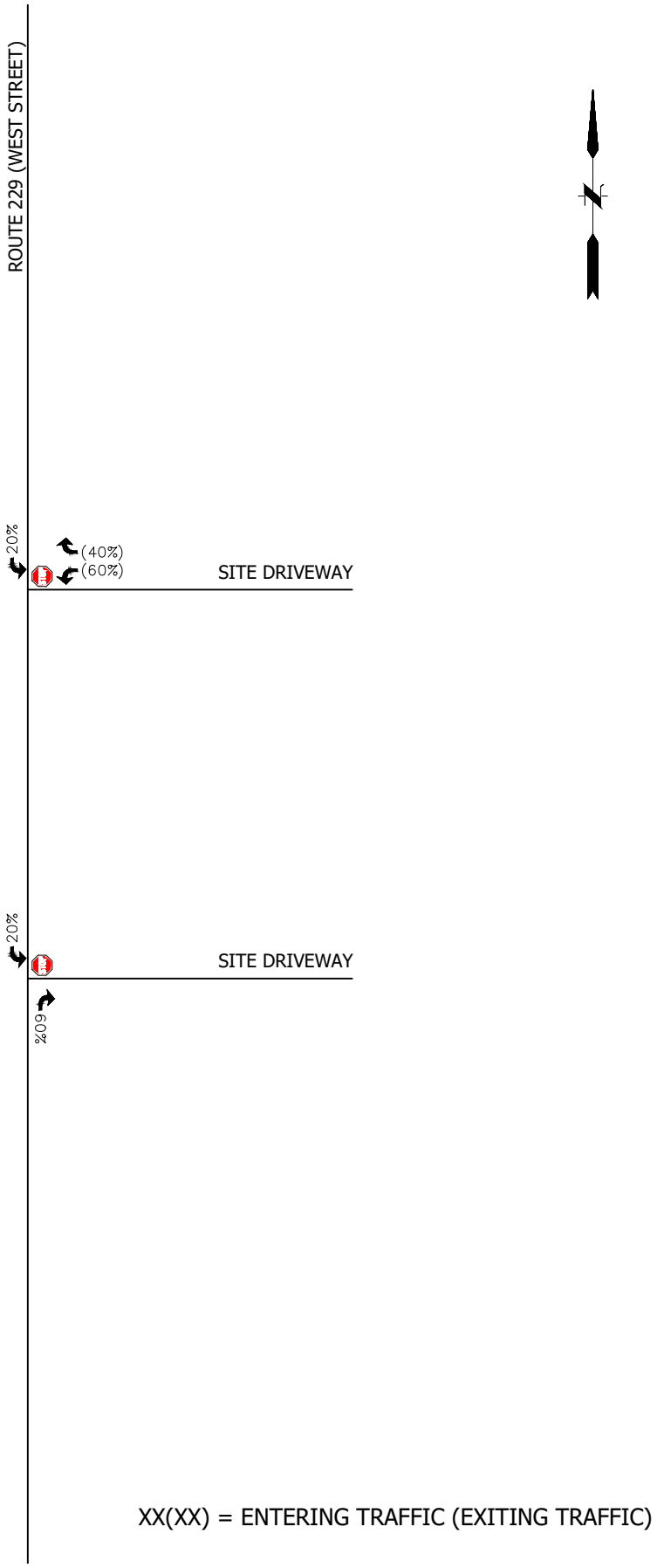

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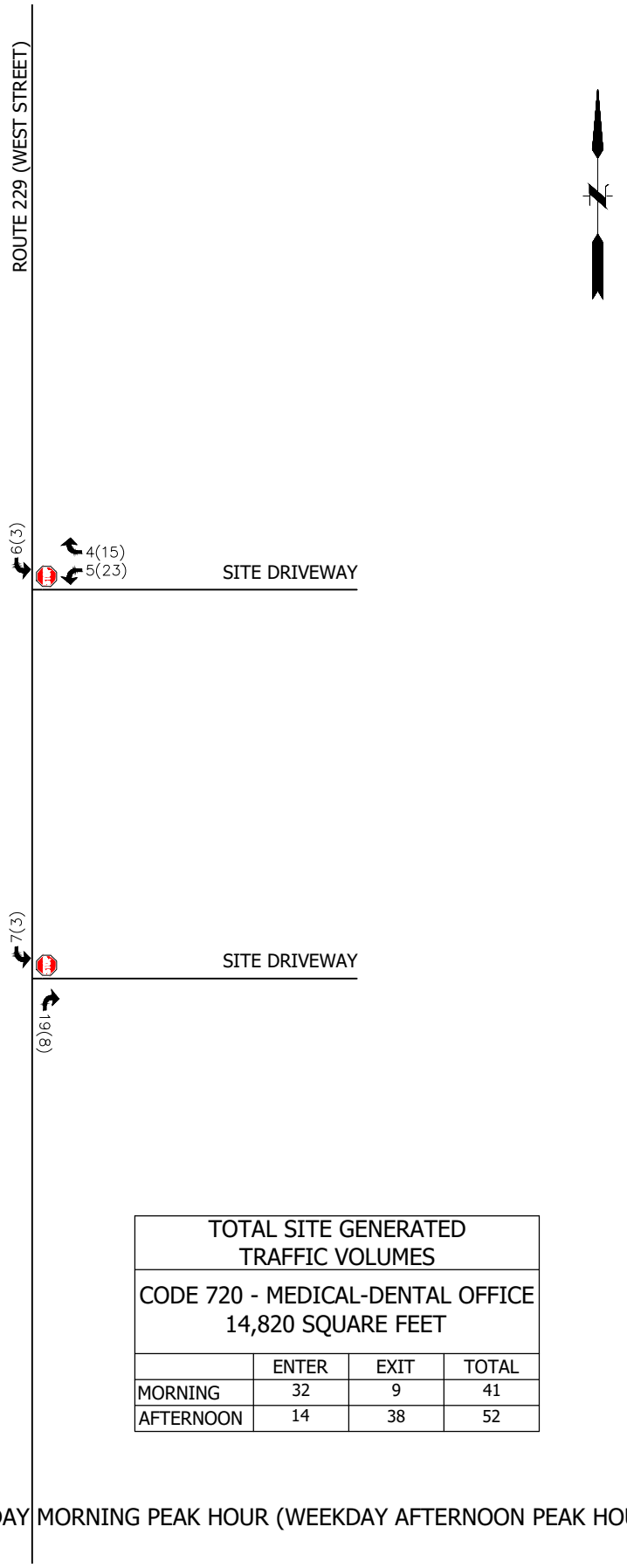
FIGURE 3: ARRIVAL/DEPARTURE DISTRIBUTION

PROJ. NO: 20200854.A10 | ROUTE 229 (WEST ST) AT SITE DRIVEWAYS | OCTOBER 2020



TOTAL SITE GENERATED TRAFFIC VOLUMES			
CODE 720 - MEDICAL-DENTAL OFFICE 14,820 SQUARE FEET			
	ENTER	EXIT	TOTAL
MORNING	32	9	41
AFTERNOON	14	38	52

XX(XX) = WEEKDAY MORNING PEAK HOUR (WEEKDAY AFTERNOON PEAK HOUR)

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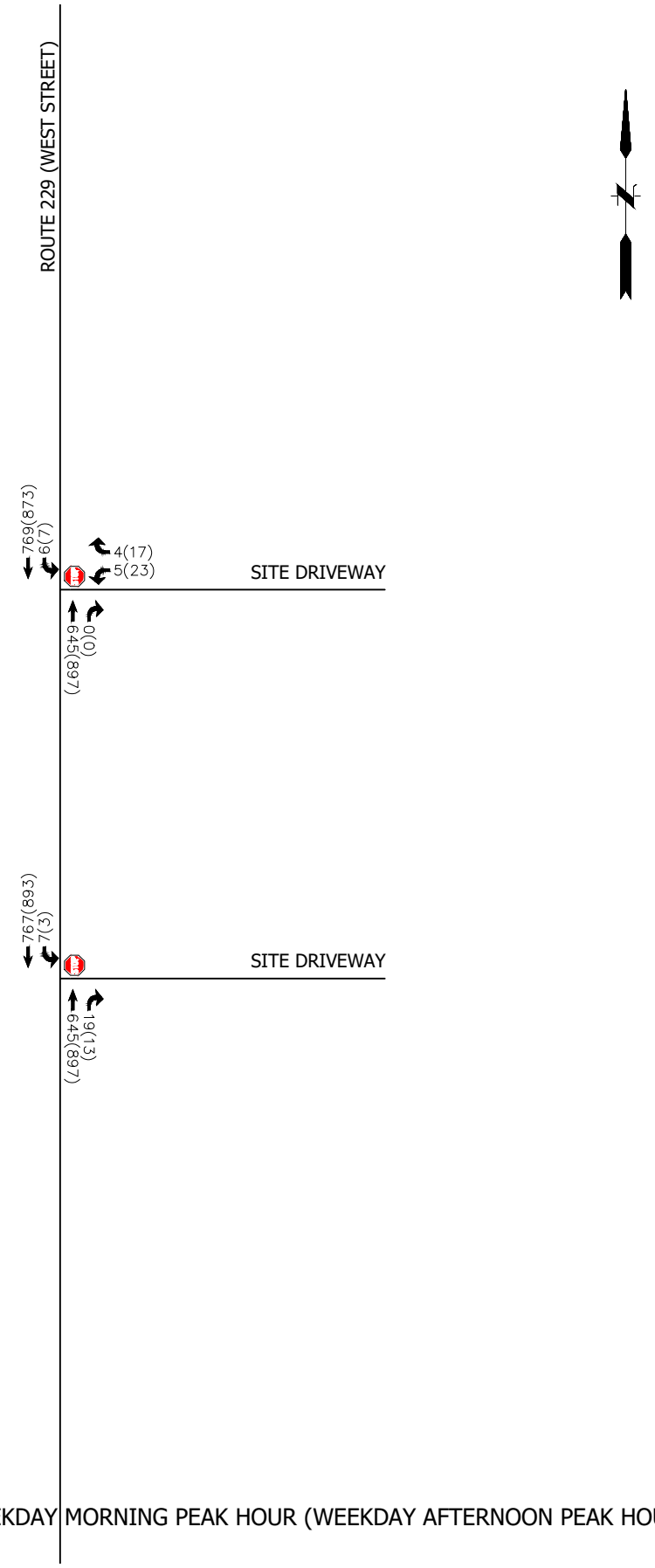
FIGURE 4: SITE GENERATED TRAFFIC VOLUMES

PROJ. NO: 20200854.A10 ROUTE 229 (WEST ST) AT SITE DRIVEWAYS OCTOBER 2020



XX(XX) = WEEKDAY MORNING PEAK HOUR (WEEKDAY AFTERNOON PEAK HOUR)

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FIGURE 5: COMBINED 2022 TRAFFIC VOLUMES

PROJ. NO: 20200854.A10 ROUTE 229 (WEST ST) AT SITE DRIVEWAYS OCTOBER 2020

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	645	0	0	769
Future Volume (vph)	0	0	645	0	0	769
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1863	0	3539	0	0	1863
Flt Permitted						
Satd. Flow (perm)	1863	0	3539	0	0	1863
Link Speed (mph)	30		30			30
Link Distance (ft)	100		312			90
Travel Time (s)	2.3		7.1			2.0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	701	0	0	836
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	701	0	0	836
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 43.8%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	645	0	0	769
Future Volume (Veh/h)	0	0	645	0	0	769
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	701	0	0	836
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1537	350			701	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1537	350			701	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	107	646			892	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1
Volume Total	0	467	234	836
Volume Left	0	0	0	0
Volume Right	0	0	0	0
cSH	1700	1700	1700	892
Volume to Capacity	0.00	0.27	0.14	0.00
Queue Length 95th (ft)	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0
Lane LOS	A			
Approach Delay (s)	0.0	0.0		0.0
Approach LOS	A			

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	43.8%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	645	0	0	769
Future Volume (vph)	0	0	645	0	0	769
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1863	0	3539	0	0	1863
Flt Permitted						
Satd. Flow (perm)	1863	0	3539	0	0	1863
Link Speed (mph)	30		30			30
Link Distance (ft)	103		90			377
Travel Time (s)	2.3		2.0			8.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	701	0	0	836
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	701	0	0	836
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 43.8%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	645	0	0	769
Future Volume (Veh/h)	0	0	645	0	0	769
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	701	0	0	836
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1537	350			701	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1537	350			701	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	107	646			892	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1
Volume Total	0	467	234	836
Volume Left	0	0	0	0
Volume Right	0	0	0	0
cSH	1700	1700	1700	892
Volume to Capacity	0.00	0.27	0.14	0.00
Queue Length 95th (ft)	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0
Lane LOS	A			
Approach Delay (s)	0.0	0.0		0.0
Approach LOS	A			

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	43.8%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	645	19	7	767
Future Volume (vph)	0	0	645	19	7	767
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00
Frt			0.996			
Flt Protected						
Satd. Flow (prot)	0	0	3525	0	0	1863
Flt Permitted						
Satd. Flow (perm)	0	0	3525	0	0	1863
Link Speed (mph)	30		30			30
Link Distance (ft)	100		312			90
Travel Time (s)	2.3		7.1			2.0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	701	21	8	834
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	722	0	0	842
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 49.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	645	19	7	767
Future Volume (Veh/h)	0	0	645	19	7	767
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	701	21	8	834
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1562	361			722	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1562	361			722	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			99	
cM capacity (veh/h)	102	636			876	

Direction, Lane #	NB 1	NB 2	SB 1
Volume Total	467	255	842
Volume Left	0	0	8
Volume Right	0	21	0
cSH	1700	1700	876
Volume to Capacity	0.27	0.15	0.01
Queue Length 95th (ft)	0	0	1
Control Delay (s)	0.0	0.0	0.2
Lane LOS			A
Approach Delay (s)	0.0		0.2
Approach LOS			

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	49.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	5	4	645	0	6	769
Future Volume (vph)	5	4	645	0	6	769
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00
Frt	0.940					
Flt Protected	0.973					
Satd. Flow (prot)	1704	0	3539	0	0	1863
Flt Permitted	0.973					
Satd. Flow (perm)	1704	0	3539	0	0	1863
Link Speed (mph)	30		30			30
Link Distance (ft)	103		90			377
Travel Time (s)	2.3		2.0			8.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	4	701	0	7	836
Shared Lane Traffic (%)						
Lane Group Flow (vph)	9	0	701	0	0	843
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 55.2%	ICU Level of Service B
Analysis Period (min) 15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	5	4	645	0	6	769
Future Volume (Veh/h)	5	4	645	0	6	769
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	4	701	0	7	836
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1551	350			701	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1551	350			701	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	95	99			99	
cM capacity (veh/h)	104	646			892	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1
Volume Total	9	467	234	843
Volume Left	5	0	0	7
Volume Right	4	0	0	0
cSH	165	1700	1700	892
Volume to Capacity	0.05	0.27	0.14	0.01
Queue Length 95th (ft)	4	0	0	1
Control Delay (s)	28.1	0.0	0.0	0.2
Lane LOS	D			A
Approach Delay (s)	28.1	0.0		0.2
Approach LOS	D			

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	55.2%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	2	0	897	5	0	873
Future Volume (vph)	2	0	897	5	0	873
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00
Frt			0.999			
Flt Protected	0.950					
Satd. Flow (prot)	1770	0	3536	0	0	1863
Flt Permitted	0.950					
Satd. Flow (perm)	1770	0	3536	0	0	1863
Link Speed (mph)	30		30			30
Link Distance (ft)	100		312			90
Travel Time (s)	2.3		7.1			2.0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2	0	975	5	0	949
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2	0	980	0	0	949
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 55.9%		ICU Level of Service B	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	2	0	897	5	0	873
Future Volume (Veh/h)	2	0	897	5	0	873
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	0	975	5	0	949
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1926	490			980	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1926	490			980	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	97	100			100	
cM capacity (veh/h)	58	524			700	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1
Volume Total	2	650	330	949
Volume Left	2	0	0	0
Volume Right	0	0	5	0
cSH	58	1700	1700	700
Volume to Capacity	0.03	0.38	0.19	0.00
Queue Length 95th (ft)	3	0	0	0
Control Delay (s)	68.8	0.0	0.0	0.0
Lane LOS	F			
Approach Delay (s)	68.8	0.0		0.0
Approach LOS	F			

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	55.9%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	2	897	0	4	873
Future Volume (vph)	0	2	897	0	4	873
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00
Frt	0.865					
Flt Protected						
Satd. Flow (prot)	1611	0	3539	0	0	1863
Flt Permitted						
Satd. Flow (perm)	1611	0	3539	0	0	1863
Link Speed (mph)	30		30			30
Link Distance (ft)	103		90			377
Travel Time (s)	2.3		2.0			8.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	2	975	0	4	949
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2	0	975	0	0	953
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 59.1%	ICU Level of Service B
Analysis Period (min) 15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	2	897	0	4	873
Future Volume (Veh/h)	0	2	897	0	4	873
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	2	975	0	4	949
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1932	488			975	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1932	488			975	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			99	
cM capacity (veh/h)	58	526			703	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1
Volume Total	2	650	325	953
Volume Left	0	0	0	4
Volume Right	2	0	0	0
cSH	526	1700	1700	703
Volume to Capacity	0.00	0.38	0.19	0.01
Queue Length 95th (ft)	0	0	0	0
Control Delay (s)	11.9	0.0	0.0	0.2
Lane LOS	B			A
Approach Delay (s)	11.9	0.0		0.2
Approach LOS	B			

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	59.1%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	897	13	3	893
Future Volume (vph)	0	0	897	13	3	893
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00
Frt			0.998			
Flt Protected						
Satd. Flow (prot)	0	0	3532	0	0	1863
Flt Permitted						
Satd. Flow (perm)	0	0	3532	0	0	1863
Link Speed (mph)	30		30			30
Link Distance (ft)	100		312			90
Travel Time (s)	2.3		7.1			2.0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	975	14	3	971
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	989	0	0	974
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 52.7%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	897	13	3	893
Future Volume (Veh/h)	0	0	897	13	3	893
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	975	14	3	971
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1959	494			989	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1959	494			989	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	55	521			695	

Direction, Lane #	NB 1	NB 2	SB 1
Volume Total	650	339	974
Volume Left	0	0	3
Volume Right	0	14	0
cSH	1700	1700	695
Volume to Capacity	0.38	0.20	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.1
Lane LOS			A
Approach Delay (s)	0.0		0.1
Approach LOS			

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	52.7%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	23	17	897	0	7	873
Future Volume (vph)	23	17	897	0	7	873
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00
Frt	0.943					
Flt Protected	0.972					
Satd. Flow (prot)	1707	0	3539	0	0	1863
Flt Permitted	0.972					
Satd. Flow (perm)	1707	0	3539	0	0	1863
Link Speed (mph)	30		30			30
Link Distance (ft)	103		90			377
Travel Time (s)	2.3		2.0			8.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	25	18	975	0	8	949
Shared Lane Traffic (%)						
Lane Group Flow (vph)	43	0	975	0	0	957
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 61.5%	ICU Level of Service B
Analysis Period (min) 15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	23	17	897	0	7	873
Future Volume (Veh/h)	23	17	897	0	7	873
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	25	18	975	0	8	949
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1940	488			975	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1940	488			975	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	56	97			99	
cM capacity (veh/h)	57	526			703	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1
Volume Total	43	650	325	957
Volume Left	25	0	0	8
Volume Right	18	0	0	0
cSH	90	1700	1700	703
Volume to Capacity	0.48	0.38	0.19	0.01
Queue Length 95th (ft)	51	0	0	1
Control Delay (s)	76.8	0.0	0.0	0.3
Lane LOS	F			A
Approach Delay (s)	76.8	0.0		0.3
Approach LOS	F			

Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	61.5%	ICU Level of Service	B
Analysis Period (min)	15		