

**SUPPLEMENTAL MATERIALS OF
APPLICANT METRO REALTY**

AUGUST 10, 2023

**REZONING OF 240 DEMING STREET AND A
PORTION OF 440 BUCKLAND ROAD**

Applicant:

Ben Tripp
EVP of Development
The Metro Realty, Group, Ltd.
btripp@metro-realty.com
6 Executive Drive, Suite 100
Farmington, CT 06032

Agent/Counsel:

Timothy S. Hollister
thollister@hinckleyallen.com
Hinckley Allen
20 Church Street
Hartford, CT 06103
(860) 331-2823

Table of Contents

1. Memo to Planning and Zoning Commission
2. Supplemental traffic information prepared by Mark Vertucci, P.E.
3. Additional information regarding expected school-aged children.
4. Further information about sidewalks and pedestrian access.

Submitted separately

- Revised conceptual site plan
- Slide presentation
- Professional studies demonstrating that multi-family affordable housing does not decrease neighboring property values (uploaded to online application documents)

TAB 1

1.0 – Memo to Planning and Zoning Commission

August 10, 2023

VIA HAND DELIVERY AND EMAIL TO M. LIPE at Michele.lipe@southwindsor-ct.gov.

Chair Bart Pacekonis, and Planning and Zoning
Commission Members
Town of South Windsor
1540 Sullivan Avenue
South Windsor, CT 06074

Michele Lipe, Town Planner
Town of South Windsor
1540 Sullivan Avenue
South Windsor, CT 06074

**Re: Application of Metro Realty for Rezoning of 240 Deming Street and part of
440 Buckland Road**

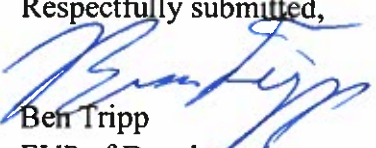
Dear Chair Pacekonis, Commission Members, and Ms. Lipe:

Please find the following information which serves to address comments and questions related to the above-captioned application that we received during the zoning hearing on July 25th, 2023, from the zoning commission, town staff, and the members of the public.

Certain documents, as indicated in the table of contents, are not physically included within this package and can be found on the Town of South Windsor's Planning and Zoning Commission Application website.

We look forward to presenting this information in support of the proposed zone change at our public hearing scheduled for August 15, 2023.

Respectfully submitted,



Ben Tripp
EVP of Development
The Metro Realty, Group, Ltd.

TAB 2



FUSS & O'NEILL

August 9, 2023

Ben Tripp
EVP of Development
The Metro Realty Group, Ltd.
6 Executive Drive, Suite 100
Farmington, CT 06032

Re: Revised Trip Generation Statement and Response to Town Comments
240 Deming Street
South Windsor, Connecticut
Fuss & O'Neill Reference No. 20230453.A10

Dear Mr. Tripp:

This letter will serve to respond to traffic engineering comments received from the Town of South Windsor Engineering Department via email on July 6, 2023. In addition, this letter summarizes the reduction in trip generation expected from the proposed 240 Deming Street development which has decreased in size from 72 to 55 units.

Response to Town Engineering Comments

The text of the comment from the July 6, 2023 memorandum from Town Engineer Jeff Doolittle is provided below in *italicized text*, along with a response to the comment following.

6. *The Traffic Study needs to include all other developments in the area that are approved or have been submitted. This includes future developments along Buckland Road, Gateway boulevard, and apartments/other units in Evergreen Walk.*

Response: The 2025 background traffic volumes provided in the Traffic Study included all proposed but unbuilt development at Evergreen Walk including the Whole Foods and an additional 165 residential units. In addition, the background volumes included an annual growth rate of 1% per year to account for normal traffic growth within the study area. In response to this comment, the 2025 Background traffic volumes were further increased to account for traffic volumes from the approved but unbuilt commercial portions of the Gateway development on the east side of the Buckland Road. In addition, the Synchro capacity analyses were updated to include the additional background traffic volumes from the Gateway development. The revised volume figures and updated level of service (LOS) tables are attached to this letter. The additional background traffic volumes had negligible impact on the capacity analysis results and resulted in no reduction in LOS. Furthermore,

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Vermont

Mr. Ben Tripp

August 9, 2023

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the attached traffic volumes, level of service and queue results should be considered conservative as they were completed assuming a larger development size of 72 units.

7. *As part of the traffic study a dedicated right turn lane westbound on Deming St at Buckland Road should be evaluated to see if this would improve traffic flow westbound and eastbound on Deming Street. Residents have raised concerns about queue lengths on Deming Street westbound that are long enough so that eastbound traffic turning north has to wait for more than one cycle to get through the intersection at Buckland Road. I am open to suggestions to improve traffic flow at the intersection of Deming Street and Buckland Road.*

Response: The addition of a dedicated westbound right turn lane on Deming Street at the Buckland Street intersection was evaluated for impacts. The Synchro analysis revealed that the addition of a right turn lane would result in no improvement in approach LOS and negligible reductions in queue length on the approach (less than one vehicle length). The widening of Deming Street to provide a third approach lane is not warranted, independent of the additional traffic from this development. The combined (build) condition results with an added right turn lane are shown in the updated summary tables attached to this letter.

Trip Generation Reduction for 55 Units

Metro Realty has proposed to reduce the number of apartment units from 72 to 55 units. The expected site generated traffic data for this fewer number of units was recalculated using existing empirical data from the Institute of Transportation Engineers (ITE) publication Trip Generation, 11th edition, 2021. Trip generation for the weekday morning, weekday afternoon, and Saturday peak hour was calculated using the ITE land use code 221, "Multifamily Housing (Mid-Rise)". A 55 dwelling unit development is expected to generate a total of 20 trips (5 entering, 15 exiting) in the weekday morning peak hour, 21 trips (13 entering, 8 exiting) in the weekday afternoon peak hour, and 21 trips (11 entering, 10 exiting) in the Saturday peak hour. A summary of the peak hour trip generation information for the proposed development is provided in *Table 1* below. Additionally, Table 1 includes the trip generation rates for the originally proposed 72 unit development. In comparison to the 72 unit development, the 55 unit development will result in a total of 5 fewer trips (2 fewer entering, 3 fewer exiting) during the morning peak hour, a total of 7 fewer trips (4 fewer entering, 3 fewer exiting) during the afternoon peak hour, and a total of 7 fewer trips (3 fewer entering, 4 fewer exiting) during the Saturday peak hour.

Mr. Ben Tripp
August 9, 2023
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Table 1
Peak Hour Site Generated Traffic Volumes
Proposed 240 Deming Street Residences
South Windsor, Connecticut

55 Dwelling Units	Total Trips	Trips Entering	Trips Exiting
Morning Weekday Peak Hour	20	5	15
Afternoon Weekday Peak Hour	21	13	8
Saturday Peak Hour	21	11	10
72 Dwelling Units			
Morning Weekday Peak Hour	25	7	18
Afternoon Weekday Peak Hour	28	17	11
Saturday Peak Hour	28	14	14
Difference in Trip Generation			
Morning Weekday Peak Hour	-5	-2	-3
Afternoon Weekday Peak Hour	-7	-4	-3
Saturday Peak Hour	-7	-3	-4

Note: Trip generation based on Rate per Land use Code 221 (Multifamily Housing (Mid-rise)), as published in *Trip Generation*, 11th Edition, 2021.

With a reduction in the number of proposed units and the reduction of anticipated site generated traffic, the conclusion of the previously prepared traffic impact study that the proposed development will have no significant impact to the traffic operations within the study area is still valid. The lower number of trips generated will serve to further reduce the already de minimis impacts the larger 72 unit development would have produced.

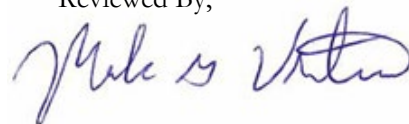
We trust this information will be sufficient for your review. If you have any questions or require additional information, please contact us at 86-646-2469.

Sincerely,

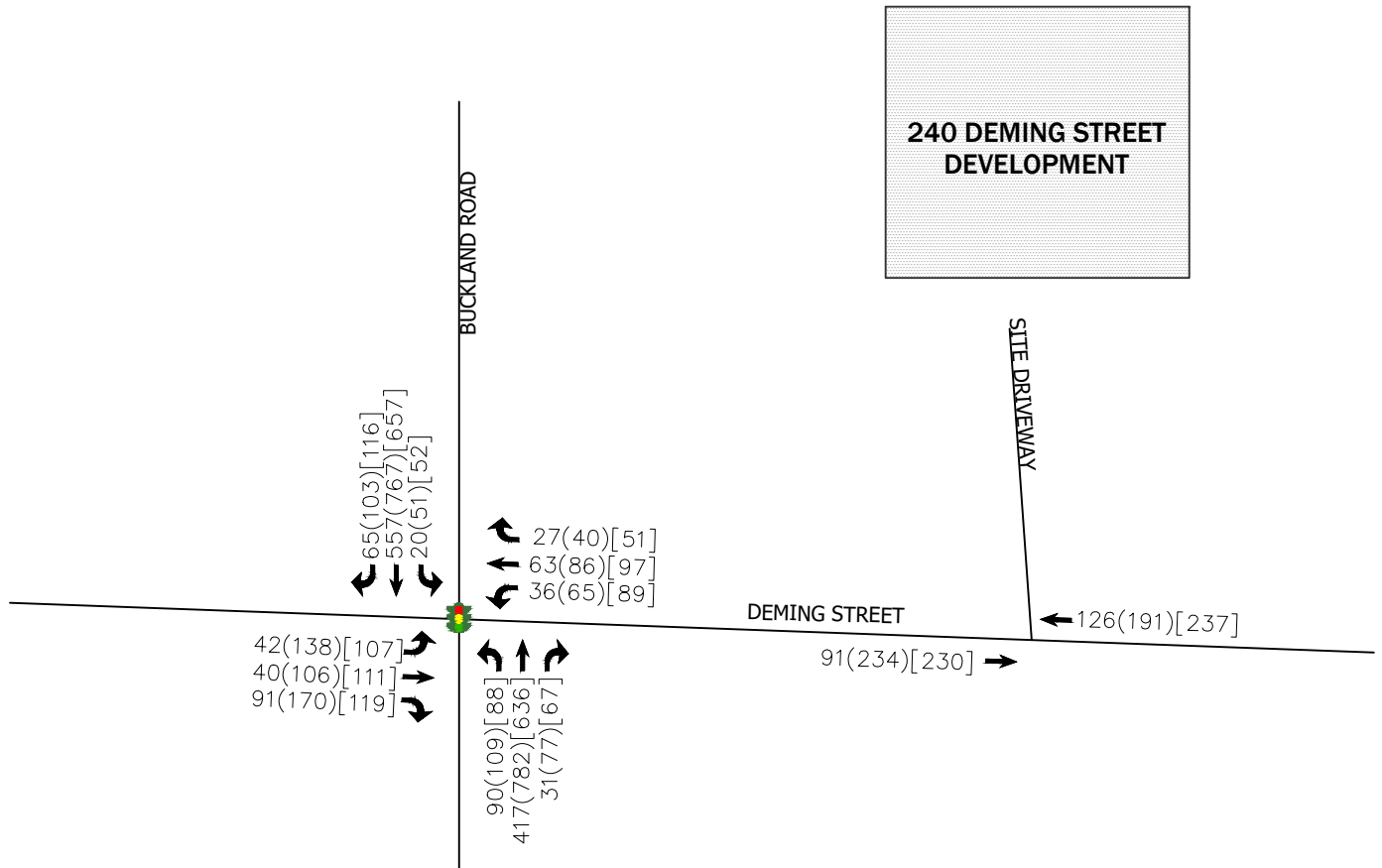


Tyler Rudolph, PE
Transportation Engineer

Reviewed By,



Mark Vertucci, PE, PTOE
Vice President



XX(XX)[XX] = WEEKDAY MORNING PEAK HOUR (WEEKDAY PM PEAK HOUR) [SATURDAY PEAK HOUR]



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FIGURE 2: 2025 BASELINE TRAFFIC VOLUMES

PROJ. NO: 20230453.A10

240 DEMING STREET - SOUTH WINSOR, CT

JULY 2023



XX(XX)[XX] = WEEKDAY MORNING PEAK HOUR (WEEKDAY PM PEAK HOUR) [SATURDAY PEAK HOUR]



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FIGURE 3: OTHER GENERATORS - EVERGREEN WALK

PROJ. NO: 20230453.A10

240 DEMING STREET - SOUTH WINDSOR, CT

JULY 2023



XX(XX)[XX] = WEEKDAY MORNING PEAK HOUR (WEEKDAY PM PEAK HOUR) [SATURDAY PEAK HOUR]



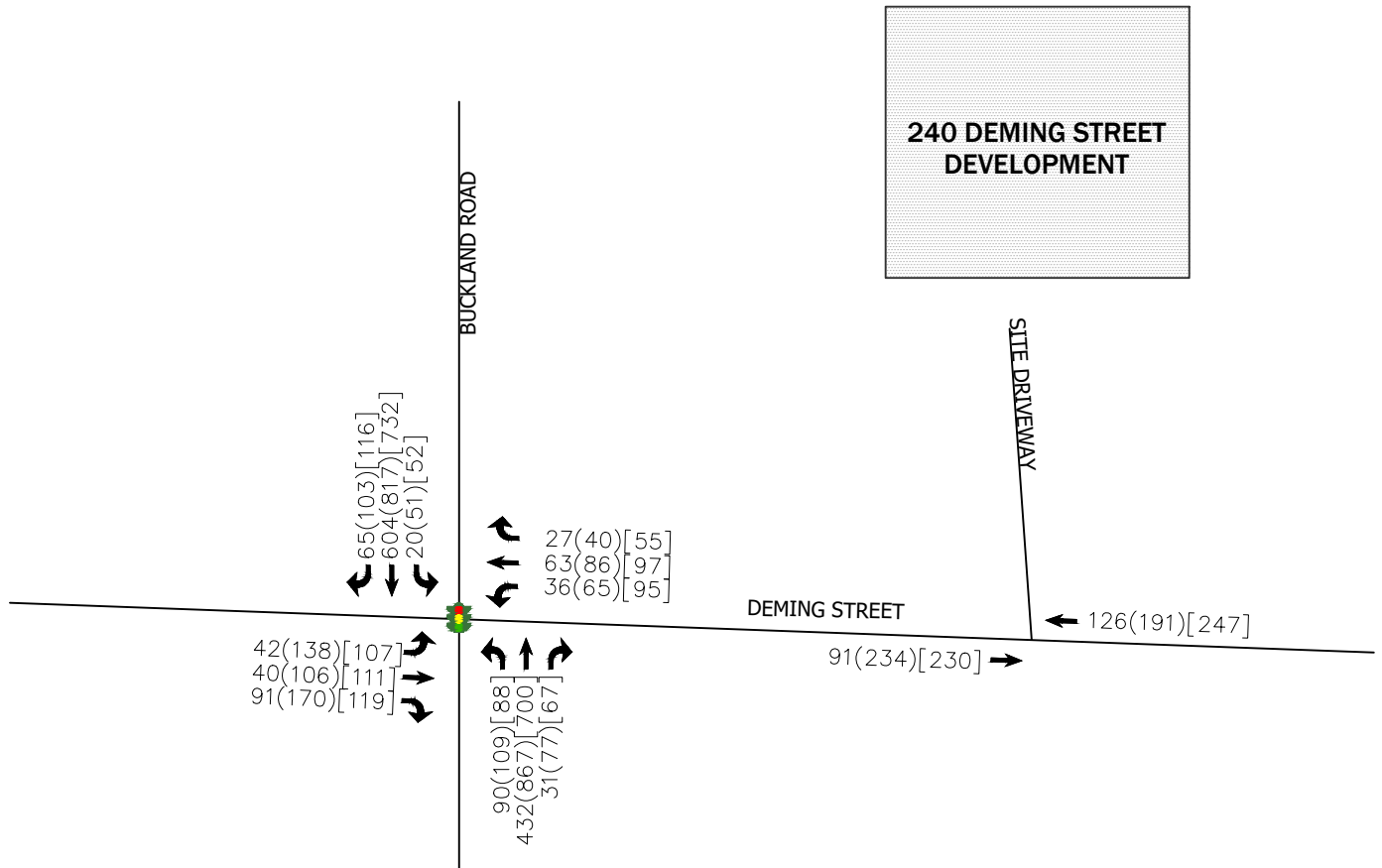
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FIGURE 4: OTHER GENERATORS - GATEWAY

PROJ. NO: 20230453.A10

240 DEMING STREET - SOUTH WINDSOR, CT

JULY 2023



XX(XX)[XX] = WEEKDAY MORNING PEAK HOUR (WEEKDAY PM PEAK HOUR) [SATURDAY PEAK HOUR]



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FIGURE 5: 2025 BACKGROUND TRAFFIC VOLUMES

PROJ. NO: 20230453.A10

240 DEMING STREET - SOUTH WINDSOR, CT

JULY 2023



XX(XX) = ENTERING TRAFFIC (EXITING TRAFFIC)



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XX(XX)[XX] = WEEKDAY MORNING PEAK HOUR (WEEKDAY PM PEAK HOUR)
[SATURDAY PEAK HOUR]

SITE GENERATED TRAFFIC VOLUMES

	ENTER	EXIT	TOTAL
MORNING	7	18	25
AFTERNOON	17	11	28
SATURDAY	14	14	28



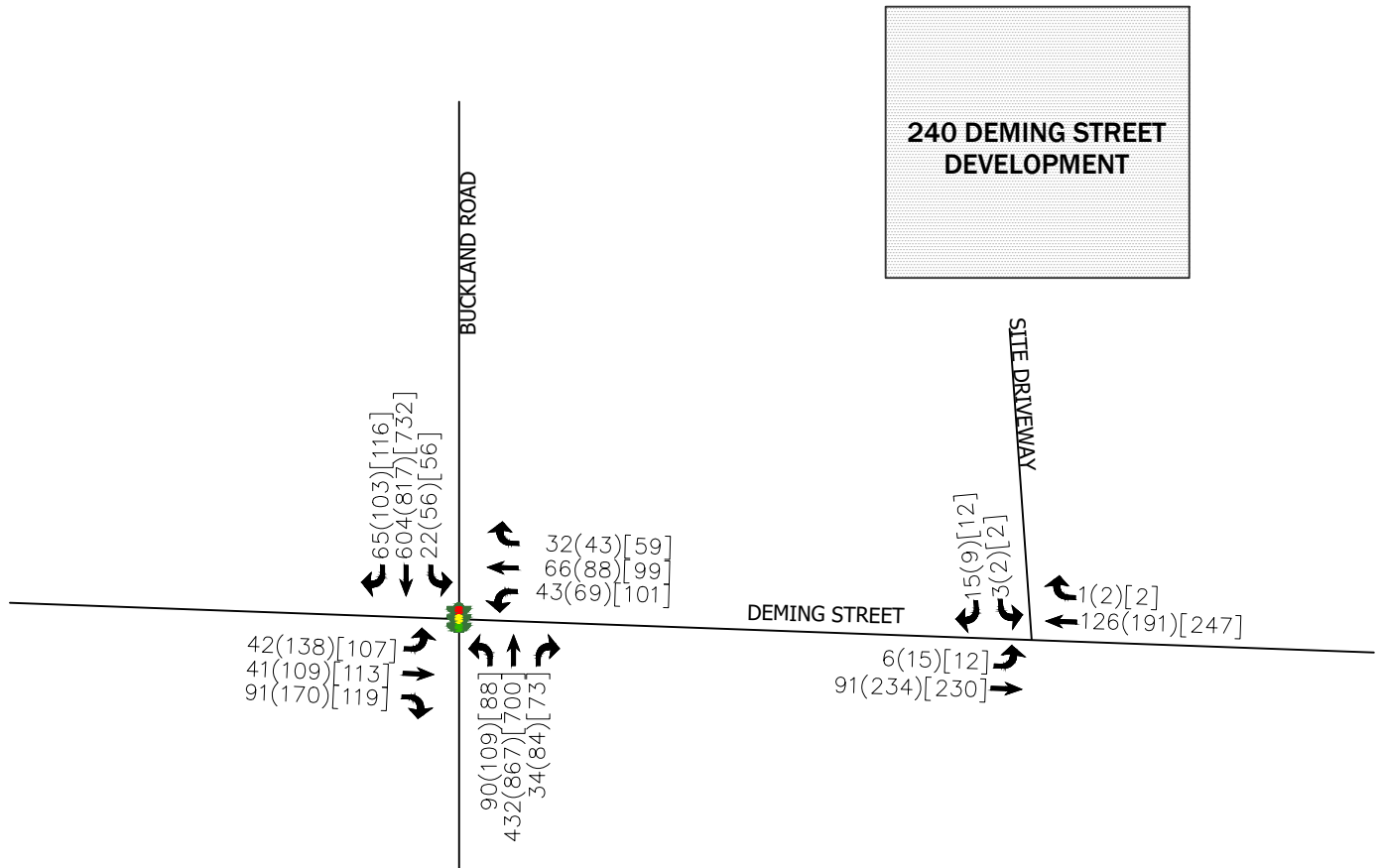
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FIGURE 7: TRIP GENERATION

PROJ. NO: 20230453.A10

240 DEMING STREET - SOUTH WINDSOR, CT

JULY 2023



XX(XX) = WEEKDAY MORNING PEAK HOUR (WEEKDAY PM PEAK HOUR)
[SATURDAY PEAK HOUR]



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FIGURE 8: 2025 COMBINED TRAFFIC VOLUMES

PROJ. NO: 20230453.A10

240 DEMING STREET - SOUTH WINDSOR, CT

JULY 2023

Table 2

**Unsignalized Intersection Level Of Service Summary
240 Deming Street
South Windsor, CT**

Unsignalized Intersection (Critical Movements)	2025 Weekday Morning Peak Hour		2025 Weekday Afternoon Peak Hour		2025 Saturday Peak Hour	
	Background	Combined	Background	Combined	Background	Combined
Deming Street and the Site Access Driveway						
Eastbound Deming Street Left	LOS A*	LOS A	LOS A	LOS A	LOS A	LOS A
Southbound Driveway Left	N/A	LOS A	N/A	LOS A	N/A	LOS B
Southbound Driveway Right	N/A	LOS A	N/A	LOS A	N/A	LOS B

*Values indicated are critical movement Level of Service (LOS)

Table 3

**Signalized Intersection Level of Service Summary
240 Deming Street
South Windsor, CT**

Signalized Intersections	2025 Weekday Morning Peak Hour			2025 Weekday Afternoon Peak Hour			2025 Saturday Peak Hour		
	Background	Combined	Improved**	Background	Combined	Improved**	Background	Combined	Improved**
Buckland Road and Deming Street	0.40/LOS B*	0.41/LOS B	0.40/LOS B	0.63/LOS C	0.63/LOS C	0.63/LOS C	0.55/LOS C	0.55/LOS C	0.56/LOS C

*Values indicated are intersection v/c Ratio/LOS

**Improved condition denotes results with the addition of a westbound right turn lane

Table 4

**Weekday Morning Peak Hour Queue Length Summary
240 Deming Street
South Windsor, CT**

Intersection	Approach Lane	2025 Background Queue	2025 Combined Queue	2025 Combined Improved Queue**	Available Storage
Buckland Road and Deming Street	EB Left	35 Feet	35 Feet	35 Feet	150 Feet
	EB Through	35 Feet	35 Feet	35 Feet	-
	EB Right	0 Feet	0 Feet	0 Feet	385 Feet
	WB Left	35 Feet	40 Feet	35 Feet	130 Feet
	WB Through/Right	55 Feet	55 Feet	50 Feet	-
	WB Right	N/A	N/A	0 Feet	100 Feet
	NB Left	25 Feet	25 Feet	25 Feet	150 Feet
	NB Through/Right	95 Feet	95 Feet	95 Feet	-
	SB Left	10 Feet	10 Feet	10 Feet	300 Feet
	SB Through/Right	165 Feet	165 Feet	170 Feet	-
Deming Street and the Site Access Driveway	EB Through/Left	N/A	0 Feet	N/A	-
	SB Left/Right	N/A	5 Feet	N/A	-

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

**Improved condition denotes results with the addition of a westbound right turn lane

Table 5

**Weekday Afternoon Peak Hour Queue Length Summary
240 Deming Street
South Windsor, CT**

Intersection	Approach Lane	2025 Background Queue	2025 Combined Queue	2025 Combined Improved Queue**	Available Storage
Buckland Road and Deming Street	EB Left	100 Feet	100 Feet	95 Feet	150 Feet
	EB Through	70 Feet	75 Feet	75 Feet	-
	EB Right	35 Feet	35 Feet	35 Feet	385 Feet
	WB Left	50 Feet	55 Feet	55 Feet	130 Feet
	WB Through/Right	70 Feet	75 Feet	60 Feet	-
	WB Right	N/A	N/A	0 Feet	100 Feet
	NB Left	35 Feet	35 Feet	35 Feet	150 Feet
	NB Through/Right	245 Feet	245 Feet	245 Feet	-
	SB Left	20 Feet	20 Feet	20 Feet	300 Feet
	SB Through/Right	315 Feet	315 Feet	315 Feet	-
Deming Street and the Site Access Driveway	EB Through/Left	N/A	0 Feet	N/A	-
	SB Left/Right	N/A	0 Feet	N/A	-

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

**Improved condition denotes results with the addition of a westbound right turn lane

Table 6

**Saturday Peak Hour Queue Length Summary
240 Deming Street
South Windsor, CT**

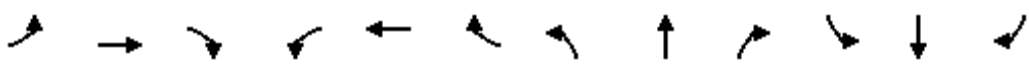
Intersection	Approach Lane	2025 Background Queue	2025 Combined Queue	2025 Combined Improved Queue**	Available Storage
Buckland Road and Deming Street	EB Left	80 Feet	80 Feet	75 Feet	150 Feet
	EB Through	75 Feet	75 Feet	75 Feet	-
	EB Right	10 Feet	10 Feet	10 Feet	385 Feet
	WB Left	70 Feet	75 Feet	75 Feet	130 Feet
	WB Through/Right	80 Feet	85 Feet	65 Feet	-
	WB Right	N/A	N/A	0 Feet	100 Feet
	NB Left	30 Feet	30 Feet	30 Feet	150 Feet
	NB Through/Right	185 Feet	185 Feet	185 Feet	-
	SB Left	20 Feet	20 Feet	20 Feet	300 Feet
	SB Through/Right	280 Feet	280 Feet	280 Feet	-
Deming Street and the Site Access Driveway	EB Through/Left	N/A	0 Feet	N/A	-
	SB Left/Right	N/A	5 Feet	N/A	-

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

**Improved condition denotes results with the addition of a westbound right turn lane

Lanes, Volumes, Timings
1: Deming Street & Buckland Road

240 Deming Street
2025 AM Background

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	40	91	36	63	27	90	432	31	20	604	65
Future Volume (vph)	42	40	91	36	63	27	90	432	31	20	604	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	130		0	150		0	300		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850		0.955			0.990			0.985	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1779	0	1770	3504	0	1770	3486	0
Flt Permitted	0.694			0.729			0.248			0.467		
Satd. Flow (perm)	1293	1863	1583	1358	1779	0	462	3504	0	870	3486	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			204		29			14			19	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		293			311			564			246	
Travel Time (s)		6.7			7.1			12.8			5.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	46	43	99	39	68	29	98	470	34	22	657	71
Shared Lane Traffic (%)												
Lane Group Flow (vph)	46	43	99	39	97	0	98	504	0	22	728	0
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			4		5	2		1	6	
Permitted Phases	4		4	4			2			6		
Detector Phase	4	4	4	4	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	9.0	9.0	9.0	9.0	9.0		15.0	15.0		10.0	15.0	
Minimum Split (s)	23.0	23.0	23.0	23.0	23.0		19.0	24.2		14.0	24.2	
Total Split (s)	21.0	21.0	21.0	21.0	21.0		17.0	27.0		12.0	22.0	
Total Split (%)	35.0%	35.0%	35.0%	35.0%	35.0%		28.3%	45.0%		20.0%	36.7%	
Maximum Green (s)	16.0	16.0	16.0	16.0	16.0		13.0	20.8		8.0	15.8	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	4.2		3.0	4.2	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		1.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		4.0	6.2		4.0	6.2	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		Min	Max		Min	Max	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0			7.0			7.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0			11.0			11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0			0			0	
Act Effect Green (s)	9.9	9.9	9.9	9.9	9.9		37.8	23.4		28.7	18.3	
Actuated g/C Ratio	0.19	0.19	0.19	0.19	0.19		0.71	0.44		0.54	0.34	
v/c Ratio	0.19	0.12	0.21	0.15	0.27		0.15	0.33		0.04	0.60	
Control Delay	21.8	20.2	1.1	21.1	17.2		4.2	11.5		4.5	17.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	21.8	20.2	1.1	21.1	17.2		4.2	11.5		4.5	17.9	

Lanes, Volumes, Timings
1: Deming Street & Buckland Road

240 Deming Street
2025 AM Background

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	C	C	A	C	B		A	B		A	B	
Approach Delay		10.5			18.3			10.3			17.5	
Approach LOS		B			B			B			B	
Queue Length 50th (ft)	13	12	0	11	20		9	54		2	101	
Queue Length 95th (ft)	37	34	0	32	54		25	95		8	166	
Internal Link Dist (ft)		213			231			484			166	
Turn Bay Length (ft)	150			130			150			300		
Base Capacity (vph)	394	568	624	414	563		652	1545		605	1209	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.12	0.08	0.16	0.09	0.17		0.15	0.33		0.04	0.60	

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 53.3

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.60

Intersection Signal Delay: 14.2

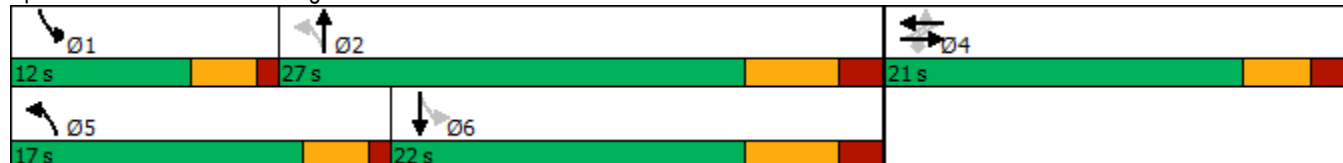
Intersection LOS: B

Intersection Capacity Utilization 52.9%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 1: Deming Street & Buckland Road



HCM Signalized Intersection Capacity Analysis

1: Deming Street & Buckland Road

240 Deming Street
2025 AM Background

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	40	91	36	63	27	90	432	31	20	604	65
Future Volume (vph)	42	40	91	36	63	27	90	432	31	20	604	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0		4.0	6.2		4.0	6.2	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.96		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1779		1770	3503		1770	3487	
Flt Permitted	0.69	1.00	1.00	0.73	1.00		0.25	1.00		0.47	1.00	
Satd. Flow (perm)	1293	1863	1583	1358	1779		463	3503		870	3487	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	46	43	99	39	68	29	98	470	34	22	657	71
RTOR Reduction (vph)	0	0	85	0	25	0	0	8	0	0	13	0
Lane Group Flow (vph)	46	43	14	39	72	0	98	496	0	22	715	0
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			4		5	2		1	6	
Permitted Phases	4		4	4			2			6		
Actuated Green, G (s)	7.6	7.6	7.6	7.6	7.6		35.5	23.4		26.4	18.3	
Effective Green, g (s)	7.6	7.6	7.6	7.6	7.6		35.5	23.4		26.4	18.3	
Actuated g/C Ratio	0.14	0.14	0.14	0.14	0.14		0.65	0.43		0.49	0.34	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0		4.0	6.2		4.0	6.2	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	180	260	221	190	248		620	1509		557	1175	
v/s Ratio Prot		0.02			c0.04		c0.04	c0.14		0.01	c0.21	
v/s Ratio Perm	0.04		0.01	0.03			0.06			0.01		
v/c Ratio	0.26	0.17	0.06	0.21	0.29		0.16	0.33		0.04	0.61	
Uniform Delay, d1	20.8	20.6	20.3	20.7	20.9		4.1	10.2		7.3	15.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.8	0.3	0.1	0.5	0.7		0.1	0.6		0.0	2.4	
Delay (s)	21.6	20.9	20.4	21.2	21.6		4.2	10.8		7.3	17.4	
Level of Service	C	C	C	C	C		A	B		A	B	
Approach Delay (s)		20.8			21.5			9.7			17.1	
Approach LOS		C			C			A			B	
Intersection Summary												
HCM 2000 Control Delay			15.2			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.40									
Actuated Cycle Length (s)			54.3			Sum of lost time (s)				15.2		
Intersection Capacity Utilization			52.9%			ICU Level of Service				A		
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings
1: Deming Street & Buckland Road

240 Deming Street
2025 AM Combined

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	41	91	43	66	32	90	432	34	22	604	65
Future Volume (vph)	42	41	91	43	66	32	90	432	34	22	604	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	130		0	150		0	300		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850		0.951			0.989			0.985	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1771	0	1770	3500	0	1770	3486	0
Flt Permitted	0.688			0.728			0.248			0.465		
Satd. Flow (perm)	1282	1863	1583	1356	1771	0	462	3500	0	866	3486	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			204		35			15			19	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		243			625			564			263	
Travel Time (s)		5.5			14.2			12.8			6.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	46	45	99	47	72	35	98	470	37	24	657	71
Shared Lane Traffic (%)												
Lane Group Flow (vph)	46	45	99	47	107	0	98	507	0	24	728	0
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			4		5	2		1	6	
Permitted Phases	4		4	4			2			6		
Detector Phase	4	4	4	4	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	9.0	9.0	9.0	9.0	9.0		15.0	15.0		10.0	15.0	
Minimum Split (s)	23.0	23.0	23.0	23.0	23.0		19.0	24.2		14.0	24.2	
Total Split (s)	21.0	21.0	21.0	21.0	21.0		17.0	27.0		12.0	22.0	
Total Split (%)	35.0%	35.0%	35.0%	35.0%	35.0%		28.3%	45.0%		20.0%	36.7%	
Maximum Green (s)	16.0	16.0	16.0	16.0	16.0		13.0	20.8		8.0	15.8	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	4.2		3.0	4.2	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		1.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		4.0	6.2		4.0	6.2	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		Min	Max		Min	Max	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0			7.0			7.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0			11.0			11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0			0			0	
Act Effect Green (s)	10.0	10.0	10.0	10.0	10.0		37.8	23.4		28.7	18.3	
Actuated g/C Ratio	0.19	0.19	0.19	0.19	0.19		0.71	0.44		0.54	0.34	
v/c Ratio	0.19	0.13	0.21	0.19	0.30		0.15	0.33		0.04	0.60	
Control Delay	21.7	20.2	1.1	21.5	16.9		4.3	11.6		4.5	18.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	21.7	20.2	1.1	21.5	16.9		4.3	11.6		4.5	18.0	

Lanes, Volumes, Timings
1: Deming Street & Buckland Road

240 Deming Street
2025 AM Combined

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	C	C	A	C	B		A	B		A	B	
Approach Delay		10.6			18.3			10.4			17.5	
Approach LOS		B			B			B			B	
Queue Length 50th (ft)	13	13	0	14	21		9	54		2	101	
Queue Length 95th (ft)	37	35	0	37	56		25	96		9	167	
Internal Link Dist (ft)		163			545			484			183	
Turn Bay Length (ft)	150			130			150			300		
Base Capacity (vph)	390	568	624	413	564		651	1542		603	1207	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.12	0.08	0.16	0.11	0.19		0.15	0.33		0.04	0.60	

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 53.4

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.60

Intersection Signal Delay: 14.3

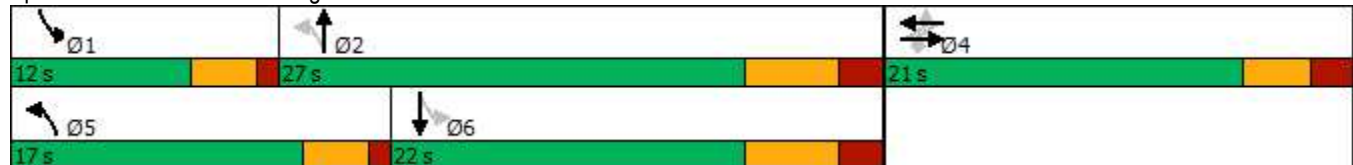
Intersection LOS: B

Intersection Capacity Utilization 53.0%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 1: Deming Street & Buckland Road



HCM Signalized Intersection Capacity Analysis

1: Deming Street & Buckland Road

240 Deming Street
2025 AM Combined

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	41	91	43	66	32	90	432	34	22	604	65
Future Volume (vph)	42	41	91	43	66	32	90	432	34	22	604	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0		4.0	6.2		4.0	6.2	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.95		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1771		1770	3500		1770	3487	
Flt Permitted	0.69	1.00	1.00	0.73	1.00		0.25	1.00		0.47	1.00	
Satd. Flow (perm)	1281	1863	1583	1356	1771		462	3500		867	3487	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	46	45	99	47	72	35	98	470	37	24	657	71
RTOR Reduction (vph)	0	0	85	0	30	0	0	9	0	0	13	0
Lane Group Flow (vph)	46	45	14	47	77	0	98	498	0	24	715	0
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			4		5	2		1	6	
Permitted Phases	4		4	4			2			6		
Actuated Green, G (s)	7.7	7.7	7.7	7.7	7.7		35.5	23.4		26.4	18.3	
Effective Green, g (s)	7.7	7.7	7.7	7.7	7.7		35.5	23.4		26.4	18.3	
Actuated g/C Ratio	0.14	0.14	0.14	0.14	0.14		0.65	0.43		0.49	0.34	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0		4.0	6.2		4.0	6.2	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	181	263	224	191	250		618	1505		555	1173	
v/s Ratio Prot		0.02			c0.04		c0.04	c0.14		0.01	c0.21	
v/s Ratio Perm	0.04		0.01	0.03			0.06			0.01		
v/c Ratio	0.25	0.17	0.06	0.25	0.31		0.16	0.33		0.04	0.61	
Uniform Delay, d1	20.8	20.5	20.2	20.8	21.0		4.1	10.3		7.3	15.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	0.3	0.1	0.7	0.7		0.1	0.6		0.0	2.4	
Delay (s)	21.5	20.9	20.3	21.4	21.7		4.2	10.9		7.3	17.4	
Level of Service	C	C	C	C	C		A	B		A	B	
Approach Delay (s)		20.8			21.6			9.8			17.1	
Approach LOS		C			C			A			B	
Intersection Summary												
HCM 2000 Control Delay			15.3			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.41									
Actuated Cycle Length (s)			54.4			Sum of lost time (s)				15.2		
Intersection Capacity Utilization			53.0%			ICU Level of Service				A		
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings
2: Deming Street & Site Driveway

240 Deming Street
2025 AM Combined



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	6	91	126	1	3	15
Future Volume (vph)	6	91	126	1	3	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.999		0.886	
Flt Protected		0.997			0.992	
Satd. Flow (prot)	0	1857	1861	0	1637	0
Flt Permitted		0.997			0.992	
Satd. Flow (perm)	0	1857	1861	0	1637	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		625	300		155	
Travel Time (s)		14.2	6.8		3.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	7	99	137	1	3	16
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	106	138	0	19	0
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 19.7% ICU Level of Service A

Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis

2: Deming Street & Site Driveway

240 Deming Street
2025 AM Combined



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↩	↩		↩	
Traffic Volume (veh/h)	6	91	126	1	3	15
Future Volume (Veh/h)	6	91	126	1	3	15
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	99	137	1	3	16
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		625				
pX, platoon unblocked						
vC, conflicting volume	138				250	138
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	138				250	138
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	98
cM capacity (veh/h)	1446				734	911
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	106	138	19			
Volume Left	7	0	3			
Volume Right	0	1	16			
cSH	1446	1700	878			
Volume to Capacity	0.00	0.08	0.02			
Queue Length 95th (ft)	0	0	2			
Control Delay (s)	0.5	0.0	9.2			
Lane LOS	A		A			
Approach Delay (s)	0.5	0.0	9.2			
Approach LOS			A			
Intersection Summary						
Average Delay			0.9			
Intersection Capacity Utilization			19.7%	ICU Level of Service		A
Analysis Period (min)			15			

Lanes, Volumes, Timings
1: Deming Street & Buckland Road

240 Deming Street
2025 AM Combined Improved

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	41	91	43	66	32	90	432	34	22	604	65
Future Volume (vph)	42	41	91	43	66	32	90	432	34	22	604	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	130		100	150		0	300		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850			0.850		0.989			0.985	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3500	0	1770	3486	0
Flt Permitted	0.710			0.728			0.248			0.465		
Satd. Flow (perm)	1323	1863	1583	1356	1863	1583	462	3500	0	866	3486	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			204			204		15			19	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		243			625			564			263	
Travel Time (s)		5.5			14.2			12.8			6.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	46	45	99	47	72	35	98	470	37	24	657	71
Shared Lane Traffic (%)												
Lane Group Flow (vph)	46	45	99	47	72	35	98	507	0	24	728	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		4			4		5	2		1	6	
Permitted Phases	4		4	4		4	2			6		
Detector Phase	4	4	4	4	4	4	5	2		1	6	
Switch Phase												
Minimum Initial (s)	9.0	9.0	9.0	9.0	9.0	9.0	15.0	15.0		10.0	15.0	
Minimum Split (s)	23.0	23.0	23.0	23.0	23.0	23.0	19.0	24.2		14.0	24.2	
Total Split (s)	21.0	21.0	21.0	21.0	21.0	21.0	17.0	27.0		12.0	22.0	
Total Split (%)	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	28.3%	45.0%		20.0%	36.7%	
Maximum Green (s)	16.0	16.0	16.0	16.0	16.0	16.0	13.0	20.8		8.0	15.8	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.2		3.0	4.2	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	1.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	4.0	6.2		4.0	6.2	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None	None	Min	Max		Min	Max	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0		7.0			7.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0		11.0			11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	0		0			0	
Act Effect Green (s)	9.9	9.9	9.9	9.9	9.9	9.9	37.8	23.4		28.7	18.3	
Actuated g/C Ratio	0.19	0.19	0.19	0.19	0.19	0.19	0.71	0.44		0.54	0.34	
v/c Ratio	0.19	0.13	0.21	0.19	0.21	0.08	0.15	0.33		0.04	0.60	
Control Delay	21.6	20.3	1.1	21.6	21.3	0.3	4.2	11.5		4.5	17.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	21.6	20.3	1.1	21.6	21.3	0.3	4.2	11.5		4.5	17.9	

Lanes, Volumes, Timings
1: Deming Street & Buckland Road

240 Deming Street
2025 AM Combined Improved

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	C	C	A	C	C	A	A	B		A	B	
Approach Delay		10.6			16.6			10.3			17.5	
Approach LOS		B			B			B			B	
Queue Length 50th (ft)	13	13	0	14	21	0	9	54		2	101	
Queue Length 95th (ft)	37	35	0	37	50	0	25	96		9	168	
Internal Link Dist (ft)		163			545			484			183	
Turn Bay Length (ft)	150			130		100	150			300		
Base Capacity (vph)	403	568	624	414	568	624	652	1544		603	1209	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.11	0.08	0.16	0.11	0.13	0.06	0.15	0.33		0.04	0.60	

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 53.3

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.60

Intersection Signal Delay: 14.1

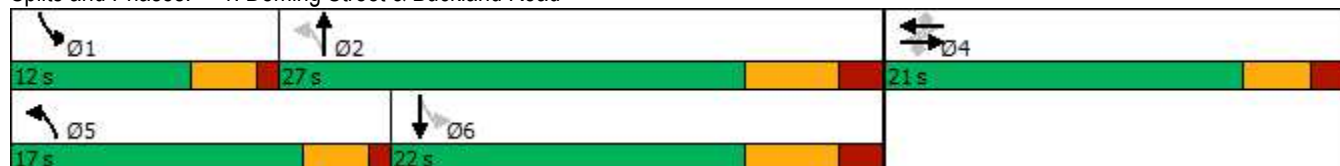
Intersection LOS: B

Intersection Capacity Utilization 53.0%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 1: Deming Street & Buckland Road



HCM Signalized Intersection Capacity Analysis

1: Deming Street & Buckland Road

240 Deming Street
2025 AM Combined Improved

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	41	91	43	66	32	90	432	34	22	604	65
Future Volume (vph)	42	41	91	43	66	32	90	432	34	22	604	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	4.0	6.2		4.0	6.2	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3500		1770	3487	
Flt Permitted	0.71	1.00	1.00	0.73	1.00	1.00	0.25	1.00		0.47	1.00	
Satd. Flow (perm)	1323	1863	1583	1356	1863	1583	463	3500		867	3487	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	46	45	99	47	72	35	98	470	37	24	657	71
RTOR Reduction (vph)	0	0	85	0	0	30	0	9	0	0	13	0
Lane Group Flow (vph)	46	45	14	47	72	5	98	498	0	24	715	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		4			4		5	2		1	6	
Permitted Phases	4		4	4		4	2			6		
Actuated Green, G (s)	7.6	7.6	7.6	7.6	7.6	7.6	35.5	23.4		26.4	18.3	
Effective Green, g (s)	7.6	7.6	7.6	7.6	7.6	7.6	35.5	23.4		26.4	18.3	
Actuated g/C Ratio	0.14	0.14	0.14	0.14	0.14	0.14	0.65	0.43		0.49	0.34	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	4.0	6.2		4.0	6.2	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	185	260	221	189	260	221	620	1508		556	1175	
v/s Ratio Prot		0.02			c0.04		c0.04	c0.14		0.01	c0.21	
v/s Ratio Perm	0.03		0.01	0.03		0.00	0.06			0.01		
v/c Ratio	0.25	0.17	0.06	0.25	0.28	0.02	0.16	0.33		0.04	0.61	
Uniform Delay, d1	20.8	20.6	20.3	20.8	20.9	20.1	4.1	10.3		7.3	15.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	0.3	0.1	0.7	0.6	0.0	0.1	0.6		0.0	2.4	
Delay (s)	21.5	20.9	20.4	21.5	21.5	20.2	4.2	10.8		7.3	17.4	
Level of Service	C	C	C	C	C	C	A	B		A	B	
Approach Delay (s)		20.8			21.2			9.8			17.0	
Approach LOS		C			C			A			B	
Intersection Summary												
HCM 2000 Control Delay			15.2				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.40									
Actuated Cycle Length (s)			54.3				Sum of lost time (s)			15.2		
Intersection Capacity Utilization			53.0%				ICU Level of Service			A		
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings
1: Deming Street & Buckland Road

240 Deming Street
2025 PM Background

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	138	106	170	65	86	40	109	867	77	51	817	103
Future Volume (vph)	138	106	170	65	86	40	109	867	77	51	817	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	130		0	150		0	300		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850		0.953			0.988			0.983	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1775	0	1770	3497	0	1770	3479	0
Flt Permitted	0.670			0.683			0.181			0.221		
Satd. Flow (perm)	1248	1863	1583	1272	1775	0	337	3497	0	412	3479	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			204		38			17			22	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		449			312			564			512	
Travel Time (s)		10.2			7.1			12.8			11.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	150	115	185	71	93	43	118	942	84	55	888	112
Shared Lane Traffic (%)												
Lane Group Flow (vph)	150	115	185	71	136	0	118	1026	0	55	1000	0
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			4		5	2		1	6	
Permitted Phases	4		4	4			2			6		
Detector Phase	4	4	4	4	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	9.0	9.0	9.0	9.0	9.0		15.0	15.0		10.0	15.0	
Minimum Split (s)	23.0	23.0	23.0	23.0	23.0		19.0	24.2		14.0	24.2	
Total Split (s)	21.0	21.0	21.0	21.0	21.0		17.0	27.0		12.0	22.0	
Total Split (%)	35.0%	35.0%	35.0%	35.0%	35.0%		28.3%	45.0%		20.0%	36.7%	
Maximum Green (s)	16.0	16.0	16.0	16.0	16.0		13.0	20.8		8.0	15.8	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	4.2		3.0	4.2	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		1.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		4.0	6.2		4.0	6.2	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		Min	Max		Min	Max	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0			7.0			7.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0			11.0			11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0			0			0	
Act Effect Green (s)	12.8	12.8	12.8	12.8	12.8		37.3	23.1		28.3	18.1	
Actuated g/C Ratio	0.22	0.22	0.22	0.22	0.22		0.63	0.39		0.48	0.31	
v/c Ratio	0.56	0.28	0.37	0.26	0.33		0.22	0.75		0.14	0.93	
Control Delay	28.9	20.9	5.1	21.4	16.5		6.1	20.1		6.7	37.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	28.9	20.9	5.1	21.4	16.5		6.1	20.1		6.7	37.5	

Lanes, Volumes, Timings
1: Deming Street & Buckland Road

240 Deming Street
2025 PM Background

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	C	C	A	C	B		A	C		A	D	
Approach Delay		17.1			18.2			18.7			35.9	
Approach LOS		B			B			B			D	
Queue Length 50th (ft)	48	34	0	21	29		15	163		7	181	
Queue Length 95th (ft)	98	71	35	50	69		35	242		19	#316	
Internal Link Dist (ft)		369			232			484			432	
Turn Bay Length (ft)	150			130			150			300		
Base Capacity (vph)	338	505	577	345	508		528	1373		381	1076	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.44	0.23	0.32	0.21	0.27		0.22	0.75		0.14	0.93	

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 59.2

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.93

Intersection Signal Delay: 24.7

Intersection LOS: C

Intersection Capacity Utilization 70.3%

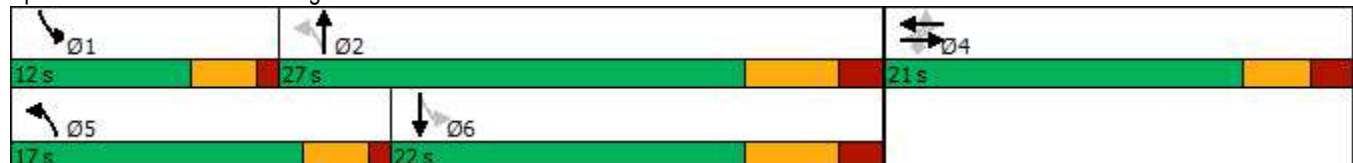
ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: Deming Street & Buckland Road



HCM Signalized Intersection Capacity Analysis

1: Deming Street & Buckland Road

240 Deming Street
2025 PM Background

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	138	106	170	65	86	40	109	867	77	51	817	103
Future Volume (vph)	138	106	170	65	86	40	109	867	77	51	817	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0		4.0	6.2		4.0	6.2	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.95		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1774		1770	3496		1770	3480	
Flt Permitted	0.67	1.00	1.00	0.68	1.00		0.18	1.00		0.22	1.00	
Satd. Flow (perm)	1248	1863	1583	1272	1774		337	3496		412	3480	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	150	115	185	71	93	43	118	942	84	55	888	112
RTOR Reduction (vph)	0	0	145	0	30	0	0	10	0	0	15	0
Lane Group Flow (vph)	150	115	40	71	106	0	118	1016	0	55	985	0
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			4		5	2		1	6	
Permitted Phases	4		4	4			2			6		
Actuated Green, G (s)	12.8	12.8	12.8	12.8	12.8		35.1	23.1		26.1	18.1	
Effective Green, g (s)	12.8	12.8	12.8	12.8	12.8		35.1	23.1		26.1	18.1	
Actuated g/C Ratio	0.22	0.22	0.22	0.22	0.22		0.59	0.39		0.44	0.31	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0		4.0	6.2		4.0	6.2	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	270	403	342	275	384		515	1366		365	1065	
v/s Ratio Prot		0.06			0.06		c0.05	c0.29		0.02	c0.28	
v/s Ratio Perm	c0.12		0.03	0.06			0.09			0.05		
v/c Ratio	0.56	0.29	0.12	0.26	0.28		0.23	0.74		0.15	0.92	
Uniform Delay, d1	20.6	19.3	18.6	19.2	19.3		7.3	15.5		9.7	19.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.5	0.4	0.2	0.5	0.4		0.2	3.7		0.2	14.5	
Delay (s)	23.1	19.7	18.8	19.7	19.7		7.5	19.2		9.9	34.4	
Level of Service	C	B	B	B	B		A	B		A	C	
Approach Delay (s)		20.4			19.7			18.0			33.1	
Approach LOS		C			B			B			C	
Intersection Summary												
HCM 2000 Control Delay			24.1				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.63									
Actuated Cycle Length (s)			59.1				Sum of lost time (s)			15.2		
Intersection Capacity Utilization			70.3%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings
1: Deming Street & Buckland Road

240 Deming Street
2025 PM Combined

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	138	109	170	69	88	43	109	867	84	56	817	103
Future Volume (vph)	138	109	170	69	88	43	109	867	84	56	817	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	130		0	150		0	300		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850		0.951			0.987			0.983	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1771	0	1770	3493	0	1770	3479	0
Flt Permitted	0.666			0.681			0.181			0.221		
Satd. Flow (perm)	1241	1863	1583	1269	1771	0	337	3493	0	412	3479	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			204		40			18			22	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		152			625			564			183	
Travel Time (s)		3.5			14.2			12.8			4.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	150	118	185	75	96	47	118	942	91	61	888	112
Shared Lane Traffic (%)												
Lane Group Flow (vph)	150	118	185	75	143	0	118	1033	0	61	1000	0
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			4		5	2		1	6	
Permitted Phases	4		4	4			2			6		
Detector Phase	4	4	4	4	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	9.0	9.0	9.0	9.0	9.0		15.0	15.0		10.0	15.0	
Minimum Split (s)	23.0	23.0	23.0	23.0	23.0		19.0	24.2		14.0	24.2	
Total Split (s)	21.0	21.0	21.0	21.0	21.0		17.0	27.0		12.0	22.0	
Total Split (%)	35.0%	35.0%	35.0%	35.0%	35.0%		28.3%	45.0%		20.0%	36.7%	
Maximum Green (s)	16.0	16.0	16.0	16.0	16.0		13.0	20.8		8.0	15.8	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	4.2		3.0	4.2	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		1.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		4.0	6.2		4.0	6.2	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		Min	Max		Min	Max	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0			7.0			7.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0			11.0			11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0			0			0	
Act Effect Green (s)	13.8	13.8	13.8	13.8	13.8		37.3	23.0		28.3	18.0	
Actuated g/C Ratio	0.23	0.23	0.23	0.23	0.23		0.62	0.38		0.47	0.30	
v/c Ratio	0.53	0.28	0.36	0.26	0.33		0.23	0.77		0.16	0.94	
Control Delay	27.5	20.6	4.9	21.1	16.2		6.4	21.2		7.0	40.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	27.5	20.6	4.9	21.1	16.2		6.4	21.2		7.0	40.2	

Lanes, Volumes, Timings
1: Deming Street & Buckland Road

240 Deming Street
2025 PM Combined

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	C	C	A	C	B		A	C		A	D	
Approach Delay		16.4			17.9			19.7			38.3	
Approach LOS		B			B			B			D	
Queue Length 50th (ft)	48	35	0	22	31		17	174		8	191	
Queue Length 95th (ft)	98	73	35	53	72		35	244		21	#316	
Internal Link Dist (ft)		72			545			484			103	
Turn Bay Length (ft)	150			130			150			300		
Base Capacity (vph)	331	497	571	338	501		519	1350		374	1059	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.45	0.24	0.32	0.22	0.29		0.23	0.77		0.16	0.94	

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 60.1

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 25.9

Intersection LOS: C

Intersection Capacity Utilization 70.3%

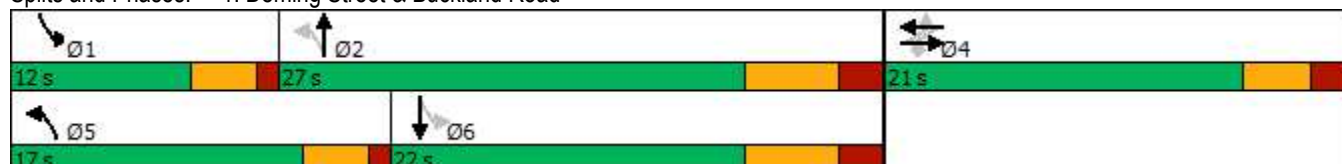
ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: Deming Street & Buckland Road



HCM Signalized Intersection Capacity Analysis

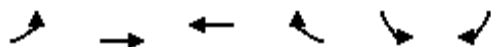
1: Deming Street & Buckland Road

240 Deming Street
2025 PM Combined

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	138	109	170	69	88	43	109	867	84	56	817	103
Future Volume (vph)	138	109	170	69	88	43	109	867	84	56	817	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0		4.0	6.2		4.0	6.2	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.95		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1771		1770	3492		1770	3480	
Flt Permitted	0.67	1.00	1.00	0.68	1.00		0.18	1.00		0.22	1.00	
Satd. Flow (perm)	1240	1863	1583	1269	1771		337	3492		412	3480	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	150	118	185	75	96	47	118	942	91	61	888	112
RTOR Reduction (vph)	0	0	143	0	31	0	0	11	0	0	15	0
Lane Group Flow (vph)	150	118	42	75	112	0	118	1022	0	61	985	0
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			4		5	2		1	6	
Permitted Phases	4		4	4			2			6		
Actuated Green, G (s)	13.8	13.8	13.8	13.8	13.8		35.1	23.1		26.1	18.1	
Effective Green, g (s)	13.8	13.8	13.8	13.8	13.8		35.1	23.1		26.1	18.1	
Actuated g/C Ratio	0.23	0.23	0.23	0.23	0.23		0.58	0.38		0.43	0.30	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0		4.0	6.2		4.0	6.2	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	284	427	363	291	406		506	1342		359	1048	
v/s Ratio Prot		0.06			0.06		c0.05	c0.29		0.02	c0.28	
v/s Ratio Perm	c0.12		0.03	0.06			0.09			0.05		
v/c Ratio	0.53	0.28	0.12	0.26	0.28		0.23	0.76		0.17	0.94	
Uniform Delay, d1	20.3	19.0	18.3	19.0	19.0		7.7	16.1		10.2	20.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.8	0.4	0.1	0.5	0.4		0.2	4.1		0.2	16.6	
Delay (s)	22.1	19.4	18.5	19.4	19.4		8.0	20.2		10.4	37.0	
Level of Service	C	B	B	B	B		A	C		B	D	
Approach Delay (s)		19.9			19.4			19.0			35.5	
Approach LOS		B			B			B			D	
Intersection Summary												
HCM 2000 Control Delay	25.2			HCM 2000 Level of Service			C					
HCM 2000 Volume to Capacity ratio	0.63											
Actuated Cycle Length (s)	60.1			Sum of lost time (s)			15.2					
Intersection Capacity Utilization	70.3%			ICU Level of Service			C					
Analysis Period (min)	15											
c Critical Lane Group												

Lanes, Volumes, Timings
2: Deming Street & Site Driveway

240 Deming Street
2025 PM Combined



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	15	234	191	2	2	9
Future Volume (vph)	15	234	191	2	2	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.999		0.887	
Flt Protected		0.997			0.992	
Satd. Flow (prot)	0	1857	1861	0	1639	0
Flt Permitted		0.997			0.992	
Satd. Flow (perm)	0	1857	1861	0	1639	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		625	300		155	
Travel Time (s)		14.2	6.8		3.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	254	208	2	2	10
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	270	210	0	12	0
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 34.6% ICU Level of Service A

Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis

2: Deming Street & Site Driveway

240 Deming Street
2025 PM Combined



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	15	234	191	2	2	9
Future Volume (Veh/h)	15	234	191	2	2	9
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	16	254	208	2	2	10
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (ft)		625				
pX, platoon unblocked						
vC, conflicting volume	210				495	209
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	210				495	209
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				100	99
cM capacity (veh/h)	1361				528	831
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	270	210	12			
Volume Left	16	0	2			
Volume Right	0	2	10			
cSH	1361	1700	759			
Volume to Capacity	0.01	0.12	0.02			
Queue Length 95th (ft)	1	0	1			
Control Delay (s)	0.6	0.0	9.8			
Lane LOS	A		A			
Approach Delay (s)	0.6	0.0	9.8			
Approach LOS			A			
Intersection Summary						
Average Delay			0.5			
Intersection Capacity Utilization			34.6%	ICU Level of Service		A
Analysis Period (min)			15			

Lanes, Volumes, Timings
1: Deming Street & Buckland Road

240 Deming Street
2025 PM Combined Improved

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	138	109	170	69	88	43	109	867	84	56	817	103
Future Volume (vph)	138	109	170	69	88	43	109	867	84	56	817	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	130		100	150		0	300		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850			0.850		0.987			0.983	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3493	0	1770	3479	0
Flt Permitted	0.695			0.681			0.181			0.221		
Satd. Flow (perm)	1295	1863	1583	1269	1863	1583	337	3493	0	412	3479	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			204			204		18			22	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		152			625			564			183	
Travel Time (s)		3.5			14.2			12.8			4.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	150	118	185	75	96	47	118	942	91	61	888	112
Shared Lane Traffic (%)												
Lane Group Flow (vph)	150	118	185	75	96	47	118	1033	0	61	1000	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		4			4		5	2		1	6	
Permitted Phases	4		4	4		4	2			6		
Detector Phase	4	4	4	4	4	4	5	2		1	6	
Switch Phase												
Minimum Initial (s)	9.0	9.0	9.0	9.0	9.0	9.0	15.0	15.0		10.0	15.0	
Minimum Split (s)	23.0	23.0	23.0	23.0	23.0	23.0	19.0	24.2		14.0	24.2	
Total Split (s)	21.0	21.0	21.0	21.0	21.0	21.0	17.0	27.0		12.0	22.0	
Total Split (%)	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	28.3%	45.0%		20.0%	36.7%	
Maximum Green (s)	16.0	16.0	16.0	16.0	16.0	16.0	13.0	20.8		8.0	15.8	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.2		3.0	4.2	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	1.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	4.0	6.2		4.0	6.2	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None	None	Min	Max		Min	Max	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0		7.0			7.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0		11.0			11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	0		0			0	
Act Effect Green (s)	12.7	12.7	12.7	12.7	12.7	12.7	37.3	23.1		28.3	18.1	
Actuated g/C Ratio	0.21	0.21	0.21	0.21	0.21	0.21	0.63	0.39		0.48	0.31	
v/c Ratio	0.54	0.29	0.37	0.27	0.24	0.09	0.22	0.75		0.16	0.93	
Control Delay	28.0	21.1	5.1	21.7	20.4	0.4	6.1	20.3		6.8	37.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	28.0	21.1	5.1	21.7	20.4	0.4	6.1	20.3		6.8	37.2	

Lanes, Volumes, Timings
1: Deming Street & Buckland Road

240 Deming Street
2025 PM Combined Improved

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	C	C	A	C	C	A	A	C		A	D	
Approach Delay		16.9			16.5			18.8			35.5	
Approach LOS		B			B			B			D	
Queue Length 50th (ft)	47	35	0	22	28	0	15	162		7	180	
Queue Length 95th (ft)	97	73	35	53	62	0	35	244		21	#316	
Internal Link Dist (ft)		72			545			484			103	
Turn Bay Length (ft)	150			130		100	150			300		
Base Capacity (vph)	351	506	578	344	506	578	529	1374		381	1078	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.43	0.23	0.32	0.22	0.19	0.08	0.22	0.75		0.16	0.93	

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 59.1

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.93

Intersection Signal Delay: 24.5

Intersection LOS: C

Intersection Capacity Utilization 65.3%

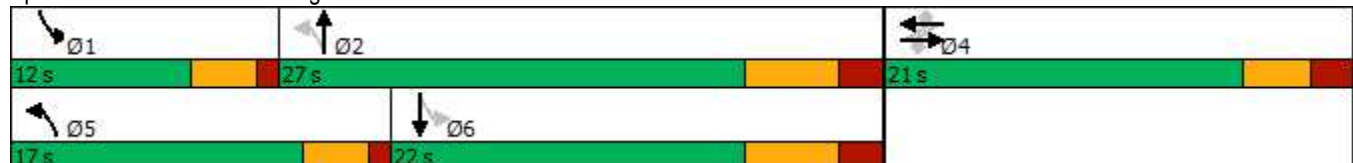
ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: Deming Street & Buckland Road



HCM Signalized Intersection Capacity Analysis

1: Deming Street & Buckland Road

240 Deming Street
2025 PM Combined Improved

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	138	109	170	69	88	43	109	867	84	56	817	103
Future Volume (vph)	138	109	170	69	88	43	109	867	84	56	817	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	4.0	6.2		4.0	6.2	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3492		1770	3480	
Flt Permitted	0.69	1.00	1.00	0.68	1.00	1.00	0.18	1.00		0.22	1.00	
Satd. Flow (perm)	1294	1863	1583	1269	1863	1583	337	3492		412	3480	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	150	118	185	75	96	47	118	942	91	61	888	112
RTOR Reduction (vph)	0	0	145	0	0	37	0	11	0	0	15	0
Lane Group Flow (vph)	150	118	40	75	96	10	118	1022	0	61	985	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		4			4		5	2		1	6	
Permitted Phases	4		4	4		4	2			6		
Actuated Green, G (s)	12.7	12.7	12.7	12.7	12.7	12.7	35.1	23.1		26.1	18.1	
Effective Green, g (s)	12.7	12.7	12.7	12.7	12.7	12.7	35.1	23.1		26.1	18.1	
Actuated g/C Ratio	0.22	0.22	0.22	0.22	0.22	0.22	0.59	0.39		0.44	0.31	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	4.0	6.2		4.0	6.2	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	278	401	340	273	401	340	516	1367		366	1067	
v/s Ratio Prot		0.06			0.05		c0.05	c0.29		0.02	c0.28	
v/s Ratio Perm	c0.12		0.03	0.06		0.01	0.09			0.05		
v/c Ratio	0.54	0.29	0.12	0.27	0.24	0.03	0.23	0.75		0.17	0.92	
Uniform Delay, d1	20.6	19.4	18.6	19.3	19.2	18.3	7.3	15.4		9.7	19.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.0	0.4	0.2	0.5	0.3	0.0	0.2	3.8		0.2	14.3	
Delay (s)	22.6	19.8	18.8	19.9	19.5	18.3	7.5	19.2		9.9	34.1	
Level of Service	C	B	B	B	B	B	A	B		A	C	
Approach Delay (s)		20.3			19.4			18.0			32.7	
Approach LOS		C			B			B			C	
Intersection Summary												
HCM 2000 Control Delay			23.9				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.63									
Actuated Cycle Length (s)			59.0				Sum of lost time (s)			15.2		
Intersection Capacity Utilization			65.3%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings
1: Deming Street & Buckland Road

240 Deming Street
2025 Saturday Background

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	107	111	119	95	97	55	88	700	67	52	732	116
Future Volume (vph)	107	111	119	95	97	55	88	700	67	52	732	116
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	130		0	150		0	300		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850		0.945			0.987			0.980	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1760	0	1770	3493	0	1770	3468	0
Flt Permitted	0.653			0.679			0.181			0.333		
Satd. Flow (perm)	1216	1863	1583	1265	1760	0	337	3493	0	620	3468	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			204		47			18			29	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		469			312			564			517	
Travel Time (s)		10.7			7.1			12.8			11.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	116	121	129	103	105	60	96	761	73	57	796	126
Shared Lane Traffic (%)												
Lane Group Flow (vph)	116	121	129	103	165	0	96	834	0	57	922	0
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			4		5	2		1	6	
Permitted Phases	4		4	4			2			6		
Detector Phase	4	4	4	4	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	9.0	9.0	9.0	9.0	9.0		15.0	15.0		10.0	15.0	
Minimum Split (s)	23.0	23.0	23.0	23.0	23.0		19.0	24.2		14.0	24.2	
Total Split (s)	21.0	21.0	21.0	21.0	21.0		17.0	27.0		12.0	22.0	
Total Split (%)	35.0%	35.0%	35.0%	35.0%	35.0%		28.3%	45.0%		20.0%	36.7%	
Maximum Green (s)	16.0	16.0	16.0	16.0	16.0		13.0	20.8		8.0	15.8	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	4.2		3.0	4.2	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		1.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		4.0	6.2		4.0	6.2	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		Min	Max		Min	Max	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0			7.0			7.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0			11.0			11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0			0			0	
Act Effect Green (s)	12.4	12.4	12.4	12.4	12.4		37.3	23.1		28.3	18.1	
Actuated g/C Ratio	0.21	0.21	0.21	0.21	0.21		0.64	0.39		0.48	0.31	
v/c Ratio	0.45	0.31	0.26	0.39	0.41		0.18	0.60		0.12	0.85	
Control Delay	26.1	21.4	2.3	24.2	17.3		5.7	16.6		6.2	28.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	26.1	21.4	2.3	24.2	17.3		5.7	16.6		6.2	28.9	

Lanes, Volumes, Timings
1: Deming Street & Buckland Road

240 Deming Street
2025 Saturday Background

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	C	C	A	C	B		A	B		A	C	
Approach Delay		16.2			19.9			15.5			27.6	
Approach LOS		B			B			B			C	
Queue Length 50th (ft)	36	36	0	31	35		11	116		6	154	
Queue Length 95th (ft)	77	75	11	69	80		29	185		19	#278	
Internal Link Dist (ft)		389			232			484			437	
Turn Bay Length (ft)	150			130			150			300		
Base Capacity (vph)	332	509	580	345	515		532	1383		456	1086	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.35	0.24	0.22	0.30	0.32		0.18	0.60		0.13	0.85	

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 58.7

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 20.7

Intersection LOS: C

Intersection Capacity Utilization 69.2%

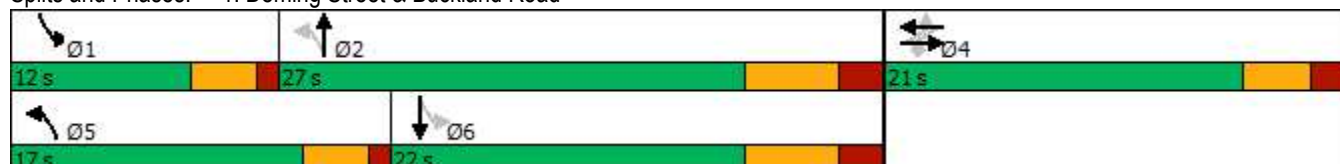
ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: Deming Street & Buckland Road



HCM Signalized Intersection Capacity Analysis

1: Deming Street & Buckland Road

240 Deming Street
2025 Saturday Background

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	107	111	119	95	97	55	88	700	67	52	732	116
Future Volume (vph)	107	111	119	95	97	55	88	700	67	52	732	116
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0		4.0	6.2		4.0	6.2	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.95		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1761		1770	3493		1770	3467	
Flt Permitted	0.65	1.00	1.00	0.68	1.00		0.18	1.00		0.33	1.00	
Satd. Flow (perm)	1216	1863	1583	1265	1761		337	3493		620	3467	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	116	121	129	103	105	60	96	761	73	57	796	126
RTOR Reduction (vph)	0	0	102	0	37	0	0	11	0	0	20	0
Lane Group Flow (vph)	116	121	27	103	128	0	96	823	0	57	902	0
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			4		5	2		1	6	
Permitted Phases	4		4	4			2			6		
Actuated Green, G (s)	12.4	12.4	12.4	12.4	12.4		35.1	23.1		26.1	18.1	
Effective Green, g (s)	12.4	12.4	12.4	12.4	12.4		35.1	23.1		26.1	18.1	
Actuated g/C Ratio	0.21	0.21	0.21	0.21	0.21		0.60	0.39		0.44	0.31	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0		4.0	6.2		4.0	6.2	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	256	393	334	267	372		518	1374		432	1069	
v/s Ratio Prot		0.06			0.07		c0.04	c0.24		0.02	c0.26	
v/s Ratio Perm	c0.10		0.02	0.08			0.07			0.04		
v/c Ratio	0.45	0.31	0.08	0.39	0.34		0.19	0.60		0.13	0.84	
Uniform Delay, d1	20.2	19.5	18.6	19.9	19.7		6.6	14.1		9.4	19.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.3	0.4	0.1	0.9	0.6		0.2	1.9		0.1	8.1	
Delay (s)	21.5	20.0	18.7	20.8	20.2		6.8	16.1		9.5	27.1	
Level of Service	C	B	B	C	C		A	B		A	C	
Approach Delay (s)		20.0			20.5			15.1			26.1	
Approach LOS		B			C			B			C	
Intersection Summary												
HCM 2000 Control Delay			20.6			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.55									
Actuated Cycle Length (s)			58.7			Sum of lost time (s)				15.2		
Intersection Capacity Utilization			69.2%			ICU Level of Service				C		
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings
1: Deming Street & Buckland Road

240 Deming Street
2025 Saturday Combined

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	107	113	119	101	99	59	88	700	73	56	732	116
Future Volume (vph)	107	113	119	101	99	59	88	700	73	56	732	116
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	130		0	150		0	300		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850		0.944			0.986			0.980	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1758	0	1770	3490	0	1770	3468	0
Flt Permitted	0.649			0.678			0.181			0.327		
Satd. Flow (perm)	1209	1863	1583	1263	1758	0	337	3490	0	609	3468	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			204		48			20			29	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		273			625			564			270	
Travel Time (s)		6.2			14.2			12.8			6.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	116	123	129	110	108	64	96	761	79	61	796	126
Shared Lane Traffic (%)												
Lane Group Flow (vph)	116	123	129	110	172	0	96	840	0	61	922	0
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			4		5	2		1	6	
Permitted Phases	4		4	4			2			6		
Detector Phase	4	4	4	4	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	9.0	9.0	9.0	9.0	9.0		15.0	15.0		10.0	15.0	
Minimum Split (s)	23.0	23.0	23.0	23.0	23.0		19.0	24.2		14.0	24.2	
Total Split (s)	21.0	21.0	21.0	21.0	21.0		17.0	27.0		12.0	22.0	
Total Split (%)	35.0%	35.0%	35.0%	35.0%	35.0%		28.3%	45.0%		20.0%	36.7%	
Maximum Green (s)	16.0	16.0	16.0	16.0	16.0		13.0	20.8		8.0	15.8	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	4.2		3.0	4.2	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		1.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		4.0	6.2		4.0	6.2	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		Min	Max		Min	Max	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0			7.0			7.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0			11.0			11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0			0			0	
Act Effect Green (s)	12.7	12.7	12.7	12.7	12.7		37.3	23.1		28.3	18.1	
Actuated g/C Ratio	0.22	0.22	0.22	0.22	0.22		0.63	0.39		0.48	0.31	
v/c Ratio	0.45	0.31	0.26	0.41	0.42		0.18	0.61		0.14	0.85	
Control Delay	25.8	21.3	2.2	24.5	17.4		5.8	16.9		6.4	29.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	25.8	21.3	2.2	24.5	17.4		5.8	16.9		6.4	29.4	

Lanes, Volumes, Timings
1: Deming Street & Buckland Road

240 Deming Street
2025 Saturday Combined

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	C	C	A	C	B		A	B		A	C	
Approach Delay		16.0			20.2			15.7			28.0	
Approach LOS		B			C			B			C	
Queue Length 50th (ft)	36	37	0	34	37		12	121		7	159	
Queue Length 95th (ft)	78	76	11	73	83		29	186		21	#278	
Internal Link Dist (ft)		193			545			484			190	
Turn Bay Length (ft)	150			130			150			300		
Base Capacity (vph)	328	506	578	343	512		529	1376		449	1081	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.35	0.24	0.22	0.32	0.34		0.18	0.61		0.14	0.85	

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 59

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 20.9

Intersection LOS: C

Intersection Capacity Utilization 69.6%

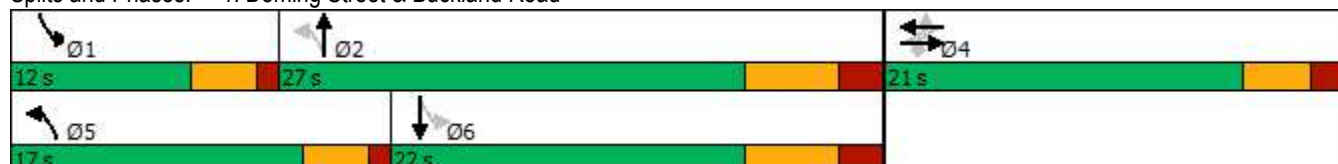
ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: Deming Street & Buckland Road



HCM Signalized Intersection Capacity Analysis

1: Deming Street & Buckland Road

240 Deming Street
2025 Saturday Combined

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	107	113	119	101	99	59	88	700	73	56	732	116
Future Volume (vph)	107	113	119	101	99	59	88	700	73	56	732	116
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0		4.0	6.2		4.0	6.2	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.94		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1759		1770	3489		1770	3467	
Flt Permitted	0.65	1.00	1.00	0.68	1.00		0.18	1.00		0.33	1.00	
Satd. Flow (perm)	1208	1863	1583	1263	1759		337	3489		609	3467	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	116	123	129	110	108	64	96	761	79	61	796	126
RTOR Reduction (vph)	0	0	101	0	38	0	0	12	0	0	20	0
Lane Group Flow (vph)	116	123	28	110	134	0	96	828	0	61	902	0
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			4		5	2		1	6	
Permitted Phases	4		4	4			2			6		
Actuated Green, G (s)	12.7	12.7	12.7	12.7	12.7		35.1	23.1		26.1	18.1	
Effective Green, g (s)	12.7	12.7	12.7	12.7	12.7		35.1	23.1		26.1	18.1	
Actuated g/C Ratio	0.22	0.22	0.22	0.22	0.22		0.59	0.39		0.44	0.31	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0		4.0	6.2		4.0	6.2	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	260	401	340	271	378		516	1366		426	1063	
v/s Ratio Prot		0.07			0.08		c0.04	c0.24		0.02	c0.26	
v/s Ratio Perm	c0.10		0.02	0.09			0.07			0.04		
v/c Ratio	0.45	0.31	0.08	0.41	0.36		0.19	0.61		0.14	0.85	
Uniform Delay, d1	20.1	19.5	18.5	19.9	19.7		6.7	14.3		9.5	19.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.2	0.4	0.1	1.0	0.6		0.2	2.0		0.2	8.4	
Delay (s)	21.3	19.9	18.6	20.9	20.2		6.9	16.3		9.7	27.6	
Level of Service	C	B	B	C	C		A	B		A	C	
Approach Delay (s)		19.9			20.5			15.4			26.5	
Approach LOS		B			C			B			C	
Intersection Summary												
HCM 2000 Control Delay			20.8			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.55									
Actuated Cycle Length (s)			59.0			Sum of lost time (s)				15.2		
Intersection Capacity Utilization			69.6%			ICU Level of Service				C		
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings
2: Deming Street & Site Driveway

240 Deming Street
2025 Saturday Combined



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	12	230	247	2	2	12
Future Volume (vph)	12	230	247	2	2	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.999		0.883	
Flt Protected		0.998			0.993	
Satd. Flow (prot)	0	1859	1861	0	1633	0
Flt Permitted		0.998			0.993	
Satd. Flow (perm)	0	1859	1861	0	1633	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		625	300		155	
Travel Time (s)		14.2	6.8		3.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	13	250	268	2	2	13
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	263	270	0	15	0
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 31.9% ICU Level of Service A

Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis

2: Deming Street & Site Driveway

240 Deming Street
2025 Saturday Combined



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↩	↩		↩	
Traffic Volume (veh/h)	12	230	247	2	2	12
Future Volume (Veh/h)	12	230	247	2	2	12
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	13	250	268	2	2	13
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		625				
pX, platoon unblocked						
vC, conflicting volume	270				545	269
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	270				545	269
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				100	98
cM capacity (veh/h)	1293				494	770
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	263	270	15			
Volume Left	13	0	2			
Volume Right	0	2	13			
cSH	1293	1700	716			
Volume to Capacity	0.01	0.16	0.02			
Queue Length 95th (ft)	1	0	2			
Control Delay (s)	0.5	0.0	10.1			
Lane LOS	A		B			
Approach Delay (s)	0.5	0.0	10.1			
Approach LOS			B			
Intersection Summary						
Average Delay			0.5			
Intersection Capacity Utilization			31.9%	ICU Level of Service		A
Analysis Period (min)			15			

Lanes, Volumes, Timings
1: Deming Street & Buckland Road

240 Deming Street
2025 Saturday Combined Improved

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	107	113	119	101	99	59	88	700	73	56	732	116
Future Volume (vph)	107	113	119	101	99	59	88	700	73	56	732	116
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	130		100	150		0	300		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850			0.850		0.986			0.980	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3490	0	1770	3468	0
Flt Permitted	0.687			0.678			0.179			0.336		
Satd. Flow (perm)	1280	1863	1583	1263	1863	1583	333	3490	0	626	3468	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			204			295		20			29	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		273			625			564			270	
Travel Time (s)		6.2			14.2			12.8			6.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	116	123	129	110	108	64	96	761	79	61	796	126
Shared Lane Traffic (%)												
Lane Group Flow (vph)	116	123	129	110	108	64	96	840	0	61	922	0
Turn Type	Perm	NA	Perm	Perm	NA	NA	pm+pt	NA		pm+pt	NA	
Protected Phases		4			4		5	2		1	6	
Permitted Phases	4		4	4			2			6		
Detector Phase	4	4	4	4	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	9.0	9.0	9.0	9.0	9.0		15.0	15.0		10.0	15.0	
Minimum Split (s)	23.0	23.0	23.0	23.0	23.0		19.0	24.2		14.0	24.2	
Total Split (s)	21.0	21.0	21.0	21.0	21.0		17.0	27.0		12.0	22.0	
Total Split (%)	35.0%	35.0%	35.0%	35.0%	35.0%		28.3%	45.0%		20.0%	36.7%	
Maximum Green (s)	16.0	16.0	16.0	16.0	16.0		13.0	20.8		8.0	15.8	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	4.2		3.0	4.2	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		1.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		4.0	6.2		4.0	6.2	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		Min	Max		Min	Max	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0			7.0			7.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0			11.0			11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0			0			0	
Act Effect Green (s)	12.0	12.0	12.0	12.0	12.0	0.0	38.0	23.5		28.8	18.4	
Actuated g/C Ratio	0.22	0.22	0.22	0.22	0.22	0.00	0.68	0.42		0.52	0.33	
v/c Ratio	0.42	0.30	0.26	0.40	0.27	0.22	0.17	0.56		0.12	0.79	
Control Delay	24.9	21.5	2.2	24.6	20.9	1.7	5.5	15.3		6.1	25.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	24.9	21.5	2.2	24.6	20.9	1.7	5.5	15.3		6.1	25.0	

Lanes, Volumes, Timings
1: Deming Street & Buckland Road

240 Deming Street
2025 Saturday Combined Improved

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	C	C	A	C	C	A	A	B		A	C	
Approach Delay		15.8			18.0			14.3			23.9	
Approach LOS		B			B			B			C	
Queue Length 50th (ft)	36	37	0	34	32	0	10	112		6	148	
Queue Length 95th (ft)	77	76	11	73	67	0	29	186		21	#278	
Internal Link Dist (ft)		193			545			484			190	
Turn Bay Length (ft)	150			130		100	150			300		
Base Capacity (vph)	377	549	610	372	549	295	572	1490		493	1169	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.31	0.22	0.21	0.30	0.20	0.22	0.17	0.56		0.12	0.79	

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 55.5

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 18.6

Intersection LOS: B

Intersection Capacity Utilization 61.7%

ICU Level of Service B

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: Deming Street & Buckland Road

 Ø1	 Ø2	 Ø4
12 s	27 s	21 s
 Ø5	 Ø6	
17 s	22 s	

HCM Signalized Intersection Capacity Analysis

1: Deming Street & Buckland Road

240 Deming Street
2025 Saturday Combined Improved

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	107	113	119	101	99	59	88	700	73	56	732	116
Future Volume (vph)	107	113	119	101	99	59	88	700	73	56	732	116
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	4.0	4.0	6.2		4.0	6.2	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3489		1770	3467	
Flt Permitted	0.69	1.00	1.00	0.68	1.00	1.00	0.18	1.00		0.34	1.00	
Satd. Flow (perm)	1280	1863	1583	1263	1863	1583	333	3489		626	3467	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	116	123	129	110	108	64	96	761	79	61	796	126
RTOR Reduction (vph)	0	0	107	0	0	64	0	12	0	0	20	0
Lane Group Flow (vph)	116	123	22	110	108	0	96	828	0	61	902	0
Turn Type	Perm	NA	Perm	Perm	NA	NA	pm+pt	NA		pm+pt	NA	
Protected Phases		4			4		5	2		1	6	
Permitted Phases	4		4	4			2			6		
Actuated Green, G (s)	9.6	9.6	9.6	9.6	9.6	0.0	35.7	23.5		26.6	18.4	
Effective Green, g (s)	9.6	9.6	9.6	9.6	9.6	0.0	35.7	23.5		26.6	18.4	
Actuated g/C Ratio	0.17	0.17	0.17	0.17	0.17	0.00	0.63	0.42		0.47	0.33	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0		4.0	6.2		4.0	6.2	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	217	316	268	214	316	0	548	1451		460	1129	
v/s Ratio Prot		0.07			0.06		c0.04	c0.24		0.02	c0.26	
v/s Ratio Perm	c0.09		0.01	0.09			0.07			0.04		
v/c Ratio	0.53	0.39	0.08	0.51	0.34	0.00	0.18	0.57		0.13	0.80	
Uniform Delay, d1	21.4	20.8	19.7	21.3	20.7	28.2	5.5	12.6		8.2	17.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.5	0.8	0.1	2.1	0.6	0.0	0.2	1.6		0.1	6.0	
Delay (s)	23.9	21.6	19.9	23.4	21.3	28.2	5.6	14.3		8.3	23.3	
Level of Service	C	C	B	C	C	C	A	B		A	C	
Approach Delay (s)		21.7			23.7			13.4			22.4	
Approach LOS		C			C			B			C	
Intersection Summary												
HCM 2000 Control Delay			19.2				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.56									
Actuated Cycle Length (s)			56.5				Sum of lost time (s)			15.2		
Intersection Capacity Utilization			61.7%				ICU Level of Service			B		
Analysis Period (min)			15									
c Critical Lane Group												

TAB 3

**4.1 – 2017 School-Age Children Study for 175 Oakland Road
Provided to South Windsor PZC during site plan application process**

**School Age Children Study
175 Oakland Road, South Windsor, CT**

To approximate the number of school age children that the Town of South Windsor can reasonably expect from the proposed 78 apartment complex at 175 Oakland Road, we conducted two analyses. We could not analyze South Windsor because it does not have enough family rental apartment properties to study. We chose Farmington. Why Farmington? Due to (i) similar size, (ii) similar demographics and (iii) enough apartments to have an adequate sample size.

First, we analyzed the actual number of school age children (“SAC”) enrolled in schools and residing in apartment properties in Farmington. Second, we applied the “Rutgers University Residential Demographic Multipliers” to our development proposal to project the anticipated number of SAC. For those of you not familiar, the Rutgers University, Center for Urban Policy Research “Rutgers University Residential Demographic Multipliers” (“the Rutgers Study”), publishes the most commonly used publication for predicting the fiscal impact of different housing types on communities throughout the United States.

School Age Children in Farmington, CT

Farmington has 914 non-age restricted one (1) or two (2) bedroom apartments among eleven (11) communities. In those apartments, there are 213 children registered with the Town’s Board of Education, making the ratio of children to apartment .23 school aged children per unit. Applying this ratio to the 78 proposed apartments at 175 Oakland Road in South Windsor, 18 SAC can be extrapolated. We think the actual number will be substantially less since 80% of the proposed units are market rate and higher rental rates typically means fewer SAC. In a 120-unit community that we recently constructed in Farmington, with similar rents, there are 4 total SAC or .03 SAC per apartment unit.

Rutgers Residential Demographic Multipliers – For Connecticut

The Rutgers Study predicts the number of SAC based upon rent levels and apartments types. As a general proposition, one bedroom apartments generate almost no SAC. 42 of the 78 units proposed are one bedroom units. Furthermore, affordable apartments generate more SAC than market rate apartments. The plan contemplates that just 16 of the 78 total units are affordable; 8 one bedroom and 8 two bedroom affordable apartments are proposed.

Proposed community at 175 Oakland			
	<i>Multiplier</i>	<i>Units</i>	<i>School Age Children</i>
1BR - Market	0.01	34	0.34
1BR - Affordable	0.06	8	0.48
2 BR - Market	0.13	28	3.64
2 BR - Affordable	0.48	8	3.84
		78	8.3

Using the Rutgers Study multipliers with the unit mix proposed at 175 Oakland Road, the estimated SAC is 8.3. The main reason for the substantially lower number of SAC is the proposed pricing on the market apartments, with a 1BR rent estimated at over \$1,450 and a 2BR exceeding \$1,800.

Per the Rutgers Study, Two BR units renting at less than \$1,300 generate .48 SAC per unit. Once the rent increases to between \$1,300 per month and \$1,800 per month, that figure drops to .19 SAC per unit. At a monthly rent of greater than \$1,800, the number of SAC per unit drops to .13. The result is that the most expensive apartment units generate the fewest SAC. This does stand to reason since someone who can afford to pay a high rent can more likely afford a home which is typically more desirable when SAC are a part of the household.

How accurate is the Rutgers Study?

To verify the Rutgers estimates we studied the Town of Farmington's actual SAC count versus a computation incorporating the Rutgers Study. Utilizing the multipliers and the various price levels between one and two bedroom apartments in Town, we calculated 219 SAC (see chart below) compared to the actual count of 213 SAC obtained through the Board of Education. In nearly 1,000 apartments in Farmington, the Rutgers Multipliers extrapolated within 6 SAC of the actual count and a 97.18% accuracy.

Farmington, CT - School Age Children

Actual School Age Children	213
Rutgers Study - School Age Children	219
% Accuracy	97.18%

(see Exhibit A for complete breakdown of Farmington housing communities)

Conclusion:

It is our best estimate that the proposed 78 apartment community will produce between 6 and 10 SAC. The sixteen (16) affordable apartments are expected produce four (4) SAC while in the 62 market-rate apartments, due to the higher rental rates, we anticipate 3.98 SAC.

Exhibit A

One Bedroom			
	<i>Multiplier</i>	<i>Apts</i>	<i>SAC</i>
Less than \$850	0.05	0	0
\$850 to \$1,450	0.06	327	19.62
More than \$1,450	0.01	60	0.60
			20.22

Less than \$850	
	0

\$850 to \$1,450	
Summit & Birch Hill	94
Lakeview	107
Heritage Glen	14
Centennial	112
	327

More than \$1,450	
Residences at 299	60

Two Bedroom			
	<i>Multiplier</i>	<i>Apts</i>	<i>SAC</i>
Less than \$1,300	0.48	362	173.76
\$1,300 to \$1,800	0.19	90	17.1
More than \$1,450	0.13	60	7.8
			198.66

Less than \$1,300	
Forest Court	36
Summit & Birch Hill	93
Lakeview	107
Westwoods	34
Farmington Court	48
Heritage	18
Tunxis Apartments	20
Lovely Street	6
	362

\$1,300 to \$1,800	
Heritage	32
Forest Park	58
	90

More than \$1,450	
Residences at 299	60

4.2 – Predicted and Actual Numbers of School-Aged Children, Rutgers Multiplier

The Residences at Oakland Road (175 Oakland)	
Predicted # of School Aged Children at 175 Oakland, (pre-development)	8.3
Actual # of School-Aged Children at 175 Oakland (Spring 2023)*	8 to 10

* Source: South Windsor Board of Education

240 Deming Street			
Apartment Type	Count	Multiplier	# School-Aged Children
One Bedroom Affordable	19	0.06	1.14
One Bedroom Market Rate	5	0.01	0.05
Two Bedroom Affordable	25	0.48	12
Two Bedroom Market Rate	6	0.13	0.78
Total	55		13.97



Recent Housing Developments

Enrollment from Recently Completed and Under Construction Housing Developments: October 2022

New Development Name	Status	Type	Occupied Units ¹	Total K-5 Enrollment	Total K-12 Enrollment	K-5 Student per Unit	K-12 Students per Unit
Clark Estates	Complete	Single-family	18	7	21	0.39	1.17
Clark Estates II	Complete	Single-family	22	14	27	0.64	1.23
Evergreen Walk	Complete	Apartments	200	18	25	0.09	0.13
Residences at Oakland Road	Complete	Apartments	78	7	11	0.09	0.14
Estates at South Windsor	Complete	Single-family	44	25	51	0.57	1.16
South Windsor Woods	Complete	Condominiums	155	80	112	0.52	0.72
Chestnut Ridge	Under Construction	Single-family	7	4	4	0.57	0.57
All New Developments			524	155	251	0.30	0.48

1. Occupancy data provided by the South Windsor Planning Department as of September 2022

Mavlene Posler
8-10 students

- Generally, apartments produce the fewest students per unit and single-family developments produce the greatest number of students per unit. Unit size (bedrooms) and price point impact student generation.
- Completed single-family developments (Clark Estates I & II, and South Windsor Woods) have the highest student generation, averaging 1.18 students per unit
- South Windsor Woods now complete yielding 112 K-12 students, 80 of which are K-5 students; increases of 4 K-5 students and 13 students overall from 2021 and overall student yield increased to 0.72.

TAB 4

5.1 – Walkability and Pedestrian Access

