

MEMORANDUM

To: Mike Greene, *Portman Holdings, LLC*

From: Ana Eisenman, P.E., *Kimley-Horn*
Danielle Kronowski, P.E., *Kimley-Horn*

Date: May 8, 2024

RE: ***Amsterdam Walk – Reduced Development Program***
Site access – Monroe Drive at Amsterdam Avenue and at Evelyn Street

INTRODUCTION

This memorandum provides supplemental alternative study based on the *Amsterdam Walk DRI #4065* for a reduced density alternative development program. Specifically, this memorandum summarizes the comparison of intersection capacity and level-of-service for the development program studied in the DRI of record and a proposed reduced development program.

The scenarios considered are the following:

1. 2028 Build Improved DRI Conditions (scenario/results as reported in DRI of record)
 - Full DRI Program incl. 900 residential units, 400,000 SF of Office, and 90,000 SF Retail.
2. 2028 Reduced Development Program (alternative scenario)
 - Reduced program incl. 840 residential units, 150,000 SF of Office, and 90,000 SF Retail.

A comparison of DRI proposed density and the reduced program density is summarized by land use below in **Table 1**.

Table 1: Amsterdam Walk DRI #4065 vs. Reduced Development Program - Density <i>Previous Density vs. Proposed Density by Land Use</i>			
Land Use	Amsterdam Walk DRI	Reduced Development Program	% Change
Residential	900 dwelling units	840 dwelling units	-6.7%
Office	400,000 SF	150,000 SF	-62.5%
Retail	90,000 SF	90,000 SF	-

Intersection capacity and level-of-service results include the following study intersections:

1. Monroe Drive at Amsterdam Avenue
2. Monroe Drive at Evelyn Street

For both scenarios included in this memorandum, proposed improvements to Amsterdam Avenue and Evelyn Street include the addition of left-turn lanes and associated left-turn traffic signal phasing expected to be completed along with the development, and as studied in the Build Improved conditions considered in the DRI.

METHODOLOGY

Assumptions such as global trip distributions, background growth rate, build-out year, laneage, and geometry are consistent with the *Amsterdam Walk DRI #4065* methodology for all scenarios.

The 2028 Build Improved DRI Conditions (Scenario 1) matches the 2028 Build Improved alternative in the *Amsterdam Walk DRI #4065* submitted on November 8th, 2023. The level-of-service results as reported in the DRI of record are provided for Scenario 1 for reference.

The 2028 Reduced Development Program (Scenario 2) modifies the density of the residential and office land uses studied in the *Amsterdam Walk DRI #4065* as stated above. The detailed trip generation calculations for the reduced program are attached.

A comparison of the Daily, AM and PM peak hour Net New Trip generation and Driveway Volumes between the DRI and Reduced Development Program is included below in **Table 2**.

Table 2: Amsterdam Walk DRI #4065 vs. Reduced Development Program – Net New Trips <i>Anticipated Trip Generation Comparison of Net New Trips</i>			
Site Plan	Daily	AM Peak Hour	PM Peak Hour
Net New Project Trips			
<i>Amsterdam Walk DRI #4065</i>	3,994	534	384
Reduced Development Program	2,362	320	188
Percentage Change in Net New Project Trips	-41%	-40%	-51%
New Driveway Volumes			
<i>Amsterdam Walk DRI #4065</i>	5,466	534	484
Reduced Development Program	3,832	320	288
Percentage Change in New Driveway Volumes	-30%	-40%	-40%

Based on the projected trip generation comparison of net new project trips shown in **Table 2**, the proposed Reduced Development Program will generate approximately 41% fewer net new trips and 30% fewer new driveway volumes than the *Amsterdam Walk DRI #4065*. Driveway volumes during each the AM and PM peak hours are reduced by approximately 40% with the proposed Reduced Development Program. Driveway volumes are associated with traffic volumes expected entering and exiting each of the study intersections. Amsterdam Avenue and Evelyn Street west of Monroe Drive will serve as site access to and from the development. Detailed trip generation tables are attached.

LEVEL-OF-SERVICE RESULTS

The level-of-service (LOS) and queue length results for each study scenario are summarized below in **Table 3** for the intersection of Monroe Drive at Amsterdam Avenue, and in **Table 4** for the intersection of Monroe Drive and Evelyn Street. The associated *Synchro 11* reports are attached.

		Table 3: Level-of-Service Comparison – Monroe Dr at Amsterdam Ave LOS (Average Delay, in seconds)												
		Monroe Dr Northbound			Monroe Dr Southbound			Amsterdam Ave Eastbound			Amsterdam Ave Westbound			
		L	T	R	L	T	R	L	T	R	L	T	R	
1. 2028 BUILD IMPROVED DRI CONDITIONS	(Signal)	Overall LOS	C (24.7)											
		Approach LOS	C (31.7)			A (2.8)			D (51.3)			D (52.1)		
		Storage	100			100			100			100		
		50th Queue	25	961		5	354		32	17		60	67	
		95th Queue	53	1313		8	422		63	71		101	129	
	(Signal)	Overall LOS	D (47.2)											
		Approach LOS	D (46.7)			D (46.8)			D (51.0)			D (49.5)		
		Storage	100			100			100			100		
		50th Queue	56	601		10	1183		50	87		41	55	
		95th Queue	201	1065		17	1459		86	162		74	109	
2. 2028 REDUCED DEVELOPMENT PROGRAM	(Signal)	Overall LOS	C (20.7)											
		Approach LOS	C (25.3)			A (2.6)			D (51.1)			D (50.7)		
		Storage												
		50th Queue	18	724		5	323		32	17		61	51	
		95th Queue	39	1177		9	329		64	70		103	112	
	(Signal)	Overall LOS	C (33.2)											
		Approach LOS	D (39.7)			C (23.7)			D (50.6)			D (49.5)		
		Storage												
		50th Queue	38	555		9	1065		47	65		42	46	
		95th Queue	166	998		15	1390		84	136		76	100	

Based on the results in **Table 3**, the intersection of Monroe Drive at Amsterdam Avenue is projected to operate at or above its overall and approach LOS standards (GRTA DRI standards, LOS D or better) during the AM and PM peak hours under Scenario 1 and Scenario 2.

Both scenarios considered proposed roadway improvements along Amsterdam Avenue to add an exclusive left-turn lane, modifying the existing eastbound and westbound approaches within the current curb-to-curb roadway width. Additionally, traffic signal timing was adjusted to account for the new left-turn phases associated with the left-turn lanes and to accommodate the changes in travel patterns associated with future background and development traffic.

Scenario 2 results in improved overall intersection delay in both the AM and PM peak hours. In the AM peak hour, the overall intersection operates at LOS C for both Scenario 1 and Scenario 2 with a 4 second reduction in delay associated with the Reduced Development Program in Scenario 2. In the PM peak hour, the overall intersection operates at LOS D in Scenario 1 and improves to LOS C in Scenario 2 associated with a 14 second reduction in delay.

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Overall LOS Standard: D
Approach LOS Standard: D

Table 4: Level-of-Service Comparison – Monroe Dr at Evelyn St LOS (Average Delay, in seconds)														
Monroe Dr Northbound			Monroe Dr Southbound			Evelyn Street* Eastbound			Worcester Drive Westbound					
L	T	R	L	T	R	L	T	R	L	T	R			
1. 2028 BUILD IMPROVED DRI CONDITIONS (Signal)	AM	Overall LOS	A (8.1)											
		Approach LOS	A (2.3)			B (10.3)			D (48.2)			D (53.9)		
		Storage												
		50th Queue	28	303		1	172		76	0			0	
		95th Queue	40	444		7	474		118	0			0	
	PM	Overall LOS	C (29.3)											
		Approach LOS	A (5.5)			D (43.7)			D (48.8)			D (51.8)		
		Storage												
		50th Queue	10	149			544		93	39			0	
		95th Queue	31	423			1386		142	101			0	
2. 2028 REDUCED DEVELOPMENT PROGRAM (Signal)	AM	Overall LOS	A (7.0)											
		Approach LOS	A (2.4)			A (8.1)			D (49.3)			D (54.4)		
		Storage												
		50th Queue	9	264		1	144		62	0			0	
		95th Queue	19	492		6	392		102	0			0	
	PM	Overall LOS	C (21.4)											
		Approach LOS	A (3.0)			C (32.0)			D (47.2)			D (51.9)		
		Storage												
		50th Queue	4	138			474		53	0			0	
		95th Queue	12	391			1330		91	47			0	

* Evelyn Street is a private road located on property owned by the City of Atlanta Department of Watershed.

Based on the results in **Table 4**, the intersection of Monroe Drive at Evelyn Street is projected to operate at or above its overall and approach LOS standards (GRTA DRI standards, LOS D or better) during the AM and PM peak hours under Scenario 1 and Scenario 2.

Both scenarios considered proposed roadway improvements along Evelyn Street to add an exclusive left-turn lane, modifying the existing eastbound approach with a proposed widening of the roadway to be coordinated with the City of Atlanta Watershed Department, including existing easements associated with access to the SAGE Parking Facility (shared parking deck by Atlanta Botanical Garden and Piedmont Park Conservancy). Additionally, traffic signal timing was adjusted to account for the new left-turn phases associated with the left-turn lanes and to accommodate the changes in travel patterns associated with future background and development traffic.

The Reduced Development Program in Scenario 2 results in a minor improvement in overall intersection delay for each the AM and PM peak hours.

CONCLUSION

This memorandum summarizes the comparison of intersection capacity and level-of-service for the development program studied in the DRI of record and a proposed Reduced Development Program for the intersections of Monroe Drive at Amsterdam Avenue and Monroe Drive at Evelyn Street. The following scenarios were evaluated:

1. 2028 Build Improved DRI Conditions (scenario/results as reported in DRI of record)
 - Full DRI Program incl. 900 residential units, 400,000 SF of Office, and 90,000 SF retail.
2. 2028 Reduced Development Program (alternative scenario)
 - Reduced program incl. 840 residential units, 150,000 SF of Office, and 90,000 SF Retail.

The proposed Reduced Development Program results in a 41% reduction in Daily Net New Trips and a 30% reduction in Daily Driveway Volumes as compared with the *Amsterdam Walk DRI #4065*. Driveway volumes during each the AM and PM peak hours are reduced by approximately 40% with the proposed Reduced Development Program. Driveway volumes are associated with traffic volumes expected entering and exiting each of the study intersections. Amsterdam Avenue and Evelyn Street west of Monroe Drive will serve as site access to and from the development.

Both scenarios considered proposed DRI improvements along Amsterdam Avenue to add exclusive left-turn lanes, modifying the existing eastbound and westbound approaches within the current curb-to-curb roadway width, and adding an exclusive left-turn lane along Evelyn Street eastbound. Additionally, traffic signal timing was adjusted and is recommended to account for the new left-turn phases associated with the left-turn lanes and to accommodate the changes in travel patterns associated with future background and development traffic.

Based on the results of the Synchro intersection capacity analysis, both study intersections are projected to operate at or above overall intersection and individual intersection approach LOS standards (GRTA DRI standards, LOS D or better) during the AM and PM peak hours under both Scenario 1 and Scenario 2.

The proposed Reduced Development Program (Scenario 2) results in improvements to overall intersection delay at both study intersections for both the AM and PM peak hours as compared with the 2028 Build Improved DRI Condition (Scenario 1). At the intersection of Monroe Drive and Amsterdam Avenue, the 14-second improvement in delay during the PM peak hour is associated with an improvement from overall intersection LOS D in Scenario 1 to LOS C in Scenario 2.

Sincerely,

KIMLEY-HORN AND ASSOCIATES, INC.



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Project Engineer



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Project Engineer

Attachments:

- *Trip Generation Calculations – DRI #4065 and Modified Development Program*
- *Synchro Analysis Reports*

Trip Generation Analysis (11th Ed. With 2nd Edition Handbook Daily IC & 3rd Edition AM/PM IC)
Amsterdam Walk DRI
Fulton County, GA

Land Use	Setting	Density	Daily Trips			AM Peak Hour			PM Peak Hour		
			Total	In	Out	Total	In	Out	Total	In	Out
Proposed Project Trips											
221 Multifamily Housing (Mid-Rise)	General Urban/Suburban	700 dwelling units	3,292	1,646	1,646	296	68	228	273	167	106
222 Multifamily Housing (High-Rise)	General Urban/Suburban	200 dwelling units	1,130	565	565	63	21	42	75	42	33
710 General Office Building	General Urban/Suburban	400,000 Sq. Ft. GFA	3,876	1,938	1,938	552	486	66	525	89	436
821 Shopping Plaza (40-150k) - No Supermarket	General Urban/Suburban	90,000 Sq. Ft. GFA	6,076	3,038	3,038	156	97	59	467	229	238
Total Proposed Trips			14,374	7,187	7,187	1,067	672	395	1,340	527	813
Total Net Existing Site Trips (To Be Removed)			5,506	2,753	2,753	236	139	99	493	238	254
Total Gross Project Trips (Proposed - Existing)			8,868	4,434	4,434	831	533	296	847	289	559
Residential Trips			2,728	1,364	1,364	280	69	211	220	132	88
Mixed-Use Reductions			-400	-200	-200	-7	-1	-6	-63	-44	-19
Alternative Mode Reductions			-698	-349	-349	-82	-20	-62	-47	-26	-21
Adjusted Residential Trips			1,630	815	815	191	48	143	110	62	48
Office Trips			2,392	1,196	1,196	430	379	51	332	56	276
Mixed-Use Reductions			-154	-77	-77	-31	-17	-14	-24	-7	-17
Alternative Mode Reductions			-672	-336	-336	-120	-109	-11	-92	-15	-78
Adjusted Office Trips			1,566	783	783	279	253	26	216	34	181
Retail Trips			3,748	1,874	1,874	121	75	46	295	145	150
Mixed-Use Reductions			-506	-253	-253	-30	-16	-14	-69	-27	-42
Alternative Mode Reductions			-972	-486	-486	-27	-18	-10	-68	-35	-32
Pass By Reductions (Based on ITE Rates)			-1,472	-736	-736	0	0	0	-100	-50	-50
Adjusted Retail Trips			798	399	399	64	41	22	58	33	26
Mixed-Use Reductions - TOTAL			-1,060	-530	-530	-68	-34	-34	-156	-78	-78
Alternative Mode Reductions - TOTAL			-2,342	-1,171	-1,171	-229	-147	-83	-207	-76	-131
Pass-By Reductions - TOTAL			-1,472	-736	-736	0	0	0	-100	-50	-50
Net New Trips			3,994	1,997	1,997	534	342	191	384	129	255
Driveway Volumes (Net New + Pass-By)			5,466	2,733	2,733	534	342	191	484	179	305

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Trip Generation Analysis (11th Ed. With 2nd Edition Handbook Daily IC & 3rd Edition AM/PM IC)
Amsterdam Walk DRI Modified for a Reduced Development Program
Fulton County, GA

Land Use	Setting	Density	Daily Trips			AM Peak Hour			PM Peak Hour		
			Total	In	Out	Total	In	Out	Total	In	Out
Proposed Project Trips											
221 Multifamily Housing (Mid-Rise)	General Urban/Suburban	660 dwelling units	3,102	1,551	1,551	279	64	215	258	157	101
222 Multifamily Housing (High-Rise)	General Urban/Suburban	180 dwelling units	1,054	527	527	58	20	38	70	39	31
710 General Office Building	General Urban/Suburban	150,000 Sq. Ft. GFA	1,652	826	826	237	209	28	232	39	193
821 Shopping Plaza (40-150k) - No Supermarket	General Urban/Suburban	90,000 Sq. Ft. GFA	6,076	3,038	3,038	156	97	59	467	229	238
Total Proposed Trips			11,884	5,942	5,942	730	390	340	1,027	464	563
Total Net Existing Site Trips (To Be Removed)			5,506	2,753	2,753	236	139	99	493	238	254
Total Gross Project Trips (Proposed - Existing)			6,378	3,189	3,189	494	251	241	534	226	309
Residential Trips			2,230	1,115	1,115	228	54	174	171	95	76
<i>Mixed-Use Reductions</i>			-336	-168	-168	-6	-1	-5	-50	-36	-14
<i>Alternative Mode Reductions</i>			-568	-284	-284	-67	-16	-51	-36	-18	-19
Adjusted Residential Trips			1,326	663	663	155	37	118	85	41	43
Office Trips			886	443	443	160	135	25	121	19	102
<i>Mixed-Use Reductions</i>			-122	-61	-61	-15	-8	-7	-17	-6	-11
<i>Alternative Mode Reductions</i>			-230	-115	-115	-44	-38	-5	-31	-4	-27
Adjusted Office Trips			534	267	267	101	89	13	73	9	64
Retail Trips			3,260	1,630	1,630	106	62	44	243	112	131
<i>Mixed-Use Reductions</i>			-442	-221	-221	-15	-9	-6	-57	-20	-37
<i>Alternative Mode Reductions</i>			-846	-423	-423	-27	-16	-11	-56	-28	-28
<i>Pass By Reductions (Based on ITE Rates)</i>			-1,470	-735	-735	0	0	0	-100	-50	-50
Adjusted Retail Trips			502	251	251	64	37	27	30	14	16
<i>Mixed-Use Reductions - TOTAL</i>			-900	-450	-450	-36	-18	-18	-124	-62	-62
<i>Alternative Mode Reductions - TOTAL</i>			-1,644	-822	-822	-138	-70	-67	-123	-50	-74
<i>Pass-By Reductions - TOTAL</i>			-1,470	-735	-735	0	0	0	-100	-50	-50
Net New Trips			2,362	1,181	1,181	320	163	158	188	64	123
Driveway Volumes (Net New + Pass-By)			3,832	1,916	1,916	320	163	158	288	114	173

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HCM 6th Signalized Intersection Summary
 4: Monroe Dr & Evelyn St/Worchester Dr

Amsterdam Walk DRI 4065
 Build Improved AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	92	0	32	3	0	5	122	1109	6	7	705	133
Future Volume (veh/h)	92	0	32	3	0	5	122	1109	6	7	705	133
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1856	1870	1870	1870	1870	1870	1870	1870	1841	1870
Adj Flow Rate, veh/h	99	0	34	3	0	5	131	1192	6	8	758	143
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	3	2	2	2	2	2	2	2	4	2
Cap, veh/h	259	0	253	61	14	55	365	1392	7	409	1126	212
Arrive On Green	0.07	0.00	0.16	0.06	0.00	0.06	1.00	1.00	1.00	0.75	0.75	0.75
Sat Flow, veh/h	1781	0	1585	342	247	981	618	1859	9	467	1505	284
Grp Volume(v), veh/h	99	0	34	8	0	0	131	0	1198	8	0	901
Grp Sat Flow(s),veh/h/ln	1781	0	1585	1570	0	0	618	0	1869	467	0	1789
Q Serve(g_s), s	6.2	0.0	2.2	0.0	0.0	0.0	12.1	0.0	0.0	0.5	0.0	30.6
Cycle Q Clear(g_c), s	6.2	0.0	2.2	0.5	0.0	0.0	42.7	0.0	0.0	0.5	0.0	30.6
Prop In Lane	1.00		1.00	0.37		0.62	1.00		0.01	1.00		0.16
Lane Grp Cap(c), veh/h	259	0	253	130	0	0	365	0	1399	409	0	1339
V/C Ratio(X)	0.38	0.00	0.13	0.06	0.00	0.00	0.36	0.00	0.86	0.02	0.00	0.67
Avail Cap(c_a), veh/h	268	0	299	165	0	0	365	0	1399	409	0	1339
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	0.22	0.00	0.22	1.00	0.00	1.00
Uniform Delay (d), s/veh	48.9	0.0	43.3	53.7	0.0	0.0	7.3	0.0	0.0	3.9	0.0	7.6
Incr Delay (d2), s/veh	0.9	0.0	0.2	0.2	0.0	0.0	0.6	0.0	1.6	0.1	0.0	2.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	0.0	0.9	0.2	0.0	0.0	1.4	0.0	0.6	0.1	0.0	11.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.9	0.0	43.5	53.9	0.0	0.0	7.9	0.0	1.6	3.9	0.0	10.4
LnGrp LOS	D	A	D	D	A	A	A	A	A	A	A	B
Approach Vol, veh/h		133			8			1329			909	
Approach Delay, s/veh		48.2			53.9			2.3			10.3	
Approach LOS		D			D			A			B	
Timer - Assigned Phs		2		4		6	7	8				
Phs Duration (G+Y+Rc), s		95.4		24.6		95.4	12.4	12.2				
Change Period (Y+Rc), s		5.6		5.4		5.6	4.5	5.4				
Max Green Setting (Gmax), s		86.4		22.6		86.4	8.5	9.6				
Max Q Clear Time (g_c+I1), s		32.6		4.2		44.7	8.2	2.5				
Green Ext Time (p_c), s		20.8		0.1		31.2	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay				8.1								
HCM 6th LOS				A								

HCM 6th Signalized Intersection Summary
5: Monroe Dr & Amsterdam Ave

Amsterdam Walk DRI 4065
Build Improved PM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Volume (veh/h)	75	57	140	62	50	48	130	854	87	55	1179	68
Future Volume (veh/h)	75	57	140	62	50	48	130	854	87	55	1179	68
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.96		0.93	0.96		0.93	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1856	1870	1841	1870	1841	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	79	60	74	65	53	23	137	899	89	58	1241	70
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	2	4	2	4	2	2	2	2	2	2	2
Cap, veh/h	237	86	106	183	127	55	109	1060	105	242	1130	64
Arrive On Green	0.05	0.12	0.12	0.04	0.11	0.11	0.02	0.63	0.63	0.07	1.00	1.00
Sat Flow, veh/h	1767	730	900	1781	1185	514	1781	1672	166	1781	1752	99
Grp Volume(v), veh/h	79	0	134	65	0	76	137	0	988	58	0	1311
Grp Sat Flow(s),veh/h/ln	1767	0	1631	1781	0	1699	1781	0	1837	1781	0	1851
Q Serve(g_s), s	4.7	0.0	9.5	3.9	0.0	5.0	2.9	0.0	51.1	1.3	0.0	75.7
Cycle Q Clear(g_c), s	4.7	0.0	9.5	3.9	0.0	5.0	2.9	0.0	51.1	1.3	0.0	75.7
Prop In Lane	1.00		0.55	1.00		0.30	1.00		0.09	1.00		0.05
Lane Grp Cap(c), veh/h	237	0	191	183	0	183	109	0	1165	242	0	1194
V/C Ratio(X)	0.33	0.00	0.70	0.35	0.00	0.42	1.25	0.00	0.85	0.24	0.00	1.10
Avail Cap(c_a), veh/h	460	0	333	202	0	183	109	0	1165	325	0	1194
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.26	0.00	0.26
Uniform Delay (d), s/veh	44.4	0.0	50.9	45.2	0.0	50.0	32.7	0.0	17.4	18.1	0.0	0.0
Incr Delay (d2), s/veh	0.8	0.0	3.4	1.2	0.0	2.1	169.2	0.0	7.8	0.0	0.0	48.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	0.0	4.1	1.8	0.0	2.3	7.1	0.0	22.4	0.7	0.0	15.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.2	0.0	54.4	46.4	0.0	52.2	202.0	0.0	25.2	18.2	0.0	48.0
LnGrp LOS	D	A	D	D	A	D	F	A	C	B	A	F
Approach Vol, veh/h		213			141			1125			1369	
Approach Delay, s/veh		51.0			49.5			46.7			46.8	
Approach LOS		D			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.0	82.7	10.9	18.4	9.4	81.4	9.7	19.6				
Change Period (Y+Rc), s	5.1	* 5.3	4.5	5.5	5.1	* 5.3	4.5	5.5				
Max Green Setting (Gmax), s	2.9	* 66	21.5	9.5	9.9	* 59	6.5	24.5				
Max Q Clear Time (g_c+14), s	14.9	77.7	6.7	7.0	3.3	53.1	5.9	11.5				
Green Ext Time (p_c), s	0.0	0.0	0.1	0.1	0.0	4.5	0.0	0.5				

Intersection Summary

HCM 6th Ctrl Delay	47.2
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
5: Monroe Dr & Amsterdam Ave

Amsterdam Walk DRI 4065
Build Improved AM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	24	93	90	57	82	112	1094	50	29	669	52
Future Volume (veh/h)	50	24	93	90	57	82	112	1094	50	29	669	52
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.97	0.97		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1870	1841	1870	1870	1870	1841	1826	1870	1870	1693	1856	1870
Adj Flow Rate, veh/h	51	24	19	92	58	42	114	1116	50	30	683	51
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	4	2	2	2	4	5	2	2	14	3	2
Cap, veh/h	181	73	58	236	101	73	588	1177	53	143	1105	83
Arrive On Green	0.04	0.08	0.08	0.06	0.10	0.10	0.04	0.66	0.66	0.05	1.00	1.00
Sat Flow, veh/h	1781	937	742	1781	997	722	1739	1776	80	1612	1705	127
Grp Volume(v), veh/h	51	0	43	92	0	100	114	0	1166	30	0	734
Grp Sat Flow(s),veh/h/ln	1781	0	1678	1781	0	1719	1739	0	1856	1612	0	1832
Q Serve(g_s), s	3.1	0.0	2.9	5.6	0.0	6.7	2.6	0.0	68.4	0.7	0.0	0.0
Cycle Q Clear(g_c), s	3.1	0.0	2.9	5.6	0.0	6.7	2.6	0.0	68.4	0.7	0.0	0.0
Prop In Lane	1.00		0.44	1.00		0.42	1.00		0.04	1.00		0.07
Lane Grp Cap(c), veh/h	181	0	131	236	0	175	588	0	1230	143	0	1188
V/C Ratio(X)	0.28	0.00	0.33	0.39	0.00	0.57	0.19	0.00	0.95	0.21	0.00	0.62
Avail Cap(c_a), veh/h	222	0	273	236	0	279	660	0	1230	180	0	1188
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.75	0.00	0.75
Uniform Delay (d), s/veh	48.6	0.0	52.3	47.2	0.0	51.4	6.2	0.0	18.4	25.6	0.0	0.0
Incr Delay (d2), s/veh	0.8	0.0	1.1	1.1	0.0	4.2	0.1	0.0	15.9	0.2	0.0	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.0	1.3	2.6	0.0	3.1	0.9	0.0	31.6	0.5	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.5	0.0	53.4	48.2	0.0	55.6	6.3	0.0	34.2	25.8	0.0	1.8
LnGrp LOS	D	A	D	D	A	E	A	A	C	C	A	A
Approach Vol, veh/h		94			192			1280			764	
Approach Delay, s/veh		51.3			52.1			31.7			2.8	
Approach LOS		D			D			C			A	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	0.0	83.1	9.2	17.7	8.3	84.8	12.0	14.9				
Change Period (Y+Rc), s	5.1	* 5.3	5.0	5.5	5.1	* 5.3	5.0	5.5				
Max Green Setting (Gmax), s	0.0	* 63	7.0	19.5	5.9	* 67	7.0	19.5				
Max Q Clear Time (g_c+14), s	0.0	2.0	5.1	8.7	2.7	70.4	7.6	4.9				
Green Ext Time (p_c), s	0.0	14.4	0.0	0.4	0.0	0.0	0.0	0.1				

Intersection Summary

HCM 6th Ctrl Delay	24.7
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
4: Monroe Dr & Evelyn St/Worchester Dr

Amsterdam Walk DRI 4065
Build Improved PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	0	148	1	0	6	44	936	0	0	1152	107
Future Volume (veh/h)	110	0	148	1	0	6	44	936	0	0	1152	107
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	418	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	120	0	161	1	0	7	48	1017	0	0	1252	116
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
Percent Heavy Veh, %	2	2	2	100	2	2	2	2	2	2	2	2
Cap, veh/h	271	0	277	38	10	104	60	1372	0	60	1236	115
Arrive On Green	0.06	0.00	0.17	0.07	0.00	0.07	1.00	1.00	0.00	0.00	0.73	0.73
Sat Flow, veh/h	1781	0	1585	61	138	1390	397	1870	0	554	1685	156
Grp Volume(v), veh/h	120	0	161	8	0	0	48	1017	0	0	0	1368
Grp Sat Flow(s),veh/h/ln	1781	0	1585	1588	0	0	397	1870	0	554	0	1841
Q Serve(g_s), s	7.0	0.0	11.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	88.0
Cycle Q Clear(g_c), s	7.0	0.0	11.2	0.6	0.0	0.0	88.0	0.0	0.0	0.0	0.0	88.0
Prop In Lane	1.00		1.00	0.12		0.87	1.00		0.00	1.00		0.08
Lane Grp Cap(c), veh/h	271	0	277	152	0	0	60	1372	0	60	0	1351
V/C Ratio(X)	0.44	0.00	0.58	0.05	0.00	0.00	0.80	0.74	0.00	0.00	0.00	1.01
Avail Cap(c_a), veh/h	271	0	285	160	0	0	60	1372	0	60	0	1351
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	0.00	0.49	0.49	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	48.4	0.0	45.5	51.6	0.0	0.0	44.0	0.0	0.0	0.0	0.0	16.0
Incr Delay (d2), s/veh	1.1	0.0	2.8	0.1	0.0	0.0	40.5	1.8	0.0	0.0	0.0	27.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	0.0	4.7	0.2	0.0	0.0	2.1	0.7	0.0	0.0	0.0	40.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.5	0.0	48.3	51.8	0.0	0.0	84.6	1.8	0.0	0.0	0.0	43.7
LnGrp LOS	D	A	D	D	A	A	F	A	A	A	A	F
Approach Vol, veh/h		281			8			1065				1368
Approach Delay, s/veh		48.8			51.8			5.5				43.7
Approach LOS		D			D			A				D
Timer - Assigned Phs		2		4		6	7	8				
Phs Duration (G+Y+Rc), s		93.6		26.4		93.6	12.0	14.4				
Change Period (Y+Rc), s		5.6		5.4		5.6	5.0	5.4				
Max Green Setting (Gmax), s		87.4		21.6		87.4	7.0	9.6				
Max Q Clear Time (g_c+I1), s		90.0		13.2		90.0	9.0	2.6				
Green Ext Time (p_c), s		0.0		0.5		0.0	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay				29.3								
HCM 6th LOS				C								

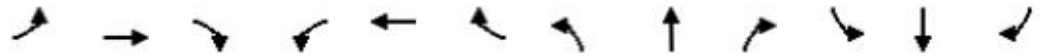
HCM 6th Signalized Intersection Summary
 5: Monroe Dr & Amsterdam Ave

2028 Reduced Program AM
 2. 2028 Build Imp Reduced Program AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	49	24	84	90	47	82	83	1027	50	29	663	43
Future Volume (veh/h)	49	24	84	90	47	82	83	1027	50	29	663	43
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.97	0.97		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1841	1870	1870	1870	1841	1811	1870	1870	1693	1856	1870
Adj Flow Rate, veh/h	50	24	18	92	48	33	85	1048	50	30	677	42
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	4	2	2	2	4	6	2	2	14	3	2
Cap, veh/h	196	75	56	237	104	72	588	1174	56	183	1124	70
Arrive On Green	0.03	0.08	0.08	0.06	0.10	0.10	0.04	0.66	0.66	0.05	1.00	1.00
Sat Flow, veh/h	1781	962	721	1781	1021	702	1725	1770	84	1612	1728	107
Grp Volume(v), veh/h	50	0	42	92	0	81	85	0	1098	30	0	719
Grp Sat Flow(s),veh/h/ln	1781	0	1683	1781	0	1723	1725	0	1855	1612	0	1836
Q Serve(g_s), s	3.1	0.0	2.8	5.6	0.0	5.3	1.9	0.0	58.7	0.7	0.0	0.0
Cycle Q Clear(g_c), s	3.1	0.0	2.8	5.6	0.0	5.3	1.9	0.0	58.7	0.7	0.0	0.0
Prop In Lane	1.00		0.43	1.00		0.41	1.00		0.05	1.00		0.06
Lane Grp Cap(c), veh/h	196	0	132	237	0	176	588	0	1230	183	0	1193
V/C Ratio(X)	0.26	0.00	0.32	0.39	0.00	0.46	0.14	0.00	0.89	0.16	0.00	0.60
Avail Cap(c_a), veh/h	238	0	273	237	0	280	663	0	1230	220	0	1193
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.83	0.00	0.83
Uniform Delay (d), s/veh	48.6	0.0	52.3	47.2	0.0	50.8	6.1	0.0	16.7	20.4	0.0	0.0
Incr Delay (d2), s/veh	0.7	0.0	1.0	1.0	0.0	2.7	0.0	0.0	10.1	0.1	0.0	1.9
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	1.2	2.6	0.0	2.4	0.7	0.0	25.9	0.4	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	49.3	0.0	53.3	48.2	0.0	53.4	6.1	0.0	26.8	20.5	0.0	1.9
LnGrp LOS	D		D	D		D	A		C	C		A
Approach Vol, veh/h		92			173			1183				749
Approach Delay, s/veh		51.1			50.7			25.3				2.6
Approach LOS		D			D			C				A
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.8	83.3	9.1	17.8	8.3	84.9	12.0	14.9				
Change Period (Y+Rc), s	5.1	5.3	5.0	5.5	5.1	5.3	5.0	5.5				
Max Green Setting (Gmax), s	9.9	62.7	7.0	19.5	5.9	66.7	7.0	19.5				
Max Q Clear Time (g_c+I1), s	3.9	2.0	5.1	7.3	2.7	60.7	7.6	4.8				
Green Ext Time (p_c), s	0.0	13.9	0.0	0.4	0.0	5.1	0.0	0.1				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh				20.7								
HCM 6th LOS				C								

HCM 6th Signalized Intersection Summary
5: Monroe Dr & Amsterdam Ave

2028 Reduced Program PM
2. 2028 Build Imp Reduced Program PM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Volume (veh/h)	69	49	120	62	44	48	115	838	87	55	1129	64
Future Volume (veh/h)	69	49	120	62	44	48	115	838	87	55	1129	64
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.95		0.93	0.95		0.92	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1870	1841	1870	1826	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	73	52	54	65	46	17	121	882	89	58	1188	65
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	2	4	2	5	2	2	2	2	2	2	2
Cap, veh/h	231	86	89	193	125	46	103	1075	108	265	1151	63
Arrive On Green	0.05	0.11	0.11	0.04	0.10	0.10	0.02	0.64	0.64	0.07	1.00	1.00
Sat Flow, veh/h	1767	805	836	1781	1239	458	1781	1669	168	1781	1755	96
Grp Volume(v), veh/h	73	0	106	65	0	63	121	0	971	58	0	1253
Grp Sat Flow(s),veh/h/ln	1767	0	1640	1781	0	1697	1781	0	1837	1781	0	1851
Q Serve(g_s), s	4.4	0.0	7.4	3.9	0.0	4.2	2.9	0.0	47.9	1.3	0.0	78.7
Cycle Q Clear(g_c), s	4.4	0.0	7.4	3.9	0.0	4.2	2.9	0.0	47.9	1.3	0.0	78.7
Prop In Lane	1.00		0.51	1.00		0.27	1.00		0.09	1.00		0.05
Lane Grp Cap(c), veh/h	231	0	175	193	0	171	103	0	1183	265	0	1214
V/C Ratio(X)	0.32	0.00	0.61	0.34	0.00	0.37	1.17	0.00	0.82	0.22	0.00	1.03
Avail Cap(c_a), veh/h	460	0	335	212	0	171	103	0	1183	349	0	1214
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.33	0.00	0.33
Uniform Delay (d), s/veh	45.3	0.0	51.2	45.8	0.0	50.4	34.5	0.0	16.1	16.3	0.0	0.0
Incr Delay (d2), s/veh	0.8	0.0	2.5	1.0	0.0	1.9	142.9	0.0	6.4	0.1	0.0	24.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.0	3.2	1.8	0.0	1.9	6.0	0.0	20.6	0.6	0.0	8.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	46.0	0.0	53.7	46.8	0.0	52.3	177.5	0.0	22.6	16.4	0.0	24.0
LnGrp LOS	D		D	D		D	F		C	B		F
Approach Vol, veh/h		179			128			1092				1311
Approach Delay, s/veh		50.6			49.5			39.7				23.7
Approach LOS		D			D			D				C
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.0	84.0	10.4	17.6	9.4	82.6	9.7	18.3				
Change Period (Y+Rc), s	5.1	5.3	4.5	5.5	5.1	5.3	4.5	5.5				
Max Green Setting (Gmax), s	2.9	65.7	21.5	9.5	9.9	58.7	6.5	24.5				
Max Q Clear Time (g_c+I1), s	4.9	80.7	6.4	6.2	3.3	49.9	5.9	9.4				
Green Ext Time (p_c), s	0.0	0.0	0.1	0.1	0.0	6.6	0.0	0.4				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh												33.2
HCM 6th LOS												C
Notes												
User approved pedestrian interval to be less than phase max green.												

HCM 6th Signalized Intersection Summary
 4: Monroe Dr & Evelyn St/Worchester Dr

2028 Reduced Program AM
 2. 2028 Build Imp Reduced Program AM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷			↶		↶	↷		↶	↷	
Traffic Volume (veh/h)	76	0	26	3	0	5	55	1108	6	7	696	69
Future Volume (veh/h)	76	0	26	3	0	5	55	1108	6	7	696	69
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1841	1870	1870	1870	1870	1870	1870	1870	1841	1870
Adj Flow Rate, veh/h	82	0	28	3	0	5	59	1191	6	8	748	74
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	4	2	2	2	2	2	2	2	4	2
Cap, veh/h	235	0	231	59	14	52	436	1418	7	416	1256	124
Arrive On Green	0.06	0.00	0.15	0.05	0.00	0.05	1.00	1.00	1.00	0.76	0.76	0.76
Sat Flow, veh/h	1781	0	1585	333	258	985	666	1859	9	467	1648	163
Grp Volume(v), veh/h	82	0	28	8	0	0	59	0	1197	8	0	822
Grp Sat Flow(s),veh/h/ln	1781	0	1585	1576	0	0	666	0	1869	467	0	1811
Q Serve(g_s), s	5.2	0.0	1.8	0.0	0.0	0.0	3.1	0.0	0.0	0.5	0.0	23.7
Cycle Q Clear(g_c), s	5.2	0.0	1.8	0.5	0.0	0.0	26.8	0.0	0.0	0.5	0.0	23.7
Prop In Lane	1.00		1.00	0.37		0.62	1.00		0.01	1.00		0.09
Lane Grp Cap(c), veh/h	235	0	231	124	0	0	436	0	1425	416	0	1381
V/C Ratio(X)	0.35	0.00	0.12	0.06	0.00	0.00	0.14	0.00	0.84	0.02	0.00	0.60
Avail Cap(c_a), veh/h	262	0	299	165	0	0	436	0	1425	416	0	1381
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	0.36	0.00	0.36	1.00	0.00	1.00
Uniform Delay (d), s/veh	50.0	0.0	44.6	54.1	0.0	0.0	3.5	0.0	0.0	3.4	0.0	6.2
Incr Delay (d2), s/veh	0.9	0.0	0.2	0.2	0.0	0.0	0.2	0.0	2.3	0.1	0.0	1.9
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	0.0	0.7	0.2	0.0	0.0	0.4	0.0	0.9	0.1	0.0	8.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	50.9	0.0	44.8	54.4	0.0	0.0	3.7	0.0	2.3	3.5	0.0	8.1
LnGrp LOS	D		D	D			A		A	A		A
Approach Vol, veh/h		110			8			1256				830
Approach Delay, s/veh		49.3			54.4			2.4				8.1
Approach LOS		D			D			A				A
Timer - Assigned Phs		2		4		6	7	8				
Phs Duration (G+Y+Rc), s		97.1		22.9		97.1	11.2	11.7				
Change Period (Y+Rc), s		5.6		5.4		5.6	4.5	5.4				
Max Green Setting (Gmax), s		86.4		22.6		86.4	8.5	9.6				
Max Q Clear Time (g_c+I1), s		25.7		3.8		28.8	7.2	2.5				
Green Ext Time (p_c), s		18.1		0.1		37.5	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh				7.0								
HCM 6th LOS				A								

HCM 6th Signalized Intersection Summary
 4: Monroe Dr & Evelyn St/Worchester Dr

2028 Reduced Program PM
 2. 2028 Build Imp Reduced Program PM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷			↶		↶	↷		↶	↷	
Traffic Volume (veh/h)	64	0	98	1	0	6	28	930	0	0	1148	81
Future Volume (veh/h)	64	0	98	1	0	6	28	930	0	0	1148	81
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	418	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	70	0	107	1	0	7	30	1011	0	0	1248	88
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
Percent Heavy Veh, %	2	2	2	100	2	2	2	2	2	2	2	2
Cap, veh/h	250	0	258	38	10	102	93	1395	0	60	1287	91
Arrive On Green	0.05	0.00	0.16	0.07	0.00	0.07	1.00	1.00	0.00	0.00	0.75	0.75
Sat Flow, veh/h	1781	0	1585	62	137	1393	410	1870	0	558	1726	122
Grp Volume(v), veh/h	70	0	107	8	0	0	30	1011	0	0	0	1336
Grp Sat Flow(s),veh/h/ln	1781	0	1585	1591	0	0	410	1870	0	558	0	1848
Q Serve(g_s), s	4.3	0.0	7.3	0.0	0.0	0.0	8.7	0.0	0.0	0.0	0.0	79.7
Cycle Q Clear(g_c), s	4.3	0.0	7.3	0.6	0.0	0.0	88.4	0.0	0.0	0.0	0.0	79.7
Prop In Lane	1.00		1.00	0.12		0.87	1.00		0.00	1.00		0.07
Lane Grp Cap(c), veh/h	250	0	258	151	0	0	93	1395	0	60	0	1378
V/C Ratio(X)	0.28	0.00	0.42	0.05	0.00	0.00	0.32	0.72	0.00	0.00	0.00	0.97
Avail Cap(c_a), veh/h	269	0	285	161	0	0	93	1395	0	60	0	1378
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	0.54	0.54	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	48.3	0.0	45.1	51.8	0.0	0.0	39.3	0.0	0.0	0.0	0.0	14.0
Incr Delay (d2), s/veh	0.6	0.0	1.1	0.1	0.0	0.0	4.8	1.8	0.0	0.0	0.0	18.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.0	3.0	0.2	0.0	0.0	1.0	0.7	0.0	0.0	0.0	33.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	48.9	0.0	46.2	51.9	0.0	0.0	44.2	1.8	0.0	0.0	0.0	32.0
LnGrp LOS	D		D	D			D	A				C
Approach Vol, veh/h		177			8			1041				1336
Approach Delay, s/veh		47.2			51.9			3.0				32.0
Approach LOS		D			D			A				C
Timer - Assigned Phs		2		4		6	7	8				
Phs Duration (G+Y+Rc), s		95.1		24.9		95.1	10.7	14.2				
Change Period (Y+Rc), s		5.6		5.4		5.6	5.0	5.4				
Max Green Setting (Gmax), s		87.4		21.6		87.4	7.0	9.6				
Max Q Clear Time (g_c+I1), s		81.7		9.3		90.4	6.3	2.6				
Green Ext Time (p_c), s		5.4		0.4		0.0	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh				21.4								
HCM 6th LOS				C								