TRAFFIC IMPACT STUDY

For

Proposed Mixed-Use Building

Property Located at:

326-330 MLK Drive
Block 22605 – Lot 32
City of Jersey City, Hudson County, NJ

Prepared by:

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2087-99-005TE

CGH

INTRODUCTION

It is proposed to construct a 6-story mixed-use building on a parcel of land currently undeveloped, located along the east side of MLK Drive between Claremont Avenue and Orient Avenue in the City of Jersey City, Hudson County, New Jersey (see Figure 1 in Appendix A). The site is designated as Block 22605 – Lot 32 on the City Tax Maps. It is proposed to construct a 28-unit residential building with 1,077 SF of ground floor commercial space ("The Project"). No vehicular access to the site is currently provided and it is proposed to maintain this condition. No on-site parking will be provided.

Dynamic Traffic, LLC has been retained to prepare this study to assess the traffic impact associated with the construction of The Project on the adjacent roadway network. This study documents the methodology, analyses, findings and conclusions of our study and includes:

- A detailed field inspection was conducted to obtain an inventory of existing roadway geometry, traffic control, and location and geometry of existing driveways and intersections.

- Existing traffic data was collected via manual turning movement (MTM) counts during the weekday AM and weekday PM peak periods at the intersection of MLK Drive and Claremont Avenue.

- Projections of traffic to be generated by the proposed development were prepared utilizing trip generation data as published by the Institute of Transportation Engineers. Site traffic was then assigned to the adjacent street system based upon the anticipated directional distribution.

- Capacity analyses were conducted for the Existing, No Build, and Build conditions for the study intersections.

EXISTING CONDITIONS

A review of the existing roadway conditions near the proposed site was conducted to provide the basis for assessing the traffic impact of the development. This included field investigations of the surrounding roadways and intersections, collection of traffic volume data, and extensive analyses.

Existing Roadway Conditions

The following are descriptions of the roadways in the study area:

MLK Drive is an Urban Major Collector roadway under Jersey City jurisdiction with a general north/south orientation. In the vicinity of the site the posted speed limit is 25 MPH and the roadway provides one travel lane in each direction. On-street parking is permitted along both sides of the roadway with curb and sidewalk provided along both sides of the roadway. MLK Drive provides a straight horizontal alignment and a relatively flat vertical alignment. The land uses along MLK Drive in the vicinity of The Project are a mix of commercial and residential.

Claremont Avenue is a local roadway under Jersey City jurisdiction with a general east/west orientation. In the vicinity of the site the posted speed limit is 25 MPH and the roadway provides one travel lane in each direction. On-street parking is permitted along both sides of the roadway with curb and sidewalk provided along both sides of the roadway. Claremont Avenue provides a straight horizontal alignment and a relatively flat vertical alignment. The land uses along Claremont Avenue in the vicinity of The Project are a mix of commercial and residential.

Existing Mass Transit Facilities

NJ Transit provides significant bus and train service in the immediate area surrounding the site. Bus service within ¾ of a mile from the site is provided via lines 1, 6, 10, 80, 81, 87, 119 which provide service to destinations such as Journal Square, Exchange Place, Bayonne, Newark and New York City. The nearest bus stop is located directly south of the site along MLK Drive. Train service is provided at the MLK Drive Light Rail Station, located approximately 0.20 miles feet northeast of the site. This station provides service to various locations throughout downtown Jersey City as well as Hoboken Terminal, which provides access to numerous modes of mass transportation such as NJ Transit bus and rail lines, the Hoboken PATH station and the Hoboken ferry. These mass transportation options collectively provide service to various destinations throughout central and northern New Jersey as well as World Trade Center and 33rd Street in New York City.

Existing Pedestrian and Bicycle Facilities

Pedestrian and bicycle facilities are provided in the form of sidewalk along both sides of Claremont Avenue and MLK Drive. The sidewalks along both of these roadways extend throughout the immediate area surrounding the site and are interconnected with other streets well beyond the block in which the site is located, providing a very accessible network of pedestrian and bicycle facilities. The Jersey City Bicycle Master Plan also proposes a new shared use lane along both sides of MLK Drive as well as a neighborhood greenway along Claremont Avenue.

Jersey City School Travel Plan

The Jersey City School Travel Plan does not propose any improvements in the immediate vicinity of the site, however numerous improvement measures throughout the City are identified which could potentially be implemented. According to the School Travel Plan, these improvements could include updated crosswalk markings, updated curb ramps and truncated domes, and installing delineators.

Vision Zero Action Report

The Vision Zero Action Report identifies roadways within the City where fatal and serious injury crashes are most common, which is referred to as the High Injury Network (HIN). It is important to note that MLK Drive is included on the HIN. Therefore, numerous improvement measures were identified which could potentially be implemented along MLK Drive. According to the Vision Zero Action Report, these improvements could include the installation of traffic calming devices, neighborhood slow zones and crosswalk visibility features.

Pedestrian Enhancement Plan

The Pedestrian Enhancement Plan does not propose any specific improvements in the immediate vicinity of the site, however numerous improvement measures throughout the City are identified which could potentially be implemented. According to the Pedestrian Enhancement Plan, these improvements could include pedestrian countdown timers and audible signals at traffic signals, pedestrian activated Rectangular Rapid Flash Beacons (RRFB) at mid-block crosswalks, updated crosswalk visibility features, raised intersections, curb extensions, improved bicycle and transit facilities and streetscape enhancements.

On-Street Parking

The on-street parking was reviewed along the block in which the subject property is located. The following are descriptions of the surrounding roadways:

- MLK Drive from Claremont Avenue to Orient Avenue can park 7 cars.
- Claremont Avenue from MLK Drive to Rose Avenue can park 14 cars.
- Orient Avenue from MLK Drive to Rose Avenue can park 20 cars.
- Rose Avenue from Claremont Avenue to Orient Avenue can park 8 cars.

The following Figure 1 illustrates the existing parking regulations along the surrounding roadways.

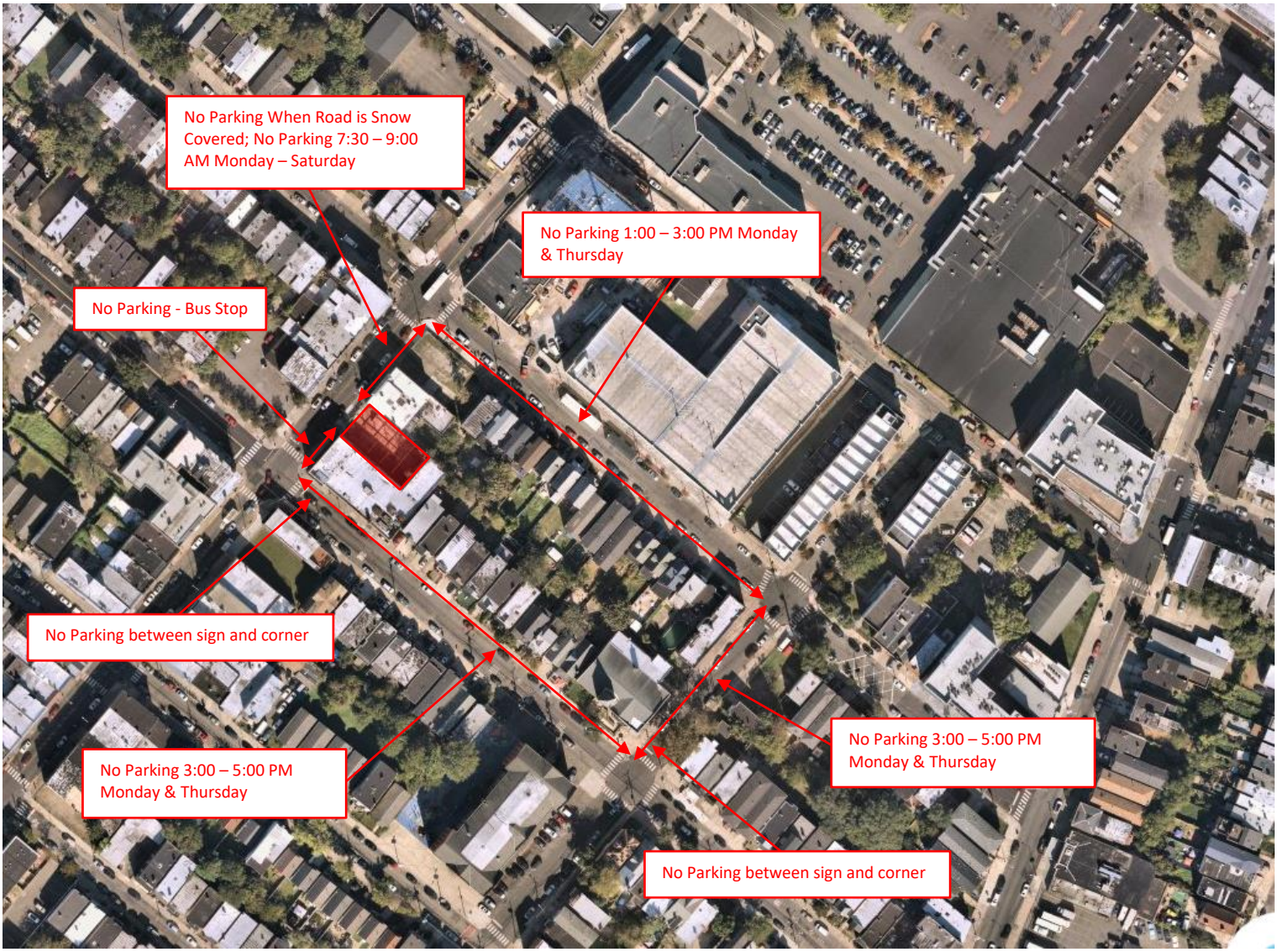


Figure 1 – Surrounding Roadways On-Street Parking Restrictions

Existing Traffic Volumes

Manual turning movement (MTM) counts were conducted on Wednesday, December 15, 2021 from 7:00 – 9:00 AM and from 4:30 – 6:30 PM at the intersection of MLK Drive and Claremont Avenue. Review of the collected traffic data reveals that the weekday morning peak street hour (PSH) occurs between 8:00 – 9:00 AM and the weekday evening PSH occurs between 4:30 – 5:30 PM. Figure 2, located in Appendix A, shows the existing peak hour traffic volumes at the study intersections. All traffic counts are contained in Appendix B.

Existing Capacity Analysis

The methodology utilized in the capacity analyses is described in the *Highway Capacity Manual*, published by the Transportation Research Board. In general, the term Level of Service (LOS) is used to provide a "qualitative" evaluation of capacity based upon certain "quantitative" calculations related to empirical values, such as traffic volume and intersection control.

At signalized intersections, factors that affect the various approach capacities include width of approach, number of lanes, signal "green time", turning percentages, truck volumes, etc. However, delays cannot be related to capacity in a simple one-to-one fashion. For example, it is possible to have delays in the Level of Service "F" range without exceeding roadway capacity. Substantial delays can exist without exceeding capacity if one or more of the following conditions exist: long signal cycle lengths; a particular traffic movement experiences a long red time; or progressive movement for a particular lane group is poor. Table I describes the Level of Service ranges for signalized intersections.

Table I
Level of Service Criteria
for Signalized Intersections

Level of Service	Average Control Delay (seconds per vehicle)
A	0.0 to 10.0
B	10.1 to 20.0
C	20.1 to 35.0
D	35.1 to 55.0
E	55.1 to 80.0
F	greater than 80.0

All capacity analyses were performed utilizing Synchro 11 software. Table II summarizes the existing Levels of Service (LOS) and delays. All capacity analysis calculation worksheets are contained in Appendix C.

Table II
Existing Levels of Service

Intersection	Direction/ Movement		AM PSH	PM PSH
MLK Drive & Claremont Avenue	EB	LTR	B (15)	B (15)
	WB	LTR	B (16)	B (16)
	NB	LTR	A (10)	A (9)
	SB	LTR	A (9)	A (9)
	Overall		**B (11)**	**B (11)**

A (#) - Signalized Intersection Level of Service (seconds of delay per vehicle)

The following are discussions pertaining to each of the existing intersections analyzed. It should be noted that the existing percentage of trucks and peak hour factors were used in the existing analysis.

MLK Drive and Claremont Avenue

Claremont Avenue intersects MLK Drive to form a four-leg intersection controlled by a two-phase traffic signal. The eastbound and westbound approaches of Claremont Avenue each provide a shared left turn/through/right turn lane. The northbound and southbound approaches of MLK Drive each provide a shared left turn/through/right turn lane.

A review of the existing analysis reveals that the intersection operates at overall Level of Service "B" during the analyzed peak periods. See Table II for the individual movement Levels of Service and delays.

FUTURE CONDITIONS

Traffic volumes and operational analyses were developed for both the No Build and Build conditions. The No Build conditions provide a baseline for assessing the impact of the site development traffic on the roadway system. The process of developing the No Build and Build traffic volumes and the subsequent analyses is outlined below.

Regardless of whether the subject site is developed or not, traffic volumes on the surrounding roadways are expected to increase as a result of developments throughout the region. A growth rate for roadways within the study area was obtained from the NJDOT Annual Background Growth Rate Table, which indicates a growth rate of 1.5% per year.

Future No Build traffic volumes were developed by applying the background growth rate of 1.5% for two (2) years to the study area roadways existing traffic volumes. Figure 3, in Appendix A, shows the Future No Build traffic volumes.

Traffic Generation

Vehicular and walk/bike/transit trip generation projections for The Project were prepared utilizing trip generation research data as published under Land Use Code (LUC) 231 – Mid-Rise Residential with Ground-Floor Commercial in the Institute of Transportation Engineers' (ITE) publication, *Trip Generation, 11th Edition.* This publication sets forth trip generation rates based on traffic counts conducted at research sites throughout the country. It should be noted that the Dense Multi-Use Urban trip generation was utilized due to the urban nature of the site setting. The following table summarizes the new vehicular and walk/bike/transit trips generated from the Project utilizing the ITE data.

Table III
Trip Generation

Land Use	Trip Type	AM PSH			PM PSH		
		In	Out	Total	In	Out	Total
28 Mid-Rise Units w/ Ground-Floor Commercial	Vehicle	2	4	6	4	4	8
	Walk/Bike/Transit	7	12	19	18	23	41
	Total	**9**	**16**	**25**	**22**	**27**	**49**

As mentioned previously, within ¾ of a mile from the site there is access to NJ Transit bus lines 1, 6, 10, 80, 81, 87, 119 as well as the MLK Drive Light Rail Station. This proximity to mass transit will likely be an attractive feature to future residential tenants. This effect is accounted for by utilizing the dense multi-use urban setting.

Since no appreciable increase in vehicular trip generation is projected to be generated by the site, the operational conditions of the surrounding roadway network are not anticipated to change. The delays and queues in the area will remain as existing and it is likely that there will be no perceptible change in the traffic conditions with the construction of the proposed project. In fact, both ITE and NJDOT define a "significant" increase in traffic as 100 or more peak hour trips. As shown in Table III, the subject property is projected to generate less than 10% of this threshold.

Once the magnitude of traffic to be generated by the site is known, it is necessary to assign that traffic to the adjacent street system. The distribution of new traffic to the surrounding roadways is based on the location of primary arterial roadways, major signalized intersections and existing traffic patterns. Located in Appendix A, Figure 4 illustrates the percent distribution of vehicle site generated trips, Figure 5 illustrates the vehicle site generated volumes, Figure 6 illustrates the percent distribution of walk/bike/transit site generated trips, Figure 7 illustrates the walk/bike/transit site generated volumes, and Figure 8 illustrates the total site generated volumes assigned to the study area network. The site generated volumes were then added to the Future No Build traffic volumes to generate the Future Build traffic volumes, which are shown in Figure 9.

Future Capacity Analysis

Operational conditions at the study intersections were analyzed under the No Build and Build conditions and are summarized in Table IV below.

Table IV
Future Levels of Service

Intersection	Direction/ Movement		AM PSH		PM PSH	
			No Build	Build	No Build	Build
MLK Drive and Claremont Avenue	EB	LTR	B (15)	B (15)	B (15)	B (15)
	WB	LTR	B (17)	B (17)	B (16)	B (16)
	NB	LTR	B (10)	B (10)	A (9)	A (9)
	SB	LTR	A (9)	A (9)	A (9)	A (9)
	Overall		**B (12)**	**B (12)**	**B (11)**	**B (11)**

A (#) - Signalized Intersection Level of Service (seconds of delay per vehicle)

MLK Drive and Claremont Avenue

With the addition of site generated traffic, the intersection is anticipated to continue operating at overall Level of Service "B" during the analyzed peak hours. See Table IV for the individual movement Levels of Service and delays.

SITE PLAN

Site Access and Circulation

The site plan was reviewed with respect to the site access and on-site circulation design. As noted previously, no vehicular access to The Project will be provided.

Parking

The Jackson Hill Redevelopment Plan states the following with regards to parking requirements:

> *"Curb cuts are prohibited on Martin Luther King Jr. Drive, Monticello Avenue, Ocean Avenue and Communipaw Avenue. This shall result in zero parking permitted on lots with no other access to alternative right-of-ways."*

Since the site is located along MLK Drive and is a mid-block lot without alternative access available, on-site parking is not permitted and thus the proposed development is in compliance with the Redevelopment Plan. It is also important to note that constructing an access driveway on the subject property is not advisable given the very minimal traffic generation and potential conflicts with pedestrians walking across the driveway during peak times.

FINDINGS & CONCLUSIONS

Findings

Based upon the detailed analyses as documented herein, the following findings are noted:

- The proposed 28 residential units and 1,077 SF of commercial space is projected to generate a maximum of 2 vehicle arrival trips and 4 vehicle departure trips during the morning peak hour and 4 vehicle arrival trips and 4 vehicle departure trips during the evening peak hour.

- The proposed 28 residential units and 1,077 SF of commercial space is projected to generate a maximum of 7 walk/bike/transit arrival trips and 12 walk/bike/transit departure trips during the morning peak hour and 18 walk/bike/transit arrival trips and 23 walk/bike/transit departure trips during the evening peak hour.

- No vehicular access to the site is proposed.

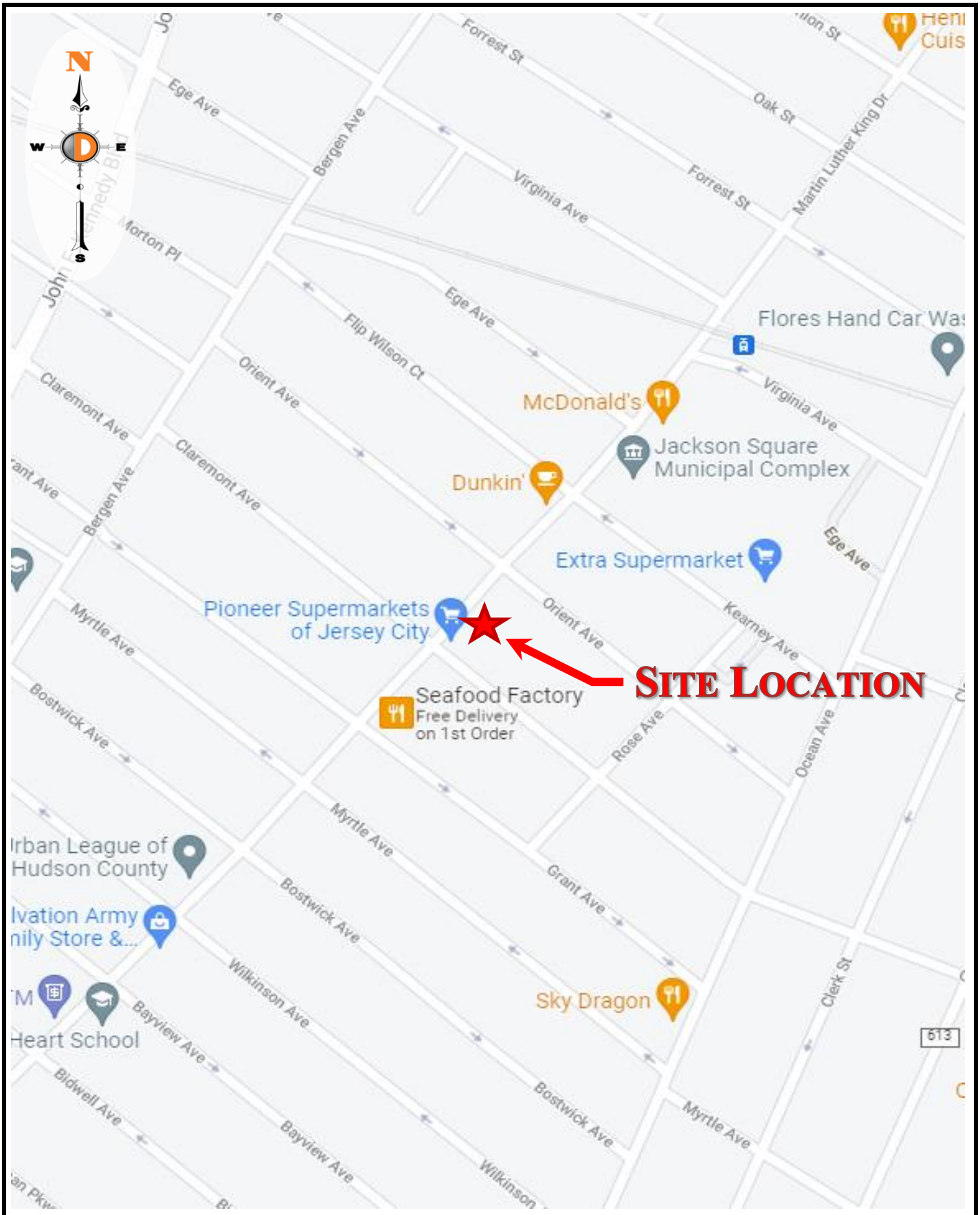
- With the addition of site generated traffic, the intersection of MLK Drive and Claremont Avenue is anticipated to continue operating at overall Level of Service "B" during the analyzed peak hours.

- The omittance of on-site parking is in compliance with the requirements set forth in the Redevelopment Plan, and is appropriate given the site setting.

Conclusions

Based upon our Traffic Impact Study as detailed in the body of this report, it is the professional opinion of Dynamic Traffic, LLC that the adjacent street system of the City of Jersey City will not experience any significant degradation in operating conditions with the construction of The Project. The lack of vehicular site access is reasonable and recommended given the minimal traffic generation and to accentuate pedestrian safety.

Appendix A
Traffic Volume Figures



Proposed Mixed-Use Development
Traffic Impact Study
2087-99-005TE

Figure 1

Site Location Map

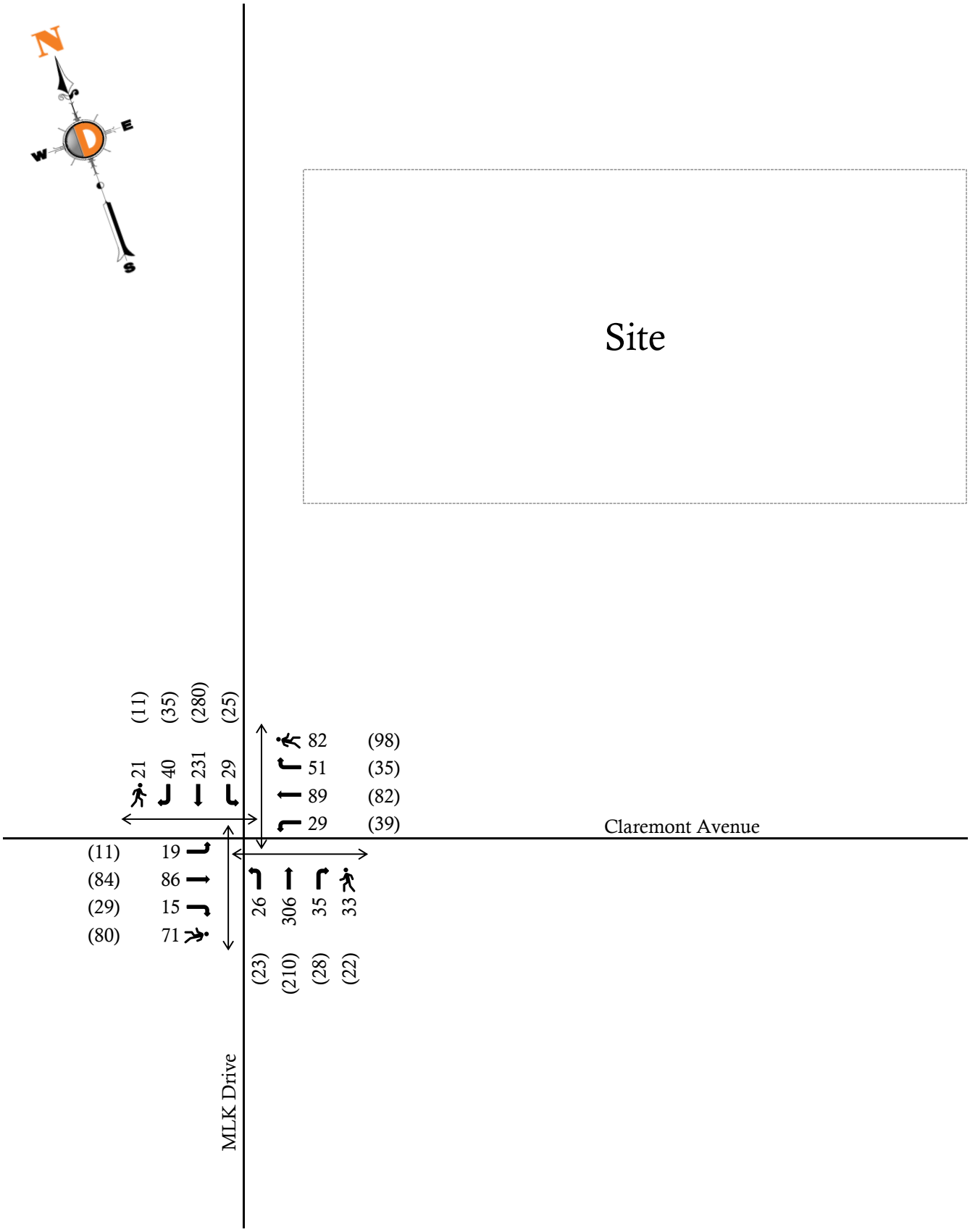


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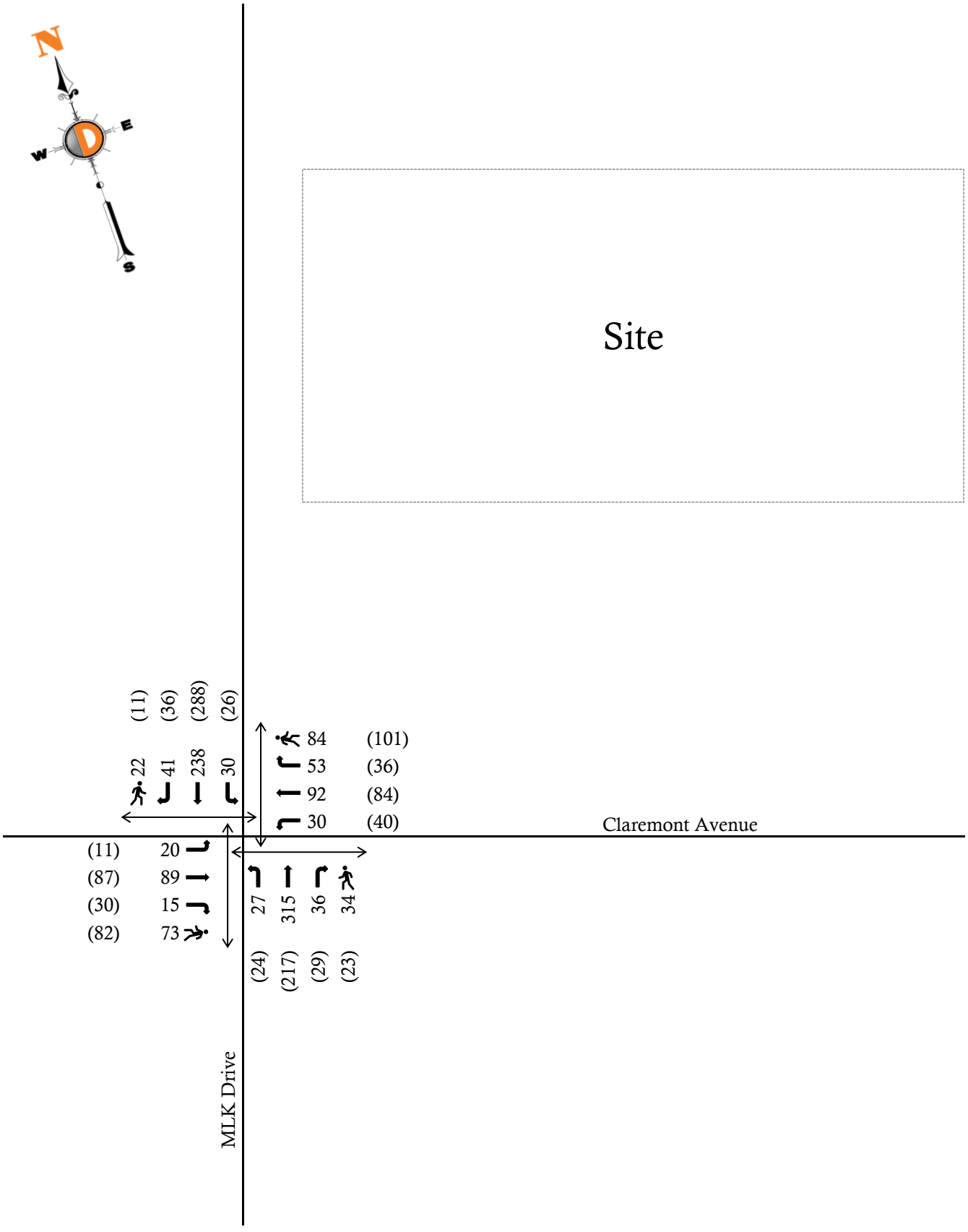
Figure 2

Existing Traffic Volumes



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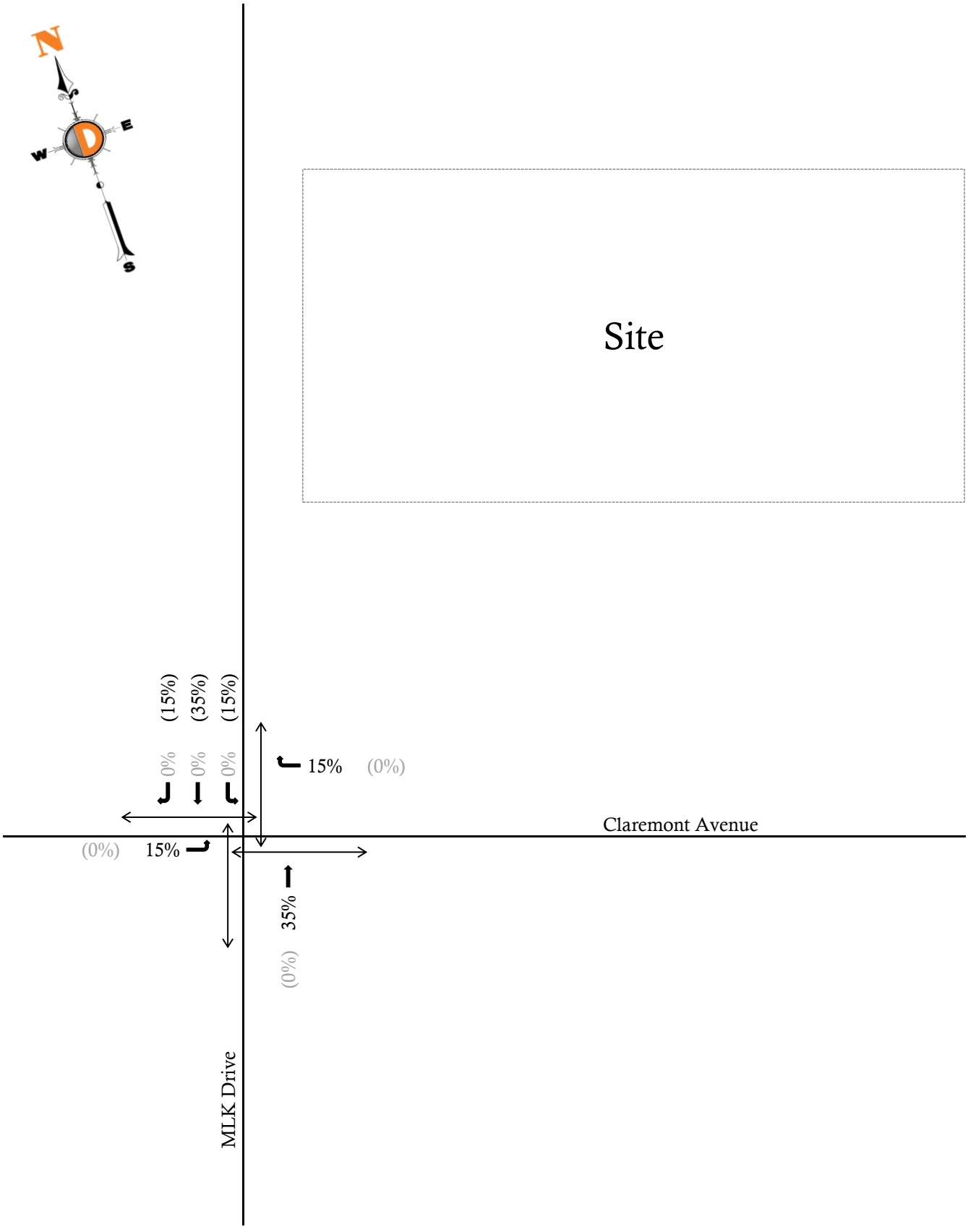
Traffic Impact Study
2087-99-005TE

Figure 3

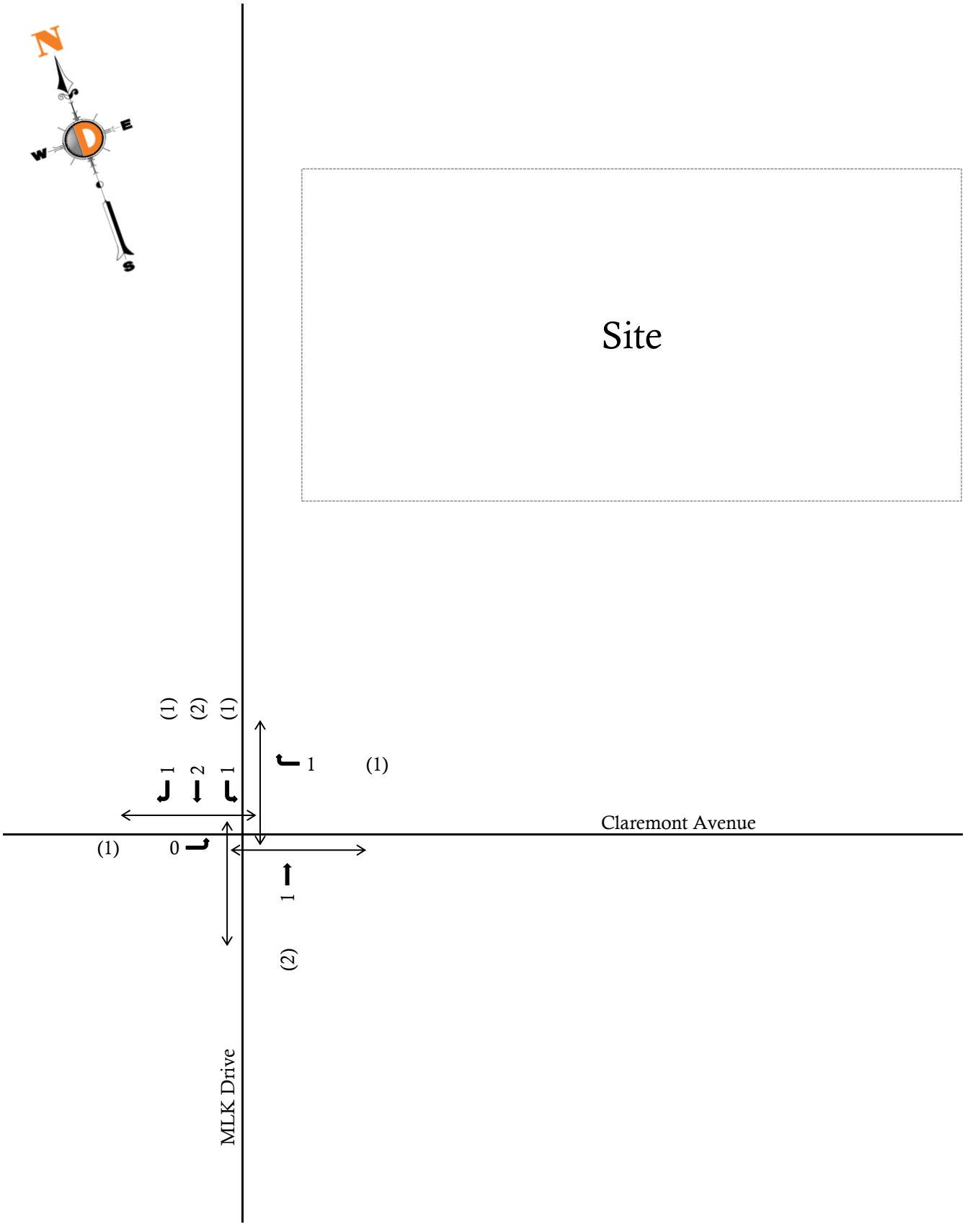
No Build Traffic Volumes



Proposed Mixed-Use Development
Traffic Impact Study
2087-99-005TE

Figure 4

Percent Distribution (Vehicular)



Proposed Mixed-Use Development
Traffic Impact Study
2087-99-005TE

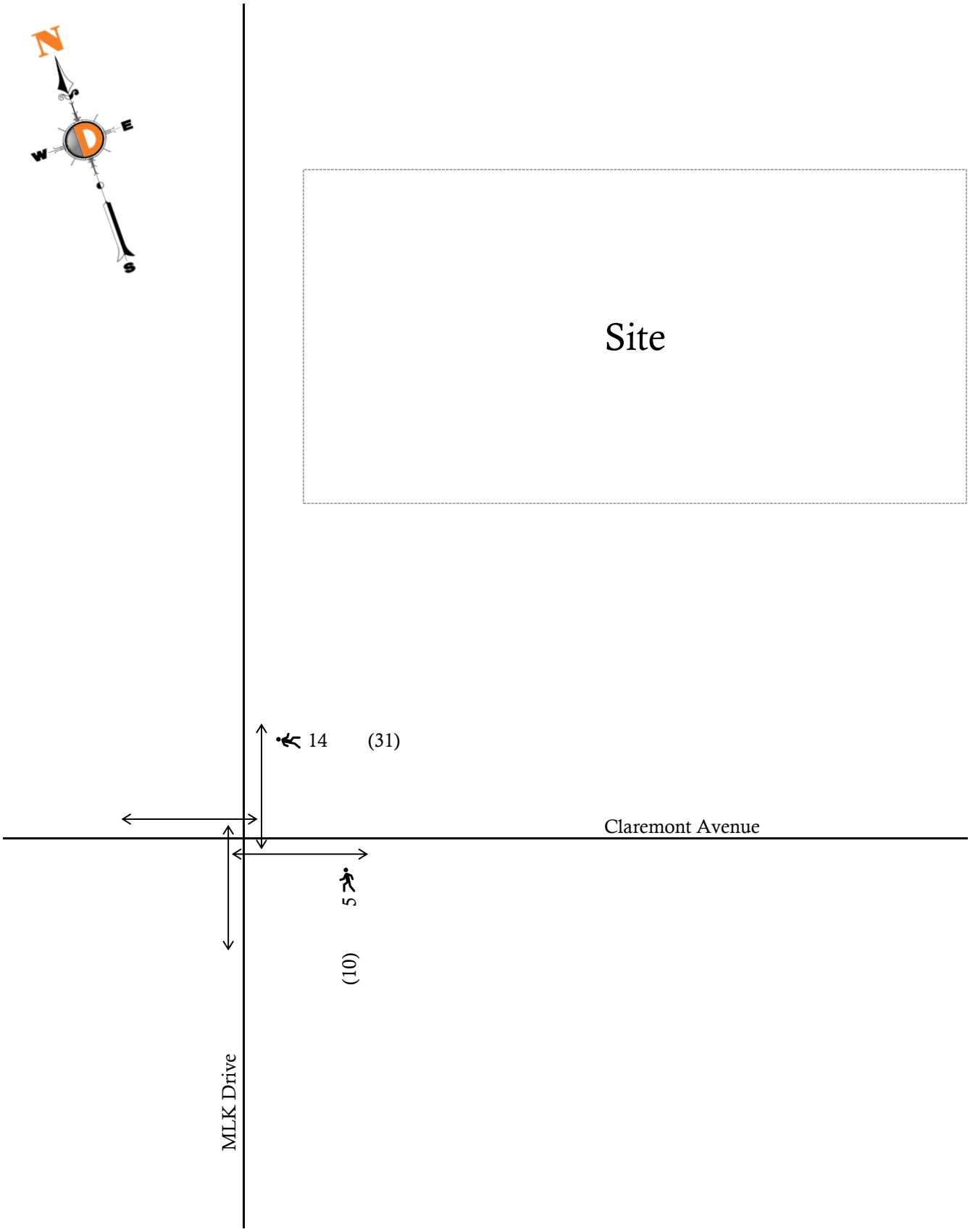
Figure 5

Vehicular Site Generated Trips

Proposed Mixed-Use Development
Traffic Impact Study
2087-99-005TE

Figure 6

Percent Distribution (Walk+Bike+Transit)



Proposed Mixed-Use Development
Traffic Impact Study
2087-99-005TE

Figure 7

Walk+Bike+Transit Site Generated Trips

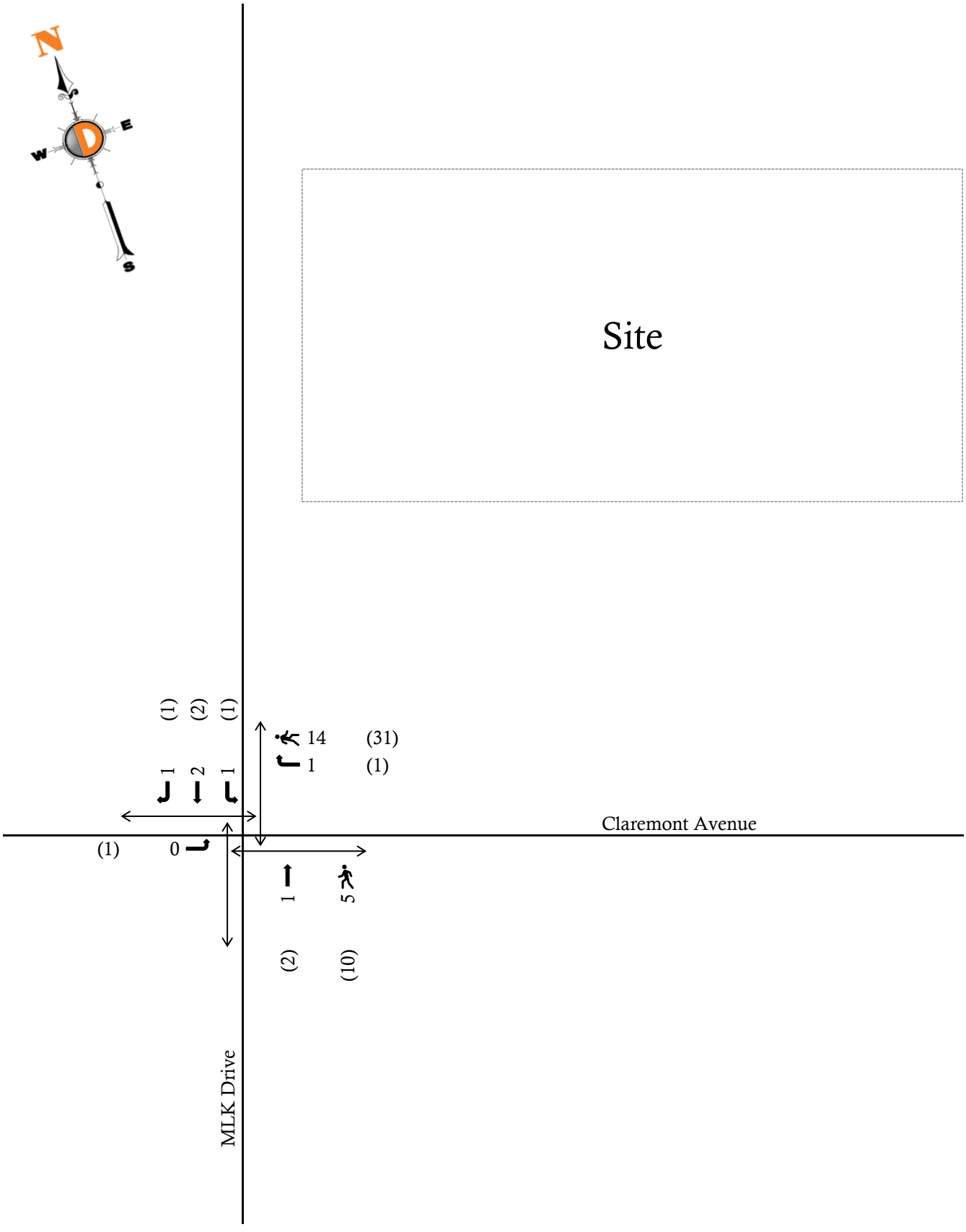


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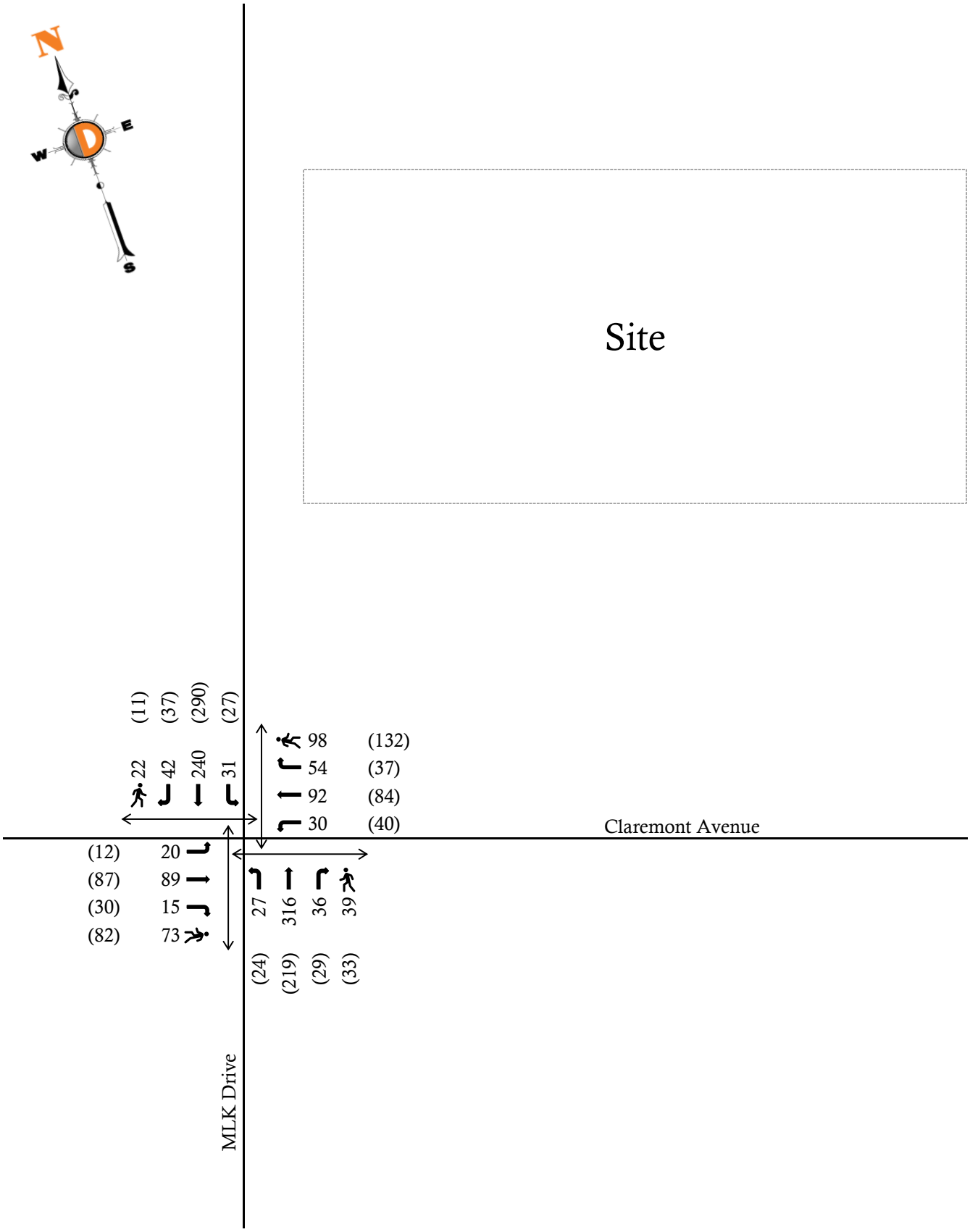
Figure 8

Total Site Generated Trips



Proposed Mixed-Use Development
Traffic Impact Study
2087-99-005TE

Figure 9

Build Traffic Volumes

Appendix B
Traffic Counts

Dynamic Traffic, LLC

1904 Main Street, Lake Como, NJ 07719
245 Main Street - Suite 110, Chester, NJ 07930
732-681-0760

E/W: Claremont Ave
N/S: MLK Drive
Town/County: Jersey City/Hudson
Job #: 2087-99-005TE

File Name : MLK Dr & Claremont Ave - AMPM
Site Code : 00000000
Start Date : 12/15/2021
Page No : 1

Groups Printed- Cars - Trucks (SU) - Trucks (TT)

	Claremont Avenue Eastbound					Claremont Avenue Westbound					MLK Drive Northbound					MLK Drive Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:00 AM	2	7	1	7	17	2	8	10	7	27	4	47	10	2	63	2	20	4	4	30	137
07:15 AM	2	12	2	5	21	4	23	6	13	46	5	47	5	0	57	4	33	4	1	42	166
07:30 AM	7	20	1	11	39	5	25	6	9	45	7	84	8	2	101	4	36	9	2	51	236
07:45 AM	7	22	5	16	50	9	17	4	17	47	6	83	10	1	100	7	50	8	3	68	265
Total	18	61	9	39	127	20	73	26	46	165	22	261	33	5	321	17	139	25	10	191	804
08:00 AM	7	24	2	21	54	7	20	4	22	53	6	76	8	6	96	7	49	11	1	68	271
08:15 AM	4	23	6	20	53	3	24	10	18	55	7	77	9	3	96	6	73	7	4	90	294
08:30 AM	4	16	2	21	43	10	20	18	26	74	6	87	11	16	120	10	57	9	7	83	320
08:45 AM	4	23	5	9	41	9	25	19	16	69	7	66	7	8	88	6	52	13	9	80	278
Total	19	86	15	71	191	29	89	51	82	251	26	306	35	33	400	29	231	40	21	321	1163
*** BREAK ***																					
04:30 PM	5	23	8	15	51	10	21	10	21	62	4	65	6	5	80	6	84	9	1	100	293
04:45 PM	2	17	5	14	38	13	18	7	30	68	8	45	8	4	65	1	84	11	3	99	270
Total	7	40	13	29	89	23	39	17	51	130	12	110	14	9	145	7	168	20	4	199	563
05:00 PM	4	21	10	26	61	10	20	11	21	62	4	47	10	5	66	7	50	9	2	68	257
05:15 PM	0	23	6	25	54	6	23	7	26	62	7	53	4	8	72	11	62	6	5	84	272
05:30 PM	0	8	3	12	23	9	15	5	13	42	9	43	5	2	59	4	61	6	3	74	198
05:45 PM	2	23	3	18	46	7	18	14	20	59	5	49	7	7	68	4	71	2	9	86	259
Total	6	75	22	81	184	32	76	37	80	225	25	192	26	22	265	26	244	23	19	312	986
06:00 PM	3	16	6	10	35	5	20	7	21	53	8	45	5	5	63	4	56	11	6	77	228
06:15 PM	2	17	0	15	34	4	18	4	24	50	5	47	5	5	62	2	63	10	9	84	230
Grand Total	55	295	65	245	660	113	315	142	304	874	98	961	118	79	1256	85	901	129	69	1184	3974
Apprch %	8.3	44.7	9.8	37.1		12.9	36	16.2	34.8		7.8	76.5	9.4	6.3		7.2	76.1	10.9	5.8		
Total %	1.4	7.4	1.6	6.2	16.6	2.8	7.9	3.6	7.6	22	2.5	24.2	3	2	31.6	2.1	22.7	3.2	1.7	29.8	
Cars	54	285	64	245	648	111	310	140	304	865	95	915	118	79	1207	84	860	129	69	1142	3862
% Cars	98.2	96.6	98.5	100	98.2	98.2	98.4	98.6	100	99	96.9	95.2	100	100	96.1	98.8	95.4	100	100	96.5	97.2
Trucks (SU)	1	10	1	0	12	1	5	2	0	8	3	46	0	0	49	1	41	0	0	42	111
% Trucks (SU)	1.8	3.4	1.5	0	1.8	0.9	1.6	1.4	0	0.9	3.1	4.8	0	0	3.9	1.2	4.6	0	0	3.5	2.8
Trucks (TT)	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
% Trucks (TT)	0	0	0	0	0	0.9	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0

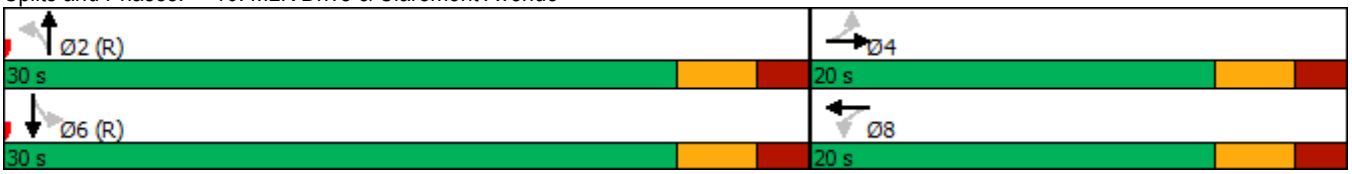
Appendix C
Capacity Analysis

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	86	15	29	89	51	26	306	35	29	231	40
Future Volume (vph)	19	86	15	29	89	51	26	306	35	29	231	40
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100
Lane Width (ft)	11	11	11	11	11	11	11	11	11	13	13	13
Grade (%)		-3%			1%			-1%			1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99			0.98			0.99			0.98	
Frt		0.984			0.959			0.987			0.982	
Flt Protected		0.992			0.991			0.996			0.995	
Satd. Flow (prot)	0	1924	0	0	1808	0	0	1912	0	0	2002	0
Flt Permitted		0.936			0.933			0.963			0.942	
Satd. Flow (perm)	0	1808	0	0	1689	0	0	1843	0	0	1887	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		639			551			465			511	
Travel Time (s)		17.4			15.0			12.7			13.9	
Confl. Peds. (#/hr)	21		33	33		21	71		82	82		71
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	5%	0%	7%	5%	2%	8%	4%	0%	3%	5%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	132	0	0	186	0	0	403	0	0	330	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	20.0	20.0		20.0	20.0		30.0	30.0		30.0	30.0	
Total Split (s)	20.0	20.0		20.0	20.0		30.0	30.0		30.0	30.0	
Total Split (%)	40.0%	40.0%		40.0%	40.0%		60.0%	60.0%		60.0%	60.0%	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Act Effct Green (s)		15.0			15.0			25.0			25.0	
Actuated g/C Ratio		0.30			0.30			0.50			0.50	
v/c Ratio		0.24			0.37			0.44			0.35	
Control Delay		14.7			16.4			9.9			8.9	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		14.7			16.4			9.9			8.9	
LOS		B			B			A			A	
Approach Delay		14.7			16.4			9.9			8.9	
Approach LOS		B			B			A			A	
Queue Length 50th (ft)		29			42			68			53	
Queue Length 95th (ft)		62			85			122			96	
Internal Link Dist (ft)		559			471			385			431	
Turn Bay Length (ft)												
Base Capacity (vph)		542			506			921			943	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.24			0.37			0.44			0.35	

Intersection Summary			
Area Type:	Other		
Cycle Length: 50			
Actuated Cycle Length: 50			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 50			
Control Type: Pretimed			
Maximum v/c Ratio: 0.44			
Intersection Signal Delay: 11.3		Intersection LOS: B	
Intersection Capacity Utilization 43.2%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 10: MLK Drive & Claremont Avenue

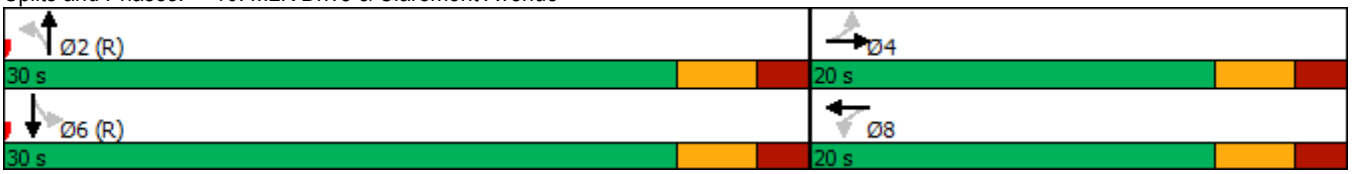


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	84	29	39	82	35	23	210	28	25	280	35
Future Volume (vph)	11	84	29	39	82	35	23	210	28	25	280	35
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100
Lane Width (ft)	11	11	11	11	11	11	11	11	11	13	13	13
Grade (%)		-3%			1%			-1%			1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99			0.98			0.98			0.99	
Frt		0.969			0.969			0.986			0.986	
Flt Protected		0.996			0.988			0.996			0.996	
Satd. Flow (prot)	0	1949	0	0	1917	0	0	1932	0	0	2028	0
Flt Permitted		0.968			0.899			0.954			0.966	
Satd. Flow (perm)	0	1892	0	0	1731	0	0	1843	0	0	1957	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		639			551			465			511	
Travel Time (s)		17.4			15.0			12.7			13.9	
Confl. Peds. (#/hr)	11		22	22		11	80		98	98		80
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
Heavy Vehicles (%)	0%	1%	0%	0%	0%	0%	0%	3%	0%	0%	4%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	133	0	0	168	0	0	281	0	0	366	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	20.0	20.0		20.0	20.0		30.0	30.0		30.0	30.0	
Total Split (s)	20.0	20.0		20.0	20.0		30.0	30.0		30.0	30.0	
Total Split (%)	40.0%	40.0%		40.0%	40.0%		60.0%	60.0%		60.0%	60.0%	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Act Effct Green (s)		15.0			15.0			25.0			25.0	
Actuated g/C Ratio		0.30			0.30			0.50			0.50	
v/c Ratio		0.23			0.32			0.31			0.37	
Control Delay		14.6			15.7			8.5			9.1	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		14.6			15.7			8.5			9.1	
LOS		B			B			A			A	
Approach Delay		14.6			15.7			8.5			9.1	
Approach LOS		B			B			A			A	
Queue Length 50th (ft)		29			38			44			60	
Queue Length 95th (ft)		62			77			82			106	
Internal Link Dist (ft)		559			471			385			431	
Turn Bay Length (ft)												
Base Capacity (vph)		567			519			921			978	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.23			0.32			0.31			0.37	

Intersection Summary			
Area Type:	Other		
Cycle Length: 50			
Actuated Cycle Length: 50			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 50			
Control Type: Pretimed			
Maximum v/c Ratio: 0.37			
Intersection Signal Delay: 10.9		Intersection LOS: B	
Intersection Capacity Utilization 44.3%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 10: MLK Drive & Claremont Avenue

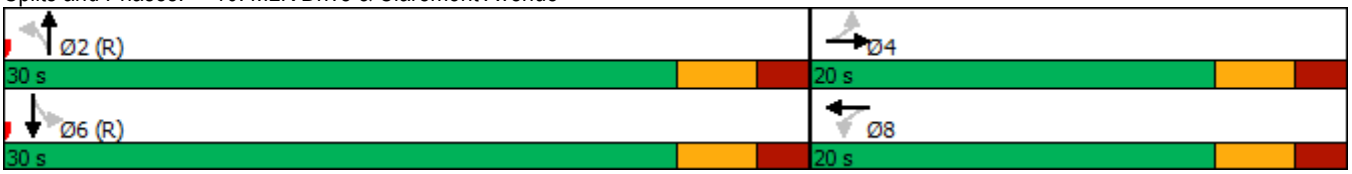


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	89	15	30	92	53	27	315	36	30	238	41
Future Volume (vph)	20	89	15	30	92	53	27	315	36	30	238	41
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100
Lane Width (ft)	11	11	11	11	11	11	11	11	11	13	13	13
Grade (%)		-3%			1%			-1%			1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99			0.98			0.99			0.98	
Frt		0.984			0.959			0.987			0.982	
Flt Protected		0.992			0.991			0.996			0.995	
Satd. Flow (prot)	0	1924	0	0	1807	0	0	1911	0	0	2001	0
Flt Permitted		0.933			0.932			0.962			0.940	
Satd. Flow (perm)	0	1802	0	0	1686	0	0	1840	0	0	1883	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		639			551			465			511	
Travel Time (s)		17.4			15.0			12.7			13.9	
Confl. Peds. (#/hr)	22		34	34		22	73		84	84		73
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	5%	0%	7%	5%	2%	8%	4%	0%	3%	5%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	136	0	0	192	0	0	416	0	0	340	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	20.0	20.0		20.0	20.0		30.0	30.0		30.0	30.0	
Total Split (s)	20.0	20.0		20.0	20.0		30.0	30.0		30.0	30.0	
Total Split (%)	40.0%	40.0%		40.0%	40.0%		60.0%	60.0%		60.0%	60.0%	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Act Effct Green (s)		15.0			15.0			25.0			25.0	
Actuated g/C Ratio		0.30			0.30			0.50			0.50	
v/c Ratio		0.25			0.38			0.45			0.36	
Control Delay		14.8			16.6			10.1			9.0	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		14.8			16.6			10.1			9.0	
LOS		B			B			B			A	
Approach Delay		14.8			16.6			10.1			9.0	
Approach LOS		B			B			B			A	
Queue Length 50th (ft)		30			44			71			55	
Queue Length 95th (ft)		64			88			127			99	
Internal Link Dist (ft)		559			471			385			431	
Turn Bay Length (ft)												
Base Capacity (vph)		540			505			920			941	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.25			0.38			0.45			0.36	

Intersection Summary			
Area Type:	Other		
Cycle Length: 50			
Actuated Cycle Length: 50			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 50			
Control Type: Pretimed			
Maximum v/c Ratio: 0.45			
Intersection Signal Delay: 11.5		Intersection LOS: B	
Intersection Capacity Utilization 44.0%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 10: MLK Drive & Claremont Avenue

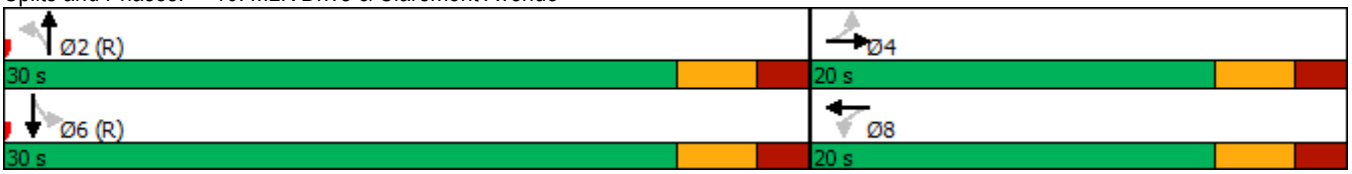


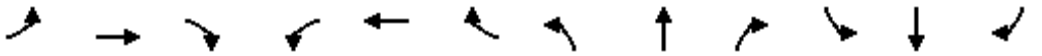
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	87	30	40	84	36	24	217	29	26	288	36
Future Volume (vph)	11	87	30	40	84	36	24	217	29	26	288	36
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100
Lane Width (ft)	11	11	11	11	11	11	11	11	11	13	13	13
Grade (%)		-3%			1%			-1%			1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99			0.98			0.98			0.98	
Frt		0.969			0.969			0.986			0.986	
Flt Protected		0.996			0.988			0.996			0.996	
Satd. Flow (prot)	0	1949	0	0	1917	0	0	1932	0	0	2028	0
Flt Permitted		0.969			0.897			0.952			0.965	
Satd. Flow (perm)	0	1894	0	0	1727	0	0	1839	0	0	1955	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		639			551			465			511	
Travel Time (s)		17.4			15.0			12.7			13.9	
Confl. Peds. (#/hr)	11		23	23		11	82		101	101		82
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
Heavy Vehicles (%)	0%	1%	0%	0%	0%	0%	0%	3%	0%	0%	4%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	138	0	0	172	0	0	290	0	0	377	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	20.0	20.0		20.0	20.0		30.0	30.0		30.0	30.0	
Total Split (s)	20.0	20.0		20.0	20.0		30.0	30.0		30.0	30.0	
Total Split (%)	40.0%	40.0%		40.0%	40.0%		60.0%	60.0%		60.0%	60.0%	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Act Effct Green (s)		15.0			15.0			25.0			25.0	
Actuated g/C Ratio		0.30			0.30			0.50			0.50	
v/c Ratio		0.24			0.33			0.32			0.39	
Control Delay		14.7			15.8			8.6			9.2	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		14.7			15.8			8.6			9.2	
LOS		B			B			A			A	
Approach Delay		14.7			15.8			8.6			9.2	
Approach LOS		B			B			A			A	
Queue Length 50th (ft)		30			39			45			62	
Queue Length 95th (ft)		64			79			85			110	
Internal Link Dist (ft)		559			471			385			431	
Turn Bay Length (ft)												
Base Capacity (vph)		568			518			919			977	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.24			0.33			0.32			0.39	

Intersection Summary			
Area Type:	Other		
Cycle Length: 50			
Actuated Cycle Length: 50			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 50			
Control Type: Pretimed			
Maximum v/c Ratio: 0.39			
Intersection Signal Delay: 11.0		Intersection LOS: B	
Intersection Capacity Utilization 45.2%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 10: MLK Drive & Claremont Avenue



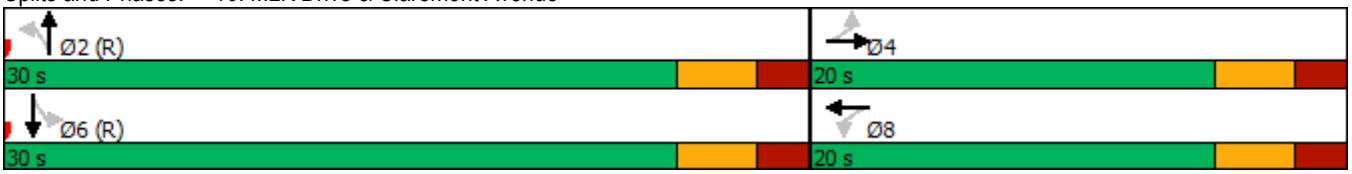


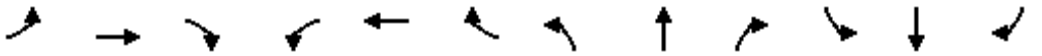
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	89	15	30	92	54	27	316	36	31	240	42
Future Volume (vph)	20	89	15	30	92	54	27	316	36	31	240	42
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100
Lane Width (ft)	11	11	11	11	11	11	11	11	11	13	13	13
Grade (%)		-3%			1%			-1%			1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99			0.97			0.99			0.98	
Frt		0.984			0.959			0.987			0.982	
Flt Protected		0.992			0.992			0.996			0.995	
Satd. Flow (prot)	0	1922	0	0	1809	0	0	1909	0	0	2001	0
Flt Permitted		0.933			0.932			0.962			0.939	
Satd. Flow (perm)	0	1800	0	0	1684	0	0	1838	0	0	1879	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		639			551			465			511	
Travel Time (s)		17.4			15.0			12.7			13.9	
Confl. Peds. (#/hr)	22		39	39		22	73		98	98		73
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	5%	0%	7%	5%	2%	8%	4%	0%	3%	5%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	136	0	0	193	0	0	417	0	0	344	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	20.0	20.0		20.0	20.0		30.0	30.0		30.0	30.0	
Total Split (s)	20.0	20.0		20.0	20.0		30.0	30.0		30.0	30.0	
Total Split (%)	40.0%	40.0%		40.0%	40.0%		60.0%	60.0%		60.0%	60.0%	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Act Effct Green (s)		15.0			15.0			25.0			25.0	
Actuated g/C Ratio		0.30			0.30			0.50			0.50	
v/c Ratio		0.25			0.38			0.45			0.37	
Control Delay		14.8			16.6			10.1			9.1	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		14.8			16.6			10.1			9.1	
LOS		B			B			B			A	
Approach Delay		14.8			16.6			10.1			9.1	
Approach LOS		B			B			B			A	
Queue Length 50th (ft)		30			44			71			56	
Queue Length 95th (ft)		64			89			128			101	
Internal Link Dist (ft)		559			471			385			431	
Turn Bay Length (ft)												
Base Capacity (vph)		540			505			919			939	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.25			0.38			0.45			0.37	

Intersection Summary			
Area Type:	Other		
Cycle Length: 50			
Actuated Cycle Length: 50			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 50			
Control Type: Pretimed			
Maximum v/c Ratio: 0.45			
Intersection Signal Delay: 11.5		Intersection LOS: B	
Intersection Capacity Utilization 44.1%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 10: MLK Drive & Claremont Avenue





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	87	30	40	84	37	24	219	29	27	290	37
Future Volume (vph)	12	87	30	40	84	37	24	219	29	27	290	37
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100
Lane Width (ft)	11	11	11	11	11	11	11	11	11	13	13	13
Grade (%)		-3%			1%			-1%			1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.98			0.98			0.98			0.98	
Frt		0.969			0.969			0.986			0.986	
Flt Protected		0.995			0.988			0.996			0.996	
Satd. Flow (prot)	0	1940	0	0	1917	0	0	1925	0	0	2027	0
Flt Permitted		0.966			0.898			0.952			0.964	
Satd. Flow (perm)	0	1881	0	0	1723	0	0	1833	0	0	1950	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		639			551			465			511	
Travel Time (s)		17.4			15.0			12.7			13.9	
Confl. Peds. (#/hr)	11		33	33		11	82		132	132		82
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
Heavy Vehicles (%)	0%	1%	0%	0%	0%	0%	0%	3%	0%	0%	4%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	139	0	0	173	0	0	292	0	0	381	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	20.0	20.0		20.0	20.0		30.0	30.0		30.0	30.0	
Total Split (s)	20.0	20.0		20.0	20.0		30.0	30.0		30.0	30.0	
Total Split (%)	40.0%	40.0%		40.0%	40.0%		60.0%	60.0%		60.0%	60.0%	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Act Effct Green (s)		15.0			15.0			25.0			25.0	
Actuated g/C Ratio		0.30			0.30			0.50			0.50	
v/c Ratio		0.25			0.34			0.32			0.39	
Control Delay		14.7			15.9			8.7			9.3	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		14.7			15.9			8.7			9.3	
LOS		B			B			A			A	
Approach Delay		14.7			15.9			8.7			9.3	
Approach LOS		B			B			A			A	
Queue Length 50th (ft)		30			39			46			63	
Queue Length 95th (ft)		65			80			86			111	
Internal Link Dist (ft)		559			471			385			431	
Turn Bay Length (ft)												
Base Capacity (vph)		564			516			916			975	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.25			0.34			0.32			0.39	

Intersection Summary			
Area Type:	Other		
Cycle Length: 50			
Actuated Cycle Length: 50			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 50			
Control Type: Pretimed			
Maximum v/c Ratio: 0.39			
Intersection Signal Delay: 11.0		Intersection LOS: B	
Intersection Capacity Utilization 45.7%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 10: MLK Drive & Claremont Avenue