

TRAFFIC IMPACT STUDY

For

Proposed Mixed Use Development

Property Located at:

199 Summit Avenue
Block 15201 – Lots 1-9, 18, 19, 53, 64, 65, 66 & 89
City of Jersey City, Hudson County, NJ

Prepared by:



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October 9, 2019
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2087-99-004TE

INTRODUCTION

It is proposed to construct a total of 172 residential dwelling units and 1,045 SF of retail space (The Project) on a parcel of land located along the east side of Storms Avenue and the west side of Summit Avenue just north of its intersection with Baldwin Avenue in the City of Jersey City, Hudson County, New Jersey, see Figure 1, in Appendix A. The site is designated as Block 15201 – Lots 1-9, 18, 19, 53, 64, 65, 66 and 89 on the City Tax Maps. Specifically, it is proposed to renovate two existing 3-story buildings along Storms Avenue to provide 6 residential dwelling units and 1 parking space as well as construct two (2) 5-story apartment buildings consisting of 166 dwelling units and 1,045 SF of ground floor retail space. It is proposed to provide access via one (1) full movement driveway along Summit Avenue opposite Clifton Place. Emergency access will also be provided via a curb cut along Storms Avenue. Parking will be provided via one hundred five (105) parking spaces on the lower levels of the apartment buildings as well as one (1) 90-degree parking space along Storms Avenue adjacent to the proposed multifamily buildings for a total on-site parking supply of one hundred six (106) spaces. The property was previously occupied by the Department of Health and Human Services with access provided via one curb cut along Summit Avenue opposite Clifton Place and one curb cut along Storms Avenue.

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 vehicle and pedestrian traffic data was collected via manual turning movement (MTM) counts during the weekday morning and evening peak periods at the intersections of Baldwin Avenue with Clifton Place, Baldwin Avenue with Summit Avenue and Summit Avenue with Clifton Place/the Site Driveway.
- Projections of traffic to be generated by The Project 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 and the site driveway.
- The proposed site driveway was inspected for adequacy of geometric design, spacing and/or alignment to streets and driveways on the opposite side of the street, relationship to other driveways adjacent to the development, and conformance with accepted design standards.
- The parking layout and supply was assessed based on accepted design standards and demand experienced at similar developments.

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:

Baldwin Avenue is an Urban Minor Arterial roadway under the jurisdiction of the City of Jersey City. In the vicinity of the site the posted speed limit is 25 miles per hour and the roadway provides one travel lane in each direction in a general north/south orientation. On-street parking is permitted along portions of the east side of the roadway while curb and sidewalk is provided along both sides of the roadway. Baldwin Avenue provides a straight horizontal alignment and a relatively flat vertical alignment. The land uses along Baldwin Avenue in the vicinity of The Project are primarily residential.

Summit Avenue is an Urban Minor Arterial roadway under the jurisdiction of the City of Jersey City. In the vicinity of the site the speed limit is not posted and the roadway provides one travel lane in each direction with a general north/south orientation. On-street parking is permitted along the west side of the roadway while curb and sidewalk is provided along both sides of the roadway. Summit Avenue provides a straight horizontal alignment and a relatively flat vertical alignment. The land uses along Summit Avenue in the vicinity of The Project are primarily residential.

Clifton Place is a local roadway under the jurisdiction of the City of Jersey City. In the vicinity of the site the speed limit is not posted. The roadway provides one lane for one-way travel in the westbound direction to the east of Baldwin Avenue, and one travel lane in each direction with an east/west orientation between Summit Avenue and Baldwin Avenue. On-street parking is permitted along both sides of the roadway while curb and sidewalk is provided along both sides of the roadway. Clifton Place provides a straight horizontal alignment and a relatively flat vertical alignment. The land uses along Clifton Place the vicinity of The Project are primarily residential.

Existing Traffic Volumes

Manual turning movement (MTM) counts were conducted on Thursday, October 3, 2019 between 7:00 and 9:00 AM and between 4:30 and 6:30 PM, at the intersections of Baldwin Avenue with Clifton Place, Baldwin Avenue with Summit Avenue and Summit Avenue with Clifton Place/the Site Driveway. Review of the collected traffic data reveals that the weekday morning peak street hour (PSH) of the network occurs from 7:30 – 8:30 AM, the weekday evening network PSH occurs from 5:00 – 6:00 PM. Figure 2, located in Appendix A, shows the existing peak hour traffic volumes at the study intersections. In addition to the vehicular manual turning movements, pedestrian crossing volumes were also counted during each of the peak periods.

Existing Capacity Analysis

The methodology utilized in the capacity analyses is described in the *Highway Capacity Manual 2010*, 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 the signalized intersections, factors that affect the various approach capacities include width of approach, number of lanes, traffic 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 traffic 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.

An unsignalized (STOP sign controlled) driveway or side street along a through route is seldom critical from an overall capacity standpoint, however, it may be of great significance to the capacity of the minor cross-route, and it may influence the quality of traffic flow on both. When analyzing an unsignalized intersection, it is assumed that both the major street through and right turn movements are unimpeded and have the right-of-way over all side street traffic and left turns from the major street. All other turning movements in the intersection cross, merge with, or are otherwise impeded by major street movements. Traffic delays at unsignalized intersections are determined by sequentially processing these impeded movements. Table II describes the Level of Service ranges for unsignalized (stop controlled) 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

Table II
Level of Service Criteria
for Unsignalized Intersections

Level of Service	Average Control Delay (seconds per vehicle)
a	0.0 to 10.0
b	10.1 to 15.0
c	15.1 to 25.0
d	25.1 to 35.0
e	35.1 to 50.0
f	greater than 50.0

It should be noted that the analyses within the *Highway Capacity Manual* assume a random arrival for all the movements, which may not be the case if an adjacent traffic signal is present that platoons vehicles.

All capacity analyses were performed utilizing the Synchro software package (Synchro 10). Table III summarizes the existing Levels of Service (LOS) and delays. All capacity analysis calculation worksheets are contained in Appendix C.

**Table III
Existing Levels of Service**

Intersection	Direction/ Movement		AM PSH	PM PSH
Baldwin Avenue & Clifton Place	EB	LR	A (9)	B (18)
		Ped	B	B
	WB	LTR	B (12)	B (12)
		Ped	B	A
	NB	LT	A (6)	A (5)
		Ped	B	B
	SB	TR	A (6)	A (5)
		Ped	B	B
Overall		A (7)	A (6)	
Baldwin Avenue & Summit Avenue	EB	LR	b (13)	b (14)
	NB	LT	a (9)	a (9)
Summit Avenue & Clifton Place/Site Driveway	EB	LTR	c (15)	c (16)
	WB	LTR	b (12)	b (11)
	NB	LTR	a (8)	a (8)
	SB	LTR	a (8)	a (8)

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

a (#) - Unsignalized Intersection Level of Service (seconds of delay per vehicle)

A - Pedestrian Level of Service

The following are discussions pertaining to each of the existing intersections analyzed. All capacity analysis calculation worksheets are contained in Appendix C.

Baldwin Avenue and Clifton Place

Clifton Place intersects Baldwin Avenue to form a four leg signalized intersection controlled by a two-phase traffic signal. The eastbound approach of Baldwin Avenue provides a shared left turn/right turn lane. The westbound approach of Clifton Place provides a shared left turn/through/right turn lane. The northbound approach of Baldwin Avenue provides a shared left turn/through lane. The southbound approach of Summit Avenue provides a shared through/right turn lane.

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

Baldwin Avenue and Summit Avenue

Summit Avenue intersects Baldwin Avenue to form an unsignalized T-intersection stop controlled on the Summit Avenue approach. The eastbound approach of Summit Avenue provides a shared left turn/right turn lane. The northbound approach of Baldwin Avenue provides a shared left turn/through lane. The southbound approach of Summit Avenue provides a shared through/right turn lane.

A review of the existing analysis reveals that the individual intersection movements operate at Level of Service “B” or better during the analyzed peak periods. See Table III for the individual movement Levels of Service and delays.

Summit Avenue and Clifton Place/Site Driveway

Clifton Place/the site driveway intersect Summit Avenue to form an unsignalized T-intersection stop controlled on the Clifton Place/site driveway approach. The eastbound approach of the site driveway provides a shared left turn/through/right turn movement. The westbound approach of Clifton Place provides a shared left turn/through/right turn lane. The northbound and southbound approaches of Summit Avenue each provide a shared left turn/through/right turn lane.

A review of the existing analysis reveals that the individual intersection movements operate at Level of Service “C” or better during the analyzed peak periods. See Table III for the individual movement Levels of Service and delays.

FUTURE CONDITIONS

Traffic volumes and operational analyses were developed for both the Future No Build and Build conditions. The No Build conditions provide a baseline for assessing the impact of 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% per year.

In addition to the background growth noted above, there are three developments in the vicinity of the site that have been approved but not yet constructed that are identified as significant traffic generators in the vicinity of the Project, listed below. It was assumed that the background growth rate was adequate to account for the traffic associated with all developments not listed.

- A development consisting of 980 residential units and 36,447 SF of ground floor retail space known as Baldwin Place located along the east side of Baldwin Avenue has been approved. Projections of the associated traffic volumes were developed using research data published in the Institute of Transportation Engineers (ITE) publication *Trip Generation, 10th Edition* for Land Use Code (LUC) 232 – High-Rise Residential with 1st-Floor Commercial.
- A development consisting of 140 residential units and 4,800 square feet of retail space located at 44 Newkirk Street has been approved. Projections of the associated traffic volumes were gathered from the *Traffic Impact Study*, dated February 20, 2018 prepared by this firm.
- A development consisting of 29 residential units located at 65 Newkirk Street has been approved. Projections of the associated traffic volumes were developed utilizing ITE data for LUC 221 - Multifamily Housing (Mid-Rise).
- A development consisting of 42 residential units located at 51-57 Newkirk Street has been approved. Projections of the associated traffic volumes were developed utilizing ITE data for LUC 221 - Multifamily Housing (Mid-Rise).
- A development consisting of 59 residential units and 2,037 square feet of retail space located at 272-280 Baldwin Avenue has been approved. Projections of the associated traffic volumes were gathered from the *Traffic Impact Study*, dated June 28, 2019 prepared by this firm.
- The relocation of the Hudson County Courthouse north of its current location between Oakland Avenue and Cook Street, has been approved. Projections of the associated traffic volumes were obtained from the associated Traffic Study, dated February 2012 prepared by Vanasse Hangen Brustlin, Inc. (VHB).

- A development consisting of 297 residential units, 7,220 SF of retail/restaurant space and 58,266 SF of office space, located within the northeast quadrant of the intersection of Oakland Avenue with Washburn Street, has been approved. Projections of the associated traffic volumes were gathered from the *Traffic Impact Study*, dated February 28, 2018 prepared by this firm.
- A development consisting of 116 residential units and 1,945 SF of retail space, located at 345 Baldwin Avenue, has been approved. Projections of the associated traffic volumes were gathered from the *Traffic Impact Study*, dated January 10, 2019 prepared by this firm.
- A development consisting of 700 residential units and 18,000 SF of retail space, located within the southwest quadrant of the intersection of Summit Avenue with Pavonia Avenue and Central Avenue, has been approved. Projections of the associated traffic volumes were developed utilizing ITE data for LUC 232 - High-Rise Residential with 1st-Floor Commercial.
- A development consisting of 148 residential units and 4,865 SF of retail space, located at 413 Summit Avenue, has been approved. Projections of the associated traffic volumes were gathered from the *Traffic Impact Study*, dated April 22, 2019 prepared by this firm.

Future No Build traffic volumes were developed by applying the background growth rate of 1% for two (2) years to the study area roadways existing traffic volumes and adding the traffic volumes associated with the Adjacent Developments. Figure 3, in Appendix A, shows the Total Adjacent Development traffic volumes and Figure 4 shows the No Build traffic volumes.

Traffic Generation

Projections of future vehicular and pedestrian traffic volumes were developed utilizing data as published in the Institute of Transportation Engineers (ITE) publication *Trip Generation, 10th Edition* for Land Use Code (LUC) 231 – Mid-Rise Residential with 1st-Floor Commercial. Tables IV and V summarize the respective projected vehicular and person trips generated by the proposed residential development utilizing the ITE data.

**Table IV
Vehicular Trip Generation**

Land Use	AM PSH			PM PSH		
	In	Out	Total	In	Out	Total
172 Residential Units with 1 st Floor Commercial	22	31	53	36	45	81

**Table V
Pedestrian Trip Generation**

Land Use	AM PSH			PM PSH		
	In	Out	Total	In	Out	Total
172 Residential Units with 1 st Floor Commercial	71	106	177	126	153	279

These trips compare to the 78 AM peak hour trips (-25) and 118 PM peak hour trips (-37) of the October 9, 2019 Traffic Impact Study based on 250 residential units. Similarly, the pedestrian trips compare to the 258 AM peak hour trips (-81) and 405 PM peak hour trips (-126) of the October 2019 Traffic Impact Study. Lesser trip generation can only result in lesser traffic impacts. Since the October 2019 Traffic Impact Study found no significant impact resulting to traffic conditions to the surrounding neighborhood roadway network, this revised study further supports that finding.

It should also be noted that within $\frac{3}{4}$ of a mile from the site there is access to New Jersey Transit bus lines 1, 6, 10, 80, 81, 86, 87, 119. Additionally, the Journal Square Transportation Center is located approximately 1 mile from the site. To account for the use of these mass transportation options, it was assumed that a portion of the pedestrians will utilize the nearby NJ Transit bus station at the southeast corner of Baldwin Avenue and Clifton Place. Therefore, 20% of the pedestrian trips were distributed accordingly to/from the bus stop. It is anticipated that the remaining pedestrians will travel north or south along Summit Avenue to other mass transportation options in the area.

Further, based on data published by the U.S. Census Bureau, 40% of Jersey City residents utilize mass transportation as their primary means for commuting and an additional 8% walk. Therefore, the vehicular trip generation contained in Table IV could be expected to be reduced by 48% given the availability of mass transportation in close proximity to the site. In an effort to provide a conservative analysis, no credit was taken for the likely reduction in vehicular trip generation due to the availability of mass transportation.

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. It should be noted that although one of the parking spaces will be located along Storms Avenue, all traffic was conservatively routed to/from the proposed driveway along Summit Avenue. Located in Appendix A, Figure 5 illustrates the site generated volumes. The site generated volumes were added to the No Build traffic volumes to generate the Build traffic volumes, which are shown in Figure 6.

Future Capacity Analysis

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

Table VI
Future Levels of Service

Intersection	Direction/ Movement		AM PSH		PM PSH	
			No Build	Build	No Build	Build
Baldwin Avenue & Clifton Place	EB	LR	A (9)	B (12)	B (18)	B (18)
		Ped	B	B	B	B
	WB	LTR	B (12)	B (13)	B (12)	B (12)
		Ped	B	B	A	A
	NB	LT	A (6)	A (7)	A (5)	A (5)
		Ped	B	B	B	B
	SB	TR	A (7)	A (7)	A (5)	A (5)
		Ped	B	B	B	B
	Overall		A (7)	A (8)	A (6)	A (7)
Baldwin Avenue & Summit Avenue	EB	LR	b (14)	b (15)	c (15)	c (16)
	NB	LT	a (9)	a (9)	a (9)	a (9)
Summit Avenue & Clifton Place/Site Driveway	EB	LTR	c (17)	c (21)	c (18)	d (25)
	WB	LTR	b (12)	b (15)	b (12)	c (16)
	NB	LTR	a (8)	a (8)	a (8)	a (8)
	SB	LTR	a (8)	a (8)	a (8)	a (8)

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

Baldwin Avenue and Clifton Place

With the addition of the site traffic the intersection will continue to operate at overall Level of Service “A” during the analyzed peak hours, maintaining the No Build Levels of Service. See Table VI for the individual movement Levels of Service and delays.

Baldwin Avenue and Summit Avenue

With the addition of the site traffic the individual intersection movements will continue to operate at Level of Service “C” or better during the analyzed peak hours, maintaining the No Build Levels of Service. See Table VI for the individual movement Levels of Service and delays.

Summit Avenue and Clifton Place/Site Driveway

With the addition of the site traffic the individual intersection movements will operate at acceptable Level of Service “D” or better during the analyzed peak hours. It should be noted that Level of Service “D” translates to a 95th percentile queue length of approximately 1 vehicle, which will not have a negative impact on the adjacent roadway network. See Table VI 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, access to The Project will be provided via one (1) full movement driveway along Summit Avenue opposite Clifton Place with emergency access provided along Storms Avenue.

The newly constructed parking garage will provide aisles with a width of 23'. These aisles will provide for two-way circulation and 90-degree parking, and will adequately accommodate the anticipated site traffic given it will be utilized by residents of the building who will be very familiar with the operations and circulation patterns of the garage.

Parking

As mentioned previously, parking will be provided via one 105 parking spaces on the lower levels of the apartment buildings as well as 1 parking space along Storms Avenue adjacent to the proposed multifamily buildings for a total of 106 spaces. With a total of 172 residential units proposed, this equates to a parking ratio of 0.62 parking spaces/unit. It should be noted that according to U.S. Census data for the census tract which the project is located within, the vehicle availability per rental household equates to 0.51 vehicles per unit which further equates to 88 parking spaces. Therefore, the proposed 106 parking spaces will adequately meet the peak parking demands particularly considering the proximity to mass transit options.

It is proposed to provide parking stalls with dimensions that are in compliance with accepted engineering design standards. Given the low-turnover expected for the parking spaces, the proposed dimensions will adequately accommodate the site.

FINDINGS & CONCLUSIONS

Findings

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

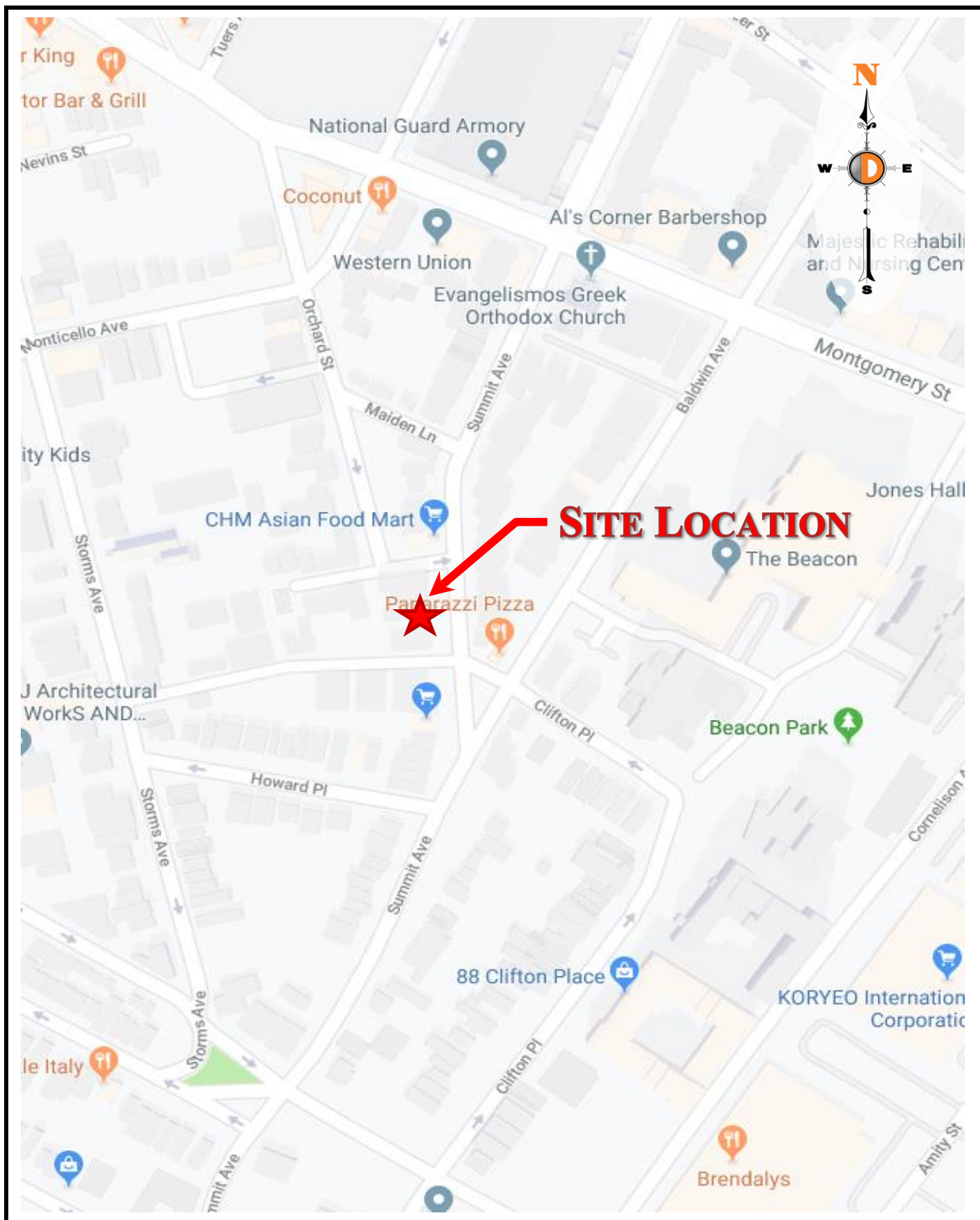
- The proposed 172 residential units and 1,045 SF of retail space will generate a maximum of 22 entering and 31 exiting vehicular trips during the morning peak hour and 36 entering and 45 exiting vehicular trips during the evening peak hour.
- The proposed 172 residential units and 1,045 SF of retail space will generate a maximum of 71 entering and 106 exiting pedestrian trips during the morning peak hour and 126 entering and 153 exiting pedestrian trips during the evening peak hour.
- Access to the site will be provided via one (1) full movement driveway along Summit Avenue opposite Clifton Place.
- With the addition of the site generated traffic, the intersection of Baldwin Avenue with Clifton Place will continue to operate at overall Level of Service “A” during the studied peak hours, maintaining the No Build Levels of Service.
- With the addition of the site generated traffic, the individual intersection movements of Baldwin Avenue with Summit Avenue will continue to operate at Level of Service “C” or better during the studied peak hours, maintaining the No Build Levels of Service.
- With the addition of the site generated traffic, the individual intersection movements of Summit Avenue with Clifton Place/the Site Driveway will operate at Level of Service “D” or better during the studied peak hours.
- As proposed, The Project’s site driveway and internal circulation have been designed to provide for safe and efficient movement of automobiles and are in compliance with City requirements.
- The proposed parking supply and design is sufficient to support the projected demand.

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 site driveway is located to provide safe and efficient access to the adjacent roadway system. The site plan as proposed provides for good circulation throughout the site and provides adequate parking to accommodate The Project’s needs.

Appendix A

Traffic Volume Figures



Proposed Mixed-Use Development
 Traffic Impact Study
 2087-99-004TE
 10/26/2020

Figure 1

Site Location Map

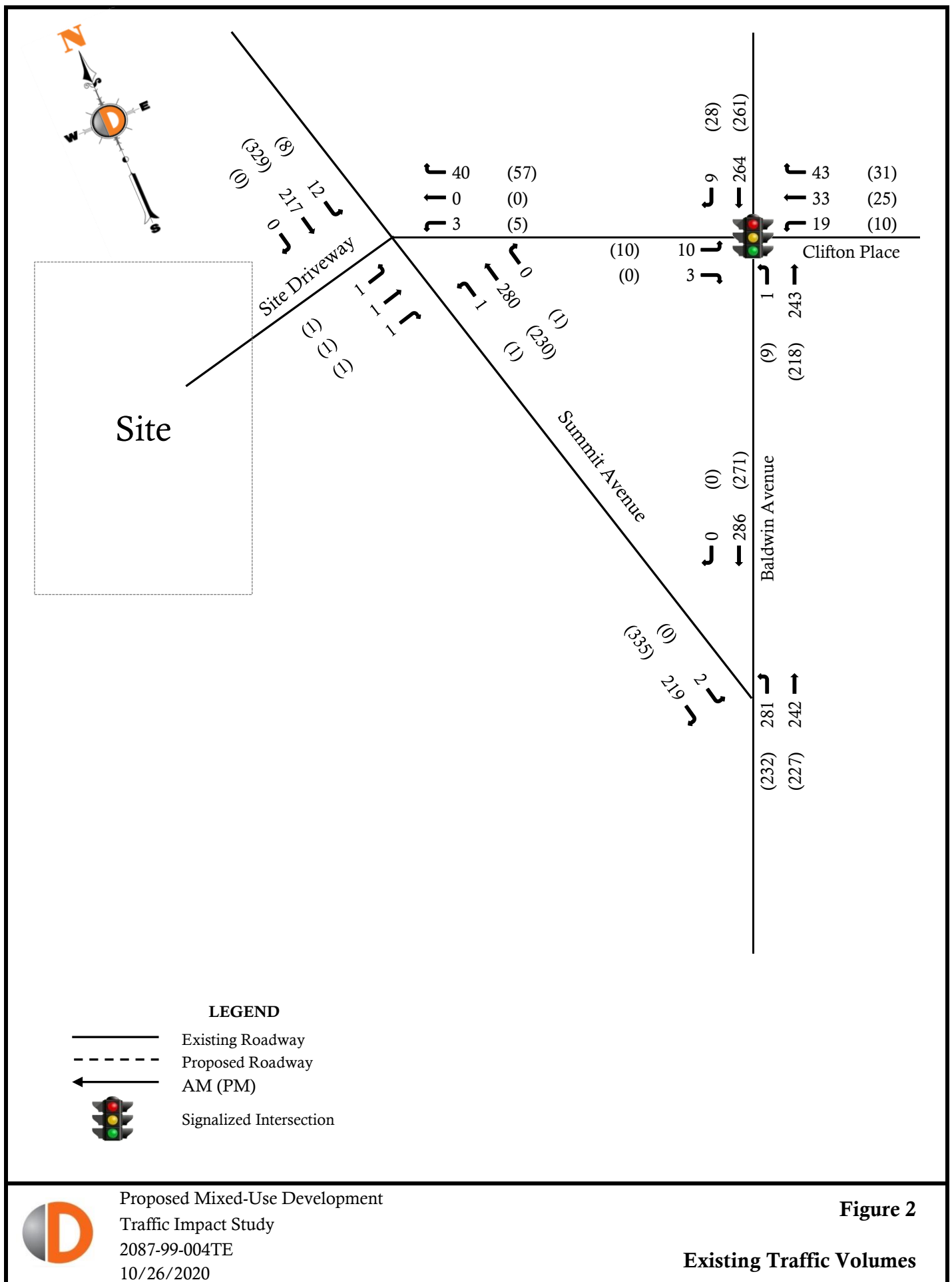
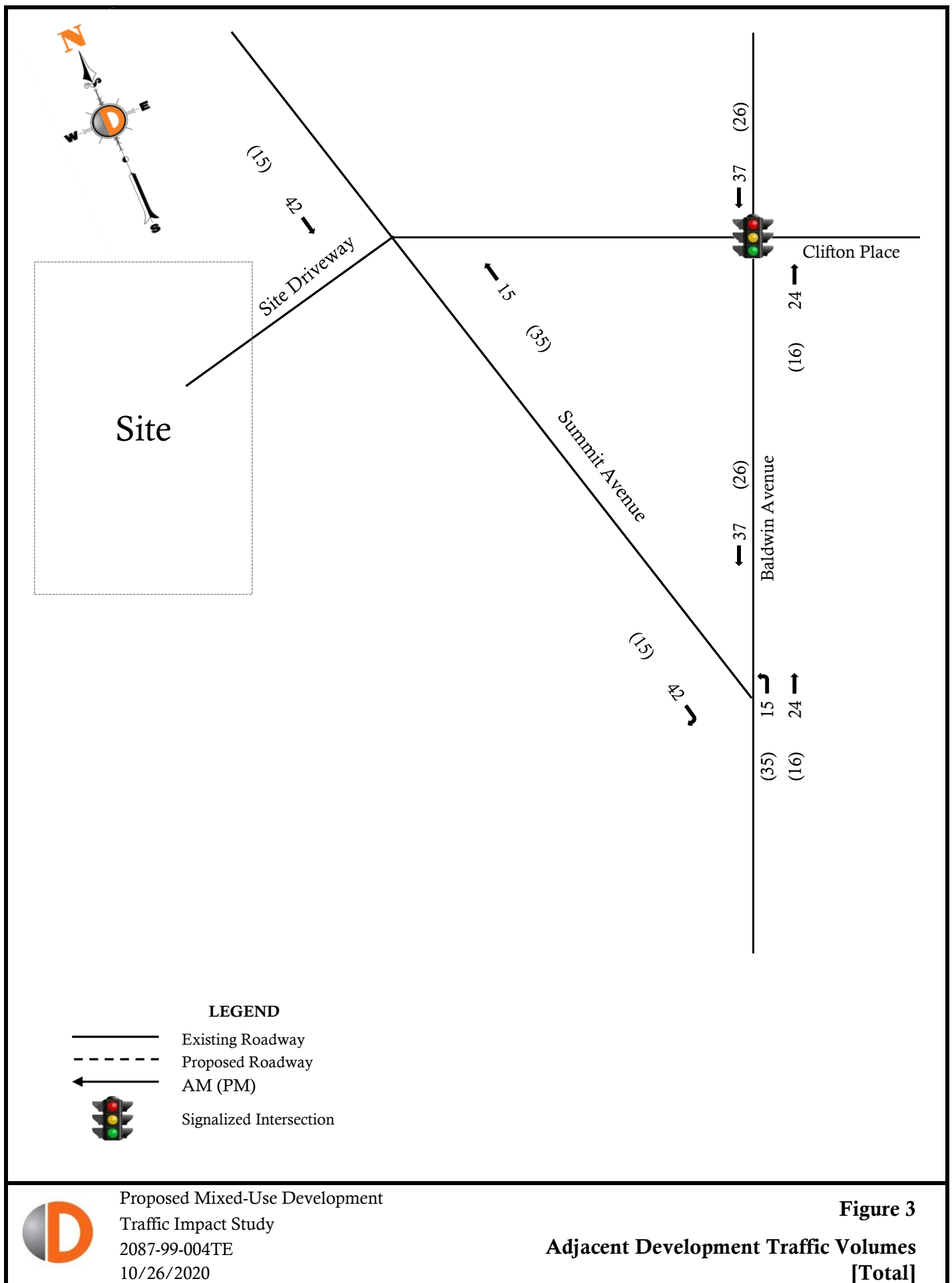


Figure 2

Existing Traffic Volumes

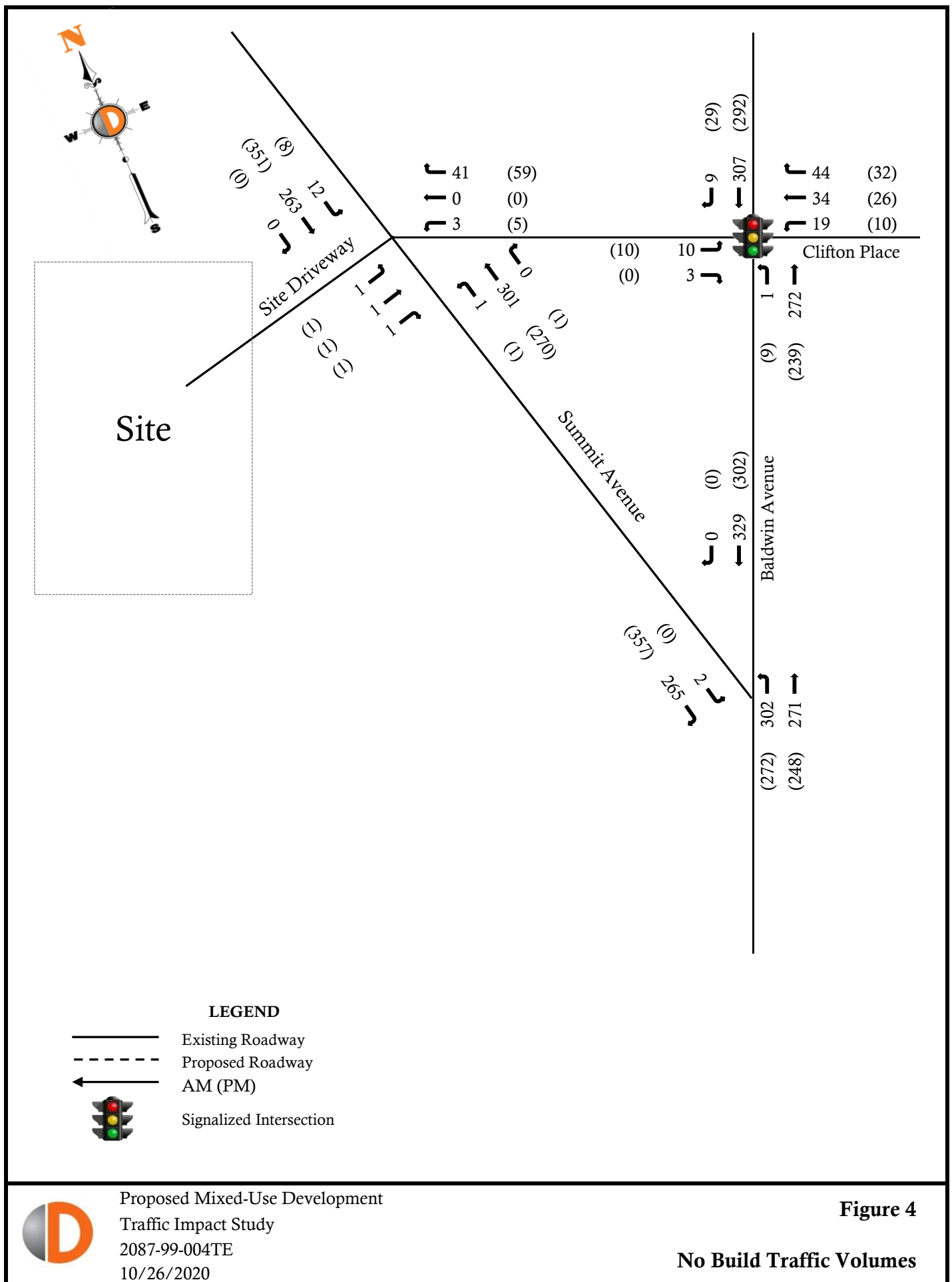


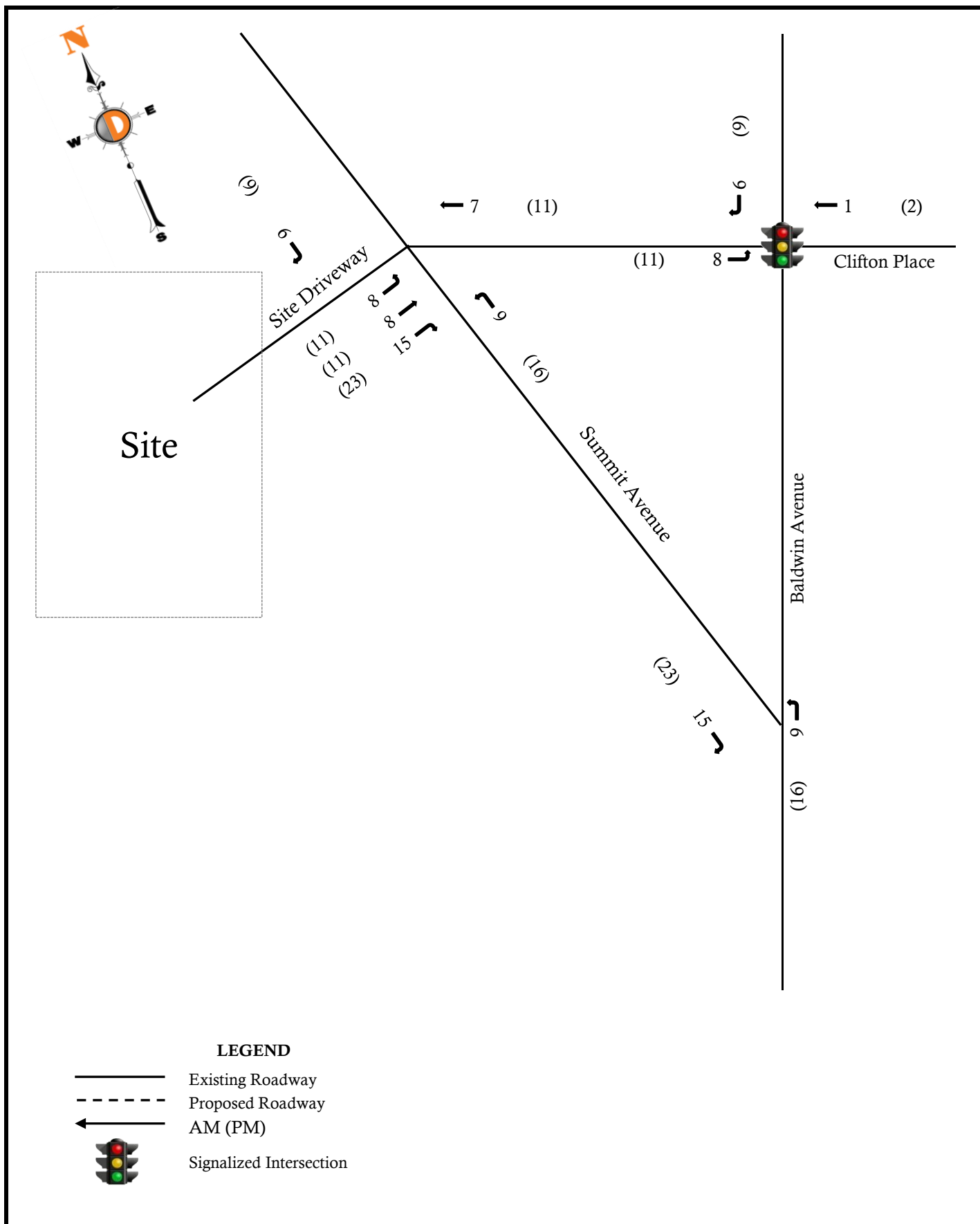
Proposed Mixed-Use Development
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Proposed Mixed-Use Development
 Traffic Impact Study
 2087-99-004TE
 10/26/2020

Figure 3
Adjacent Development Traffic Volumes
[Total]

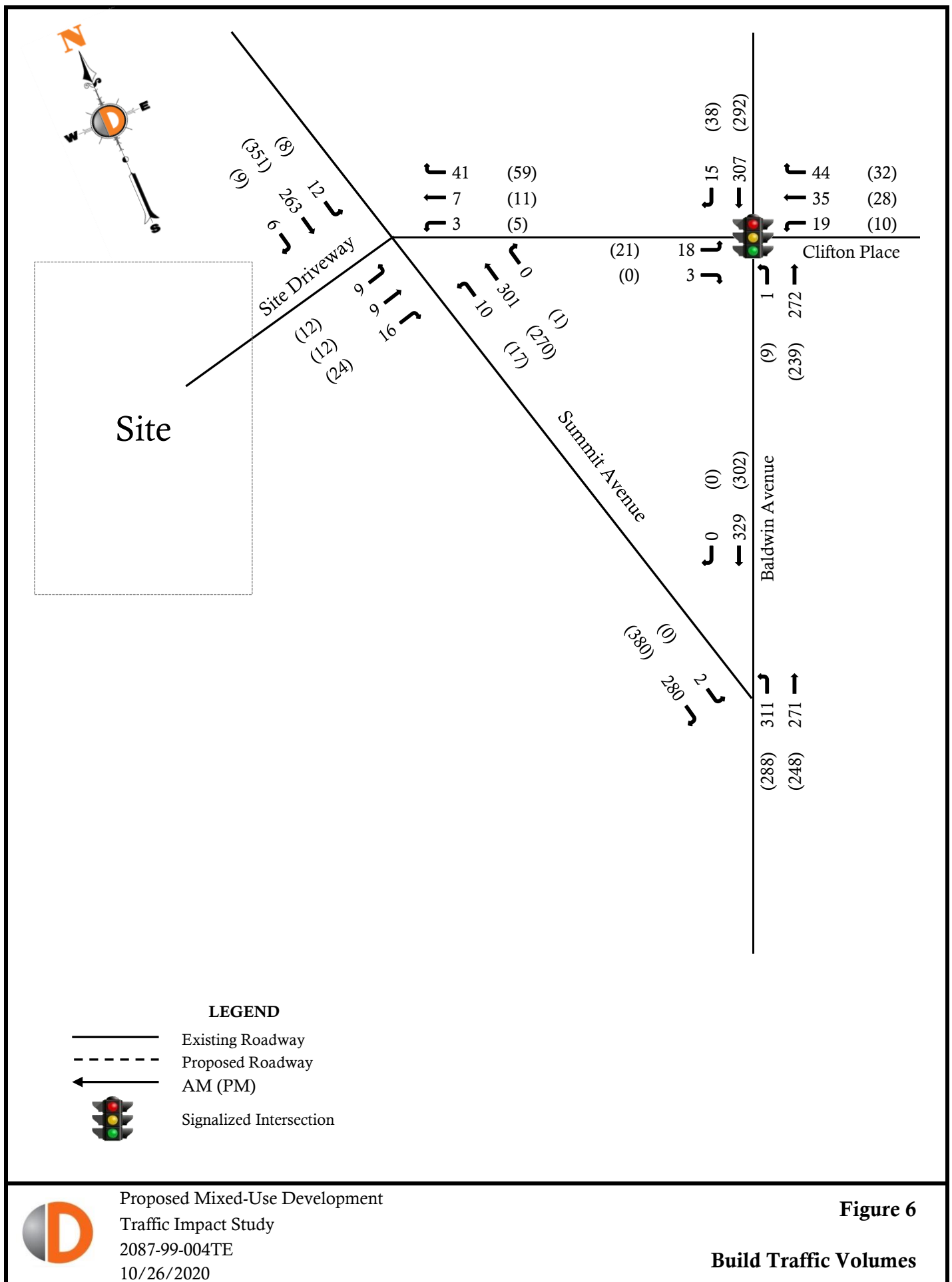




Proposed Mixed-Use Development
 Traffic Impact Study
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Figure 5

Site Generated Trips



Appendix B

Traffic Counts

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

E/W: Clifton Pl
N/S: Baldwin Ave
Town/County: Jersey City/Hudson
Job #: 2087-99-004TE

File Name : Baldwin Ave and Clifton PI - AMPM
Site Code : 00000000
Start Date : 10/3/2019
Page No : 1

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

	Clifton Place Eastbound					Clifton Place Westbound					Baldwin Avenue Northbound					Baldwin Avenue 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	0	0	0	0	0	0	1	2	4	7	6	58	0	0	64	0	17	0	7	24	95
07:15 AM	0	0	0	1	1	2	6	5	3	16	2	64	0	1	67	0	56	1	1	58	142
07:30 AM	2	0	0	4	6	6	9	11	6	32	1	66	0	1	68	0	61	1	4	66	172
07:45 AM	2	0	0	6	8	5	7	7	8	27	0	66	0	6	72	0	54	1	3	58	165
Total	4	0	0	11	15	13	23	25	21	82	9	254	0	8	271	0	188	3	15	206	574
08:00 AM	1	0	1	7	9	3	6	10	8	27	0	55	0	0	55	0	61	2	2	65	156
08:15 AM	2	0	1	9	12	5	11	15	3	34	0	56	0	6	62	0	88	5	2	95	203
08:30 AM	2	0	0	2	4	5	3	15	4	27	1	43	0	1	45	0	57	0	1	58	134
08:45 AM	2	0	0	2	4	2	10	14	4	30	3	58	0	3	64	0	56	1	1	58	156
Total	7	0	2	20	29	15	30	54	19	118	4	212	0	10	226	0	262	8	6	276	649
*** BREAK ***																					
04:30 PM	2	0	0	0	2	3	4	13	2	22	2	54	0	0	56	0	67	3	1	71	151
04:45 PM	2	0	0	1	3	4	6	8	1	19	0	61	0	0	61	0	75	2	1	78	161
Total	4	0	0	1	5	7	10	21	3	41	2	115	0	0	117	0	142	5	2	149	312
05:00 PM	3	0	0	3	6	6	7	8	1	22	3	57	0	3	63	0	66	5	2	73	164
05:15 PM	2	0	0	3	5	1	9	9	0	19	0	56	0	0	56	0	62	10	2	74	154
05:30 PM	1	0	0	3	4	2	5	9	1	17	3	49	0	2	54	0	69	9	0	78	153
05:45 PM	3	0	0	1	4	1	4	5	0	10	3	56	0	0	59	0	64	4	0	68	141
Total	9	0	0	10	19	10	25	31	2	68	9	218	0	5	232	0	261	28	4	293	612
06:00 PM	2	0	0	1	3	3	7	13	1	24	1	55	0	0	56	0	79	5	2	86	169
06:15 PM	1	0	0	2	3	1	9	6	2	18	2	52	0	1	55	0	56	2	1	59	135
Grand Total	27	0	2	45	74	49	104	150	48	351	27	906	0	24	957	0	988	51	30	1069	2451
Apprch %	36.5	0	2.7	60.8		14	29.6	42.7	13.7		2.8	94.7	0	2.5		0	92.4	4.8	2.8		
Total %	1.1	0	0.1	1.8	3	2	4.2	6.1	2	14.3	1.1	37	0	1	39	0	40.3	2.1	1.2	43.6	
Cars	27	0	2	45	74	49	103	149	48	349	27	880	0	23	930	0	960	51	30	1041	2394
% Cars	100	0	100	100	100	100	99	99.3	100	99.4	100	97.1	0	95.8	97.2	0	97.2	100	100	97.4	97.7
Trucks (SU)	0	0	0	0	0	0	1	1	0	2	0	26	0	1	27	0	28	0	0	28	57
% Trucks (SU)	0	0	0	0	0	0	1	0.7	0	0.6	0	2.9	0	4.2	2.8	0	2.8	0	0	2.6	2.3
Trucks (TT)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Trucks (TT)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Dynamic Traffic, LLC

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

E/W: Summit Ave
N/S: Baldwin Ave
Town/County: Jersey City/Hudson
Job #: 2087-99-004TE

File Name : Baldwin Ave and Summit Ave - AMPM
Site Code : 00000000
Start Date : 10/3/2019
Page No : 1

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

Start Time	Summit Avenue Eastbound					Baldwin Avenue Northbound					Baldwin Avenue Southbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
07:00 AM	0	0	31	0	31	36	0	0	0	36	0	0	0	0	0	67
07:15 AM	0	0	56	1	57	57	0	0	0	57	0	0	0	0	0	114
07:30 AM	2	0	62	3	67	63	0	0	0	63	0	0	0	0	0	130
07:45 AM	0	0	50	5	55	70	0	0	0	70	0	0	0	0	0	125
Total	2	0	199	9	210	226	0	0	0	226	0	0	0	0	0	436
08:00 AM	0	0	52	7	59	74	0	0	0	74	0	0	0	0	0	133
08:15 AM	0	0	55	4	59	74	0	0	0	74	0	0	0	0	0	133
08:30 AM	0	0	53	3	56	57	0	0	0	57	0	0	0	0	0	113
08:45 AM	0	0	80	2	82	38	0	0	0	38	0	0	0	0	0	120
Total	0	0	240	16	256	243	0	0	0	243	0	0	0	0	0	499
*** BREAK ***																
04:30 PM	0	0	66	2	68	59	0	0	0	59	0	0	0	0	0	127
04:45 PM	0	0	73	3	76	37	0	0	0	37	0	0	1	0	1	114
Total	0	0	139	5	144	96	0	0	0	96	0	0	1	0	1	241
05:00 PM	0	0	81	3	84	65	0	0	0	65	0	0	0	0	0	149
05:15 PM	0	0	89	1	90	47	0	0	0	47	0	0	0	0	0	137
05:30 PM	0	0	71	1	72	63	0	0	0	63	0	0	0	0	0	135
05:45 PM	0	0	93	1	94	57	0	0	0	57	0	0	0	0	0	151
Total	0	0	334	6	340	232	0	0	0	232	0	0	0	0	0	572
06:00 PM	0	0	78	1	79	51	0	0	0	51	0	0	1	0	1	131
06:15 PM	0	0	69	0	69	57	0	0	0	57	0	0	0	0	0	126
Grand Total	2	0	1059	37	1098	905	0	0	0	905	0	0	2	0	2	2005
Apprch %	0.2	0	96.4	3.4		100	0	0	0		0	0	100	0		
Total %	0.1	0	52.8	1.8	54.8	45.1	0	0	0	45.1	0	0	0.1	0	0.1	
Cars	2	0	1046	37	1085	893	0	0	0	893	0	0	2	0	2	1980
% Cars	100	0	98.8	100	98.8	98.7	0	0	0	98.7	0	0	100	0	100	98.8
Trucks (SU)	0	0	13	0	13	11	0	0	0	11	0	0	0	0	0	24
% Trucks (SU)	0	0	1.2	0	1.2	1.2	0	0	0	1.2	0	0	0	0	0	1.2
Trucks (TT)	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
% Trucks (TT)	0	0	0	0	0	0.1	0	0	0	0.1	0	0	0	0	0	0

1904 Main Street, Lake Como, NJ 07719
245 Main Street - Suite 110, Chester, NJ 07930
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E/W: Driveway/Clifton Pl
N/S: Summit Ave
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Job #: 2087-99-004TE

















File Name : Summit Ave and Clifton PI and Driveway - AMPM
Site Code : 00000000
Start Date : 10/3/2019
Page No : 1

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

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Appendix C

Capacity Analysis

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	0	3	19	33	43	1	243	0	0	264	9
Future Volume (vph)	10	0	3	19	33	43	1	243	0	0	264	9
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100
Lane Width (ft)	15	15	15	16	16	16	15	15	15	15	15	15
Grade (%)		0%			3%			2%			2%	
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		90			309			135			332	
Travel Time (s)		2.5			8.4			3.7			9.1	
Confl. Peds. (#/hr)	11		13	13		11	26					26
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	0%	0%	0%	0%	0%	2%	0%	5%	0%	0%	3%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	15	0	0	110	0	0	284	0	0	317	0
Turn Type	Perm	NA		Perm	NA		Perm	NA			NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2					
Detector Phase	4	4		8	8		2	2			6	
Switch Phase												
Minimum Initial (s)	20.0	20.0		20.0	20.0		42.0	42.0			42.0	
Minimum Split (s)	24.0	24.0		24.0	24.0		46.0	46.0			46.0	
Total Split (s)	24.0	24.0		24.0	24.0		46.0	46.0			46.0	
Total Split (%)	34.3%	34.3%		34.3%	34.3%		65.7%	65.7%			65.7%	
Yellow Time (s)	2.0	2.0		2.0	2.0		2.0	2.0			2.0	
All-Red Time (s)	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)		4.0			4.0			4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Max	Max			Max	
Act Effect Green (s)		20.1			20.1			46.4			46.4	
Actuated g/C Ratio		0.29			0.29			0.68			0.68	
v/c Ratio		0.03			0.17			0.19			0.21	
Control Delay		9.3			12.3			6.4			6.4	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		9.3			12.3			6.4			6.4	
LOS		A			B			A			A	
Approach Delay		9.3			12.3			6.4			6.4	
Approach LOS		A			B			A			A	
Queue Length 50th (ft)		0			19			50			56	
Queue Length 95th (ft)		11			50			78			86	
Internal Link Dist (ft)		10			229			55			252	
Turn Bay Length (ft)												
Base Capacity (vph)		551			633			1479			1505	
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		0.03			0.17			0.19			0.21	

Intersection Summary

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 68.2

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.21

Intersection Signal Delay: 7.3

Intersection LOS: A

Intersection Capacity Utilization 58.3%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 10: Baldwin Avenue & Clifton Place



Intersection

Int Delay, s/veh 5.1

Movement EBL EBR NBL NBT SBT SBRLane Configurations 

Traffic Vol, veh/h 2 219 281 242 286 0

Future Vol, veh/h 2 219 281 242 286 0

Conflicting Peds, #/hr 0 0 19 0 0 19

Sign Control Stop Stop Free Free Free Free

RT Channelized - None - None - None

Storage Length 0 - - - - -

Veh in Median Storage, # 0 - - 0 0 -

Grade, % -1 - - 2 -2 -

Peak Hour Factor 98 98 98 98 98 98

Heavy Vehicles, % 0 0 2 5 3 0

Mvmt Flow 2 223 287 247 292 0

Major/Minor Minor2 Major1 Major2

Conflicting Flow All 1132 311 311 0 - 0

Stage 1 311 - - - - -

Stage 2 821 - - - - -

Critical Hdwy 6.2 6.1 4.12 - - -

Critical Hdwy Stg 1 5.2 - - - - -

Critical Hdwy Stg 2 5.2 - - - - -

Follow-up Hdwy 3.5 3.3 2.218 - - -

Pot Cap-1 Maneuver 241 740 1249 - - -

Stage 1 761 - - - - -

Stage 2 456 - - - - -

Platoon blocked, % - - -

Mov Cap-1 Maneuver 169 727 1226 - - -

Mov Cap-2 Maneuver 169 - - - - -

Stage 1 545 - - - - -

Stage 2 448 - - - - -

Approach EB NB SB

HCM Control Delay, s 12.5 4.7 0

HCM LOS B

Minor Lane/Major Mvmt NBL NBT EBLn1 SBT SBR

Capacity (veh/h) 1226 - 706 - -

HCM Lane V/C Ratio 0.234 - 0.319 - -

HCM Control Delay (s) 8.8 0 12.5 - -

HCM Lane LOS A A B - -

HCM 95th %tile Q(veh) 0.9 - 1.4 - -

Intersection

Int Delay, s/veh 1.1

















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	1	1	3	0	40	1	280	0	12	217	0
Future Vol, veh/h	1	1	1	3	0	40	1	280	0	12	217	0
Conflicting Peds, #/hr	0	0	1	1	0	0	0	0	8	8	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	3	-	-	0	-	-	1	-	-	2	-
Peak Hour Factor	72	72	72	72	72	72	72	72	72	72	72	72
Heavy Vehicles, %	0	0	0	0	0	3	0	2	0	0	0	0
Mvmt Flow	1	1	1	4	0	56	1	389	0	17	301	0

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	754	734	302	736	734	397	301	0	0	397	0	0
Stage 1	335	335	-	399	399	-	-	-	-	-	-	-
Stage 2	419	399	-	337	335	-	-	-	-	-	-	-
Critical Hdwy	7.7	7.1	6.5	7.1	6.5	6.23	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.7	6.1	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.7	6.1	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.327	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	289	310	724	337	350	650	1272	-	-	1173	-	-
Stage 1	646	611	-	631	606	-	-	-	-	-	-	-
Stage 2	574	567	-	681	646	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	260	301	723	327	340	644	1272	-	-	1163	-	-
Mov Cap-2 Maneuver	260	301	-	327	340	-	-	-	-	-	-	-
Stage 1	645	600	-	625	600	-	-	-	-	-	-	-
Stage 2	524	561	-	665	634	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	15.4		11.6		0		0.4	
HCM LOS	C		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1272	-	-	351 603	1163	-	-
HCM Lane V/C Ratio	0.001	-	-	0.012 0.099	0.014	-	-
HCM Control Delay (s)	7.8	0	-	15.4 11.6	8.1	0	-
HCM Lane LOS	A	A	-	C B	A A	-	-
HCM 95th %tile Q(veh)	0	-	-	0 0.3	0	-	-

Approach	EB	WB	NB	SB
Crosswalk Length (ft)	29.2	16.8	32.1	27.1
Crosswalk Width (ft)	12.0	12.0	12.0	12.0
Total Number of Lanes Crossed	2	1	2	2
Number of Right-Turn Islands	0	0	0	0
Type of Control	None	None	None	None
Corresponding Signal Phase	6	2	4	8
Effective Walk Time (s)	0.0	0.0	0.0	0.0
Right Corner Size A (ft)	9.0	9.0	9.0	9.0
Right Corner Size B (ft)	9.0	9.0	9.0	9.0
Right Corner Curb Radius (ft)	0.0	0.0	0.0	0.0
Right Corner Total Area (sq.ft)	81.00	81.00	81.00	81.00
Ped. Left-Right Flow Rate (p/h)	0	0	0	0
Ped. Right-Left Flow Rate (p/h)	0	0	0	0
Ped. R. Sidewalk Flow Rate (p/h)	0	0	0	0
Veh. Perm. L. Flow in Walk (v/h)	0	0	0	0
Veh. Perm. R. Flow in Walk (v/h)	0	0	0	0
Veh. RTOR Flow in Walk (v/h)	0	0	0	0
85th percentile speed (mph)	25	25	25	25
Right Corner Area per Ped (sq.ft)	0.0	0.0	0.0	0.0
Right Corner Quality of Service	-	-	-	-
Ped. Circulation Area (sq.ft)	0.0	0.0	0.0	0.0
Crosswalk Circulation Code	-	-	-	-
Pedestrian Delay (s/p)	35.0	35.0	35.0	35.0
Pedestrian Compliance Code	Poor	Poor	Poor	Poor
Pedestrian Crosswalk Score	1.74	1.51	1.96	1.98
Pedestrian Crosswalk LOS	B	B	B	B

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	0	0	10	25	31	9	218	0	0	261	28
Future Volume (vph)	10	0	0	10	25	31	9	218	0	0	261	28
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100
Lane Width (ft)	15	15	15	16	16	16	15	15	15	15	15	15
Grade (%)		0%			3%			2%			2%	
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		90			309			135			332	
Travel Time (s)		2.5			8.4			3.7			9.1	
Confl. Peds. (#/hr)	4		5	5		4	10					10
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%	0%	0%	0%	0%	0%	0%	2%	0%	0%	2%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	11	0	0	71	0	0	244	0	0	311	0
Turn Type	Perm	NA		Perm	NA		Perm	NA			NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2					
Detector Phase	4	4		8	8		2	2			6	
Switch Phase												
Minimum Initial (s)	20.0	20.0		20.0	20.0		42.0	42.0			42.0	
Minimum Split (s)	24.0	24.0		24.0	24.0		46.0	46.0			46.0	
Total Split (s)	24.0	24.0		24.0	24.0		46.0	46.0			46.0	
Total Split (%)	34.3%	34.3%		34.3%	34.3%		65.7%	65.7%			65.7%	
Yellow Time (s)	2.0	2.0		2.0	2.0		2.0	2.0			2.0	
All-Red Time (s)	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)		4.0			4.0			4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Max	Max			Max	
Act Effect Green (s)		20.1			20.1			50.5			50.5	
Actuated g/C Ratio		0.30			0.30			0.76			0.76	
v/c Ratio		0.02			0.11			0.14			0.18	
Control Delay		18.2			12.1			5.3			5.2	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		18.2			12.1			5.3			5.2	
LOS		B			B			A			A	
Approach Delay		18.2			12.1			5.3			5.2	
Approach LOS		B			B			A			A	
Queue Length 50th (ft)		3			12			42			53	
Queue Length 95th (ft)		14			39			71			87	
Internal Link Dist (ft)		10			229			55			252	
Turn Bay Length (ft)												
Base Capacity (vph)		563			654			1684			1684	
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		0.02			0.11			0.14			0.18	

Intersection Summary

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 66.4

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.18

Intersection Signal Delay: 6.2

Intersection LOS: A




Intersection Capacity Utilization 58.3%

ICU Level of Service B

Analysis Period (min) 15

















Splits and Phases: 10: Baldwin Avenue & Clifton Place



Intersection						
Int Delay, s/veh	6.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	335	232	227	271	0
Future Vol, veh/h	0	335	232	227	271	0
Conflicting Peds, #/hr	0	0	6	0	0	6
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	-1	-	-	2	-2	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	1	1	2	2	0
Mvmt Flow	0	353	244	239	285	0
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1018	291	291	0	-	0
Stage 1	291	-	-	-	-	-
Stage 2	727	-	-	-	-	-
Critical Hdwy	6.2	6.11	4.11	-	-	-
Critical Hdwy Stg 1	5.2	-	-	-	-	-
Critical Hdwy Stg 2	5.2	-	-	-	-	-
Follow-up Hdwy	3.5	3.309	2.209	-	-	-
Pot Cap-1 Maneuver	281	757	1276	-	-	-
Stage 1	776	-	-	-	-	-
Stage 2	502	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	216	753	1269	-	-	-
Mov Cap-2 Maneuver	216	-	-	-	-	-
Stage 1	600	-	-	-	-	-
Stage 2	499	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	13.9	4.3		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1269	-	753	-	-	
HCM Lane V/C Ratio	0.192	-	0.468	-	-	
HCM Control Delay (s)	8.5	0	13.9	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile Q(veh)	0.7	-	2.5	-	-	

Intersection												
Int Delay, s/veh	1.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	1	1	5	0	57	1	230	1	8	329	0
Future Vol, veh/h	1	1	1	5	0	57	1	230	1	8	329	0
Conflicting Peds, #/hr	0	0	2	2	0	0	0	0	8	8	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	3	-	-	0	-	-	1	-	-	2	-
Peak Hour Factor	76	76	76	76	76	76	76	76	76	76	76	76
Heavy Vehicles, %	0	0	0	0	0	0	0	1	0	0	1	0
Mvmt Flow	1	1	1	7	0	75	1	303	1	11	433	0
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	798	769	435	772	769	312	433	0	0	312	0	0
Stage 1	455	455	-	314	314	-	-	-	-	-	-	-
Stage 2	343	314	-	458	455	-	-	-	-	-	-	-
Critical Hdwy	7.7	7.1	6.5	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.7	6.1	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.7	6.1	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	268	294	603	319	334	733	1137	-	-	1260	-	-
Stage 1	546	530	-	701	660	-	-	-	-	-	-	-
Stage 2	639	626	-	587	572	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	238	288	602	311	327	726	1137	-	-	1249	-	-
Mov Cap-2 Maneuver	238	288	-	311	327	-	-	-	-	-	-	-
Stage 1	545	524	-	694	653	-	-	-	-	-	-	-
Stage 2	572	620	-	576	565	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	16.4		11.3		0		0.2					
HCM LOS	C		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1137	-	-	321	655	1249	-	-				
HCM Lane V/C Ratio	0.001	-	-	0.012	0.125	0.008	-	-				
HCM Control Delay (s)	8.2	0	-	16.4	11.3	7.9	0	-				
HCM Lane LOS	A	A	-	C	B	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0	0.4	0	-	-				

Approach	EB	WB	NB	SB
Crosswalk Length (ft)	29.2	16.8	32.1	27.1
Crosswalk Width (ft)	12.0	12.0	12.0	12.0
Total Number of Lanes Crossed	2	1	2	2
Number of Right-Turn Islands	0	0	0	0
Type of Control	None	None	None	None
Corresponding Signal Phase	6	2	4	8
Effective Walk Time (s)	0.0	0.0	0.0	0.0
Right Corner Size A (ft)	9.0	9.0	9.0	9.0
Right Corner Size B (ft)	9.0	9.0	9.0	9.0
Right Corner Curb Radius (ft)	0.0	0.0	0.0	0.0
Right Corner Total Area (sq.ft)	81.00	81.00	81.00	81.00
Ped. Left-Right Flow Rate (p/h)	0	0	0	0
Ped. Right-Left Flow Rate (p/h)	0	0	0	0
Ped. R. Sidewalk Flow Rate (p/h)	0	0	0	0
Veh. Perm. L. Flow in Walk (v/h)	0	0	0	0
Veh. Perm. R. Flow in Walk (v/h)	0	0	0	0
Veh. RTOR Flow in Walk (v/h)	0	0	0	0
85th percentile speed (mph)	25	25	25	25
Right Corner Area per Ped (sq.ft)	0.0	0.0	0.0	0.0
Right Corner Quality of Service	-	-	-	-
Ped. Circulation Area (sq.ft)	0.0	0.0	0.0	0.0
Crosswalk Circulation Code	-	-	-	-
Pedestrian Delay (s/p)	35.0	35.0	35.0	35.0
Pedestrian Compliance Code	Poor	Poor	Poor	Poor
Pedestrian Crosswalk Score	1.75	1.48	1.93	1.95
Pedestrian Crosswalk LOS	B	A	B	B

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	0	3	19	34	44	1	272	0	0	307	9
Future Volume (vph)	10	0	3	19	34	44	1	272	0	0	307	9
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100
Lane Width (ft)	15	15	15	16	16	16	15	15	15	15	15	15
Grade (%)		0%			3%			2%			2%	
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		90			309			135			332	
Travel Time (s)		2.5			8.4			3.7			9.1	
Confl. Peds. (#/hr)	11		13	13		11	26					26
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	0%	0%	0%	0%	0%	2%	0%	5%	0%	0%	3%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	15	0	0	113	0	0	317	0	0	367	0
Turn Type	Perm	NA		Perm	NA		Perm	NA			NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2					
Detector Phase	4	4		8	8		2	2			6	
Switch Phase												
Minimum Initial (s)	20.0	20.0		20.0	20.0		42.0	42.0			42.0	
Minimum Split (s)	24.0	24.0		24.0	24.0		46.0	46.0			46.0	
Total Split (s)	24.0	24.0		24.0	24.0		46.0	46.0			46.0	
Total Split (%)	34.3%	34.3%		34.3%	34.3%		65.7%	65.7%			65.7%	
Yellow Time (s)	2.0	2.0		2.0	2.0		2.0	2.0			2.0	
All-Red Time (s)	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)		4.0			4.0			4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Max	Max			Max	
Act Effect Green (s)		20.1			20.1			46.4			46.4	
Actuated g/C Ratio		0.29			0.29			0.68			0.68	
v/c Ratio		0.03			0.18			0.21			0.24	
Control Delay		9.3			12.4			6.5			6.6	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		9.3			12.4			6.5			6.6	
LOS		A			B			A			A	
Approach Delay		9.3			12.4			6.5			6.6	
Approach LOS		A			B			A			A	
Queue Length 50th (ft)		0			20			57			66	
Queue Length 95th (ft)		11			51			87			100	
Internal Link Dist (ft)		10			229			55			252	
Turn Bay Length (ft)												
Base Capacity (vph)		550			634			1479			1505	
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		0.03			0.18			0.21			0.24	

Intersection Summary

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 68.2

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.24

Intersection Signal Delay: 7.4

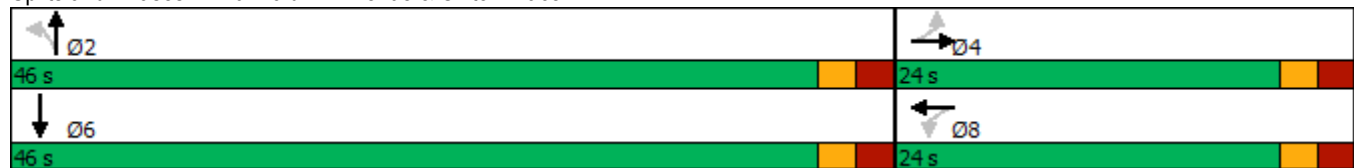
Intersection LOS: A




Intersection Capacity Utilization 58.3%





ICU Level of Service B

Analysis Period (min) 15

















Splits and Phases: 10: Baldwin Avenue & Clifton Place



Intersection						
Int Delay, s/veh	5.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	265	302	271	329	0
Future Vol, veh/h	2	265	302	271	329	0
Conflicting Peds, #/hr	0	0	19	0	0	19
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	-1	-	-	2	-2	-
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	0	0	2	5	3	0
Mvmt Flow	2	270	308	277	336	0
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1248	355	355	0	-	0
Stage 1	355	-	-	-	-	-
Stage 2	893	-	-	-	-	-
Critical Hdwy	6.2	6.1	4.12	-	-	-
Critical Hdwy Stg 1	5.2	-	-	-	-	-
Critical Hdwy Stg 2	5.2	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.218	-	-	-
Pot Cap-1 Maneuver	207	700	1204	-	-	-
Stage 1	728	-	-	-	-	-
Stage 2	424	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	138	687	1182	-	-	-
Mov Cap-2 Maneuver	138	-	-	-	-	-
Stage 1	495	-	-	-	-	-
Stage 2	416	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	14.1	4.8		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1182	-	667	-	-	
HCM Lane V/C Ratio	0.261	-	0.408	-	-	
HCM Control Delay (s)	9.1	0	14.1	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile Q(veh)	1	-	2	-	-	

Intersection												
Int Delay, s/veh	1.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	1	1	3	0	41	1	301	0	12	263	0
Future Vol, veh/h	1	1	1	3	0	41	1	301	0	12	263	0
Conflicting Peds, #/hr	0	0	1	1	0	0	0	0	8	8	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	3	-	-	0	-	-	1	-	-	2	-
Peak Hour Factor	72	72	72	72	72	72	72	72	72	72	72	72
Heavy Vehicles, %	0	0	0	0	0	3	0	2	0	0	0	0
Mvmt Flow	1	1	1	4	0	57	1	418	0	17	365	0
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	848	827	366	829	827	426	365	0	0	426	0	0
Stage 1	399	399	-	428	428	-	-	-	-	-	-	-
Stage 2	449	428	-	401	399	-	-	-	-	-	-	-
Critical Hdwy	7.7	7.1	6.5	7.1	6.5	6.23	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.7	6.1	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.7	6.1	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.327	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	246	269	663	292	309	626	1205	-	-	1144	-	-
Stage 1	591	567	-	609	588	-	-	-	-	-	-	-
Stage 2	550	548	-	630	606	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	220	261	662	283	300	620	1205	-	-	1134	-	-
Mov Cap-2 Maneuver	220	261	-	283	300	-	-	-	-	-	-	-
Stage 1	590	556	-	603	582	-	-	-	-	-	-	-
Stage 2	499	543	-	615	594	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s	17		12			0			0.4			
HCM LOS	C		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1205	-	-	303	573	1134	-	-				
HCM Lane V/C Ratio	0.001	-	-	0.014	0.107	0.015	-	-				
HCM Control Delay (s)	8	0	-	17	12	8.2	0	-				
HCM Lane LOS	A	A	-	C	B	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0	0.4	0	-	-				

Approach	EB	WB	NB	SB
Crosswalk Length (ft)	29.2	16.8	32.1	27.1
Crosswalk Width (ft)	12.0	12.0	12.0	12.0
Total Number of Lanes Crossed	2	1	2	2
Number of Right-Turn Islands	0	0	0	0
Type of Control	None	None	None	None
Corresponding Signal Phase	6	2	4	8
Effective Walk Time (s)	0.0	0.0	0.0	0.0
Right Corner Size A (ft)	9.0	9.0	9.0	9.0
Right Corner Size B (ft)	9.0	9.0	9.0	9.0
Right Corner Curb Radius (ft)	0.0	0.0	0.0	0.0
Right Corner Total Area (sq.ft)	81.00	81.00	81.00	81.00
Ped. Left-Right Flow Rate (p/h)	0	0	0	0
Ped. Right-Left Flow Rate (p/h)	0	0	0	0
Ped. R. Sidewalk Flow Rate (p/h)	0	0	0	0
Veh. Perm. L. Flow in Walk (v/h)	0	0	0	0
Veh. Perm. R. Flow in Walk (v/h)	0	0	0	0
Veh. RTOR Flow in Walk (v/h)	0	0	0	0
85th percentile speed (mph)	25	25	25	25
Right Corner Area per Ped (sq.ft)	0.0	0.0	0.0	0.0
Right Corner Quality of Service	-	-	-	-
Ped. Circulation Area (sq.ft)	0.0	0.0	0.0	0.0
Crosswalk Circulation Code	-	-	-	-
Pedestrian Delay (s/p)	35.0	35.0	35.0	35.0
Pedestrian Compliance Code	Poor	Poor	Poor	Poor
Pedestrian Crosswalk Score	1.74	1.52	2.00	2.02
Pedestrian Crosswalk LOS	B	B	B	B

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	0	0	10	26	32	9	239	0	0	292	29
Future Volume (vph)	10	0	0	10	26	32	9	239	0	0	292	29
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100
Lane Width (ft)	15	15	15	16	16	16	15	15	15	15	15	15
Grade (%)		0%			3%			2%			2%	
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		90			309			135			332	
Travel Time (s)		2.5			8.4			3.7			9.1	
Confl. Peds. (#/hr)	4		5	5		4	10					10
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%	0%	0%	0%	0%	0%	0%	2%	0%	0%	2%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	11	0	0	73	0	0	267	0	0	345	0
Turn Type	Perm	NA		Perm	NA		Perm	NA			NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2					
Detector Phase	4	4		8	8		2	2			6	
Switch Phase												
Minimum Initial (s)	20.0	20.0		20.0	20.0		42.0	42.0			42.0	
Minimum Split (s)	24.0	24.0		24.0	24.0		46.0	46.0			46.0	
Total Split (s)	24.0	24.0		24.0	24.0		46.0	46.0			46.0	
Total Split (%)	34.3%	34.3%		34.3%	34.3%		65.7%	65.7%			65.7%	
Yellow Time (s)	2.0	2.0		2.0	2.0		2.0	2.0			2.0	
All-Red Time (s)	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)		4.0			4.0			4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Max	Max			Max	
Act Effect Green (s)		20.1			20.1			50.5			50.5	
Actuated g/C Ratio		0.30			0.30			0.76			0.76	
v/c Ratio		0.02			0.11			0.16			0.20	
Control Delay		18.2			12.1			5.3			5.3	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		18.2			12.1			5.3			5.3	
LOS		B			B			A			A	
Approach Delay		18.2			12.1			5.3			5.3	
Approach LOS		B			B			A			A	
Queue Length 50th (ft)		3			12			46			60	
Queue Length 95th (ft)		14			40			78			98	
Internal Link Dist (ft)		10			229			55			252	
Turn Bay Length (ft)												
Base Capacity (vph)		558			656			1684			1685	
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		0.02			0.11			0.16			0.20	

Intersection Summary

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 66.4

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.20

Intersection Signal Delay: 6.2

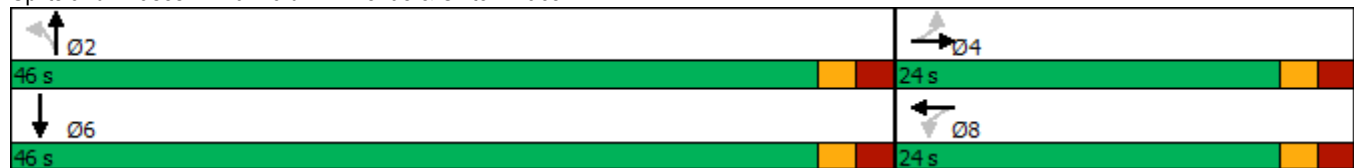
Intersection LOS: A

Intersection Capacity Utilization 58.3%

ICU Level of Service B




Analysis Period (min) 15

Splits and Phases: 10: Baldwin Avenue & Clifton Place



Intersection

Int Delay, s/veh 6.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	357	272	248	302	0
Future Vol, veh/h	0	357	272	248	302	0
Conflicting Peds, #/hr	0	0	6	0	0	6
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	-1	-	-	2	-2	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	1	1	2	2	0
Mvmt Flow	0	376	286	261	318	0

















Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	1157	324	324
Stage 1	324	-	-
Stage 2	833	-	-
Critical Hdwy	6.2	6.11	4.11
Critical Hdwy Stg 1	5.2	-	-
Critical Hdwy Stg 2	5.2	-	-
Follow-up Hdwy	3.5	3.309	2.209
Pot Cap-1 Maneuver	234	726	1241
Stage 1	751	-	-
Stage 2	451	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	168	722	1234
Mov Cap-2 Maneuver	168	-	-
Stage 1	544	-	-
Stage 2	448	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15.3	4.6	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1234	-	722	-	-
HCM Lane V/C Ratio	0.232	-	0.52	-	-
HCM Control Delay (s)	8.8	0	15.3	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.9	-	3	-	-

Intersection												
Int Delay, s/veh	1.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	1	1	5	0	59	1	270	1	8	351	0
Future Vol, veh/h	1	1	1	5	0	59	1	270	1	8	351	0
Conflicting Peds, #/hr	0	0	2	2	0	0	0	0	8	8	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	3	-	-	0	-	-	1	-	-	2	-
Peak Hour Factor	76	76	76	76	76	76	76	76	76	76	76	76
Heavy Vehicles, %	0	0	0	0	0	0	0	1	0	0	1	0
Mvmt Flow	1	1	1	7	0	78	1	355	1	11	462	0
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	881	850	464	853	850	364	462	0	0	364	0	0
Stage 1	484	484	-	366	366	-	-	-	-	-	-	-
Stage 2	397	366	-	487	484	-	-	-	-	-	-	-
Critical Hdwy	7.7	7.1	6.5	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.7	6.1	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.7	6.1	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	233	260	579	281	300	685	1110	-	-	1206	-	-
Stage 1	524	512	-	657	626	-	-	-	-	-	-	-
Stage 2	592	589	-	566	555	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	204	254	578	273	293	679	1110	-	-	1195	-	-
Mov Cap-2 Maneuver	204	254	-	273	293	-	-	-	-	-	-	-
Stage 1	523	506	-	650	620	-	-	-	-	-	-	-
Stage 2	524	583	-	555	548	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	17.9		11.9		0		0.2					
HCM LOS	C		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1110	-	-	284	608	1195	-	-				
HCM Lane V/C Ratio	0.001	-	-	0.014	0.139	0.009	-	-				
HCM Control Delay (s)	8.2	0	-	17.9	11.9	8	0	-				
HCM Lane LOS	A	A	-	C	B	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0	0.5	0	-	-				

Approach	EB	WB	NB	SB
Crosswalk Length (ft)	29.2	16.8	32.1	27.1
Crosswalk Width (ft)	12.0	12.0	12.0	12.0
Total Number of Lanes Crossed	2	1	2	2
Number of Right-Turn Islands	0	0	0	0
Type of Control	None	None	None	None
Corresponding Signal Phase	6	2	4	8
Effective Walk Time (s)	0.0	0.0	0.0	0.0
Right Corner Size A (ft)	9.0	9.0	9.0	9.0
Right Corner Size B (ft)	9.0	9.0	9.0	9.0
Right Corner Curb Radius (ft)	0.0	0.0	0.0	0.0
Right Corner Total Area (sq.ft)	81.00	81.00	81.00	81.00
Ped. Left-Right Flow Rate (p/h)	0	0	0	0
Ped. Right-Left Flow Rate (p/h)	0	0	0	0
Ped. R. Sidewalk Flow Rate (p/h)	0	0	0	0
Veh. Perm. L. Flow in Walk (v/h)	0	0	0	0
Veh. Perm. R. Flow in Walk (v/h)	0	0	0	0
Veh. RTOR Flow in Walk (v/h)	0	0	0	0
85th percentile speed (mph)	25	25	25	25
Right Corner Area per Ped (sq.ft)	0.0	0.0	0.0	0.0
Right Corner Quality of Service	-	-	-	-
Ped. Circulation Area (sq.ft)	0.0	0.0	0.0	0.0
Crosswalk Circulation Code	-	-	-	-
Pedestrian Delay (s/p)	35.0	35.0	35.0	35.0
Pedestrian Compliance Code	Poor	Poor	Poor	Poor
Pedestrian Crosswalk Score	1.75	1.48	1.96	1.98
Pedestrian Crosswalk LOS	B	A	B	B

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	0	3	19	36	44	1	272	0	0	307	17
Future Volume (vph)	22	0	3	19	36	44	1	272	0	0	307	17
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100
Lane Width (ft)	15	15	15	16	16	16	15	15	15	15	15	15
Grade (%)		0%			3%			2%			2%	
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		90			309			135			332	
Travel Time (s)		2.5			8.4			3.7			9.1	
Confl. Peds. (#/hr)	11		94	94		11	26					26
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	0%	0%	0%	0%	0%	2%	0%	5%	0%	0%	3%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	29	0	0	115	0	0	317	0	0	377	0
Turn Type	Perm	NA		Perm	NA		Perm	NA			NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2					
Detector Phase	4	4		8	8		2	2			6	
Switch Phase												
Minimum Initial (s)	20.0	20.0		20.0	20.0		42.0	42.0			42.0	
Minimum Split (s)	24.0	24.0		24.0	24.0		46.0	46.0			46.0	
Total Split (s)	24.0	24.0		24.0	24.0		46.0	46.0			46.0	
Total Split (%)	34.3%	34.3%		34.3%	34.3%		65.7%	65.7%			65.7%	
Yellow Time (s)	2.0	2.0		2.0	2.0		2.0	2.0			2.0	
All-Red Time (s)	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)		4.0			4.0			4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Max	Max			Max	
Act Effect Green (s)		20.1			20.1			46.4			46.4	
Actuated g/C Ratio		0.29			0.29			0.68			0.68	
v/c Ratio		0.06			0.19			0.21			0.25	
Control Delay		12.3			12.6			6.5			6.6	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		12.3			12.6			6.5			6.6	
LOS		B			B			A			A	
Approach Delay		12.3			12.6			6.5			6.6	
Approach LOS		B			B			A			A	
Queue Length 50th (ft)		4			20			57			68	
Queue Length 95th (ft)		20			52			87			103	
Internal Link Dist (ft)		10			229			55			252	
Turn Bay Length (ft)												
Base Capacity (vph)		512			618			1479			1500	
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		0.06			0.19			0.21			0.25	

Intersection Summary

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 68.2

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.25

Intersection Signal Delay: 7.6

Intersection LOS: A

Intersection Capacity Utilization 58.3%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 10: Baldwin Avenue & Clifton Place



Intersection

Int Delay, s/veh 5.9

Movement EBL EBR NBL NBT SBT SBRLane Configurations 

Traffic Vol, veh/h 2 287 316 271 329 0

Future Vol, veh/h 2 287 316 271 329 0

Conflicting Peds, #/hr 0 0 19 0 0 19

Sign Control Stop Stop Free Free Free Free

RT Channelized - None - None - None

Storage Length 0 - - - - -

Veh in Median Storage, # 0 - - 0 0 -

Grade, % -1 - - 2 -2 -

Peak Hour Factor 98 98 98 98 98 98

Heavy Vehicles, % 0 0 2 5 3 0

Mvmt Flow 2 293 322 277 336 0

Major/Minor Minor2 Major1 Major2

Conflicting Flow All 1276 355 355 0 - 0

Stage 1 355 - - - - -

Stage 2 921 - - - - -

Critical Hdwy 6.2 6.1 4.12 - - -

Critical Hdwy Stg 1 5.2 - - - - -

Critical Hdwy Stg 2 5.2 - - - - -

Follow-up Hdwy 3.5 3.3 2.218 - - -

Pot Cap-1 Maneuver 199 700 1204 - - -

Stage 1 728 - - - - -

Stage 2 412 - - - - -

Platoon blocked, % - - -

Mov Cap-1 Maneuver 130 687 1182 - - -

Mov Cap-2 Maneuver 130 - - - - -

Stage 1 485 - - - - -

Stage 2 405 - - - - -

Approach EB NB SB

HCM Control Delay, s 14.6 4.9 0

HCM LOS B

Minor Lane/Major Mvmt NBL NBT EBLn1 SBT SBR

Capacity (veh/h) 1182 - 667 - -

HCM Lane V/C Ratio 0.273 - 0.442 - -

HCM Control Delay (s) 9.2 0 14.6 - -

HCM Lane LOS A A B - -

HCM 95th %tile Q(veh) 1.1 - 2.3 - -

Intersection

Int Delay, s/veh 2.9

















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	13	13	23	3	10	41	15	301	0	12	263	8
Future Vol, veh/h	13	13	23	3	10	41	15	301	0	12	263	8
Conflicting Peds, #/hr	0	0	82	82	0	0	0	0	8	8	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	3	-	-	0	-	-	1	-	-	2	-
Peak Hour Factor	72	72	72	72	72	72	72	72	72	72	72	72
Heavy Vehicles, %	0	0	0	0	0	3	0	2	0	0	0	0
Mvmt Flow	18	18	32	4	14	57	21	418	0	17	365	11

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	901	873	453	980	878	426	376	0	0	426	0	0
Stage 1	405	405	-	468	468	-	-	-	-	-	-	-
Stage 2	496	468	-	512	410	-	-	-	-	-	-	-
Critical Hdwy	7.7	7.1	6.5	7.1	6.5	6.23	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.7	6.1	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.7	6.1	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.327	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	225	251	588	231	289	626	1194	-	-	1144	-	-
Stage 1	586	563	-	579	565	-	-	-	-	-	-	-
Stage 2	515	522	-	548	599	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	190	238	542	181	275	620	1194	-	-	1134	-	-
Mov Cap-2 Maneuver	190	238	-	181	275	-	-	-	-	-	-	-
Stage 1	573	552	-	560	547	-	-	-	-	-	-	-
Stage 2	445	505	-	451	588	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	20.8		14.5		0.4		0.3	
HCM LOS	C		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1194	-	-	296	454	1134	-
HCM Lane V/C Ratio	0.017	-	-	0.23	0.165	0.015	-
HCM Control Delay (s)	8.1	0	-	20.8	14.5	8.2	0
HCM Lane LOS	A	A	-	C	B	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0.9	0.6	0	-

Approach	EB	WB	NB	SB
Crosswalk Length (ft)	29.2	16.8	32.1	27.1
Crosswalk Width (ft)	12.0	12.0	12.0	12.0
Total Number of Lanes Crossed	2	1	2	2
Number of Right-Turn Islands	0	0	0	0
Type of Control	None	None	None	None
Corresponding Signal Phase	6	2	4	8
Effective Walk Time (s)	0.0	0.0	0.0	0.0
Right Corner Size A (ft)	9.0	9.0	9.0	9.0
Right Corner Size B (ft)	9.0	9.0	9.0	9.0
Right Corner Curb Radius (ft)	0.0	0.0	0.0	0.0
Right Corner Total Area (sq.ft)	81.00	81.00	81.00	81.00
Ped. Left-Right Flow Rate (p/h)	0	0	0	0
Ped. Right-Left Flow Rate (p/h)	0	0	0	0
Ped. R. Sidewalk Flow Rate (p/h)	0	0	0	0
Veh. Perm. L. Flow in Walk (v/h)	0	0	0	0
Veh. Perm. R. Flow in Walk (v/h)	0	0	0	0
Veh. RTOR Flow in Walk (v/h)	0	0	0	0
85th percentile speed (mph)	25	25	25	25
Right Corner Area per Ped (sq.ft)	0.0	0.0	0.0	0.0
Right Corner Quality of Service	-	-	-	-
Ped. Circulation Area (sq.ft)	0.0	0.0	0.0	0.0
Crosswalk Circulation Code	-	-	-	-
Pedestrian Delay (s/p)	35.0	35.0	35.0	35.0
Pedestrian Compliance Code	Poor	Poor	Poor	Poor
Pedestrian Crosswalk Score	1.75	1.52	2.00	2.03
Pedestrian Crosswalk LOS	B	B	B	B

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	0	0	10	29	32	9	239	0	0	292	42
Future Volume (vph)	27	0	0	10	29	32	9	239	0	0	292	42
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100
Lane Width (ft)	15	15	15	16	16	16	15	15	15	15	15	15
Grade (%)		0%			3%			2%			2%	
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		90			309			135			332	
Travel Time (s)		2.5			8.4			3.7			9.1	
Confl. Peds. (#/hr)	4		57	57		4	10					10
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%	0%	0%	0%	0%	0%	0%	2%	0%	0%	2%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	29	0	0	76	0	0	267	0	0	359	0
Turn Type	Perm	NA		Perm	NA		Perm	NA			NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2					
Detector Phase	4	4		8	8		2	2			6	
Switch Phase												
Minimum Initial (s)	20.0	20.0		20.0	20.0		42.0	42.0			42.0	
Minimum Split (s)	24.0	24.0		24.0	24.0		46.0	46.0			46.0	
Total Split (s)	24.0	24.0		24.0	24.0		46.0	46.0			46.0	
Total Split (%)	34.3%	34.3%		34.3%	34.3%		65.7%	65.7%			65.7%	
Yellow Time (s)	2.0	2.0		2.0	2.0		2.0	2.0			2.0	
All-Red Time (s)	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)		4.0			4.0			4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Max	Max			Max	
Act Effect Green (s)		20.3			20.3			48.9			48.9	
Actuated g/C Ratio		0.32			0.32			0.76			0.76	
v/c Ratio		0.05			0.11			0.16			0.21	
Control Delay		18.3			12.2			5.3			5.3	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		18.3			12.2			5.3			5.3	
LOS		B			B			A			A	
Approach Delay		18.3			12.2			5.3			5.3	
Approach LOS		B			B			A			A	
Queue Length 50th (ft)		9			13			46			62	
Queue Length 95th (ft)		27			41			78			101	
Internal Link Dist (ft)		10			229			55			252	
Turn Bay Length (ft)												
Base Capacity (vph)		583			677			1684			1678	
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		0.05			0.11			0.16			0.21	

Intersection Summary

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 64.3

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.21

Intersection Signal Delay: 6.5

Intersection LOS: A

Intersection Capacity Utilization 58.3%

ICU Level of Service B




Analysis Period (min) 15

Splits and Phases: 10: Baldwin Avenue & Clifton Place



Intersection





Int Delay, s/veh 7.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	389	295	248	302	0
Future Vol, veh/h	0	389	295	248	302	0
Conflicting Peds, #/hr	0	0	6	0	0	6
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	-1	-	-	2	-2	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	1	1	2	2	0
Mvmt Flow	0	409	311	261	318	0

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	1207	324	324
Stage 1	324	-	-
Stage 2	883	-	-
Critical Hdwy	6.2	6.11	4.11
Critical Hdwy Stg 1	5.2	-	-
Critical Hdwy Stg 2	5.2	-	-
Follow-up Hdwy	3.5	3.309	2.209
Pot Cap-1 Maneuver	219	726	1241
Stage 1	751	-	-
Stage 2	428	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	153	722	1234
Mov Cap-2 Maneuver	153	-	-
Stage 1	526	-	-
Stage 2	425	-	-

Approach	EB	NB	SB
HCM Control Delay, s	16.3	4.8	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1234	-	722	-	-
HCM Lane V/C Ratio	0.252	-	0.567	-	-
HCM Control Delay (s)	8.9	0	16.3	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	1	-	3.6	-	-

Intersection												
Int Delay, s/veh	4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	18	18	33	5	16	59	24	270	1	8	351	13
Future Vol, veh/h	18	18	33	5	16	59	24	270	1	8	351	13
Conflicting Peds, #/hr	0	0	54	54	0	0	0	0	8	8	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	3	-	-	0	-	-	1	-	-	2	-
Peak Hour Factor	76	76	76	76	76	76	76	76	76	76	76	76
Heavy Vehicles, %	0	0	0	0	0	0	0	1	0	0	1	0
Mvmt Flow	24	24	43	7	21	78	32	355	1	11	462	17

Major/Minor	Minor2		Minor1		Major1		Major2	
Conflicting Flow All	962	921	525	1008	929	364	479	0
Stage 1	493	493	-	428	428	-	-	-
Stage 2	469	428	-	580	501	-	-	-
Critical Hdwy	7.7	7.1	6.5	7.1	6.5	6.2	4.1	-
Critical Hdwy Stg 1	6.7	6.1	-	6.1	5.5	-	-	-
Critical Hdwy Stg 2	6.7	6.1	-	6.1	5.5	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-
Pot Cap-1 Maneuver	202	234	533	221	270	685	1094	-
Stage 1	517	507	-	609	588	-	-	-
Stage 2	535	548	-	504	546	-	-	-
Platoon blocked, %								-
Mov Cap-1 Maneuver	161	221	506	168	255	679	1094	-
Mov Cap-2 Maneuver	161	221	-	168	255	-	-	-
Stage 1	498	500	-	582	562	-	-	-
Stage 2	440	523	-	411	539	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	25.3	15.5	0.7	0.2
HCM LOS	D	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1094	-	-	267	446	1195	-
HCM Lane V/C Ratio	0.029	-	-	0.34	0.236	0.009	-
HCM Control Delay (s)	8.4	0	-	25.3	15.5	8	0
HCM Lane LOS	A	A	-	D	C	A	A
HCM 95th %tile Q(veh)	0.1	-	-	1.4	0.9	0	-

Approach	EB	WB	NB	SB
Crosswalk Length (ft)	29.2	16.8	32.1	27.1
Crosswalk Width (ft)	12.0	12.0	12.0	12.0
Total Number of Lanes Crossed	2	1	2	2
Number of Right-Turn Islands	0	0	0	0
Type of Control	None	None	None	None
Corresponding Signal Phase	6	2	4	8
Effective Walk Time (s)	0.0	0.0	0.0	0.0
Right Corner Size A (ft)	9.0	9.0	9.0	9.0
Right Corner Size B (ft)	9.0	9.0	9.0	9.0
Right Corner Curb Radius (ft)	0.0	0.0	0.0	0.0
Right Corner Total Area (sq.ft)	81.00	81.00	81.00	81.00
Ped. Left-Right Flow Rate (p/h)	0	0	0	0
Ped. Right-Left Flow Rate (p/h)	0	0	0	0
Ped. R. Sidewalk Flow Rate (p/h)	0	0	0	0
Veh. Perm. L. Flow in Walk (v/h)	0	0	0	0
Veh. Perm. R. Flow in Walk (v/h)	0	0	0	0
Veh. RTOR Flow in Walk (v/h)	0	0	0	0
85th percentile speed (mph)	25	25	25	25
Right Corner Area per Ped (sq.ft)	0.0	0.0	0.0	0.0
Right Corner Quality of Service	-	-	-	-
Ped. Circulation Area (sq.ft)	0.0	0.0	0.0	0.0
Crosswalk Circulation Code	-	-	-	-
Pedestrian Delay (s/p)	35.0	35.0	35.0	35.0
Pedestrian Compliance Code	Poor	Poor	Poor	Poor
Pedestrian Crosswalk Score	1.76	1.49	1.96	1.99
Pedestrian Crosswalk LOS	B	A	B	B