DOLAN & DEAN
CONSULTING ENGINEERS, LLC

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792 CHIMNEY ROCK ROAD
MARTINSVILLE, NJ 08836
732 469 0600
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TRAFFIC IMPACT ASSESSMENT

FOR

546 WASHINGTON AVENUE

PROPOSED RESIDENTIAL DEVELOPMENT

BLOCK 215, LOT 1
BOROUGH OF DUMONT
BERGEN COUNTY, NEW JERSEY

APRIL 25, 2016

GARY W. DEAN, P.E., P.P.
NJ LICENSE NO. 33722

ELIZABETH DOLAN, P.E.
NJ LICENSE NO. 37071

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Bergen/Dumont/RuvoLandmark/Documents/2016 04 25 TIA.doc

INTRODUCTION

This Traffic Impact Assessment has been prepared as part of a site plan application for the proposed redevelopment of two parcels located along Washington Avenue. A larger, 6.1 acre property – Lot 1, Block 215 - is currently the vacated D'Angelo Farms commercial nursery/garden center and lies opposite Poplar Street on the western side of Washington Avenue(Figure 1). A smaller, 1.1 acre site lies along the eastern side of Washington Avenue at Delong Avenue and is currently vacant.

The development for the subject parcels is dependent on a redevelopment option being considered by the Borough for the municipal property at 50 Washington Avenue. Certain density limitations will be placed on the subject tract if a successful settlement can be reached for the municipal site. However, for a conservative traffic analysis, it assumed that the maximum development yield will occur on these two parcels resulting in the following:

- 124 "market" units on the D'Angelo parcel
- 18 "affordable" units on the vacant parcel

There would be 5 buildings with 142 total residential apartments, a clubhouse and associated off-street parking. Access to the D'Angelo parcel development is proposed via a single, full-movement driveway along Washington Avenue opposite Poplar Street with an emergency-only access to Stratford Road. Access to the affordable parcel would via a new driveway on South Washington between Polar Street and Delong Street.

While any site re-development (or continuation of the commercial greenhouse operations) could affect traffic conditions, both the volume and characteristics of the new residential traffic are of important consideration in evaluating the projected impacts on the surrounding area. Dolan & Dean Consulting Engineers, LLC (D&D) has been commissioned by the applicant to prepare this Traffic Impact Assessment for the proposed apartments, to evaluate the site plan for conformance with the Residential Site Improvement Standards (RSIS) and to ensure safe and efficient site ingress and egress.

EXISTING CONDITIONS

As noted, the subject property is located along southbound Washington Avenue in Dumont, Bergen County, New Jersey and is currently occupied by D'Angelo Farms, which ceased business operations in November 2013. Surrounding land uses are primarily residential interspersed with some home-based professional uses and transitioning to more commercial development further south at Gordon Avenue.

In the site vicinity, Washington Avenue runs in a generally straight and level alignment with generally unrestricted sight distance looking in both the north and southbound direction. A single travel lane is provided in each direction. Washington Avenue is curbed and provides sidewalks on both sides of the road. The posted speed limit is 25 miles per hour. New Jersey Transit Bus Service exists along Washington Avenue with a stop located just to the north at Essex Place/Delong Avenue. Street lighting is also provided along Washington Avenue.

The existing site access points just south of Poplar Street on the D'Angelo Farm's parcel are characterized by very wide curb openings, with no specific delineation of points of ingress or egress. The majority of the site frontage is depressed curb. An exit-only driveway exists at the northern end of the subject property.

The majority of the adjacent street intersections and driveway are STOP sign controlled with the exception of the offset intersection of Gordon Avenue/Grant Avenue, which is traffic signal controlled. To be described in a subsequent section of this report, the offset nature of this particular intersection creates certain inherent inefficiencies with the traffic signal operation, which in turn contributes to occasional delays along Washington Avenue.

EXISTING TRAFFIC CONDITIONS

To establish existing traffic conditions in anticipation of the site redevelopment proposal, manual traffic counts were first conducted at the intersection of Washington Avenue and Poplar Street. Traffic movements were recorded on Tuesday, December 3, 2013 from 7:00 a.m. to 9:00 a.m. and from 4:00 p.m. to 6:30 p.m.

Recognizing that time has elapsed since the initial data collection and that the accuracy of older traffic data is often questioned with these types of applications, updated counts were recently conducted on Wednesday March 23, 2016. The recent counts show slightly higher traffic activity only in the southbound direction of South Washington Avenue and only during the AM peak hour. All other traffic activity in both the morning and evening peak hours was slightly lower in 2016 than in 2013.

Based upon the collected data, the morning peak hour was found to generally occur from 7:45 a.m. to 8:45 a.m. and the evening peak hour occurred from 4:45 p.m. to 5:45 p.m. Appended Figure 2 shows the updated 2016 peak hour traffic volumes.

ANALYSIS OF EXISTING TRAFFIC VOLUMES

A volume/capacity Level of Service analysis was conducted for the existing traffic volumes at the subject intersection using the Highway Capacity Manual (HCM) computer software. This type of analysis is performed to assess intersection operations and to identify any areas of excessive delay.

Based on this analysis, and as shown in Figure 3, movements at the Washington Avenue intersection and Poplar Street, all operate at Level of Service "C" or better during the both peak hours.

During the evening counts, periodic queuing was observed along southbound Washington Avenue. For approximately 20 minutes, southbound queues extending north from the traffic signal at Gordon Avenue reached both of the D'Angelo Farms driveways. The queues would clear, which would allow the future site traffic to readily enter or exit the subject site. This operation exists irrespective of any changes on the site and affected movements to/from D'Angelo Farms, when it was in operation.

TRAFFIC CHARACTERISTICS OF THE PROPOSED DEVELOPMENT

TRIP GENERATION

The re-development proposes 142 total residential apartments with off-street parking to be provided in compliance with RSIS requirements. 124 of the units would be on the larger, D'Angelo parcel with the remaining 18 units on the smaller lot. The potential traffic generation from any use is directly related to the type, size, and characteristic of the use itself. Lacking specific site operational data, trip generation projections are customarily made using estimates as compiled by the ITE in Trip Generation, 9th Edition, 2012 for uses that closely resemble the anticipated operation.

For this particular study, traffic projections were prepared using the industry-standard ITE trip generation rates for "Apartments". The following table summarizes the projected traffic generation for the morning and evening peak hours.

TABLE I
142 RESIDENTIAL UNITS
PROJECTED TRIP GENERATION

Time Period	Enter	Exit	Total
Morning Peak Hour	15	59	74
Evening Peak Hour	62	34	96

As shown in Table I above, the proposed apartments will generate approximately slightly more than one vehicle trip each minute during the peak hours. During all other times, the traffic associated with the apartments will be lower.

As noted, the site is currently occupied D'Angelo Farms which has at least 18,000 square feet of building area that was recently used for a commercial garden center. The D'Angelo Farms had closed when the 2013 traffic counts were conducted, but clearly generated significant traffic activity when in operation and every more so during the peak season.

Table II compares the estimated peak hour traffic of the proposed residential redevelopment with the projected traffic from the former D'Angelo Farms that was also estimated using ITE data (appended to this report).

TABLE II
TRIP GENERATION COMPARISON
FORMER D'ANGELO FARMS VS. PROPOSED RESIDENTIAL

Land Use	Morning Peak Hour	Evening Peak Hour
Former D'Angelo Farms	44	124
Proposed Residential	73	95
Increase	+29	-29

As shown above, the previous use of D'Angelo Farms generated slightly less morning peak hour traffic but more evening peak hour traffic. Additionally, the former garden center would have generated heavy vehicle traffic including delivery trucks for mulch/topsoil and firewood, and landscaping/contractor vehicles. These larger vehicles would have negatively affected roadway operations by using greater capacity and creating greater delays while turning to/from the site than is expected for the proposed apartments that will generate almost entirely passenger car traffic.

DISTRIBUTION OF SITE GENERATED TRAFFIC

The directional distribution of new site-generated traffic was established based on a review of the existing traffic volumes along the roadway network, which generally reflect home-to-work (and the reverse) commuting patterns. The projected site traffic is shown on appended Figure 4.

FUTURE TRAFFIC CONDITIONS

FUTURE TRAFFIC VOLUMES

It is recognized that traffic routinely fluctuates along various state and county roadways, as well as local streets, and varies not only day-to-day, but also on a monthly and yearly basis. Normal "background" traffic increases regularly occur as attributed to continued regional growth and changes in driver demographics. There may also be additional traffic generated by specific projects that will lead to increased demands on the roadways in the site vicinity (at least to some degree), even if no changes were to occur on the subject property.

Regional traffic growth patterns as compiled by the New Jersey Department of Transportation (NJDOT) were examined for this analysis. Based on the data collected by NJDOT in Bergen County, peak hour traffic volumes are conservatively projected to annually increase by 1.0% - even though the traffic counts between 2013 and 2016 show an actual decrease in traffic on South Washington Avenue. This DOT growth rate would account for any new traffic associated with on-going area development.

Future "no-build" volumes were developed by applying the assumed DOT background growth to the existing volumes over a two-year period and are shown in Figure 5. Build volumes were developed (shown in Figure 6) by adding site traffic to the "no-build" volumes.

FUTURE "BUILD" TRAFFIC ANALYSIS

An analysis of future intersection operations was completed including the "new" traffic added by the proposed residential development. Revised Levels of Service analyses were conducted for the "no build" and "build" traffic volumes at the study intersections and the results are shown in Figures 7 and 8 respectively.

Under "build" conditions, all movements will operate at Levels of Service "D" or better, illustrating the minimal traffic impacts of the proposed residential development. The off-tract impacts would be virtually the same (if not slightly better) than would result from the full operations of D'Angelo Farms.

From a traffic engineering perspective, there are no negative traffic consequences associated with developing the proposed residential uses on the affected properties. In general, the proposed residential use will have similar, if not less, traffic activity with significantly fewer heavy vehicles (i.e., large trucks) than the current use as a commercial garden center. Weekend traffic will also be significantly lower than with the Farm operation.

Lastly, should the municipal property at 50 Washington Street become a viable development opportunity, fewer apartments would be constructed on the subject parcels. Thus, the projected traffic conditions evaluated in this report represent the maximum traffic impact that could be realized; fewer units developed on these sites would accordingly reduce the overall impacts resulting in improved levels of service with shorter projected delays in entering/existing each site.

SITE ACCESS AND CIRCULATION

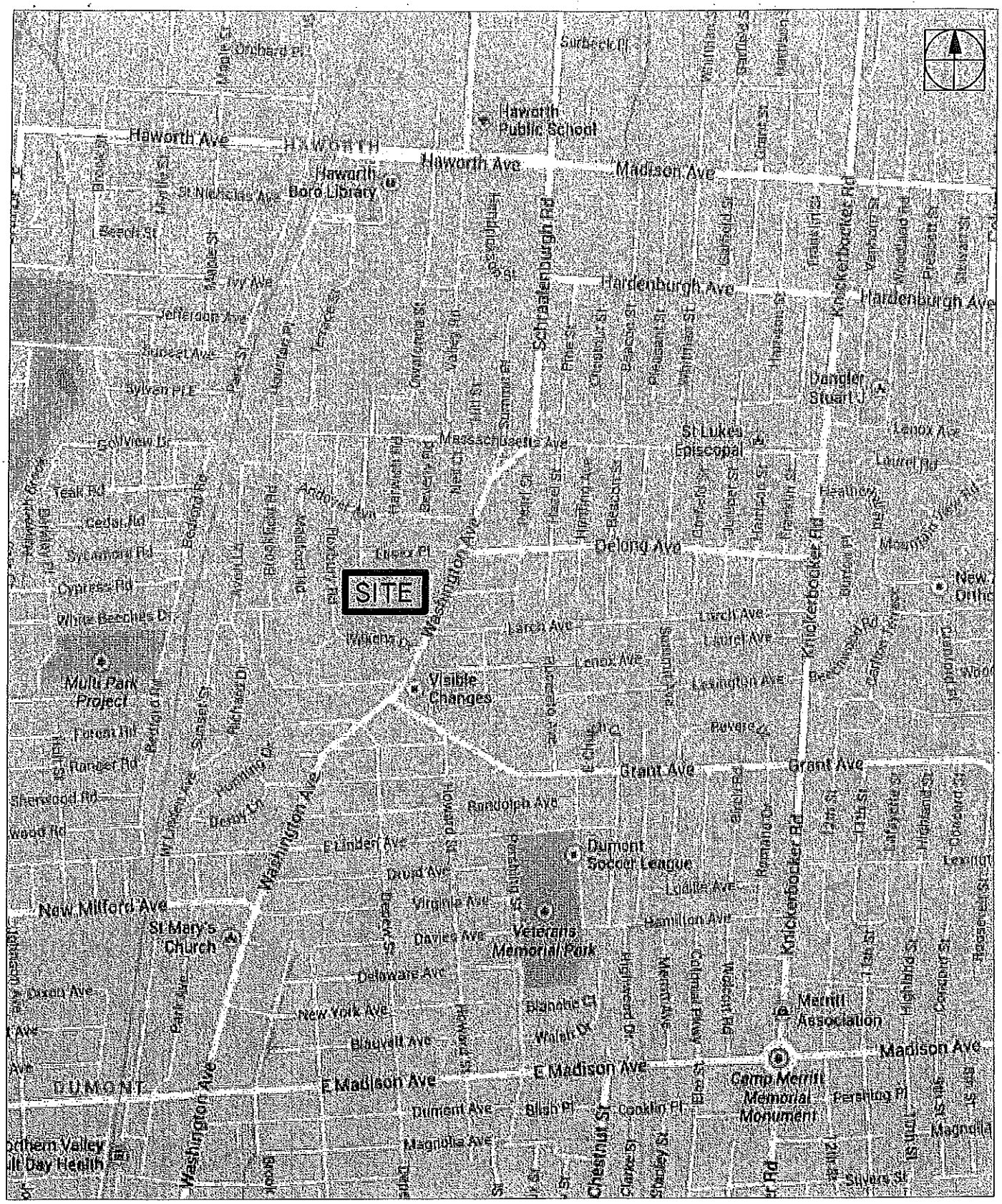
As part of this traffic analysis, D&D also reviewed the Concept Site Plans prepared by Minno and Wasco with particular focus on on-site traffic circulation and overall access.

- Access to the 124 apartments on the D'Angelo parcel is proposed via one full-movement driveway to Washington Street that is proposed to align opposite Poplar Street. A second means of site access for emergency only use is proposed to Stratford Road. A separate driveway on South Washington Avenue would be provided for the affordable building on the smaller parcel. The traffic volumes generated by the proposed development are not considered significant and the site driveways will operate safely and efficiently at acceptable levels of service assuming reasonable and prudent driver behavior.

- Adequate sight distance exists along Washington Avenue for safe driving operations; care must be exercised in limiting the landscaping within the sight triangles or to ensure that only ground level species ($\leq 30''$ of growing height) are selected.

- The RSIS requirements will be met for this site including parking supply and interior access dimensions.

Technical Appendix



PROPOSED RESIDENTIAL DEVELOPMENT
BOROUGH OF DUMONT
BERGEN COUNTY, NEW JERSEY

FIGURE 1

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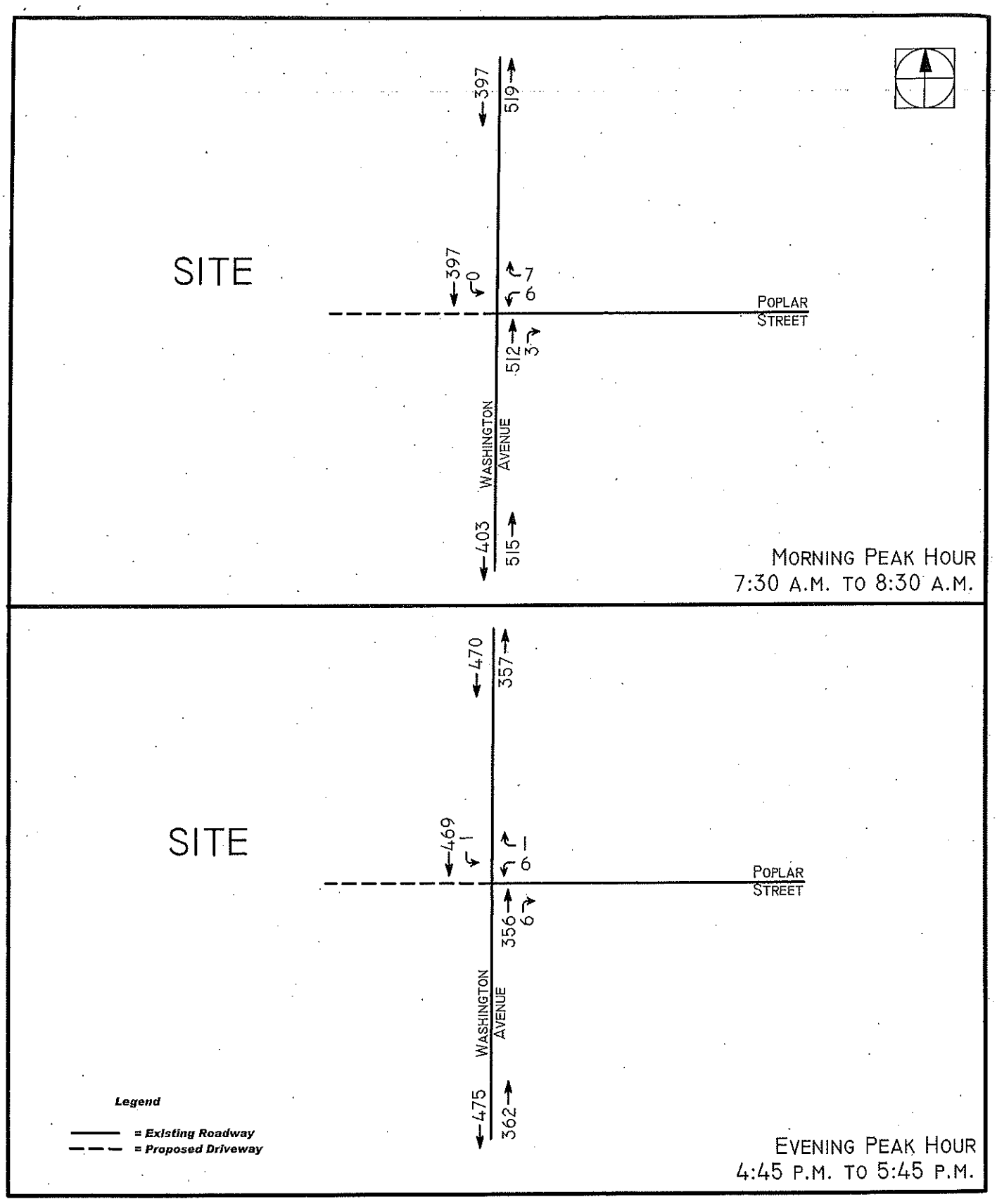
SITE LOCATION MAP



PROPOSED RESIDENTIAL DEVELOPMENT
BOROUGH OF DUMONT
BERGEN COUNTY, NEW JERSEY

FIGURE 2

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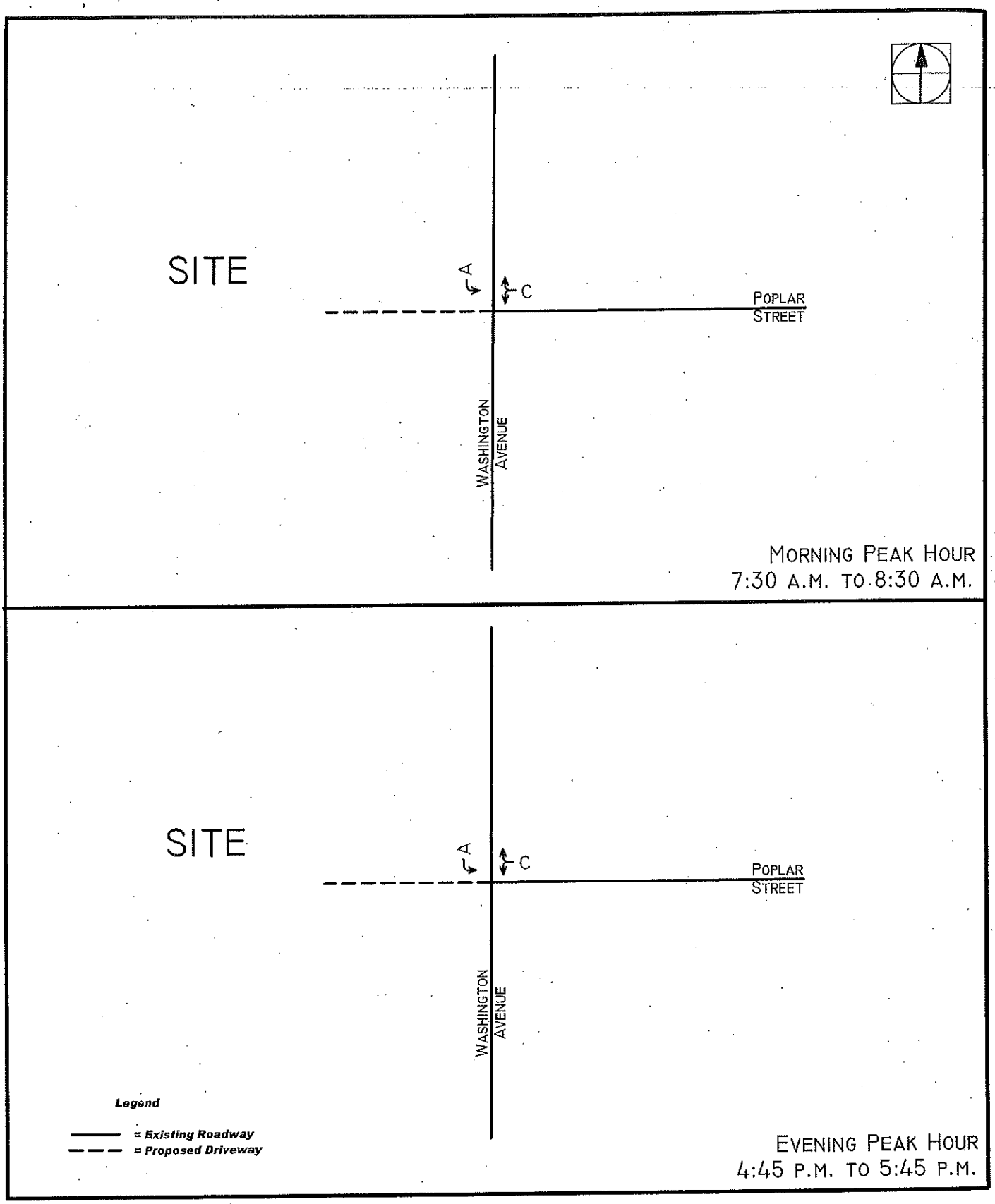
2016 EXISTING TRAFFIC VOLUMES



PROPOSED RESIDENTIAL DEVELOPMENT
BOROUGH OF DUMONT
BERGEN COUNTY, NEW JERSEY

FIGURE 3

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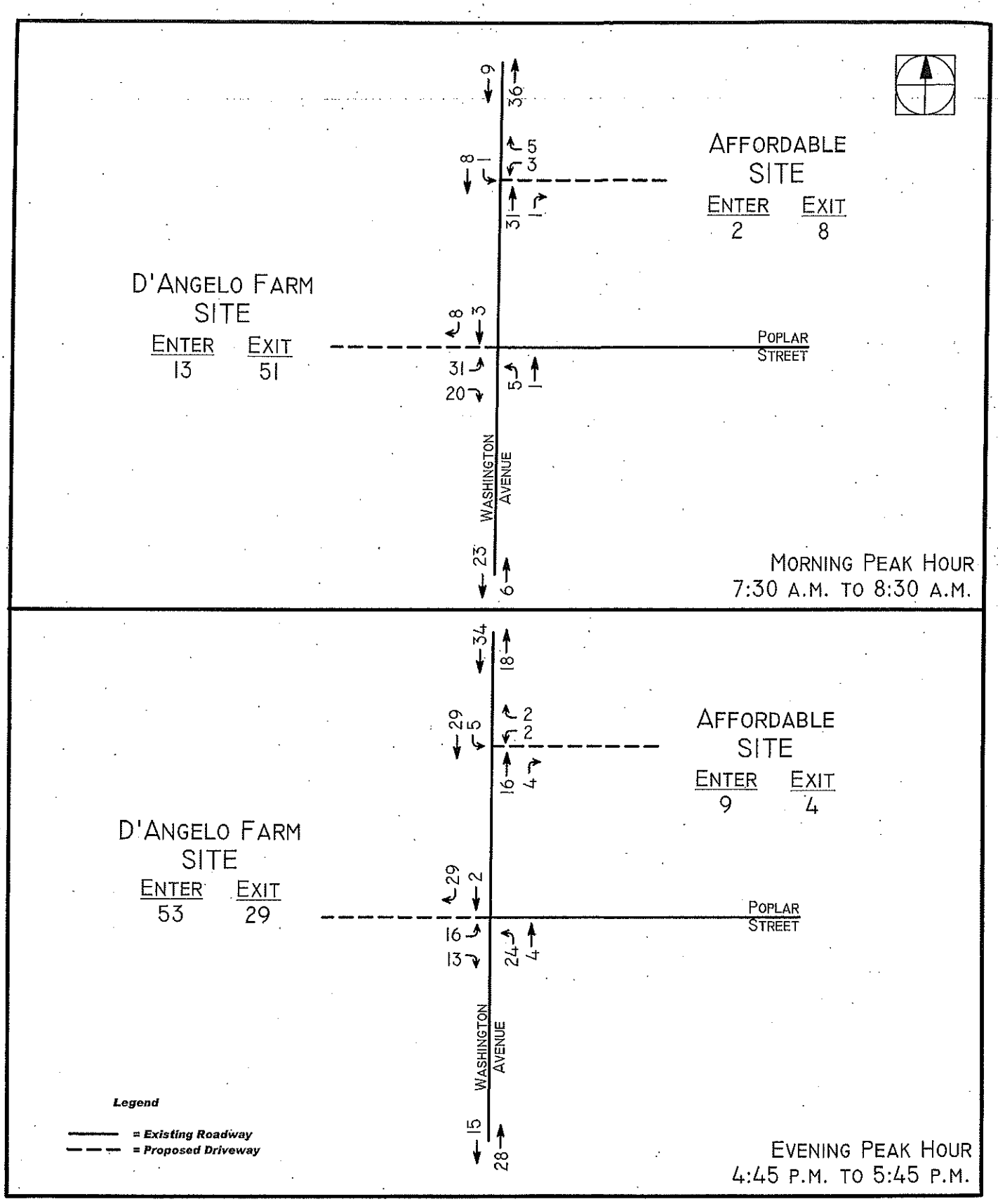
2016 EXISTING LEVELS OF SERVICE



PROPOSED RESIDENTIAL DEVELOPMENT
BOROUGH OF DUMONT
BERGEN COUNTY, NEW JERSEY

FIGURE 4

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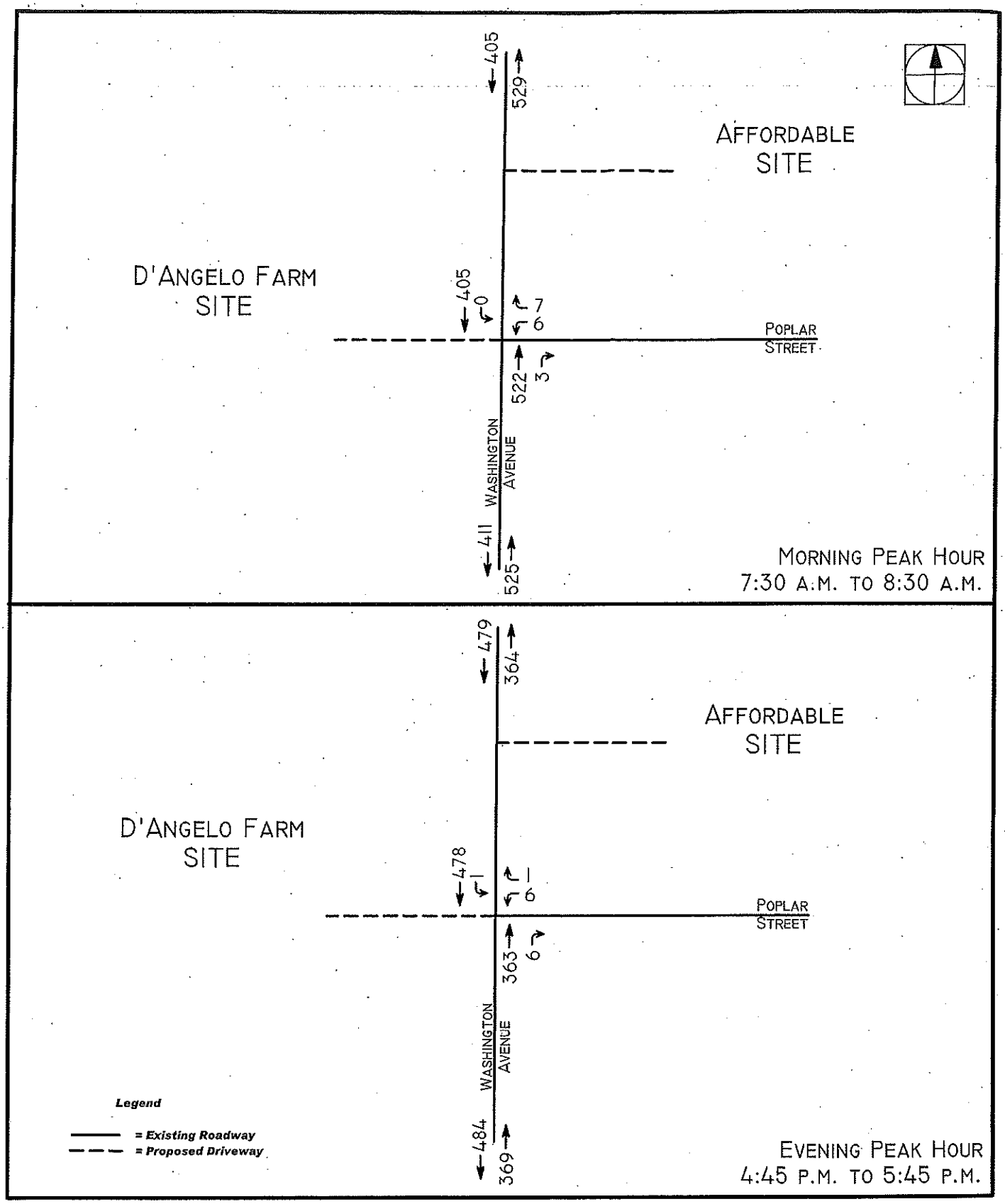
SITE GENERATED TRAFFIC VOLUMES



PROPOSED RESIDENTIAL DEVELOPMENT
BOROUGH OF DUMONT
BERGEN COUNTY, NEW JERSEY

FIGURE 5

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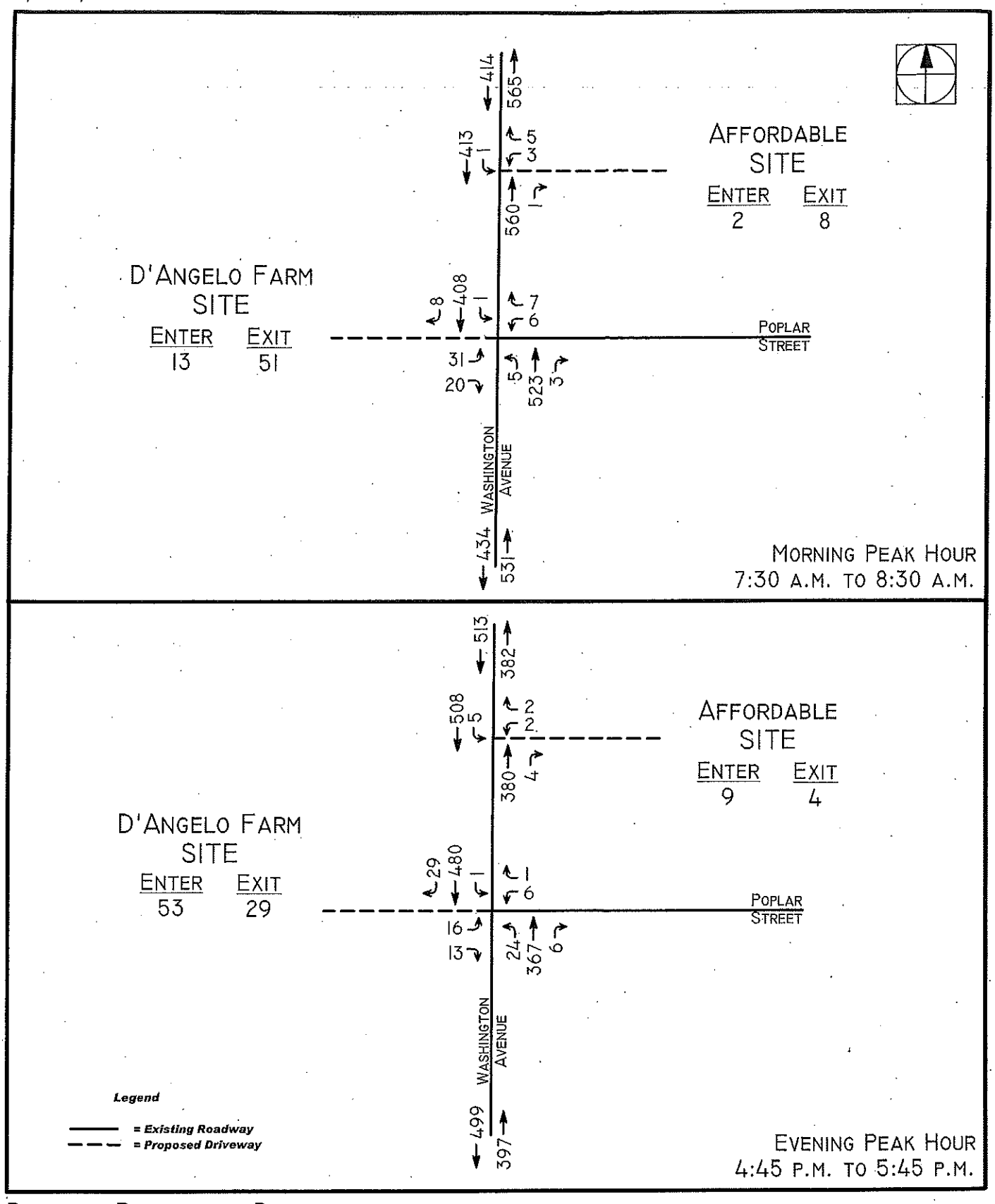
2018 NO-BUILD TRAFFIC VOLUMES



PROPOSED RESIDENTIAL DEVELOPMENT
BOROUGH OF DUMONT
BERGEN COUNTY, NEW JERSEY

FIGURE 6

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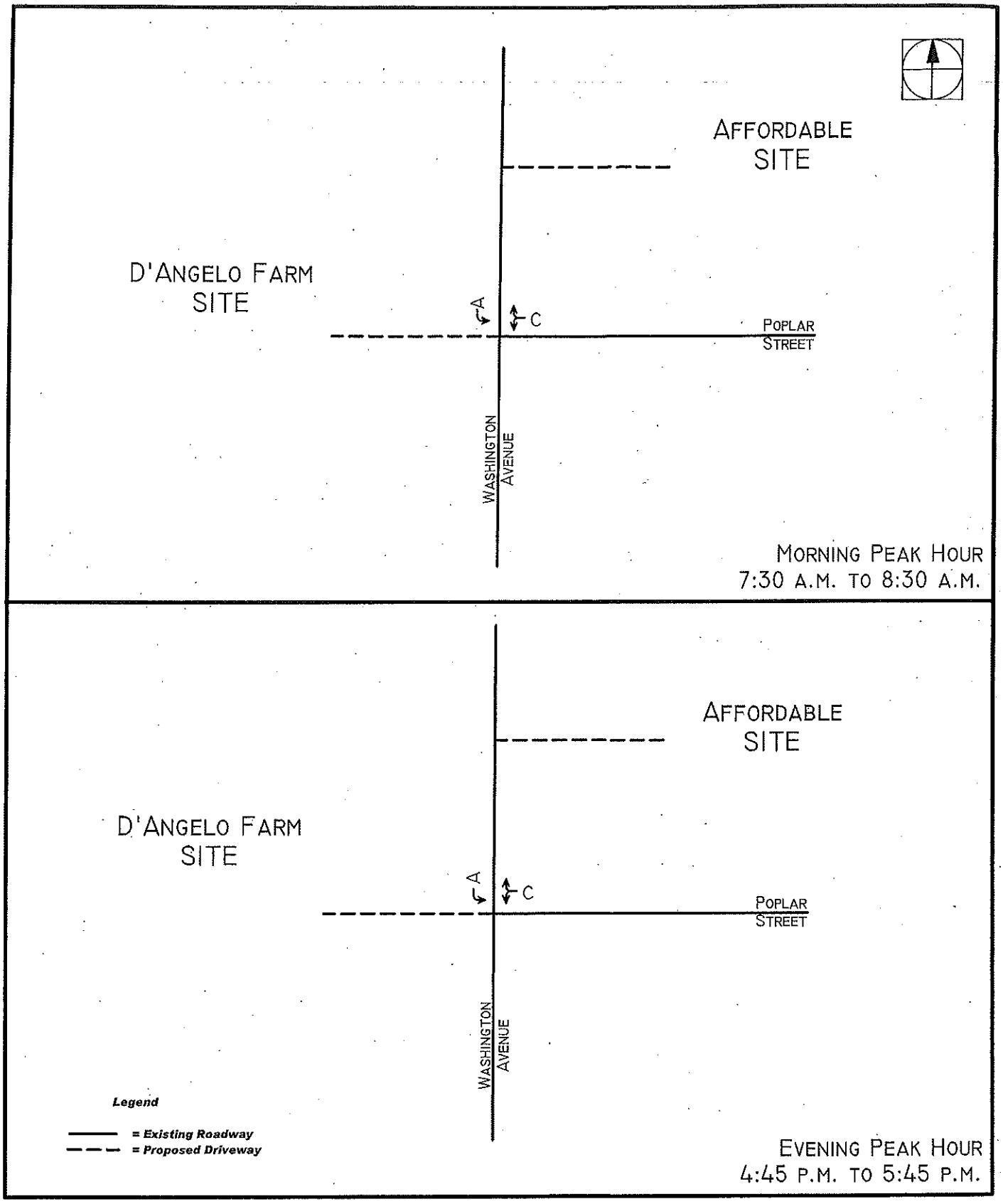
2018 BUILD TRAFFIC VOLUMES



PROPOSED RESIDENTIAL DEVELOPMENT
BOROUGH OF DUMONT
BERGEN COUNTY, NEW JERSEY

FIGURE 7

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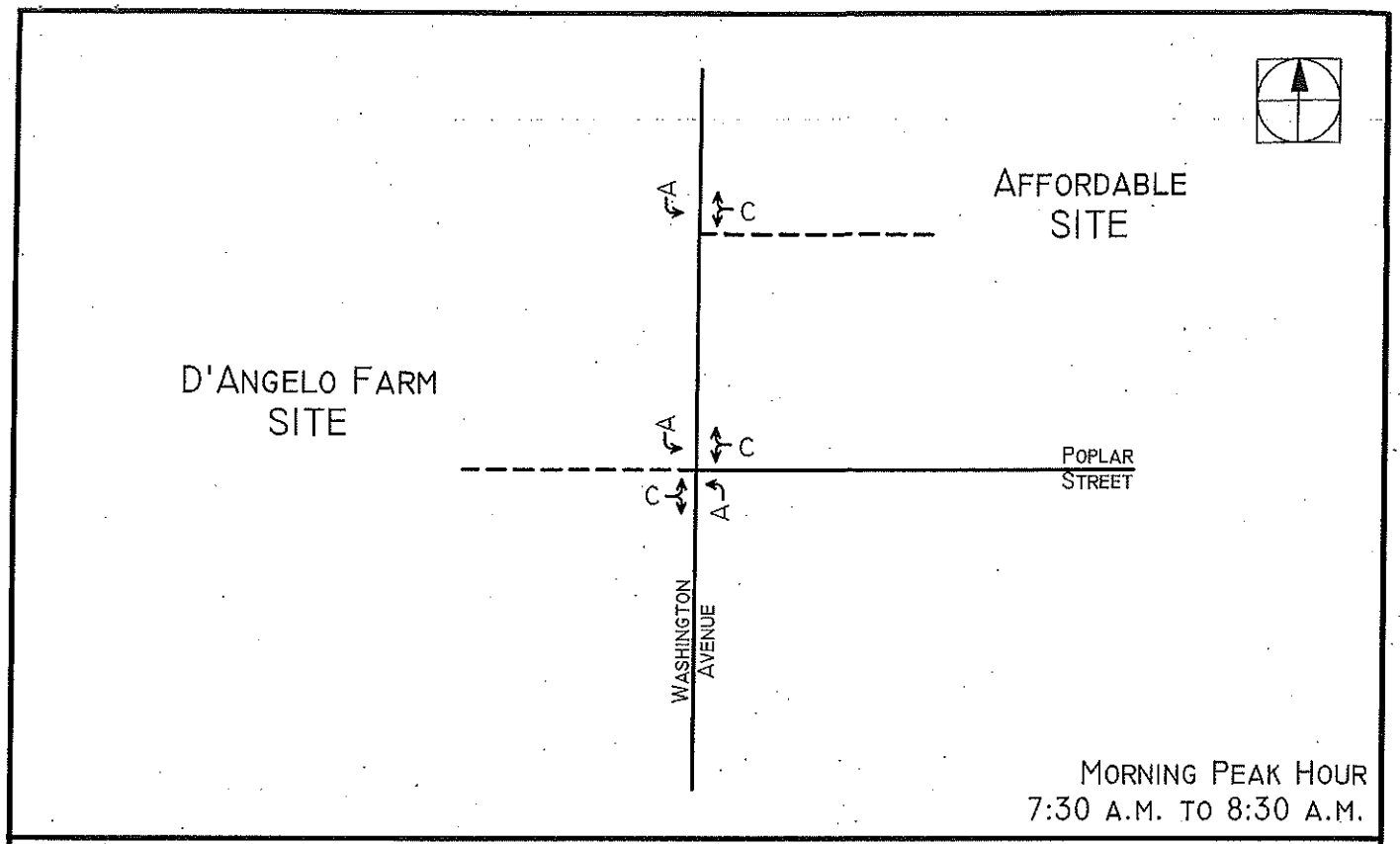
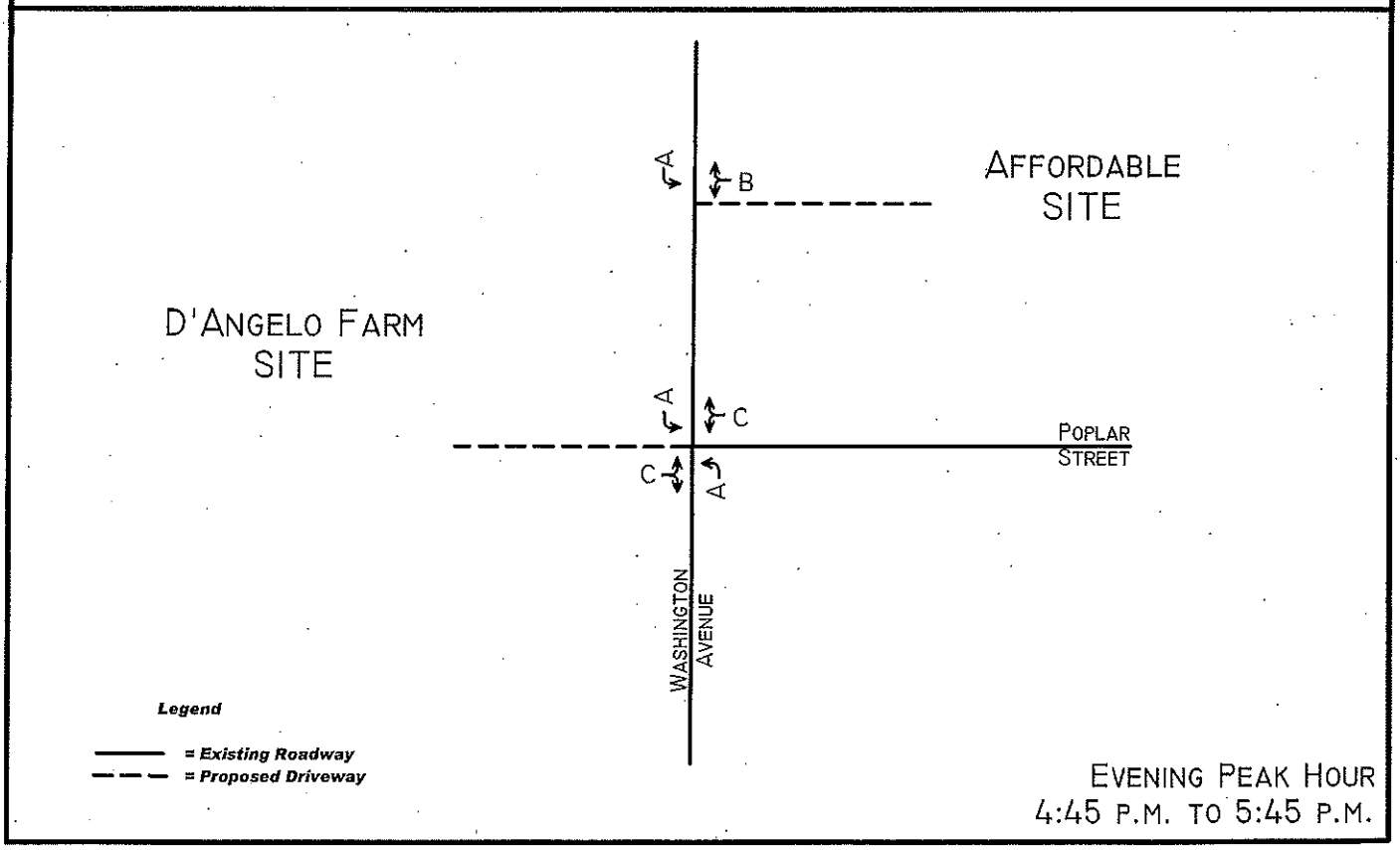
2018 NO-BUILD LEVELS OF SERVICE





PROPOSED RESIDENTIAL DEVELOPMENT
BOROUGH OF DUMONT
BERGEN COUNTY, NEW JERSEY

FIGURE 8

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2018 BUILD LEVELS OF SERVICE

Detailed Land Use Data

For 142 Dwelling Units of APT 1

(220) Apartment

Project: Landmark Dumont
Phase: Phase 1
Description: D`Angelo Farms

Open Date: 4/22/2016
Analysis Date: 4/22/2016

Day / Period	Total Trips	Pass-By Trips	Avg Rate	Min Rate	Max Rate	Std Dev	Avg Size	% Enter	% Exit	Use Eq.	Equation	R2
Weekday Average Daily Trips	944	0	6.65	1.27	12.5	3.07	210	50	50	False	T = 6.06(X) + 123.56	0.87
Weekday AM Peak Hour of Generator	79	0	0.55	0.1	1.08	0.76	230	29	71	True	T = 0.54(X) + 2.45	0.82
Weekday AM Peak Hour of Adjacent Street Traffic	73	0	0.51	0.1	1.02	0.73	235	20	80	True	T = 0.49(X) + 3.73	0.83
Weekday PM Peak Hour of Generator	100	0	0.67	0.1	1.64	0.85	229	61	39	True	T = 0.60(X) + 14.91	0.8
Weekday PM Peak Hour of Adjacent Street Traffic	96	0	0.62	0.1	1.64	0.82	233	65	35	True	T = 0.55(X) + 17.65	0.77
Saturday Average Daily Trips	859	0	6.39	2.84	8.4	2.99	175	50	50	True	T = 7.85(X) - 256.19	0.85
Saturday Peak Hour of Generator	77	0	0.52	0.26	1.05	0.74	178	50	50	True	T = 0.41(X) + 19.23	0.56
Sunday Average Daily Trips	832	0	5.86	3.21	7.53	2.73	182	50	50	False	T = 6.42(X) - 101.12	0.82
Sunday Peak Hour of Generator	72	0	0.51	0.26	1.43	0.75	186	50	50	False		

Source: Institute of Transportation Engineers, Trip Generation Manual 9th Edition, 2012

TRIP GENERATION 2013, TRAFFICWARE, LLC

Dumont

AM peak

	cars														trucks															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	1	2	3	4	5	6	7	8	9	10	11	12	13	14		
7:30 AM	0	1	0	1	127	0	0	0	0	100	0	0	0	0	0	0	0	0	6	0	0	0	0	3	0	0	0	0	932	238
7:45 AM	0	0	5	1	131	0	0	0	0	105	0	0	0	0	0	0	0	0	6	0	0	0	0	3	0	0	0	0	862	251
8:00 AM	0	2	1	1	147	0	0	0	0	104	0	0	0	0	0	0	0	0	7	0	0	0	0	1	0	0	0	0	804	263
8:15 AM	0	0	0	4	92	0	0	0	0	79	0	0	0	0	0	0	0	0	3	0	0	0	0	2	0	0	0	0		180
8:30 AM	0	0	0	0	84	0	0	0	0	79	0	0	0	0	0	0	0	0	3	0	0	0	0	2	0	0	0	0		
8:45 AM	0	1	2	0	101	0	0	0	0	82	0	0	0	0	0	0	0	0	4	0	0	0	0	3	0	0	0	0		
peak	0	3	6	7	497	0	0	0	0	388	0	0	0	0	0	0	0	0	22	0	0	0	0	9	0	0	0	0		
trucks	0	0	0	0	22	0	0	0	0	9	0	0	0	0																
total	**0**	**3**	**6**	**7**	**519**	**0**	**0**	**0**	**0**	**397**	**0**	**0**	**0**	**0**															**HV%**	**3%**
																													PHF	**0.89**

PM peak

	cars														trucks															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	1	2	3	4	5	6	7	8	9	10	11	12	13	14		
4:30 PM	0	0	2	0	78	0	0	0	0	110	0	0	0	0	0	0	0	0	5	0	0	0	0	5	0	0	0	0	842	
4:45 PM	0	2	0	1	74	0	0	0	0	112	1	0	0	0	0	0	0	0	6	0	0	0	0	5	0	0	0	0	843	201
5:00 PM	0	2	2	0	98	0	0	0	0	94	0	0	0	0	0	0	0	0	3	0	0	0	0	5	0	0	0	0	838	204
5:15 PM	1	2	2	0	92	0	0	0	0	136	0	0	0	1	0	0	0	0	1	0	0	0	0	2	0	0	0	0		237
5:30 PM	0	2	0	0	85	0	0	0	0	107	0	0	0	0	0	0	0	0	4	0	0	0	0	3	0	0	0	0		201
5:45 PM	0	1	2	0	81	0	0	0	0	104	1	0	0	0	0	0	0	0	2	0	0	0	0	5	0	0	0	0		
peak	1	6	6	1	342	0	0	0	0	452	1	0	0	1	0	0	0	0	15	0	0	0	0	17	0	0	0	0		
trucks	0	0	0	0	15	0	0	0	0	17	0	0	0	0																
total	**1**	**6**	**6**	**1**	**357**	**0**	**0**	**0**	**0**	**469**	**1**	**0**	**0**	**1**															**HV%**	**4%**
																													PHF	**0.9**

TRAFFIC SURVEY SKETCH

DOLAN & DEAN
CONSULTING ENGINEERS

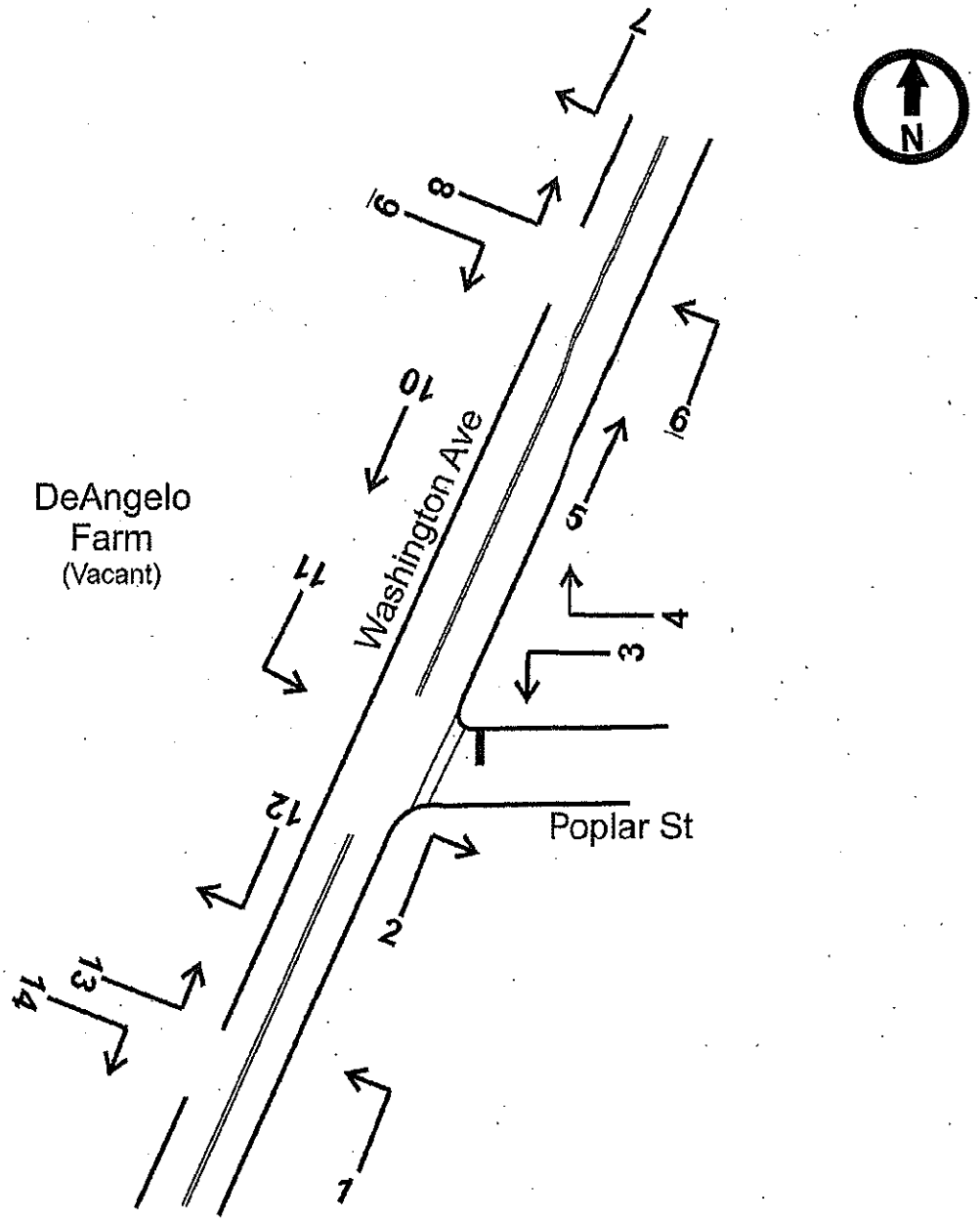
792 Chimney Rock Rd.
Martinsville, N.J. 08836

(732) 469-0600
(732) 469-0663 fax

PROJECT#: 13106 **CLIENT** Landmark

INTERSECTION: Washington Ave & Poplar St.

MUNICIPALITY: Dumont



TRAFFIC SURVEY SHEET (Cars)

DOLAN & DEAN
CONSULTING ENGINEERS

792 Chimney Rock Rd.
Martinsville, N.J. 08836
(732) 469-0600
(732) 469-0663 fax

PROJECT#: 13106 **CLIENT.** Landmark

INTERSECTION: Washington Ave. & Poplar St.

MUNICIPALITY: Dumont

COUNT BY: B. Sibel **DATE:** 3/23/16

TIME from 0730 **to** 0900 S M T W T F S
(CIRCLE DAY)

START TIME	MOVEMENT NUMBER															TOTAL
	1	2	3	4	5	6	7	8	9	10	11	12	13	14		
0730	0	1	0	1	127	0	0	0	0	100	0	0	0	0		
0745	0	0	5	1	131	0	0	0	0	105	0	0	0	0		
0800	0	2	1	1	147	0	0	0	0	104	0	0	0	0		
0815	0	0	0	4	92	0	0	0	0	79	0	0	0	0		
0830	0	0	0	0	84	0	0	0	0	79	0	0	0	0		
0845	0	1	2	0	101	0	0	0	0	82	0	0	0	0		
PEAK HOUR TOTAL																

0

TRAFFIC SURVEY SHEET (Trucks)

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(732) 469-0600
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PROJECT#: 13106 **CLIENT.** Landmark

INTERSECTION: Washington Ave. & Poplar St.

MUNICIPALITY: Dumont

COUNT BY: B. Sibel **DATE:** 3/23/16

TIME from 0730 **to** 0900 S M T (W) T F S
(CIRCLE DAY)

START TIME	MOVEMENT NUMBER															TOTAL
	1	2	3	4	5	6	7	8	9	10	11	12	13	14		
0730	0	0	0	0	6	0	0	0	0	3	0	0	0	0		
0745	0	0	0	0	6	0	0	0	0	3	0	0	0	0		
0800	0	0	0	0	7	0	0	0	0	1	0	0	0	0		
0815	0	0	0	0	3	0	0	0	0	2	0	0	0	0		
0830	0	0	0	0	3	0	0	0	0	2	0	0	0	0		
0845	0	0	0	0	4	0	0	0	0	3	0	0	0	0		
PEAK HOUR TOTAL																

0

TRAFFIC SURVEY SHEET (Cars)

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PROJECT#: 13106 **CLIENT.** Landmark

INTERSECTION: Washington Ave. & Poplar St.

MUNICIPALITY: Dumont

COUNT BY: B. Sibel **DATE:** 3/23/16

TIME from 1630 **to** 1800 S M T W T F S
(CIRCLE DAY)

START TIME	MOVEMENT NUMBER																TOTAL
	1	2	3	4	5	6	7	8	9	10	11	12	13	14			
1630	0	0	2	0	78	0	0	0	0	110	0	0	0	0			
1645	0	2	0	1	74	0	0	0	0	112	1	0	0	0			
1700	0	2	2	0	98	0	0	0	0	94	0	0	0	0			
1715	1	2	2	0	92	0	0	0	0	136	0	0	0	1			
1730	0	2	0	0	85	0	0	0	0	107	0	0	0	0			
1745	0	1	2	0	81	0	0	0	0	104	1	0	0	0			
PEAK HOUR TOTAL																	

0

TRAFFIC SURVEY SHEET (Trucks)

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(CIRCLE DAY)

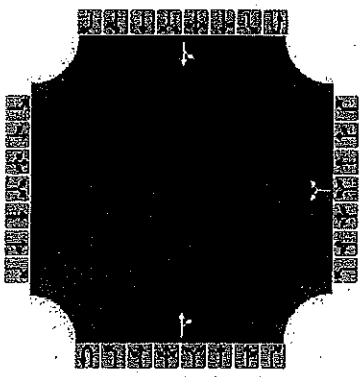
START TIME	MOVEMENT NUMBER															TOTAL
	1	2	3	4	5	6	7	8	9	10	11	12	13	14		
1630	0	0	0	0	5	0	0	0	0	5	0	0	0	0		
1645	0	0	0	0	6	0	0	0	0	5	0	0	0	0		
1700	0	0	0	0	3	0	0	0	0	5	0	0	0	0		
1715	0	0	0	0	1	0	0	0	0	2	0	0	0	0		
1730	0	0	0	0	4	0	0	0	0	3	0	0	0	0		
1745	0	0	0	0	2	0	0	0	0	5	0	0	0	0		
PEAK HOUR TOTAL																

0

HCS 2010 Two-Way Stop Control Summary Report

General Information		Site Information	
Analyst	djp	Intersection	
Agency/Co.	dd	Jurisdiction	
Date Performed	4-22-16	East/West Street	poplar
Analysis Year	2018	North/South Street	washington
Time Analyzed	PM NB	Peak Hour Factor	0.90
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description			

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	0	0	0	0	1	0	0	0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						6		1			363	6		1	478	
Percent Heavy Vehicles						4		4						4		
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)							8							532		
Capacity							341							1136		
v/c Ratio							0.03							0.47		
95% Queue Length							0.1							0.0		
Control Delay (s/veh)							16.9							8.2		
Level of Service (LOS)							C							A		
Approach Delay (s/veh)					16.9								0.0			
Approach LOS					C								A			

HCS 2010 Two-Way Stop Control Summary Report

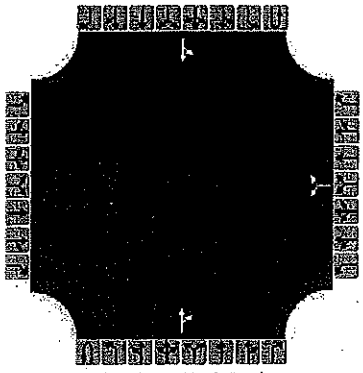
General Information

Analyst	djp
Agency/Co.	dd
Date Performed	4-22-16
Analysis Year	2016
Time Analyzed	pm ex
Intersection Orientation	North-South
Project Description	

Site Information

Intersection	
Jurisdiction	
East/West Street	poplar
North/South Street	washington
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	0	0	0	0	1	0	0	0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						6		1			356	6		1	469	
Percent Heavy Vehicles						4		4						4		
Proportion Time Blocked																
Right Turn Channelized		No				No				No				No		
Median Type								Undivided								
Median Storage																

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)							8							522		
Capacity							319							1143		
v/c Ratio							0.03							0.46		
95% Queue Length							0.1							0.0		
Control Delay (s/veh)							16.6							8.2		
Level of Service (LOS)							C							A		
Approach Delay (s/veh)						16.6							0.0			
Approach LOS						C							A			

HCS 2010 Two-Way Stop Control Summary Report

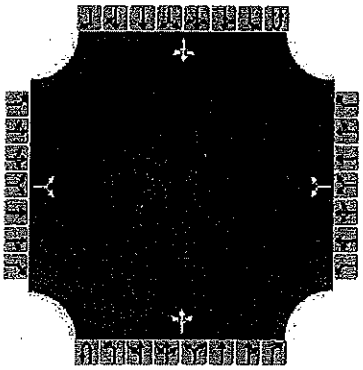
General Information

Analyst	djp
Agency/Co	dd
Date Performed	4-22-16
Analysis Year	2018
Time Analyzed	PM b
Intersection Orientation	North-South
Project Description	

Site Information

Intersection	
Jurisdiction	
East/West Street	poplar
North/South Street	washington
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR				LR				LTR				LTR	
Volume (veh/h)		16		13		6		1		24	367	6		1	480	29
Percent Heavy Vehicles		4		4		4		4		4				4		
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

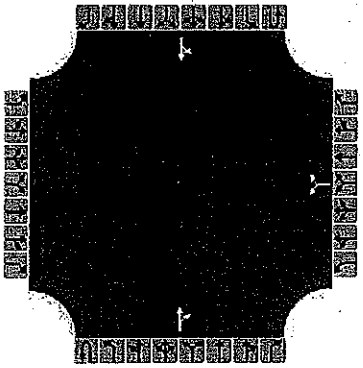
Delay, Queue Length, and Level of Service

Flow Rate (veh/h)			32				8			27				1		
Capacity			283				219			996				1132		
v/c Ratio			0.11				0.04			0.03				0.00		
95% Queue Length			0.4				0.1			0.1				0.0		
Control Delay (s/veh)			19.3				22.1			8.7				8.2		
Level of Service (LOS)			C				C			A				A		
Approach Delay (s/veh)	19.3				22.1				0.8				0.0			
Approach LOS	C				C				A				A			

HCS 2010 Two-Way Stop Control Summary Report

General Information		Site Information	
Analyst	djp	Intersection	
Agency/Co.	dd	Jurisdiction	
Date Performed	4-22-16	East/West Street	poplar
Analysis Year	2018	North/South Street	washington
Time Analyzed	am NB	Peak Hour Factor	0.89
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description			

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	0	0	0	0	1	0	0	0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						6		7			522	3		0	405	
Percent Heavy Vehicles						3		3						3		
Proportion Time Blocked																
Right Turn Channelized		No				No				No				No		
Median Type							Undivided									
Median Storage																

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)							15							455		
Capacity							335							980		
v/c Ratio							0.04							0.46		
95% Queue Length							0.1									
Control Delay (s/veh)							16.3							8.7		
Level of Service (LOS)							C							A		
Approach Delay (s/veh)						16.3										
Approach LOS						C										

HCS 2010 Two-Way Stop Control Summary Report

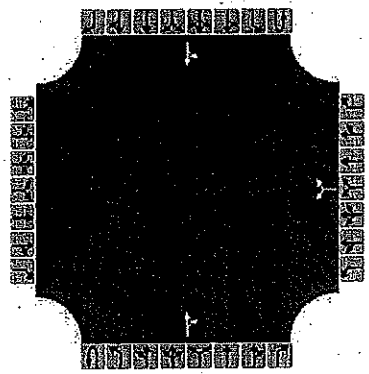
General Information

Analyst	djp
Agency/Co.	dd
Date Performed	4-22-16
Analysis Year	2016
Time Analyzed	am ex
Intersection Orientation	North-South
Project Description	

Site Information

Intersection	
Jurisdiction	
East/West Street	poplar
North/South Street	washington
Peak Hour Factor	0.89
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	0	0	0	0	1	0	0	0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						6		7			512	3		0	397	
Percent Heavy Vehicles						3		3						3		
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)							15							446		
Capacity							343							990		
v/c Ratio							0.04							0.45		
95% Queue Length							0.1									
Control Delay (s/veh)							16.0							8.6		
Level of Service (LOS)							C							A		
Approach Delay (s/veh)					16.0											
Approach LOS					C											

HCS 2010 Two-Way Stop Control Summary Report

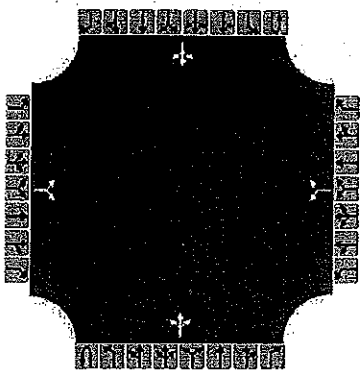
General Information

Analyst	djp
Agency/Co.	dd
Date Performed	4-22-16
Analysis Year	2018
Time Analyzed	am b
Intersection Orientation	North-South
Project Description	

Site Information

Intersection	
Jurisdiction	
East/West Street	poplar
North/South Street	washington
Peak Hour Factor	0.89
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR				LR				LTR				LTR	
Volume (veh/h)		31		20		6		7		5	523	3		0	408	8
Percent Heavy Vehicles		3		3		3		3		3				3		
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)			57				15			6						
Capacity			262				278			1088				979		
v/c Ratio			0.22				0.05			0.01						
95% Queue Length			0.8				0.2			0.0						
Control Delay (s/veh)			22.5				18.7			8.3				8.7		
Level of Service (LOS)			C				C			A				A		
Approach Delay (s/veh)	22.5				18.7				0.2							
Approach LOS	C				C				A							

HCS 2010 Two-Way Stop Control Summary Report

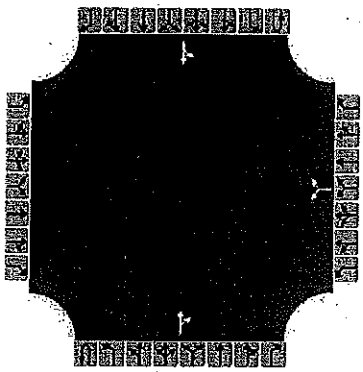
General Information

Analyst	djp
Agency/Co.	dd
Date Performed	4-22-16
Analysis Year	2018
Time Analyzed	pm b
Intersection Orientation	North-South
Project Description	

Site Information

Intersection	
Jurisdiction	
East/West Street	affordable
North/South Street	washington
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	0	0	0	0	1	0	0	0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						2		2			380	4		5	508	
Percent Heavy Vehicles						4		4						4		
Proportion Time Blocked																
Right Turn Channelized		No				No				No				No		
Median Type										Undivided						
Median Storage																

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)							4							570		
Capacity							373							1121		
v/c Ratio							0.01							0.51		
95% Queue Length							0.0							0.0		
Control Delay (s/veh)							14.8							8.2		
Level of Service (LOS)							B							A		
Approach Delay (s/veh)						14.8								0.2		
Approach LOS						B								A		

HCS 2010 Two-Way Stop Control Summary Report

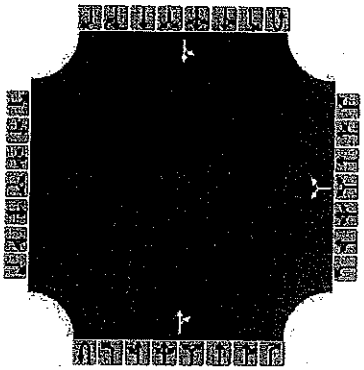
General Information

Analyst	djp
Agency/Co.	dd
Date Performed	4-22-16
Analysis Year	2018
Time Analyzed	am b
Intersection Orientation	North-South
Project Description	

Site Information

Intersection	
Jurisdiction	
East/West Street	affordable
North/South Street	washington
Peak Hour Factor	0.89
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	0	0	0	0	1	0	0	0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						3		5			560	1		1	413	
Percent Heavy Vehicles						3		3						3		
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)							9							465		
Capacity							345							947		
v/c Ratio							0.03							0.49		
95% Queue Length							0.1							0.0		
Control Delay (s/veh)							15.7							8.8		
Level of Service (LOS)							C							A		
Approach Delay (s/veh)					15.7								0.0			
Approach LOS					C								A			

DOLAN & DEAN
CONSULTING ENGINEERS, LLC

GARY W. DEAN, PE, PP
ELIZABETH DOLAN, PE

792 CHIMNEY ROCK ROAD
MARTINSVILLE, NJ 08836

732 469 0600
732 469 0663 FACSIMILE

March 30, 2017

Borough of Dumont
Joint Land Use Board
80 West Madison Avenue
Dumont, NJ 07628

Re: Landmark Dumont I Urban Renewal Corp.
546 Washington Avenue-Residential
Block 212, Lot 20
Block 215, Lot 1

Dear Land Use Board Members:

Our office represents the above-noted applicant who seeks site plan approval for the construction of affordable and market-rate apartments on two sites fronting Washington Avenue that includes the former D'Angelo farm property. In that capacity, our office prepared a Traffic Impact Assessment for the proposal, dated April 25, 2016.

Since the preparation of that report, it has come to our attention that the proposed development on Lot 1 (the affordable site) will consist of 22 apartment units. The Traffic Impact Assessment (TIA) originally indicated that 18 units would be constructed on that property. The purpose of this correspondence is to evaluate whether there are any material traffic changes associated with the additional 4 units proposed on the affordable site.

Please find appended to this letter, a revised trip generation summary for the overall project that now consists of 146 units instead of the 142 units indicated in the TIA. Table I below has been replicated from the TIA, but adjusted for the projected traffic impacts associated with 146 total residential units. As originally used, the estimated traffic generation was developed using estimates compiled by the Institute of Transportation Engineers (ITE) in Trip Generation, 9th Edition 2012.

TABLE I
146 RESIDENTIAL UNITS
PROJECTED TRIP GENERATION

Time Period	Enter	Exit	Total
Morning Peak Hour	15	60	75
Evening Peak Hour	64	34	98

Comparing the original estimates for 142 units versus the 146 units currently proposed, the differences amount to one (1) additional a.m. peak hour trips exiting the affordable site and two (2) additional entering trips during the evening peak hour. We would characterize such increases as negligible and would not affect the overall findings contained in the original TIA.

Nevertheless, and for a comprehensive evaluation, also appended to this report are revised Figures 4, 6, and 8 that reflect the additional traffic on the affordable site and the revised "site generated traffic volumes," "build traffic volumes" and the "build levels of service." Also appended to this report are the highway capacity worksheets that reflect the additional traffic associated with the four (4) additional units on the affordable site. As noted, there are no changes in levels of service. The site development amendment for four (4) additional units does not affect any of the calculations or projected operating conditions associated with the proposed development.

I look forward to the presentation of these findings at the appropriate public hearing and to addressing any questions or concerns from the Land Use Board and/or interested public at that time.

Very truly yours,

DOLAN & DEAN
CONSULTING ENGINEERS, LLC

Gary W. Dean, P.E., P.P.

GWD/lrc

Enclosures

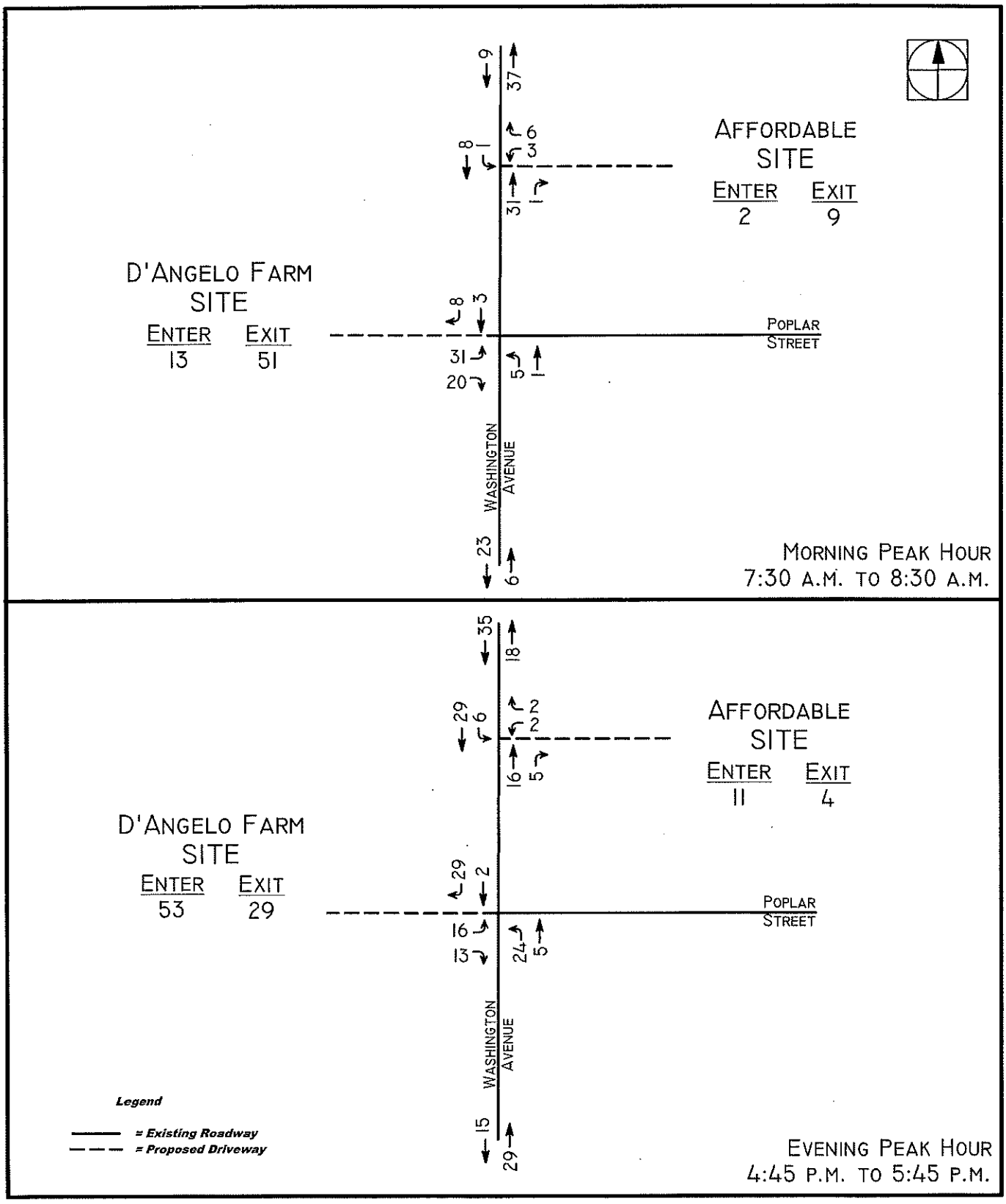
cc: Thomas Tourso tt@coremarkgroup.com
Larry Lebowitz ll@coremarkgroup.com
Antimo Del Vecchio, Esq. ADelVecchio@beattielaw.com
Jeffrey Martell, P.E. jmartell@bohlereng.com
Richard Preiss rpreiss@ppgplanners.com

Detailed Land Use Data
For 146 Dwelling Units of APT 1
(220) Apartment

Project: Dumont D'Angelo
Phase: Phase 1
Description:

Open Date: 3/29/2017
Analysis Date: 3/29/2017

Day / Period	Total Trips	Pass-By Trips	Avg Rate	Min Rate	Max Rate	Std Dev	Avg Size	% Enter	% Exit	Use Eq	Equation	R2
Weekday Average Daily Trips	1008	0	6.65	1.27	12.5	3.07	210	50	50	True	T = 6.06(X) + 123.56	0.87
Weekday AM Peak Hour of Generator	81	0	0.55	0.1	1.08	0.76	230	29	71	True	T = 0.54(X) + 2.45	0.82
Weekday AM Peak Hour of Adjacent Street Traffic	75	0	0.51	0.1	1.02	0.73	235	20	80	True	T = 0.49(X) + 3.73	0.83
Weekday PM Peak Hour of Generator	103	0	0.67	0.1	1.64	0.85	229	61	39	True	T = 0.60(X) + 14.91	0.8
Weekday PM Peak Hour of Adjacent Street Traffic	98	0	0.62	0.1	1.64	0.82	233	65	35	True	T = 0.55(X) + 17.65	0.77
Saturday Average Daily Trips	890	0	6.39	2.84	8.4	2.99	175	50	50	True	T = 7.85(X) - 256.19	0.85
Saturday Peak Hour of Generator	79	0	0.52	0.26	1.05	0.74	178	50	50	True	T = 0.41(X) + 19.23	0.56
Sunday Average Daily Trips	836	0	5.86	3.21	7.53	2.73	182	50	50	True	T = 6.42(X) - 101.12	0.82
Sunday Peak Hour of Generator	74	0	0.51	0.26	1.43	0.75	186	50	50	False		

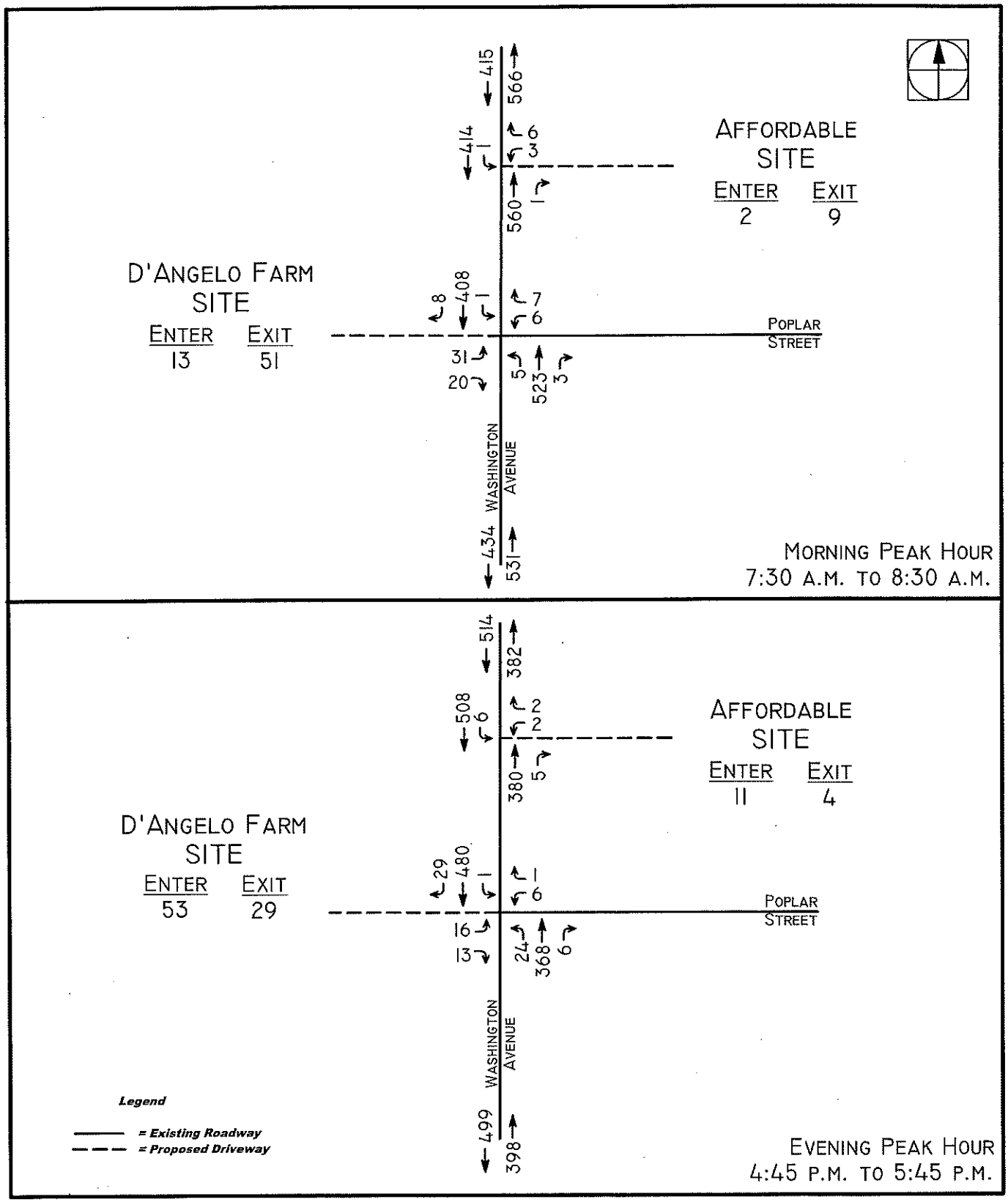


PROPOSED RESIDENTIAL DEVELOPMENT
BOROUGH OF DUMONT
BERGEN COUNTY, NEW JERSEY

REVISED FIGURE 4

DOLAN & DEAN
CONSULTING ENGINEERS, LLC

SITE GENERATED TRAFFIC VOLUMES

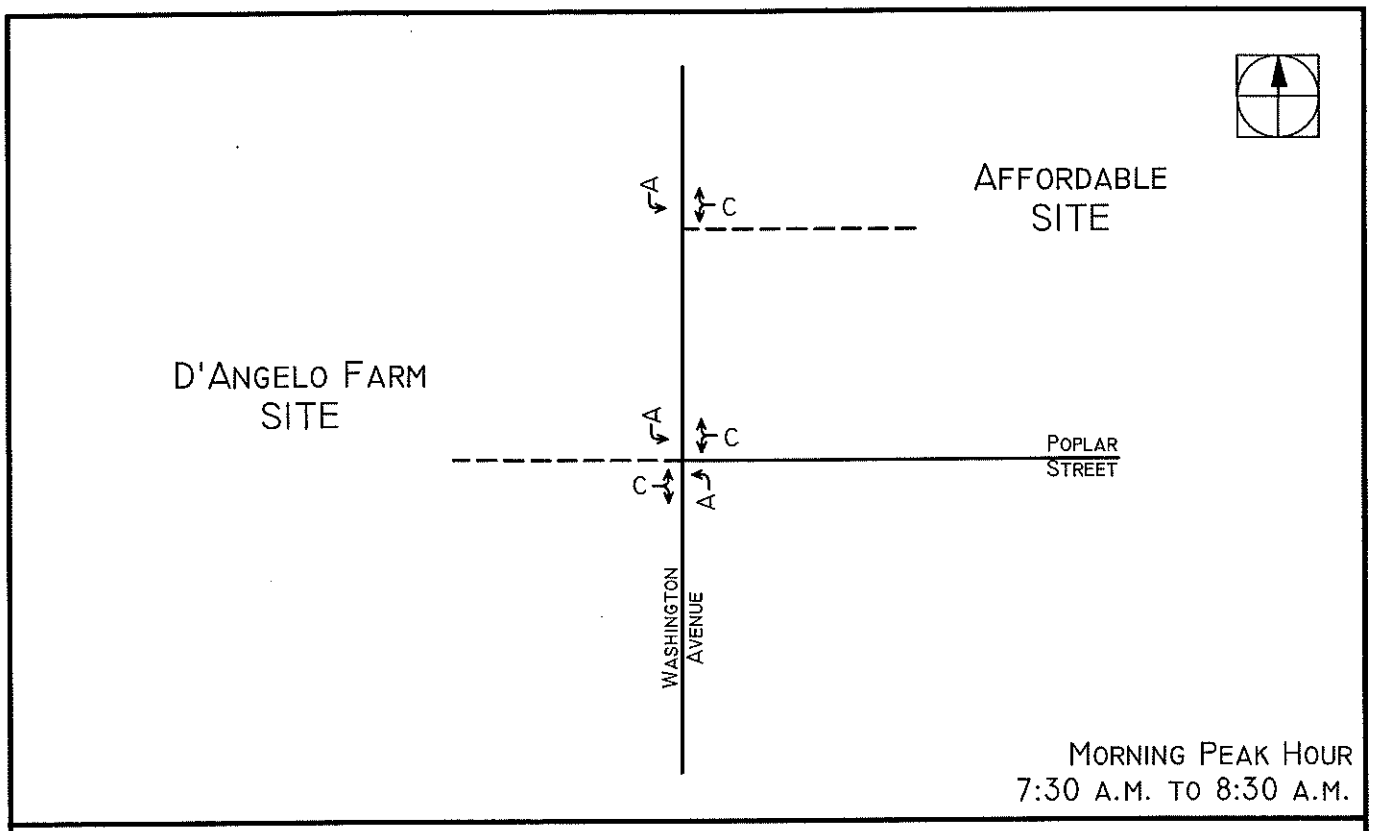


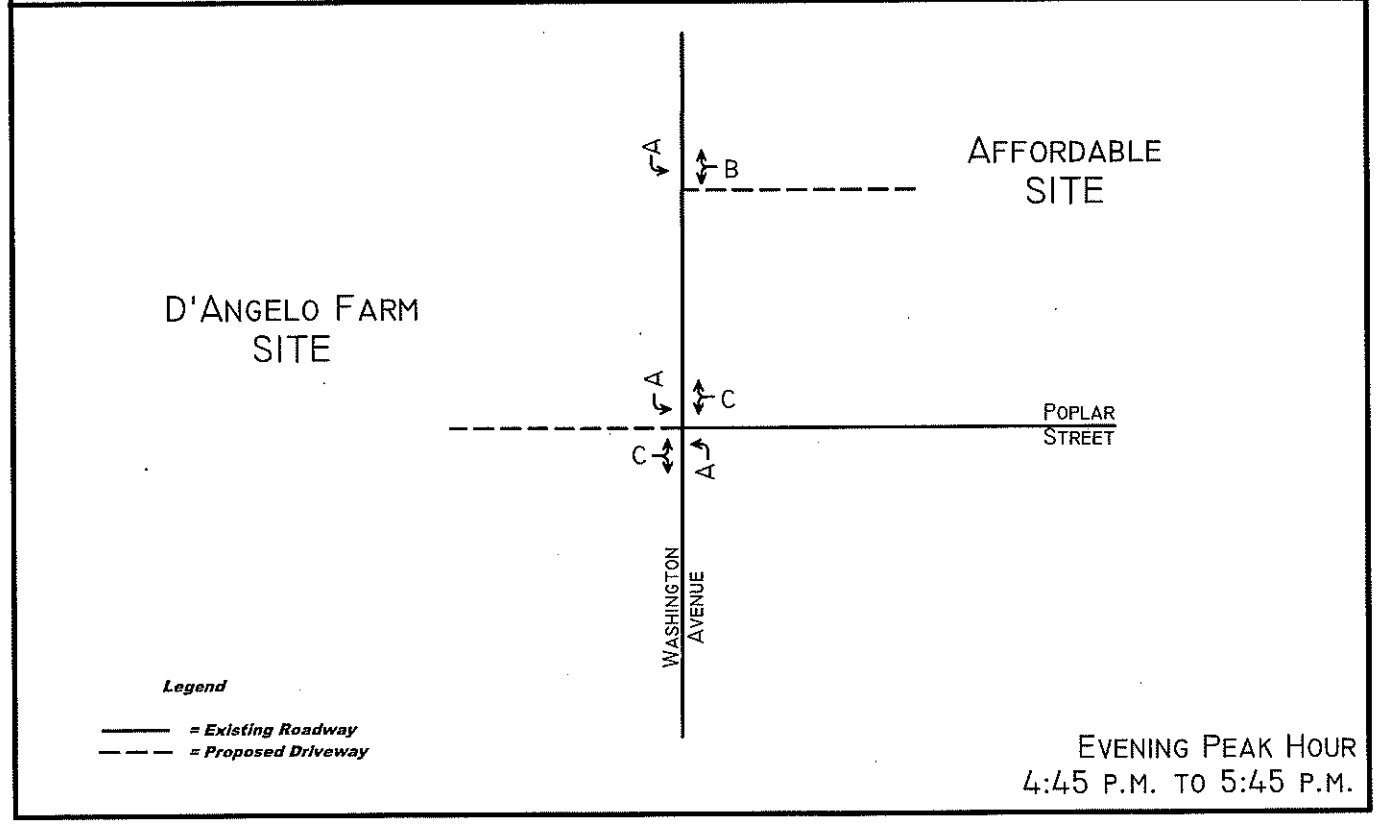
PROPOSED RESIDENTIAL DEVELOPMENT
BOROUGH OF DUMONT
BERGEN COUNTY, NEW JERSEY

REVISED FIGURE 6

DOLAN & DEAN
CONSULTING ENGINEERS, LLC

2018 BUILD TRAFFIC VOLUMES





PROPOSED RESIDENTIAL DEVELOPMENT
BOROUGH OF DUMONT
BERGEN COUNTY, NEW JERSEY

REVISED FIGURE 8

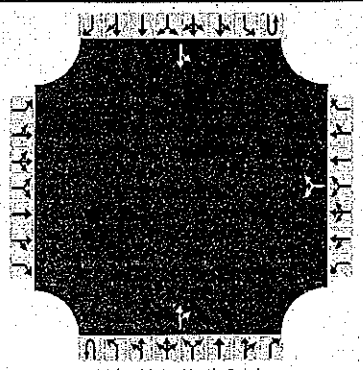
DOLAN & DEAN
CONSULTING ENGINEERS, LLC

2018 BUILD LEVELS OF SERVICE

HCS 2010 Two-Way Stop Control Summary Report

General Information		Site Information	
Analyst	djp	Intersection	
Agency/Co.	dd	Jurisdiction	
Date Performed	3-29-2017	East/West Street	affordable
Analysis Year	2018	North/South Street	washington
Time Analyzed	am b	Peak Hour Factor	0.89
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description			

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	0	0	0	0	1	0	0	0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						3		6			560	1		1	414	
Percent Heavy Vehicles						3		3						3		
Proportion Time Blocked																
Right Turn Channelized		No				No				No				No		
Median Type	Undivided															
Median Storage																

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)							10							1		
Capacity							355							947		
v/c Ratio							0.03							0.00		
95% Queue Length							0.1							0.0		
Control Delay (s/veh)							15.4							8.8		
Level of Service (LOS)							C							A		
Approach Delay (s/veh)					15.4								0.0			
Approach LOS					C											

HCS 2010 Two-Way Stop Control Summary Report

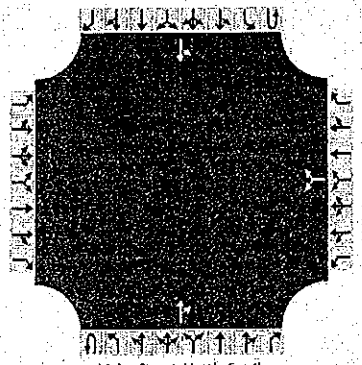
General Information

Analyst	djp
Agency/Co.	dd
Date Performed	3-29-2017
Analysis Year	2018
Time Analyzed	pm b
Intersection Orientation	North-South
Project Description	

Site Information

Intersection	
Jurisdiction	
East/West Street	affordable
North/South Street	washington
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	0	0	0	0	1	0	0	0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						2		2			380	5		6	508	
Percent Heavy Vehicles						4		4						4		
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

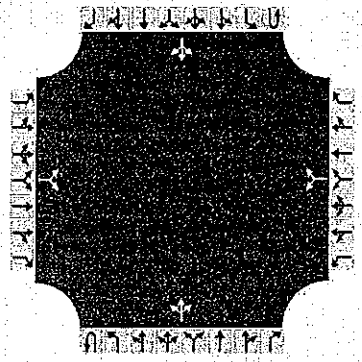
Delay, Queue Length, and Level of Service

Flow Rate (veh/h)							4							7		
Capacity							371							1119		
v/c Ratio							0.01							0.01		
95% Queue Length							0.0							0.0		
Control Delay (s/veh)							14.8							8.2		
Level of Service (LOS)							B							A		
Approach Delay (s/veh)					14.8								0.2			
Approach LOS					B											

HCS 2010 Two-Way Stop Control Summary Report

General Information		Site Information	
Analyst	djp	Intersection	
Agency/Co.	dd	Jurisdiction	
Date Performed	3-29-2017	East/West Street	poplar
Analysis Year	2018	North/South Street	washington
Time Analyzed	am b	Peak Hour Factor	0.89
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description			

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR				LR				LTR				LTR	
Volume (veh/h)		31		20		6		7		5	523	3		1	408	8
Percent Heavy Vehicles		3		3		3		3		3				3		
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

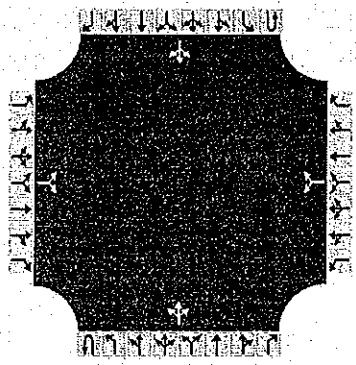
Delay, Queue Length, and Level of Service

Flow Rate (veh/h)			57				15			6				1		
Capacity			261				277			1088				979		
v/c Ratio			0.22				0.05			0.01				0.00		
95% Queue Length			0.8				0.2			0.0				0.0		
Control Delay (s/veh)			22.6				18.7			8.3				8.7		
Level of Service (LOS)			C				C			A				A		
Approach Delay (s/veh)	22.6				18.7				0.2				0.0			
Approach LOS	C				C											

HCS 2010 Two-Way Stop Control Summary Report

General Information		Site Information	
Analyst	djp	Intersection	
Agency/Co.	dd	Jurisdiction	
Date Performed	3-29-2017	East/West Street	poplar
Analysis Year	2018	North/South Street	washington
Time Analyzed	PM b	Peak Hour Factor	0.90
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description			

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR				LR				LTR				LTR	
Volume (veh/h)		16		13		6		1		24	368	6		1	480	29
Percent Heavy Vehicles		4		4		4		4		4				4		
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)			32				8			27				1		
Capacity			283				219			996				1131		
v/c Ratio			0.11				0.04			0.03				0.00		
95% Queue Length			0.4				0.1			0.1				0.0		
Control Delay (s/veh)			19.3				22.1			8.7				8.2		
Level of Service (LOS)			C				C			A				A		
Approach Delay (s/veh)	19.3				22.1				0.8				0.0			
Approach LOS	C				C											