



Traffic Impact Study

Development at 2300-2330 Whitney Avenue
Hamden, Connecticut

Prepared for:
NU Development, LLC

Prepared by:
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November 2013 Revised for Police Commission and OSTA





● Intersection Analyzed in This Study

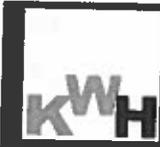
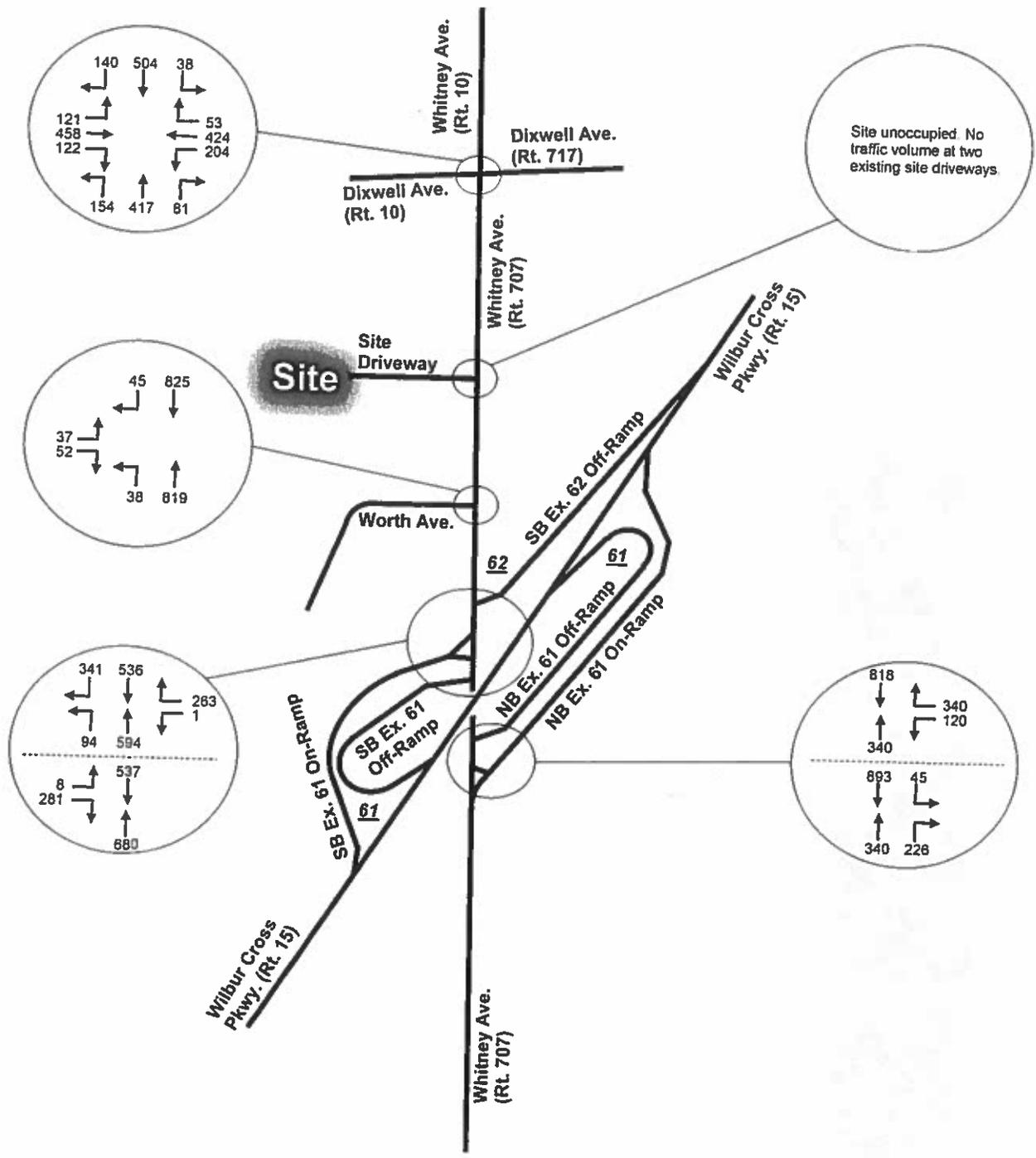


Figure 1 Site Location



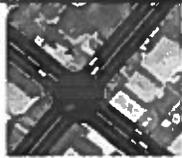
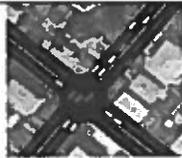
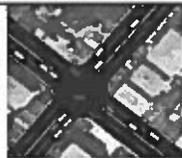
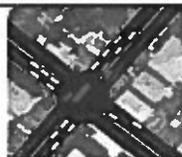
Time of Existing Traffic: 2013 (Seasonally Adjusted to June Peak)

KWH Figure 2 Year 2013 Existing Traffic Volumes Weekday Morning Peak Hour

designation from A to F, with LOS A representing the best operating conditions and LOS F representing the worst.

LOS at intersection is measured in terms of average control delay. For signalized intersections and all-way stop-controlled intersections, the analysis considers the operation of all traffic entering the intersection, and an overall condition is reported in addition to individual movements. For two-way stop-controlled (TWSC) intersections where side street traffic has to stop for main street traffic, the analysis assumes that through traffic on the main street is not affected by traffic on side streets. Thus, LOS is calculated for the main street left-turn and side street approaches, and no overall intersection LOS is defined for TWSC intersections. Table 1 presents the LOS criteria for signalized and unsignalized intersections as defined in *HCM 2000*.

Table 1 LOS Criteria for Signalized and Unsignalized Intersections

	Level-of-Service (LOS)	Signalized Delay Range (Average Control Delay, in sec/veh)	Unsignalized Delay Range (Average Control Delay in sec/veh)
	A	≤ 10	≤ 10
	B	> 10 and ≤ 20	> 10 and ≤ 15
	C	> 20 and ≤ 35	> 15 and ≤ 25
	D	> 35 and ≤ 55	> 25 and ≤ 35
	E	> 55 and ≤ 80	> 35 and ≤ 50
	F	> 80	> 50

Source: 2000 Highway Capacity Manual (Exhibits 16-2 and 17-2)

Whitney Avenue. The two existing driveways to the site were not analyzed because the site is currently unoccupied.

IV. Future Traffic Conditions

This section discusses the no-build and build traffic conditions in 2014, the year in which the project is assumed to be completed and occupied.

Figures 4 and 5 show the 2014 no-build traffic volumes. The volumes were generated using an assumed background growth rate of 1% between 2013 and 2014, independent of the site development.

Trip Generation

Land Use (LU) 220, 310, 710 and 814 from *Trip Generation, 8th Edition*, published by the Institute of Transportation Engineers (ITE) were used to estimate the number of trips generated by the project. The results, which were based on the building S.F. and the number of hotel and apartment units, are summarized in Table 3. For the 11,460 S.F. Centerville Lumber building to be renovated for club and/or retail uses, the more traffic-intensive trip rates for specialty retail were applied to the whole building to reflect a more conservative estimate of the trip generation. No internally captured trips among the various site uses were assumed in the trip generation because currently there is no established ConnDOT guideline in this regard.

A total of 281 and 248 vehicle trips are expected to be generated by the development during the respective morning and afternoon peak hours of a weekday. These represent a slight increase from the previous site uses.

Table 3 Trip Generation Details (vph)

Site Use		SF/Unit	Land Use Code	AM Peak Formula / Trip Rate	PM Peak Formula / Trip Rate	AM Peak-Hour Trips	PM Peak-Hour Trips
Hotel	Unit	120	LU 310, Hotel	0.56	0.59	67	71
Existing Building for Club or Retail Use	SF	11,460	LU 814, Specialty Retail Center	6.84	T=2.40(X)+21.48	78	49
Front Building for Retail Use	SF	1,692	LU 814, Specialty Retail Center	6.84	T=2.40(X)+21.48	12	26
Mixed Use Building, First Floor for Retail	SF	9,504	LU 814, Specialty Retail Center	6.84	T=2.40(X)+21.48	65	44
Mixed Use Building, Second, Third and Fourth Floors for General Office	SF	36,000	LU 710, General Office Building	1.55	1.49	56	54
Mixed Use Building, Fifth Floor for Residential Use	Unit	6	LU 220, Apartment	0.51	0.62	3	4
Sum						281	248

vph Vehicles per hour

In accordance with practice acceptable to the ConnDOT, 20% of the retail-related trips for the development were assumed to be pass-by trips, or vehicles already travel on the

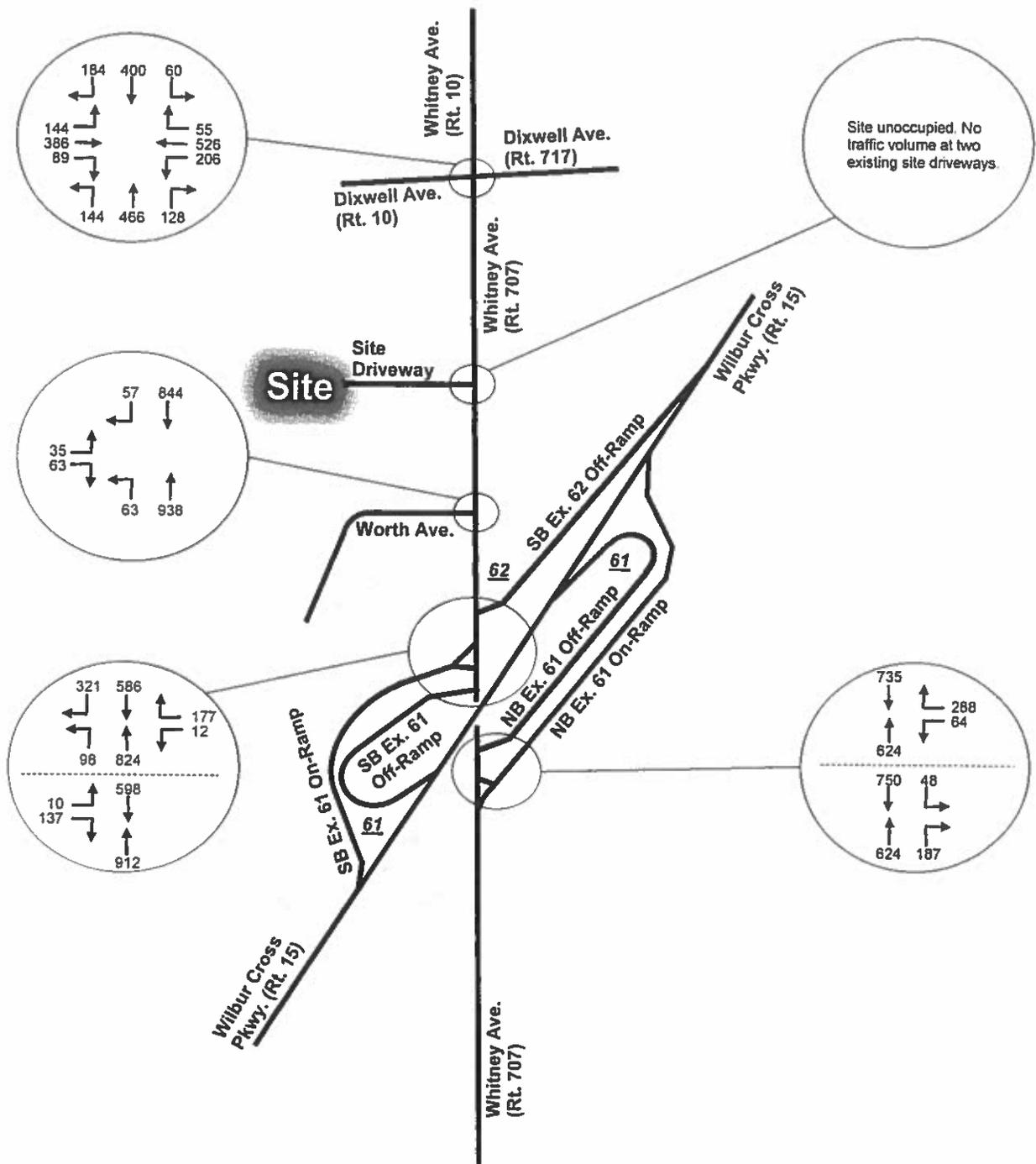


Figure 5 Year 2014 No-Build Traffic Volumes
Weekday Afternoon Peak Hour

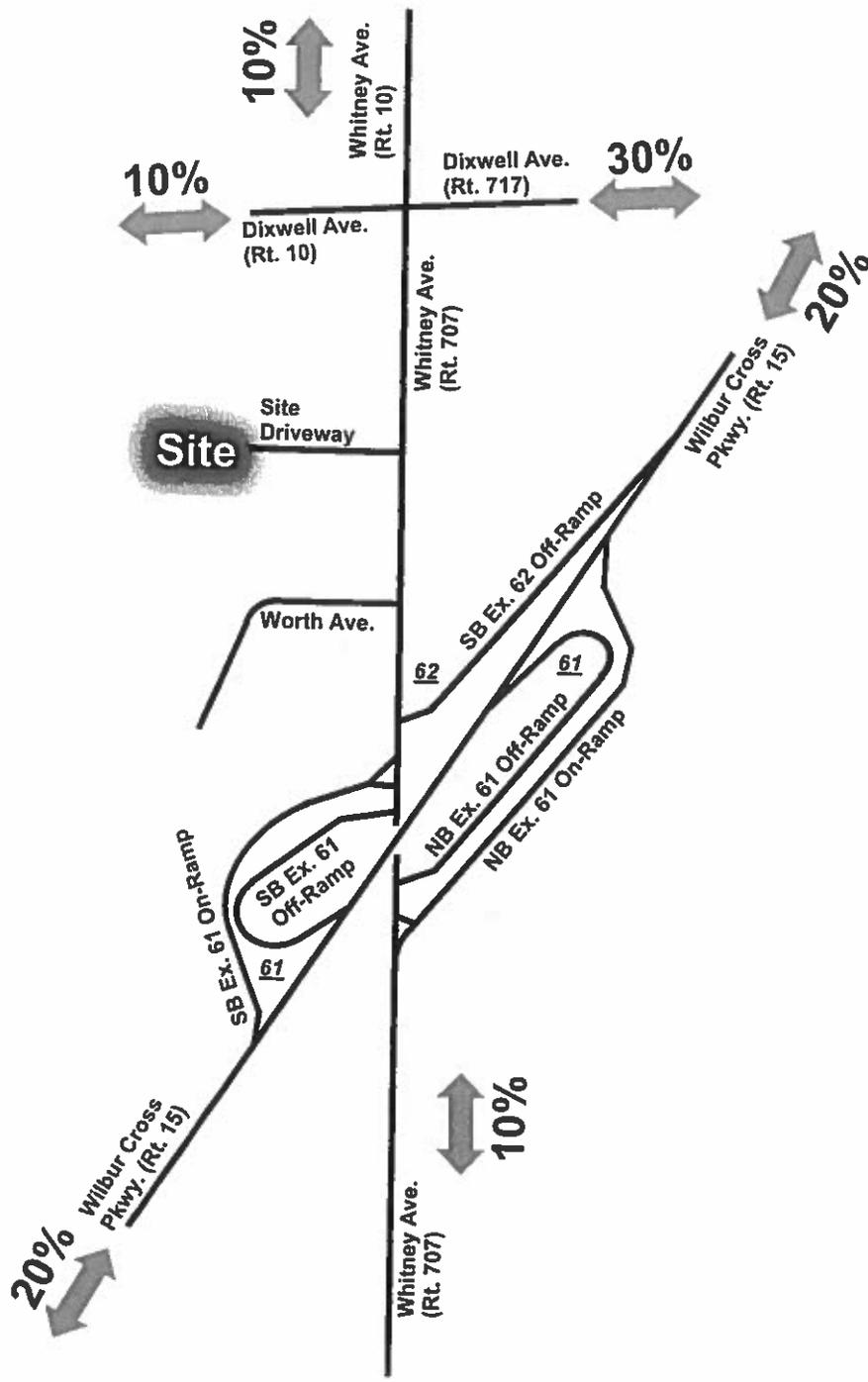


Figure 6 Trip Distribution

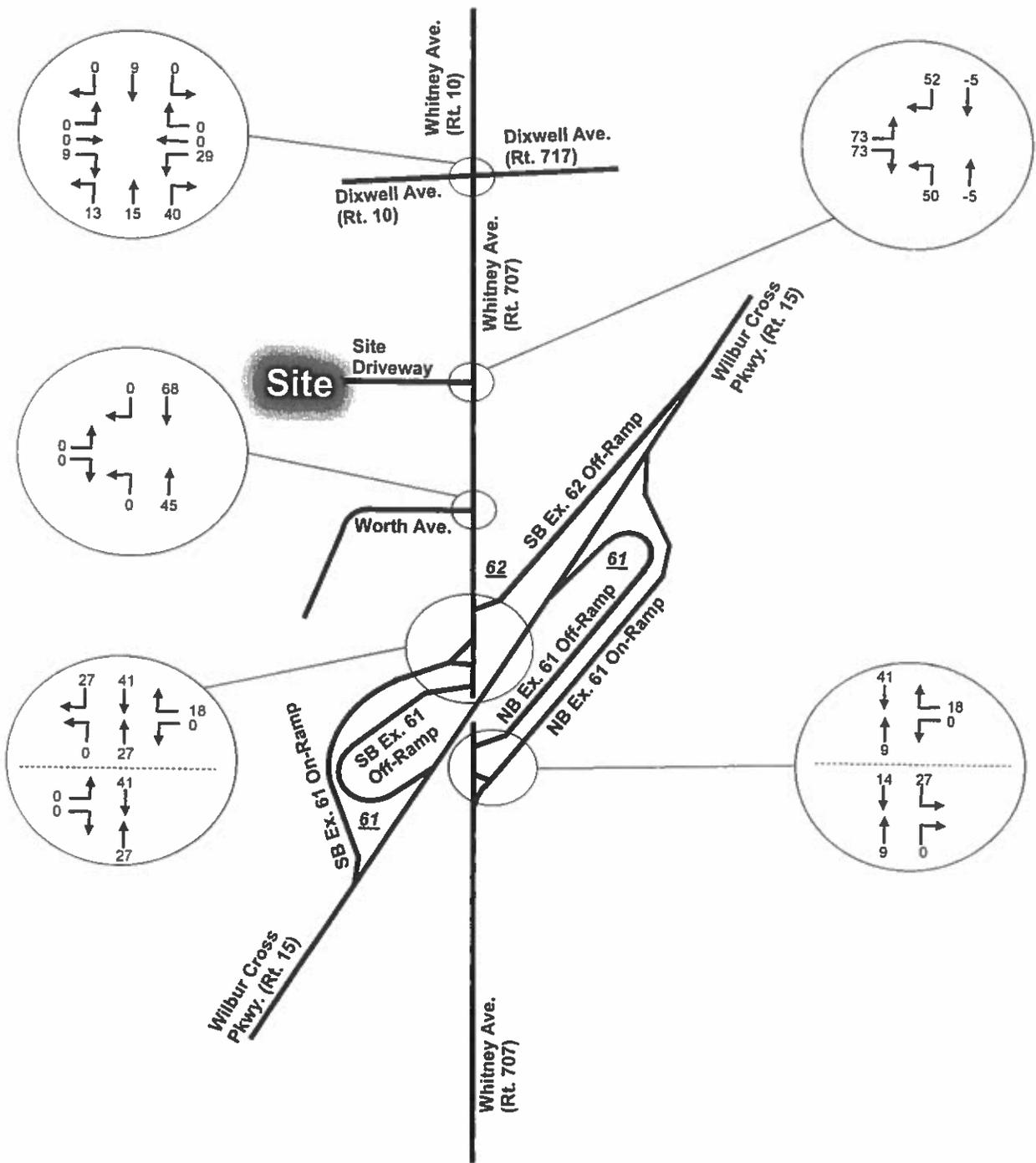


Figure 8 Site-Generated Trips
Weekday Afternoon Peak Hour

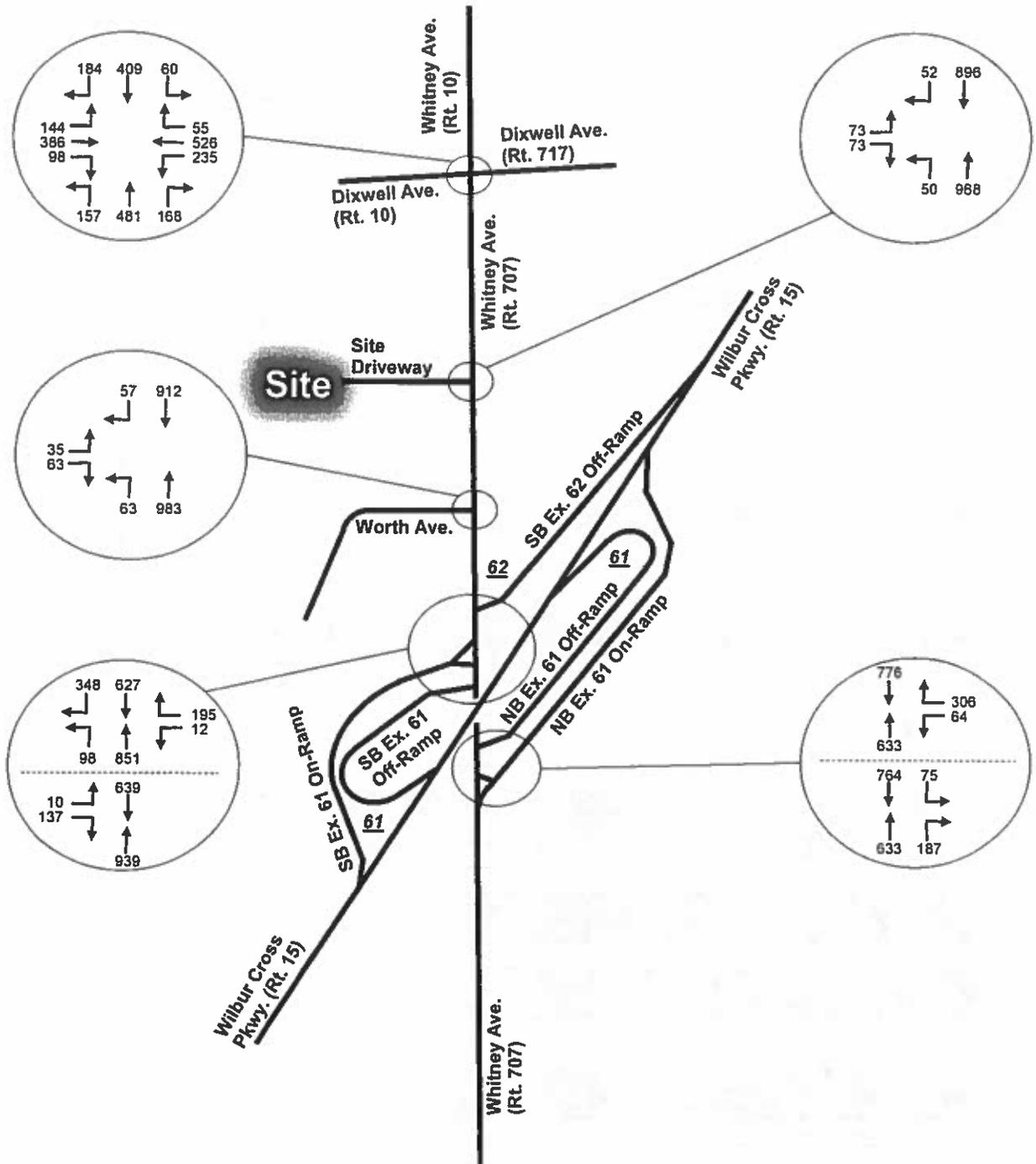


Figure 10 Year 2014 Build Traffic Volumes Weekday Afternoon Peak Hour

conclude that the project will produce limited traffic impact on area roadways and intersections.

Table 7 Capacity Analysis Summary for Build Condition

Intersection	2014 Build Condition							
	Weekday AM Peak Hour				Weekday PM Peak Hour			
	v/c Ratio	Delay (sec)	LOS	95% Queue (ft)	v/c Ratio	Delay (sec)	LOS	95% Queue (ft)
Dixwell Ave. (Rt. 10 & 717) & Whitney Ave. (Rt. 10 & 707) (Signalized)								
EB Dixwell Ave. Left-Turn	0.82	55.4	E	155	0.96	88.8	F	218
EB Dixwell Ave. Through & Right-Turn	0.72	25.5	C	298	0.58	22.5	C	225
WB Dixwell Ave. Left-Turn	1.68	361.1	F	823	1.56	308.5	F	718
WB Dixwell Ave. Through & Right-Turn	0.61	23.0	C	243	0.73	25.8	C	308
NB Whitney Ave.	0.74	16.5	B	253	0.80	18.7	B	298
SB Whitney Ave.	0.75	22.8	C	343	0.73	22.5	C	300
Intersection	-	53.6	D	-	-	49.3	D	-
Site Driveway & Whitney Ave. (Rt. 707) (Unsignalized)								
Site Driveway Left-Turn	0.56	72.2	F	67	0.69	88.4	F	92
Site Driveway Right-Turn	0.07	9.4	A	6	0.09	9.6	A	8
NB Whitney Ave. Left-Turn	0.11	10.0	B	9	0.07	10.0	A	6
Worth Ave. & Whitney Ave. (Rt. 707) (Signalized)								
EB Worth Ave. Left-Turn	0.08	16.6	B	28	0.08	16.6	B	28
EB Worth Ave. Right-Turn	0.00	16.1	B	0	0.00	16.2	B	3
NB Whitney Ave.	0.59	8.0	A	218	0.75	10.9	B	265
SB Whitney Ave.	0.59	12.7	B	343	0.62	13.1	B	360
Intersection	-	10.5	B	-	-	12.0	B	-
SB Rt. 15 Ex. 61 On-Ramp, SB Rt. 15 Ex. 62 Off-Ramp & Whitney Ave. (Unsignalized)								
WB Ex. 62 Off-Ramp	0.47	14.8	B	63	0.47	19.3	C	63
NB Whitney Ave. Left-Turn	0.15	11.1	B	13	0.16	11.2	B	14
SB Rt. 15 Ex. 61 Off-Ramp & Whitney Ave. (Unsignalized)								
EB Ex. 61 Off-Ramp	0.46	14.5	B	60	0.25	12.8	B	25
NB Rt. 15 Ex. 61 Off-Ramp & Whitney Ave. (Unsignalized)								
WB Ex. 61 Off-Ramp Left-Turn	0.44	26.2	D	53	0.34	31.4	D	35
WB Ex. 61 Off-Ramp Right-Turn	0.48	13.1	B	66	0.48	14.8	B	65
NB Rt. 15 Ex. 61 On-Ramp & Whitney Ave. (Unsignalized)								
SB Whitney Ave. Left-Turn	0.07	9.1	A	6	0.11	10.3	B	9

EB Eastbound
 WB Westbound
 NB Northbound
 SB Southbound
 v/c Volume/capacity ratio
 LOS Level of Service

Table 8 Accident Summary

Location	Dixwell Ave. (Rt. 10 & 717) & Whitney Ave. (Rt. 10 & 707)	Whitney Ave. (Rt. 707), between Dixwell Ave. and Worth Ave.	Whitney Ave. (Rt. 707) and Worth Ave.	Whitney Ave. (Rt. 707) and Rt. 15 Ramps
	Route 10, Mile 8.74 to 8.86; Route 707, Mile 3.56 to 3.62; Route 717, Mile 0.00 to 0.06	Route 707, Mile 3.45 to 3.56	Route 707, Mile 3.41 to 3.45	Route 707, Mile 3.25 to 3.41
Year				
2006	19	3	6	9
2007	28	5	8	11
2008	26	4	9	3
Total	73	12	23	23
Type				
Angle	2	0	0	0
Rear-End	35	3	7	8
Head-on	0	0	0	0
Backing	3	0	0	1
Turn (Intersecting Path)	7	5	4	1
Turn (Same Direction)	2	1	0	5
Turn (Opp. Direction)	12	0	6	2
Sideswipe (Same Direction)	6	2	5	3
Sideswipe (Opp. Direction)	1	0	0	0
Parking	1	0	0	0
Fixed Object	4	1	1	3
Unknown - Other	0	0	0	0
Total	73	12	23	23
Severity				
Prop. Damage Only	55	8	21	17
Personal Injury	18	4	2	6
Fatality	0	0	0	0
Unknown	0	0	0	0
Total	73	12	23	23
Pavement Conditions				
Dry	63	6	13	18
Wet	9	6	10	5
Ice/Snow	1	0	0	0
Unknown	0	0	0	0
Total	73	12	23	23
Time				
7:00 to 9:00 AM	6	0	4	5
4:00 to 6:00 PM	13	1	3	8
Other	54	11	16	10
Unknown	0	0	0	0
Total	73	12	23	23
Day of Week				
Monday - Friday	61	10	21	21
Saturday - Sunday	12	2	2	2
Total	73	12	23	23

Source: ConnDOT TAVS, Version 2.1

