

February 20, 2024
Revised October 15, 2024

Best Brokers
49 Twin Lakes Drive
Waterford, CT 06385

Attn: Mr. Daniel DelGrosso

**RE: Traffic Impact Report
Roberts Village Housing
430 Mohegan Ave Parkway (Route 32)
Waterford, CT
Our File: 23186**

Dear Mr. DelGrosso:

Pursuant to your request our office has prepared this traffic impact report outlining the potential traffic impact of a proposed 24 unit residential development known as Roberts Village on property located at 430 Mohegan Ave Parkway, CT Route 32, in the Town of Waterford, CT. The site proposed for development is shown in Figure 1. This letter presents our findings.

Proposed Development

The property proposed for development has frontage to Route 32 on the east as well as frontage to the cul-de-sac of Roberts Court. The proposed development is depicted on site plans prepared by Indigo Design, LLC. The plan depicts an extension of Roberts Court into the property with a loop roadway that turns to the north and returns to itself. A total of 24 units are proposed in 20 buildings located on the outside and the inside of the loop roadway. A total of 62 parking spaces are proposed. No access is proposed to Route 32.

Description of Area

Route 32 is a state-maintained roadway that originates at Route 82 in Norwich and extends in a southerly direction, along the Thames River, past the subject site to its terminus in downtown New London. Route 32 provides access to Route 2A and I-395 north of the site, and I-95 south of the site. Across the site frontage Route 32 carries two travel lanes and wide shoulders in

each direction separated by a Jersey Barrier. The roadway is posted at 45 miles per hour in each direction. Near the site, traffic signals are provided at Fitzgerald Avenue, north of the site, and Benham Avenue, south of the site. Land use along Route 32, within Waterford is mainly single family residential.

Roberts Court is a town-maintained roadway that originates at Senkow Drive and extends 300 feet to its terminus in a cul-de-sac at the subject property line. The roadway provides 30 feet of pavement with a single lane in each direction. The roadway is unmarked and has no posted speed limit. The roadway serves 7 single family residences.

Senkow Drive is a town-maintained roadway that originates at Route 32 and extends in a westerly direction, a distance of approximately 800 feet, to its terminus at Old Norwich Road. The roadway provides 32 feet of pavement with a single lane in each direction, separated by a painted double yellow centerline. The roadway is posted at 25 miles per hour. Land use along the roadway is single family residential. The Senkow Road approaches to Route 32 and Old Norwich Road each operate under stop sign control.

Old Norwich Road originates at a signalized intersection with Route 32 and extends in a southerly direction through Quaker Hill, past Senkow Drive and then continuing south into the City of New London where the roadway takes on the name of Willams Street. The roadway continues past Connecticut College and then interchanging with Route 32 and I-95. Old Norwich Road provides a width varying from 26 to 35 feet with a single travel lane in each direction, separated by a painted double yellow centerline. The roadway is posted at 30 miles per hour.

Background Traffic

The Connecticut DOT maintains a traffic volume count program on all state highways and some local roadways. Included in the database are counts on Route 32 south of Benham Road and on Old Norwich Road at the New London Townline. The most recent counts were conducted during March and April 2023. The count on Route 32 indicates an average daily traffic volume (ADT) of 25,300 vehicles with peak hour volumes of 2,060 vehicles during the morning peak hour (7:00 a.m.) and 2,001 vehicles during the afternoon

peak hour (5:00 p.m.). The count on Old Norwich Road indicates an average daily traffic volume (ADT) of 3,200 vehicles with peak hour volumes of 242 vehicles during the morning peak hour (8:00 a.m.) and 332 vehicles during the afternoon peak hour (4:00 p.m.). The ConnDOT counts are presented in Tables 1 and 2.

Our office arranged for the installation of an automated traffic volume counter on Senkow Drive west of Robers Court during July 2022. The count indicates that Senkow Drive carries a weekday ADT of 181 vehicles, with peak hour volumes of 15 vehicles during the morning peak hour (8:00 a.m.) and 18 vehicles during the afternoon peak hour (3:00 p.m.). This count is presented in Table 3.

In addition to the automated counts described above, manual turning movement counts were conducted at the intersections of Route 32 with Fitzgerald Avenue, Route 32 with Benham Avenue, Route 32 at Senkow Drive and Old Norwich Road at Senkow Drive during the morning and afternoon peak commuter periods. These counts were conducted during October 2023. Figure 2 presents the observed traffic volumes.

A review of recent ConnDOT counts, pre Covid, indicates that traffic volumes have decreased slightly on both Route 32 and Old Norwich Road between 2011 and 2023. Therefore, no adjustment has been made to the observed volumes, other than to balance between intersections where appropriate. The results are presented in Figure 3 as the 2026 background traffic volumes.

Site Generated Traffic

The Institute of Transportation Engineers (ITE) *Trip Generation* Report was consulted for the purpose of estimating the trip generation of the proposed facility. *Trip Generation* presents trip generation estimates for many land uses based on counts conducted at existing facilities throughout the country. Included with the ITE database is Land Use Code (LUC) 210 – Single Family Detached Housing. The data for this land use is presented in terms of the number of units. Based on the ITE Data the proposed 24 unit development has a trip generation of 271 trips daily with a morning peak hour of 20 trips and an afternoon peak hour of 26 trips. The trip

generation is summarized in Table 4.

For the purposes of this analysis, we project a directional distribution of 50% to and from the north and 50% to and from the south. Due to the center median on Route 32, traffic to the site will either need to execute a u-turn at one of the signalized intersections north and south of Senkow Drive, or to utilize Old Norwich Road to approach from the south or to depart to the north. Figure 4 presents the anticipated directional distribution of the site generated traffic for the full build development.

Figure 5 depicts the site generated traffic based on this distribution. By adding the site generated traffic to the background traffic, the combined traffic volumes upon completion of the development can be determined. These volumes represent the 2026 combined traffic volumes as presented in Figure 6.

Capacity Analysis

Capacity analyses were conducted for the background and combined traffic volumes for both the morning and afternoon peak hours at each of intersections. The analysis was conducted utilizing the intersection capacity analysis program called SYNCHRO. The analysis results are shown in Table 5.

Route 32 at Fitzgerald Avenue - This is an existing, four-way signalized intersection with Route 32 oriented in the north/south direction. Fitzgerald Avenue is oriented in the east/west orientation. The northbound and southbound Route 32 approaches each provide a dedicated left turn lane, one through lane and a shared through/right turn lane. The Fitzgerald Avenue approaches each provide a single lane approach. The intersection is under signalized control and operates with protected northbound and southbound advance left turns, followed by the northbound and southbound through movements, followed by the eastbound and westbound movements simultaneously.

Analysis indicates that the intersection operates at an overall LOS A during the morning and afternoon peak hours under the background traffic volume conditions. With the introduction of

the site generated traffic, the intersection will continue to operate at the same levels of service as in the background conditions.

Route 32 at Benham Avenue - This is an existing, four-way signalized intersection with Route 32 oriented in the north/south direction. Benham Avenue is oriented in the east/west orientation. The northbound and southbound Route 32 approaches each provide a dedicated left turn lane, one through lane and a shared through/right turn lane. The Benham Avenue approaches each provide a single lane approach. The intersection is under signalized control and operates with protected northbound and southbound advance left turns, followed by the northbound and southbound through movements, followed by the eastbound and westbound movements simultaneously.

Analysis indicates that the intersection operates at an overall LOS A during the morning and afternoon peak hours under the background traffic volume conditions. With the introduction of the site generated traffic, the intersection will continue to operate at the same levels of service as in the background conditions.

Route 32 at Senkow Drive - This is an existing unsignalized "T" intersection. Route 32 is oriented in the north/south direction. Senkow Drive approaches from the west. There is a Jersey barrier in the center of Route 32, so only the southbound lanes are accessible from Senkow Drive. Route 32 provides a two lane approach with a single through lane and a shared through/right turn lane. Route 32 operates free. Senkow Drive provides a single lane approach, operates under stop sign control, and is restricted to right turn movements only.

Analysis indicates that under the background traffic volumes the southbound Route 32 approach operates at a LOS A during peak hours. The Senkow Drive approach operates at a LOS C during peak hours. With the introduction of the site generated traffic, all approaches will continue to operate at the same levels of service as in the background conditions.

Old Norwich Road at Senkow Drive - This is an existing unsignalized "T" intersection. Old Norwich Road is oriented in the north/south direction. Senkow Drive approaches from the east.

All approaches provide a single lane. The Senkow Drive approach operates under stop sign control.

Analysis indicates that under the background traffic volumes the Old Norwich Road approaches operate at a LOS A during peak hours. The Senkow Drive approach operates at a LOS A during the morning peak hour and at a LOS B during the afternoon peak hour. With the introduction of the site generated traffic, all approaches will continue to operate at the same levels of service as under the background conditions.

Senkow Drive at Roberts Court - This is an existing unsignalized "T" intersection. Senkow Drive is oriented in the east/west direction. Roberts Court approaches from the south. All approaches provide a single lane. The Roberts Court approach operates under stop sign control.

Analysis indicates under the background traffic volumes that the Senkow Drive approaches operate at a LOS A and the Roberts Court approach operates at a LOS A during the morning and afternoon peak hours. With the introduction of the site generated traffic all approaches will continue to operate at the same levels of service as under the background conditions.

Driveway Location and Design

The proposed site driveway is an extension of Roberts Court. The driveway as proposed will provide 24 feet of pavement with a single 12 foot lane for entering traffic and a 12 foot lane for exiting traffic, separated by a painted double yellow centerline. We recommend that the driveway approach to the cul-de-sac be striped with a stop bar and stop sign for traffic control. Since the site driveway is an extension of Roberts Court, there are no sight line restrictions.

Accident Data

The University of Connecticut Crash Data Repository gathers and compiles traffic accident data for all state highways and some major local roadways. A list of accidents occurring in the area from October 1st, 2020 through October 1st, 2023 was reviewed. The data is presented by mile marker and includes information such as date, time, roadway and weather conditions, collision types, and other variables.

A 3-year accident history was compiled for Route 32 from a point 100 feet south of Benham Avenue to a point 100 feet north of Fitzgerald Avenue and for the full length of Old Norwich Road. No accidents were identified for either Senkow Drive or Roberts Court. A total of 31 accidents involving 59 vehicles occurred on Route 32 during the three year period reviewed. Twelve accidents occurred at the intersection of Benham Avenue, six accidents at Senkow Drive, and 13 accidents occurred at the intersection of Fitzgerald Avenue. 22 of the accidents were rear end accidents, there was one angle accident, two sideswipe accidents, five accidents involving fixed objects, and one involving a deer. 24 accidents were property damage only, five involved a suspected minor injury, one involved a suspected serious injury, and one accident was listed as a possible injury. There were no reported fatalities.

A total of eleven accidents involving 15 vehicles occurred on Old Norwich Road during the three year period reviewed. There were two accidents recorded at the intersections of Benham Road, one at Senkow Drive and no accidents at Fitzgerald Avenue. There were three rear end accidents, one sideswipe accident and the remaining seven accidents involving fixed objects. Six of the accidents were property damage only, three involved a suspected minor injury, and two accidents were listed as a possible injury. There were no reported fatalities.

Sate Approvals

The proposed development provides less than 100,000 s.f. of floor area and has fewer than 200 parking spaces. Therefore, the development does not fall under the jurisdiction of the Office of the State Traffic Administration (OSTA). Since the development does not propose any access to a State Highway, it is not necessary to obtain an Encroachment Permit from the Connecticut Department of Transportation's District II Office.

Conclusions

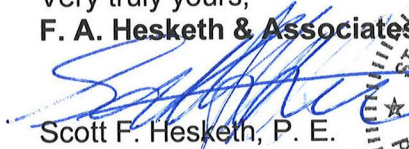
Based on the low volume of site generated traffic and the calculated levels of service as outlined in this report, it is my professional opinion that the local roadway network has sufficient capacity to accommodate the traffic volumes associated with the proposed development. The site access is proposed to Roberts Court, a very low volume roadway. The site driveway is properly designed to accommodate the anticipated peak hour volumes.

Mr. Daniel DelGrosso
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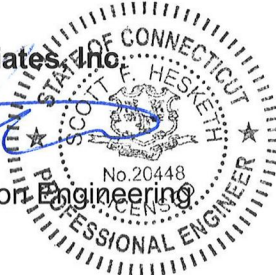
We appreciate the opportunity to provide this information to you. A representative from our firm will be available to present testimony before local commissions if needed. If you require any additional information, please do not hesitate to contact our office.

Very truly yours,

F. A. Hesketh & Associates, Inc.


Scott F. Hesketh, P. E.

Manager of Transportation Engineering



cc: Mr. Joe Wren, Indigo Design, LLC

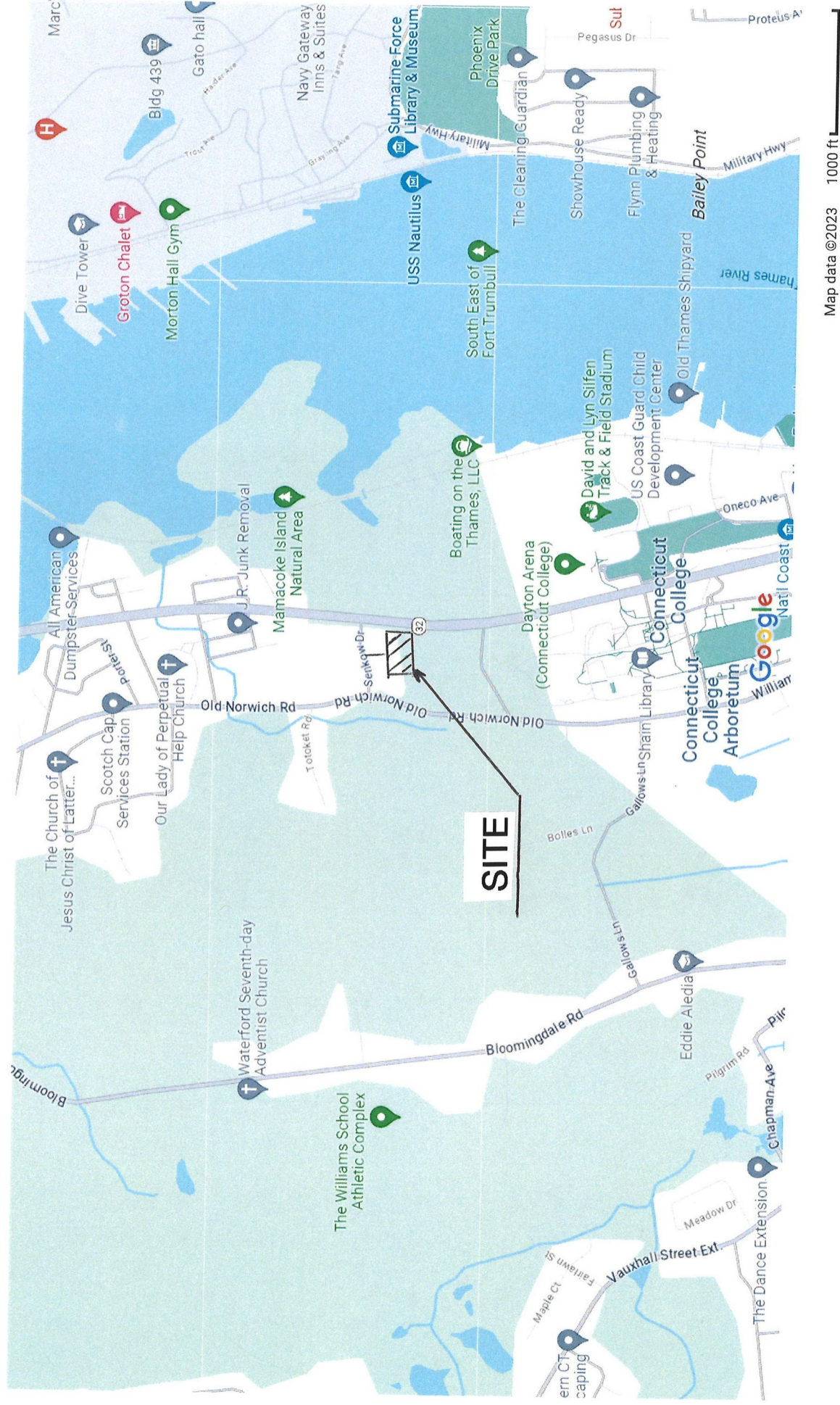


FIGURE 1

TABLE 1
ConnDOT TRAFFIC VOLUMES
Route 32 south of Benham Avenue
Station No. 151

	20-Mar-23 Monday			21-Mar-23 Tuesday			22-Mar-23 Wednesday			23-Mar-23 Thursday		
	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total
12:00				120	115	235	114	83	197	138	92	230
1:00				39	40	79	53	44	97	54	37	91
2:00				29	39	68	64	43	107	33	47	80
3:00				50	69	119	49	74	123	41	72	113
4:00				84	270	354	82	259	341	88	265	353
5:00				168	928	1096	172	944	1116	164	953	1117
6:00				412	1283	1695	416	1267	1683	428	1243	1671
7:00				785	1275	2060	695	1042	1737	819	930	1749
8:00				717	986	1703	594	1069	1663	703	1103	1806
9:00				558	731	1289	575	807	1382	590	851	1441
10:00				535	679	1214	572	710	1282			
11:00	645	651	1296	613	679	1292	625	724	1349			
12:00	664	732	1396	683	765	1448	737	743	1480			
1:00	756	759	1515	822	782	1604	825	806	1631			
2:00	843	909	1752	818	996	1814	809	726	1535			
3:00	835	906	1741	607	713	1320	794	935	1729			
4:00	837	707	1544	1197	654	1851	640	706	1346			
5:00	1048	854	1902	931	901	1832	1125	876	2001			
6:00	722	556	1278	767	661	1428	711	613	1324			
7:00	520	402	922	550	529	1079	601	436	1037			
8:00	414	341	755	430	362	792	473	393	866			
9:00	323	277	600	359	305	664	347	308	655			
10:00	252	222	474	339	246	585	288	246	534			
11:00	341	163	504	361	158	519	351	181	532			
	8200	7479	15679	11974	14166	26140	11712	14035	25747	3058	5593	8651
2023 ADT = 25,300 for station 151 in Waterford												

TABLE 2
ConnDOT TRAFFIC VOLUMES
Old Norwich Road at New London Town Line
Station No. 210

	5-Apr-23 Wednesday			6-Apr-23 Thursday		
	<u>NB</u>	<u>SB</u>	<u>Total</u>	<u>NB</u>	<u>SB</u>	<u>Total</u>
12:00				13	5	18
1:00				3	6	9
2:00				2	0	2
3:00				2	1	3
4:00				2	18	20
5:00				10	37	47
6:00				21	99	120
7:00				39	159	198
8:00				71	171	242
9:00				72	105	177
10:00				72	90	162
11:00	91	110	201	89	105	194
12:00	88	86	174	88	105	193
1:00	96	90	186			
2:00	147	108	255			
3:00	201	125	326			
4:00	199	133	332			
5:00	144	119	263			
6:00	97	65	162			
7:00	75	43	118			
8:00	60	35	95			
9:00	52	19	71			
10:00	20	12	32			
11:00	15	8	23			
	1285	953	2238	484	901	1385

2023 ADT = 3,200 for station 210 in Waterford

F.A. Hesketh & Associates, Inc.

3 Creamery Brook
East Granby, CT 06026
Phone: (860) 653-8000

Senkow Drive
West of Roberts Court
Waterford, CT 06375
Job No. 22069

Date Start: 13-Jul-22
Date End: 18-Jul-22

TABLE 3

Start Time	11-Jul-22		Tue		Wed		Thu		Fri		Weekday Average		Sat		Sun	
	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB
12:00 AM	*	*	*	*	*	*	0	1	0	1	0	1	0	0	0	0
01:00	*	*	*	*	*	*	0	2	1	1	0	2	0	0	0	1
02:00	*	*	*	*	*	*	1	0	2	1	0	0	0	0	0	1
03:00	*	*	*	*	*	*	0	0	0	0	0	0	0	0	0	0
04:00	*	*	*	*	*	*	0	0	0	0	0	0	0	0	0	0
05:00	*	*	*	*	*	*	0	0	1	2	0	0	0	1	0	0
06:00	*	*	*	*	*	*	0	5	0	6	0	6	0	0	0	0
07:00	*	*	*	*	*	*	3	6	2	5	2	6	0	4	1	2
08:00	*	*	*	*	*	*	4	11	5	8	4	10	1	4	1	3
09:00	*	*	*	*	*	*	5	8	5	6	5	7	2	3	0	1
10:00	*	*	*	*	*	*	2	3	4	5	3	4	1	9	3	10
11:00	*	*	*	*	*	*	10	10	5	3	5	6	4	5	1	5
12:00 PM	*	*	*	*	*	*	4	10	5	10	4	10	4	6	1	5
01:00	*	*	*	*	*	*	3	15	5	8	4	12	8	4	4	12
02:00	*	*	*	*	*	*	2	11	4	11	3	11	5	1	3	6
03:00	*	*	*	*	*	*	4	5	3	6	3	9	1	7	1	6
04:00	*	*	*	*	*	*	7	8	5	11	5	9	5	10	5	4
05:00	*	*	*	*	*	*	3	9	3	10	3	9	1	5	1	5
06:00	*	*	*	*	*	*	2	3	3	6	3	6	1	5	1	6
07:00	*	*	*	*	*	*	4	4	1	6	2	6	5	4	6	2
08:00	*	*	*	*	*	*	2	10	2	5	3	6	2	6	1	4
09:00	*	*	*	*	*	*	2	4	0	1	2	3	0	3	3	5
10:00	*	*	*	*	*	*	0	1	0	2	0	2	2	0	0	1
11:00	*	*	*	*	*	*	0	1	0	0	0	1	0	0	0	2
Total	0	0	0	0	24	57	52	128	56	115	53	128	43	77	32	82
Day	0	0	0	0	81	180	180	181	171	115	181	120	120	114	114	114
AM Peak	-	-	-	-	-	-	09:00	08:00	08:00	08:00	09:00	08:00	11:00	10:00	11:00	10:00
Vol.	-	-	-	-	-	-	5	11	5	8	5	10	5	9	3	10
PM Peak	-	-	-	-	20:00	15:00	16:00	13:00	12:00	14:00	16:00	13:00	13:00	16:00	19:00	13:00
Vol.	-	-	-	-	6	15	7	15	5	11	5	12	8	10	6	12

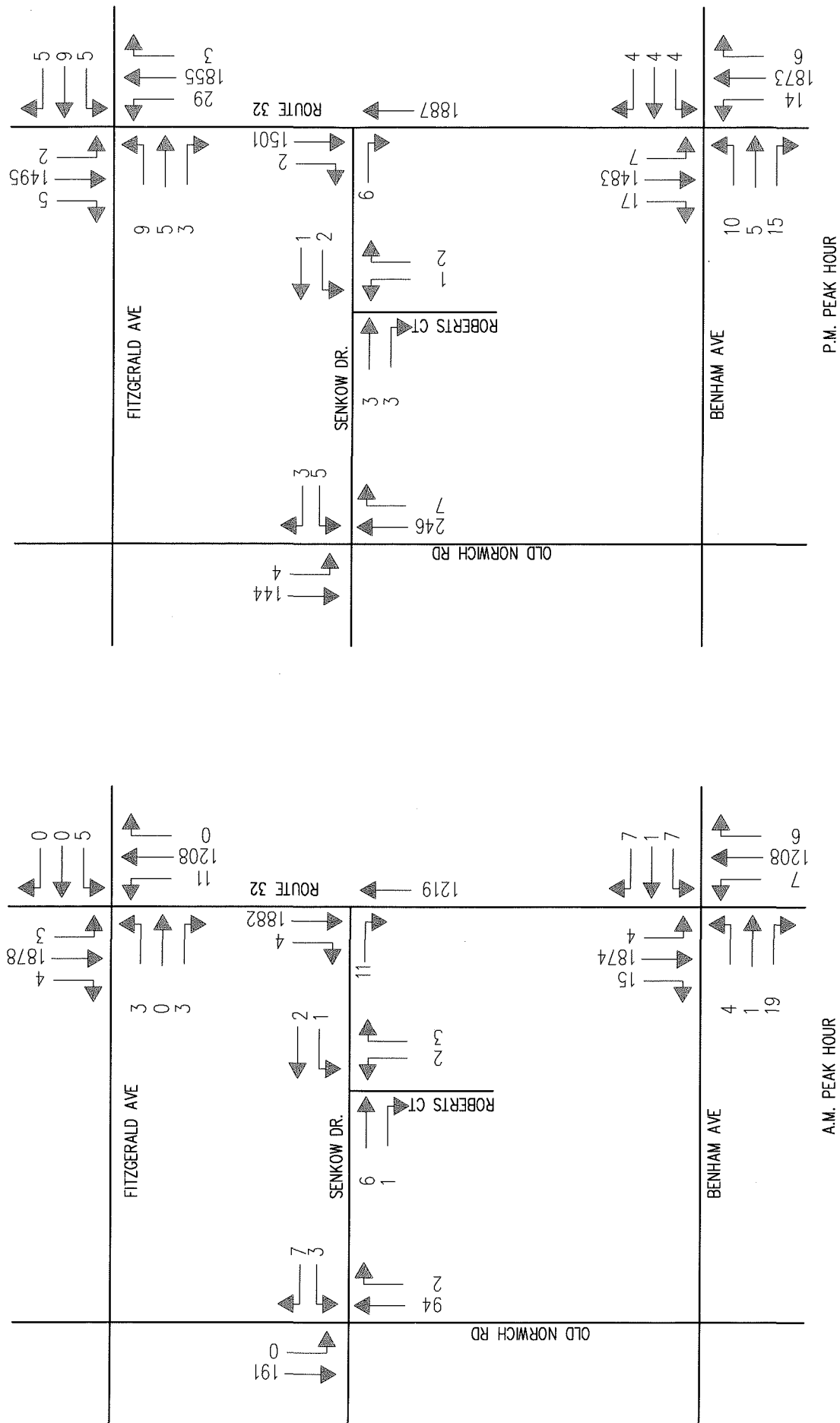


FIGURE 3

2026 BACKGROUND TRAFFIC
A.M. AND P.M. PEAK HOURS

ROBERT'S VILLAGE

430 MOHEGAN AVE PARKWAY (RT 32)
WATERFORD, CONNECTICUT

11-08-23

F. A. Hesketh & Associates, Inc.
6 CREAMERY BROOK, EAST GRANBY, CT 06026

FAH

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DESIGN

NOT TO SCALE

Table 4
Trip Generation Summary
Robert's Village Housing
430 Mohegan Ave Parkway (CT Route 32) - Waterford, CT

Land Use	Size	ADT	A.M. Peak Hour			P.M. Peak Hour		
			Enter	Exit	Total	Enter	Exit	Total
LUC: 210								
Single Family Detached Housing								
	24 units	271	5	15	20	16	10	26

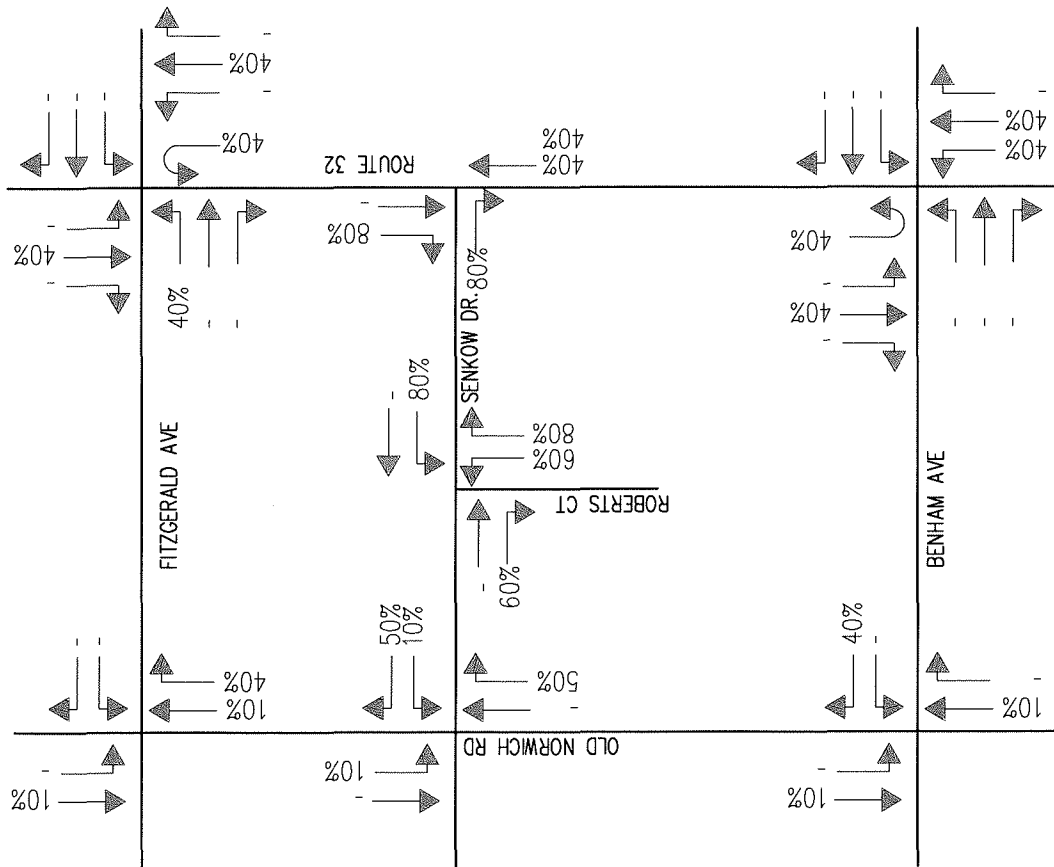


FIGURE 4

DIRECTIONAL DISTRIBUTION OF
SITE GENERATED TRAFFIC VOLUMES

ROBERT'S VILLAGE
430 MOHEGAN AVE PARKWAY (RT 32)
WATERFORD, CONNECTICUT

11-08-23

F. A. Hesketh & Associates, Inc.
6 CREAMERY BROOK, EAST GRANBY, CT 06026

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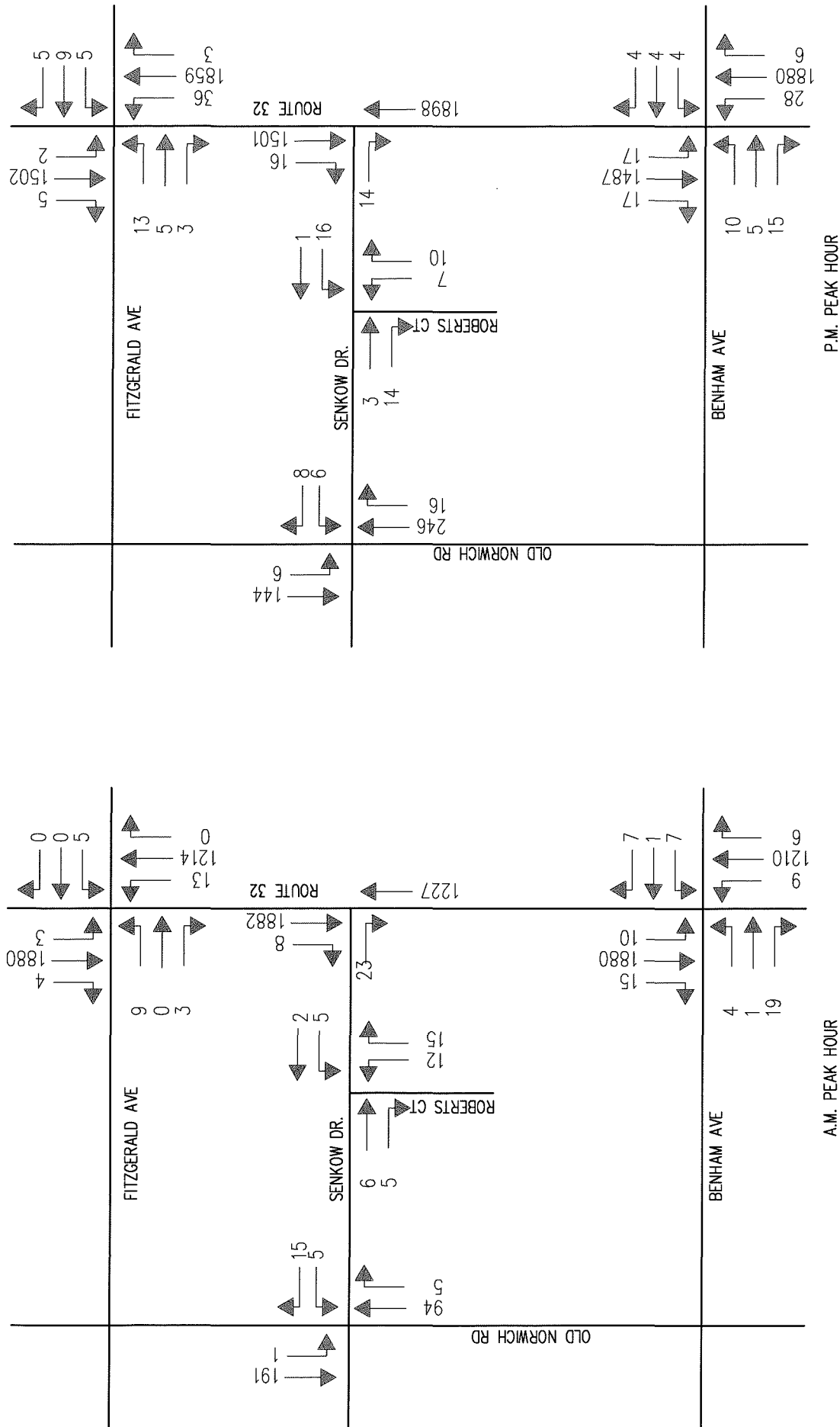


FIGURE 6

2026 COMBINED TRAFFIC
A.M. AND P.M. PEAK HOURS

ROBERT'S VILLAGE
430 MOHEGAN AVE PARKWAY (RT 32)
WATERFORD, CONNECTICUT

11-08-23

F. A. Hesketh & Associates, Inc.
6 CREAMERY BROOK, EAST GRANBY, CT 06026

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Table 5
Level of Service Summary
Robert's Village
Waterford, CT

Time Period	A.M. Peak Hour								P.M. Peak Hour							
	Background Traffic				Combined Traffic				Background Traffic				Combined Traffic			
	LOS	delay	v/c	Queue	LOS	delay	v/c	Queue	LOS	delay	v/c	Queue	LOS	delay	v/c	Queue
Route 32 and Benham Ave																
EB	C	23.4	0.21	27	C	23.4	0.21	27	C	30.4	0.24	37	C	30.4	0.24	37
WB	C	32.0	0.16	25	C	32.0	0.16	25	C	34.8	0.10	22	C	34.8	0.10	22
NB Left	D	42.9	0.08	19	D	43.1	0.10	21	D	43.5	0.13	28	D	44.8	0.23	45
Thru	A	4.2	0.49	244	A	4.4	0.49	253	A	6.8	0.67	570	A	9.1	0.69	602
SB Left	D	42.5	0.05	13	D	43.2	0.10	23	D	42.9	0.07	19	D	43.9	0.15	33
Thru	A	8.8	0.76	598	A	8.9	0.76	608	A	5.0	0.53	365	A	8.0	0.57	387
Overall:	A	7.4	0.76		A	7.6	0.76		A	6.5	0.67		A	9.3	0.69	
Route 32 and Fitzgerald Ave																
EB	A	0.2	0.02	0	A	0.3	0.04	0	C	24.6	0.08	21	C	24.8	0.11	25
WB	C	26.4	0.03	11	C	26.4	0.03	11	C	23.7	0.10	22	C	23.4	0.10	22
NB Left	C	27.5	0.07	18	C	25.6	0.07	19	C	28.2	0.17	32	C	25.1	0.18	34
Thru	A	3.2	0.39	223	A	3.3	0.40	224	A	7.7	0.64	#552	A	7.9	0.64	#560
SB Left	C	27.3	0.02	8	C	27.3	0.02	8	C	27.0	0.01	6	C	27.0	0.01	6
Thru	A	6.5	0.62	#579	A	7.4	0.90	#612	A	7.9	0.54	351	B	11.0	0.56	#483
Overall:	A	5.4	0.62		A	5.9	0.62		A	8.1	0.64		A	9.6	0.64	
Route 32 and Senkow Drive																
EB	C	20.8	0.05	4	C	21.7	0.10	8	C	17.0	0.02	2	C	17.6	0.05	4
SB Thru	A	0.0	0.79	0	A	0.0	0.79	0	A	0.0	0.66	0	A	0.0	0.66	0
Right	A	0.0	0.39	0	A	0.0	0.40	0	A	0.0	0.33	0	A	0.0	0.34	0
Old Norwich Rd & Senkow Drive																
WB	A	9.3	0.01	1	A	9.2	0.02	2	B	10.7	0.01	1	B	10.4	0.02	2
NB	A	0.0	0.06	0	A	0.0	0.06	0	A	0.0	0.16	0	A	0.0	0.16	0
SB	A	0.0	0.00	0	A	0.0	0.00	0	A	0.2	0.00	0	A	0.3	0.00	0
Senkow Drive & Roberts Court																
EB	A	0.0	0.00	0	A	0.0	0.01	0	A	0.0	0.00	0	A	0.0	0.01	0
WB	A	2.4	0.00	0	A	5.2	0.00	0	A	4.8	0.00	0	A	6.9	0.01	1
NB	A	8.5	0.00	0	A	8.6	0.03	2	A	8.4	0.00	0	A	8.6	0.02	1

APPENDIX