#2526 exhibit-5

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September 19, 2007

Louis K. Santilli
Cefalu Development, LLC
129 Main Street
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Dear Mr. Santilli:

As requested Traffic Engineering Solutions, P.C. has completed a study to determine the traffic impacts resulting from the 14,673 square foot pharmacy and 23,000 square foot medical office proposed for the south side of Hurlbutt Road between Route 12 and Military Highway (site of the former Gales Ferry Elementary School) in the Gales Ferry section of Ledyard, Connecticut. The following work was included in this study:

- Making turning movement counts during a morning (7:00 AM to 9:00 AM, Friday midday (11:30 AM to 1:30 PM), Friday afternoon (4:00 PM to 6:00 PM) and Saturday midday (11:30 AM to1:30 PM) peak periods at the following locations:
  - ◊ Route 12 at Hurlbutt Road.
  - ◊ Hurlbutt Road at Military Highway.
- Making 24-hour directional machine counts on Route 12, Hurlbutt Road and Military Highway along the site frontage. The counts included directional speed studies to determine the 85th percentile speed of travel in each direction on each street (85th percentile speeds were used to determine the intersection and stopping sight distances for vehicles entering and leaving the site and for use in the Traffic Signal Warrant Analysis for Route 12 at Hurlbutt Road).
- Making visual observations of roadways and land use conditions along Route 12, Hurlbutt Road and Military Highway in the vicinity of the site.
- Obtaining from ConnDOT traffic-accident information for the latest three year period for Route 12 in the vicinity of the site and requesting from the Ledyard Police Department traffic accident information for the latest three year period for Hurlbutt Road and Military Highway in the vicinity of the site.

- Determining the number of trips expected to be added to the roadway system by the proposed 14,673 square foot pharmacy and 23,000 square foot medical office use.
- Completing morning, Friday midday, Friday afternoon and Saturday midday peak hour capacity analyses for the intersections of Route 12 at Hurlbutt Road and Hurlbutt Road at Military Highway to determine the existing operating Levels of Service (LOS) and anticipated LOS for the traffic volumes expected upon completion of the pharmacy and medical office use. Also completing capacity analyses for the intersections of Route 12, Hurlbutt Road and Military Highway at the three site drives for the traffic volumes expected upon completion of the proposed pharmacy and medical office use.
- Completing a Traffic Signal Warrant Analysis in accordance with the requirements of the Manual on Uniform Traffic Control Devices (MUTCD) to determine if a traffic signal would be Warranted for the intersection of Route 12 and Hurlbutt Road.

Existing Conditions and Proposed Development

A 14,673 square foot pharmacy and 23,000 medical office building are proposed for the former Gales Ferry Elementary School site located along the south side of Hurlbutt Road between Route 12 and Military Highway in the Gales Ferry section of Ledyard. A new building will be constructed at the southwest corner of Route 12 and Hurlbutt Road for the pharmacy and the former Gales Ferry Elementary School will be renovated for the medical offices. Access to the pharmacy and medical office building will be provided by full access drives along Route 12 near the south end of the site, along Hurlbutt Road approximately 200 feet and 350 feet west of Route 12 and along Military Highway about 120 feet south of Hurlbutt Road.

Route 12 runs generally from north to south through the Town of Ledyard. Along the site frontage the road is 44 to 45 feet wide and the number of lanes transitions from three lanes at the Christy Hill Road intersection (two southbound lanes – an exclusive left turn lane and a through/right turn lane – and one northbound lane), to two lanes with a painted median from just north of the Christy Hill Road intersection to the south end of the development site, back to three lanes (two northbound lanes and one southbound lane) along the site frontage and through the intersection with Hurlbutt Road. A double yellow center line separates the two directions of travel and in the area with the painted median, there are double yellow lines along both sides of the median. The posted speed limit on Route 12 in the vicinity of the site is 35 miles per hour (mph). The intersection with Christy Hill Road is signalized and the Hurlbutt Road approach to Route 12 is STOP controlled and left turns from Hurlbutt onto Route 12 are prohibited. Development along Route 12 in the vicinity of the site is a mixture of commercial, institutional and retail.

Hurlbutt Road runs in the east to west direction in the vicinity of the site, beginning at its intersection with Route 12 at the east end and proceeding westerly through the intersection with Military Highway to Maple Corners where the road turns to the northwest. The road is 22 to 24 feet wide with no pavement markings except STOP bars at the intersections with Route 12 and Military Highway. The Hurlbutt Road approach to Route 12 is STOP controlled and left turns from Hurlbutt onto Route 12 are prohibited. The intersection of Hurlbutt Road at Military Highway is controlled by STOP signs along all four approaches. Development along Hurlbutt Road in the vicinity of the site includes a single family home at the southeast corner of Hurlbutt Road and Military Highway and the development site along the south side of the road,

the Pd Professional Building located at the northeast corner of Hurlbutt Road and Military Highway, a crematorium, an historical school house and a shopping plaza (at the northwest corner of Hurlbutt Road and Route 12).

Military Highway runs in the southwest to northeast direction beginning at Maple Corner at its southwest end and ending at route 12 at its northeast end. The road is 31 feet wide with a single lane of travel in each direction. A double yellow center line separates the two directions of travel and solid white edge lines delineate shoulder areas along both sides of the road. Development along Military Highway is a mixture of single family homes and retail/commercial uses. South of Hurlbutt is a mixture of single family homes and a farm. There is a cemetery at the northwest corner of Military Highway and Hurlbutt Road followed by the Village Center, Post Office, a two-family house, and a single family home at the corner with Route 12. The Pd Professional Building is located at the northeast corner of Military Highway and Hurlbutt Road followed by single family homes and a shopping plaza at the corner with Route 12.

Turning movement traffic counts were made during the morning (7:00 AM to 9:00 AM, Friday midday (11:30 AM to 1:30 PM), Friday afternoon (4:00 PM to 6:00 PM) and Saturday midday (11:30 AM to1:30 PM) peak periods at the intersections of Route 12 at Hurlbutt Road and Hurlbutt Road at Military Highway on August 10 and 18, 2007 for this study. Additionally, twenty -four hour automatic machine counts and speed studies were made on Route 12, Hurlbutt Road and Military Highway along the site frontage during mid August 2007. The daily traffic volumes from the machine counts and peak hour traffic counts from the turning movement counts are shown below. Copies of the traffic counts and speed studies made for this study are included in the Appendix to this report.

	Daily	AM Peak	Fri. Midday	Fri. PM Peak	Sat. Midday
N-Bd Rte 12	7,950	379	549	710	508
S-Bd Rte 12	7,857	486	481	514	558
E-Bd Hurlbutt	523	34	66	56	69
W-Bd Hurlbutt	643	39	67	62	59
NE-Bd Military	1,197	38	41	218	46
SW-Bd Military	1,331	131	41	53	44

Trip Generation

New trips to the roadway system generated by the proposed 14,673 square foot pharmacy and 23,000 medical office building were determined from the Institute of Transportation Engineers (ITE) reference, Trip Generation[1]. The ITE reference has established mathematical relationships based on studies of various land uses to determine their trip generation rates. These trip generation relationships have been standardized and published in the Trip Generation reference.

The ITE reference provides trip generation information for "Medical-Dental Office Buildings" and "pharmacies with drive-through windows". Trip Generation estimates for the proposed medical office building and pharmacy were calculated based on ITE Land Use Codes

[1] Trip Generation Seventh Edition published by the Institute of Transportation Engineers, 2003

720- "Medical-Dental Office Building" and 881 - "Pharmacy/Drugstore with Drive-Through Window". The following trip generation relationships were used to determine the number of daily, midday, afternoon and Saturday midday peak hour trips that would be associated with the medical office and pharmacy. The results are summarized in Table 1.

Medical-Dental Office Building

Average Weekday Trips	T = 40.89 (X) - 214.97	
Morning Peak Hour	2.48 Trips per 1,000 S.F.	79/21
Midday Peak Hour	T = 4.43 (X) + 0.48	40/60
Afternoon Peak Hour	Ln(T) = 0.93 Ln(X) + 1.47	27/73
Saturday Midday Peak	3.63 Trips per 1,000 S.F.	57/43

where T is the number of trips and X the office size in 1,000's of square feet

Pharmacy

Average Weekday Trips	88.16 Trips per 1,000 Square Feet
Morning Peak Hour	2.66 Trips per 1,000 Square Feet 57/43
Midday Peak Hour	9.51 Trips per 1,000 Square Feet 50/50
Afternoon Peak Hour	8.62 Trips per 1,000 Square Feet 49/51
Saturday Midday Peak	7.85 Trips per 1,000 Square Feet 50/50

Table 1 - Trip Generation - 23,000 S.F. Medical Office and 14,673 S.F. Pharmacy

	Trips Entering			Trips Leaving		
	Medical Office	Pharmacy	Total	Medical Office	Pharmacy	Total
Daily	363	647	1,010	363	647	1,010
AM Peak Hour	45	22	67	12	17	29
Friday Midday	41	70	111	61	70	131
Fri PM Peak Hr	22	62	84	59	65	124
Sat. Midday	48	58	106	36	58	94

Table 1 indicates that the proposed 14,673 square foot pharmacy and 23,000 medical office building will generate 96 trips during the morning peak hour with 67 vehicles entering the site and 29 vehicles leaving the site. During the midday peak hour the development will generate 242 new trips with 111 vehicles entering the site and 131 vehicles leaving the site; during the afternoon peak hour the development will generate 208 new trips with 84 vehicles entering the site and 124 leaving; and during the Saturday midday peak hour the development will generate 200 new trips with 106 vehicles entering the site and 94 leaving. The new trips shown in Table 1 were used with the capacity analyses completed for this study.

Capacity Analyses

Capacity Analyses were done to determine the existing and anticipated quality of traffic operations at intersections of Route 12 at Hurlbutt Road and Hurlbutt Road at Military Highway and for the future conditions for the intersections of Route 12, Hurlbutt Road and

Military Road at the site access drives. Letter designations from A to F are used to represent the Levels of Service (LOS) for the traffic operation at each intersection or roadway with LOS A representing the best operating conditions with the least delay per vehicle and LOS F the worst with greater delay per vehicle.

The Level of Service is determined differently for unsignalized intersections with multi-way STOP and unsignalized intersections with STOP control on the minor street approaches. For unsignalized intersections with multi-way STOP control, the analysis considers the operation of all traffic entering the intersection, as well as along each approach to the intersection. For unsignalized intersections with STOP control on the minor street, the analysis assumes that through and right-turning traffic on the major street is not affected by traffic on the side streets. Hence, the LOS is determined for the movements on the side street and the left-turn movement from the major street onto the side street. Levels of Service are defined by the average delay per vehicle as indicated below.

Unsignalized Intersections

Level of Service	Avg. Delay/Vehicle (in Seconds)
LOS A	≤ 10.0
LOS B	> 10.0 and ≤ 15.0
LOS C	> 15.0 and ≤ 25.0
LOS D	> 25.0 and ≤ 35.0
LOS E	> 35.0 and ≤ 50.0
LOS F	> 50.0

Level-of-service capacity analyses were completed for the 2007 Existing conditions, 2009 No-Build conditions and 2009 Build conditions for the intersections of Route 12 at Hurlbutt Road and Hurlbutt Road at Military Highway, and for the 2009 Build conditions for the intersections of Route 12, Hurlbutt Road and Military Road at the site access drives. . The 2009 No-Build traffic volumes were determined by increasing the 2007 traffic volumes by a two percent annual growth factor (104.04%) to account for growth that may occur in the area. The year 2009 analyses assume a two-year buildout for the pharmacy and medical offices. The generated trips were assigned to the roadway system as shown in the Traffic Flow diagrams included in the Appendix to this report. The results of the analyses are presented in Table 2.

Table 2 indicates that all approaches/movements with the exception of the plaza drive opposite Hurlbutt Road presently operate at Level of Service (LOS) C or better during the morning, midday, afternoon and Saturday midday peak hours and will continue to operate at LOS C or better for the 2009 No-Build and 2009 Build conditions. The plaza drive opposite Hurlbutt Road presently operates at LOS C during the morning peak hour, LOS D during the midday peak hour and LOS F during the afternoon and Saturday midday peak hours. This approach will operate at LOS D during the morning peak hour, LOS E during the midday peak hour and LOS F during the afternoon and Saturday midday peak hours for the 2009 No-Build conditions; and LOS D during the morning peak hour and LOS F during the midday, afternoon and Saturday midday peak hours for the 2009 Build conditions. The analyses for the Hurlbutt Road approach to Route 12 assumed that none of the site trips would turn left from Hurlbutt Road onto Route 12, as there are signs that prohibit left turns from this approach.

Table 2: Unsignalized Intersection Capacity Analysis

		2007 Existing Conditions		2009 No Build Conditions		2009 Build Conditions	
Location	Peak Hour	Delay	LOS	Delay	LOS	Delay	LOS
Route 12 at Hurlbutt Road							
N-Bd Route 12	AM Peak	1.4	A	1.4	A	2.0	A
S-Bd Route 12		0.3	A	0.3	A	0.3	A
E-Bd Hurlbutt		13.0	B	13.3	B	13.6	B
W-Bd Plaza Drive		24.1	C	26.2	D	29.4	D
N-Bd Route 12	Midday Peak	1.9	A	2.0	A	2.7	A
S-Bd Route 12		0.2	A	0.2	A	0.2	A
E-Bd Hurlbutt		15.1	C	15.6	C	16.7	C
W-Bd Plaza Drive		32.9	D	36.9	E	51.4	F
N-Bd Route 12	PM Peak	1.4	A	1.5	A	2.0	A
S-Bd Route 12		0.2	A	0.2	A	0.2	A
E-Bd Hurlbutt		15.0	C	15.5	C	16.2	C
W-Bd Plaza Drive		50.8	F	61.1	F	96.3	F
N-Bd Route 12	Saturday Midday	2.0	A	2.0	A	2.7	A
S-Bd Route 12		0.2	A	0.2	A	0.2	A
E-Bd Hurlbutt		15.4	C	16.0	C	17.2	C
W-Bd Plaza Drive		51.1	F	61.2	F	93.7	F
Hurlbutt Road at Military Highway							
N-Bd Military Hwy	AM Peak	7.5	A	7.6	A	7.6	A
S-Bd Military Hwy		8.1	A	8.2	A	8.3	A
E-Bd Hurlbutt Rd.		7.8	A	7.9	A	7.9	A
W-Bd Hurlbutt Rd.		7.7	A	7.8	A	7.7	A
N-Bd Military Hwy	Midday Peak	7.3	A	7.3	A	7.6	A
S-Bd Military Hwy		7.4	A	7.5	A	7.6	A
E-Bd Hurlbutt Rd.		7.5	A	7.5	A	7.7	A
W-Bd Hurlbutt Rd.		7.2	A	7.2	A	7.4	A
N-Bd Military Hwy	PM Peak	9.7	A	9.9	A	10.5	B
S-Bd Military Hwy		8.0	A	8.0	A	8.3	A
E-Bd Hurlbutt Rd.		8.5	A	8.6	A	8.8	A
W-Bd Hurlbutt Rd.		8.4	A	8.5	A	8.9	A
N-Bd Military Hwy	Saturday Midday	7.4	A	7.4	A	7.6	A
S-Bd Military Hwy		7.4	A	7.4	A	7.6	A
E-Bd Hurlbutt Rd.		7.5	A	7.4	A	7.7	A
W-Bd Hurlbutt Rd.		7.4	A	7.6	A	7.6	A

Table 2 cont'd: Unsignalized Intersection Capacity Analysis

		2007 Existing Conditions		2009 No Build Conditions		2009 Build Conditions	
Location	Peak Hour	Delay	LOS	Delay	LOS	Delay	LOS
Route 12 at Site Access Drive							
N-Bd Left Turn E-Bd Site Access	AM Peak	N/A	N/A	N/A	N/A	0.8 15.4	A C
N-Bd Left Turn E-Bd Site Access	Midday Peak	N/A	N/A	N/A	N/A	1.4 20.8	A C
N-Bd Left Turn E-Bd Site Access	PM Peak	N/A	N/A	N/A	N/A	1.1 24.2	A C
N-Bd Left Turn E-Bd Site Access	Saturday Midday	N/A	N/A	N/A	N/A	1.4 21.0	A C
Hurlbutt Road at Site Access Drives[2]							
W-Bd Left Turn N-Bd Site Access	AM Peak	N/A	N/A	N/A	N/A	3.2 9.3	A A
W-Bd Left Turn N-Bd Site Access	Midday Peak	N/A	N/A	N/A	N/A	3.4 10.7	A B
W-Bd Left Turn N-Bd Site Access	PM Peak	N/A	N/A	N/A	N/A	3.0 10.2	A B
W-Bd Left Turn N-Bd Site Access	Saturday Midday	N/A	N/A	N/A	N/A	3.4 10.3	A B
Military Highway at Site Access Drives							
S-Bd Left Turn W-Bd Site Access	AM Peak	N/A	N/A	N/A	N/A	0.4 9.1	A A
S-Bd Left Turn W-Bd Site Access	Midday Peak	N/A	N/A	N/A	N/A	0.7 8.9	A A
S-Bd Left Turn W-Bd Site Access	PM Peak	N/A	N/A	N/A	N/A	0.4 10.5	A B
S-Bd Left Turn W-Bd Site Access	Saturday Midday	N/A	N/A	N/A	N/A	0.8 8.9	A A

Delay = Average stopped delay, in seconds, to all vehicles entering the intersection or to vehicles making the specified turn.

[2] Traffic from the two site drives have been consolidated to a single drive for the purpose of these analyses.

Traffic Signal Warrant Analysis

A traffic signal Warrant Analysis was completed for the intersection of Route 12 and Hurlbutt Road to determine if a traffic signal should be installed at this location. The Manual on Uniform Traffic Control Devices (MUTCD) contains several Warrants based on traffic volumes, pedestrian activity and accidents to determine if signalization should be considered at an intersection. Warrants No. 1A and 1B are based on eight hours of traffic volumes. The minimum requirements for Warrants 1A and 1B must be met for eight hours during a twenty four-hour period.

Table 3 presents the existing two-way traffic volumes on Route 12 (the major street) as counted for this study and the anticipated traffic volumes approaching Route 12 on Hurlbutt Road based on hourly traffic volumes from the machine count on Hurlbutt Road and the hourly trips associated with the proposed development. The speed study conducted on Route 12 indicates that the 85th percentile speeds of travel are 41 miles per hour (mph) in the northbound direction and 44 mph in the southbound direction. Since the travel speeds on Route 12 are greater than 40 miles per hour, the lower traffic volume requirements were used for the Warrant Analysis. Route 12 through the intersection with Hurlbutt Road has two travel lanes of travel in the northbound direction and a single lane of travel in the southbound direction and Hurlbutt Road has a single lane approaching the intersection. The traffic volumes for two lanes in each direction for the main road were used for the Warrant Analysis completed for this study. Warrant No. 1A requires a traffic volume of 420 vehicles per hour on the main street and 105 vehicles per hour during the same eight hours on the side street approach and Warrant 1B requires a traffic volume of 630 vehicles per hour on the main street and 53 vehicles per hour for the same hours on the side street approach.

Existing traffic volumes on Route 12 exceed the minimum volume requirements for both Warrants from 7:00 AM to 8:00 PM (thirteen hours). Upon completion of the proposed pharmacy and medical office building the traffic volumes on Hurlbutt Road will not meet the minimum volumes for Warrants 1A for any hour of the day as traffic volumes will be less than 103 vehicles per hour. However, the traffic volumes on Hurlbutt Road upon completion of the pharmacy and medical office building will meet or exceed the minimum volumes for Warrant 1B for nine of the same hours during which the volumes on Route 12 exceed the minimum requirements. This study concludes that a traffic signal would be Warranted at the intersection of Route 12 and Hurlbutt Road for the traffic volumes anticipated upon completion of the pharmacy and medical office. The Warrant analysis does not include traffic that would be diverted from Military Highway with signalization of the Route 12 and Hurlbutt Road intersection which would further support signalization of the intersection.

Signalized intersection capacity analyses were completed for the intersection of Route 12 and Hurlbutt Road to determine the operating Level of Service that should be expected with signalization. With signalization the intersection will operate at Level of Service A during the morning, midday, afternoon and Saturday midday peak hours.

This study has determined that signalization would be Warranted upon completion of the proposed pharmacy and medical office building. It is recommended that this finding be shared with ConnDOT to determine if signalization would be installed at this intersection and coordinated with the traffic signals to the north (at Military Highway) and south (at Christy Hill Road). Route 12 is 45 feet wide at its intersection with Hurlbutt Road with two northbound lanes and a single southbound lane. No changes are suggested for the number or use of the travel lanes on Route 12 with signalization of its intersection with Hurlbutt Road.

Table 3: Warrant Analysis – Providence Road at Site Access Drive

	6-7	7-8	8-9	9-10	10-11	11-12	12-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8
Providence Road.[3]	469	635	841	791	858	891	941	952	993	1,180	1,227	1,307	1,019	870
E-Bd Hurlbutt Road	14	25	42	57	56	56	78	54	59	74	96	65	52	46

The speed study conducted on Route 12 indicates that the 85th percentile speeds of travel are 41 miles per hour (mph) in the northbound direction and 44 mph in the southbound direction. Since the travel speeds on Route 12 are greater than 40 miles per hour, the lower traffic volume requirements were used for the Warrant Analysis. Route 12 through the intersection with Hurlbutt Road has two travel lanes of travel in the northbound direction and a single lane of travel in the southbound direction and Hurlbutt Road has a single lane approaching the intersection. The traffic volumes for two lanes in each direction for the main road were used for the Warrant Analysis completed for this study. Warrant No. 1A requires a traffic volume of 420 vehicles per hour on the main street and 105 vehicles per hour during the same eight hours on the side street approach and Warrant 1B requires a traffic volume of 630 vehicles per hour on the main street and 53 vehicles per hour for the same hours on the side street approach.

Traffic volumes on Route 12 exceed the minimum volumes for both Warrants 1A and 1B for at least 13 hours during the day. Traffic volumes on Hurlbutt Road do not meet the minimum volumes for Warrants 1A for any hour of the day as traffic volumes are less than 103 vehicles per hour. However, the traffic volumes on Hurlbutt Road upon completion of the pharmacy and medical office building meet or exceed the minimum volumes for Warrant 1B for nine of the same hours during which the volumes on Route 12 exceed the minimum requirements.

[3] The traffic volumes shown for Route 12 are actual 2007 traffic volumes. No adjustment was made for growth that may occur on Route 12.

Site Access

Access the pharmacy and medical office building will be provided by full access drives located along the west side of Route 12 (about 300 feet south of Hurlbutt Road), the south side of Hurlbutt Road (about 210 feet and 350 feet west of Route 12) and the east side of Military Highway (about150 feet south of Hurlbutt Road). Visual observations and sight distance measurements were made at the location of the access roads to determine the Intersection Sight Distances and sight distance for Stopped Vehicle Turning Left Across Oncoming Traffic. Intersection Sight Distances (the distance drivers leaving the site will be able to see when looking left and right from the access drives) were measured at a distance of 15 feet off the edge of road with a 3.5 foot height of eye and height of object. The Intersection Sight Distances are presented in Table 4.

The posted speed limit on Route 12 in the vicinity of the site is 35 miles per hour (mph). There were no speed limit signs observed on Hurlbutt Road or Military Highway in the vicinity of the site. The speed studies conducted for Route 12, Hurlbutt Road and Military Highway found that the 85th percentile speeds (the speed at which 85 percent of all drivers travel at or less than) are 41 mph in the northbound direction and 44 mph in the southbound direction on Route 12, 31 mph in the eastbound direction and 30 mph in the westbound direction on Hurlbutt Road, and 30 mph in the northbound and southbound directions on Military Highway.

The Connecticut DOT presents intersection sight distances (ISD) in their December 2003 Highway Design Manual. Figure 11-2C (for two lane roads) and Figure 11-2D (for four lane roads) of the ConnDOT Guidelines presents ISD information for each 5 mph increment for speeds between 20 and 70 mph. A summary of available intersection sight distances and distances presented in the ConnDOT Guidelines for Highway Design for the 85th percentile speeds is presented in Table 4.

Table 4 – Comparison of Available and Required Intersection Sight Distances

	Available Intersection Sight Distance	Required Intersection Sight Distance per ConnDOT 2003 Highway Design Manual
Looking Left from Site Access Drive onto Route 12	>800 Feet	519 Feet
Looking Right from Site Access Drive onto Route 12	>850 Feet	486 Feet
Looking Left from East Site Access Drive onto Hurlbutt Road	440 Feet	346 Feet
Looking Right from East Site Access Drive onto Hurlbutt Road	210 Feet	335 Feet
Looking Left from West Site Access Drive onto Hurlbutt Road	300 Feet	346 Feet
Looking Right from West Site Access Drive onto Hurlbutt Road	350 Feet	335 Feet
Looking Left from Site Access Drive onto Military Highway	485 Feet	335 Feet
Looking Right from Site Access Drive onto Military Highway	530 Feet	335 Feet

The Intersection Sight Distances (ISD) looking right from the drives on Hurlbutt Road are into the intersection with Route 12 and the ISD's looking left are into the all-way STOP controlled intersection with Military Highway, meaning drivers leaving the site from these drives are able to see vehicles as they turn from Route 12 or from Military Highway onto Hurlbutt Road at speeds considerably less than the 85th percentile speed. The ISD looking left from the drive on Military Highway is achieved by trimming or removing trees in front of the home at 19 Military Highway (this home was for sale at the time of the field observations) and the ISD looking right from the drive onto Military Highway is achieved by measuring the sight distance from 15 feet off the white edge line (as permitted by the ConnDOT Highway Design Manual) and resetting the STOP sign on northbound Military Highway at Hurlbutt Road.

Table 3 shows that the Intersection Sight Distances (ISD) available to drivers looking left and right from each of the site access drives (with the suggested improvements presented in the previous paragraph) are either greater than the distances presented in the ConnDOT Highway Design Manual for the 85th percentile speeds of travel or are into intersections where approaching vehicles will be traveling much slower than the 85th percentile speed.

A second sight distance measured for this study is for Stopped Vehicle Turning Left Across Oncoming Traffic. According to Figure 11-2J of the ConnDOT Guidelines, vehicles turning left from Route 12 onto the site access drive should be able to see 357 feet, vehicles turning left from Hurlbutt Road onto the two site access drives should be able to see 253 feet, and vehicles turning left from Military Highway onto the site access drive should be able to see 245 feet. The sight distances available to drivers making these left turns are greater than the distance presented in the ConnDOT reference for vehicles approaching from the opposite direction at the 85th percentile speeds of travel.

The sight distances available to drivers entering the site are greater than the distances presented in the Connecticut DOT 2003 Highway Design Manual for the prevailing travel speeds on Route 12, Hurlbutt Road and Military Highway. The Intersection Sight Distances (ISD) available to drivers looking left and right from each of the site access drives (with the suggested improvements presented in the previous paragraph) are either greater than the distances presented in the ConnDOT Highway Design Manual for the 85th percentile speeds of travel or are into intersections where approaching vehicles will be traveling much slower than the 85th percentile speed. This study recommends trimming or removing trees in front of the home at 19 Military Highway and resetting the STOP sign on northbound Military Highway at Hurlbutt Road so it is not within the line of sight for drivers leaving the site.

Conclusions

A 14,673 square foot pharmacy and 23,000 medical office building are proposed for the former Gales Ferry Elementary School site located along the south side of Hurlbutt Road between Route 12 and Military Highway in the Gales Ferry section of Ledyard. A new building will be constructed at the southwest corner of Route 12 and Hurlbutt Road for the pharmacy and the former Gales Ferry Elementary School will be renovated for the medical offices. Access to the pharmacy and medical office building will be provided by full access drives along Route 12 near the south end of the site, along Hurlbutt Road approximately 200 feet and 350 feet west of Route 12 and along Military Highway about 120 feet south of Hurlbutt Road. The trip generation information included in the ITE Trip Generation reference for Medical-Dental Office Building and Pharmacy/Drugstore with Drive-Through Window was used to determine the number of trips anticipated from the proposed pharmacy and medical office building.

The study assumed that the pharmacy and medical office building would be constructed over a period of two years. Capacity analyses were done for the unsignalized intersections of Route 12 at Hurlbutt Road and Hurlbutt Road at Military Highway for the 2007 Existing conditions, 2009 No-Build conditions and 2009 Build conditions and for the intersections of Route 12, Hurlbutt Road and Military Highway at the site access drives for the 2009 Build conditions. The trips generated by pharmacy and medical office building were distributed to the roadway system as shown in the Traffic Flow Diagrams included in the Appendix to this report. The capacity analyses found that all approaches/movements with the exception of the plaza drive opposite Hurlbutt Road presently operate at Level of Service (LOS) C or better during the morning, midday, afternoon and Saturday midday peak hours and will continue to operate at LOS C or better for the 2009 No-Build and 2009 Build conditions. The plaza drive opposite Hurlbutt Road presently operates at LOS C during the morning peak hour, LOS D during the midday peak hour and LOS F during the afternoon and Saturday midday peak hours. This approach will operate at LOS D during the morning peak hour, LOS E during the midday peak hour and LOS F during the afternoon and Saturday midday peak hours for the 2009 No-Build conditions; and LOS D during the morning peak hour and LOS F during the midday, afternoon and Saturday midday peak hours for the 2009 Build conditions. The analyses for the Hurlbutt Road approach to Route 12 assumed that none of the site trips would turn left from Hurlbutt Road onto Route 12, as there are signs that prohibit left turns from this approach.

A traffic signal Warrant analysis concluded that signalization would be Warranted at the intersection of Route 12 and Hurlbutt Road upon completion of the proposed pharmacy and medical office building. It is recommended that this finding be shared with ConnDOT to determine if signalization should be installed at this intersection and coordinated with the traffic signals to the north (at Military Highway) and south (at Christy Hill Road). Route 12 is 45 feet wide at its intersection with Hurlbutt Road with two northbound lanes and a single southbound lane. No changes are suggested for the number or use of the travel lanes on Route 12 with signalization of its intersection with Hurlbutt Road.

The sight distances available to drivers entering the site are greater than the distances presented in the Connecticut DOT 2003 Highway Design Manual for the prevailing travel speeds on Route 12, Hurlbutt Road and Military Highway. The Intersection Sight Distances (ISD) available to drivers looking left and right from each of the site access drives (with the suggested improvements presented in the previous paragraph) are either greater than the distances presented in the ConnDOT Highway Design Manual for the 85th percentile speeds of travel or are into intersections where approaching vehicles will be traveling much slower than the 85th percentile speed. This study recommends trimming or removing trees in front of the home at 19 Military Highway and resetting the STOP sign on northbound Military Highway at Hurlbutt Road so it is not within the line of sight for drivers leaving the site.

Based on the findings of this study it is recommended that vegetation be trimmed and/or trees removed from the east side of Military Highway south of the access drive and that the STOP sign on the northbound Military Highway approach to Hurlbutt Road be relocated out of the sight line to provide the required Intersection Sight Distances looking left and right from the drive. It is also recommended that the findings of the traffic signal Warrant analysis be presented to ConnDOT for their review to determine if a traffic signal should be installed at the intersection of Route 12 and Hurlbutt Road and coordinate the new signal with those to the north (at Military Highway) and south (at Christy Hill Road). No other improvements are suggested by this study as all other locations will operate at Level of Service C or better during the morning, midday, afternoon and Saturday midday peak hours upon completion of the pharmacy and medical office

and all sight distances either exceed the distances presented in the ConnDOT Highway Design Manual for the prevailing travel speeds or are into intersections where vehicles will be traveling mush slower than the 85th percentile speeds.

If during the review of the information included in this letter you have any questions, please call me.

Very truly yours,

TRAFFIC ENGINEERING SOLUTIONS, P.C.

Bruce A. Hillson

Bruce A. Hillson, P.E.