

MEMORANDUM

DATE: June 04, 2025
TO: Mr. Richard Hinrichs
FROM: Derek Hug, P.E. PTOE
RE: The Adirondack Parking Lot Expansion

Pare Corporation (Pare) has completed a parking study and safety analysis for the Adirondack Club parking lot expansion project located at 800 Chestnut Street in Franklin, Massachusetts. The existing building has a total of 77,715 square feet, divided into two floors. The northern side of the property is currently used as a parking lot that fits 184 vehicles with six ADA spaces. The entrance and exit to the club are from Chestnut Street. A field review was conducted on May 07, 2025 with geometric measurements and other field observations.



Photo 1: Chestnut Street (looking south)

Chestnut Street is a two-way minor arterial owned and maintained by the Town of Franklin. This roadway runs in the general north-south direction within the study area. Chestnut Street is a 30-foot-wide roadway with no shoulder either side. There is a 5.5-foot-wide bituminous concrete sidewalk with curbing located on the west side of road. Land use surrounding Chestnut Street is a mix of residential and commercial uses.

Safety Analysis

A spot speed study was conducted on Chestnut Street near the driveway to assess driving speeds along the roadway. A speed limit of 40 miles per hour is posted along Chestnut Street where the speed study was conducted. A summary of the speed data results is shown in **Table 1** below. The most notable metric presented in the table is the 85th percentile speed, which was utilized for the sight distance analysis. Based on the speeds observed, the sight distance analysis was conducted using a design speed of 40 miles per hour for Chestnut Street. Results of the speed study are enclosed.

Table 1: Chestnut Street Speed Study Summary

	Posted Speed	Average Speed	True Median (50 th Percentile)	85 th Percentile	% Over Posted
Northbound	40	37	36	41	20
Southbound	40	35	35	39	5

In conjunction with the speed study conducted, the available sight distances at the existing driveway were measured. Photos of the sight lines are shown in **Photos 2 and 3** below.



Photo 2: Sight distance looking right (north) from driveway onto Chestnut Street



Photo 3: Sight distance looking left (south) from driveway onto Chestnut Street

According to the latest editions of the American Association of State Highway and Transportation Officials (AASHTO) publication *A Policy on the Geometric Design of Highways and Streets*, the minimum stopping sight distance along Chestnut Street for operating speeds of 40 miles per hour is 305 feet. Measured stopping sight distances along Chestnut Street are in excess of 400 feet in each direction.

In addition, minimum intersection sight distances (ISD) to allow oncoming vehicles to avoid a collision for speeds of 40 miles per hour is equal to the minimum stopping sight distance for the major road design speed. In addition, AASHTO gives guidance for a more desirable sight distance for this speed, which will not only avoid collisions, but maintain vehicular flow of at least 70 percent of the original operating speed. Meeting the desirable criteria for sight distance is more applicable to heavily traveled, higher-speed facilities such as arterial streets, where maintaining traffic flow is important. A summary of the sight distance can be found in **Table 2** below.

Table 2: Sight Distance Summary

		Required ISD (ft)	Desirable ISD (ft)	Measured ISD (ft)
Site Driveway	Looking Left (south)	305	385	350
	Looking right (north)	305	445	420

ISD = Intersection Sight Distance

As shown, sight distances from the driveways looking onto Chestnut Street currently exceed the minimum required stopping sight distances to retain safety and maintain vehicular traffic flow. The sight distance looking south is restricted by the sign for the club and foliage along the side of the roadway. The sight distance looking north is restricted by vegetation along the side of the roadway and the vertical curvature of the roadway.

Parking Generation

Parking generation for the existing building was completed using the industry standard *Institute of Transportation Engineers (ITE) Parking Generation Manual, 6th Edition*. The Parking Generation Manual provides parking generation information for various land uses compiled from studies conducted by members nationwide. Although the property is classified as Land Use Code (LUC) 375 Tennis, the parking demand for Adirondack Club was calculated using Land Use Code (LUC) 492 – Health/Fitness Club, which is more conservative.

A summary of the anticipated weighted average parking demand is provided in **Table 3** below. Copy of the parking generation worksheet is enclosed.

Table 3: ITE Parking Generation Summary

	Parking Spaces
LUC:492 – Health/Fitness Club – 77.7 GFA	315

Table 4: Proposed Parking Spaces

	Parking Spaces
Standard Vehicular Spaces	294
ADA Accessible Spaces	8
TOTAL	302

ITE's Parking Generation Manual estimates a total demand of 315 parking spaces for a club of this size.

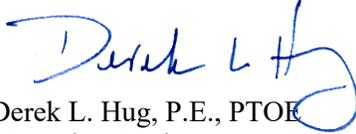
Conclusions

Based on the efforts described above, the following conclusions can be drawn:

- Sight distances were measured at the existing driveway location. All sight lines meet the minimum sight distance requirements.
- The number of planned parking spaces is close to the number of parking spaces calculated using *ITE's Parking Generation Manual*. There are no changes currently planned for the operations of the club and therefore the parking demand is not expected to increase as a part of this project. The purpose of the Parking Lot Expansion project is to better accommodate the existing parking needs of the club. The Adirondack Club has noted that the most vehicles they have observed on their property at any given time the last 5 years is 276.

We are available to discuss our findings at your convenience. Please feel free to contact me if you have any questions or need additional information.

Sincerely,



Derek L. Hug, P.E., PTOE
Managing Engineer

Enclosures: Parking Generation Worksheet
 Speed Study Summary

DLH/SR/

Y:\JOBS\25 Jobs\25038.00 Adirondack Club-Parking Lot Expansion-MA\REPORTS\Traffic\Parking Study.docx

Pare Corporation

8 Blackstone Valley Place
Lincoln, RI 02865

www.parecorp.com

Roadway: Chestnut Street

City, State: Franklin, MA

Weather: 59 & Cloudy

Taken By: SR

File Name : Not Nam

Site Code : 25038.00

Start Date : 5/7/2025

Page No : 1

#	NB	SB
1	30	35
2	30	30
3	38	34
4	36	34
5	32	35
6	30	30
7	42	31
8	40	32
9	37	34
10	37	29
11	35	28
12	28	35
13	32	34
14	41	39
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48	42	38
49	41	33
50	32	38
51	30	36
52	39	33
53	34	30
54	41	37
55	34	38
56	30	45

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92	49	39
93	37	44
94	49	33
95	35	35
96	40	32
97	38	43
98	36	38
99	40	30
100	41	40
101		

Class	Vehicle Count	85 Percentile	Number of Vehicles Over 40 MPH	Percent of Vehicles Over 40 MPH	Average Speed	True Median (50th Percentile)
NB	100	41	20	20	37	36
SB	100	39	5	5	35	35
Summary	200	40	25	12	36	36

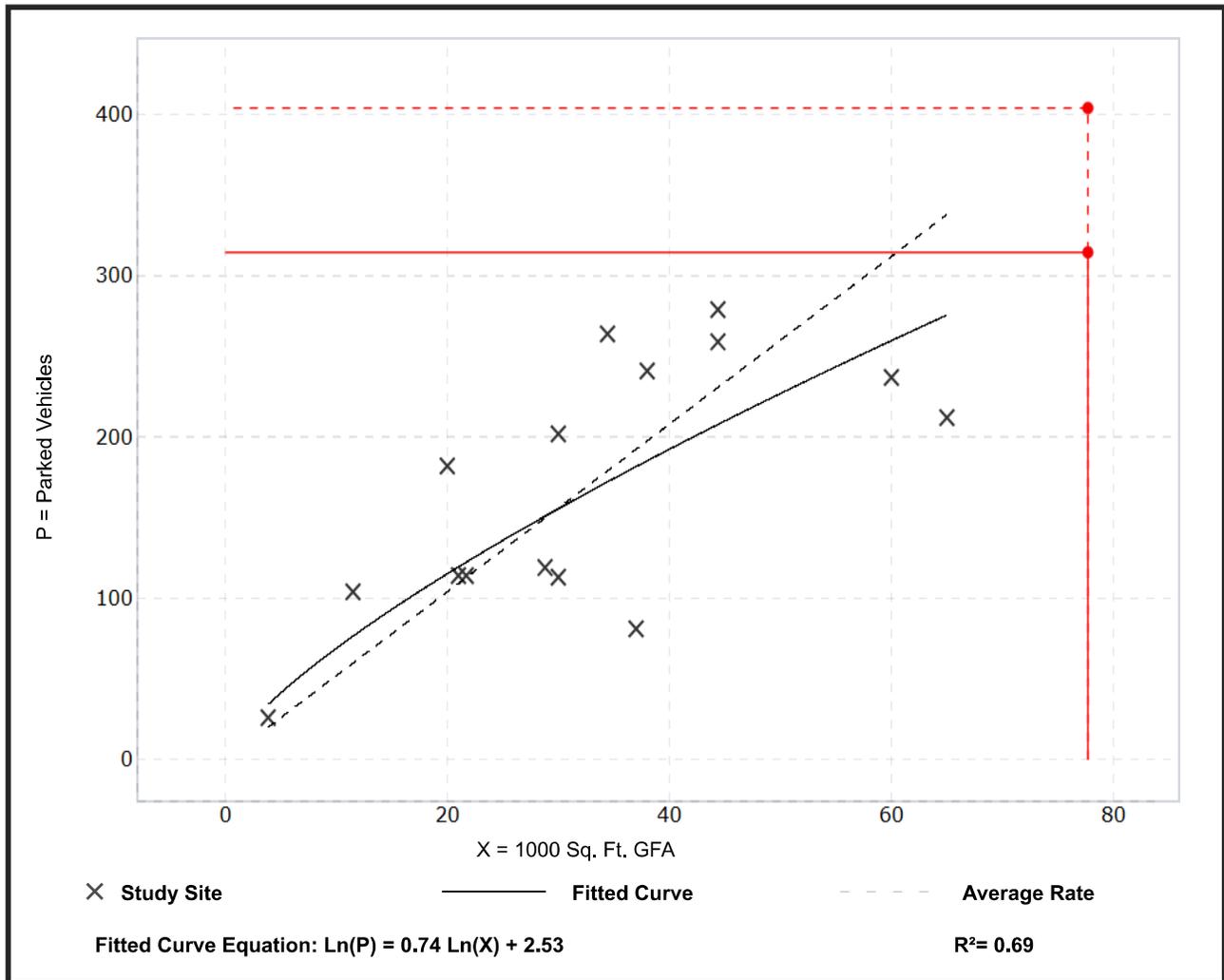
Health/Fitness Club (492)

Peak Period Parking Demand vs: 1000 Sq. Ft. GFA
On a: Weekday (Monday - Friday)
Setting/Location: General Urban/Suburban
 Number of Studies: 15
 Avg. 1000 Sq. Ft. GFA: 33

Peak Period Parking Demand per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	33rd / 85th Percentile	95% Confidence Interval	Standard Deviation (Coeff. of Variation)
5.20	2.19 - 9.10	4.45 / 8.49	***	1.90 (37%)

Data Plot and Equation



Adirondack Club Parking Lot Expansion
Franklin, MA
Parking Generation
PARE Project No. 25038.00
May 8, 2025



Land Use Code 492: Health/ Fitness Club

77.70 GFA

Weekday (Monday - Friday)

Average Rate:	$=5.2(77.7)$	404
Fitted Curve Equation:	$\ln(P)=0.74\ln(77.7) + 2.53$	P = 315 ($R^2=0.69$)