Attachment E:

Traffic Assessment, Turning Movement Plan

Brennan Consulting
ENGINEERING • TRANSPORTATION • SURVEYING
A WBE Certified Company

January 28, 2022

Paul Durand
Winter Street Architects
27 Congress Street, Suite 201
Salem, MA 01970

RE: Devens Public Safety Building
Traffic Impact Assessment Study (TIAS)
Project No. 21113

Mr. Durand,

This letter is intended to assess the traffic conditions adjacent to the proposed Public Safety Building site with respectto the driveway locations and the intersection of BarnumRoad and Queenstown Street (the intersection).

Both Barnum Road and Queenstown Street have posted speed limits of 20 MPH in the area of the project site. Observed available sight distances from the proposed driveway locations are in excess of 350 feet in all directions, and are adequate to meet both the intersection sight distance and stopping sight distance requirements indicated for the posted speed.

Peak hour traffic counts for the intersection of Barnum Road and Queenstown Street have been performedby the MassDevelopment Devens 2020 Traffic Monitoring Program (TMP), and the counts and analysis are shown in the 2020 Traffic Monitoring Report, Devens MA, prepared by VHB, dated 12/16/2021. The Report indicated the counts were taken in the Spring of 2021, and adjusted for typical variances and Covid 19. Intersections external to Devens were analyzed for capacity, however internal intersections, such as Barnum Rd / Queenstown St were not analyzed.

Brennan reviewed the morning (7 – 9am) and afternoon (4 – 6pm) peak hour traffic volumes at the intersection. Attached to this letter the Report Figures 2-3a and 2-4a indicate the intersections traffic volumes (shown as intersection 9). The peak volumes are 283 in the AM and 281 in the PM, which for peak hours are minimal.

The trip generation was calculated utilizing the ITE Trip Generation Manual, 11th edition, and is attached. The appropriate land use code is LUC 575, Fire and Rescue Station. The only available data was Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6pm. Utilizing 20 employees, the expected number by Devens, and the maximum allowable by ITE for the data set, the total number of Trips is 9. The Report indicates that the total number of vehicles approaching the intersection in the PM peak is 281. Based on these numbers we feel the additional traffic added to the intersection is minimal, and is certainly less than the original site use, an elementary school. Given the low volume of traffic at the intersection, the proposed trips will have an insignificant impact on the operating capacity of the intersection.

It is Brennan Consulting's opinion that the site redevelopment traffic impacts are negligible and do not warrant traffic control measures beyond the existing stop condition at Queenstown Street.

If you have any questions please feel free to contact me at your earliest convenience.

Brennan Consulting, Inc.

Chris Emilius, P.E.
Principal

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2020 Traffic Monitoring Program

Devens, Massachusetts

PREPARED FOR

MassDevelopment
33 Andrews Parkway
Devens, Massachusetts

PREPARED BY

101 Walnut Street
PO Box 9151
Watertown, MA 02471
617.924.1770

12/16/2021

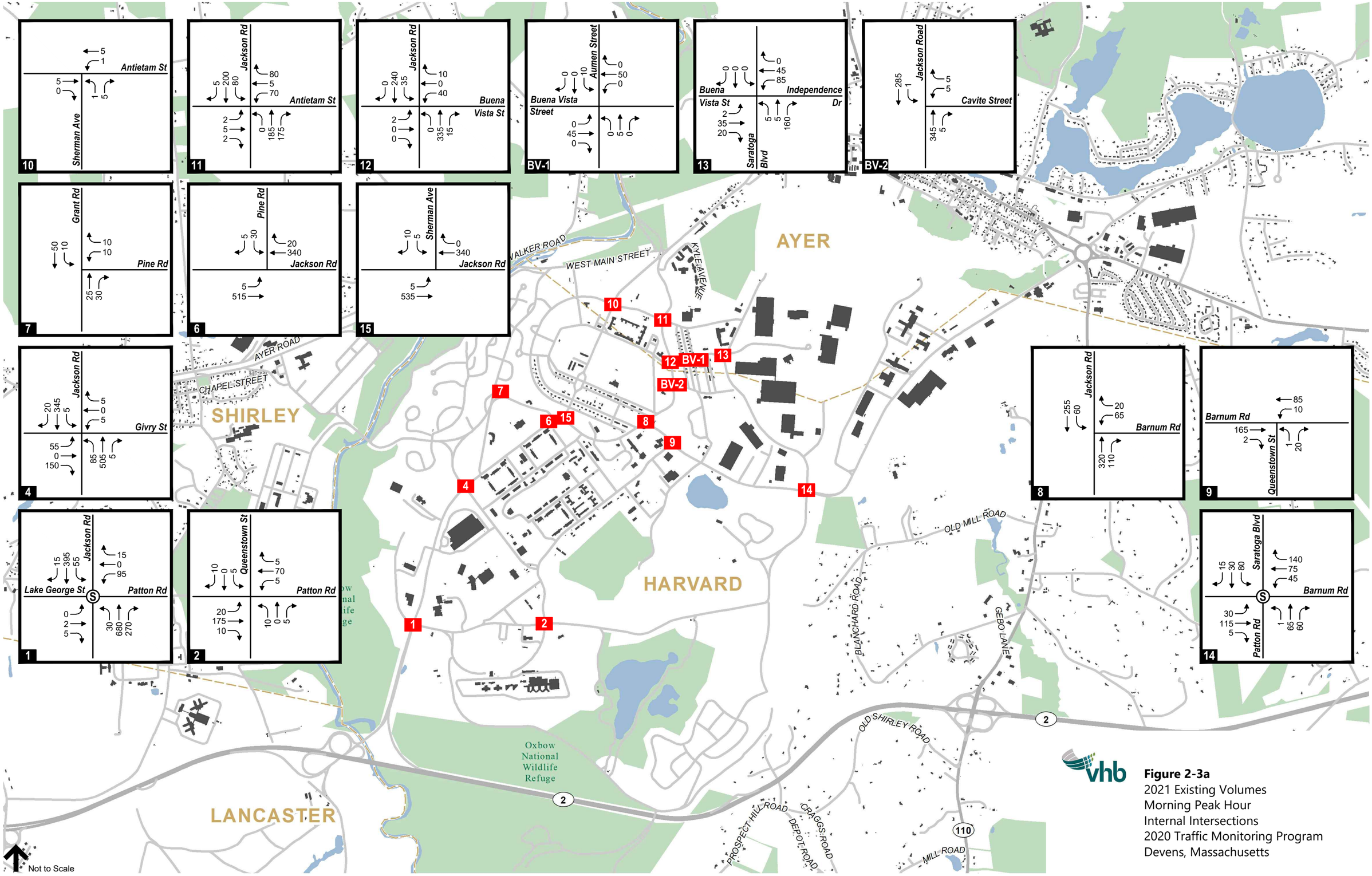


Figure 2-3a
2021 Existing Volumes
Morning Peak Hour
Internal Intersections
2020 Traffic Monitoring Program
Devens, Massachusetts

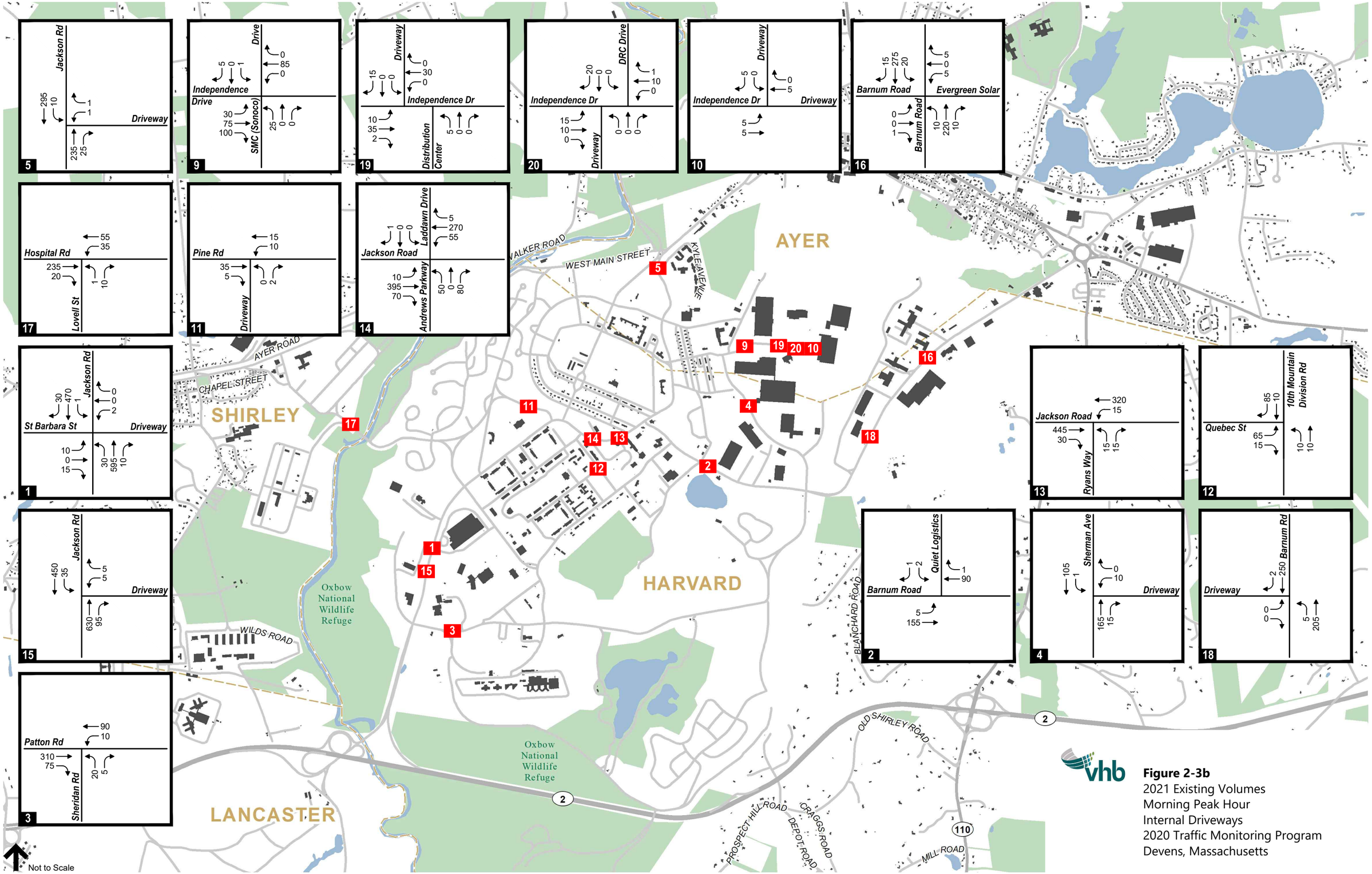


Figure 2-3b
2021 Existing Volumes
Morning Peak Hour
Internal Driveways
2020 Traffic Monitoring Program
Devens, Massachusetts

Fire and Rescue Station
(575)

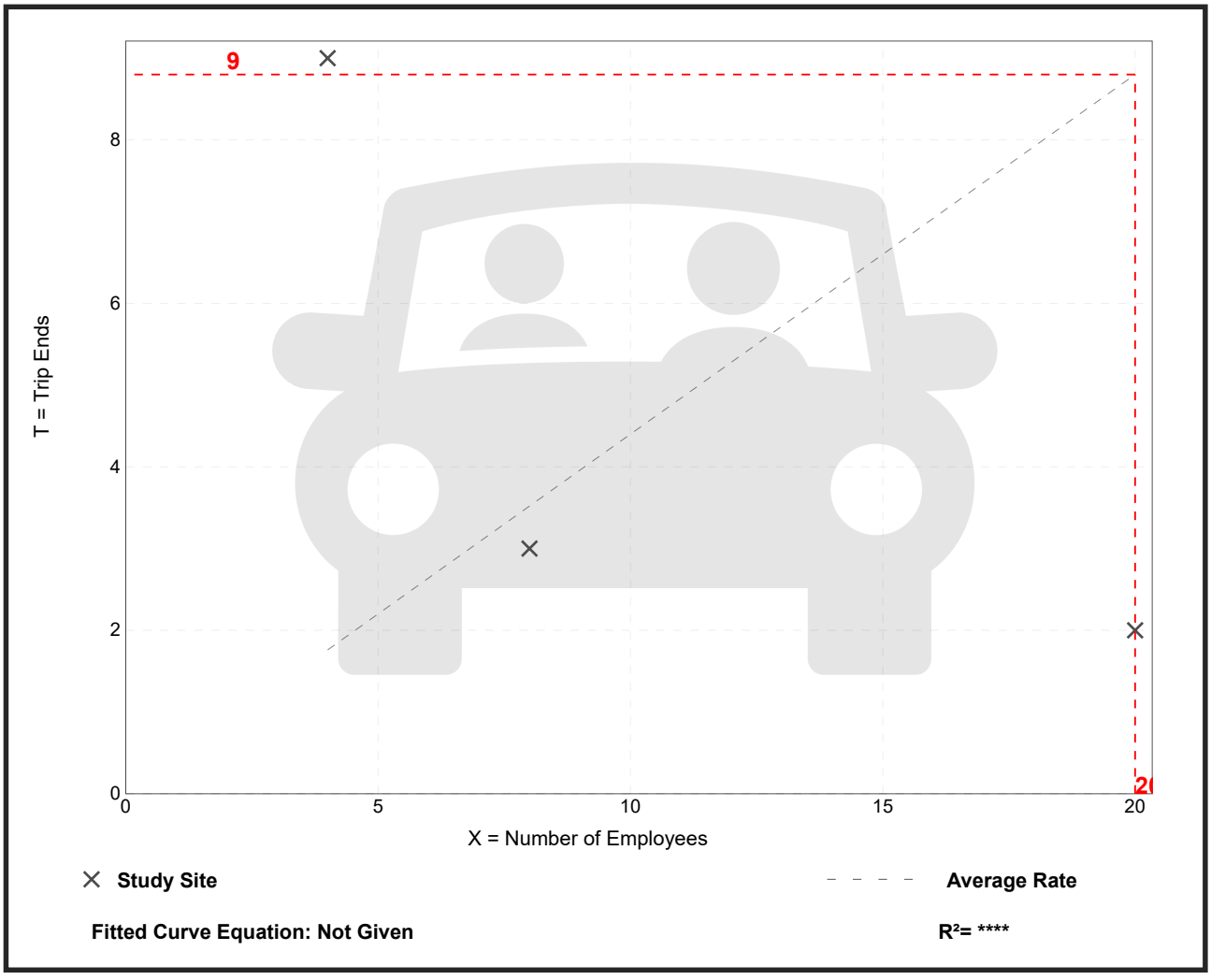
Vehicle Trip Ends vs: **Employees**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 3
Avg. Num. of Employees: 11
Directional Distribution: 29% entering, 71% exiting

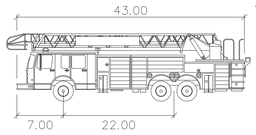
Vehicle Trip Generation per Employee

Average Rate	Range of Rates	Standard Deviation
0.44	0.10 - 2.25	0.85

Data Plot and Equation

Caution – Small Sample Size





Aerial Fire Truck

	feet
Width	: 8.50
Track	: 8.50
Lock to Lock Time	: 6.0
Steering Angle	: 33.3

S49°24'15"W 259.48'

N63°33'38"E 302.64'

N23°35'10"W 121.21'

N13°09'22"W 179.09'

N26°40'04"W 140.00'

25' SIDE YARD SETBACK

25' SIDE YARD SETBACK

25' FRONT YARD SETBACK

25' FRONT YARD SETBACK

PROPOSED SALLY PORT
1,040 SF
HT.=17'-9"

NEW APPARATUS BAY
7,200 SF
HT.=31'-9"

NO. 270 BURNUM ROAD
1 STORY BRICK BUILDING
24,000± SF

PARCEL NO.: 020.0-0003-0500.0

020.0-0003-0500.0
NOW OR FORMERLY
MDFA/ELEMENTARY SCHOOL
270 BARNUM ROAD
W.C.R.D. BK 17907 PG 1
(PARCEL "1")
AREA=152,900 S.F.±
3.510 ACRES±

QUEENSTOWN STREET
(PUBLIC-VARIABLE WIDTH)

BARNUM ROAD
(PUBLIC-VARIABLE WIDTH)
(SEE PLAN BK 822 PG 34)

2011 LAYOUT LINE

1998 LAYOUT LINE

1998 LAYOUT LINE

L=225.32'
Δ=11°13'37"
R=1151.39'

L=81.04'
R=50.00'
Δ=92°51'42"

L=47.86'
R=50.00'
Δ=54°50'56"

N45°00'56"E
80.00'

S44°59'04"E
99.00'

S38°07'36"E
60.00'

N55°51'46"E 90.00'

S51°52'04"W 219.11'

S51°52'04"W 218.50'

S50°41'51"W 179.91'

76.88'
S50°43'35"W

57.48'
S50°41'51"W

65.06'
S47°52'22"W

0.36'
S21°11'02"W

Aerial Fire Truck
NCHRP REPORT 659 (US)

Aerial Fire Truck
NCHRP REPORT 659 (US)

Aerial Fire Truck
NCHRP REPORT 659 (US)

Aerial Fire Truck
NCHRP REPORT 659 (US)

BUSINESS & COMMUNITY SERVICES

INNOVATION & TECHNOLOGY BUSINESS

OPEN SPACE/RECREATION
BUSINESS & COMMUNITY SERVICES

UTILITY EASEMENT
PLAN BK 856 PG 020

UTILITY EASEMENT
PLAN BK 856 PG 020

8"S-VC

15"S-VC

8"W-DIC

MH970

NO SWITCH

16 kV

MASSACHUSETTS STATE PLANE COORDINATE SYSTEM (NAD83)

0
MDFA
1
W.C.I

SEAL:

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1/23/2020 4:39:44 PM

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DEVENS FIRE STATION

270 Barnum Road
Devens, MA

Project Number: 4143.0000

DESIGN DEVELOPMENT

Date: 12 FEBRUARY 2020

Issued

NO.	DESCRIPTION	DATE

TURNING MOVEMENT PLAN

A-F