



February 28, 2022

Mr. Jon Lee, Chairman,
Zoning Board of Appeals
Town of Walpole
135 School Street
Walpole, MA 02081

Re: The Residences at Burns Avenue, Walpole
Proposed Modification, Updated Traffic Review

Dear Mr. Chairman,

Kimley – Horn is happy to provide this supplemental traffic report for the proposed modification of the project entitled “The Residences at Burns Avenue” in Walpole, MA. This traffic report will supplement the prior report provided Green International Associates dated November 16, 2020 which was prepared under my supervision. This update is in response to the request by the peer review consultant (Tetra Tech) in their letter dated February 10, 2022 related to the proposed modification to the currently approved 40B development known as the Residences at Burns Avenue in Walpole, MA.

As previously approved by the Zoning Board of Appeals (the “ZBA”), the project consists of a 32-unit residential townhouse development with sole access to the development being provided via an extension from Burns Avenue. Each of the townhomes would include a one-car garage space and driveway space for resident parking. As approved, the access drive from Burns Avenue was designed with a 22-foot-wide street with a one-foot cape cod berm on each side that would be a dead-end drive with a turnaround for large vehicles including fire apparatus. In connection with the prior approval of the project, the access drive design and turnaround had been analyzed to ensure that Walpole’s fire apparatus access could be accommodated. As part of traffic mitigation for the approve project, the proposed actions that the applicant had agreed to include: reconstruct the sidewalk along the north side of Burns Avenue and extend it into the development; improve the pedestrian crossing of Burns Avenue including making it ADA compliant; and install traffic calming and safety signage/devices along Pleasant Street to provide advance warning to motorists of the location of Burns Avenue and encourage slower traffic speeds along Pleasant Street.

Proposed Modification

The proposed modification of the project includes the addition of the property at 7 Brook Lane to the east of the currently approved project, along with the addition of six (6) townhouse units. The addition of 7 Brook Lane will allow the proposed access drive for the development to be extended through the development and connect with existing Brook Lane, a public way. The proposed additional dwelling units are expected to be similar in size and design as the currently approved units. This addition of property at 7 Brook Lane and the proposed connection of the access drive to Brook Lane extension would eliminate the dead-end configuration of the previously approved project. The extension would also provide for two full points of access and egress for the project.

As currently proposed, the street including its extension to Brook Lane, will continue to accommodate two-way travel. The existing cul-de-sac on Brook Lane would be eliminated with this modification resulting in a reduction in paved surface area. The home at 7 Brook Lane would be removed to facilitate the proposed change. The project in total would then have an access point to the area’s road network via Brook Lane’s intersection with Union Street, in addition to the Pleasant Street connection via Burns Avenue.

Union Street in Project Area

Union Street is classified as an “urban collector” roadway and is owned and maintained by the Town of Walpole. Union Street, a two-way, two lane street, generally follows an east-west alignment connecting Washington Street to the west and Route 1 and the Norwood town line to the east. The alignment is straight

and level. The sidewalk on the south side connects Brook Lane with Pleasant Street. The sidewalk is separated from the street by approximately 4 feet of grass. The posted speed limit is 35 mph in the vicinity of Brook Lane.

Brook Lane

Brook Lane is a local residential street that is 250 feet in length and ends with a cul-de-sac. The street is 22 feet in width and a sidewalk exists along the eastern side of the street with a berm and small grass strip separating it from the street. It intersects with Union Street on a level, tangent alignment and its approach operates as a STOP controlled leg of the intersection. Brook Lane is approximately 1,100 feet east of Pleasant Street and 1,500 feet west of Route 1. There are four homes directly served by Brook Lane. With the proposed modification, the home at 7 Brook Lane will be eliminated as noted above.



Project Related Trip Generation

The proposed modification is to add six (6) units of housing similar in design as the currently approved project. The modification will also remove the existing single-family home located at 7 Brook Lane to accommodate the modification. An updated estimate of expected trip generation related to the additional project was completed using the latest models and statistics published by the Institute of Transportation Engineers (ITE) in Trip Generation Manual¹ for similar land uses were examined. Trip forecast models are developed by ITE from actual observations and empirical data collected as part of transportation studies. Land Use Code (LUC) 220-Multi-family was selected for this proposed modification and was also utilized in the approved proposal. The trip forecasts were completed for the resulting 38-unit development and then compared with the approved 32-unit project. The total estimated new trips generated by the project is presented in Table 1 including the calculated difference between the approved and the Modified project. This updated estimate of net changes in vehicle trips due to the development also takes into account the removal of the single-family home at 7 Brook Lane. The calculation sheets are attached to this letter.

**Table 1 – Summary of Site Trip Generation
Original vs. Modified Multi-Unit Complex (Updated 2/25/22)**

	ORIGINAL APPROVED 32 UNITS			WITH ADDED 6 UNITS (38 TOTAL)			ELIMINATION OF 7 BROOK LANE HOME			NET DIFFERENCE BETWEEN ORIGINAL AND MODIFICATION		
	ENTER	EXIT	TOTAL	ENTER	EXIT	TOTAL	ENTER	EXIT	TOTAL	ENTER	EXIT	TOTAL
Weekday 24 Hour	108	108	216	128	128	256	5	5	10	15	15	30
Weekday AM Peak Hour	3	10	13	3	12	15	0	1	1	0	1	1
Weekday PM Peak Hour	10	6	16	12	7	19	1	0	1	1	1	2

ITE LUC 220 Multi Unit Land Use, no adjustments, 11th Edition

As shown in the table, the proposed additional six units to the Residences at Burns Avenue development project are expected to generate a minimal number of net new vehicle trips compared to the originally approved project with 1 additional vehicle trip projected for the AM peak hour and 2 vehicle trips during the PM peak hour. These calculations take into account removing the single family home at 7 Brook Lane. In total, the peak hour trip generation for 38 units is estimated to be 15 vehicle trips during the AM peak hour and 19

¹ Institute of Transportation Engineers, Trip Generation Manual, 11th Edition, Washington, D.C., 2021.

vehicle trips during the PM peak hour. Similar to the discussion in the earlier full traffic study², the majority of trips in the morning would be exiting the site while in the evening peak hour, the majority of project trips would be entering the site. Over the 24-hour day, the net increase due to the 6 added units would be 15 vehicle trips entering and 15 vehicle trips exiting the site.

As estimated in the initial traffic study³ previously completed for the original proposed plan and the previously approved project, it was projected that 30% of the peak hour site traffic would be oriented to Union Street and the east, 45% to the north along Pleasant Street and the remaining amount of site traffic oriented to the south and west including towards Route 1A and the center of town. With the ability to use either the Brook Lane or the Burns Avenue access/egress point, those estimated patterns along with the one's specific dwelling location within the development will influence which access/egress point is used. For example, someone living closer to Brook Lane and traveling to the north may use Brook Lane to Union Street to reach Pleasant Street or Route 1 for the trip, while someone living closer to the Burns Avenue end of the development and making the same trip, may use Burns Avenue to get to Pleasant Street and travel north. This new connection is also likely to influence travel patterns of current residents on Burns Avenue and Brook Lane though to a lesser extent due to being closer to the major streets.

Sight Distances/Site Drive Visibility

The proposed modification results in a new connection to Brook Lane, an existing local street that intersects with Union Street and currently serves 4 homes. While an existing roadway, a field review of visibility conditions at the intersection of Union Street with Brook Lane was completed to review the conditions. The minimum criteria for establishing adequate stopping and intersection sight distances are defined by the American Association of State Highway and Transportation Officials (AASHTO).⁴ Stopping sight distance (SSD) represents the distance required for a driver traveling at a specified speed to come to a complete stop and therefore relates specifically to safety. Intersection sight distance (ISD) relates to an exiting driver's view of approaching traffic and represents the distance an approaching vehicle travels during a specified time gap. As indicated by AASHTO, if the available ISD meets or exceeds the minimum SSD criteria, then there is adequate safe sight distance available for motorists to avoid collisions. Minimum required sight distances are calculated based on operating speeds of approaching drivers and the grade of the roadway.



For 35 mph speeds, the minimum stopping and intersection sight distance required for safe movement would be 250 feet. For 38 mph, which exceeds the observed 85th percentile speed, 305 feet would be required (if rounded up to 40 mph). Field measurements have indicated that there is at least 500 feet in both directions available for visibility. Based on this analysis, it is clear that the proposed site drive location is properly situated with respect to safe sight distances. The available sightlines will be more than adequate to ensure safe traffic operations. Visibility along the sidewalk that runs along the south side of Union Street at Brook Lane will remain clearly visible as well.

² Green International Affiliates, Inc., Traffic Impact & Access Study, The Residences at Burns Avenue, February 2019.

³ Green International Affiliates, Inc., Traffic Impact & Access Study, Proposed Union Square Village Residential Development, prepared for Wall Street Development Corp., 2016

⁴ American Association of State Highway Transportation Officials (AASHTO), A Policy on Geometric Design of Highways and Streets, Washington, D.C., 2018.

Table 2 – Summary of Sight Distance Review

UNION STREET AT BROOK LANE	SIGHT DISTANCE			
	35 MPH		40 MPH	
	MEASURED (FT)	MINIMUM REQUIRED (FT)		MINIMUM REQUIRED (FT)
Union Street Eastbound Approach	500+	250		305
Union Street Westbound Approach	500+	250		305
INTERSECTION SIGHT DISTANCE				
Brook Lane, looking east (Union Street WB traffic)	500+	250		305
Brook Lane, looking west (Union Street EB traffic)	500+	250		305

Fire Apparatus/Large Vehicle Movement

The evaluation of fire truck access was completed during the review of the previously approved project with a turnaround incorporated into the design. The analysis demonstrated that fire apparatus could access as well as egress the proposed development.

The proposed modification of the development with the extension of the site drive to Brook Lane makes access/egress for the fire apparatus more convenient as they will not need to turnaround within the development to exit once completed with the associated activity. With the proposed modification, they are able to enter via Burns Avenue and exit through Brook Lane or vice versa depending on their “arriving” direction of travel.

As requested by the Peer Reviewer, a turning analysis was prepared to show that the Walpole largest apparatus (ladder truck) will be able to move movement through the development entering from both directions. These diagrams are attached.

Cut-Through Traffic Evaluation

As previously mentioned, the new access drive connection to Brook Lane may also influence travel patterns of current residents on Burns Avenue and Brook Lane. In addition, concerns were raised by residents that a new connection from Brook Lane to Burns Avenue might invite outside traffic trying to avoid the intersection of Union Street and Pleasant Street.

With a new through road from Burns Avenue to Brook Lane, there is the potential for additional “outside” traffic to use the connection. However, in reviewing the distances and the type of roadway to travel in terms of horizontal and vertical alignments, there is virtually little or no advantage for “cut thru” traffic to use the new connection in traveling between Pleasant Street and Union Street. Over time, the level of “cut thru” is expected to be minimal. This could be monitored. In addition, there are several possible measures that could be considered to discourage the “cut thru” or ensure slow, safe movement through the neighborhood. Under the present design modification, the effect of the small increase in units with the street extension will result in an increase in traffic on Brook Lane but overall volumes will remain low. There would also be corresponding reduction in volumes on Burns Avenue due to the development connection to Brook Lane.

As I understand a previous discussion with homeowners on Brook Lane, an option was raised as a possibility to avoid non-neighborhood ‘cut-thru’ traffic was to restrict access to the development at Burns Avenue and make that an emergency only access point. This alternative could be achieved by either installing a gate at the Burns Avenue connection with the access drive or by installing a cul de sac in lieu of the connection of Burns Avenue and the access drive.

In the event the development/access drive was further modified along those lines, then all the site generated traffic would have to enter and exit via Brook Lane. That would result in the projected 15 and 19 peak hour trips added to the Brook Lane route to and from Union Street. Previous analysis completed by Green

International Affiliates in 2016 regarding a previous project design with a single access drive to Union Street showed that vehicles would be able to enter and exit more than adequately in that situation. While under this access scenario, Brook Lane would accommodate all the new traffic generated by the project. However, Brook Lane would continue to be a low volume road as only 4 homes are currently served by the road at this time. Weekday 24-hour volumes would be expected to remain under 300 vehicle trips.

Conclusion

As a result of this updated traffic review for the proposed modification to add 6 units of housing to the previously approved Burns Avenue development, it can be concluded that the additional units will result in a small or minimal increase in traffic over the originally approved project estimates. The construction of 6 units will result in a slight reduction in trips from the 8 units first proposed as part of the modification. The extension of the project driveway to Brook Lane provides added convenience relative to emergency vehicles.

Although the through connection from Burns Avenue to Brook Lane under this proposed modification will increase traffic to an extent on Brook Lane, the resulting volumes are expected to remain low. However, to discourage “cut-thru” traffic, manage travel speeds through the development, and provide safe traffic control, the following measures are suggested:

- Install a STOP sign and markings on the Brook Lane approach to Union Street and the Burns Avenue approach to Pleasant Street.
- Install THICKLEY SETTLED – 20 MPH signs on both Burns Avenue and Union Street prior to reaching the development.
- Install a new crosswalk with ADA compliant ramps at the intersection of Pleasant Street at Burns Avenue.
- Install a raised speed hump across Union Street at the entrance to the new development and across the development’s access drive at Burns Ave to further encourage lower travel speeds.
- Consider installing a raised pedestrian crossing across Brook Lane at Union Street.

All traffic control signage and markings should conform to the MUTCD⁵.

If you have any questions or need additional information, please do not hesitate to contact me at 617-466-6347.

Very truly yours,



William J. Scully, P.E.

WJS/-

Attachments

Trip Generation Calculation Sheets
Fire Truck Movement diagrams
Historical Traffic and Speed Data

⁵ U.S. Department of Transportation, Federal Highway Administration, Manual on Uniform Traffic Control Devices (MUTCD), Washington, D.C., 2009.



Union Street
 just west of Brook Lane
 City, State: Walpole, MA
 Client: Green International / J. Gauvin
 EB

46 Morton Street, Framingham, MA 01702
 Office: 508-875-0100 Fax: 508-875-0118
 Email: datarequests@pdillc.com

165334 A Speed
 Site Code: 16082

Start Time	14	15	19	20	24	25	29	30	34	35	39	40	44	45	49	50	54	55	59	60	64	65	69	70	9999	Total	85th % ile	Ave Speed
10/26/16	0	0	0	0	2	1	5	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	40	36	
01:00	0	0	0	0	2	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	37	35	
02:00	0	0	0	0	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	37	34	
03:00	0	0	0	2	4	3	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	41	35	
04:00	0	0	0	5	8	7	6	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30	43	36	
05:00	0	0	1	6	18	27	18	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	72	41	36	
06:00	0	0	4	13	47	46	17	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	130	39	35	
07:00	3	1	12	24	65	53	15	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	177	38	33	
08:00	0	1	2	19	63	91	26	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	203	38	35	
09:00	0	1	1	27	58	64	24	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	178	39	34	
10:00	0	1	4	10	45	66	23	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	156	40	36	
11:00	0	1	4	19	50	58	26	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	162	40	35	
12 PM	0	0	1	19	68	90	23	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	205	38	35	
13:00	0	1	5	12	58	65	17	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	159	38	34	
14:00	1	2	5	16	74	65	24	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	192	39	34	
15:00	2	3	3	18	64	83	20	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	195	38	34	
16:00	0	0	5	19	58	94	35	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	212	39	35	
17:00	0	5	4	10	77	91	23	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	216	38	35	
18:00	0	0	6	11	52	64	14	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	149	38	35	
19:00	0	2	3	9	28	41	15	2	1	1	0	1	0	1	0	1	0	1	0	1	0	1	0	0	103	40	35	
20:00	0	1	2	6	14	20	9	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	54	40	35	
21:00	1	0	0	3	12	10	6	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	34	41	35	
22:00	1	1	0	0	8	7	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19	38	33	
23:00	0	0	0	2	5	7	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	38	35	
Total	8	20	62	252	882	1063	347	49	6	3	0	1	1	1	1	1	1	1	1	1	1	1	1	1	2694			
%	0.3%	0.7%	2.3%	9.4%	32.7%	39.5%	12.9%	1.8%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%				
AM Peak	07:00	07:00	07:00	09:00	07:00	08:00	08:00	10:00	04:00																	08:00		
Vol.	3	1	12	27	65	91	26	7	1																	203		
PM Peak	15:00	17:00	18:00	12:00	17:00	16:00	16:00	14:00	17:00	18:00																19:00	17:00	17:00
Vol.	2	5	6	19	77	94	35	5	2	1																1	1	216

Stats

15th Percentile : 29 MPH
 50th Percentile : 34 MPH
 85th Percentile : 39 MPH
 95th Percentile : 42 MPH

Mean Speed(Average) : 35 MPH
 10 MPH Pace Speed : 30-39 MPH
 Number in Pace : 1945
 Percent in Pace : 72.2%
 Number of Vehicles > 35 MPH : 1257
 Percent of Vehicles > 35 MPH : 46.7%



PRECISION
D A T A
INDUSTRIES, LLC

46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Union Street
just west of Brook Lane
City, State: Walpole, MA
Client: Green International / J. Gauvin

165334 A Speed
Site Code: 16082

Start Time	1 14	15 19	20 24	25 29	30 34	35 39	40 44	45 49	50 54	55 59	60 64	65 69	70 9999	Total	85th % ile	Ave Speed
10/27/16	0	0	3	0	2	1	2	0	0	0	0	0	0	8	41	31
01:00	0	0	0	0	2	2	1	0	0	0	0	0	0	5	40	36
02:00	0	0	0	0	1	2	0	0	0	0	0	0	0	3	37	35
03:00	0	0	0	1	2	2	1	1	0	0	0	0	0	7	43	36
04:00	0	0	0	3	9	10	4	1	2	0	0	0	0	29	42	36
05:00	0	0	0	1	10	31	18	2	0	0	0	0	0	62	41	38
06:00	0	0	1	22	37	32	14	2	0	0	0	0	0	108	38	34
07:00	1	6	9	17	65	68	13	4	0	0	0	0	0	183	38	33
08:00	15	18	10	18	59	69	17	1	0	0	0	0	0	207	38	31
09:00	8	10	25	32	58	34	16	2	0	0	0	0	0	185	37	30
10:00	0	2	9	22	50	44	17	1	0	0	0	0	0	145	38	33
11:00	0	1	3	24	72	69	23	1	0	0	0	0	0	193	38	34
12 PM	1	0	4	21	69	68	17	5	0	0	0	0	0	185	38	34
13:00	0	1	5	18	56	65	17	0	0	0	0	0	0	162	38	34
14:00	3	1	5	13	71	89	17	1	0	0	0	0	0	200	38	34
15:00	2	1	8	23	69	68	23	3	0	0	0	0	0	197	38	34
16:00	0	2	4	12	70	72	16	1	0	0	0	0	0	177	38	34
17:00	0	1	13	24	78	71	9	2	0	0	0	0	0	198	37	33
18:00	0	0	6	28	58	46	1	1	0	0	0	0	0	140	36	32
19:00	1	1	5	11	30	35	7	2	0	0	0	0	0	92	38	33
20:00	1	0	1	10	22	13	5	0	0	0	0	0	0	52	37	33
21:00	0	0	4	5	10	16	5	2	0	0	0	0	0	42	39	34
22:00	2	0	0	2	6	9	3	1	0	0	0	0	0	23	39	33
23:00	0	0	0	2	3	8	2	0	0	0	0	0	0	15	38	35
Total	34	44	115	309	909	924	248	33	2	0	0	0	0	2618		
%	1.3%	1.7%	4.4%	11.8%	34.7%	35.3%	9.5%	1.3%	0.1%	0.0%	0.0%	0.0%	0.0%			
AM Peak	08:00	08:00	09:00	09:00	11:00	08:00	11:00	07:00	04:00					08:00		
Vol.	15	18	25	32	72	69	23	4	2					207		
PM Peak	14:00	16:00	17:00	18:00	17:00	14:00	15:00	12:00						14:00		
Vol.	3	2	13	28	78	89	23	5						200		

Stats

- 15th Percentile : 27 MPH
- 50th Percentile : 33 MPH
- 85th Percentile : 38 MPH
- 95th Percentile : 42 MPH

Mean Speed(Average) : 33 MPH

10 MPH Pace Speed : 30-39 MPH

Number in Pace : 1833

Percent in Pace : 70.0%

Number of Vehicles > 35 MPH : 1022

Percent of Vehicles > 35 MPH : 39.0%



PRECISION
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165334 A Speed
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Start Time	14	15	19	20	24	25	29	30	34	35	39	40	44	45	49	50	54	55	59	60	64	65	69	70	9999	Total	85th %ile	Ave Speed
10/26/16	0	0	0	0	0	7	4	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	39	35	
01:00	0	0	0	0	0	4	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	36	34	
02:00	0	0	2	1	3	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	46	33	
03:00	0	0	3	3	1	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	39	31	
04:00	0	0	1	4	4	3	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16	41	34	
05:00	0	2	3	13	9	21	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53	38	33	
06:00	0	0	4	34	62	45	6	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	152	37	33	
07:00	0	1	6	43	144	70	11	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	276	36	33	
08:00	0	1	2	40	96	85	16	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	242	37	34	
09:00	1	3	3	39	87	63	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	204	37	32	
10:00	0	2	3	20	80	69	13	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	189	38	34	
11:00	0	0	4	20	106	72	10	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	214	37	34	
12 PM	0	1	6	31	123	83	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	251	37	33	
13:00	0	0	3	61	128	79	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	281	36	33	
14:00	0	1	4	32	99	82	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	234	37	34	
15:00	0	2	7	44	108	76	18	4	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	1	261	37	33	
16:00	0	0	2	25	114	108	15	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	269	38	34	
17:00	0	0	5	36	174	116	19	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	351	37	34	
18:00	0	2	18	27	117	80	16	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	262	37	33	
19:00	1	2	2	15	83	71	13	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	188	38	34	
20:00	0	1	3	13	46	39	13	4	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	121	39	35	
21:00	1	0	0	5	47	25	8	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	87	38	34	
22:00	1	1	1	5	17	23	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53	38	34	
23:00	0	0	0	3	5	10	5	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25	42	37	
Total	4	19	82	514	1664	1229	220	27	7	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3768			
%	0.1%	0.5%	2.2%	13.6%	44.2%	32.6%	5.8%	0.7%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%				
AM Peak	09:00	09:00	07:00	07:00	07:00	08:00	08:00	02:00	07:00																	07:00		
Vol.	1	3	6	43	144	85	16	2	1																	276		
PM Peak	19:00	15:00	18:00	13:00	17:00	17:00	17:00	16:00	20:00	15:00															15:00	17:00		
Vol.	1	2	18	61	174	116	19	5	2	1															1	351		

Stats

- 15th Percentile : 28 MPH
- 50th Percentile : 32 MPH
- 85th Percentile : 37 MPH
- 95th Percentile : 40 MPH

Mean Speed(Average) : 33 MPH

- 10 MPH Pace Speed : 30-39 MPH
- Number in Pace : 2893
- Percent in Pace : 76.8%
- Number of Vehicles > 35 MPH : 1239
- Percent of Vehicles > 35 MPH : 32.9%



PRECISION
D A T A
INDUSTRIES, LLC

46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Union Street
just west of Brook Lane
City, State: Walpole, MA
Client: Green International / J. Gauvin
WB

165334 A Speed
Site Code: 16082

Start Time	1	15	20	25	30	35	40	45	50	55	60	65	70	Total	85th % ile	Ave Speed
	14	19	24	29	34	39	44	49	54	59	64	69	9999			
10/27/																
16	0	0	0	1	3	3	3	1	0	0	0	0	0	11	42	37
01:00	0	0	0	0	3	3	1	0	0	0	0	0	0	7	38	36
02:00	0	0	0	1	0	0	0	0	0	0	0	0	0	1	28	27
03:00	0	0	2	0	1	4	1	0	0	0	0	0	0	8	38	33
04:00	0	0	1	2	7	4	0	0	0	0	0	0	0	14	36	32
05:00	0	1	1	10	18	11	5	0	0	0	0	0	0	46	38	33
06:00	0	0	2	29	78	54	8	2	0	0	0	0	0	173	37	33
07:00	0	0	10	42	132	73	16	1	0	0	0	0	0	274	37	33
08:00	4	28	31	50	95	46	9	0	0	0	0	0	0	263	35	29
09:00	1	0	7	56	72	30	9	0	1	0	0	0	0	176	36	31
10:00	3	8	27	38	55	49	8	0	0	0	0	0	0	188	36	30
11:00	3	1	9	34	92	71	12	1	0	1	0	0	0	224	37	33
12 PM	0	3	6	35	132	79	7	0	0	0	0	0	0	262	36	33
13:00	1	1	6	36	108	71	13	0	0	0	0	0	0	236	37	33
14:00	0	1	2	26	125	83	24	2	0	0	0	0	0	263	38	34
15:00	1	1	4	33	90	90	22	1	0	0	0	0	0	242	38	34
16:00	0	0	2	38	119	82	15	2	0	0	0	0	0	258	37	33
17:00	0	1	11	58	156	73	4	1	0	0	0	0	0	304	36	32
18:00	1	1	13	77	120	40	4	2	0	0	0	0	0	258	34	31
19:00	3	0	3	28	79	48	11	1	0	0	0	0	0	173	37	33
20:00	0	1	1	13	71	55	10	0	0	1	0	0	0	152	37	34
21:00	0	0	1	14	36	31	4	1	0	0	0	0	0	87	37	33
22:00	0	0	0	6	19	17	5	1	0	0	0	0	0	48	38	34
23:00	0	0	0	1	5	11	5	0	1	0	0	0	0	23	41	37
Total	17	47	139	628	1616	1028	196	16	2	2	0	0	0	3691		
%	0.5%	1.3%	3.8%	17.0%	43.8%	27.9%	5.3%	0.4%	0.1%	0.1%	0.0%	0.0%	0.0%			
AM Peak	08:00	08:00	08:00	09:00	07:00	07:00	07:00	06:00	09:00	11:00				07:00		
Vol.	4	28	31	56	132	73	16	2	1	1				274		
PM Peak	19:00	12:00	18:00	18:00	17:00	15:00	14:00	14:00	23:00	20:00				17:00		
Vol.	3	3	13	77	156	90	24	2	1	1				304		

Stats

- 15th Percentile : 26 MPH
- 50th Percentile : 32 MPH
- 85th Percentile : 37 MPH
- 95th Percentile : 39 MPH

Mean Speed(Average) : 32 MPH

10 MPH Pace Speed : 30-39 MPH

Number in Pace : 2644

Percent in Pace : 71.6%

Number of Vehicles > 35 MPH : 1038

Percent of Vehicles > 35 MPH : 28.1%

Multifamily Housing (Low-Rise) Not Close to Rail Transit (220)

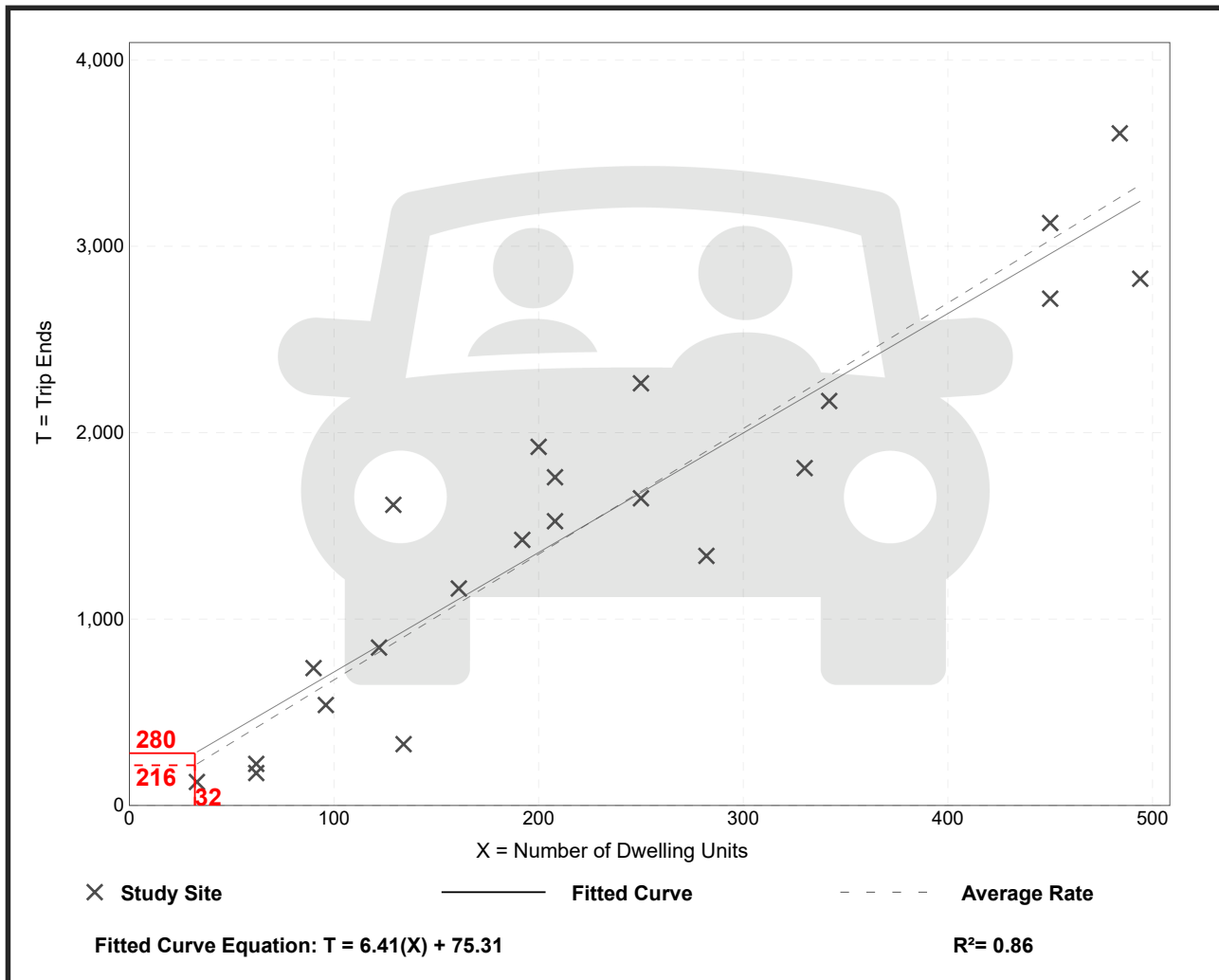
Vehicle Trip Ends vs: Dwelling Units
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 22
Avg. Num. of Dwelling Units: 229
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
6.74	2.46 - 12.50	1.79

Data Plot and Equation



Multifamily Housing (Low-Rise) Not Close to Rail Transit (220)

Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.

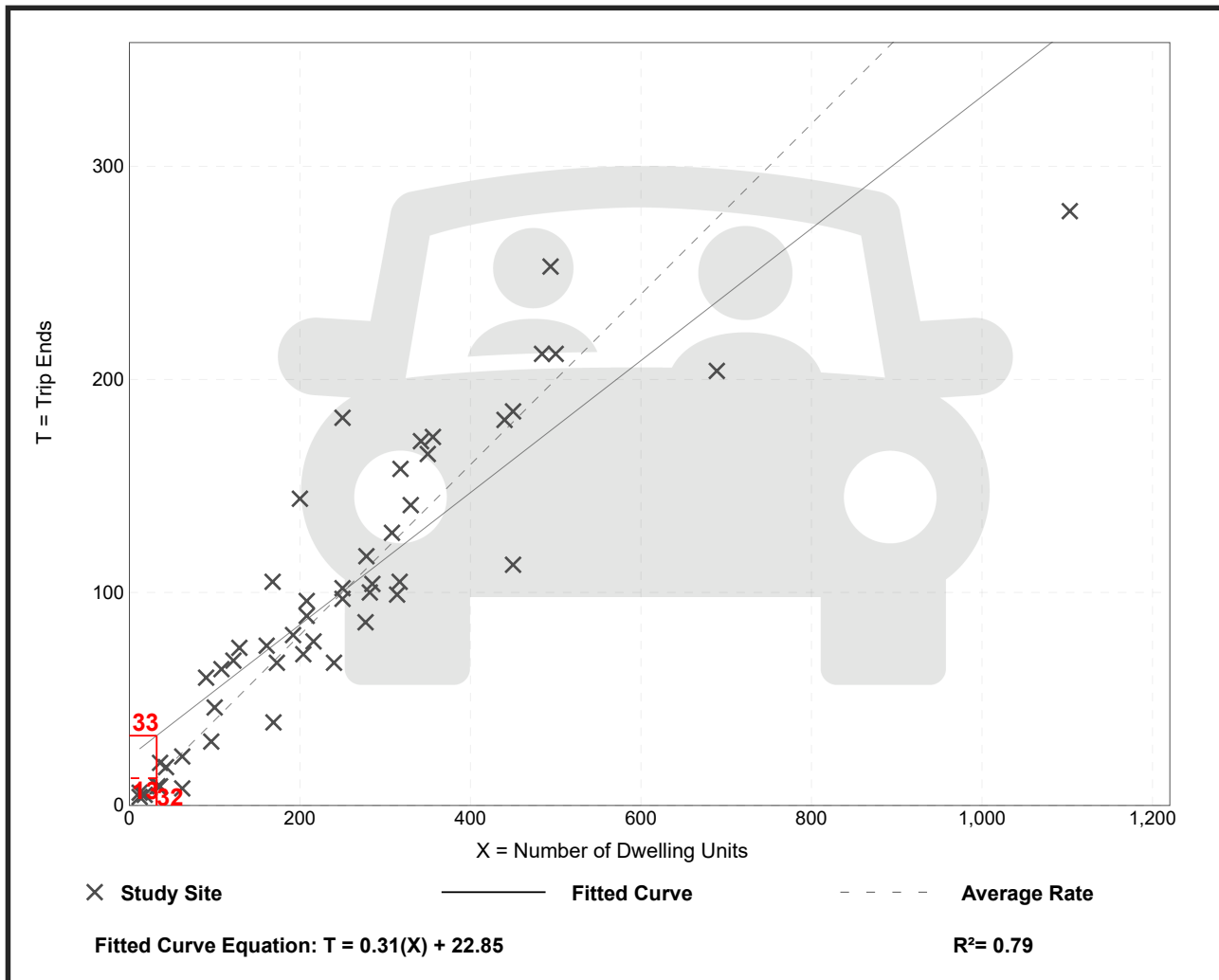
Setting/Location: General Urban/Suburban

Number of Studies: 49
Avg. Num. of Dwelling Units: 249
Directional Distribution: 24% entering, 76% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.40	0.13 - 0.73	0.12

Data Plot and Equation



Multifamily Housing (Low-Rise) Not Close to Rail Transit (220)

Vehicle Trip Ends vs: Dwelling Units
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: 59

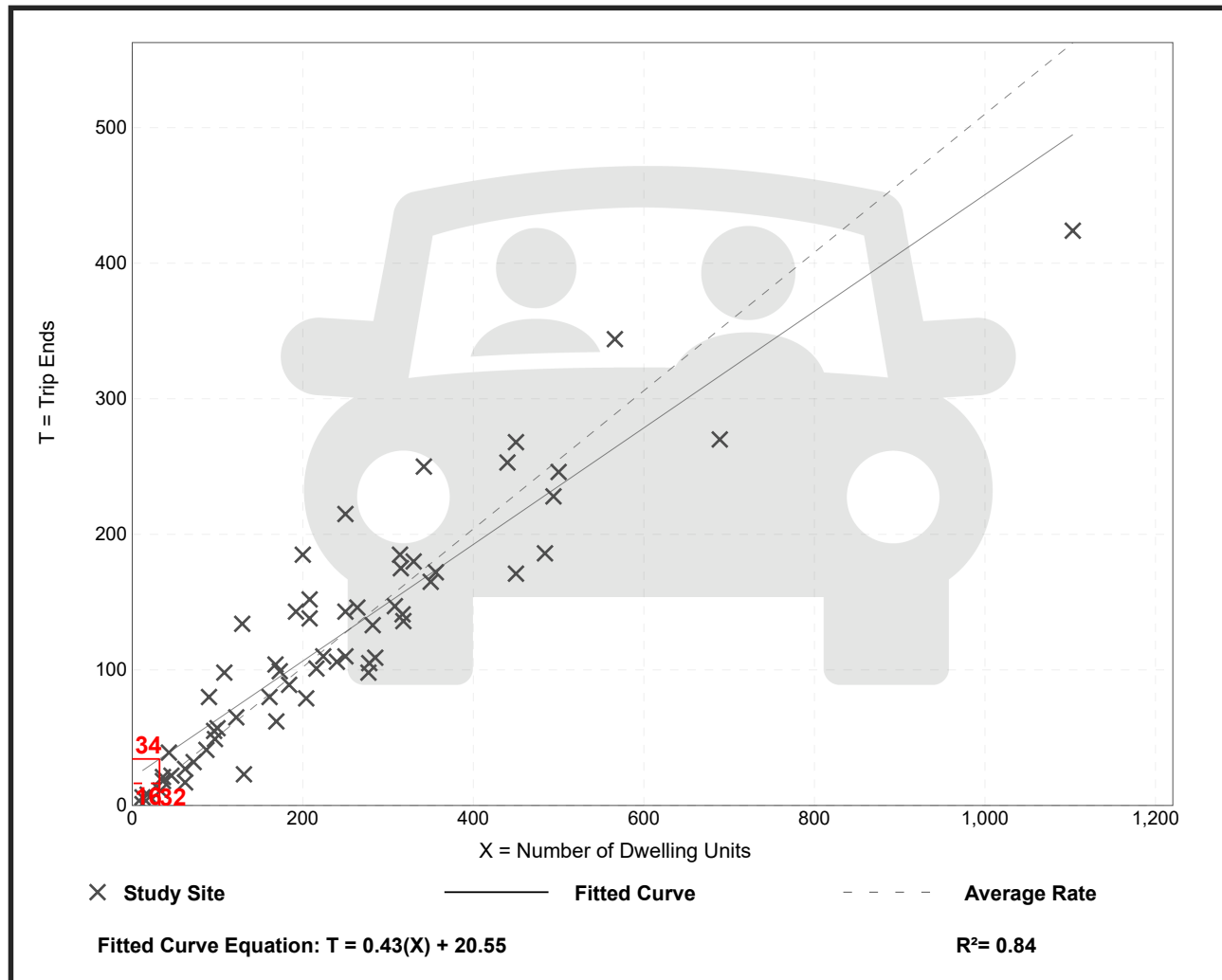
Avg. Num. of Dwelling Units: 241

Directional Distribution: 63% entering, 37% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.51	0.08 - 1.04	0.15

Data Plot and Equation



Multifamily Housing (Low-Rise) Not Close to Rail Transit (220)

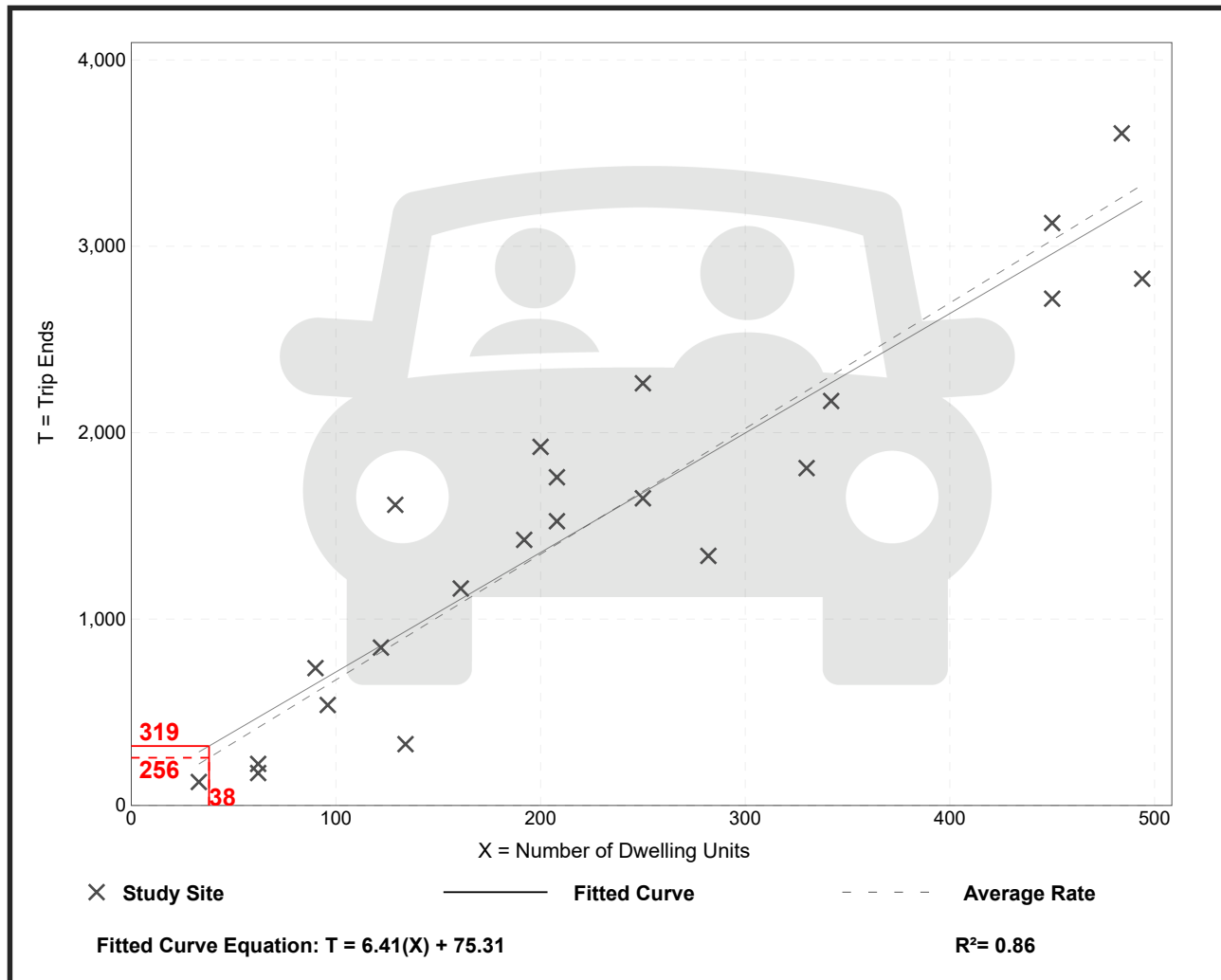
Vehicle Trip Ends vs: Dwelling Units
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 22
Avg. Num. of Dwelling Units: 229
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
6.74	2.46 - 12.50	1.79

Data Plot and Equation



Multifamily Housing (Low-Rise) Not Close to Rail Transit (220)

Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.

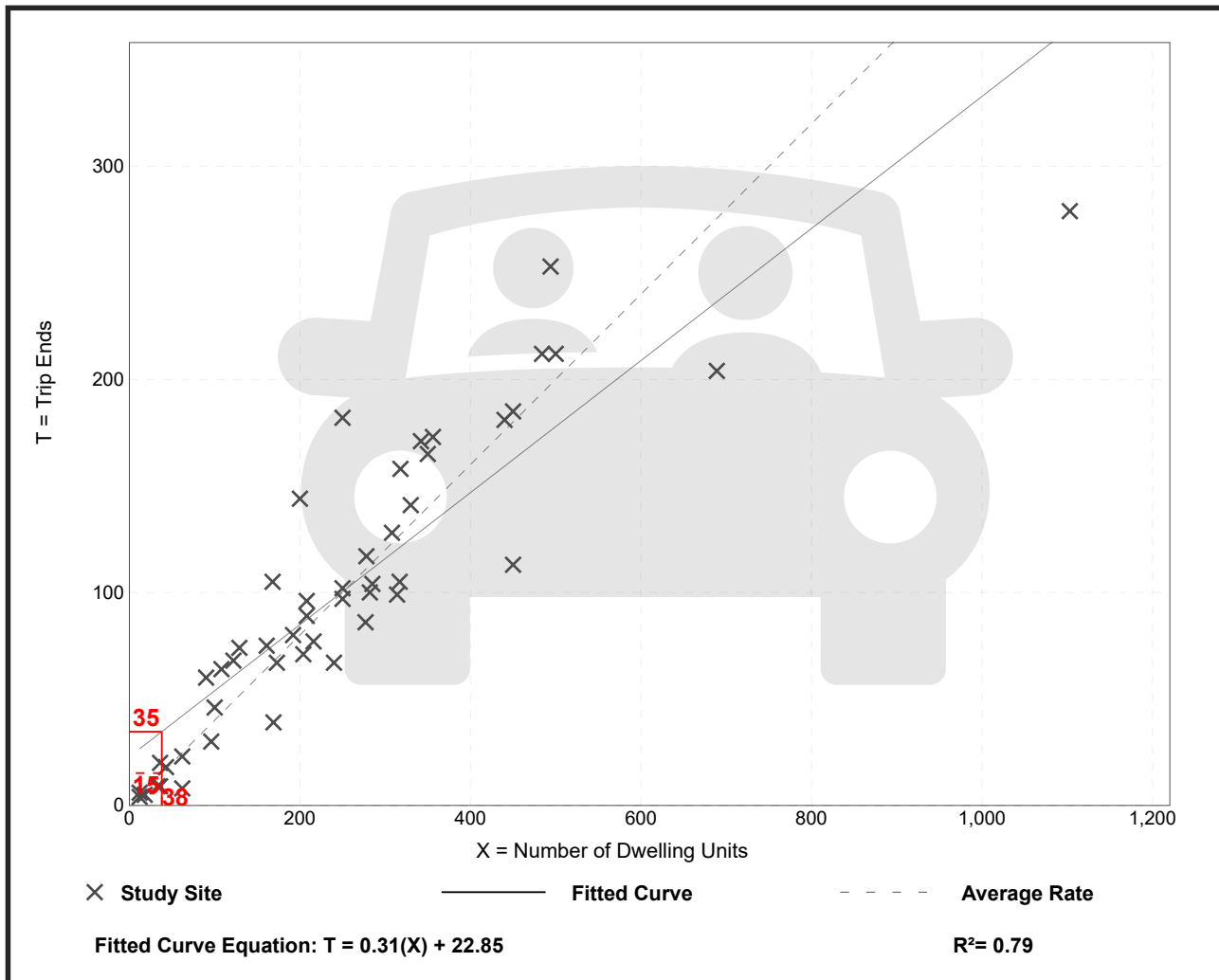
Setting/Location: General Urban/Suburban

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Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.40	0.13 - 0.73	0.12

Data Plot and Equation



Multifamily Housing (Low-Rise) Not Close to Rail Transit (220)

Vehicle Trip Ends vs: Dwelling Units
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: 59

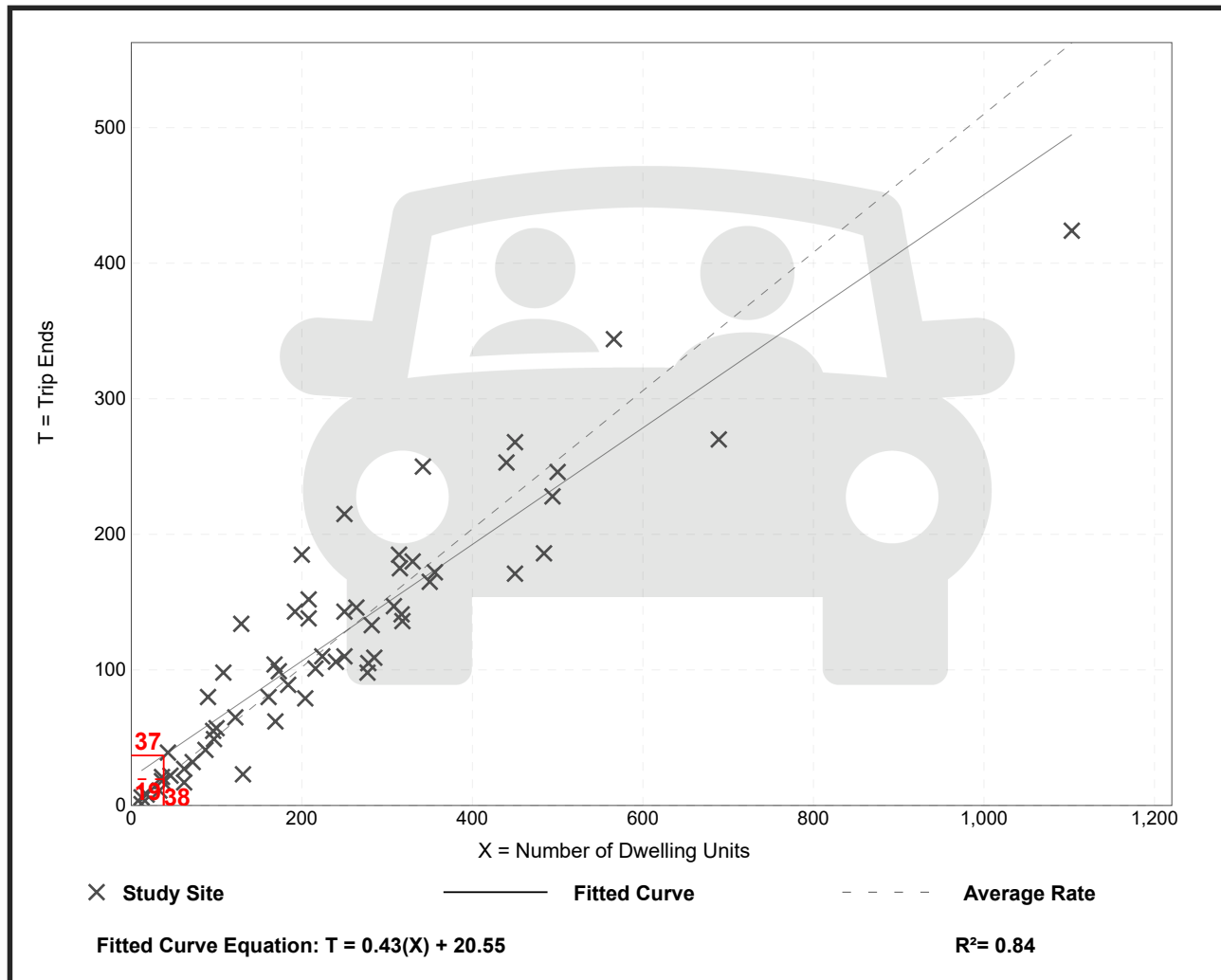
Avg. Num. of Dwelling Units: 241

Directional Distribution: 63% entering, 37% exiting

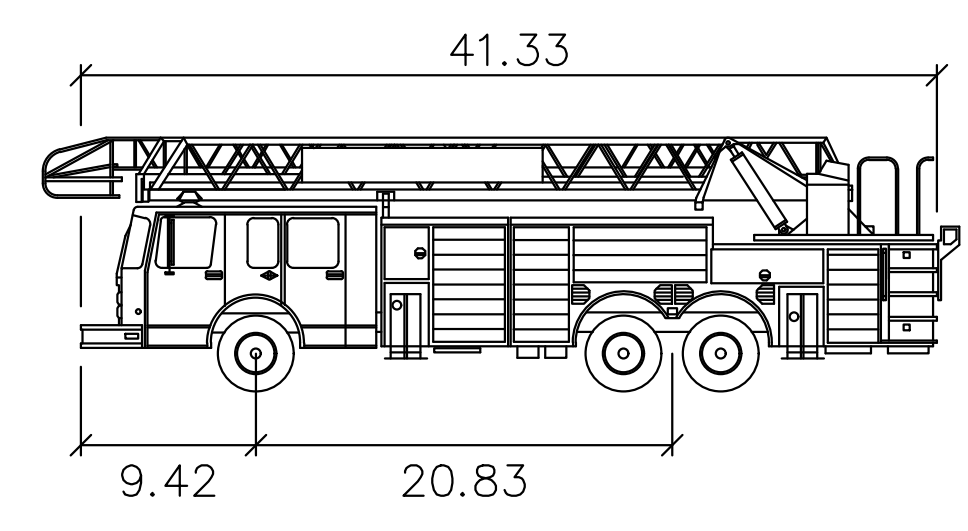
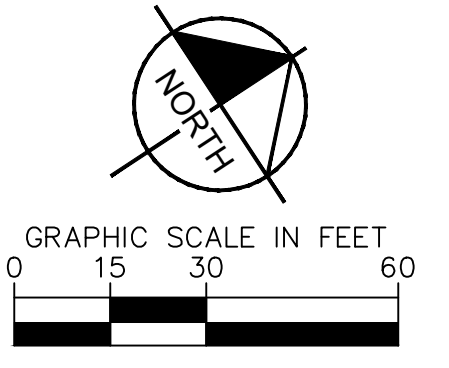
Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.51	0.08 - 1.04	0.15

Data Plot and Equation



Plotted By: Pouelle, Samiksha Sheet Set: KHA Layout: Autoturn 2 February 28, 2022 01:04:55pm Kimley-Horn.com AT: BOS/BOS TPT0112614000 Walpole Wall St Village at Burns/CAD/Plan/Sheets/Autoturn 2.dwg
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Walpole Fire Truck
 Width : 8.33 feet
 Track : 8.33
 Lock to Lock Time : 6.0
 Steering Angle : 42.0

TURNING MOMENTS LEGEND:
— TIRE LINES
— FRONT BUMPER LINES

No.	REVISIONS	DATE	BY

Kimley-Horn
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 404 WYMAN STREET, SUITE 385, WALTHAM, MA 02451
 PHONE: 781-328-8576
 WWW.KIMLEY-HORN.COM

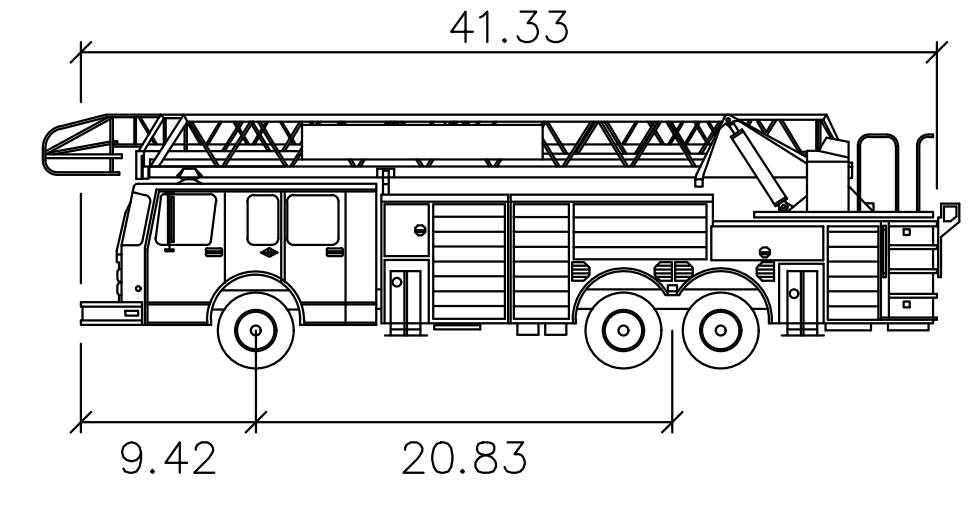
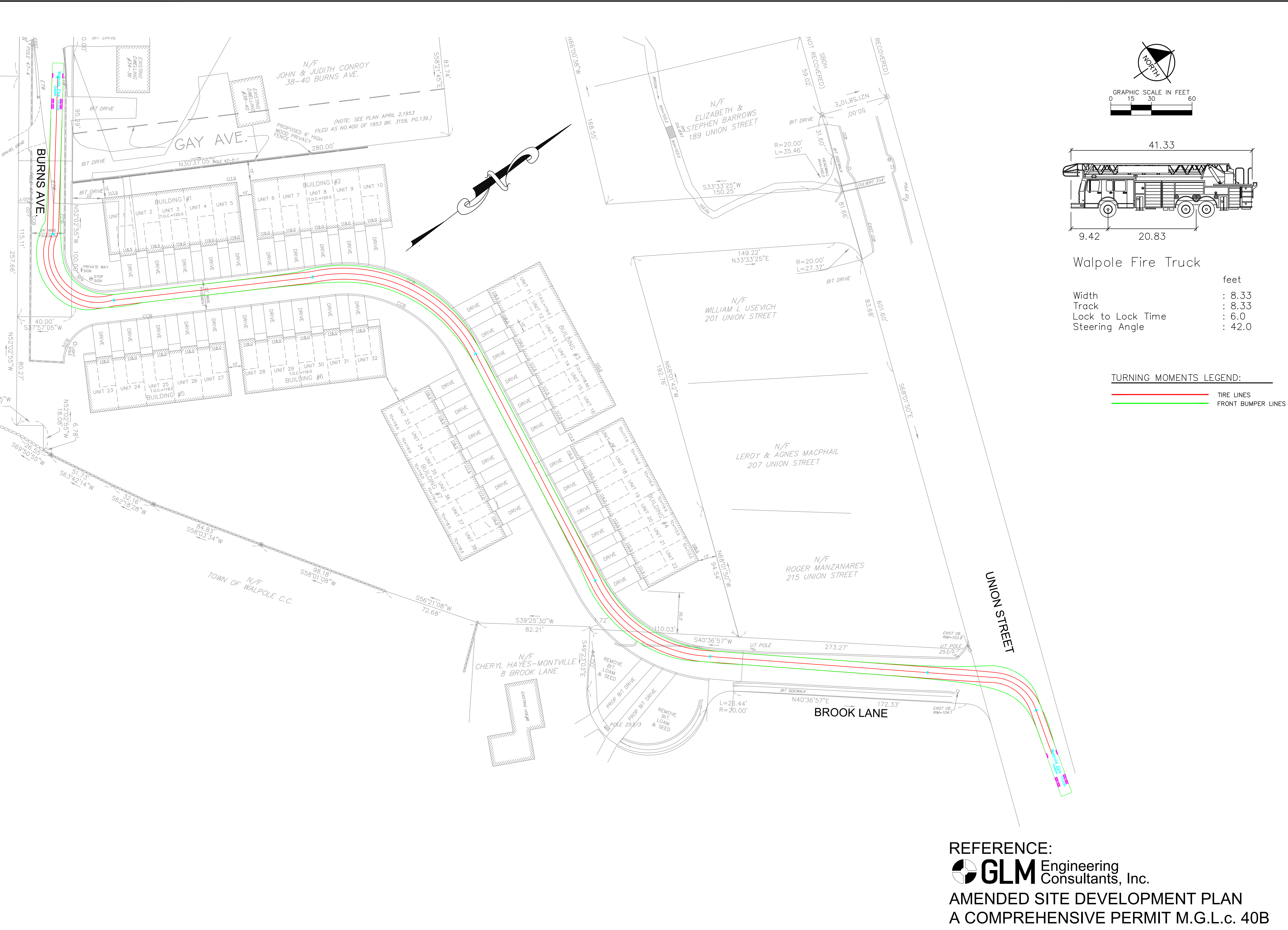
KHA PROJECT
 112614000
DATE
 02/28/2022
SCALE AS SHOWN
DESIGNED BY
 SP
DRAWN BY
 SP
CHECKED BY
 BS

**AUTOTURN
 FIRE TRUCK PATH
 BURNS AVE. TO
 UNION STREET**

**THE RESIDENCES AT BURNS
 AVENUE**
 PREPARED FOR
 WALLSTREET DEVELOPMENT CORP.
 P.O. BOX 272
 WESTWOOD, MA 02090
 MASSACHUSETTS
 WALPOLE

REFERENCE:
GLM Engineering
 Consultants, Inc.
**AMENDED SITE DEVELOPMENT PLAN
 A COMPREHENSIVE PERMIT M.G.L.c. 40B**

Plotted By: Pouelle, Samiksha_Sheet Set: KHA_Layout/Autoturn 1 February 28, 2022 01:05:37pm \\kimley-horn.com\AT_BOS\BOS_TPT0112614000_Walpole Wall St Village at Burns\CAD\Plans\Sheets\Autoturn 1.dwg
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Walpole Fire Truck
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 Lock to Lock Time : 6.0
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TURNING MOMENTS LEGEND:
— TIRE LINES
— FRONT BUMPER LINES

No.	REVISIONS	DATE

Kimley >> Horn
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 404 WYMAN STREET, SUITE 385, WALTHAM, MA 02451
 PHONE: 781-328-8576
 WWW.KIMLEY-HORN.COM

KHA PROJECT	112614000
DATE	02/28/2022
SCALE	AS SHOWN
DESIGNED BY	SP
DRAWN BY	BS
CHECKED BY	BS

**AUTOTURN
 FIRE TRUCK PATH
 UNION STREET
 TO BURNS AVE.**

**THE RESIDENCES AT BURNS
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REFERENCE:
GLM Engineering
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AMENDED SITE DEVELOPMENT PLAN
A COMPREHENSIVE PERMIT M.G.L.c. 40B