



TMS Engineers, Inc.

Transportation Management Services

2112 Case Parkway South, #7 • Twinsburg, Ohio 44087

www.TMSEngineers.com

November 3, 2022

Mr. Nate Bailey, AIA
Peninsula Architects
1775 Main Street
Peninsula, Ohio 44264

**Re: Proposed Community Living Facility
Hudson, Ohio
Trip Generation Analysis**

Dear Mr. Bailey:

TMS Engineers, Inc. has performed the following revised trip generation analysis for the proposed community living facility in City of Hudson, Summit County, Ohio. The analyses was performed to provide a more accurate representation of peak hour trips based upon the reported driver characteristics provided by the developer. The development site is located east of South Oviatt Street and south of Maple Drive (See **Location Map, Figure 1**).

The proposed facility was reported to have the following traffic during a typical day with each person entering and exiting the site during the day. This was performed in order to estimate the total daily trips by the facility and the calculated peak hour trips.

20 Caregivers (40 Trips)
15 Drivers (30 Trips)
4 Residents With Vehicles (8 Trips)
7 Employees (14 Trips)
7 Family Visitors (14 Trips)
Total = 106 Daily Trips

The site plan can be seen in **Figure 2**. The following are the results of our trip generation analysis.

SITE GENERATED TRAFFIC

Calculating future total driveway trips requires an estimate of the traffic generated by the proposed development. The most widely accepted method of determining the amount of traffic that the proposed development will generate is to compare the proposed land use with existing facilities of the same use. The Institute of Transportation Engineers (ITE) has prepared a manual titled "**Trip Generation Manual**", which is a compilation of similar traffic generation studies to aide in making such a comparison. The most recent update of this manual is the 11TH edition and was utilized for this analysis.

The ITE Manual does not provide a traffic generation rate for a community living facility so the Assisted Living land use was utilized for this study since it most closely matched the characteristics of the proposed facility. The average resident of the community living facility do not own a vehicle and utilize drivers and multi-person vans to run errands or go to work which reduces the number of trips compared to townhomes or other residential developments. The residents are typically back on site by 3:00 - 3:30 PM and leave the facility after 9:00 AM which also reduces the number of trips during the peak hour of the adjacent streets (7:00 - 8:00 AM and 5:00 - 6:00 PM in Hudson)

The first step was to determine the equivalent Assisted Living size for a facility generating 106 trips. The Assisted Living facility has a daily generation rate of 2.6 vehicles per occupied bed which equals 41 occupied beds to get 106 trips. This accounts for the additional site drivers, employees and visitors which enter and exit the site throughout the day.

PROPOSED TRIP GENERATION CALCULATIONS

Trip generation calculations were performed utilizing data contained in the **Trip Generation Manual, 11TH Edition** and the methods outlined in the (ITE) **Trip Generation Handbook**. Based on the previously discussed trip generation analysis procedures, the table below shows the estimated site generated traffic during the AM and PM peak hours for the proposed community living facility. The table also shows the number of trips for the site based on a single family detached housing (townhomes) development. A copy of the trip generation worksheet can be seen in **Figures 3 and 4**.

NEW TRIP GENERATION

| ITE TRIP GENERATION | | | TRIP ENDS | | | |
|---------------------|--------------------------------|-------|---|----|---|---|
| ITE CODE | DESCRIPTION | UNITS | Weekday AM Peak Hour of Adjacent Streets (Enter/Exit) | | Weekday PM Peak Hour of Adjacent Streets (Enter/Exit) | |
| 254 | Assisted Living | 41 | 4 | 3 | 4 | 6 |
| TOTAL NEW TRIPS | | | 7 | | 10 | |
| 215 | Single Family Attached Housing | 41 | 5 | 11 | 12 | 9 |
| | | | 16 | | 21 | |

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CONCLUSIONS

The previous table shows that the proposed community living facility is expected to generate a total of 7 trips in the AM peak hour and 10 trips in the PM peak hour based on the Assisted Living land use and 16 trips in the AM peak hour and 21 trips in the PM peak hour based on a town home land use. It is our opinion that, when the anticipated changes in traffic volumes are at these levels, the traffic generated by the facility should not have an impact on the surrounding street network system.

This opinion is based upon the fact that traffic impact studies are recommended to be performed by the **Institute of Transportation Engineers** whenever an increase in trips in any peak hour is greater than 100 trips per hour. This recommendation is made because this is the point where a change in roadway capacity may be found and mitigation may or may not be needed. The anticipated generated volumes from this development are less than daily variations in the current volumes on the local roadway network and should not be perceived by the traveling public.

The Ohio Department of Transportation concedes that traffic studies are only necessary when the resulting trip increase is more than 60 trips in either of the peak hours. This is stated in their **State Highway Access Management Manual**. Since the proposed community living facility is expected to generate less than 60 trips regardless of which land use it is analysed as, it is our professional opinion that the change in the amount of generated traffic will **not** have an impact on the surrounding roadway network nor require traffic analyses.

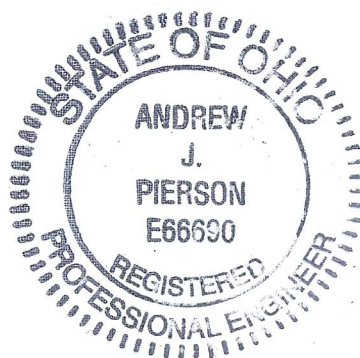
If you have any questions or need additional information, please do not hesitate to contact me.

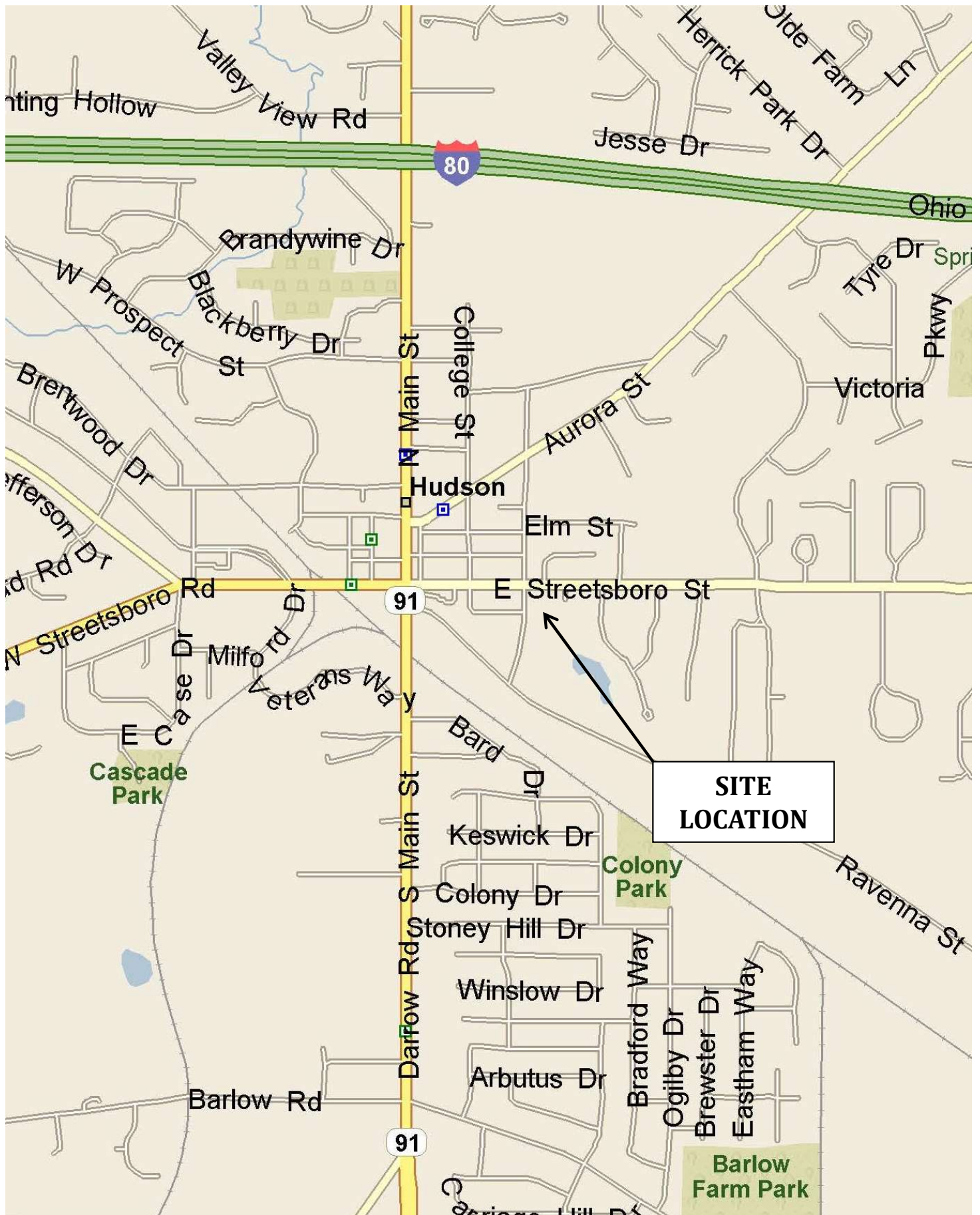
Very truly yours,

TMS Engineers, Inc.



Andrew J Pierson, P.E.
Senior Traffic Engineer





TMS Engineers, Inc.

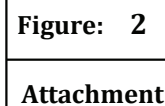
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**Proposed Community Living
Hudson, Ohio
Trip Generation Analysis**

Location Map

**↑
NORTH
NOT TO
SCALE**

**Figure: 1
Attachment**



ASSISTED LIVING
ITE CODE = 254

Date: **10/12/2022**

Trip Generation based on:

Size of Analysis Area: **41** Beds

| Occupied Beds | Average Rate | Standard Deviation | Adjustment factor | Driveway Volume |
|---|-----------------|-----------------------|----------------------|--------------------|
| WEEKDAY | | | | |
| Average Weekday 2-way Volume | 2.60 | ** | 1.00 | 107 |
| Weekday Peak Hour of Adjacent Street Traffic | | | | |
| 7-9 AM Peak Hour Enter | 0.11 | 0.00 | 1.00 | 4 |
| 7-9 AM Peak Hour Exit | 0.07 | 0.00 | 1.00 | 3 |
| 7-9 AM Peak Hour Total | 0.18 | 0.08 | 1.00 | 7 |
| 4-6 PM Peak Hour Enter | 0.09 | 0.00 | 1.00 | 4 |
| 4-6 PM Peak Hour Exit | 0.15 | 0.00 | 1.00 | 6 |
| 4-6 PM Peak Hour Total | 0.24 | 0.07 | 1.00 | 10 |

****The above rates were calculated from the equations shown below:**

WEEKDAY

Average Weekday 2-way Volume *Not Given – Use ITE Rates*

Weekday Peak Hour of Adjacent Street Traffic

| | | | |
|------------------------|----------------------------------|-------|-----|
| 7-9 AM Peak Hour Total | <i>Not Given – Use ITE Rates</i> | Enter | 60% |
| | | Exit | 40% |
| 4-6 PM Peak Hour Total | <i>Not Given – Use ITE Rates</i> | Enter | 39% |
| | | Exit | 61% |

Source: Institute of Transportation Engineers
Trip Generation Manual, 11TH Edition, September 2021

Single-Family Attached Housing
ITE Code = 215

Date: **11/3/2022**

Trip Generation based on:

Size of Analysis Area: **41** Units

| Dwelling Units | Average Rate | Standard Deviation | Adjustment Factor | Driveway Volume |
|---|-----------------|-----------------------|----------------------|--------------------|
| WEEKDAY | | | | |
| Average Weekday 2-way Volume | 6.39 | 0.00 | 1.00 | 262 |
| Weekday Peak Hour of Adjacent Street Traffic | | | | |
| 7-9 AM Peak Hour Enter | 0.12 | 0.00 | 1.00 | 5 |
| 7-9 AM Peak Hour Exit | 0.26 | 0.00 | 1.00 | 11 |
| 7-9 AM Peak Hour Total | 0.38 | 0.00 | 1.00 | 16 |
| 4-6 PM Peak Hour Enter | 0.29 | 0.00 | 1.00 | 12 |
| 4-6 PM Peak Hour Exit | 0.22 | 0.00 | 1.00 | 9 |
| 4-6 PM Peak Hour Total | 0.50 | 0.00 | 1.00 | 21 |

****The above rates were calculated from the equations shown below:**

| | | % ENTER | % EXIT |
|---|------------------------|---------|--------|
| WEEKDAY | | | |
| Average Weekday 2-way Volume | $T = 7.62 (X) - 50.48$ | 50% | 50% |
| Weekday Peak Hour of Adjacent Street Traffic | | | |
| 7-9 AM Peak Hour Total | $T = 0.52 (X) - 5.70$ | 31% | 69% |
| 4-6 PM Peak Hour Total | $T = 0.60 (X) - 3.93$ | 57% | 43% |

Source: Institute of Transportation Engineers
Trip Generation Manual, 11TH Edition, September 2021