June 27, 2022

Mr. Brian Bucci
Bucci Development
P.O. Box 6187
Warwick, Rhode Island 02887

Re: Proposed Land Development Project
*Medical Office Building*
A.P. 107 NE Lot 402B, Valley Road
Middletown, Rhode Island 02842

Dear Mr. Bucci,

BETA Group, Inc. has completed the following study to determine if a new medical office proposed on a vacant lot on Valley Road (Route 214) has adequate and safe access to the immediate local servicing roadways in Middletown, Rhode Island. The 2.25± acre lot is comprised of Assessors Plat 107NE, Lot 402B which is undeveloped open land. The property is located on the easterly side of Valley Road between West Main Road (Route 114) to the north and East Main Road (Route 138) to the south.

Based upon our discussions and a review of the site development plan prepared by *Northeast Engineers & Consultants, Inc.*, it is our understanding that the current proposal is to construct a single-story, 15,000 square foot building to accommodate a medical office including a parking lot containing 101 spaces. Access and egress to the site will be provided from a new single driveway on Valley Road (Route 214) including a gated emergency-only access on Bristol Road at the rear of the property. Figure 1 on the following page depicts the general vicinity of the project in the Town of Middletown, Rhode Island.

The following is a summary of our investigation of the potential impacts and recommendations to provide safe and adequate access to the subject property;

# Traffic Safety Assessment

## Project Approach

The objective of this study is to define existing and potential future operational and/or safety concerns along the servicing roadways to the proposed commercial development. A review of the existing roadway features was completed to determine if any potential deficiencies presently warrant mitigation. In addition to the existing conditions analysis, the study also included the assessment of potential impacts resulting from the traffic entering and exiting the site access driveway to and from the proposed development project. The study focused on these safety issues and made recommendations for improvements, if determined necessary, based upon the findings of the data collection and analysis phases of the study.

# Proposed Medical Office

MIDDLETOWN, RHODE ISLAND

## Figure 1 - Project Vicinity Map


BETA
www.BETA-Inc.com

*In order to complete our analysis, the following scope of work was completed for the project:*

- An inventory of the physical roadway characteristics of Valley Road including roadway alignment, pavement width, signage, and traffic control to determine the adequacy of the existing roadway geometric features relating to access, safety, and operations.
- Field investigations including evaluation of sight distances along Valley Road in the vicinity of the site access driveway intersection.
- Crash data obtained from the Middletown Police Department was reviewed to determine if there are any safety concerns relative to the frequency, severity, or pattern of crashes in the project area.
- An Automatic Traffic Recorder (ATR) count on Valley Road in the vicinity of the subject property was obtained from the Rhode Island Department of Transportation (RIDOT) to define the existing traffic patterns and operation characteristics along Valley Road.
- A Site Plan for the proposed development project prepared by *Northeast Engineers and Consultant, Inc.* was reviewed to define future roadway conditions at the access driveway intersection to the site.
- Analysis of the data collected, evaluation of the proposed design, and development of recommendations where necessary to provide safe and adequate access to the site.

## Project Area

As previously noted, the proposed commercial development project is situated on a parcel of land along the easterly side of Valley Road (Route 214), approximately 1,000 feet south of West Main Road (Route 114). The parcel is defined by Assessor's Plat 107NE, Lot 402B which contain approximately 2.25± acres of undeveloped land. Figure 2 on the following page depicts the subject property and the general project area of the study.

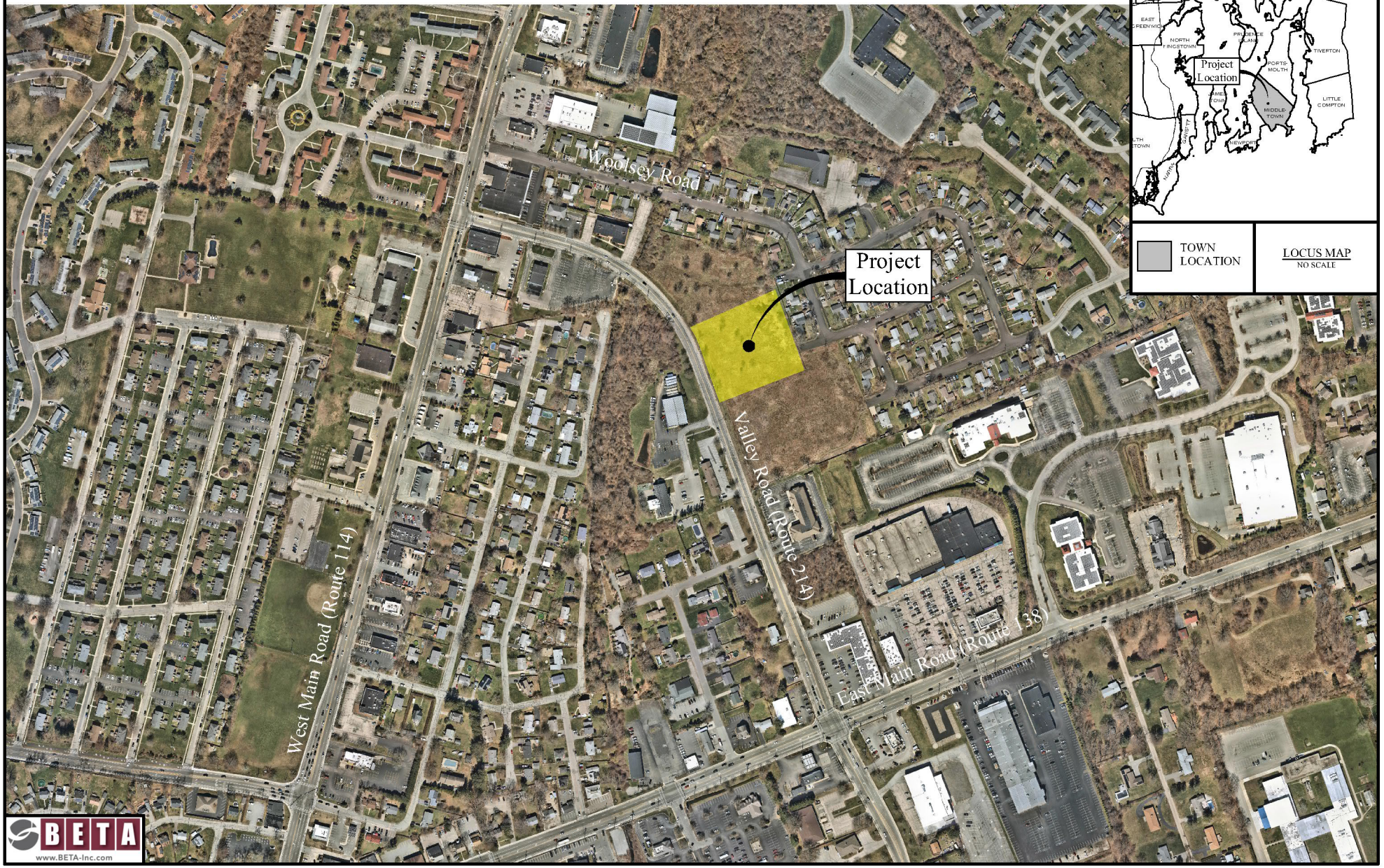
Land use along the Valley Road corridor in the immediate area of the subject property can be defined as predominantly commercial in nature with individual commercial buildings or small commercial plaza's with multiple businesses. A few residential properties are located off of one intersecting side street, Chestnut Hill Road, between West Main Road (Route 114) and East Main Road (Route 138). Immediately abutting the property to the north and south are vacant lots. To the east is a residential neighborhood off Woolsey Road. To the west across Valley Road is a *Napa* auto parts store and undeveloped, wooded land. Further north and south along West Main Road (Route 114) and East Main Road (Route 138), respectively, the properties contain small to large scale commercial buildings and shopping centers with restaurants, retail stores, professional offices, car dealerships, and banks.

Based upon the good operating characteristics of this section of Valley Road (Route 214) adjacent to the site, and the small scope of the commercial development, a study impact area was defined for this project. The limits of our analysis focused on Valley Road (Route 214) between East Main Road (Route 138) and West Main Road (Route 114).

# Proposed Medical Office

MIDDLETOWN, RHODE ISLAND

## Figure 2 - Project Area Map



## Roadways

*Valley Road (Route 214)*

Valley Road (Route 214) is classified as an urban minor arterial, running in a north/south orientation extending from West Main Road (Route 114) southerly to Aquidneck Avenue (Route 138A). Valley Road is one of several vital routes to tourist and local destinations including Easton's Beach (First Beach), Newport Mansions, and the Newport downtown area. In the project area, Valley Road is generally 38 feet wide consisting of a 12-foot travel lane and a 7-foot shoulder in each direction as depicted in the adjacent photograph looking east with the subject property on the left side. The speed limit is posted at 35 mph in the site vicinity.

The pavement surface can be classified as being in fair condition with visible crack sealing. Cement concrete curbing is provided on both sides of the road with bituminous sidewalk limited to the easterly side only between West Main Road and Chestnut Hill Road. In addition, cement concrete sidewalks and curbing are located on both sides of the road between Chestnut Hill Road and East Main Road. Within the project limits, sporadic cobra-head light fixtures on utility poles are provided along the easterly side of the road for nighttime illumination.

## Traffic Data

Existing traffic flow characteristics for this area were developed from review of available record data from the RIDOT. May 2022 ATR data was obtained from the RIDOT ATR station on Valley Road just south of the site. It is important to note that COVID-19-related restrictions have been lifted in Rhode Island since the end of May 2021 with businesses and schools generally running under normal conditions. Rhode Island, for the most part, and specifically along Valley Road has seen traffic volumes return to typical conditions when the data was collected. Therefore, the record traffic data obtained from the RIDOT that was collected in May 2022 did not require adjustment for COVID. In addition, BETA reviewed the RIDOT seasonal adjustment factors and determined that urban minor arterials in the month of May typically experience lower than average daily traffic volumes. To be conservative in representing existing traffic volumes along Valley Road, the May 2022 traffic volumes were adjusted higher to reflect average traffic conditions.

Based upon the record, May 2022 ATR data obtained from the RIDOT, which was seasonally adjusted as previously mentioned, Valley Road in the project area was found to service an Average Daily Traffic (ADT) volume of approximately 11,350 vehicles per day during the weekday. On a typical weekday along Valley Road, traffic volumes begin to increase at 6:00 AM with no defined morning peak hour as the volumes gradually increase hourly until the late afternoon peak of approximately 1,000 vehicles occurring between 4:00 and 5:00 PM.

## Safety Analysis

The geometry of Valley Road (Route 214) in the project area was investigated to determine if there are any limiting factors affecting safety. These limiting factors would potentially include horizontal or vertical alignment changes or roadside obstructions that limit sight distances for vehicles traveling along the road or entering the road from a side street or driveway location. In this instance, the sight distance standard is necessary to permit turning vehicles to safely enter and exit the proposed site access driveway.

The vertical and horizontal alignment of Valley Road in the project area can be described as relatively level and generally straight south of the site with a gradual horizontal curve north of the site. These physical features provide sight distances at the proposed driveway intersection along Valley Road in excess of 500 feet to the south and 375 feet to the north. These values are greater than AASHTO's recommended minimum sight distance of 250 feet for the posted speed of 35 mph and 360 feet based on the observed travel speeds of vehicles between 40 and 45 mph.

Also, as part of our analysis, a review of crash statistics was completed. Data was reviewed from the Town of Middletown Police Department for the latest full three-year period (2017-2019) not influenced by health restrictions to determine if any location in the immediate vicinity of the development experienced a high frequency or pattern of crashes. The 2020 and 2021 data were not requested due to the atypical roadway conditions during both years.

A total of four (avg. 1 per year) crashes occurred in the project area over the three-year study period, with no reported injury. Summarizing the crash data, three crashes occurred in 2018, one occurred in 2019, and there were no reported crashes in 2017 along the study corridor of Valley Road between Chestnut Hill Road and 26 Valley Road. Three crashes were rear-end collisions that are attributed to vehicles colliding with vehicles attempting to turn left and/or right into one of the commercial driveways. The single angle collision occurred at the Napa auto parts store intersection on Valley Road that can be attributed to a driver not yielding the right of way.

Based upon our evaluation of the existing roadway geometry, physical features, and proposed development plan, no roadway or traffic related safety improvements are warranted to improve safety along Valley Road (Route 214) within the immediate project area.

## Trip Generation and Operations

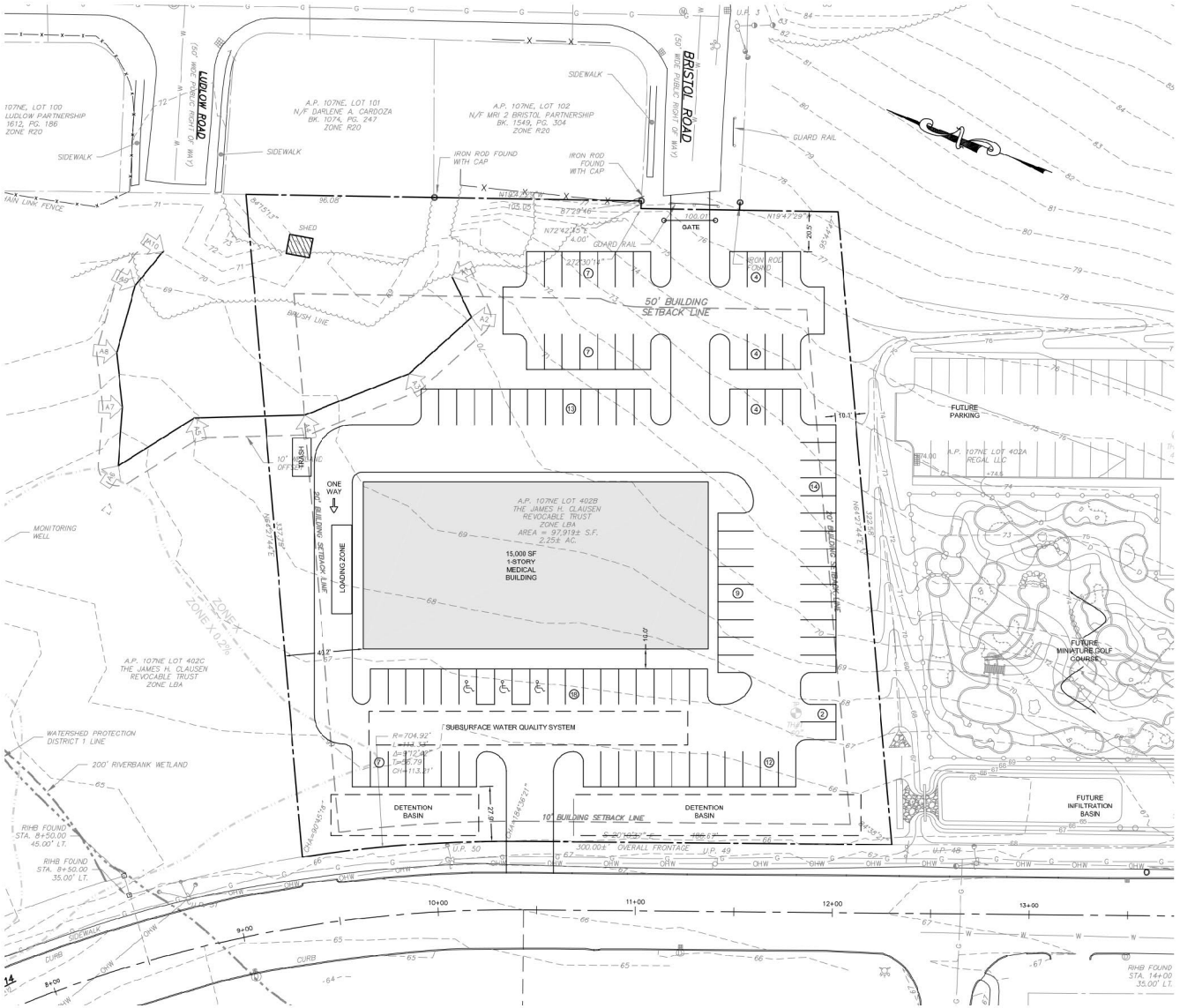
To understand the potential traffic impact of the commercial project, an estimate of anticipated traffic to be generated by the proposed land use has been calculated for reference. As previously discussed, the development proposal consists of construction of a single-story, 15,000 square foot building to accommodate a medical office including a paved parking lot containing 101 parking spaces. Access and egress to the site will be provided from a single new driveway on Valley Road with a gated emergency-only access driveway to Bristol Road at the rear of the property. Figure 3 on the following page depicts the site layout and access plan, provided by *Northeast Engineers & Consultants, Inc.*

For this site, projected traffic volumes for the proposed medical office were based on use of trip generation factors. These factors are taken from the "Trip Generation" manual, an informational report published by the Institute of Transportation Engineers (ITE), a national professional organization for traffic and transportation engineers. The data provided in the ITE report are based on extensive traffic studies

# Proposed Medical Office

MIDDLETOWN. RHODE ISLAND

## Figure 3 - Site Layout




Site Plan provided by Northeast Engineers & Consultants, Inc.

for several types of land uses (residential, commercial, industrial, etc.). This data has been found to be very reliable and provides a sound basis for estimating future trips to new development projects. For the proposed commercial project, Land Use Code 720 Medical-Dental Office Building was reviewed for applicability in developing an estimate of site related vehicles trips. Table 1 below summarizes the peak hour site trips for the proposed medical office development utilizing the land use code data available from the ITE manual. The appropriate worksheets from the manual are included in the Attachment, along with the trip estimate calculations.

TABLE 1 – Trip Generation Estimate

| | Description | Enter | Exit | Total |
|---|---|---|---|---|
| *AM Peak Hour* | | | | |
| ITE Land Use Code 720 | Medical-Dental Office Building | 38 | 9 | 47 |
| *PM Peak Hour* | | | | |
| ITE Land Use Code 720 | Medical-Dental Office Building | 17 | 42 | 59 |

Based upon the low volume of peak hour site trips (less than 60 vehicles entering/exiting the site during peak periods) resulting from the proposed commercial development, in combination with the moderate hourly peak traffic volumes serviced along Valley Road, there should be no discernable impact to traffic operations along Valley Road in the immediate project area, where minor delays would typically be limited to traffic trying to access Valley Road from the site driveway. Based upon the low volume of traffic exiting the site on an hourly basis, it would be expected that only one to two vehicles would be queued on the site driveway waiting to turn onto Valley Road, resulting in no driveway congestion and adequate and safe access to the property.

It should be noted that a condition that would have a positive impact on reducing driveway delays by increasing the available gaps in traffic, are the adjacent signalized intersections at West Main Road (Route 114) to the north and East Main Road (Route 138) to the south. The traffic signals help create gaps in Valley Road traffic during the change intervals that driveway and side street traffic can utilize to more efficiently access the main road.

## Conclusions and Recommendations

In summary, the study has shown that the proposed commercial project access and circulation plan has been designed to maintain a desirable level of traffic safety and efficiency on the servicing roadway system. The safety of Valley Road (Route 214) and specifically at the proposed intersection with the site driveway was reviewed for geometry and sight distances. It was determined to provide sufficient sight distances in accordance with AASHTO criteria for visibility and decision making of drivers attempting to enter/exit main street traffic from the driveway location.

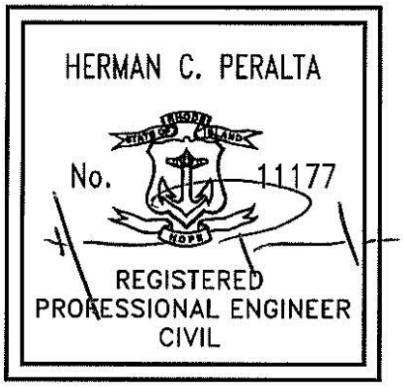
In addition to safety, the proposed medical office project is estimated to add a minor volume of traffic during the daily peak hours as indicated. These new vehicles will not change or negatively affect the good operating conditions that presently exist along Valley Road (Route 214).

Therefore, based upon the data collection and analysis completed for this project, it can be concluded that the commercial development project will not have a detrimental impact on traffic safety and operations of the adjacent servicing roadways, and that adequate and safe access will be available at the site access driveway intersection with Valley Road (Route 214) as defined on the plans and in this report. We trust that this letter sufficiently addresses the requirements of the Town and State to obtain your local and state approvals. If you should have any questions, please do not hesitate to contact our office.

Very truly yours,
BETA Group, Inc.

Herman C. Peralta, PE
Project Manager

Paul J. Bannon
Associate




[i] Aerial Images provided in this document were obtained from Nearmap.

# ATTACHMENTS

A. Traffic Data

B. Traffic Crash Data

C. Trip Generation

# ATTACHMENT A – Traffic Data

## Automatic Traffic Recorder Count

Valley Road (Route 214)

# A

## Automatic Traffic Recorder Count

Valley Road (Route 214)

Valley Road (Route 214)

(Source; RIDOT May 2022)

State of Rhode Island Department of Transportation

## Volume By Hour By Week for 5/23/2022 - 5/28/2022
## Criteria: Location ID = 190032

**District :** **Location ID :** 190032 **County :** Newport **SF Group :**

**Located On :** Route 214 Valley Rd **Functional Class :** Minor Arterial **Area Type :** Urban

| YEAR | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AADT | | | | | | | | | | | | | | | | | | 8087 | 9304 | |

| Start Time | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday | Avg | Avg Volume Graph | Pct. of Total |
|---|---|---|---|---|---|---|---|---|---|
| | 5/23/2022 | 5/24/2022 | 5/25/2022 | 5/26/2022 | 5/27/2022 | 5/28/2022 | | | |
| 12:00 AM | 39 | 18 | 30 | 22 | 44 | 53 | 34 | | 0.3% |
| 1:00 AM | 4 | 16 | 12 | 12 | 14 | 41 | 17 | | 0.2% |
| 2:00 AM | 13 | 8 | 4 | 7 | 11 | 25 | 11 | | 0.1% |
| 3:00 AM | 7 | 11 | 13 | 13 | 11 | 15 | 12 | | 0.1% |
| 4:00 AM | 37 | 28 | 26 | 29 | 35 | 10 | 28 | | 0.3% |
| 5:00 AM | 98 | 72 | 74 | 86 | 81 | 39 | 75 | | 0.7% |
| 6:00 AM | 248 | 296 | 264 | 259 | 251 | 104 | 237 | | 2.3% |
| 7:00 AM | 620 | 593 | 569 | 605 | 549 | 207 | 524 | | 5.2% |
| 8:00 AM | 723 | 697 | 688 | 710 | 671 | 362 | 642 | | 6.3% |
| 9:00 AM | 634 | 644 | 610 | 676 | 598 | 511 | 612 | | 6.0% |
| 10:00 AM | 671 | 736 | 707 | 636 | 733 | 710 | 699 | | 6.9% |
| 11:00 AM | 792 | 841 | 869 | 880 | 824 | 803 | 835 | | 8.2% |
| 12:00 PM | 839 | 808 | 946 | 838 | 904 | 787 | 854 | | 8.4% |
| 1:00 PM | 824 | 788 | 865 | 784 | 880 | 760 | 817 | | 8.0% |
| 2:00 PM | 790 | 751 | 772 | 846 | 938 | 738 | 806 | | 7.9% |
| 3:00 PM | 892 | 889 | 828 | 925 | 973 | 733 | 873 | | 8.6% |
| 4:00 PM | 919 | 872 | 994 | 901 | 924 | 646 | 876 | | 8.6% |
| 5:00 PM | 702 | 692 | 773 | 839 | 727 | 504 | 706 | | 7.0% |
| 6:00 PM | 493 | 532 | 487 | 570 | 503 | 475 | 510 | | 5.0% |
| 7:00 PM | 329 | 341 | 400 | 404 | 366 | 372 | 369 | | 3.6% |
| 8:00 PM | 213 | 265 | 282 | 293 | 288 | 274 | 269 | | 2.7% |
| 9:00 PM | 125 | 151 | 148 | 218 | 177 | 221 | 173 | | 1.7% |
| 10:00 PM | 81 | 75 | 79 | 91 | 135 | 160 | 104 | | 1.0% |
| 11:00 PM | 53 | 44 | 73 | 68 | 121 | 79 | 73 | | 0.7% |
| **Total** | **10146** | **10168** | **10513** | **10712** | **10758** | **8629** | **Avg** | | |
| AM Pk Hr | 11:00 AM | 11:00 AM | 11:00 AM | 11:00 AM | 11:00 AM | 11:00 AM | | | |
| AM Peak | 792 | 841 | 869 | 880 | 824 | 803 | 835 | | |
| PM Pk Hr | 4:00 PM | 3:00 PM | 4:00 PM | 3:00 PM | 3:00 PM | 12:00 PM | | | |
| PM Peak | 919 | 889 | 994 | 925 | 973 | 787 | 915 | | |
| Peak % | 9.06% | 8.74% | 9.45% | 8.64% | 9.04% | 9.31% | 9.04% | | |

| Count Start: | 00:00:00 | 00:00:00 | 00:00:00 | 00:00:00 | 00:00:00 | 00:00:00 |
|---|---|---|---|---|---|---|
| Start | 5/23/2022 | 5/24/2022 | 5/25/2022 | 5/26/2022 | 5/27/2022 | 5/28/2022 |
| End | 5/24/2022 | 5/25/2022 | 5/26/2022 | 5/27/2022 | 5/28/2022 | 5/29/2022 |
| 24h Total | 10146 | 10168 | 10513 | 10712 | 10758 | 8629 |

State of Rhode Island Department of Transportation

## Volume By Hour By Week for 5/23/2022 - 5/28/2022
## Criteria: Location ID = 190032

**District :** **Location ID :** 190032_NB **County :** Newport **SF Group :**

**Located On :** Route 214 Valley Rd **Functional Class :** Minor Arterial **Area Type :** Urban

| YEAR | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AADT | | | | | | | | | | | | | | | | | | 4408 | 5013 | |

| Start Time | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday | Avg | Avg Volume Graph | Pct. of Total |
|---|---|---|---|---|---|---|---|---|---|
| | 5/23/2022 | 5/24/2022 | 5/25/2022 | 5/26/2022 | 5/27/2022 | 5/28/2022 | | | |
| 12:00 AM | 25 | 12 | 16 | 11 | 27 | 34 | 21 | | 0.4% |
| 1:00 AM | 3 | 9 | 6 | 7 | 5 | 20 | 8 | | 0.2% |
| 2:00 AM | 5 | 1 | 1 | 3 | 6 | 16 | 5 | | 0.1% |
| 3:00 AM | 2 | 6 | 7 | 7 | 6 | 6 | 6 | | 0.1% |
| 4:00 AM | 23 | 19 | 17 | 19 | 15 | 6 | 17 | | 0.3% |
| 5:00 AM | 50 | 38 | 35 | 42 | 41 | 17 | 37 | | 0.7% |
| 6:00 AM | 109 | 146 | 129 | 125 | 109 | 52 | 112 | | 2.0% |
| 7:00 AM | 294 | 280 | 288 | 284 | 265 | 92 | 251 | | 4.5% |
| 8:00 AM | 401 | 381 | 384 | 412 | 338 | 186 | 350 | | 6.3% |
| 9:00 AM | 353 | 339 | 313 | 358 | 305 | 249 | 320 | | 5.8% |
| 10:00 AM | 352 | 411 | 362 | 346 | 391 | 359 | 370 | | 6.7% |
| 11:00 AM | 435 | 425 | 468 | 469 | 463 | 417 | 446 | | 8.1% |
| 12:00 PM | 454 | 455 | 518 | 467 | 495 | 399 | 465 | | 8.4% |
| 1:00 PM | 455 | 419 | 451 | 422 | 468 | 361 | 429 | | 7.8% |
| 2:00 PM | 435 | 405 | 442 | 490 | 525 | 371 | 445 | | 8.0% |
| 3:00 PM | 511 | 488 | 490 | 528 | 567 | 404 | 498 | | 9.0% |
| 4:00 PM | 517 | 501 | 571 | 529 | 518 | 356 | 499 | | 9.0% |
| 5:00 PM | 388 | 370 | 432 | 478 | 390 | 268 | 388 | | 7.0% |
| 6:00 PM | 278 | 311 | 266 | 314 | 275 | 271 | 286 | | 5.2% |
| 7:00 PM | 186 | 203 | 241 | 224 | 209 | 222 | 214 | | 3.9% |
| 8:00 PM | 130 | 154 | 169 | 173 | 152 | 152 | 155 | | 2.8% |
| 9:00 PM | 75 | 86 | 86 | 130 | 86 | 133 | 99 | | 1.8% |
| 10:00 PM | 44 | 41 | 48 | 50 | 85 | 105 | 62 | | 1.1% |
| 11:00 PM | 33 | 26 | 43 | 45 | 79 | 56 | 47 | | 0.9% |
| **Total** | **5558** | **5526** | **5783** | **5933** | **5820** | **4552** | **Avg** | | |
| AM Pk Hr | 11:00 AM | 11:00 AM | 11:00 AM | 11:00 AM | 11:00 AM | 11:00 AM | | | |
| AM Peak | 435 | 425 | 468 | 469 | 463 | 417 | 446 | | |
| PM Pk Hr | 4:00 PM | 4:00 PM | 4:00 PM | 4:00 PM | 3:00 PM | 3:00 PM | | | |
| PM Peak | 517 | 501 | 571 | 529 | 567 | 404 | 515 | | |
| Peak % | 9.30% | 9.07% | 9.87% | 8.92% | 9.74% | 9.16% | 9.34% | | |

| Count Start: | 00:00:00 | 00:00:00 | 00:00:00 | 00:00:00 | 00:00:00 | 00:00:00 |
|---|---|---|---|---|---|---|
| Start | 5/23/2022 | 5/24/2022 | 5/25/2022 | 5/26/2022 | 5/27/2022 | 5/28/2022 |
| End | 5/24/2022 | 5/25/2022 | 5/26/2022 | 5/27/2022 | 5/28/2022 | 5/29/2022 |
| 24h Total | 5558 | 5526 | 5783 | 5933 | 5820 | 4552 |

State of Rhode Island Department of Transportation

## Volume By Hour By Week for 5/23/2022 - 5/28/2022
## Criteria: Location ID = 190032

**District :** **Location ID :** 190032_SB **County :** Newport **SF Group :**

**Located On :** Route 214 Valley Rd **Functional Class :** Minor Arterial **Area Type :** Urban

| YEAR | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AADT | | | | | | | | | | | | | | | | | | 3678 | 4289 | |

| Start Time | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday | Avg | Avg Volume Graph | Pct. of Total |
|---|---|---|---|---|---|---|---|---|---|
| | 5/23/2022 | 5/24/2022 | 5/25/2022 | 5/26/2022 | 5/27/2022 | 5/28/2022 | | | |
| 12:00 AM | 14 | 6 | 14 | 11 | 17 | 19 | 14 | | 0.3% |
| 1:00 AM | 1 | 7 | 6 | 5 | 9 | 21 | 8 | | 0.2% |
| 2:00 AM | 8 | 7 | 3 | 4 | 5 | 9 | 6 | | 0.1% |
| 3:00 AM | 5 | 5 | 6 | 6 | 5 | 9 | 6 | | 0.1% |
| 4:00 AM | 14 | 9 | 9 | 10 | 20 | 4 | 11 | | 0.2% |
| 5:00 AM | 48 | 34 | 39 | 44 | 40 | 22 | 38 | | 0.8% |
| 6:00 AM | 139 | 150 | 135 | 134 | 142 | 52 | 125 | | 2.7% |
| 7:00 AM | 326 | 313 | 281 | 321 | 284 | 115 | 273 | | 5.9% |
| 8:00 AM | 322 | 316 | 304 | 298 | 333 | 176 | 292 | | 6.3% |
| 9:00 AM | 281 | 305 | 297 | 318 | 293 | 262 | 293 | | 6.3% |
| 10:00 AM | 319 | 325 | 345 | 290 | 342 | 351 | 329 | | 7.1% |
| 11:00 AM | 357 | 416 | 401 | 411 | 361 | 386 | 389 | | 8.4% |
| 12:00 PM | 385 | 353 | 428 | 371 | 409 | 388 | 389 | | 8.4% |
| 1:00 PM | 369 | 369 | 414 | 362 | 412 | 399 | 388 | | 8.4% |
| 2:00 PM | 355 | 346 | 330 | 356 | 413 | 367 | 361 | | 7.8% |
| 3:00 PM | 381 | 401 | 338 | 397 | 406 | 329 | 375 | | 8.1% |
| 4:00 PM | 402 | 371 | 423 | 372 | 406 | 290 | 377 | | 8.2% |
| 5:00 PM | 314 | 322 | 341 | 361 | 337 | 236 | 319 | | 6.9% |
| 6:00 PM | 215 | 221 | 221 | 256 | 228 | 204 | 224 | | 4.8% |
| 7:00 PM | 143 | 138 | 159 | 180 | 157 | 150 | 155 | | 3.3% |
| 8:00 PM | 83 | 111 | 113 | 120 | 136 | 122 | 114 | | 2.5% |
| 9:00 PM | 50 | 65 | 62 | 88 | 91 | 88 | 74 | | 1.6% |
| 10:00 PM | 37 | 34 | 31 | 41 | 50 | 55 | 41 | | 0.9% |
| 11:00 PM | 20 | 18 | 30 | 23 | 42 | 23 | 26 | | 0.6% |
| **Total** | **4588** | **4642** | **4730** | **4779** | **4938** | **4077** | **Avg** | | |
| **AM Pk Hr** | 11:00 AM | 11:00 AM | 11:00 AM | 11:00 AM | 11:00 AM | 11:00 AM | | | |
| **AM Peak** | 357 | 416 | 401 | 411 | 361 | 386 | 389 | | |
| **PM Pk Hr** | 4:00 PM | 3:00 PM | 12:00 PM | 3:00 PM | 2:00 PM | 1:00 PM | | | |
| **PM Peak** | 402 | 401 | 428 | 397 | 413 | 399 | 407 | | |
| **Peak %** | 8.76% | 8.96% | 9.05% | 8.60% | 8.36% | 9.79% | 8.92% | | |

| Count Start: | 00:00:00 | 00:00:00 | 00:00:00 | 00:00:00 | 00:00:00 | 00:00:00 |
|---|---|---|---|---|---|---|
| **Start** | 5/23/2022 | 5/24/2022 | 5/25/2022 | 5/26/2022 | 5/27/2022 | 5/28/2022 |
| **End** | 5/24/2022 | 5/25/2022 | 5/26/2022 | 5/27/2022 | 5/28/2022 | 5/29/2022 |
| **24h Total** | 4588 | 4642 | 4730 | 4779 | 4938 | 4077 |

# ATTACHMENT B – Traffic Crash Data

January 2017 through December 2019

Valley Road – Chestnut Hill Road to 26 Valley Road

## Valley Road - Chestnut Hill Road to 26 Valley Road

| | | 2017 | 2018 | 2019 | Total | Percent |
|---|---|---|---|---|---|---|
| Collision Type | | | | | | |
| | Rear End | 0 | 2 | 1 | 3 | 75% |
| | Angle | 0 | 1 | 0 | 1 | 25% |
| | Head-On | 0 | 0 | 0 | 0 | 0% |
| | Pedestrian | 0 | 0 | 0 | 0 | 0% |
| | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 0% |
| | Sideswipe, Opposite Direction | 0 | 0 | 0 | 0 | 0% |
| | Other | 0 | 0 | 0 | 0 | 0% |
| | Unknown | 0 | 0 | 0 | 0 | 0% |
| Crash Severity | | | | | | |
| | Property | 0 | 3 | 1 | 4 | 100% |
| | Injury | 0 | 0 | 0 | 0 | 0% |
| Light Condition | | | | | | |
| | Daylight | 0 | 3 | 1 | 4 | 100% |
| | Dawn | 0 | 0 | 0 | 0 | 0% |
| | Dusk | 0 | 0 | 0 | 0 | 0% |
| | Dark - Lighted | 0 | 0 | 0 | 0 | 0% |
| | Dark - Not Lighted | 0 | 0 | 0 | 0 | 0% |
| | Dark - Unknown Lighting | 0 | 0 | 0 | 0 | 0% |
| | Other | 0 | 0 | 0 | 0 | 0% |
| | Unknown | 0 | 0 | 0 | 0 | 0% |
| Road Condition | | | | | | |
| | Dry | 0 | 2 | 1 | 3 | 75% |
| | Wet | 0 | 1 | 0 | 1 | 25% |
| | Snow | 0 | 0 | 0 | 0 | 0% |
| | Other | 0 | 0 | 0 | 0 | 0% |
| | Unknown | 0 | 0 | 0 | 0 | 0% |
| Hour of Day | | | | | | |
| | 6:00 AM - 9:00 AM | 0 | 0 | 0 | 0 | 0% |
| | 9:00 AM - 3:00 PM | 0 | 1 | 0 | 1 | 25% |
| | 3:00 PM - 6:00 PM | 0 | 2 | 1 | 3 | 75% |
| | 6:00 PM - 6:00 AM | 0 | 0 | 0 | 0 | 0% |
| | Total Crashes: | 0 | 3 | 1 | 4 | |

# ATTACHMENT C – Trip Generation

## ITE Trip Generation Summary

## ITE Land Use Code

ITE Land Use Code 720 – Medical-Dental Office Building

# C

## ITE Trip Generation Summary

# Trip Generation Summary

## Summary;

| | Description | Enter | Exit | Total |
|---|---|---|---|---|
| Weekday AM Peak Hour | | | | |
| ITE Land Use Code 720 | Medical-Dental Office Building | 38 | 9 | 47 |
| Weekday PM Peak Hour | | | | |
| ITE Land Use Code 720 | Medical-Dental Office Building | 17 | 42 | 59 |

## Calculations;

| ITE Land Use Code 720 | Medical-Dental Office Building | (15,000 GFA) |
|---|---|---|

Independent Variable (X) = Thousand Gross Floor Area (GFA) X = 15

AM Peak — Directional Distribution: 79% Entering 21% Exiting

| | | | | | |
|---|---|---|---|---|---|
| T | = | 3.10 | x (X) | Enter: | 38 |
| T | = | 3.10 | x 15 | Exit: | 9 |
| T | = | 47 | | Total: | 47 |

PM Peak — Directional Distribution: 30% Entering 70% Exiting

| | | | | | |
|---|---|---|---|---|---|
| T | = | 3.93 | x (X) | Enter: | 17 |
| T | = | 3.93 | x 15 | Exit: | 42 |
| T | = | 59 | | Total: | 59 |

# C

## ITE Land Use Code

ITE Land Use Code 720 – Medical-Dental Office Building

# Land Use: 720
# Medical-Dental Office Building

## Description

A medical-dental office building is a facility that provides diagnoses and outpatient care on a routine basis but is unable to provide prolonged in-house medical and surgical care. One or more private physicians or dentists generally operate this type of facility. General office building (Land Use 710) and clinic (Land Use 630) are related uses.

## Land Use Subcategory

Analysis of medical-dental office building data found that trip generation rates are measurably different for sites located within or adjacent to a hospital campus and sites that are stand-alone. Data plots are presented for these two land use subcategories.

## Additional Data

The technical appendices provide supporting information on time-of-day distributions for this land use. The appendices can be accessed through either the ITETripGen web app or the trip generation resource page on the ITE website (https://www.ite.org/technical-resources/topics/trip-and-parking-generation/).

The sites were surveyed in the 1980s, the 1990s, the 2000s, and the 2010s in Alberta (CAN), California, Connecticut, Kentucky, Maryland, Minnesota, New Jersey, New York, Ohio, Oregon, Pennsylvania, South Dakota, Texas, Virginia, Washington, and Wisconsin.

## Source Numbers

104, 109, 120, 157, 184, 209, 211, 253, 287, 294, 295, 304, 357, 384, 404, 407, 423, 444, 509, 601, 715, 867, 879, 901, 902, 908, 959, 972

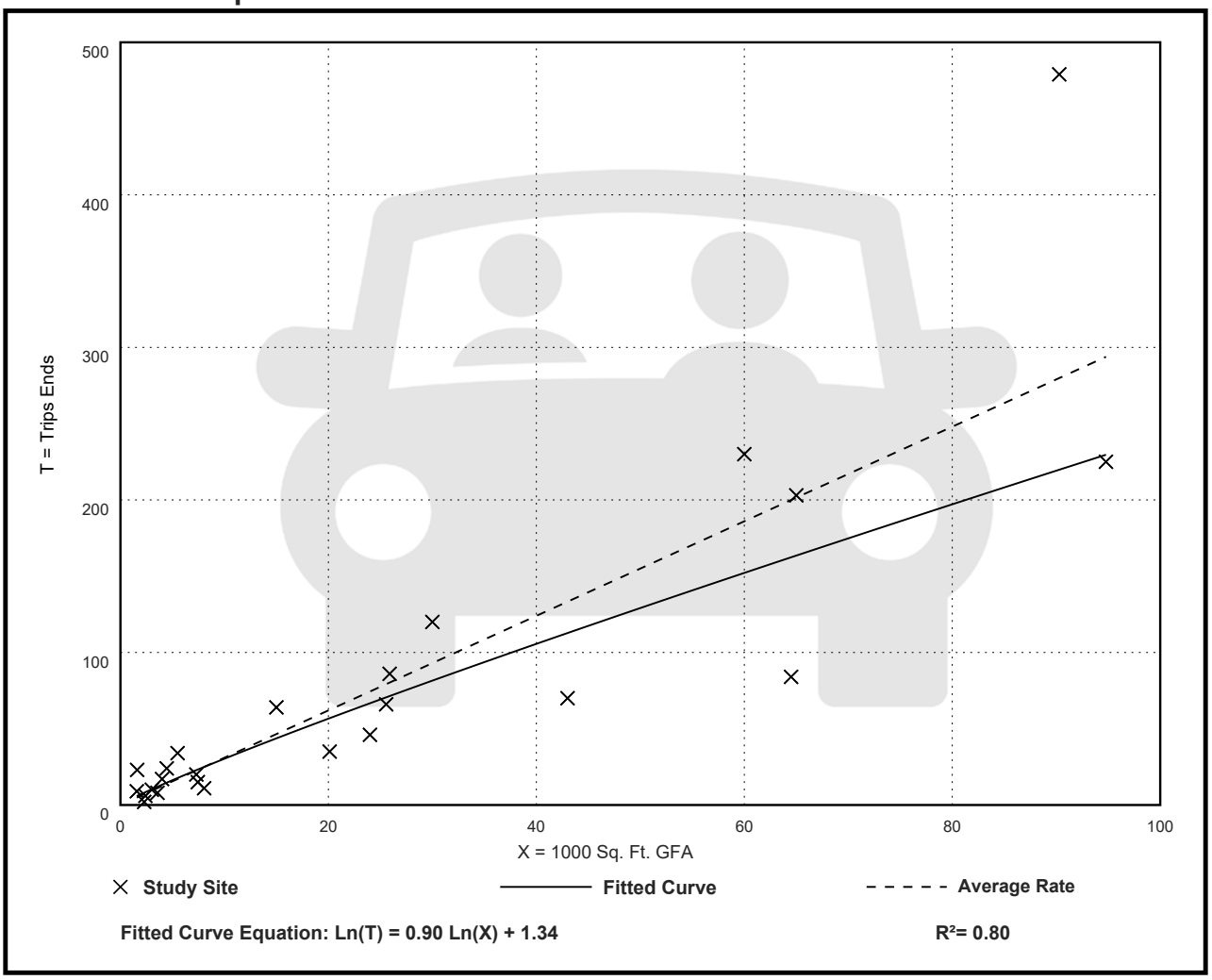
# Medical-Dental Office Building - Stand-Alone (720)

**Vehicle Trip Ends vs: 1000 Sq. Ft. GFA**
**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: 24
Avg. 1000 Sq. Ft. GFA: 25
Directional Distribution: 79% entering, 21% exiting

## Vehicle Trip Generation per 1000 Sq. Ft. GFA

| Average Rate | Range of Rates | Standard Deviation |
|---|---|---|
| 3.10 | 0.87 - 14.30 | 1.49 |

## Data Plot and Equation



# Medical-Dental Office Building - Stand-Alone (720)

**Vehicle Trip Ends vs: 1000 Sq. Ft. GFA**
**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: 30
Avg. 1000 Sq. Ft. GFA: 23
Directional Distribution: 30% entering, 70% exiting

## Vehicle Trip Generation per 1000 Sq. Ft. GFA

| Average Rate | Range of Rates | Standard Deviation |
|---|---|---|
| 3.93 | 0.62 - 8.86 | 1.86 |

## Data Plot and Equation