Traffic Impact Data for Bridge Haven Extended Care Facility

1701 Research Park Drive
Lawrence, Kansas

Prepared
for
Paul Werner Architects

Prepared
By

MGS
MGineering Solutions

Serving Communities Through Excellence
Missouri | Kansas | Michigan | California

MEHRDAD GIVECHI
LICENSED
4/5/18
14522
KANSAS
PROFESSIONAL ENGINEER

Mehrdad Givechi, P.E., PTOE

April 2018

According to City Ordinance #7650, collection of Traffic Impact Data (TID) is required for all non-residential new developments or redevelopments and all residential developments of eleven (11) or more lots or dwelling units. The following information is compiled to fulfill the requirements of this ordinance for the proposed *"Bridge Haven Extended Care Facility"* development located at 1701 Research Park Drive in Lawrence, Kansas (See Location Map in the Appendix).

1. The existing Bridge Haven facility consists of two 1-story buildings with 22 bedrooms and maximum occupancy of 32 patients. Under the proposed redevelopment plan, another 1-story building (Building C) will be added on the south side of Building B as shown on the Site Plan (See the Appendix for details). The new building will have 12 bedrooms with maximum occupancy of 16 patients. With the new addition, the facility will have 34 bedrooms with maximum occupancy of 48 patients.

   Currently, there is a parking lot on the north side of Building B with a capacity of 15 stalls (14 regular and 1 accessible). Field observations between 7:00 and 9:00 a.m. and 4:00 – 6:00 p.m. indicate that, typically, 5 to 8 vehicles are parked on the west side of Research Park Drive as a result of spill over from this parking lot. Under the proposed redevelopment plan a new parking lot with an entrance off Research Park Drive will be constructed. The parking lot will provide 27 additional parking stalls on the south side of the new Building C for a total of 42 stalls for the entire site (3 accessible and 39 regular). Furthermore, 6 parking spaces will be provided for bicycles.

2. The existing and proposed zoning for this site is Industrial Business Park (IBP). According to the Horizon 2020 (Map 3-2), the designated land use for this site is "Office Research and/or Industrial/Warehouse/Distribution".

3. The street network surrounding the site consists of:
   - Research Park Drive, running north/south along east side of the site, designated as "Collector" on the *City's T2040 Thoroughfare Map*.

- Bob Billings Parkway, running east/west approximately 1,425 ft. north of the site, designated as "Principal Arterial" on the *City's T2040 Thoroughfare Map*.
- W. 18th Street, running east/west approximately 645 ft. south of the site, designated as "Collector" east of Research Park Drive, and as a "Local" Street west of Research Park Drive on the *City's T2040 Thoroughfare Map*.

4. Currently, access to the site is provided at one point off of Research Park Drive on the north side of Building B. With the addition of Building C, a second access on Research Park Drive will be provided on the south side of Building C approximately 306 ft. (CL – CL) from the existing driveway.

5. In the vicinity of the project site:
   - Bob Billings Parkway is a 4-lane divided roadway with a center two-way left-turn lane west of West of Wakarusa Drive except for the section between Research Park Drive and Foxfire Drive where there is a raised median. Posted speed limit is 40 mph.
   - Research Park Drive and W. 18th Street are both 2-lane roadways with no posted speed limits (Note: Statutory speed limit is 30 mph.)
   - The intersection of Research Park Drive and Bob Billings Parkway is controlled by stop signs on Research Park Drive with dedicated left-turn lane on east/west approaches, and no dedicated turn lanes on Research Park Drive.
   - The intersection of Research Park Drive and W. 18th Street is an uncontrolled intersection with a traffic calming circle.

6. Field investigations indicate that the departure sight triangles at both driveway locations to the site are obstructed by on-street parked vehicles on the west side of Research Park Drive. However, it is anticipated the additional parking lot connected by walkways to the existing buildings in the development, will provide adequate on-site parking spaces for the entire development. Field investigations also indicate

that once on-street parking is eliminated, there is no sight distance restriction from the roadway geometric stand point.

7. The trip generation of a proposed land development project is typically estimated using trip generation rates suggested by the latest edition of the ***Institute of Transportation Engineers, Trip Generation Manual*** (Currently, the 10th Edition). For the purpose of this analysis, the *ITE Land Use Codes 620 (Nursing Home)* and *254 (Assisted Living)* with "occupied number of beds*" a*s the independent variable are selected. Both "weighted average rate" and "regression equation" methods are evaluated for each land use code, and the one with statistical significance meeting the requirements of the ITE guidelines is selected for analysis. The results, as shown in the Appendix, indicate that the proposed Bridge Haven redevelopment (at full occupancy with 48 beds in all three buildings) will likely generate the following number of trips:

    - On average, 10 trip-ends during the morning peak-hour of the ***adjacent street network***; and
    - On average, somewhere between 5 – 14 trip-ends during the afternoon peak-hour of the ***adjacent street network***.

    In summary, the proposed *"Bridge Haven Extended Care Facility"* redevelopment will generate less than the 100 vph threshold during the critical peak-hour of a typical weekday.

APPENDIX

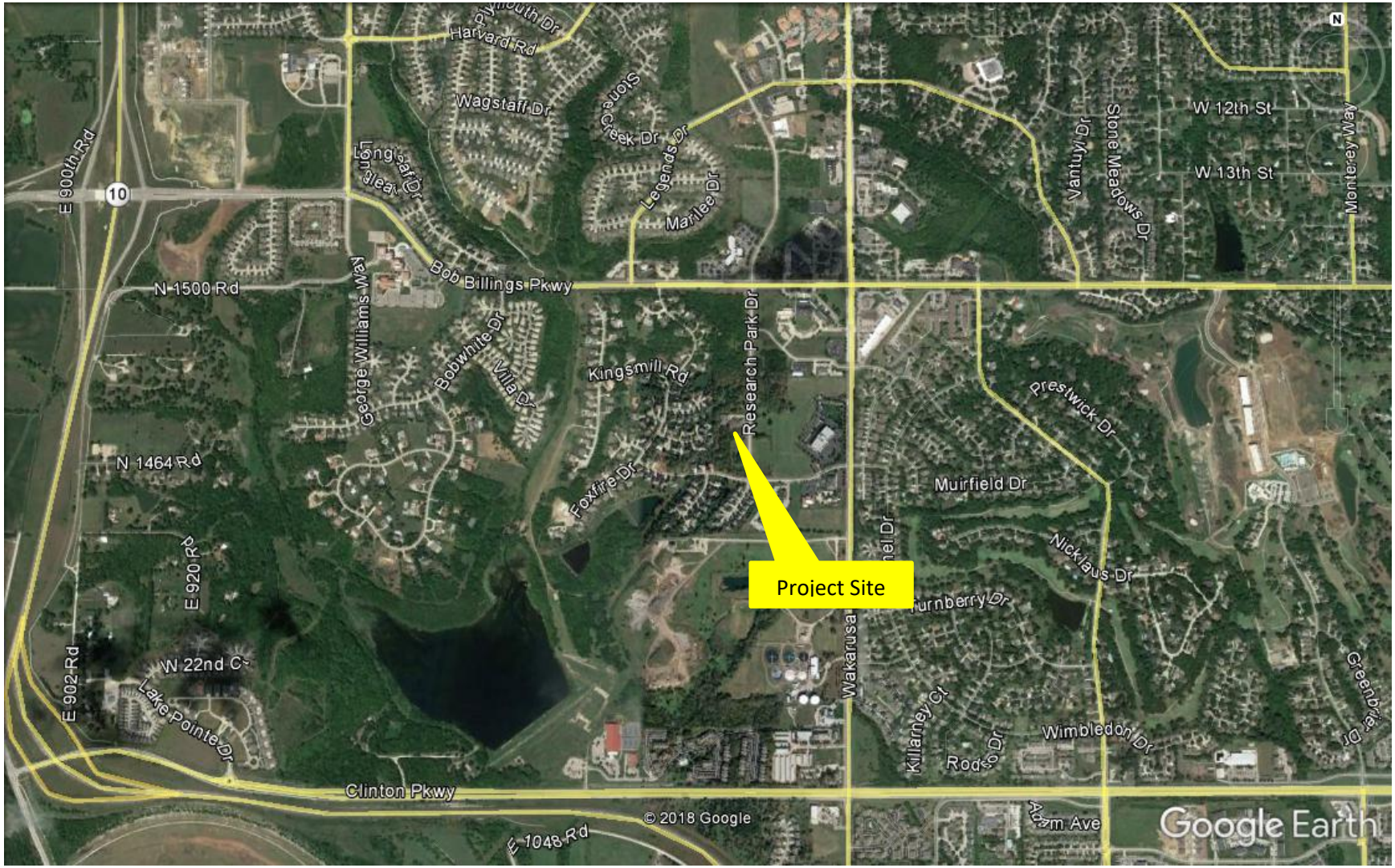
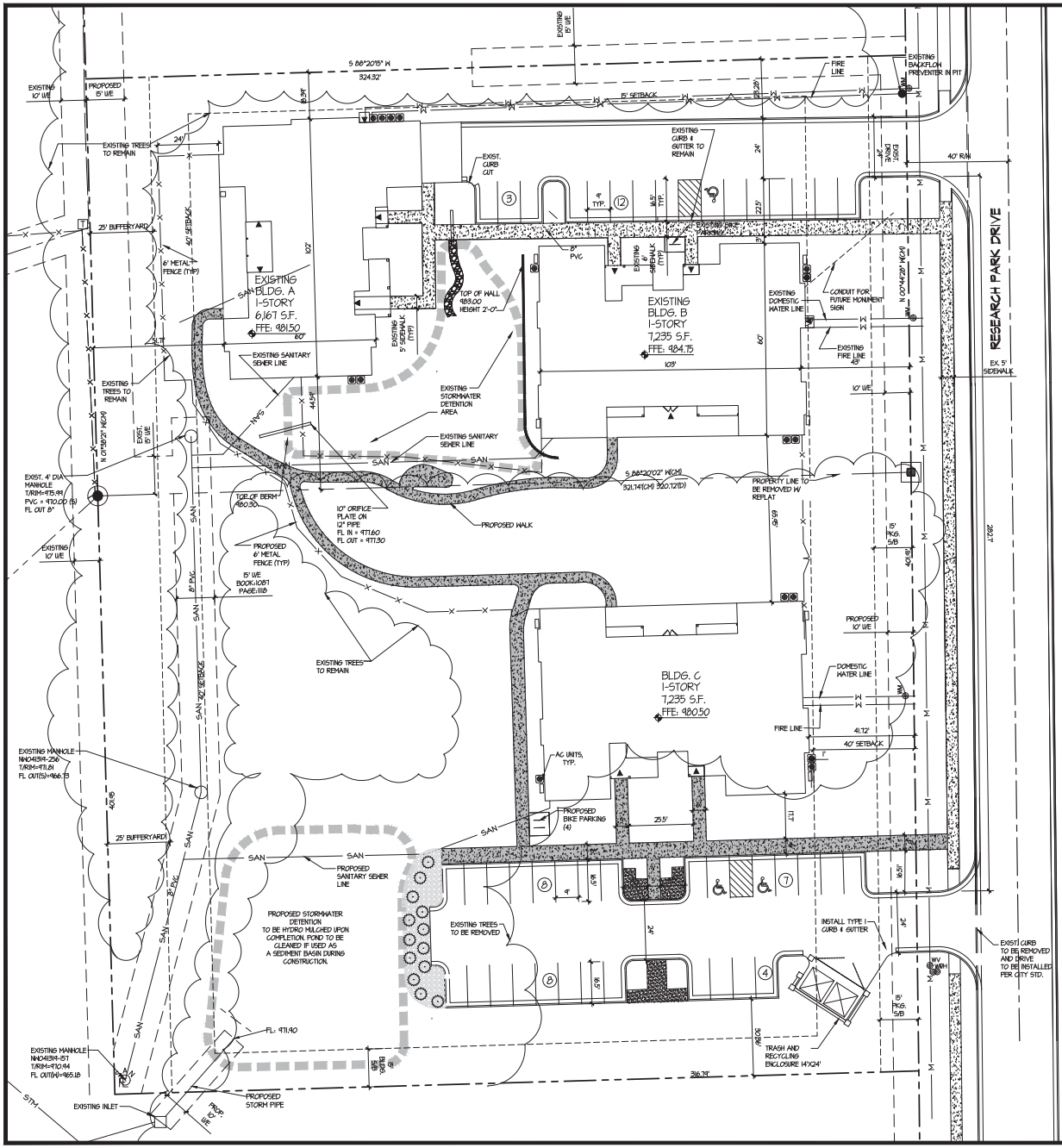
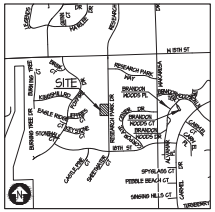


Figure 1 - Location Map



LOCATION MAP:

NOT TO SCALE



LEGAL DESCRIPTION:

LOT 1, CREAD WEST NO.16, LAWRENCE, DOUGLAS COUNTY, KANSAS

PROJECT SUMMARY:

1.1	CURRENT ZONING:	IBP
1.2	PROPOSED ZONING:	IBP
1.3	CURRENT USE:	MEDICAL FACILITY, EXTENDED CARE FACILITY, GENERAL
1.4	PROPOSED USE:	MEDICAL FACILITY, EXTENDED CARE FACILITY, GENERAL
1.5	EXISTING BUILDINGS:	BLDG A - 10 BEDROOMS WITH UP TO 16 OCCUPANTS PER BUILDING, EXTENDED CARE MEDICAL FACILITIES BLDG B - 12 BEDROOMS WITH UP TO 16 OCCUPANTS PER BUILDING, EXTENDED CARE MEDICAL FACILITIES
1.6	PROPOSED BUILDINGS:	BLDG C - 12 BEDROOMS WITH UP TO 16 OCCUPANTS PER BUILDING, EXTENDED CARE MEDICAL FACILITIES

GENERAL NOTES:

2.1 SITE PLAN HAS BEEN DESIGNED TO COMPLY WITH THE PROVISIONS OF THE AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES (ADAAG) FOR BUILDINGS AND FACILITIES, APPENDIX A TO 28CFR PART 36.

2.2 SITE PLAN HAS BEEN DESIGNED TO COMPLY WITH THE MINIMUM PROVISIONS OF THE FAIR HOUSING ACCESSIBILITY GUIDELINES, 24 CFR, CHAPTER I, SUBCHAPTER A, APPENDIX II, OF THE FAIR HOUSING ACT OF 1988, AS AMENDED.

2.3 THE CITY OF LAWRENCE WILL NOT BE HELD RESPONSIBLE FOR PAVEMENT DAMAGE CAUSED BY TRASH TRUCKS.

2.4 A PHOTOMETRIC PLAN WILL BE PROVIDED FOR REVIEW, ALL EXTERIOR LIGHTING WILL BE LESS THAN 150 WATT INCANDESCENT FIXTURES.

2.5 PLAN FOR CITY APPROVAL ONLY. CONSTRUCTION DOCUMENTS TO BE FURNISHED AT THE REQUEST OF OWNER.

2.6 INFORMATION TAKEN FROM AERIAL PHOTOS AND SURVEY PERFORMED BY ALLPOINTS SURVEYING JANUARY 2012.

2.7 ALL TRAFFIC CONTROL SIGNS PLACED ON PRIVATE PROPERTY OPEN TO THE GENERAL PUBLIC SHALL COMPLY WITH THE "MANUAL ON UNIFORMS TRAFFIC CONTROL DEVICES" AND "STANDARD HIGHWAY SIGNS," PUBLISHED BY THE FEDERAL HIGHWAY ADMINISTRATION, WITH RESPECT TO SIZE, SHAPE, COLOR, RETROFLECTIVITY, AND POSITION.

2.8 ADEQUATE INFRASTRUCTURE EXISTS TO INSTALL THE PUBLIC IMPROVEMENTS FOR THIS PROJECT.

2.9 A STORMWATER DETENTION POND WAS CONSTRUCTED WITH THE FIRST PHASE OF THIS PROJECT. REFER TO SUP-2-1-12. STORMWATER DETENTION AREA OUTLET PIPE SHALL BE RESTRICTED TO 2.20 CFS DISCHARGE RATE PER CITY STORMWATER CRITERIA AND DRAINAGE STUDY PERFORMED BY GROB ENGINEERING. A NEW DETENTION POND WILL BE BUILT WITH THE CONSTRUCTION OF BUILDING C. THE STORMWATER DETENTION AREA WILL BE PRIVATELY OWNED AND MAINTAINED. THE DEVELOPER IS RESPONSIBLE FOR ESTABLISHING OWNERSHIP AND MAINTENANCE OF SAME VIA INDIVIDUAL OWNER MAINTENANCE. NO FENCES OR STRUCTURES OTHER THAN NECESSARY RETAINING WALLS WILL BE ALLOWED WITHIN THE STORMWATER DETENTION AREA.

2.10 ADULT DAYCARE SERVICE MAY BE PROVIDED AS AN ACCESSORY USE.

2.11 WHERE A SINGLE ROOM CONTAINS A DOUBLE OCCUPANCY BASED ON TENANTS LIFE PARTNER STATUS, THEY SHALL SHARE THE SAME BED.

2.12 ALL EXISTING SIDEWALKS ALONG THE PROPERTY FRONTAGE SHALL BE BROUGHT INTO COMPLIANCE WITH CURRENT CITY ADA STANDARDS. THIS INCLUDES BUT IS NOT LIMITED TO SIDEWALK CROSS SLOPE, RUNNING SLOPE, VERTICAL DISCONTINUITIES, WIDTH, ETC.

2.13 EXTERIOR GROUND-MOUNTED OR BUILDING MOUNTED EQUIPMENT INCLUDING, BUT NOT LIMITED TO, MECHANICAL EQUIPMENT, UTILITIES BOXES AND METERS, SHALL BE FULLY SCREENED FROM VIEW OF ADJACENT PROPERTIES AND FROM STREET RIGHTS-OF-WAY (AS MEASURED 6 FEET ABOVE GROUND LEVEL). SCREENING SHALL BE IN THE FORM OF LANDSCAPE PLANTINGS OR AN ARCHITECTURAL TREATMENT COMPATIBLE WITH THE ARCHITECTURE OF THE PRINCIPAL BUILDING.A

PROPERTY SURFACE SUMMARY:

PROJECT SITE:

EXISTING SUMMARY:

	SQ. FT.	%
TOTAL BUILDINGS:	13,402	10%
TOTAL PAVEMENT:	8,245	6%
TOTAL IMPERVIOUS:	21,647	16%
TOTAL PERVIOUS:	107,371	84%
TOTAL PROPERTY AREA:	129,018	

SUMMARY AFTER PROJECT COMPLETION:

	SQ. FT.	%
TOTAL BUILDINGS:	20,637	16%
TOTAL PAVEMENT:	22,796	18%
TOTAL IMPERVIOUS:	43,433	34%
TOTAL PERVIOUS:	85,585	66%
TOTAL PROPERTY AREA:	129,018	

PARKING INFORMATION:

3.1 PARKING REQUIRED: 1 SPACE PER 3 BEDS (34 BEDROOMS) = 12 SPACES

3.2

TYPE:	REQUIRED:	PROVIDED:
REGULAR	11	39
ACCESSIBLE	1	3
TOTAL	12	42
BICYCLE (5 OR 1 PER 10 SPACES)	5	6

3.3 ADDITIONAL PARKING: ADDITIONAL 35 PARKING SPACES PROVIDED FOR RESIDENT CAREGIVERS DURING SHIFT CHANGES..

3.4 TYPICAL DIMENSIONS: 9': SPACES - 9' X 18' (16.5' + 1.5' OVERHANG AT SIDEWALKS)
SIDEWALKS SHALL BE 4' CONCRETE + 5' OR 6.5' WIDE DEPENDING UPON THE LOCATION.
11': SPACES - 8' X 20' (5' OR 8' AISLE)

3.5 PAVEMENT: APPROACHES: 6" - 4,000 PSI REINFORCED CONCRETE. WELDED WIRE FABRIC (6 X 6 X W 2.9 X W2.9) OR REBAR (#4 BARS @18" CENTERS) OR FIBER REINFORCEMENT SHALL BE PLACED IN THE APRON 2 INCHES FROM THE TOP OF THE CONCRETE SURFACE.

DRIVES & PARKING AREAS: MINIMUM 4" - 4,000 PSI REINFORCED CONCRETE OR 5" ROCK BASE W/ 2" OF ASPHALT OR 1" OF GRANULAR ROCK WITH A DOUBLE ASPHALTIC PRIME AND SEAL OR 5" OF FULL DEPTH ASPHALT

LEGEND:

PROPOSED CONCRETE SIDEWALK

EXISTING CONCRETE SIDEWALK

LAYOUT AND UTILITY PLAN

SCALE: 1" = 20'-0"

0 10 20 40 60

NORTH

Approved and Released

City of Lawrence Douglas County

Case No.:
Approval Date:
Release Date:
Planner:
Sheet ___ of ___ Sheets
Asst./Director:

paulwerner ARCHITECTS
123 W. 8TH STREET
SUITE 103
LAWRENCE, KS 66044
OFFICE: 785.832.0804
FAX: 785.832.0880
EMAIL: INFO@PAULWERNERARCHITECTS.COM

DEVELOPER AND OWNER:
ROBERT WILSON
BEDKREISTERS LLC
842 LOUISIANA ST
LAWRENCE, KS 66044
OFFICE: 785.550.4168

EXTENDED CARE FACILITY
SPECIAL USE PERMIT

1701 RESEARCH PARK DRIVE
LAWRENCE, KANSAS

PROJECT # 217-330

RELEASE:	DATE:
1.0	2.20.18
1.	4.2.18
1.2	4.4.18

SUP
SHT. 1 OF 3

J:\Projects\217-000\217-330\CAD & CAD PDFs\Site\CAD\SITE PLAN\217-330 - SUP - SHT1.dwg, 4/4/2018 1:00:57 PM, DWG To PDF.pc3

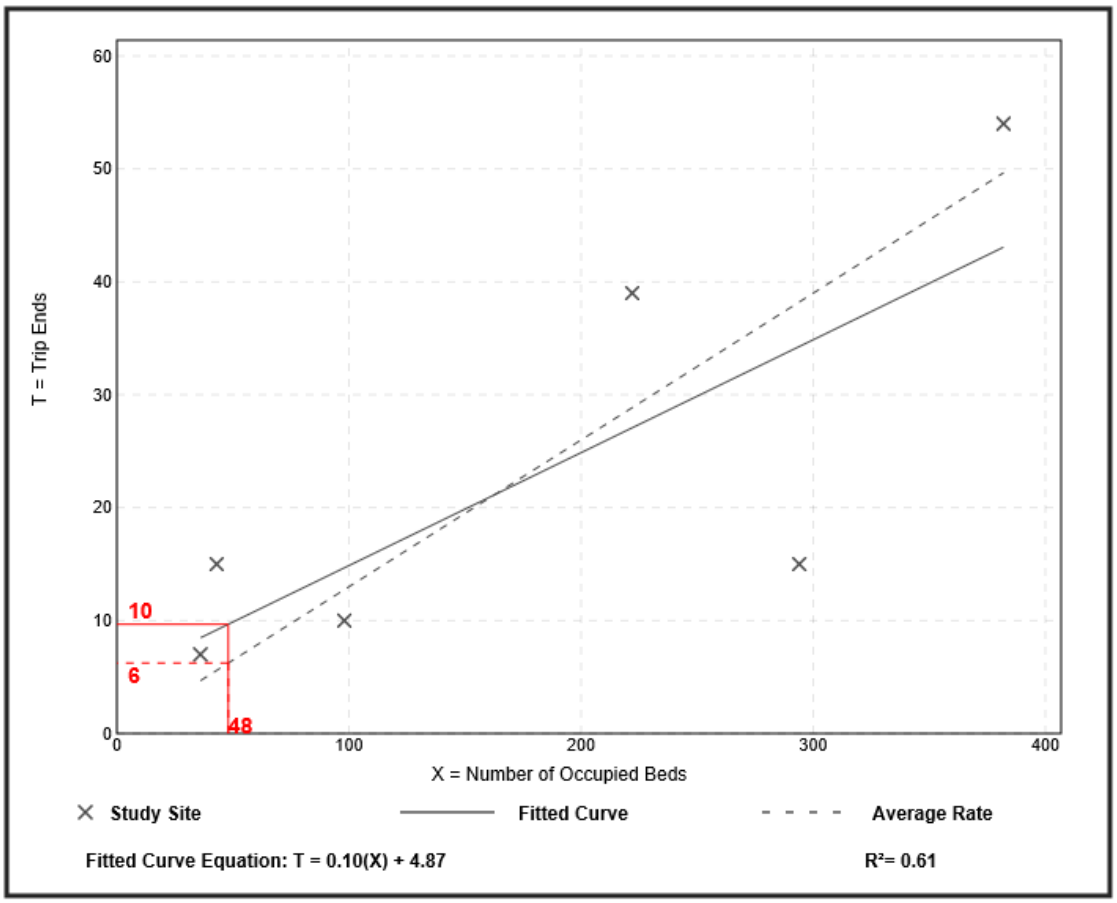
Nursing Home
(620)

Vehicle Trip Ends vs: **Occupied Beds**
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: 6
Avg. Num. of Occupied Beds: 179
Directional Distribution: 72% entering, 28% exiting

Vehicle Trip Generation per Occupied Bed

Average Rate	Range of Rates	Standard Deviation
0.13	0.05 - 0.35	0.07

Data Plot and Equation



Trip Generation Manual, 10th Edition • Institute of Transportation Engineers

Nursing Home
(620)

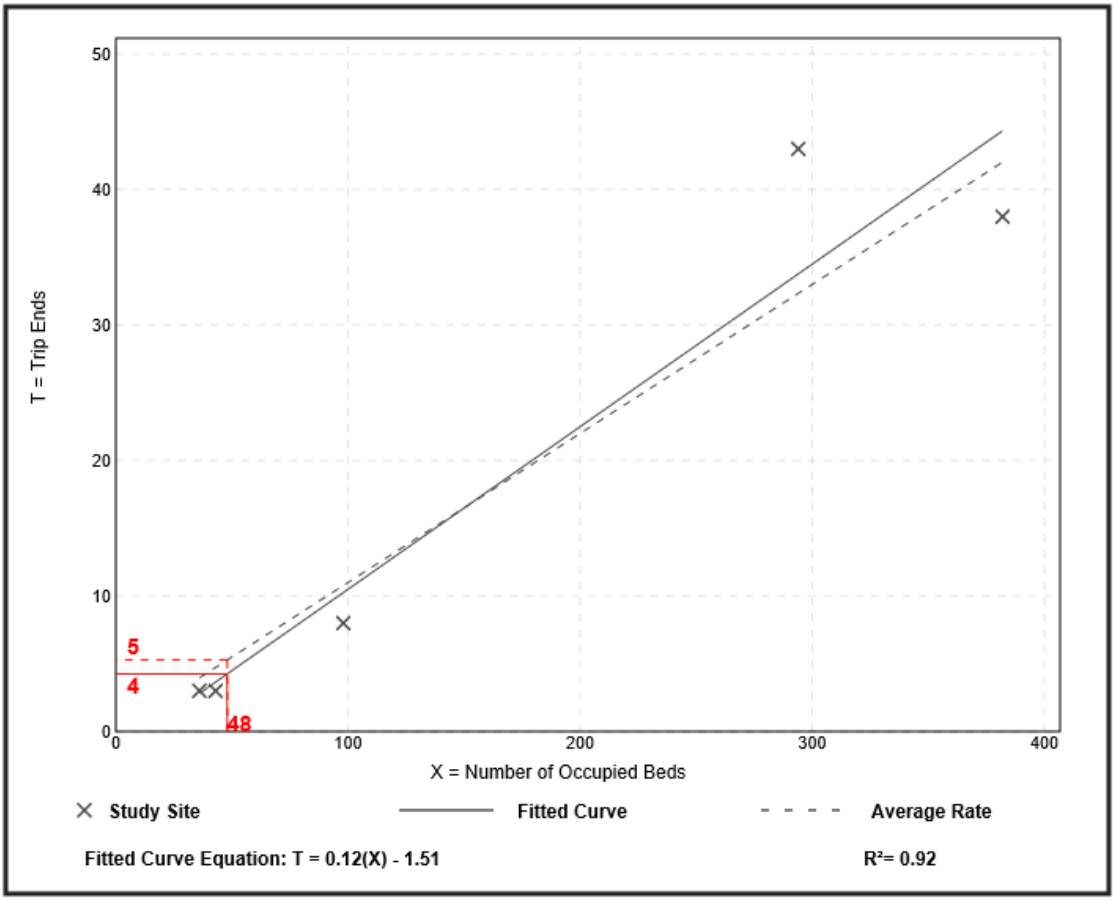
Vehicle Trip Ends vs:	**Occupied Beds**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 4 and 6 p.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	5
Avg. Num. of Occupied Beds:	171
Directional Distribution:	Not Available

Vehicle Trip Generation per Occupied Bed

Average Rate	Range of Rates	Standard Deviation
0.11	0.07 - 0.15	0.03

Data Plot and Equation

Caution – Small Sample Size



Trip Generation Manual, 10th Edition • Institute of Transportation Engineers

Assisted Living
(254)

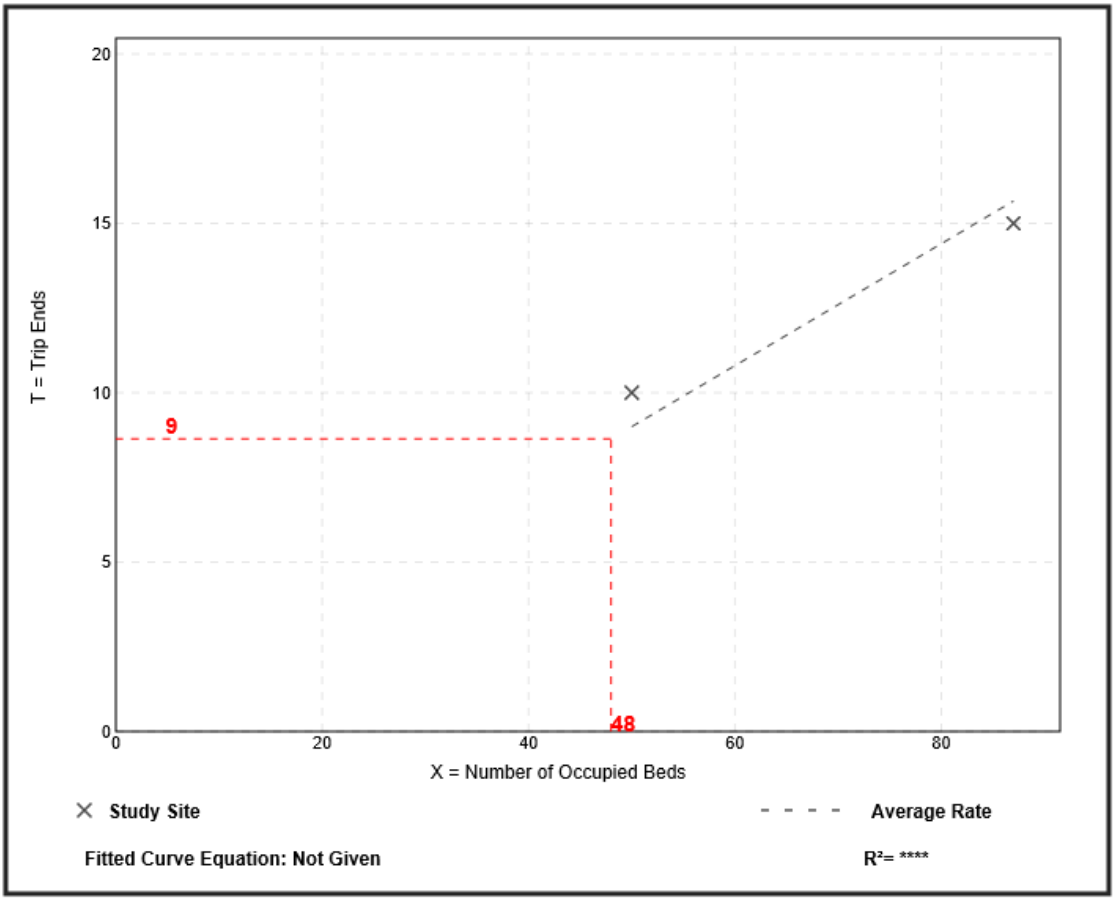
Vehicle Trip Ends vs: **Occupied Beds**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 2
Avg. Num. of Occupied Beds: 69
Directional Distribution: 68% entering, 32% exiting

Vehicle Trip Generation per Occupied Bed

Average Rate	Range of Rates	Standard Deviation
0.18	0.17 - 0.20	*

Data Plot and Equation

Caution – Small Sample Size



Trip Generation Manual, 10th Edition • Institute of Transportation Engineers

Assisted Living
(254)

Vehicle Trip Ends vs: **Occupied Beds**
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: 2
Avg. Num. of Occupied Beds: 69
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Occupied Bed

Average Rate	Range of Rates	Standard Deviation
0.29	0.29 - 0.30	*

Data Plot and Equation

Caution – Small Sample Size