

Traffic Impact Data for Bishop Seabury Academy Expansion

4120 Clinton Parkway Frontage
Lawrence, Kansas

Prepared
for
SK Design Group, Inc.

Prepared
By



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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 *“Bishop Seabury Academy Expansion”* located at 4120 Clinton Parkway Frontage in Lawrence, Kansas (See Location Map in the Appendix).

1. The existing Bishop Seabury Academy is a private co-educational, Episcopal middle and high school with current enrollment of 204 students. Access to the facility is provided at two points (approximately 290 apart) off of Clinton Parkway Frontage – a city street that ends at the project site with an outlet to the east onto Crossgate Drive.

The proposed expansion to the school calls for an initial addition of approximately 23,142 sq. ft. to the west of the existing main building, north of the Reese Hall to provide for 4 classrooms, a physics and computer science lab, a biology lab, a chemistry lab, a MS lab, a small chapel, a small office space, and a cafeteria with kitchen. The future expansion includes an additional 7,200 sq. ft. space for more classrooms as illustrated on the Site Plan in the Appendix. The enrollment number is expected to increase from current 204 to 225 students with the initial expansion, and to 252 students with future expansion. In summary, the proposed expansion, at build-out, will add a total of 30,342 sq. ft. of floor area to the existing facility, and will accommodate 48 additional students.

Parking for the existing facility is provided on the south side of the site with 106 parking spaces. Under the proposed plan, a new drop off area will be provided on the northwest corner of the existing parking lot while maintaining the same number of stalls (106) in this lot. Furthermore, additional parking will be provided on the north side of the existing main building with a capacity of 28 stalls. In summary, a total of 134 stalls will be provided at build-out.

2. The existing and proposed zoning for this site is RM12 (Multi-Family Residential with maximum 12 dwelling units per acre). According to the Horizon 2020 (Map 3-2), the designated land use for this site is “Parks, Recreation, and Open Space”.
3. The surrounding street network consists of:
 - Clinton Parkway, running east/west a short distance (60 ft.) south of the project site, designated as “Principal Arterial” on the City’s T2040 Thoroughfare Map.
 - Crossgate Drive, running north/south approximately 1080 ft. east of the project site, designated as “Local” street north of Clinton Parkway, and as “Collector” south of Clinton Parkway on the City’s T2040 Thoroughfare Map.
 - Clinton Parkway Frontage, running east/west on the south side of the site, designated as “Local” street on the City’s T2040 Thoroughfare Map.
4. Under the proposed development plan, there will be no change in the number and configuration of the site access driveways.
5. In the vicinity of the project site:
 - Clinton Parkway is a 4-lane divided highway raised median and posted speed limit of 45 mph. On-street parking is prohibited on both sides.
 - Crossgate Drive is a two-way, 2-lane street with posted speed limit of 30 mph. On-street parking is prohibited along both sides of the street.
 - Clinton Parkway Frontage is a two-way, two-lane street with no posted speed limit (Statutory speed limit = 30 mph). On-parking is prohibited along the north side of the street.
 - The intersection of Clinton Parkway Frontage and Crossgate Drive is a two-way stop-controlled intersection with traffic on Crossgate having the right-of-way and each approach having one shared lane.
6. Field measurements indicate that sight distance is not restricted at any of the site driveway locations. Reason being, for 30 mph speed, the required minimum intersection sight distance is 335 ft. for left-turn and 290 ft. for right-turn onto a two

lane roadway. The available sight distance, as measured in the field, is 650' for the east driveway and 940 ft. for east and west driveway, respectively.

7. 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*. For the purpose of this analysis, ITE Land Use Codes 522 (Middle School / Junior High School), 530 (High School), and 536 (Private School, K-12) were evaluated using “*number of students*” as independent variable, and the one generating the higher number of trips during the critical peak-hour was selected. The results, as shown in the Appendix, indicate that the number of trip-ends generated by the proposed expansion is less than the threshold of 100 vph as described below:

- On average, 39 trip-ends (24 inbound and 15 outbound) during the morning peak-hour of *adjacent street network*;
- On average, 8 trip-ends (3 inbound and 5 outbound) during the afternoon peak-hour of *adjacent street network*; and 28 trip-ends (12 inbound and 16 outbound) during the afternoon peak-hour of *generator*.

APPENDIX

- Location Map
- Site Plan
- Results of Trip Generation Analysis, Using the ITE Trip Generation Manual, 9th Edition



BISHOP SEABURY ACADEMY
1 STORY ADDITION CONCEPT - SITE PLAN



1/17/2018

Trip Generation Summary

Alternative: Alternative 1

Phase:

Open Date: 1/16/2018

Project: Bishop Seabury Academy Expansion

Analysis Date: 1/16/2018

ITE	Land Use	Weekday Average Daily Trips			Weekday AM Peak Hour of Adjacent Street Traffic			Weekday PM Peak Hour of Adjacent Street Traffic					
		*	Enter	Exit	Total	*	Enter	Exit	Total	*	Enter	Exit	Total
522	SCHOOLMID 1 48 Students		39	39	78		14	12	26		4	4	8
Unadjusted Volume			39	39	78		14	12	26		4	4	8
Internal Capture Trips			0	0	0		0	0	0		0	0	0
Pass-By Trips			0	0	0		0	0	0		0	0	0
Volume Added to Adjacent Streets			39	39	78		14	12	26		4	4	8

Total Weekday Average Daily Trips Internal Capture = 0 Percent

Total Weekday AM Peak Hour of Adjacent Street Traffic Internal Capture = 0 Percent

Total Weekday PM Peak Hour of Adjacent Street Traffic Internal Capture = 0 Percent

* - Custom rate used for selected time period.

Source: Institute of Transportation Engineers, Trip Generation Manual 9th Edition, 2012

TRIP GENERATION 10, TRAFFICWARE, LLC

Trip Generation Summary

Alternative: Alternative 2

Phase:

Open Date: 1/16/2018

Project: Bishop Seabury Academy Expansion

Analysis Date: 1/16/2018

ITE	Land Use	Weekday Average Daily Trips			Weekday AM Peak Hour of Adjacent Street Traffic			Weekday PM Peak Hour of Adjacent Street Traffic					
		*	Enter	Exit	Total	*	Enter	Exit	Total	*	Enter	Exit	Total
530	SCHOOLHIGH 1 48 Students		41	41	82		14	7	21		3	3	6
Unadjusted Volume			41	41	82		14	7	21		3	3	6
Internal Capture Trips			0	0	0		0	0	0		0	0	0
Pass-By Trips			0	0	0		0	0	0		0	0	0
Volume Added to Adjacent Streets			41	41	82		14	7	21		3	3	6

Total Weekday Average Daily Trips Internal Capture = 0 Percent

Total Weekday AM Peak Hour of Adjacent Street Traffic Internal Capture = 0 Percent

Total Weekday PM Peak Hour of Adjacent Street Traffic Internal Capture = 0 Percent

* - Custom rate used for selected time period.

Source: Institute of Transportation Engineers, Trip Generation Manual 9th Edition, 2012

TRIP GENERATION 10, TRAFFICWARE, LLC

Trip Generation Summary

Alternative: Alternative 3

Phase:

Open Date: 1/16/2018

Project: Bishop Seabury Academy Expansion

Analysis Date: 1/16/2018

ITE	Land Use	Weekday Average Daily Trips			Weekday AM Peak Hour of Adjacent Street Traffic			Weekday PM Peak Hour of Adjacent Street Traffic					
		*	Enter	Exit	Total	*	Enter	Exit	Total	*	Enter	Exit	Total
536	SCHOOLK12 1 48 Students		60	59	119		24	15	39		3	5	8
Unadjusted Volume			60	59	119		24	15	39		3	5	8
Internal Capture Trips			0	0	0		0	0	0		0	0	0
Pass-By Trips			0	0	0		0	0	0		0	0	0
Volume Added to Adjacent Streets			60	59	119		24	15	39		3	5	8

Total Weekday Average Daily Trips Internal Capture = 0 Percent

Total Weekday AM Peak Hour of Adjacent Street Traffic Internal Capture = 0 Percent

Total Weekday PM Peak Hour of Adjacent Street Traffic Internal Capture = 0 Percent

* - Custom rate used for selected time period.

Source: Institute of Transportation Engineers, Trip Generation Manual 9th Edition, 2012

TRIP GENERATION 10, TRAFFICWARE, LLC

Detailed Land Use Data
 For 48 Students of SCHOOLMID 1
 (522) Middle School/Junior High School

Project: Bishop Seabury Academy Expansion

Open Date: 1/16/2018
 Analysis Date: 1/16/2018

<u>Day / Period</u>	<u>Total Trips</u>	<u>Pass-By Trips</u>	<u>Avg Rate</u>	<u>Min Rate</u>	<u>Max Rate</u>	<u>Std Dev</u>	<u>Avg Size</u>	<u>% Enter</u>	<u>% Exit</u>	<u>Use Eq.</u>	<u>Equation</u>	<u>R2</u>
Weekday Average Daily Trips Source : Trip Generation Manual 9th Edition	78	0	1.62	0.72	2.81	1.45	904	50	50	False		
Weekday AM Peak Hour of Adjacent Street Traffic Source : Trip Generation Manual 9th Edition	26	0	0.54	0.14	1.29	0.8	876	55	45	False		
Weekday PM Peak Hour of Generator Source : Trip Generation Manual 9th Edition	14	0	0.3	0.12	0.63	0.56	843	45	55	False		
Weekday PM Peak Hour of Adjacent Street Traffic Source : Trip Generation Manual 9th Edition	8	0	0.16	0.06	0.36	0.4	982	49	51	False		

Source: Institute of Transportation Engineers, Trip Generation Manual 9th Edition, 2012

TRIP GENERATION 10, TRAFFICWARE, LLC

Detailed Land Use Data
 For 48 Students of SCHOOLHIGH 1
 (530) High School

Project: Bishop Seabury Academy Expansion

Open Date: 1/16/2018
 Analysis Date: 1/16/2018

Day / Period	Total Trips	Pass-By Trips	Avg Rate	Min Rate	Max Rate	Std Dev	Avg Size	% Enter	% Exit	Use Eq.	Equation	R2
Weekday Average Daily Trips Source : Trip Generation Manual 9th Edition	82	0	1.71	0.71	3.96	1.49	1382	50	50	False	$\ln(T) = 0.81 \ln(X) + 1.86$	0.54
Weekday AM Peak Hour of Adjacent Street Traffic Source : Trip Generation Manual 9th Edition	21	0	0.43	0.14	1.15	0.69	1231	68	32	False		
Weekday PM Peak Hour of Generator Source : Trip Generation Manual 9th Edition	14	0	0.29	0.1	0.74	0.55	1235	33	67	False	$\ln(T) = 0.61 \ln(X) + 1.52$	0.51
Weekday PM Peak Hour of Adjacent Street Traffic Source : Trip Generation Manual 9th Edition	6	0	0.13	0.03	0.38	0.37	1352	47	53	False		
Saturday Average Daily Trips Source : Trip Generation Manual 9th Edition	29	0	0.61	0.08	1.62	0.88	1523	50	50	False		
Saturday Peak Hour of Generator Source : Trip Generation Manual 9th Edition	5	0	0.11	0.02	0.24	0.34	1523	64	36	False		
Sunday Average Daily Trips Source : Trip Generation Manual 9th Edition	12	0	0.25	0.04	0.92	0.54	1523	50	50	False		
Sunday Peak Hour of Generator Source : Trip Generation Manual 9th Edition	2	0	0.04	0.01	0.2	0.22	1523	41	59	False		

Source: Institute of Transportation Engineers, Trip Generation Manual 9th Edition, 2012

TRIP GENERATION 10, TRAFFICWARE, LLC

Detailed Land Use Data
 For 48 Students of SCHOOLK12 1
 (536) Private School (K-12)

Project: Bishop Seabury Academy Expansion

Open Date: 1/16/2018
 Analysis Date: 1/16/2018

Day / Period	Total Trips	Pass-By Trips	Avg Rate	Min Rate	Max Rate	Std Dev	Avg Size	% Enter	% Exit	Use Eq.	Equation	R2
Weekday Average Daily Trips Source : Trip Generation Manual 9th Edition	119	0	2.48	1.74	3.12		537	50	50	False		
Weekday AM Peak Hour of Adjacent Street Traffic Source : Trip Generation Manual 9th Edition	39	0	0.81	0.52	0.96	0.91	460	61	39	False	$T = 0.77(X) + 19.92$	0.73
Weekday PM Peak Hour of Generator Source : Trip Generation Manual 9th Edition	28	0	0.58	0.46	0.79	0.77	506	42	58	False	$T = 0.43(X) + 79.59$	0.75
Weekday PM Peak Hour of Adjacent Street Traffic Source : Trip Generation Manual 9th Edition	8	0	0.17	0.13	0.23	0.41	581	43	57	False		

Source: Institute of Transportation Engineers, Trip Generation Manual 9th Edition, 2012

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