### JMB TRANSPORTATION ENGINEERING, INC.

TRAFFIC/TRANSPORTATION ENGINEERING & PLANNING SERVICES

## TRAFFIC IMPACT STATEMENT

For

## **Christ the King Presbyterian Church**

(Santa Barbra Boulevard, Collier County, Florida)

August 7, 2018 Revised January 3, 2019

<u>County TIS Review Fees</u> TIS Methodology Review Fee = \$500.00 TIS (Small-Scale Study) Review Fee =\$0.00

Prepared by:

JMB TRANSPORTATION ENGINEERING, INC.

4711 7TH AVENUE SW Naples, Florida 34119

CERTIFICATE OF AUTHORIZATION No. 27830

(PROJECT No. 180713)

JAMES M. BANKS, DE FLORIDA REG. NO. 43860/ONAL

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#### **Conclusions**

Based upon the findings of this report, it was determined that the proposed Christ the King Orthodox Presbyterian Church will not have a significant or negative impact upon the surrounding road network. It was verified that all roadways, within the project's area of influence, currently have a surplus of capacity and can accommodate the traffic associated with the proposed worship hall. As determined, the road network will continue to operate at acceptable levels of service for the foreseeable future and the project will not create any off-site transportation deficiencies that need to be mitigated.

#### Site Access

The project proposes to construct two (2) means of ingress/egress on Crews County Road and an "emergency only" access on Sunset Boulevard. Crews Road provides access to Santa Barbara Boulevard via a right-in/out and directional left-in median opening. A right ingress turn lane and left ingress turn lane were previously constructed at the existing median opening and the report concludes that those turn lanes are adequate in length to accommodate the traffic generated by Christ the King Orthodox Presbyterian Church.

### Methodology

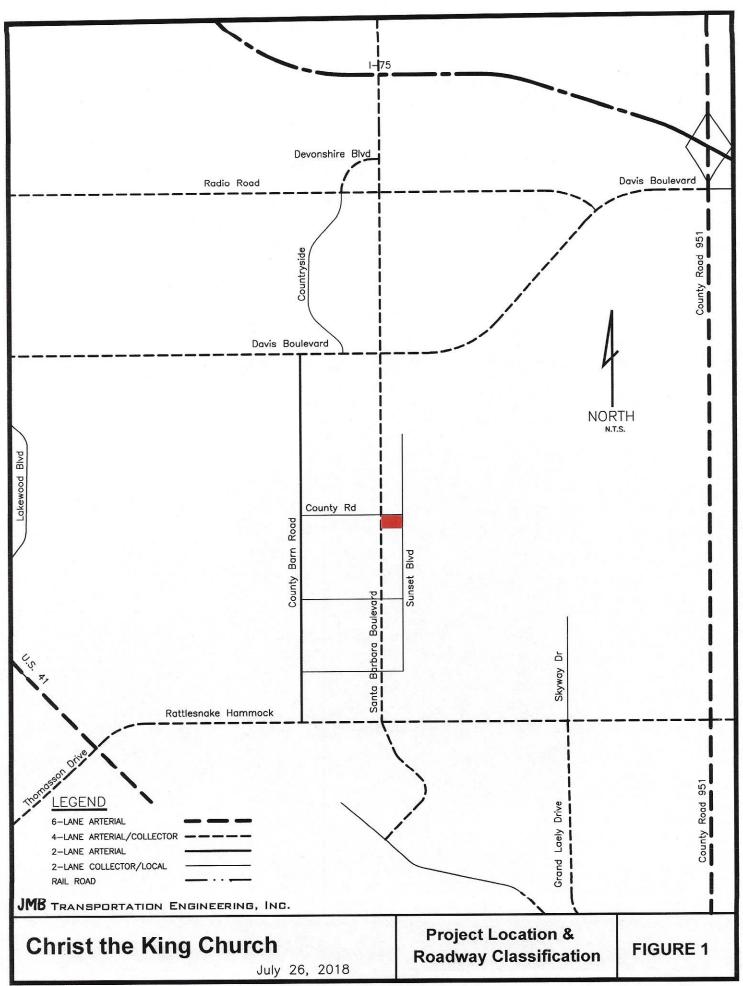
On July 26, 2018, a Traffic Impact Statement (TIS) Methodology Report was submitted to the office of Collier County Transportation Planning Department. *The \$500.00 methodology meeting fee will be paid at the time of submitting the zoning application.* A copy of the methodology, which is pending approval, has been provided in the appendix (refer to pages M1 thru M11). *Note, at the time of the methodology review the proposed number o seats was 450, but subsequently was reduced to 400 seats.* 

### Scope of Project

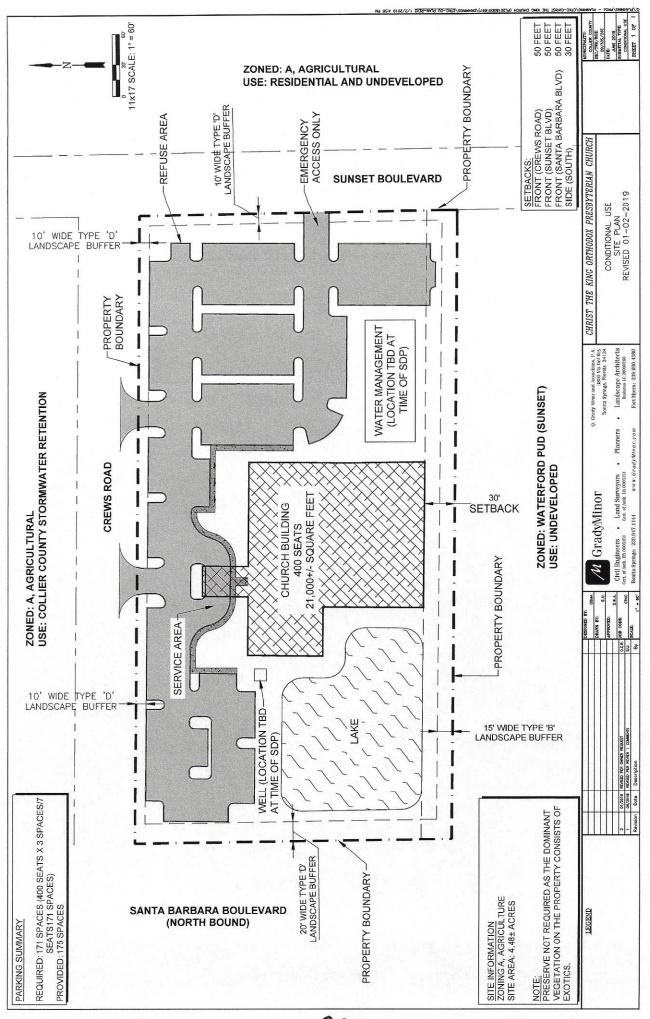
Christ the King Orthodox Presbyterian Church is a proposed worship hall that will consist of 21,000 square feet of structures and 400 seats. *Note, at the time of the methodology review the proposed number o seats was 450, but subsequently was reduced to 400 seats.* The site is located on the southeast corner of County Road and Santa Barbara Boulevard and approximately one (1) mile south of Davis Boulevard, within Collier County. It is expected that the project will be completed by the year 2020.

Table A
Proposed Land Use

Proposed Land Use	Size
Worship Hall/Church	21,000 s.f. 400 seats



2.1



**Project Generated Traffic** 

Traffic that can be expected to be generated by the proposed church was estimated based upon the guidelines established by the Institute of Transportation Engineers, Trip Generation Manual, 10<sup>th</sup> Edition. That is, historical traffic data collected at similar land uses was relied upon in estimating the project's traffic. It was concluded that land use code "Church" (LUC 560) was most appropriate in estimating the new trips.

Table 1 depicts the computations performed in determining the total new trips. Table B provides a summary of the trip generation computation results that are shown in Table 1.

Table B
Site-Generated Trips
(Summation of Table 1)

Daily Weekday	AM Peak Hour	PM Peak Hour
Trips Generated	Trips Generated	Trips Generated
(ADT)	(vph)	(vph)
176	4	12

The report concludes that the project will generate less than 50 net new trip ends during the weekday highest peak hour. As such, the report investigates the traffic impacts associated with the project based upon the criteria set forth by the Collier County Government's Traffic Impact Statement Guidelines for developments generating "less than 50 trips", which is defined as a small-scale study.

# TABLE 1 TRIP GENERATION COMPUTATIONS <u>Christ the King Chruch</u>

Land Use <u>Code</u> 560  560  560	Land Use Description Church Church Church Church	Bui (Weekday) (Weekday) (Sunday) (Sunday)	21,000 s.f. 400 Seats 400 Seats 21,000 s.f.	
Land Use		Trip Generation Equation		
<u>Code</u>	Trip Period	(Based upon S.F.)	Total Trips	Trips Enter/Exit
LUC 560	(Weekday)			
	Daily Traffic (ADT) =	T=6.14(X) + 17.09=	146 ADT	
	AM Peak Hour (vph) =	T= 0.36(X) - 0.74 = 60% Enter/ 40% Exit =	7 vph	4 / 3 vph
	PM Peak Hour (vph) =	T= 0.37(X) + 3.90 =	12 vph	5 / 6 vph
		45% Enter/ 55% Exit =		
******	*********	*******	*******	
<b>LUC 560</b>	(Weekday)	(Based upon Seats)		
	Daily Traffic (ADT) =	T=0.44(X)=	176 ADT	
	AM Peak Hour (vph) = PM Peak Hour (vph) =	T= 0.01(X) = 50% Enter/ 50% Exit = T= 0.03(X) = 40% Enter/ 60% Exit =	4 ADT	
******	*********		********	
LUC 560	(Sunday) Daily Traffic (ADT) =	(Based upon Seats) T= 1.21(X) =	484 ADT	
	Peak Hour (vph) =	T= 0.63(X) - 76.74 = 49% Enter/ 51% Exit =	175 vph	86 / 89 vph
******	*********	********	********	
LUC 560	(Sunday) Daily Traffic (ADT) =	(Based upon S.F.) T= 27.63(X) =	580 ADT	
	Peak Hour (vph) =	T= 8.18(X) + 63.81 = 48% Enter/ 52% Exit =	236 vph	113 / 123 vph

TABLE 2A PROJECT'S AREA OF IMPACT

Project Traffic Peak Direction (vphpd) = Project Traffic Non-Peak Direction (vph) =

7 Exiting 5 Entering

				J Z	500	Project	Project Pk Hr	Project	Project Pk Hr	Project			
			Road	Serv. Vol.	100	Traffic	PK Dir	Pk Hr	Non-PK Dir	Non-Pk	Impact	Percent	Significant
			Class	FOS		% Dist.	(pdyda)	Pk Dir	(vdv)	DiR	Standard	Impact	Impact
15.0	15.0 Davis Boulevard	County Barn to Santa Barbara	4D	Δ		20.0%	-	8	~	Ш	2%	%90.0	9
16.1		Santa Barbara to Radio Rd	O9	Ω	2900	15.0%	_	Ш	_	×	2%	0.04%	ON N
16.2		Radio Rd to C.R 951	09	Ω	2900	15.0%	-	ш	_	8	3%	0.04%	<sub>Q</sub>
74.0	Rattlesnake Ham.	County Barn to Santa Barbara	40	۵	1900	20.0%	_	8	~	Ш	2%	%20.0	O N
75.0		Santa Barbara to C.R. 951	<u>е</u> р	Ω	2900	15.0%	~	ш	<b>-</b>	>	2%	0.04%	0
78.0	Santa Barbara Blvd	Radio Rd to Davis Blvd	GD	Ш	3100	30.0%	2	z	2	S	2%	0.07%	O <sub>N</sub>
79.1		Davis Blvd to Site	O9	ш	3100	65.0%	2	z	ო	S	2%	0.15%	<u>Q</u>
79.2		Site to Rattlesnake Hammock	Q9	ш	3100	35.0%	2	S	2	z	2%	0.08%	ON N

#### **Site Access Conditions**

The project will have access to Santa Barbara Boulevard via County Road (a/k/a Crews Road) which is a directional left-in median opening. A right ingress turn lane and left ingress turn lane were previously constructed at the median opening and the report concludes that those turn lanes are adequate in length to accommodate the traffic generated by Christ the King Church as discussed below.

Santa Barbara Boulevard has a posted speed limits of 45 MPH. Based upon FDOT's Standard Index No. 301, the total taper + deceleration lane will need to be 185' in length. The right turn lane is a free-flow condition, so no turn vehicle storage is required. It is estimated that the left turning movement is less than 100 vph and therefore, the queue will be less than 2 vehicles/hour which will require a minimum storage of 50'. Therefore, no further improvements are required.

Table C
Build-out Traffic Demands vs. Existing Intersection Improvements

Intersection	SB Left Ingress Turn Lane	NB Right Ingress Turn Lane
County Road @ Santa Barbara Blvd	Existing = 310'  Req. Decel+ Taper = 185'  Req. Storage = 50'	Existing = 265'  Req. Decel+ Taper = 185'  Req. Storage = 0'

### 2017 thru 2020 Project Build-out Traffic Conditions

In order to establish 2017 thru 2020 project build-out traffic conditions, two forecasting methods were used.

The first traffic forecasting method was the County's traffic count data was adjusted for peak season conditions, peak hour conditions, peak direction, and an annual growth rate was then applied. The peak season/peak hour/peak direction and annual growth rates were derived from the 2017 Collier County AUIR Report. Using the annual growth rate, the 2020 background traffic conditions were determined, which are depicted in Table 2B.

The second traffic forecasting method was to add the vested trips (trip bank) identified in the 2017 AUIR report to the adjusted peak season, peak hour and peak direction traffic counts. The vested trips "+" 2020 background traffic volumes are depicted in Table 2B.

The greater of the two values produced by the two forecasting procedures was then considered to reflect the 2020 background traffic. The net new project generated traffic was then added to the background traffic. Table 2C provides a summary of the 2017 thru 2020 traffic conditions and the roadways' level of service and remaining available capacity. As shown, all project impacted roadways will continue to operate at the County's adopted minimum level of service thresholds at project build-out.

TABLE 2B 2017 & 2020 ROADWAY LINK VOLUMES

Per Vested Trips Metho	2020	Peak Hour	PK Direction	Background	Per Vested Trips	(pdyda)	1584	863	740	661	1563	1002	1002	
				Trip	Bank	(pdyda)	144	163	40	171	213	112	112	
	Per Growth Rate Method	2020	Peak Hour	PK Direction	Background	(pdyda)	1528	743	743	520	1518	1001	1001	
	ď		Growth	Rate	per	AUIR	2.00%	2.00%	2.00%	2.00%	3.98%	4.00%	4.00%	
				AUIR	¥	DIR	Ш	Ш	^	Μ	z	S	S	
			2017	AUIR	Traffic	(pdyda)	1440	700	200	490	1350	890	890	
							County Barn to Santa Barbara	Santa Barbara to Radio Rd	County Barn to Santa Barbara	Santa Barbara to C.R. 951	Radio Rd to Davis Blvd	Davis Blvd to Site	Site to Rattlesnake Hammock	
							15.0 Davis Boulevard		74.0 Rattlesnake Ham.		78.0 Santa Barbara Blvd			
							15.0	16.1	74.0	75.0	78.0	79.1	79.2	

TABLE 2C 2020 ROADWAY LINK VOLUME/CAPACITY ANALYSIS

2020	Build-Out	Peak Hour	PK Direction	SO7	O	ш	മ	ш	B	ш	ш	
2020	<b>Build-Out</b>	Peak Hour	PK Direction	v/c Ratio	0.72	0.30	0.39	0.23	0.50	0.32	0.32	
	Serv. Vol.	Pk Hr	PK Dir	(pdyda)	2200	2900	1900	2900	3100	3100	3100	
2020	<b>Build-Out</b>	Peak Hour	PK Dir	(pdyda)	1585	864	744	999	1565	1005	1004	
						8	Ш	>	S	S	z	
	Project	Pk Hr	Non-PK Dir	(vph)	_	~	~	_	2	3	2	
				Di			≥	Ш	z	z	S	
	Project	Pk Hr	PK Dir	(pdyda)	-	-	~	_	2	2	2	
2020	Peak Hour	PK Direction	Background	FOS	ပ	œ	В	Ω	m	М	ш	
		Bkgd	폱	Δİ	Ш	ш	>	>	z	S	S	
2020	Peak Hour	PK Direction	Background	(pdyda)	1584	863	743	199	1563	1002	1002	
				FOS	ပ	m	8	ω	В	М	Δ	
	2017	Peak Hour	PK Direction	(pdyda)	1440	700	700	490	1350	890	890	
					County Barn to Santa Barbara	Santa Barbara to Radio Rd	County Barn to Santa Barbara	Santa Barbara to C.R. 951	Radio Rd to Davis Blvd	Davis Blvd to Site	Site to Rattlesnake Hammock	
					Davis Boulevard		Rattlesnake Ham.		78.0 Santa Barbara Blvd			
					15.0	16.1	74.0	75.0	78.0	79.1	79.2	

### JMB TRANSPORTATION ENGINEERING, INC.

TRAFFIC/TRANSPORTATION ENGINEERING & PLANNING SERVICES

## TRAFFIC IMPACT STATEMENT METHODOLOGY REPORT

For

## **Christ the King Presbyterian Church**

(Santa Barbra Boulevard, Collier County, Florida)

July 26, 2018

<u>County TIS Review Fees</u> TIS Methodology Review Fee = \$500.00 TIS (Small-Scale Study) Review Fee = \$0.00

Prepared by:

JMB TRANSPORTATION ENGINEERING, INC. 4711 7th Avenue SW

NAPLES, FLORIDA 34119

CERTIFICATE OF AUTHORIZATION No. 27830

(PROJECT No. 180713)

JAMES M BANKS, P.E. FLORIDE REG. NO. 43860 7-26-2018

DATE

### APPENDIX A

### **INITIAL MEETING CHECKLIST**

Suggestion: Use this Appendix as a worksheet to ensure that no important elements are overlooked. Cross out the items that do not apply.

Date: 7-26-2018	Time:

Location: Collier County Government Offices (North Horseshoe Drive)

### People Attending:

Name, Organization, and Telephone Numbers

- 1) James M. Banks, JMB Transportation Engineering, Inc., 239-919-2767
- 2) Michael Sawyer, Collier County Government
- 3)

4)

### **Study Preparer:**

Preparer's Name and Title: James M, Banks, P.E., President

Organization: JMB Transportation Engineering, Inc.

Address & Telephone Number: 4711 7th Avenue SW Naples, Florida 34119 (239)-919-

2767

### Reviewer(s):

Reviewer's Name & Title: Michael Sawyer Collier County Transportation Division

### **Applicant:**

Applicant's Name:

Address:

Telephone Number:

#### **Proposed Development:**

Name: Christ the King Orthodox Presbyterian Church

Location: Southeast corner of County Road and Santa Barbara Blvd

Land Use Type: Church (450 seats)

ITE Code #: LUC 560

Proposed number of development units: 18,000 s.f. of structures and 450 seats

Other:

Description:

Zoning:

Existing: Vacant

Comprehensive plan recommendation:

Requested:

Findings of the Preliminary Study: See the attached

**Study Type:** 

Small-Scale TIS

Study Area:

Boundaries: Based upon the County's 2%, 2% & 3% impact rule. See attached

Additional intersections to be analyzed: None

Horizon Year(s): 2020

Analysis Time Period(s): PM Peak

Future Off-Site Developments: None

Source of Trip Generation Rates: ITE Trip Generation Manual, 10th Edition (Table 1)

### **Reductions in Trip Generation Rates:**

Pass-by trips:

Internal trips (PUD):

Transmit use:

Other:

Horizon Year Roadway Network Improvements: 2022 per Collier County's 5-year CIE.

### **Methodology & Assumptions:**

Non-site traffic estimates: See Attached

Site-trip generation: See Table 1

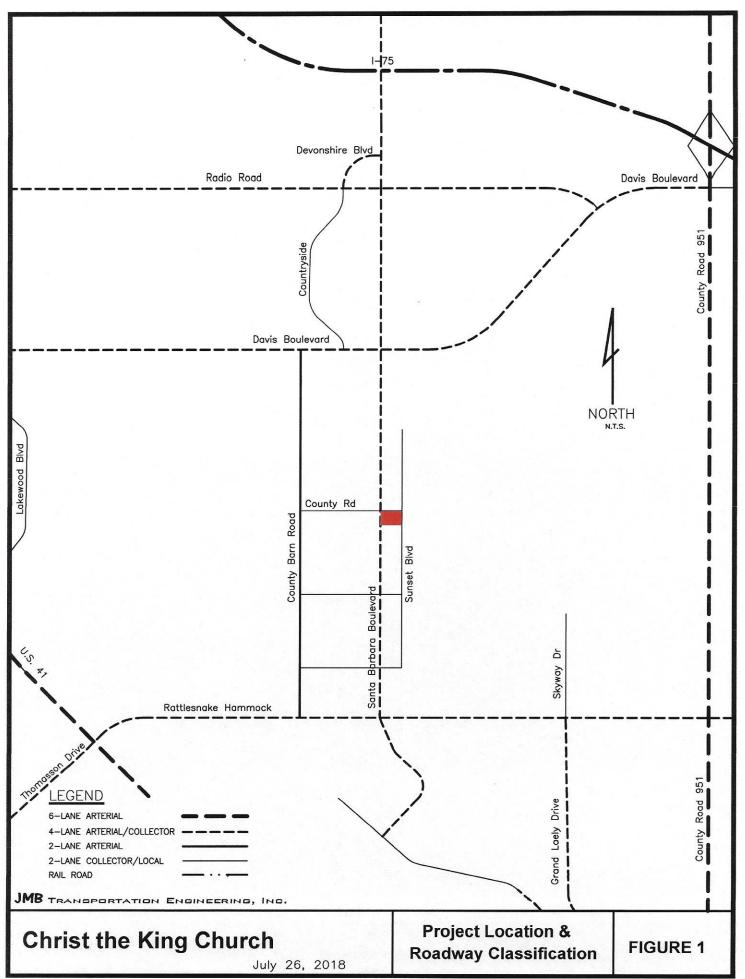
Trip distribution method: Based upon manual assignment (See Table 2A & Figure 2A)

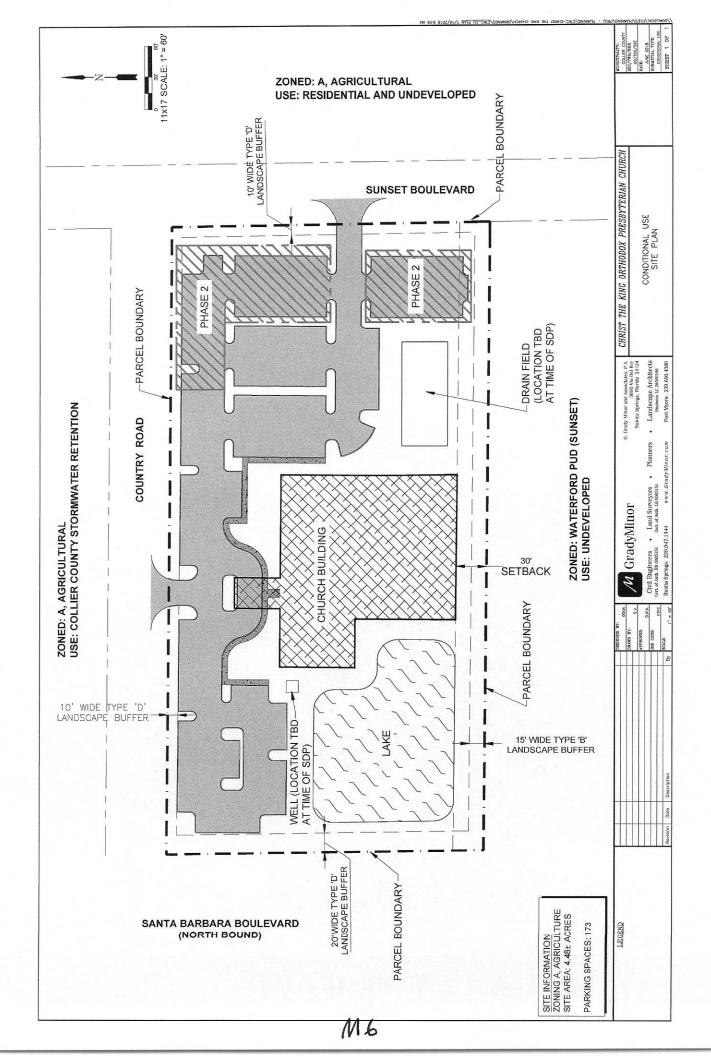
Traffic assignment method:

Traffic growth rate: Per Collier County Historical & Current AUIR Reports, but not less

than 2% or background or vested trips method, whichever is greater.

Special Features: (from preliminary study or prior experience)
Accidents locations:
Sight distance:
Queuing:
Access location & configuration:
Traffic control:
Signal system location & progression needs:
On-site parking needs:
Data Sources:
Base maps:
Prior study reports:
Access policy and jurisdiction:
Review process:
Requirements:
Miscellaneous:
Small Scale Study – No Fee $\underline{X}$
Minor Study - \$750.00
Major Study - \$1500.00 Includes 2 intersections
Additional Intersections - \$500.00 each <u>None</u>
All fees will be agreed to during the Methodology meeting and must be paid to Transportation prior to our sign-off on the application.
SIGNATURE
Study Preparer
Daviewans
Reviewers
Applicant





# TABLE 1 TRIP GENERATION COMPUTATIONS Christ the King Chruch

Land Use				
<u>Code</u>	Land Use Description	<u>Bu</u>	ild Schedule	
560	Church	(Sunday)	450 Seats	
560	Church	(Weekday)	18,000 s.f.	
LUC 560	Trip Period (Sunday) Daily Traffic (ADT) = Peak Hour (vph) =	Trip Generation Equation  T= 1.85(X) =  T= 0.61(X) =  50% Enter/ 50% Exit =	<u>Total Trips</u> (Sunday) 833 ADT 275 vph	
LUC 560	(Weekday) Daily Traffic (ADT) = AM Peak Hour (vph) = PM Peak Hour (vph) =	T=9.11(X) = T= 0.56(X) = 62% Enter/ 38% Exit = T= 0.34(X) + 5.24 = 48% Enter/ 52% Exit =	(Weekday) 164 ADT 10 vph 11 vph	6 / 4 vph

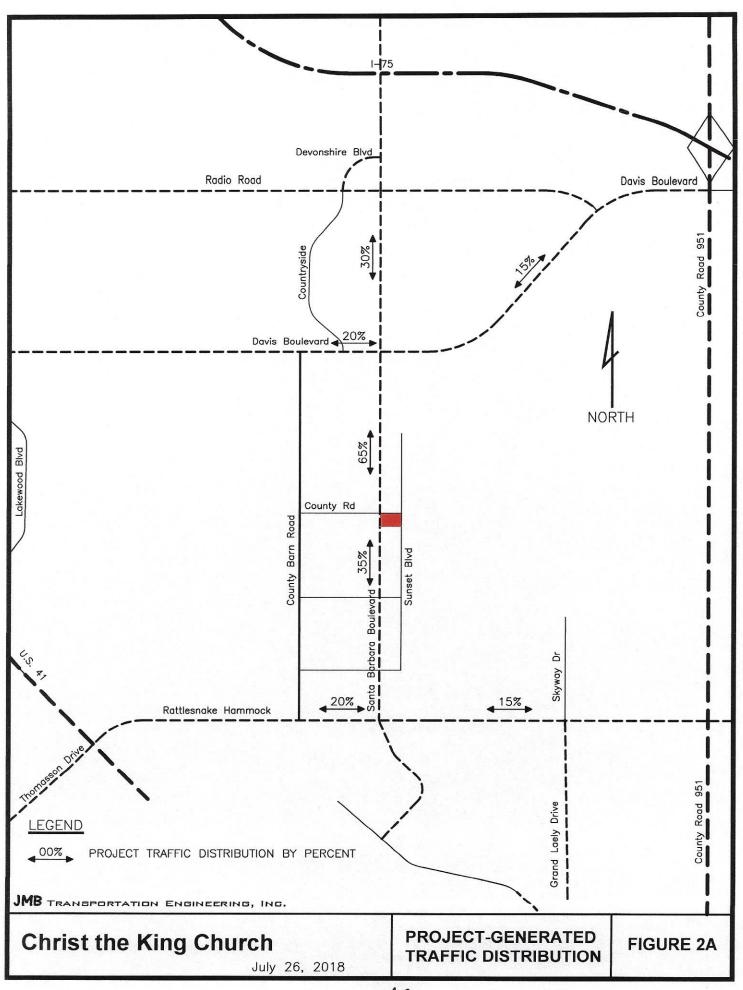


TABLE 2A PROJECT'S AREA OF IMPACT

Project Traffic Peak Direction (vphpd) = Project Traffic Non-Peak Direction (vph) =

6 Exiting 5 Entering

				LOS Service		Project		Project				
			PK Dir.	PK Direction	Project	Pk H	Project	Pk Hr	Project			
		Road	Serv. Vol.	Volume	Traffic	PK Dir	Pk Hr	Non-PK Dir	Non-Pk	Impact	Percent	Significant
		Class	FOS	(pdyda)	% Dist.	(pdyda)	Pk Dir	(vph)	DiR	Standard	Impact	Impact
Davis Boulevard	County Barn to Santa Barbara	40	۵	2200	. 20.0%	_	×	~	ш	2%	0.05%	ON
	Santa Barbara to Radio Rd	9 9	۵	2900	15.0%	_	Ш	~	8	2%	0.03%	ON
	Radio Rd to C.R 951	N9	۵	2900 1	15.0%	~	ш	~	>	3%	0.03%	ON.
Rattlesnake Ham.	County Barn to Santa Barbara	40	Ω	1900	20.0%	_	8	_	ш	2%	%90.0	9 N
	Santa Barbara to C.R. 951	09	۵	2900	15.0%	-	ш	<b>X</b>	M	7%	0.03%	ON
78.0 Santa Barbara Blvd	Radio Rd to Davis Blvd	Q9	Ш	3100	30.0%	2	z	2	တ	2%	0.06%	0
	Davis Blvd to Site	<u>е</u>	Ш	3100	65.0%	4	z	က	S	2%	0.13%	NO N
	Site to Rattlesnake Hammock	Q9	ш	3100	35.0%	7	S	2	z	2%	0.07%	NO N

TABLE 2B 2017 & 2020 ROADWAY LINK VOLUMES

								Per Vested Trips Methc	
						Per Growth Rate Method		2020	
						2020		Peak Hour	
			2017		Growth	Peak Hour		PK Direction	
			AUIR	AUIR	Rate	PK Direction		Background	
			Traffic	¥	per	Background		Per Vested Trips	
			(pdyda)	띪	AUIR	(pdyda)		(pdyda)	
15.0	15.0 Davis Boulevard	County Barn to Santa Barbara	1440	Ш	2.00%	1528		1584	
16.1		Santa Barbara to Radio Rd	700	Ш	2.00%	743		863	
74.0	74.0 Rattlesnake Ham.	County Barn to Santa Barbara	700	>	2.00%	743	40	740	
75.0		Santa Barbara to C.R. 951	490	<b>M</b>	2.00%	520		661	
78.0	78.0 Santa Barbara Blvd	Radio Rd to Davis Blvd	1350	z	3.98%	1518	213	1563	
79.1		Davis Blvd to Site	890	S	4.00%	1001	112	1002	
79.2		Site to Rattlesnake Hammock	890	S	4.00%	1001	112	1002	

TABLE 2C 2020 ROADWAY LINK VOLUME/CAPACITY ANALYSIS

2020 Build-Out						Ф	Ф	В	В	В	
2020 Build-Out	Peak Hour	PK Direction	v/c Ratio	0.72	0.30	0.39	0.23	0.50	0.32	0.32	
Serv. Vol.	Pk Hr	PK Dir	(pdydy)	2200	2900	1900	2900	3100	3100	3100	
2020 Build-Out	Peak Hour	PK Dir	(pdyda)	1585	864	744	662	1565	1005	1004	
	Prjct	Non-Pk	Dir	Ш	>	Ш	8	S	S	z	
Project	Pk Hr	Non-PK Dir	(vph)	~	~	-	_	2	co	2	
			٥			≥	ш	z	z	S	
Project	Pk Hr	PK Dir	(pdyda)	_	_	_	_	2	4	2	
2020 Peak Hour	PK Direction	Background	<u>ros</u>	ပ	œ	m	М	Ω	М	В	
	Bkgd	품	힏	Ш	ш	3	>	z	S	S	
2020 Peak Hour	PK Direction	Background	(pdyda)	1584	863	743	199	1563	1002	1002	
			FOS	ပ	ω	Ω	ш	Ω	Ф	00	
2017	Peak Hour	PK Direction	(pdyda)	1440	200	700	490	1350	890	890	
				County Barn to Santa Barbara	Santa Barbara to Radio Rd	County Barn to Santa Barbara	Santa Barbara to C.R. 951	Radio Rd to Davis Blvd	Davis Blvd to Site	Site to Rattlesnake Hammock	
				15.0 Davis Boulevard		Rattlesnake Ham.		Santa Barbara Blvd			
				15.0	16.1	74.0	75.0	78.0	79.1	79.2	