

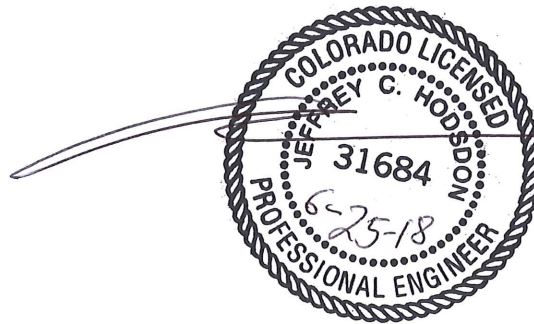


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St. Benedict Catholic Church
Addendum to the March 20, 2015 Traffic Impact Study
(LSC #144400)
June 21, 2018

Traffic Engineer's Statement

This traffic report and supporting information were prepared under my responsible charge and they comport with the standard of care. So far as is consistent with the standard of care, said report was prepared in general conformance with the criteria established by the County for traffic reports.



Developer's Statement

I, the Developer, have read and will comply with all commitments made on my behalf within this report.

+ Michael J. Hodson

6/22/18
Date



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June 21, 2018

Mr. Bruce W. Barr, AIA
Art C. Klein Construction
3370 Chelton Loop South
Colorado Springs, CO 80909

RE: St. Benedict Catholic Church
El Paso County, CO
Addendum to the March 20, 2015 TIS
LSC #144400

Dear Mr. Barr:

In response to your request, LSC Transportation Consultants, Inc. has prepared this addendum letter to the March 20, 2015 traffic impact study (TIS) for St. Benedict Catholic Church located on the 35.9-acre property at 12150 Falcon Highway in El Paso County, Colorado. The church has access to Falcon Highway and a shared access between the adjacent School District 49 school. The site location is shown on Figure 1.

The traffic control plan dated July 20, 2015 is currently used during the arrival time for 9:00 a.m. Sunday Mass. This plan creates a temporary, one-way traffic restriction at the church access on Falcon Highway on Sunday morning. Traffic data collected during a "test scenario" in December 2017 shows eastbound left-turn volumes at a level below the 25-vehicle-per-hour threshold necessitating the traffic control plan. As such, the applicant is requesting to be relieved of the requirement for the traffic control plan on Sunday mornings and the access to Falcon Highway be allowed to operate without turn movement restrictions.

LAND USE AND ACCESS PLAN

The 35.9-acre site is north of Falcon Highway and east of Meridian Road. The church has been constructed and has 220 seats in the main worship area. In addition to the church, there is one single-family home on the site currently used for priest housing. The second (former) single-family home is used for administration.

St. Benedict Catholic Church parish currently holds 9:00 a.m. Mass on Sunday mornings and 5:00 p.m. Mass on Saturday afternoons. Religious education classes are held after mass on Sundays. The church does not host weekday or evening religious education classes; however,

they hold occasional weekday evening meetings, weekend daytime or evening social events, and youth programs.

The site has an existing access to Falcon Highway, about 1,850 feet east of Meridian Road. This access has been widened to 28 feet and is paved.

In addition, the St. Benedict site was purchased with a historic, gated, access between the adjacent School District 49 school. This drive has been made a legal easement to allow for use by a private agreement between School District 49 and the Diocese. This access connects to Swingline Road via a north/south gravel road that extends along the east side of the school district property.

EXISTING TRAFFIC CONDITIONS

Although the traffic control plan includes direction signs intended to direct arriving motorists to the access via Swingline Road, the church has reported occurrences of eastbound motorists traveling to the church for Mass (likely newcomers) making eastbound (to westbound) U-turns on Falcon Highway at the church access intersection. This intersection does not have sufficient width or laneage to properly accommodate U-turns.

Figure 2 shows the existing one-hour traffic volumes at the existing site access to Falcon Highway during the Sunday entering-traffic peak hour of the church. This peak hour occurred for one hour associated with the beginning of the 9:00 a.m. Mass. The traffic volumes were based on manual turning counts conducted by LSC on Sunday, December 10, 2017 from 8:00 to 9:30 a.m. The traffic count reports are attached.

These counts were conducted as part of “test scenario” for purposes of determining the entering volume at the Falcon Highway access without the traffic control plan and associated restriction on entering traffic in place. The counts were taken after the church leadership notified the parish the week prior that the Falcon Highway access would be open to entering traffic before Mass (i.e., that the turn restrictions on Falcon Highway would be lifted). The church coordinated with the sheriff’s office to provide oversight and traffic control if necessary in the absence of the traffic control plan.

The counts indicate five eastbound left turning vehicles per hour during the Sunday morning peak hour – prior to the start of Mass.

Existing Level of Service

Level of service (LOS) is a quantitative measure of the level of delay at an intersection. Level of service is indicated on a scale from A to F. LOS A represents control delay of less than 10 seconds for unsignalized and signalized intersections. LOS F represents control delay of more

than 50 seconds for unsignalized intersections and more than 80 seconds for signalized intersections. Table 1 shows the level of service delay ranges.

Table 1			
Intersection Levels of Service Delay Ranges			
Level of Service	Signalized Intersections		Unsignalized Intersections
	Average Control Delay (seconds per vehicle)	V/C⁽¹⁾	Average Control Delay (seconds per vehicle)⁽²⁾
A	10.0 sec or less	less than 0.60	10.0 sec or less
B	10.1-20.0 sec	0.60-0.69	10.1-15.0 sec
C	20.1-35.0 sec	0.70-0.79	15.1-25.0 sec
D	35.1-55.0 sec	0.80-0.89	25.1-35.0 sec
E	55.1-80.0 sec	0.90-0.99	35.1-50.0 sec
F	80.1 sec or more	1.00 and greater	50.1 sec or more

(1) Source: *Transportation Research Circular 212*
 (2) For unsignalized intersections if V/C ratio is greater than 1.0 the level of service is LOS F regardless of the projected average control delay per vehicle.

The existing site access to Falcon Highway has been analyzed to determine the existing level of service during the Sunday peak hour based on the unsignalized method of analysis procedures outlined in the latest *Highway Capacity Manual, 6th Edition* by the Transportation Research Board. The results of the analysis are shown in Figure 2. The level of service reports are attached.

All movements at the existing site access to Falcon Highway are currently operating at LOS A on Sundays between 8:15 and 9:15 a.m., the peak hour of the entering church traffic.

TRIP GENERATION

The attached Table 2 presents the updated trip generation estimate for the church based on current 10th Edition ITE Trip Generation rates. The ITE trip generation estimate shows fewer trips generated than the estimate contained in the March 20, 2015 study. This is because the updated ITE rates are lower than the 9th Edition rates.

RECOMMENDATIONS

The traffic control plan dated July 20, 2015 is currently used during the arrival time for 9:00 a.m. Sunday Mass. This plan created a temporary, one-way traffic restriction at the church access on Falcon Highway based on the potential for a future eastbound left-turn volume of greater than 25 vehicles per hour during the Church Sunday peak hour of entering traffic.

Although the traffic control plan includes direction signs intended to direct arriving motorists to the access via Swingline Road, the church has reported occurrences of eastbound motorists traveling to the church for Mass (likely newcomers) making eastbound (to westbound) U-turns on Falcon Highway at the church access intersection. This intersection does not have sufficient width or laneage to properly accommodate U-turns.

Traffic data collected in the field in December 2017 shows that the eastbound left-turn volume (five vehicles per hour) recorded during a "test scenario" is well below the 25-vehicles-per-hour threshold requiring the turn lane. Based upon the "test scenario" results, the County should grant the applicant's request that the requirement for the weekly traffic control plan on Sunday mornings be removed and the access to Falcon Highway be allowed to operate without turn movement restrictions unless and until conditions change such that the eastbound left-turn volume at the Church access on Falcon Highway exceeds 25 vehicles per hour during typical Sunday Masses (Christmas and Easter traffic volumes should not be used as these are not typical Sundays with respect to Church traffic volumes).

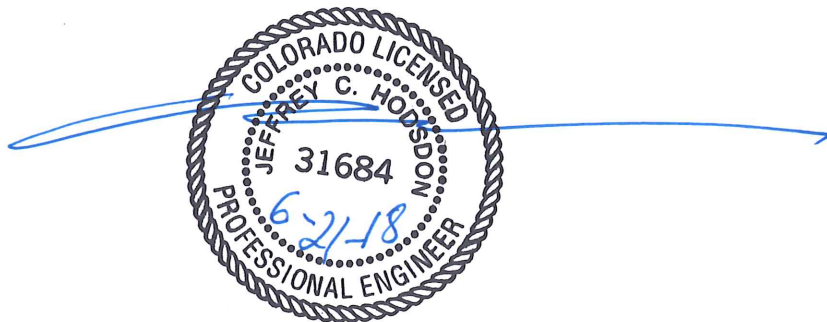
Construction is anticipated to begin nearby in fall 2018 on the Meridian Road South PPRTA project. Construction activity may affect the current traffic patterns of Mass attendees. LSC recommends the church administration coordinate with the El Paso County project manager for the Meridian Road South project regarding construction phasing.

* * * * *

Please contact me if you have any questions.

Sincerely,

LSC TRANSPORTATION CONSULTANTS, INC.



Jeffrey C. Hodsdon, P.E., PTOE
Principal

JCH:bjwb

Enclosures: Figures 1 and 2
Traffic Count Reports
Level of Service Report

**Table 2
Trip Generation Estimate
St. Benedict Catholic Church**

Land Use Code	Land Use Description	Trip Generation Units	Trip Generation Rates ⁽¹⁾								Total Trips Generated							
			Average Weekday Traffic	Weekday				Sunday			Average Weekday Traffic	Weekday				Average Sunday Traffic	Sunday	
				Morning Peak Hour	Afternoon Peak Hour	Average Sunday Traffic	Sunday Peak Hour		Morning Peak Hour	Afternoon Peak Hour		Average Sunday Traffic	Morning Peak Hour	Sunday Peak Hour				
							In	Out							In		Out	
560	Church	8.484 KSF ⁽²⁾	6.95	0.20	0.13	0.22	0.27	---	---	---	59	2	1	2	2	---	---	---
560	Church	220 Seats	---	---	---	---	---	1.21	0.26	0.28	---	---	---	---	---	266	58	61
											59	2	1	2	2	266	58	61

Notes:

(1) Source: "Trip Generation, 10th Edition, 2016" by the Institute of Transportation Engineers (ITE)

(2) KSF = Thousand square feet (includes floor area of the chapel and administration building)

Date: 6/20/18

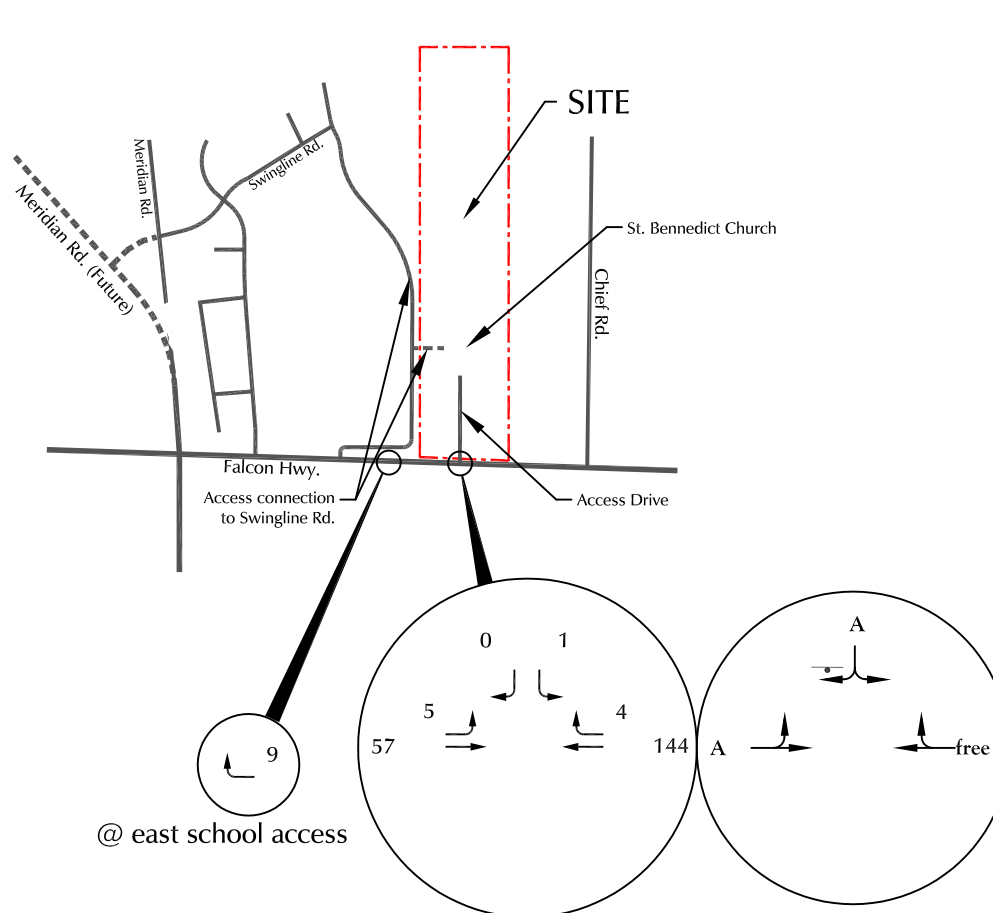
Source: LSC Transportation Consultants, Inc.



Approximate Scale
Scale: 1" = 1,200'

Figure 1
**Vicinity
Map**

St. Benedict Catholic Church (LSC #144400)



Approximate Scale
Scale: 1" = 1,200'

LEGEND:

† = Stop Sign

XX = Sunday Peak-Hour* Traffic (8:15-9:15am) (Based on counts by LSC Sunday December 10, 2017)

A = Sunday Individual Movement Peak-Hour Level of Service

Figure 2

Existing Sunday AM Peak-Hour* Traffic, Lane Geometry, Traffic Control and Level of Service

* Peak-Hour of Church Traffic

St. Benedict Catholic Church (LSC #144400)



Counts by LSC

LSC Transportation Consultants, Inc.

File Name : Falcon Hwy Church Access Sun
 Site Code : 00144400
 Start Date : 12/10/2017
 Page No : 1

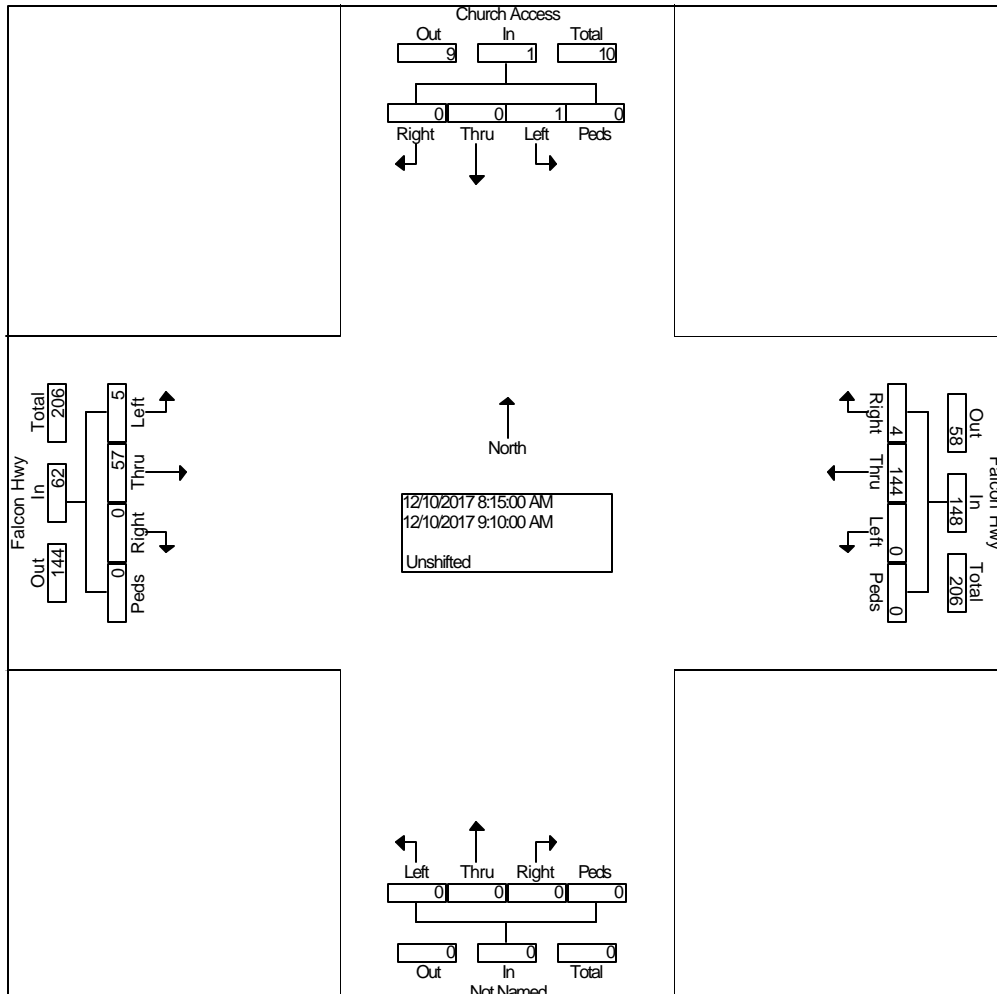
Groups Printed- Unshifted

Start Time	Church Access From North				Falcon Hwy From East				From South				Falcon Hwy From West				Int. Total	
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds		
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		
08:00 AM	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	1	0	6
08:05 AM	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	5
08:10 AM	0	0	0	0	0	8	0	0	0	0	0	0	0	2	1	0	0	11
08:15 AM	0	0	0	0	0	12	0	0	0	0	0	0	0	6	0	0	0	18
08:20 AM	0	0	0	0	0	14	0	0	0	0	0	0	0	4	0	0	0	18
08:25 AM	0	0	0	0	0	12	0	0	0	0	0	0	0	2	0	0	0	14
08:30 AM	0	0	1	0	0	9	0	0	0	0	0	0	0	4	0	0	0	14
08:35 AM	0	0	0	0	1	21	0	0	0	0	0	0	0	4	0	0	0	26
08:40 AM	0	0	0	0	1	14	0	0	0	0	0	0	0	4	0	0	0	19
08:45 AM	0	0	0	0	0	8	0	0	0	0	0	0	0	1	0	0	0	9
08:50 AM	0	0	0	0	1	13	0	0	0	0	0	0	0	3	2	0	0	19
08:55 AM	0	0	0	0	0	11	0	0	0	0	0	0	0	8	1	0	0	20
Total	0	0	1	0	3	132	0	0	0	0	0	0	0	38	5	0	0	179
09:00 AM	0	0	0	0	1	10	0	0	0	0	0	0	0	5	2	0	0	18
09:05 AM	0	0	0	0	0	8	0	0	0	0	0	0	0	7	0	0	0	15
09:10 AM	0	0	0	0	0	12	0	0	0	0	0	0	0	9	0	0	0	21
Grand Total	0	0	1	0	4	162	0	0	0	0	0	0	0	59	7	0	0	233
Apprch %	0.0	0.0	100.0	0.0	2.4	97.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	89.4	10.6	0.0	0.0	
Total %	0.0	0.0	0.4	0.0	1.7	69.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.3	3.0	0.0	0.0	

Counts by LSC

File Name : Falcon Hwy Church Access Sun
 Site Code : 00144400
 Start Date : 12/10/2017
 Page No : 2

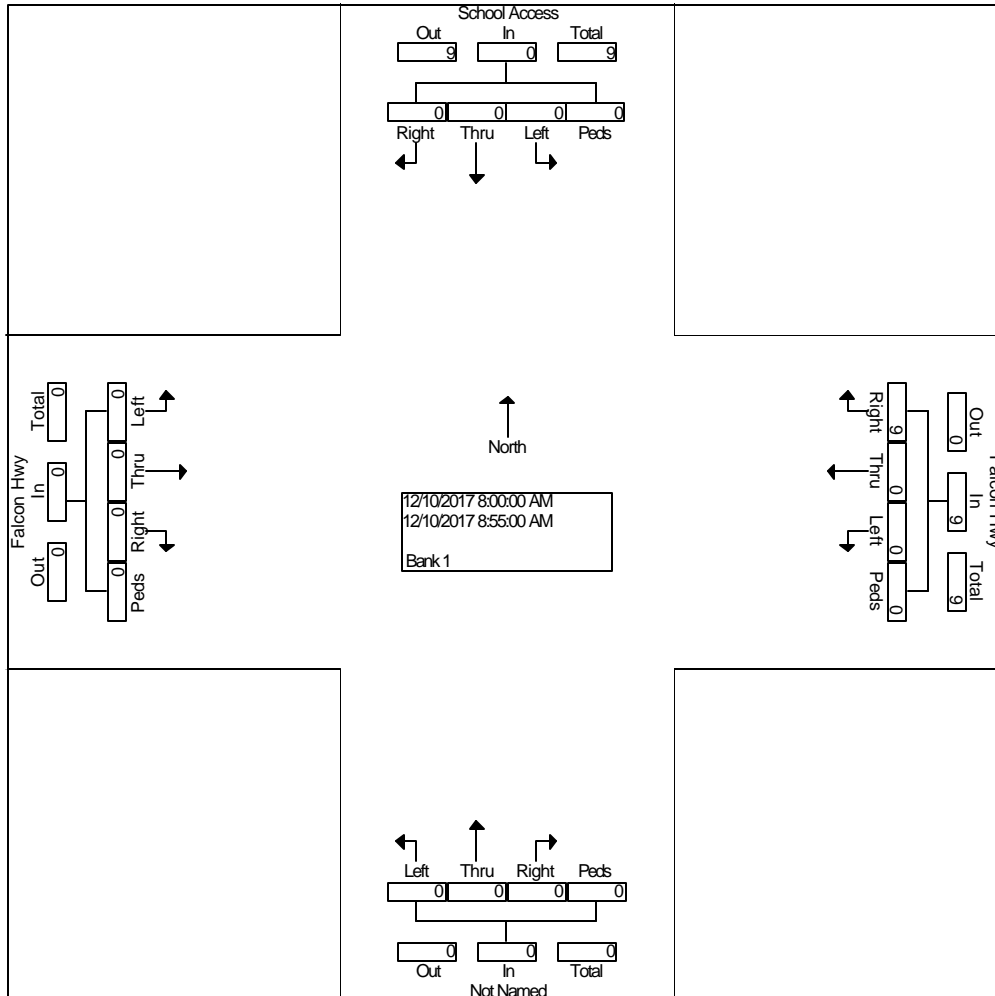
Start Time	Church Access From North					Falcon Hwy From East					From South					Falcon Hwy From West					Int. Total
	Rig ht	Thr u	Lef t	Pe ds	App. Total	Rig ht	Thr u	Lef t	Pe ds	App. Total	Rig ht	Thr u	Lef t	Pe ds	App. Total	Rig ht	Thr u	Lef t	Pe ds	App. Total	
Peak Hour From 08:00 AM to 09:10 AM - Peak 1 of 1																					
Intersection	08:15 AM																				
Volume	0	0	1	0	1	4	14	0	0	148	0	0	0	0	0	0	57	5	0	62	211
Percent	0.0	0.0	10.0	0.0		2.7	97.3	0.0	0.0		0.0	0.0	0.0	0.0		0.0	91.9	8.1	0.0		
08:35 Volume	0	0	0	0	0	1	21	0	0	22	0	0	0	0	0	0	4	0	0	4	26
Peak Factor																					
High Int.	08:30 AM					08:35 AM					7:55:00 AM					08:55 AM					
Volume	0	0	1	0	1	1	21	0	0	22	0	0	0	0	0	0	8	1	0	9	9
Peak Factor	0.08					0.56										0.57					0.676
Factor	3					1										4					



Counts by LSC

File Name : Falcon Hwy School Access Sun
 Site Code : 00144400
 Start Date : 12/10/2017
 Page No : 2

Start Time	School Access From North					Falcon Hwy From East					From South					Falcon Hwy From West					Int. Total	
	Rig ht	Thr u	Lef t	Pe ds	App. Total	Rig ht	Thr u	Lef t	Pe ds	App. Total	Rig ht	Thr u	Lef t	Pe ds	App. Total	Rig ht	Thr u	Lef t	Pe ds	App. Total		
Peak Hour From 08:00 AM to 09:10 AM - Peak 1 of 1																						
Intersection	08:00 AM																					
Volume	0	0	0	0	0	9	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0	9
Percent	0.0	0.0	0.0	0.0		10	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0			
08:45 Volume	0	0	0	0	0	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	3
Peak Factor																						
High Int.	7:55:00 AM					08:45 AM					7:55:00 AM					7:55:00 AM						
Volume	0	0	0	0	0	3	0	0	0	3												
Peak Factor						0.25																



HCM 6th TWSC
3: Falcon Hwy & Site Access

Existing Traffic
Sunday Peak Hour (8:15-9:15 AM)

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↶	↷		↶	↷
Traffic Vol, veh/h	5	57	144	4	1	0
Future Vol, veh/h	5	57	144	4	1	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	100	100	25	25
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	71	144	4	4	0

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	148	0	-	0	229
Stage 1	-	-	-	-	146
Stage 2	-	-	-	-	83
Critical Hdwy	4.12	-	-	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	2.218	-	-	-	3.518
Pot Cap-1 Maneuver	1434	-	-	-	759
Stage 1	-	-	-	-	881
Stage 2	-	-	-	-	940
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1434	-	-	-	756
Mov Cap-2 Maneuver	-	-	-	-	756
Stage 1	-	-	-	-	877
Stage 2	-	-	-	-	940

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	9.8
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1434	-	-	-	756	-
HCM Lane V/C Ratio	0.004	-	-	-	0.005	-
HCM Control Delay (s)	7.5	0	-	-	9.8	0
HCM Lane LOS	A	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	-	0	-