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## Rollin' Ridge Traffic Impact Study (LSC #174470) January 3, 2018

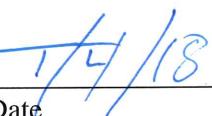
Add "PCD File No P181"

### 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.

  
Jeffrey C. Hodson, P.E., #31684



  
Date

### Developer's Statement

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



  
Date



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January 4, 2018

TC & C, LLC  
c/o Carl Turse  
17572 Colonial Park Drive  
Monument, CO 80132-2209

RE: Rollin' Ridge  
El Paso County, CO  
Traffic Impact Study  
LSC #174470

Dear Mr. Turse:

LSC Transportation Consultants, Inc. has prepared this traffic impact study for the proposed Rollin' Ridge development planned to be located southwest of the intersection of Hodgen Road/State Highway 83 in Colorado Springs, Colorado. One access to Hodgen Road, located approximately 900 feet west of State Highway (SH) 83 and across from Cherry Crossing Drive, is proposed for the site. No direct access to SH 83 is proposed. This report has been prepared for submittal to the Colorado Department of Transportation (CDOT) and El Paso County.

## REPORT CONTENTS

The preparation of this report included the following:

- An inventory of existing road and traffic conditions near the intersections of Hodgen Road with SH 83 and Cherry Crossing Drive adjacent to the site, including functional classification, traffic control signs, posted speed limits, intersection and access spacing, roadway and intersection alignments, and any auxiliary turn lanes.
- Weekday morning and late afternoon peak-hour turning movement traffic counts at the following intersections:
  - SH 83/Hodgen Road
  - Hodgen Road/Cherry Crossing Drive
- CDOT annual average daily traffic volumes.
- Projections of 20-year background traffic volumes on SH 83 and adjacent to the proposed site access on Hodgen Road.
- Proposed site land use and access locations.

- Estimates of average weekday peak-hour trip generation for the proposed development, including the estimated directional distribution of site-generated vehicle-trips on SH 83 and adjacent to the intersection of Hodgen Road/site access/Cherry Crossing Drive near the site.
- Projected site-generated and resulting total traffic.
- Intersection level of service analysis.
- Auxiliary right-/left-turn lane needs analysis based on the projected volumes and criteria in the El Paso County *Engineering Criteria Manual* (ECM) and the *Colorado State Highway Access Code*.
- Findings and recommendations.

## LAND USE AND ACCESS

Figure 1 shows the site location relative to the adjacent and nearby roadways. Rollin' Ridge is planned to contain 16 lots for **single-family homes** and a commercial site. The site plan is shown in Figure 2a and Figure 2b.

Rollin' Ridge's most recent commercial site plan identifies several buildings with a mix of land uses, as shown in Table 1.

**Table 1: Land Uses for Proposed Rollin' Ridge Commercial Development**

Lot #	ITE Code	ITE Land Use Description	Value	Units
17	946	Gasoline/Service Station w/ Convenience Market	5.000	KSF*
18	720	Medical-Dental Office Building	5.000	KSF
	820	Shopping Center	5.000	KSF
19	820	Shopping Center	5.000	KSF
	820	Shopping Center	5.000	KSF
	820	Shopping Center	5.000	KSF
	820	Shopping Center	5.000	KSF

\* KSF = 1,000 square feet  
12 vehicle fueling positions (VFPs) are planned

Access to Hodgen Road is proposed via a full-movement access located approximately 900 feet west of SH 83 (centerline spacing) and across from Cherry Crossing Drive.

## ROAD AND TRAFFIC CONDITIONS



### Area Roads and Streets

State what the sight distance is at the site access to Hodgen and whether it can be met. If it cannot be met, state the required modifications so that it can be met.

Figure 1 shows the roads in the vicinity of the site. The major roads are identified below followed by a brief description of each:

**State Highway (SH) 83** extends from Colorado Springs north to Parker and areas of southeast Denver. In the vicinity of the site, SH 83 is classified as a Regional Highway (R-A). At this location,

SH 83 is a two-lane rural highway with two- to four-foot shoulders and a speed limit of 60 miles per hour (mph). The intersection with Hodgen Road is signalized. Per the El Paso County 2040 *Major Transportation Corridors Plan (MTCP)*, SH 83 is projected to be expanded from a two-lane highway to a four-lane highway by 2040. Additionally, the southbound approach is projected to have a dual left-turn lane and an exclusive right-turn lane by 20 Update to include the MTCP Corridor Preservation Plan.

**Hodgen Road** is a two-lane paved Rural Principal Arterial that extends west from State Highway 83 to Roller Coaster Road, where it continues west as Baptist Road. Hodgen also extends east from the intersection of Roller Coaster Road/Baptist Road to Eastonville Road (as a Minor Arterial). The speed limit on Hodgen Road is 40 mph adjacent to the site.

**Cherry Crossing Drive** is a north/south,

**Traffic Volumes**

Elaborate. Does the intersection along Hodgen Rd b/w Cherry Crossing Dr and Hwy 83 meet County Criteria. If not may need to identify that a deviation request is required in the recommendation section and submit a deviation request.

Turning movement traffic counts were

8:30 a.m. and from 4:00 to 6:00 p.m. at the intersections of Hodgen Road with SH 83 and Cherry Crossing Drive, as shown in Figure 3. Raw count volume data is attached for reference. The figure also shows CDOT annual average daily traffic volumes.

## TRIP GENERATION

Estimates of the vehicle-trips projected to be generated by the proposed development have been made using the nationally published trip generation rates from *Trip Generation, 10<sup>th</sup> Edition, 2017* by the Institute of Transportation Engineers (ITE).

### Pass-By and Diverted Trips

The total number of trips generated by the site has also been aggregated by trip type to account for pass-by and diverted trips. A pass-by trip is one made by a motorist who would already be on an adjacent road regardless of the proposed development, but who stops in at the site while passing by. That pass-by motorist would then continue on his or her way to a final destination in the original direction. Table 6 (attached) shows the percent of the trips generated that were assumed to be pass-by trips. Pass-by percentage has been based on data from the *Trip Generation Handbook - An ITE Proposed Recommended Practice, 3rd Edition, 2014* by ITE and adjustments by LSC for site-specific conditions.

Analysis also accounts for diverted trips from adjacent State Highway 83. These trips are considered non-pass-by trips. These trips would be added to Hodgen Road and would result in altered turning movements at the nearby major intersection of SH 83/Hodgen Road. New trips would also be added to the proposed site access intersection.

Elaborate. Identify the ITE average and the adjustment proposed by LSC. Explain the site-specific condition that lead to the LSC value.

The proposed site is projected to generate about 2,899 non-pass-by total vehicle-trips on the **average weekday** during a 24-hour period. This includes a significant percentage of diverted trips from the SH 83/Hodgen intersection.

### Driveway Trips

Table 2, below, presents a summary of the estimated site trip generation. The detailed trip generation estimate for the development, including ITE rates for the proposed land use, is presented in Table 6 (attached).

During the morning peak hour, approximately 157 vehicles would enter and 116 vehicles would exit the site. During the evening peak hour, approximately 183 vehicles would enter and 183 vehicles would exit the site. The morning peak-hour trip generation may be conservative depending on this particular store's opening time.

**Table 2: Estimated Peak-Hour Vehicle-Trip Generation**

Analysis Period	Weekday		
	In	Out	Total
A.M. Peak Hour (Driveway Trips)	157	116	271
P.M. Peak Hour (Driveway Trips)	183	183	366

## TRIP DISTRIBUTION AND ASSIGNMENT

### Trip Directional Distribution

An estimate of the directional distribution of site-generated vehicle-trips to the study area roads and intersections is a necessary component in determining the site's traffic impacts. Figure 4 shows the directional distribution estimate for the site-generated trips. The figure shows the percentages of the site-generated vehicle-trips projected to be oriented to and from the site's major approaches.

Estimated percentages have been based on the following factors: the site's proposed land uses, the area roadway system, the anticipated service area, and the existing and projected peak-hour traffic volumes. Additionally, Figure 4 shows the separate estimated pass-by and diverted trip distributions.

### Site-Generated Traffic

Site-generated traffic volumes at the proposed site access and the intersection of SH 83/Hodgen have been calculated by applying the directional distribution percentages estimated by LSC to the trip generation estimates (from Table 2). Figure 5 shows the projected site-generated traffic volumes for the weekday morning and evening peak hours.

## FUTURE TRAFFIC VOLUMES

### Existing Plus Site-Generated Traffic

Figure 6 shows the sum of the 2017 existing background traffic volumes (from Figure 3) and site-generated peak-hour traffic volumes (shown in Figure 5). These volumes represent the projected short-term total traffic following site buildout. Lane geometry and traffic control at the proposed Hodgen/site access and SH 83/Hodgen intersections are also shown in this figure.

### Long-Term Background (2040)

Figure 7 shows the estimated background traffic volumes for the year 2040. These are estimates by LSC based on historical count data, CDOT factors, and other traffic studies completed in the area. Traffic from the site is not included in the 2040 background traffic volumes

### Long-Term Total Traffic (2040)

Figure 8 shows the sum of 2040 background traffic volumes (from Figure 7) plus the site-generated traffic volumes (from Figure 5). Figure 7 and Figure 8 also show the lane geometry and traffic control at the proposed site access intersection and the intersection of SH 83/Hodgen for the 2040 background and background plus site conditions, respectively.

## LEVEL OF SERVICE ANALYSIS

Level of service (LOS) is a quantitative measure of the level of congestion or delay at an intersection and is indicated on a scale from "A" to "F." LOS A is indicative of little congestion or delay. LOS F indicates a high level of congestion or delay. Table 3 shows the level of service delay ranges for signalized and unsignalized intersections.

**Table 3: Intersection Levels of Service Delay Ranges**

Level of Service	Signalized Intersections		Unsignalized Intersections
	Average Control Delay (seconds/vehicle)	V/C <sup>(1)</sup>	Average Control Delay (seconds/vehicle) <sup>(2)</sup>
A	≤ 10.0	< 0.60	≤ 10.0
B	10.1 – 20.0	0.60 – 0.69	10.1 – 15.0
C	20.1 – 35.0	0.70 – 0.79	15.1 – 25.0
D	35.1 – 55.0	0.80 – 0.89	25.1 – 35.0
E	55.1 – 80.0	0.90 – 0.99	35.1 – 50.0
F	≥ 80.1	≥ 1.00	≥ 50.1

(1) Source: *Transportation Research Circular 212*

(2) For unsignalized intersections, if V/C is > 1.00, then LOS is LOS F regardless of the projected average control delay per vehicle.

The proposed access intersection on Hodgen Road and the SH 83/Hodgen intersection have been analyzed to determine the projected control delay and corresponding levels of service and for the key turning movements. As the proposed site access intersection with Hodgen Road is/will be two-way stop-sign controlled (TWSC), traffic on the northbound and southbound approaches incur delay given the stop-sign control. The major street left-turn movements also incur delay.

### Morning Peak Hour

A summary of current and projected 2040 background traffic conditions—both with and without considering site-generated traffic—is shown in Table 4. LOS and control delays during the weekday morning peak hour are shown in this table. Detailed Synchro reports are attached. SimTraffic simulation results were used in place of the *Highway Capacity Manual* (HCM) results at the TWSC site access intersection with Hodgen Road, as the SimTraffic micro-simulation better accounts for westbound traffic gaps created by nearby Hodgen/SH 83 signalized intersection.

**Table 4: Level of Service Comparison by Scenario (A.M. Peak)**

Analysis Period	Site Access @ Hodgen					SH 83 @ Hodgen					
	Control*	SB	NBL	NBR	WBL	Control	Overall	EBL	WBL	NBL	SBL
LOS											
2017 Existing	TWSC	A	-	-	-	Signal	B	A	B	A	A
2017 Existing + Site		A	B	A	A		B	B	B	A	A
2040 Background		C	-	-	-		C	C	C	B	B
2040 Background + Site		C	C	A	A		C	C	C	B	B
Control Delay (Seconds)											
2017 Existing	TWSC	9.3	-	-	-	Signal	10.3	9.5	15.4	9.3	9.8
2017 Existing + Site		7.8	8.8	2.9	4.5		10.2	10.3	15.6	9.9	9.5
2040 Background		16.4	-	-	-		23.0	23.2	31.5	16.9	16.1
2040 Background + Site		14.4	17.4	4.3	5.8		21.7	20.6	25.8	16.6	15.5
* TWSC = Two-Way Stop-Sign Control											

### Site Access/Hodgen Road

All turning movements at this intersection are projected to operate at LOS C or better for all short-term and long-term morning peak-hour traffic conditions, with or without development.

### SH 83/Hodgen Road

All turning movements at this intersection are projected operate at LOS C or better in the short and long term during the weekday morning peak hour.

### Evening Peak Hour

A summary of current and projected 2040 background traffic conditions—both with and without considering site-generated traffic—is shown in Table 5. LOS and control delays during the weekday evening peak hour are shown in this table. Detailed Synchro reports are attached.

**Table 5: Level of Service Comparison by Scenario (P.M. Peak)**

Analysis Period	Site Access @ Hodgen					SH 83 @ Hodgen					
	Control	SB	NBL	NBR	WBL	Control	Overall	EBL	WBL	NBL	SBL
<b>LOS</b>											
2017 Existing	TWSC*	B	-	-	-	Signal	A	B	B	A	B
2017 Existing + Site		B	B	A	A		A	B	B	A	B
2040 Background		B	-	-	-		C	C	C	B	B
2040 Background + Site		C	C	A	A		C	C	C	B	B
<b>Control Delay (Seconds)</b>											
2017 Existing	TWSC	10.6	-	-	-	Signal	9.4	12.7	16.5	7.3	13.2
2017 Existing + Site		10.0	13.2	4.4	5.6		9.0	12.8	15.4	8.3	10.5
2040 Background		10.4	-	-	-		24.0	24.9	25.0	14.8	14.6
2040 Background + Site		27.1	26.0	6.0	9.9		24.5	28.1	25.3	16.8	14.8

\* TWSC = Two-Way Stop Sign Control

### Site Access/Hodgen Road

All turning movements at the intersection of Hodgen Road/Cherry Crossing Drive/site access currently operate and are projected to remain at LOS C or better for all short-term and long-term evening traffic conditions, with or without development.

### SH 83/Hodgen Road

This intersection is projected to operate at LOS D or weekday evening peak hour.

Update to include recommendations regarding ROW dedication and preservation.

### **CONCLUSIONS AND RECOMMENDATIONS**

- The site is projected to generate about 2,899 new/non-passby vehicle-trips on the average weekday. A significant portion of these non-pass-by trips are projected to be diverted trips from the Highway 83/Hodgen Road intersection.
- Approximately 157 vehicles would enter the site during the weekday morning peak hour, while 116 vehicles are projected to exit. During the weekday evening peak hour of adjacent street traffic, 183 vehicles would enter the site while 183 vehicles would exit.

- All approaches at the site access intersection with Hodgen Road and at the intersection of SH 83/Hodgen will operate at LOS C or better during both the short and long term during the weekday morning peak hour and evening peak hour. This development will be completed by 2040. Is there sufficient length to meet the minimum requirements per the ECM? Identify the minimum requirement per the ECM and the amount that would be accommodated with the restriping.
- According to the El Paso County *Engineering Criteria Manual* (ECM), exclusive left-turn lanes shall be provided for any access on a Principal Arterial with a projected peak-hour ingress turning volume of 10 vehicles per hour (vph) or greater. Projected left-turn volumes at the site access point are expected to exceed the minimum left-turn volume thresholds outlined in the *ECM* upon site buildout. Thus, an exclusive westbound left-turn lane is prescribed by the *ECM* at the intersection of Hodgen Road/Cherry Crossing Drive/site access. The painted center median could be restriped to provide for this left-turn lane. This turn lane would be back-to-back with the eastbound left-turn lane at the Hodgen/SK 83 intersection.
- As shown in Figure 6 and Figure 8, the projected future westbound left-turn volume, including existing, future background, and site traffic, is approximately 115 and 129 vehicles during the short- and long-term morning peak hour and evening peak hour, respectively.
- Per ECM criteria, exclusive right-turn lanes shall be provided for any access on a Principal Arterial with a projected peak-hour ingress turning volume of 25 vehicles per hour (vph) or greater. As shown in Figure 6 and Figure 8, the projected future eastbound right-turn volume is approximately 63 vehicles during the evening peak hour, which exceeds the minimum right-turn volume ECM thresholds upon site buildout. Thus, an exclusive right-turn deceleration lane is prescribed by the *ECM* at the intersection of Hodgen Road/site access.
- The *Colorado State Highway Access Code* requires a right-turn deceleration lane for any “access” (Hodgen Road is considered an “access” to SH 83) with a projected peak-hour right ingress turning volume greater than 25 vph. Per code, a southbound right-turn deceleration lane is required at the intersection of SH 83/Hodgen Road based on existing traffic volumes.
- The *Colorado State Highway Access Code* requires a right-turn acceleration lane for any “access” (Hodgen Road is considered an “access” to SH 83) with a projected peak-hour right ingress turning volume greater than 50 vph. Per code, a southbound right-turn acceleration lane is required at the intersection of SH 83/Hodgen Road based on existing traffic volumes.

Provide an exhibit showing these proposed auxiliary lane improvements. Are there additional ROW dedication that will be required?

- The current northbound left-turn deceleration lane at the SH 83/Hodgen intersection will need to be lengthened to the south to meet Access Code criteria based on existing plus buildout site-generated traffic.
- This project will be required to participate in the El Paso County Road Impact Fee program. Consideration for Fee Program credit may be given to intersection improvements completed at the State Highway 83/Hodgen Road intersection (applicable MTCP project reference numbers U9 and SH 6).

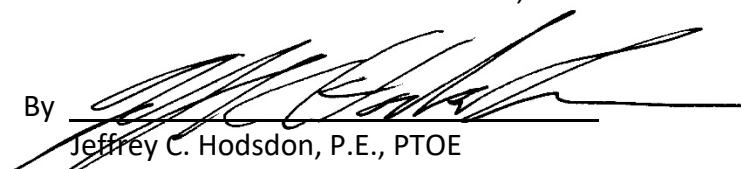
\* \* \* \* \*

Please contact me if you have any questions regarding this report.

Sincerely,

LSC TRANSPORTATION CONSULTANTS, INC.

By \_\_\_\_\_  
Jeffrey C. Hodsdon, P.E., PTOE  
Principal



JCH:JAB:bjwbt

Enclosures: Table 6  
Figure 1 – Figure 8  
Traffic Count Reports  
Level of Service Reports

Include an exhibit identifying roadway classification for the proposed internal roads.

List all deviations from the ECM that the applicant will be making. Submit signed/stamped deviation request forms for the deviations requested.

revise to 945

**Table 6: Detailed Trip Generation Estimate**

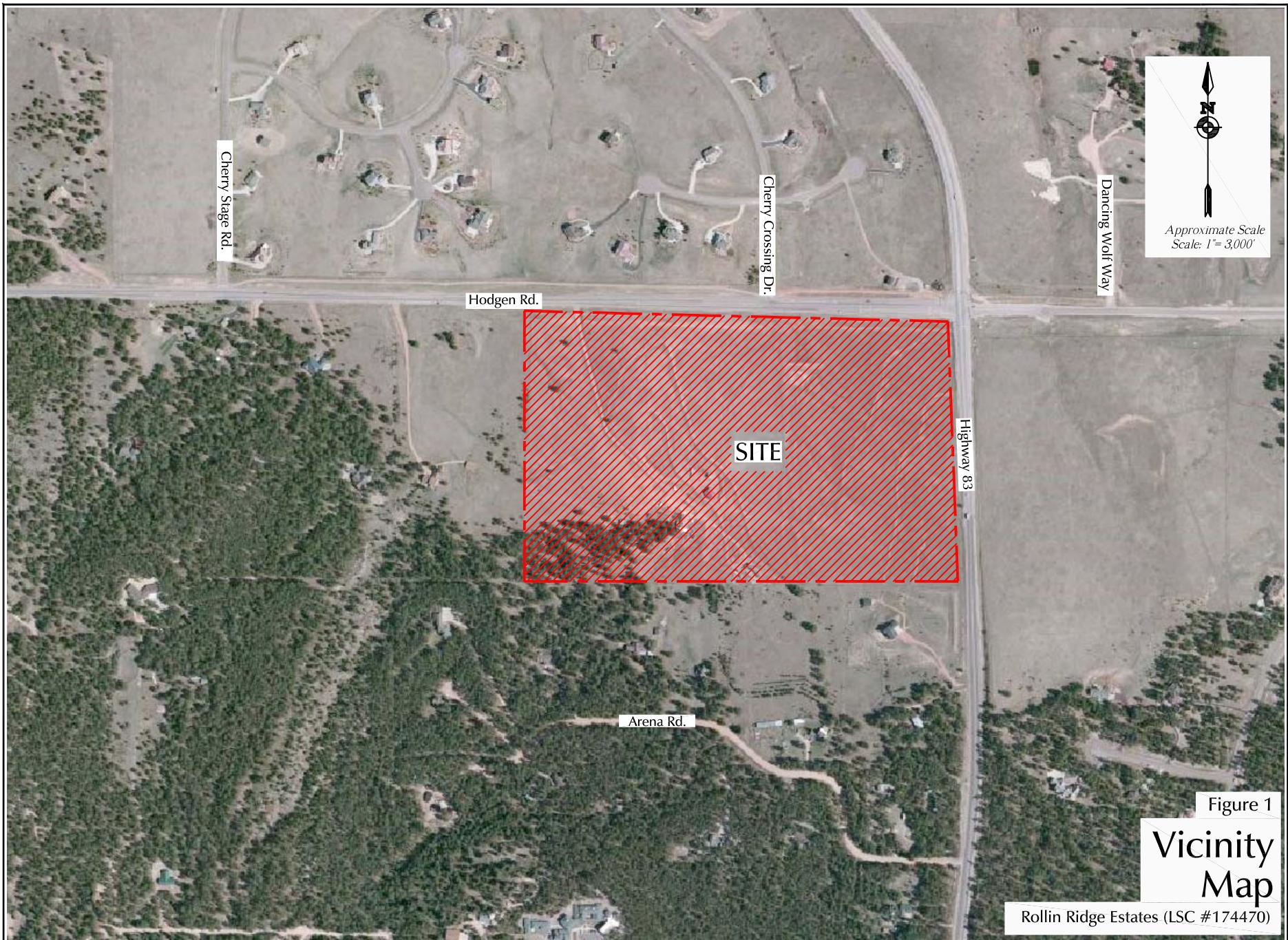
ITE Code	Description	Value	Units	Trip Generation Rates <sup>(1)</sup>				Driveway Trips Generated				% Diverted Trips	% Pass-by Trips	Non-Pass-by Trips Generated						
				Avg Weekday Traffic		A.M. In Out		P.M. In Out		Avg Weekday Traffic		A.M. In Out		P.M. In Out		Avg Weekday Traffic		A.M. In Out		P.M. In Out
210	Single-Family Detached Housing	16	DU <sup>(2)</sup>	9.52	0.19	0.56	0.63	0.37	152	3	9	10	6	0%	0%	152	3	9	10	6
944	Gasoline/Service Station w/ Convenience Market	12	VFP <sup>(3)</sup>	162.78	5.08	5.08	6.76	6.76	1,953	61	61	81	81	45%	40%	1172	37	37	49	49
720	Medical-Dental Office Building	5.000	KSF <sup>(4)</sup>	36.13	1.89	0.50	1.00	2.57	181	9	3	5	13	0%	0%	181	9	3	5	13
820	Shopping Center	25.000	KSF	88.38	3.45	2.11	3.86	3.57	2,209	86	53	97	89	30%	30%	1547	60	37	68	62
									4,343	157	116	183	183							
																2,899	106	76	121	124

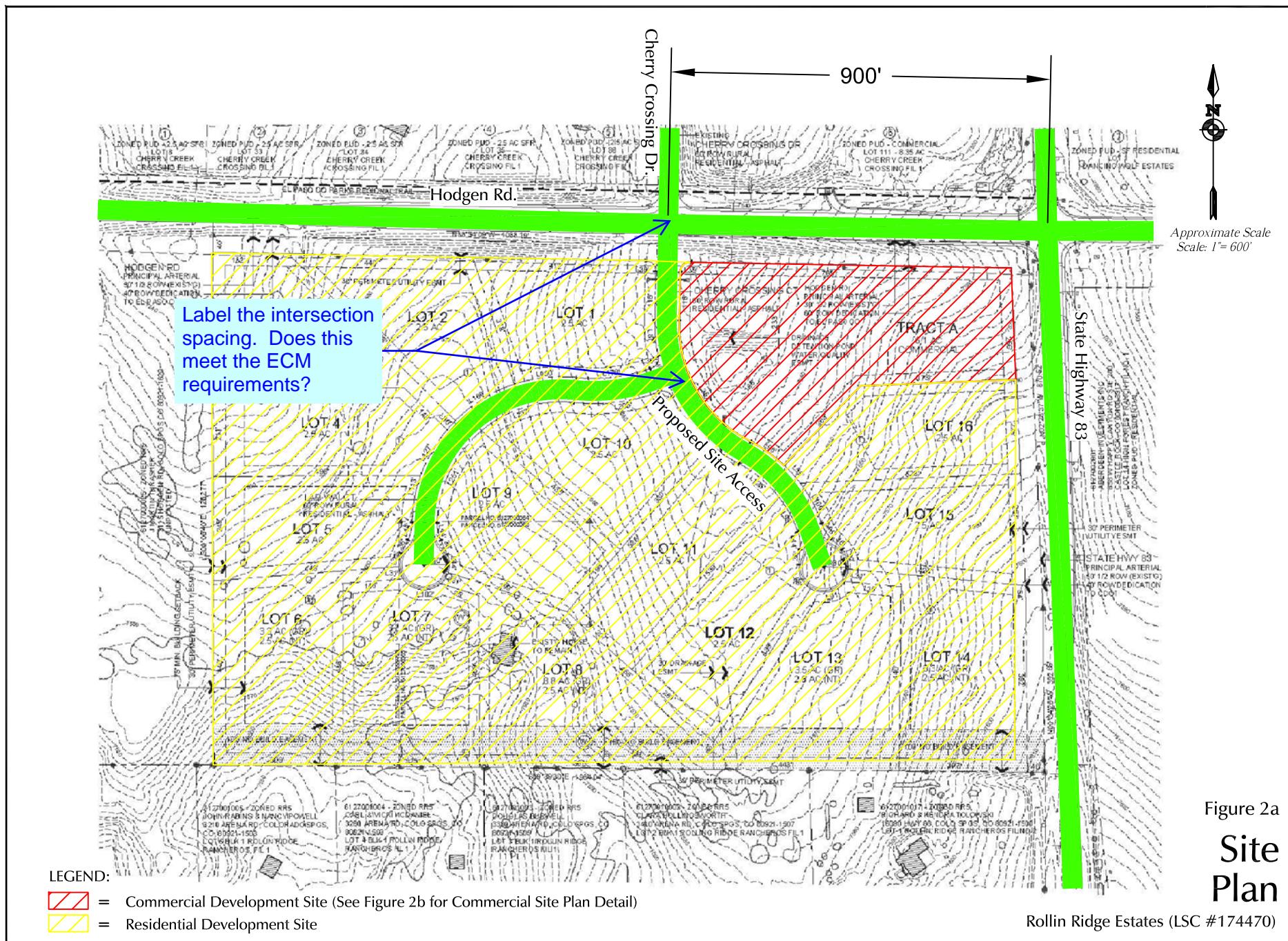
(1) Source: *Trip Generation, 9<sup>th</sup> Edition, 2012* by the Institute of Transportation Engineers (ITE)

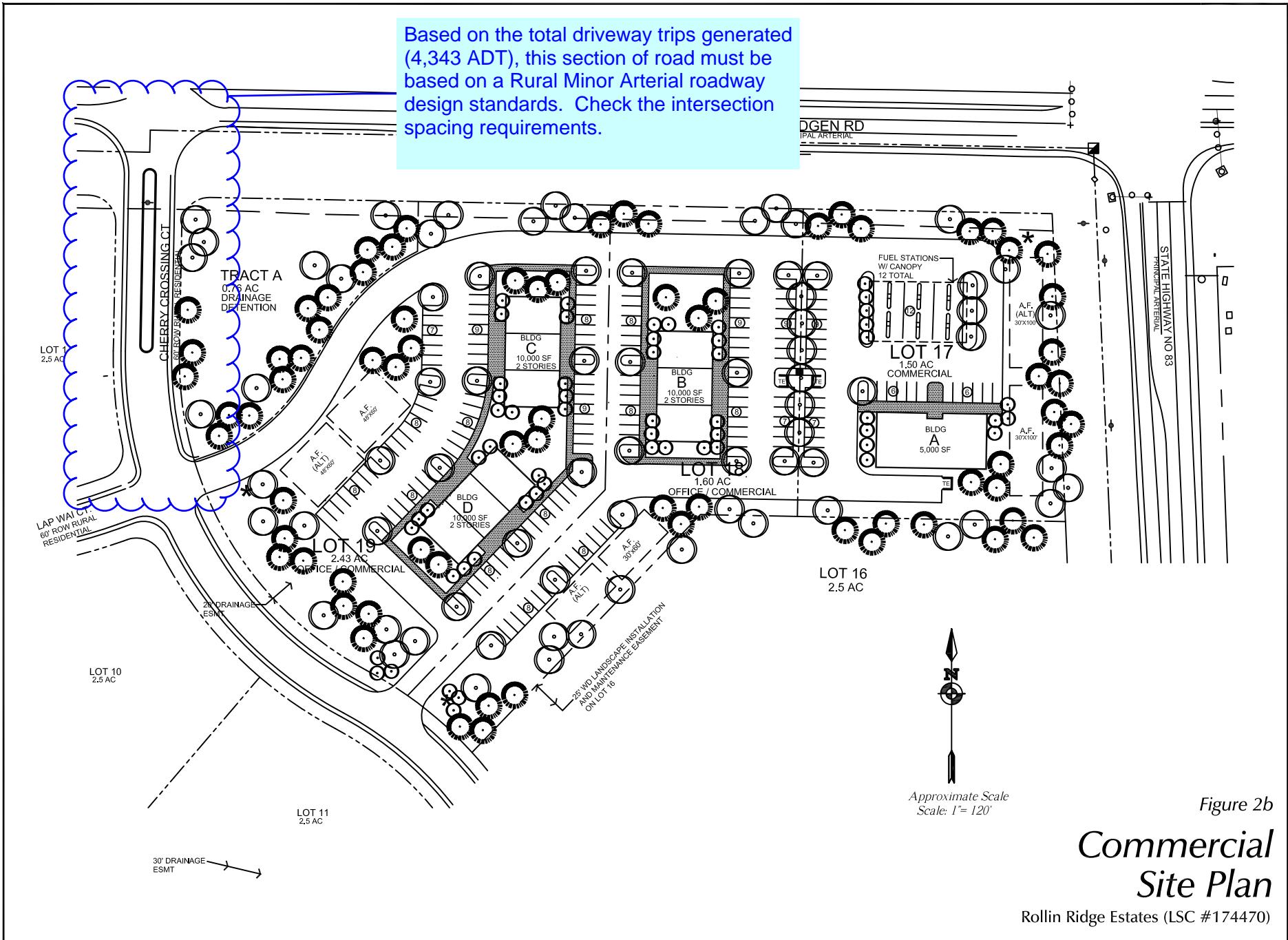
(2) DU = dwelling units

(3) VFP = vehicle fueling positions

(4) KSF = 1,000 square feet







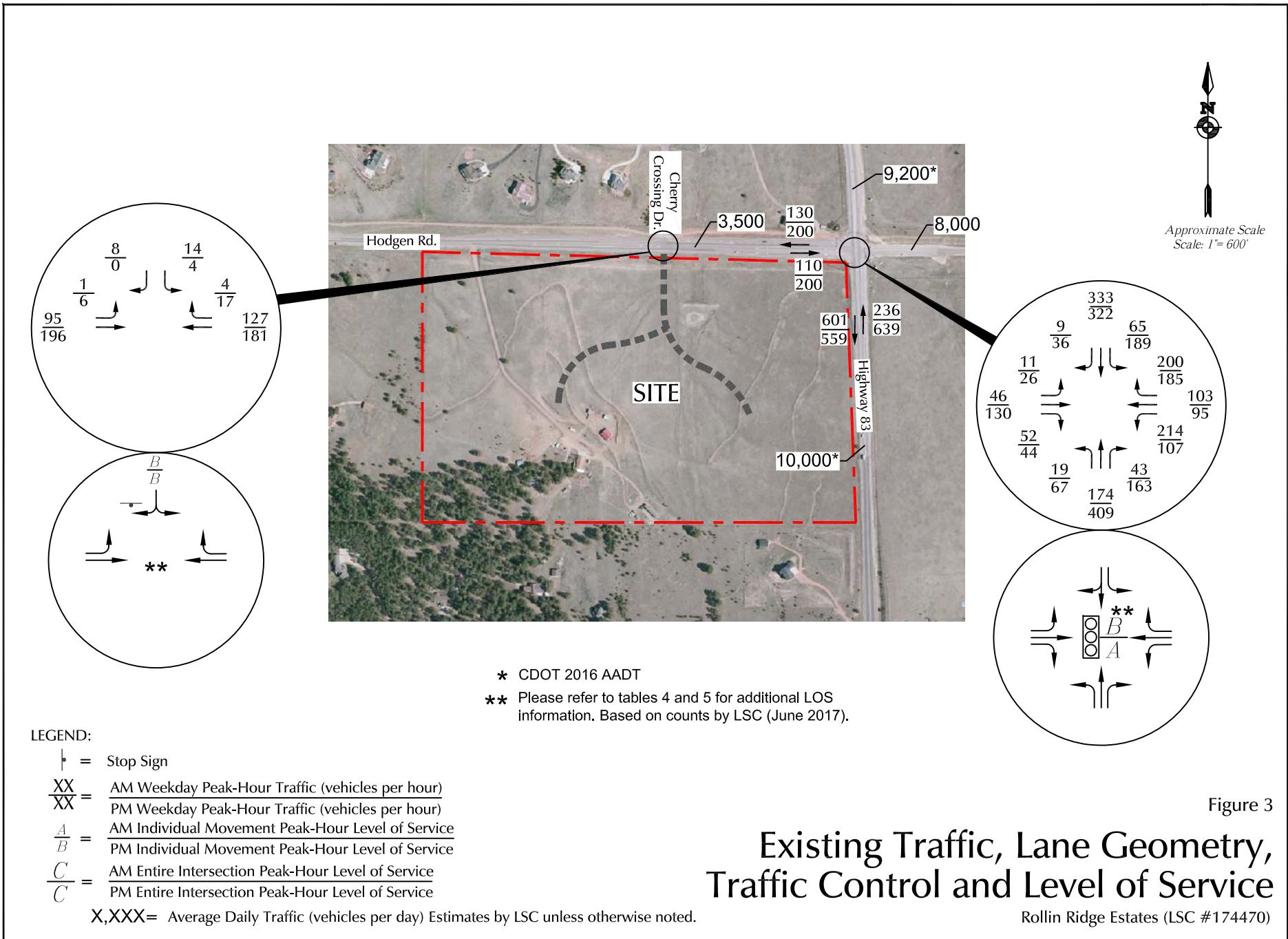
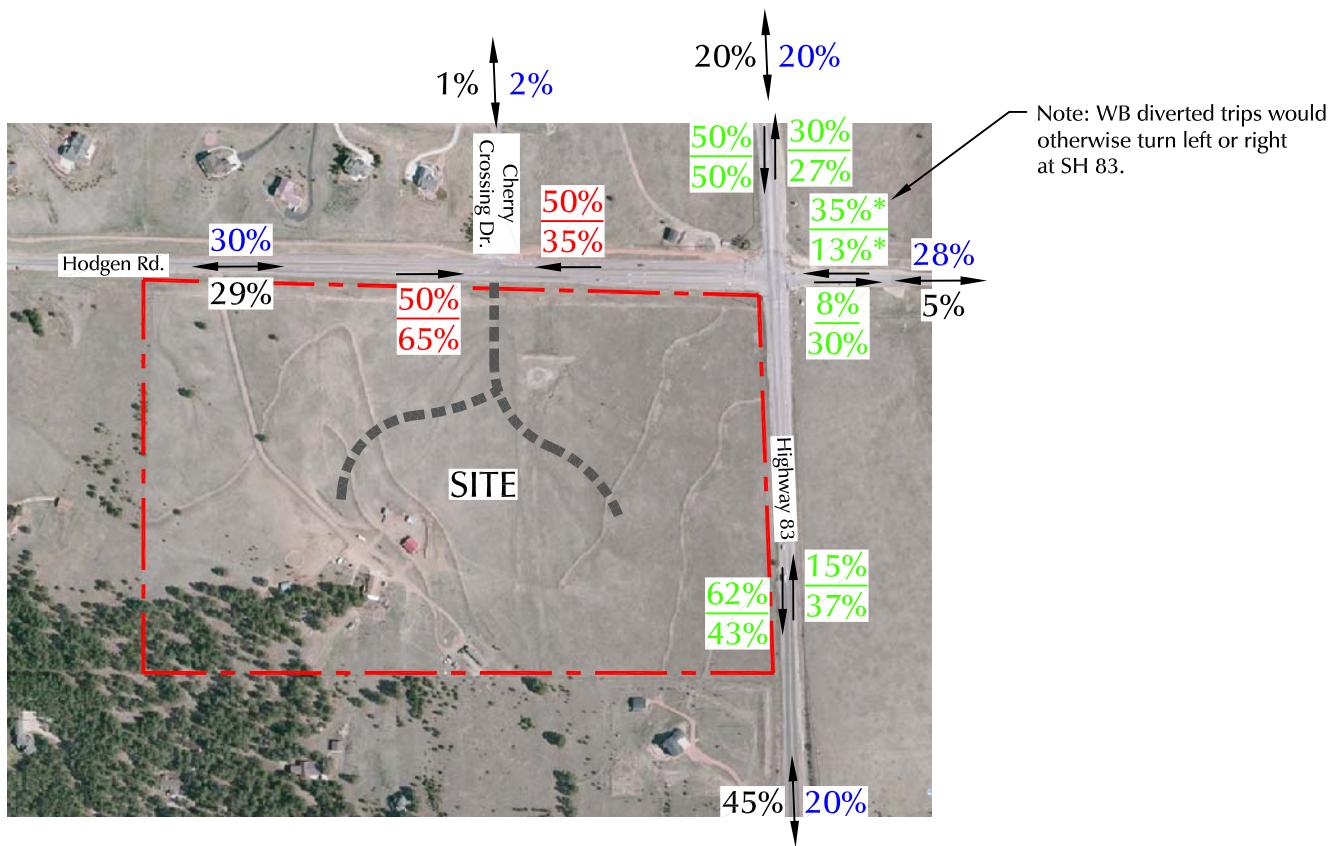


Figure 3  
Existing Traffic, Lane Geometry,  
Traffic Control and Level of Service

Rollin Ridge Estates (LSC #174470)



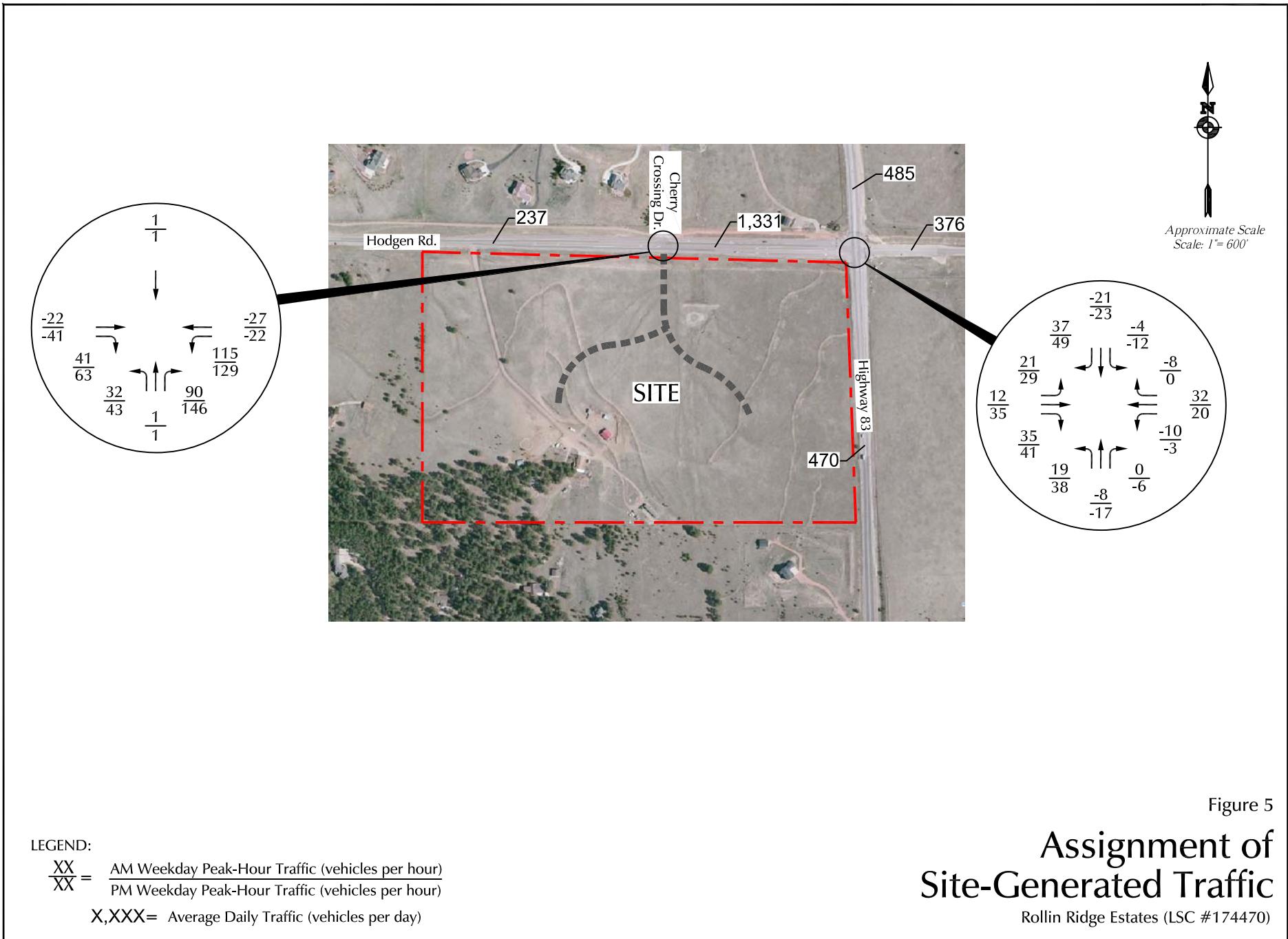
#### LEGEND:

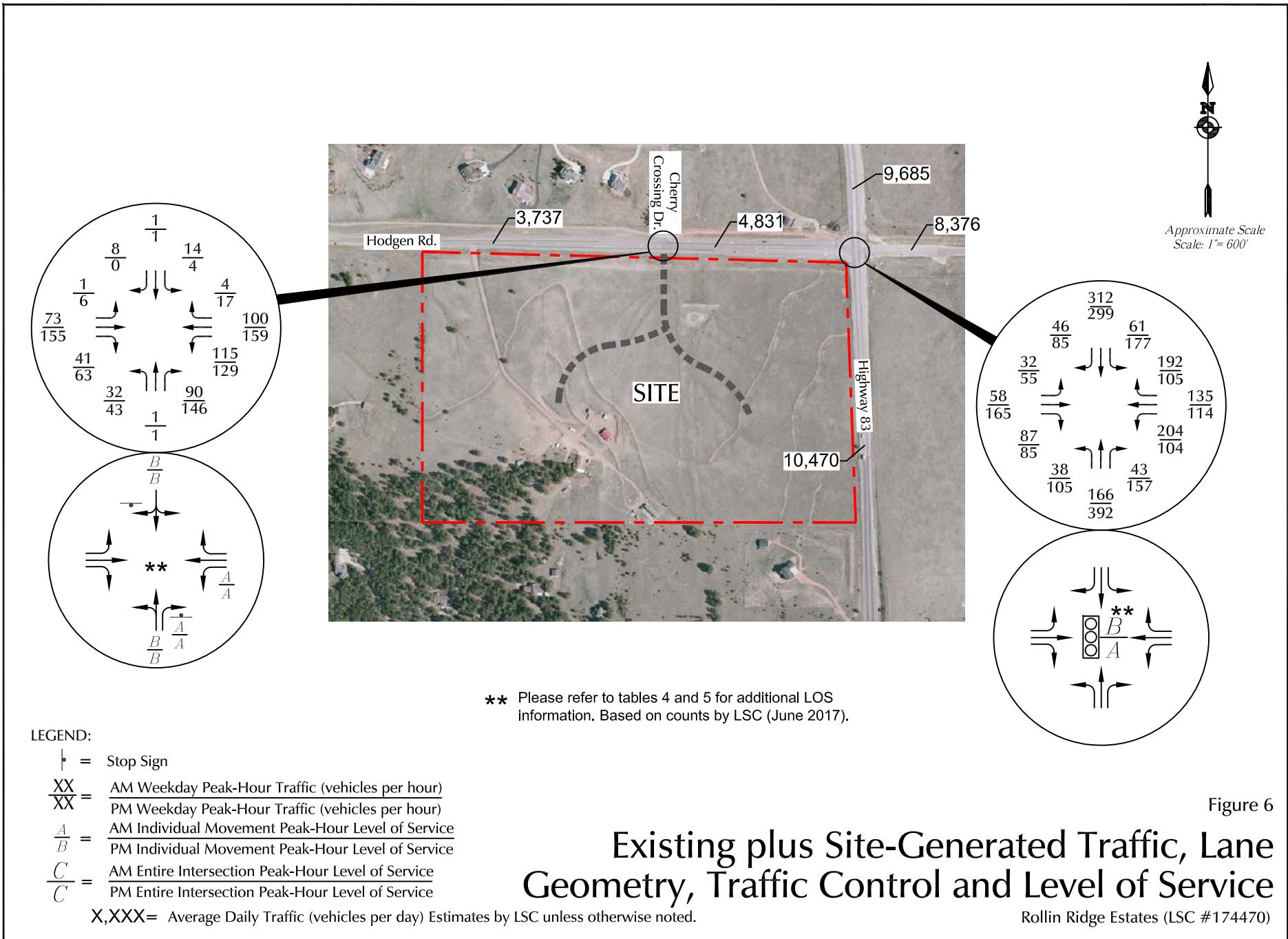
- $\text{XX\%}$  = Primary Percent Directional Distribution (Residential)
- $\text{XX\%}$  = Primary Percent Directional Distribution (Commercial)
- $\text{XX\%}$  = AM Passby Percent Directional Distribution (Commercial)
- $\text{XX\%}$  = PM Passby Percent Directional Distribution (Commercial)
- $\text{XX\%}$  = AM Diverted Percent Directional Distribution (Commercial)
- $\text{XX\%}$  = PM Diverted Percent Directional Distribution (Commercial)

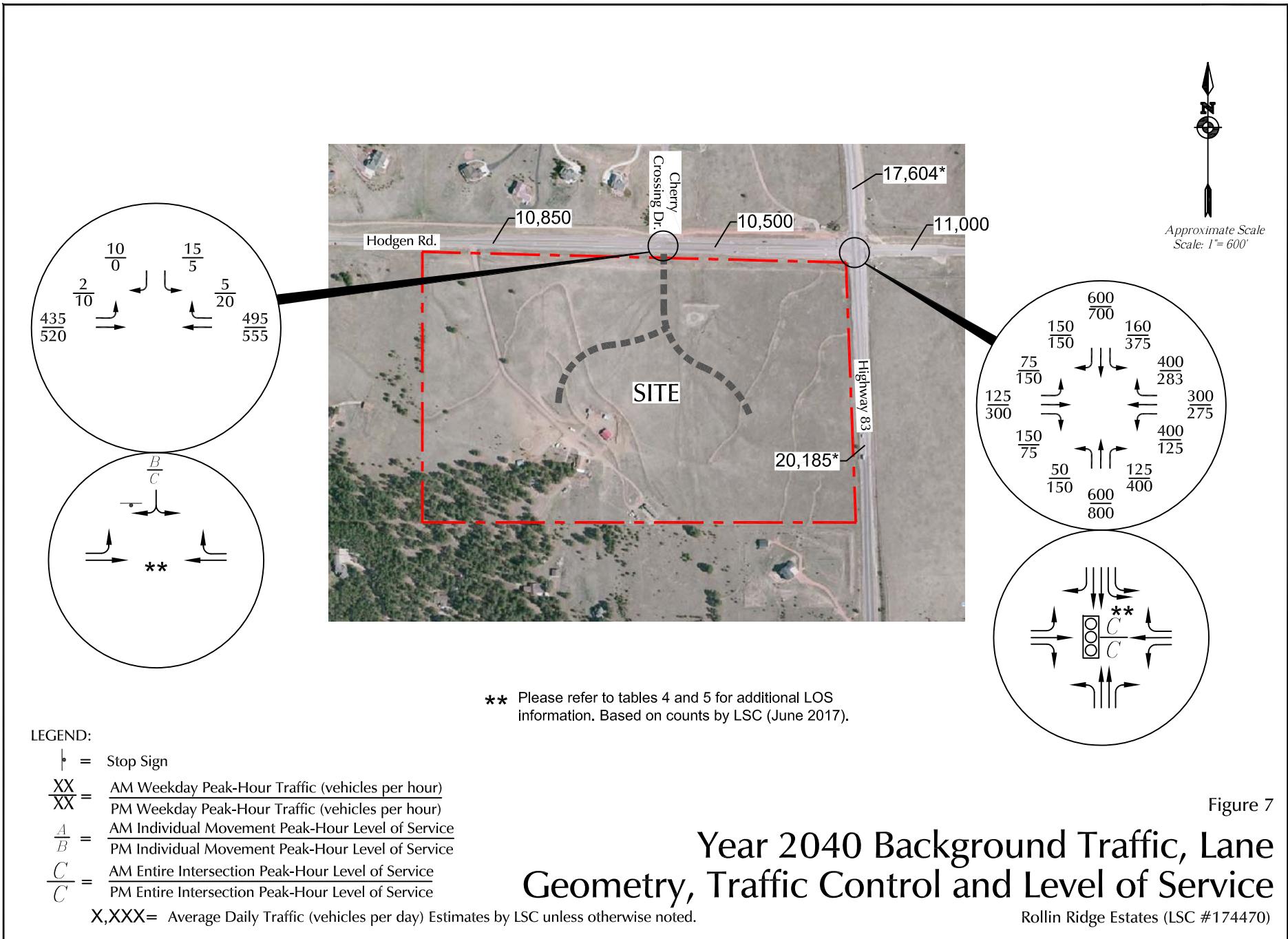
Figure 4

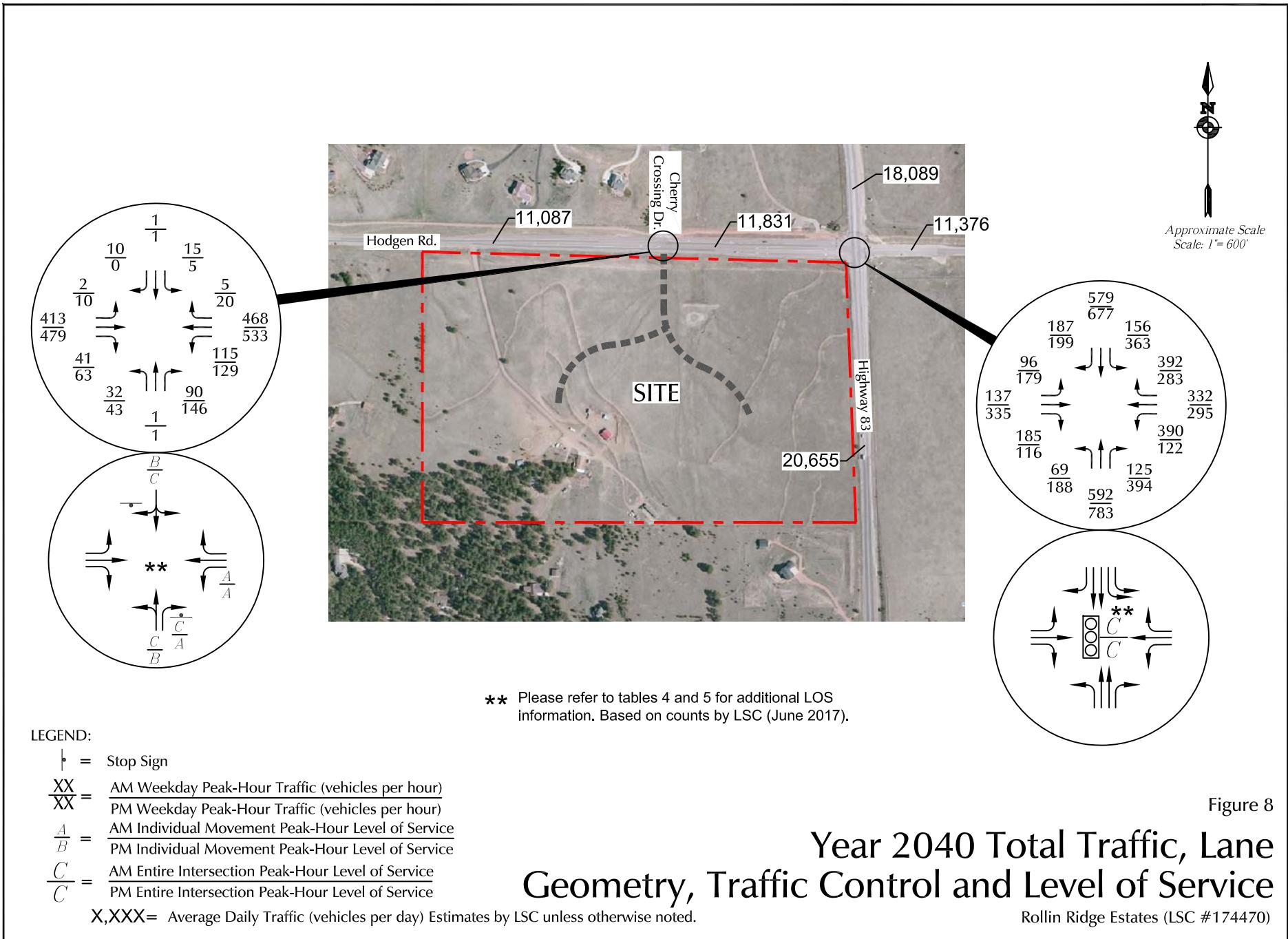
## Directional Distribution of Site-Generated Traffic

Rollin Ridge Estates (LSC #174470)









## Counts by LSC

LSC Transportation Consultants, Inc.

File Name : Cherry Crossing Dr - Hodgen Rd AM

Site Code : 00174470

Start Date : 06/21/2017

Page No : 1

Groups Printed- Bank 1

Start Time	Cherry Crossing Dr From North				Hodgen Rd From East				From South				Hodgen Rd 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	
06:30 AM	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2
06:45 AM	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Total	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	4
07:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
07:15 AM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2
07:30 AM	1	0	6	0	1	0	0	0	0	0	0	0	0	0	0	0	8
07:45 AM	2	0	3	0	1	0	0	0	0	0	0	0	0	0	0	0	6
Total	3	0	12	0	2	0	0	0	0	0	0	0	0	0	0	0	17
08:00 AM	2	0	4	0	1	0	0	0	0	0	0	0	0	0	0	0	7
08:15 AM	3	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0	6
Grand Total	10	0	19	0	4	0	0	0	0	0	0	0	0	0	1	0	34
Apprch %	34.5	0.0	65.5	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	
Total %	29.4	0.0	55.9	0.0	11.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.9	0.0	

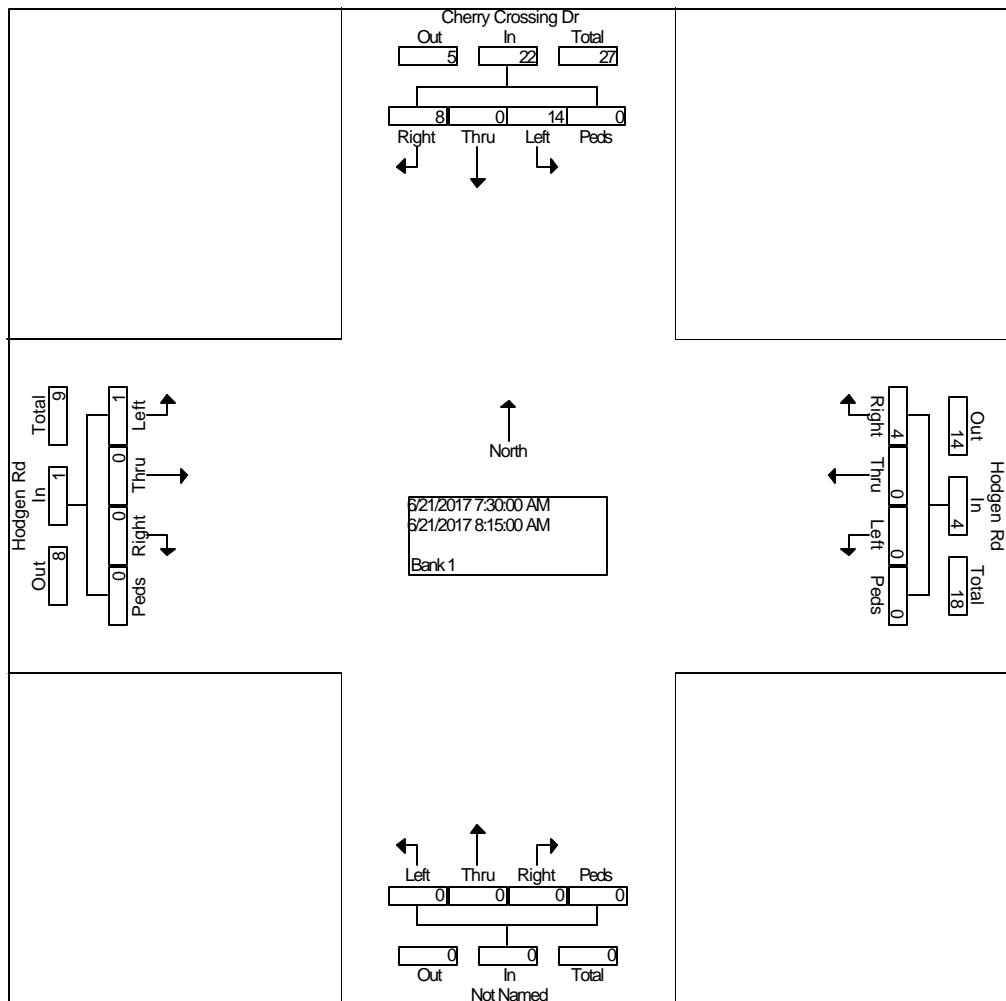
Counts by LSC

File Name : Cherry Crossing Dr - Hodgen Rd AM  
 Site Code : 00174470  
 Start Date : 06/21/2017  
 Page No : 2

	Cherry Crossing Dr From North					Hodgen Rd From East					From South					Hodgen Rd From West					
Start Time	Rig ht	Thru	Lef t	Pe ds	App. Total	Rig ht	Thru	Lef t	Pe ds	App. Total	Rig ht	Thru	Lef t	Pe ds	App. Total	Rig ht	Thru	Lef t	Pe ds	App. Total	Int. Total

Peak Hour From 06:30 AM to 08:15 AM - Peak 1 of 1

Intersection	07:30 AM					07:30 AM					6:15:00 AM					08:15 AM					
Volume	8	0	14	0	22	4	0	0	0	0	4	0	0	0	0	0	0	1	0	1	27
Percent	36.	0.0	63.	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	10	0.0	0.0	
07:30	4	0.0	6	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Volume	1	0	6	0	7	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	8
Peak Factor																					0.844
High Int.	07:30 AM					07:30 AM					6:15:00 AM					08:15 AM					
Volume	1	0	6	0	7	1	0	0	0	0	1	0	0	0	0	0	0	1	0	1	0.25
Peak Factor						0.78					1.00										0
						6					0										



## Counts by LSC

LSC Transportation Consultants, Inc.

File Name : Cherry Crossing Dr - Hodgen Rd PM  
 Site Code : 00174470  
 Start Date : 06/21/2017  
 Page No : 1

## Groups Printed- Bank 1

Start Time	Cherry Crossing Dr From North				Hodgen Rd From East				From South				Hodgen Rd 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	
04:00 PM	0	0	1	0	3	0	0	0	0	0	0	0	0	0	0	0	4
04:15 PM	0	0	2	0	3	0	0	0	0	0	0	0	0	0	1	0	6
04:30 PM	0	0	2	0	6	0	0	0	0	0	0	0	0	0	1	0	9
04:45 PM	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	5
Total	0	0	5	0	17	0	0	0	0	0	0	0	0	0	2	0	24
05:00 PM	0	0	1	0	2	0	0	0	0	0	0	0	0	0	2	0	5
05:15 PM	0	0	1	0	4	0	0	0	0	0	0	0	0	0	3	0	8
05:30 PM	1	0	2	0	3	0	0	0	0	0	0	0	0	0	0	0	6
05:45 PM	0	0	1	0	5	0	0	0	0	0	0	0	0	0	1	0	7
Total	1	0	5	0	14	0	0	0	0	0	0	0	0	0	6	0	26
Grand Total	1	0	10	0	31	0	0	0	0	0	0	0	0	0	8	0	50
Apprch %	9.1	0.0	90.9	0.0	100. 0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100. 0	0.0	
Total %	2.0	0.0	20.0	0.0	62.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.0	0.0	

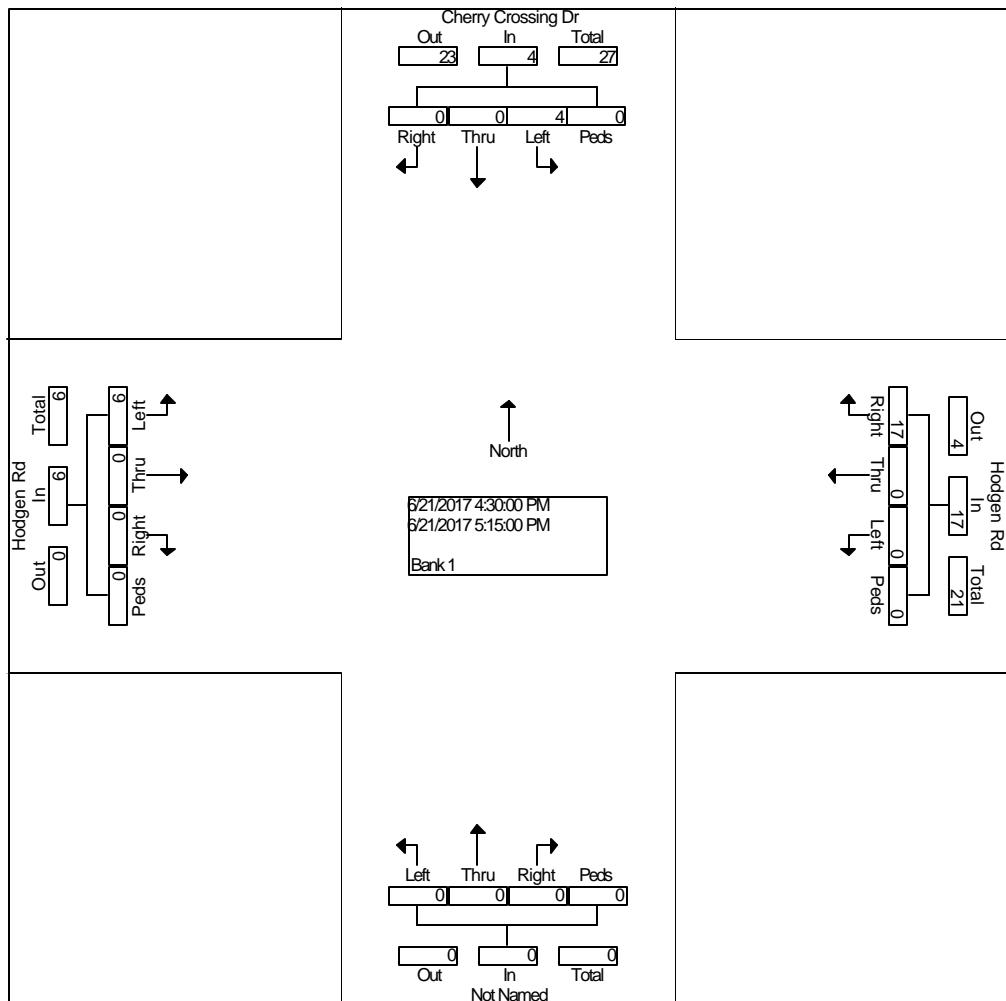
Counts by LSC

File Name : Cherry Crossing Dr - Hodgen Rd PM  
 Site Code : 00174470  
 Start Date : 06/21/2017  
 Page No : 2

	Cherry Crossing Dr From North					Hodgen Rd From East					From South					Hodgen Rd From West					
Start Time	Rig ht	Thru	Lef t	Pe ds	App. Total	Rig ht	Thru	Lef t	Pe ds	App. Total	Rig ht	Thru	Lef t	Pe ds	App. Total	Rig ht	Thru	Lef t	Pe ds	App. Total	Int. Total

Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1

Intersection	04:30 PM					04:30 PM					3:45:00 PM					05:15 PM					
Volume	0	0	4	0	4	17	0	0	0	0	17	0	0	0	0	0	0	6	0	6	27
Percent	0.0	0.0	10	0.0	0.0	10	0.0	0.0	0.0	0.0	10	0.0	0.0	0.0	0.0	0.0	0.0	10	0.0	0.0	0.0
04:30	0	0	2	0	2	6	0	0	0	0	6	0	0	0	0	0	0	0	1	0	1
Volume	0	0	2	0	2	6	0	0	0	0	6	0	0	0	0	0	0	0	1	0	9
Peak Factor																					0.750
High Int.	04:30 PM					04:30 PM					3:45:00 PM					05:15 PM					
Volume	0	0	2	0	2	6	0	0	0	0	6	0	0	0	0	0	0	3	0	3	0.50
Peak Factor						0.50					0.70					0.50					0
	0					8															



## Counts by LSC

LSC Transportation Consultants, Inc.

File Name : Hwy 83 - Hodgen AM  
 Site Code : 00174470  
 Start Date : 06/21/2017  
 Page No : 1

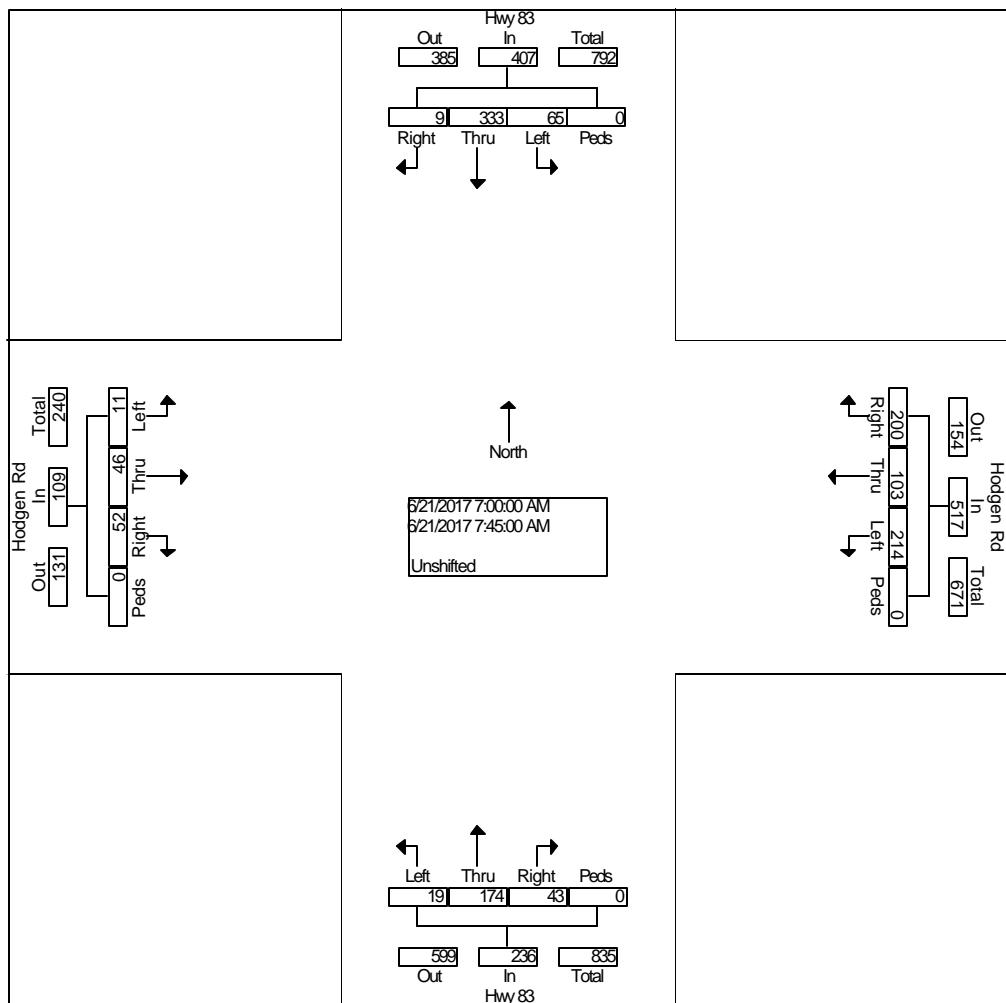
## Groups Printed- Unshifted

Start Time	Hwy 83 From North				Hodgen Rd From East				Hwy 83 From South				Hodgen Rd 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	
06:30 AM	1	44	11	0	36	16	24	0	5	22	2	0	3	3	1	0	168
06:45 AM	3	60	17	0	39	24	41	0	8	50	4	0	6	10	3	0	265
Total	4	104	28	0	75	40	65	0	13	72	6	0	9	13	4	0	433
07:00 AM	1	86	11	0	44	22	50	0	10	41	5	0	13	7	1	0	291
07:15 AM	3	72	18	0	50	19	54	0	8	48	4	0	12	13	0	0	301
07:30 AM	1	105	16	0	57	30	60	0	10	46	4	0	13	18	5	0	365
07:45 AM	4	70	20	0	49	32	50	0	15	39	6	0	14	8	5	0	312
Total	9	333	65	0	200	103	214	0	43	174	19	0	52	46	11	0	1269
08:00 AM	4	62	14	0	34	23	44	0	14	52	6	0	7	6	4	0	270
08:15 AM	2	76	10	0	39	25	42	0	9	62	18	0	11	12	4	0	310
Grand Total	19	575	117	0	348	191	365	0	79	360	49	0	79	77	23	0	2282
Apprch %	2.7	80.9	16.5	0.0	38.5	21.1	40.4	0.0	16.2	73.8	10.0	0.0	44.1	43.0	12.8	0.0	
Total %	0.8	25.2	5.1	0.0	15.2	8.4	16.0	0.0	3.5	15.8	2.1	0.0	3.5	3.4	1.0	0.0	

## Counts by LSC

File Name : Hwy 83 - Hodgen AM  
 Site Code : 00174470  
 Start Date : 06/21/2017  
 Page No : 2

	Hwy 83 From North					Hodgen Rd From East					Hwy 83 From South					Hodgen Rd From West						
Start Time	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	Int. Total	
<b>Peak Hour From 06:30 AM to 08:15 AM - Peak 1 of 1</b>																						
Intersection	07:00 AM																					
Volume	9	33	65	0	407	20	10	21	0	517	43	17	19	0	236	52	46	11	0	109	1269	
Percent	2.2	81.	16.	0.0		38.	19.	41.	0.0		18.	73.	8.1	0.0		47.	42.	10.	0.0			
07:30	8	0	0			7	9	4			2	7				7	2	1				
Volume	1	10	16	0	122	57	30	60	0	147	10	46	4	0	60	13	18	5	0	36	365	
Peak Factor																					0.869	
High Int.	07:30 AM					07:30 AM					07:15 AM					07:30 AM						
Volume	1	10	16	0	122	57	30	60	0	147	8	48	4	0	60	13	18	5	0	36		
Peak Factor					0.83						0.87					0.98					0.75	
					4						9					3					7	



## Counts by LSC

LSC Transportation Consultants, Inc.

File Name : Hwy 83 - Hodgen PM  
 Site Code : 00174470  
 Start Date : 06/21/2017  
 Page No : 1

## Groups Printed- Unshifted

Start Time	Hwy 83 From North				Hodgen Rd From East				Hwy 83 From South				Hodgen Rd 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	
04:00 PM	2	77	43	0	20	16	15	0	43	89	21	0	8	24	5	0	363
04:15 PM	7	68	53	0	30	22	25	0	32	72	14	0	13	32	3	0	371
04:30 PM	11	97	46	0	27	14	20	0	51	100	10	0	9	27	8	0	420
04:45 PM	8	90	52	0	32	23	28	0	33	95	19	0	9	32	5	0	426
Total	28	332	194	0	109	75	88	0	159	356	64	0	39	115	21	0	1580
05:00 PM	6	70	44	0	22	29	25	0	45	99	15	0	8	39	9	0	411
05:15 PM	10	77	42	0	28	20	25	0	44	102	16	0	18	26	3	0	411
05:30 PM	12	85	51	0	23	23	29	0	41	113	17	0	9	33	9	0	445
05:45 PM	7	84	38	0	25	16	19	0	45	106	13	0	13	37	8	0	411
Total	35	316	175	0	98	88	98	0	175	420	61	0	48	135	29	0	1678
Grand Total	63	648	369	0	207	163	186	0	334	776	125	0	87	250	50	0	3258
Apprch %	5.8	60.0	34.2	0.0	37.2	29.3	33.5	0.0	27.0	62.8	10.1	0.0	22.5	64.6	12.9	0.0	
Total %	1.9	19.9	11.3	0.0	6.4	5.0	5.7	0.0	10.3	23.8	3.8	0.0	2.7	7.7	1.5	0.0	

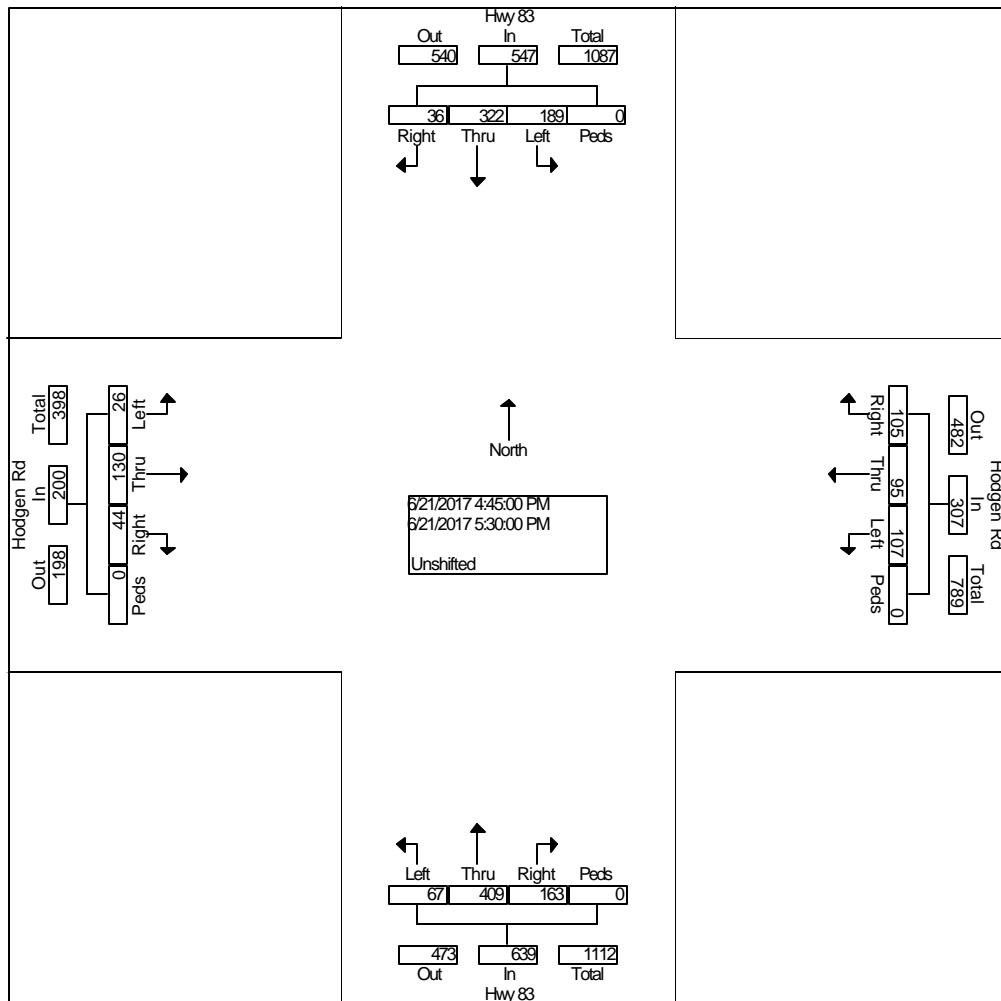
## Counts by LSC

File Name : Hwy 83 - Hodgen PM  
 Site Code : 00174470  
 Start Date : 06/21/2017  
 Page No : 2

	Hwy 83 From North					Hodgen Rd From East					Hwy 83 From South					Hodgen Rd From West					
Start Time	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	Int. Total

Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1

Intersection	04:45 PM										05:30 PM										05:00 PM									
Volume	36	32	18	0	547	10	95	10	0	307	16	40	67	0	639	44	13	26	0	200	1693									
Percent	6.6	58.	34.	0.0		34.	30.	34.	0.0		25.	64.	10.	0.0		22.	65.	13.	0.0											
05:30 Volume	12	85	51	0	148	23	23	29	0	75	41	11	17	0	171	9	33	9	0	51	445									
Peak Factor																					0.951									
High Int. Volume	04:45 PM					04:45 PM					05:30 PM					05:00 PM														
Volume	8	90	52	0	150	32	23	28	0	83	41	11	17	0	171	8	39	9	0	56										
Peak Factor					0.91					0.92					0.93					0.89										
					2					5					4					3										



Lanes, Volumes, Timings  
3: SH 83 & Hodgen Rd

2017 Existing  
AM

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1	1	1	1	1	1	1	1	1	1	1	1
Traffic Volume (vph)	11	46	52	214	103	200	19	174	43	65	333	9
Future Volume (vph)	11	46	52	214	103	200	19	174	43	65	333	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	450		450	400		400	200		900	650		0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850			0.996
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	1863	1583	1770	1855	0
Flt Permitted	0.681			0.717			0.425			0.631		
Satd. Flow (perm)	1269	1863	1583	1336	1863	1583	792	1863	1583	1175	1855	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			70			230			50			3
Link Speed (mph)		40			40			60			60	
Link Distance (ft)		843			1794			2113			2252	
Travel Time (s)		14.4			30.6			24.0			25.6	
Peak Hour Factor	0.74	0.74	0.74	0.87	0.87	0.87	0.86	0.86	0.86	0.79	0.79	0.79
Adj. Flow (vph)	15	62	70	246	118	230	22	202	50	82	422	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	15	62	70	246	118	230	22	202	50	82	433	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	1	2
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	
Detector 1 Type	Cl+Ex											
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		4		4	8		8	2	2	6		6
Permitted Phases	4		4	8		8	2		2	6		

Lanes, Volumes, Timings  
3: SH 83 & Hodgen Rd

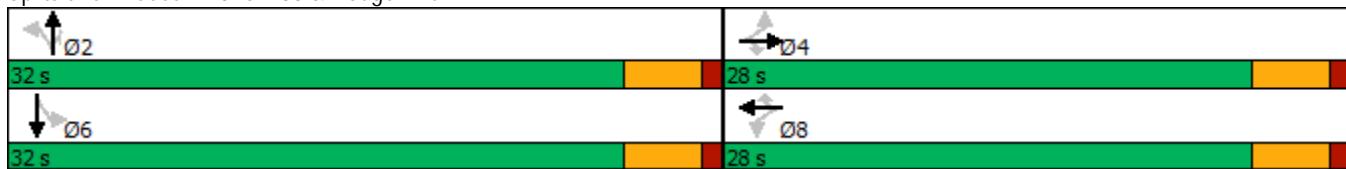
2017 Existing  
AM

	↗	→	↘	↙	←	↖	↑	↗	↘	↓	↙	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8	8	8	2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	28.0	28.0	28.0	28.0	28.0	28.0	32.0	32.0	32.0	32.0	32.0	32.0
Total Split (%)	46.7%	46.7%	46.7%	46.7%	46.7%	46.7%	53.3%	53.3%	53.3%	53.3%	53.3%	53.3%
Maximum Green (s)	23.5	23.5	23.5	23.5	23.5	23.5	27.5	27.5	27.5	27.5	27.5	27.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	Min	Min	Min	Min	Min	Min
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Act Effct Green (s)	13.5	13.5	13.5	13.5	13.5	13.5	15.8	15.8	15.8	15.8	15.8	15.8
Actuated g/C Ratio	0.35	0.35	0.35	0.35	0.35	0.35	0.41	0.41	0.41	0.41	0.41	0.41
v/c Ratio	0.03	0.10	0.12	0.53	0.18	0.33	0.07	0.27	0.07	0.17	0.58	
Control Delay	9.5	9.6	3.8	15.4	10.1	3.4	9.3	9.8	3.7	9.8	13.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	9.5	9.6	3.8	15.4	10.1	3.4	9.3	9.8	3.7	9.8	13.4	
LOS	A	A	A	B	B	A	A	A	A	A	B	
Approach Delay						9.7			8.7			12.8
Approach LOS						A			A			B
Queue Length 50th (ft)	2	7	0	35	15	0	2	25	0	10	61	
Queue Length 95th (ft)	10	25	12	107	50	30	14	75	14	34	146	
Internal Link Dist (ft)		763			1714			2033			2172	
Turn Bay Length (ft)	450		450	400		400	200		900	650		
Base Capacity (vph)	822	1208	1051	866	1208	1107	600	1413	1213	891	1408	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.02	0.05	0.07	0.28	0.10	0.21	0.04	0.14	0.04	0.09	0.31	
Intersection Summary												
Area Type:	Other											
Cycle Length: 60												
Actuated Cycle Length: 38.9												
Natural Cycle: 45												
Control Type: Actuated-Uncoordinated												
Maximum v/c Ratio: 0.58												
Intersection Signal Delay: 10.3						Intersection LOS: B						
Intersection Capacity Utilization 52.0%							ICU Level of Service A					
Analysis Period (min) 15												

Lanes, Volumes, Timings  
3: SH 83 & Hodgen Rd

2017 Existing  
AM

Splits and Phases: 3: SH 83 & Hodgen Rd



**6: Cherry Crossing Dr & Hodgen Rd Performance by movement Interval #1 7:00**

Movement	EBT	WBT	WBR	SBL	SBR	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.1	0.1	0.0
Total Del/Veh (s)	0.0	2.1	0.5	3.5	2.2	1.4

**6: Cherry Crossing Dr & Hodgen Rd Performance by movement Interval #2 7:15**

Movement	EBT	WBT	SBL	SBR	All
Denied Del/Veh (s)	0.2	0.0	0.1	0.1	0.1
Total Del/Veh (s)	0.0	2.6	9.3	3.1	1.9

**6: Cherry Crossing Dr & Hodgen Rd Performance by movement Interval #3 7:30**

Movement	EBT	WBT	WBR	SBL	SBR	All
Denied Del/Veh (s)	0.2	0.0	0.0	0.1	0.1	0.1
Total Del/Veh (s)	0.1	2.3	1.4	4.0	4.1	1.7

**6: Cherry Crossing Dr & Hodgen Rd Performance by movement Interval #4 7:45**

Movement	EBT	WBT	WBR	SBL	SBR	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.1	0.1	0.1
Total Del/Veh (s)	0.4	1.7	0.9	3.9	3.0	1.3

**6: Cherry Crossing Dr & Hodgen Rd Performance by movement Entire Run**

Movement	EBT	WBT	WBR	SBL	SBR	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.1	0.1	0.1
Total Del/Veh (s)	0.2	2.3	1.0	4.4	3.3	1.6

Lanes, Volumes, Timings  
3: SH 83 & Hodgen Rd

2017 Existing  
PM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	130	44	107	95	185	67	409	163	189	322	36
Future Volume (vph)	26	130	44	107	95	185	67	409	163	189	322	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	450		450	400		400	200		900	650		0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>			0.850			0.850			0.850			0.985
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	1863	1583	1770	1835	0
Flt Permitted	0.685			0.649			0.496			0.447		
Satd. Flow (perm)	1276	1863	1583	1209	1863	1583	924	1863	1583	833	1835	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			58			218			181			12
Link Speed (mph)		40			40			60			60	
Link Distance (ft)		843			1794			2113			2252	
Travel Time (s)		14.4			30.6			24.0			25.6	
Peak Hour Factor	0.76	0.76	0.76	0.85	0.85	0.85	0.90	0.90	0.90	0.89	0.89	0.89
Adj. Flow (vph)	34	171	58	126	112	218	74	454	181	212	362	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	34	171	58	126	112	218	74	454	181	212	402	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	
Detector 1 Type	Cl+Ex											
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		4		8		8	2		2	6		6
Permitted Phases	4		4	8		8	2		2	6		

Lanes, Volumes, Timings  
3: SH 83 & Hodgen Rd

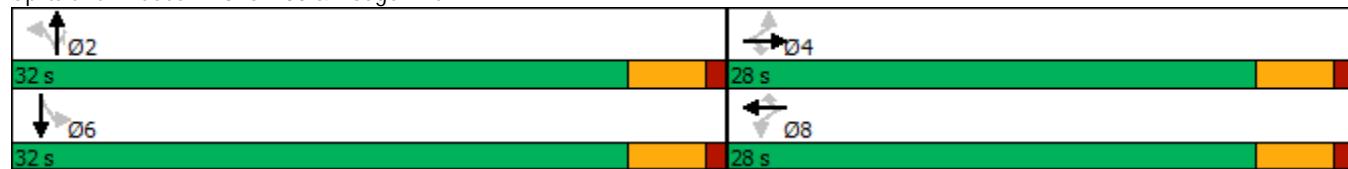
2017 Existing  
PM

	↗	→	↘	↖	←	↙	↑	↗	↘	↓	↖	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8	8	8	2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	28.0	28.0	28.0	28.0	28.0	28.0	32.0	32.0	32.0	32.0	32.0	32.0
Total Split (%)	46.7%	46.7%	46.7%	46.7%	46.7%	46.7%	53.3%	53.3%	53.3%	53.3%	53.3%	53.3%
Maximum Green (s)	23.5	23.5	23.5	23.5	23.5	23.5	27.5	27.5	27.5	27.5	27.5	27.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	Min	Min	Min	Min	Min	Min
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Act Effct Green (s)	10.3	10.3	10.3	10.3	10.3	10.3	18.7	18.7	18.7	18.7	18.7	18.7
Actuated g/C Ratio	0.27	0.27	0.27	0.27	0.27	0.27	0.49	0.49	0.49	0.49	0.49	0.49
v/c Ratio	0.10	0.34	0.12	0.39	0.23	0.37	0.17	0.50	0.21	0.52	0.45	
Control Delay	12.7	14.3	5.3	16.5	13.1	4.7	7.3	9.5	2.1	13.2	8.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	12.7	14.3	5.3	16.5	13.1	4.7	7.3	9.5	2.1	13.2	8.6	
LOS	B	B	A	B	B	A	A	A	A	B	A	
Approach Delay												10.2
Approach LOS												B
Queue Length 50th (ft)	5	26	0	19	16	0	7	52	0	25	43	
Queue Length 95th (ft)	20	65	14	62	52	32	29	145	22	89	120	
Internal Link Dist (ft)		763			1714			2033			2172	
Turn Bay Length (ft)	450		450	400		400	200		900	650		
Base Capacity (vph)	823	1202	1042	780	1202	1098	697	1406	1239	629	1388	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.04	0.14	0.06	0.16	0.09	0.20	0.11	0.32	0.15	0.34	0.29	
Intersection Summary												
Area Type:	Other											
Cycle Length: 60												
Actuated Cycle Length: 38.5												
Natural Cycle: 55												
Control Type: Actuated-Uncoordinated												
Maximum v/c Ratio: 0.52												
Intersection Signal Delay: 9.4												
Intersection LOS: A												
Intersection Capacity Utilization 59.8%												
Analysis Period (min) 15												

Lanes, Volumes, Timings  
3: SH 83 & Hodgen Rd

2017 Existing  
PM

Splits and Phases: 3: SH 83 & Hodgen Rd



**6: Cherry Crossing Dr & Hodgen Rd Performance by movement Interval #1 7:00**

Movement	EBL	EBT	WBT	WBR	SBL	All
Denied Del/Veh (s)	0.1	0.2	0.0	0.0	0.1	0.1
Total Del/Veh (s)	2.3	0.4	1.9	1.6	4.0	1.3

**6: Cherry Crossing Dr & Hodgen Rd Performance by movement Interval #2 7:15**

Movement	EBL	EBT	WBT	WBR	SBL	All
Denied Del/Veh (s)	0.9	0.2	0.0	0.0	0.1	0.1
Total Del/Veh (s)	2.6	0.2	1.3	0.0	3.6	0.9

**6: Cherry Crossing Dr & Hodgen Rd Performance by movement Interval #3 7:30**

Movement	EBL	EBT	WBT	WBR	SBL	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.1	0.1
Total Del/Veh (s)	0.8	0.5	1.7	0.4	10.6	1.2

**6: Cherry Crossing Dr & Hodgen Rd Performance by movement Interval #4 7:45**

Movement	EBL	EBT	WBT	WBR	SBL	All
Denied Del/Veh (s)		0.2	0.0	0.0	0.1	0.1
Total Del/Veh (s)	3.4	0.2	2.1	1.6	6.4	1.4

**6: Cherry Crossing Dr & Hodgen Rd Performance by movement Entire Run**

Movement	EBL	EBT	WBT	WBR	SBL	All
Denied Del/Veh (s)	0.4	0.2	0.0	0.0	0.1	0.1
Total Del/Veh (s)	3.0	0.3	1.8	1.1	5.9	1.2

Lanes, Volumes, Timings  
3: SH 83 & Hodgen Rd

2017 Existing + Site  
AM

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	32	58	87	204	135	192	38	166	43	61	312	46
Future Volume (vph)	32	58	87	204	135	192	38	166	43	61	312	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	450		450	400		400	200		900	650		0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>			0.850			0.850			0.850			0.981
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	1863	1583	1770	1827	0
Flt Permitted	0.659			0.706			0.406			0.636		
Satd. Flow (perm)	1228	1863	1583	1315	1863	1583	756	1863	1583	1185	1827	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			118			221			50			16
Link Speed (mph)		40			40			60			60	
Link Distance (ft)		843			1794			2113			2252	
Travel Time (s)		14.4			30.6			24.0			25.6	
Peak Hour Factor	0.74	0.74	0.74	0.87	0.87	0.87	0.86	0.86	0.86	0.79	0.79	0.79
Adj. Flow (vph)	43	78	118	234	155	221	44	193	50	77	395	58
Shared Lane Traffic (%)												
Lane Group Flow (vph)	43	78	118	234	155	221	44	193	50	77	453	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	
Detector 1 Type	Cl+Ex											
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		4		8		8	2		2	6		6
Permitted Phases	4		4	8		8	2		2	6		

Lanes, Volumes, Timings  
3: SH 83 & Hodgen Rd

2017 Existing + Site  
AM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8	8	8	2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	28.0	28.0	28.0	28.0	28.0	28.0	32.0	32.0	32.0	32.0	32.0	32.0
Total Split (%)	46.7%	46.7%	46.7%	46.7%	46.7%	46.7%	53.3%	53.3%	53.3%	53.3%	53.3%	53.3%
Maximum Green (s)	23.5	23.5	23.5	23.5	23.5	23.5	27.5	27.5	27.5	27.5	27.5	27.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	Min	Min	Min	Min	Min	Min
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Act Effct Green (s)	13.3	13.3	13.3	13.3	13.3	13.3	15.8	15.8	15.8	15.8	15.8	15.8
Actuated g/C Ratio	0.34	0.34	0.34	0.34	0.34	0.34	0.41	0.41	0.41	0.41	0.41	0.41
v/c Ratio	0.10	0.12	0.19	0.52	0.24	0.32	0.14	0.25	0.07	0.16	0.60	
Control Delay	10.3	10.1	3.6	15.6	10.9	3.5	9.9	9.6	3.7	9.5	13.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	10.3	10.1	3.6	15.6	10.9	3.5	9.9	9.6	3.7	9.5	13.4	
LOS	B	B	A	B	B	A	A	A	A	A	B	
Approach Delay												12.9
Approach LOS												B
Queue Length 50th (ft)	5	10	0	33	20	0	5	23	0	9	62	
Queue Length 95th (ft)	21	31	15	106	65	30	24	71	14	32	150	
Internal Link Dist (ft)		763			1714			2033			2172	
Turn Bay Length (ft)	450		450	400		400	200		900	650		
Base Capacity (vph)	803	1219	1076	860	1219	1112	575	1418	1217	902	1395	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.05	0.06	0.11	0.27	0.13	0.20	0.08	0.14	0.04	0.09	0.32	
Intersection Summary												
Area Type:	Other											
Cycle Length: 60												
Actuated Cycle Length: 38.9												
Natural Cycle: 45												
Control Type: Actuated-Uncoordinated												
Maximum v/c Ratio: 0.60												
Intersection Signal Delay: 10.2												
Intersection LOS: B												
Intersection Capacity Utilization 53.8%												
ICU Level of Service A												
Analysis Period (min) 15												

Lanes, Volumes, Timings  
3: SH 83 & Hodgen Rd

2017 Existing + Site  
AM

Splits and Phases: 3: SH 83 & Hodgen Rd



**6: Cherry Crossing Dr & Hodgen Rd Performance by movement Interval #1 7:00**

Movement	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SBL	SBR	All
Denied Del/Veh (s)	0.1	3.2	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.3
Total Del/Veh (s)	1.0	0.2	3.2	2.0	0.9	8.7	2.8	4.1	2.0	2.4

**6: Cherry Crossing Dr & Hodgen Rd Performance by movement Interval #2 7:15**

Movement	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SBL	SBR	All
Denied Del/Veh (s)	0.4	2.3	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.3
Total Del/Veh (s)	0.6	0.2	2.2	1.8	3.4	8.8	2.8	7.8	1.9	2.3

**6: Cherry Crossing Dr & Hodgen Rd Performance by movement Interval #3 7:30**

Movement	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SBL	SBR	All
Denied Del/Veh (s)	0.1	3.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.4
Total Del/Veh (s)	0.7	0.3	4.5	2.0	1.1	7.2	2.9	5.6	2.0	2.7

**6: Cherry Crossing Dr & Hodgen Rd Performance by movement Interval #4 7:45**

Movement	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SBL	SBR	All
Denied Del/Veh (s)	0.3	2.9	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.3
Total Del/Veh (s)	1.1	0.3	4.0	2.1	2.9	5.4	2.6	4.2	2.7	2.6

**6: Cherry Crossing Dr & Hodgen Rd Performance by movement Entire Run**

Movement	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SBL	SBR	All
Denied Del/Veh (s)	0.2	2.9	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.3
Total Del/Veh (s)	0.9	0.2	3.5	2.0	2.1	7.5	2.8	5.5	2.2	2.5

Lanes, Volumes, Timings  
3: SH 83 & Hodgen Rd

2017 Existing + Site  
PM

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	55	165	85	104	114	105	105	392	157	177	299	85
Future Volume (vph)	55	165	85	104	114	105	105	392	157	177	299	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	450		450	400		400	200		900	650		0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>			0.850			0.850			0.850			0.967
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	1863	1583	1770	1801	0
Flt Permitted	0.671			0.622			0.482			0.478		
Satd. Flow (perm)	1250	1863	1583	1159	1863	1583	898	1863	1583	890	1801	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			112			124			174			32
Link Speed (mph)		40			40			60			60	
Link Distance (ft)		843			1794			2113			2252	
Travel Time (s)		14.4			30.6			24.0			25.6	
Peak Hour Factor	0.76	0.76	0.76	0.85	0.85	0.85	0.90	0.90	0.90	0.89	0.89	0.89
Adj. Flow (vph)	72	217	112	122	134	124	117	436	174	199	336	96
Shared Lane Traffic (%)												
Lane Group Flow (vph)	72	217	112	122	134	124	117	436	174	199	432	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	
Detector 1 Type	Cl+Ex											
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		4		4	8		8	2		2	6	
Permitted Phases	4		4	8		8	2		2	6		

Lanes, Volumes, Timings  
3: SH 83 & Hodgen Rd

2017 Existing + Site  
PM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8	8	8	2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	28.0	28.0	28.0	28.0	28.0	28.0	32.0	32.0	32.0	32.0	32.0	32.0
Total Split (%)	46.7%	46.7%	46.7%	46.7%	46.7%	46.7%	53.3%	53.3%	53.3%	53.3%	53.3%	53.3%
Maximum Green (s)	23.5	23.5	23.5	23.5	23.5	23.5	27.5	27.5	27.5	27.5	27.5	27.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	Min	Min	Min	Min	Min	Min
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Act Effct Green (s)	10.5	10.5	10.5	10.3	10.3	10.3	20.3	20.3	20.3	20.3	20.3	20.3
Actuated g/C Ratio	0.29	0.29	0.29	0.28	0.28	0.28	0.56	0.56	0.56	0.56	0.56	0.56
v/c Ratio	0.20	0.40	0.21	0.37	0.25	0.23	0.23	0.42	0.18	0.40	0.42	
Control Delay	12.8	14.0	4.5	15.4	12.6	4.5	8.3	8.6	2.0	10.5	8.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	12.8	14.0	4.5	15.4	12.6	4.5	8.3	8.6	2.0	10.5	8.1	
LOS	B	B	A	B	B	A	A	A	A	B	A	
Approach Delay												8.9
Approach LOS												A
Queue Length 50th (ft)	9	30	0	17	18	0	12	50	0	22	45	
Queue Length 95th (ft)	34	81	18	61	60	25	45	137	22	79	127	
Internal Link Dist (ft)												2172
Turn Bay Length (ft)	450		450	400		400	200		900	650		
Base Capacity (vph)	869	1295	1134	806	1295	1138	721	1496	1305	715	1453	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.08	0.17	0.10	0.15	0.10	0.11	0.16	0.29	0.13	0.28	0.30	
Intersection Summary												
Area Type:	Other											
Cycle Length: 60												
Actuated Cycle Length: 36.2												
Natural Cycle: 50												
Control Type: Actuated-Uncoordinated												
Maximum v/c Ratio: 0.42												
Intersection Signal Delay: 9.0												
Intersection Capacity Utilization 59.9%												
Analysis Period (min) 15												

Lanes, Volumes, Timings  
3: SH 83 & Hodgen Rd

2017 Existing + Site  
PM

Splits and Phases: 3: SH 83 & Hodgen Rd



**6: Cherry Crossing Dr & Hodgen Rd Performance by movement Interval #1 7:30**

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SBT	All
Denied Del/Veh (s)	0.4	0.2	3.4	0.0	0.0	0.0	0.0	0.0	0.1	0.4
Total Del/Veh (s)	3.5	1.3	0.1	2.6	2.1	0.7	5.7	3.7	7.4	2.4

**6: Cherry Crossing Dr & Hodgen Rd Performance by movement Interval #2 7:45**

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.1	0.4	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.3
Total Del/Veh (s)	4.0	1.3	0.6	3.4	1.5	0.7	6.6	11.8	3.1	7.9	10.0	2.4

**6: Cherry Crossing Dr & Hodgen Rd Performance by movement Interval #3 8:00**

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SBL	All
Denied Del/Veh (s)	0.1	0.2	3.2	0.0	0.0	0.0	0.0	0.0	0.1	0.4
Total Del/Veh (s)	4.3	1.2	0.8	5.6	2.4	2.3	13.2	4.4	9.4	3.7

**6: Cherry Crossing Dr & Hodgen Rd Performance by movement Interval #4 8:15**

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	All
Denied Del/Veh (s)	1.0	0.3	3.7	0.0	0.0	0.0	0.0	0.0	0.4
Total Del/Veh (s)	2.6	1.1	0.5	4.6	2.3	2.5	9.2	3.7	2.9

**6: Cherry Crossing Dr & Hodgen Rd Performance by movement Entire Run**

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.4	0.3	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.4
Total Del/Veh (s)	3.5	1.2	0.5	4.2	2.1	1.3	9.3	11.8	3.8	8.4	8.7	2.9

Lanes, Volumes, Timings  
3: SH 83 & Hodgen Rd

2040 Background  
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	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	75	125	150	400	300	400	50	600	125	160	600	150
Future Volume (vph)	75	125	150	400	300	400	50	600	125	160	600	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	450		450	400		400	200		900	650		400
Storage Lanes	1		1	1		1	1		1	2		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	3433	3539	1583
Flt Permitted	0.569			0.413			0.332			0.301		
Satd. Flow (perm)	1060	1863	1583	769	1863	1583	618	3539	1583	1088	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			158			279			138			158
Link Speed (mph)		40			40			60			60	
Link Distance (ft)		843			1794			2113			2252	
Travel Time (s)		14.4			30.6			24.0			25.6	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	79	132	158	421	316	421	53	632	132	168	632	158
Shared Lane Traffic (%)												
Lane Group Flow (vph)	79	132	158	421	316	421	53	632	132	168	632	158
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right									
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex											
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm									
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6

Lanes, Volumes, Timings  
3: SH 83 & Hodgen Rd

2040 Background  
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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	12.0	25.0	25.0	41.0	54.0	54.0	11.0	42.0	42.0	11.0	42.0	42.0
Total Split (%)	10.1%	21.0%	21.0%	34.5%	45.4%	45.4%	9.2%	35.3%	35.3%	9.2%	35.3%	35.3%
Maximum Green (s)	7.5	20.5	20.5	36.5	49.5	49.5	6.5	37.5	37.5	6.5	37.5	37.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Max	Max	None	Max	Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	0
Act Effct Green (s)	19.4	12.3	12.3	40.3	30.9	30.9	44.1	37.8	37.8	45.4	40.3	40.3
Actuated g/C Ratio	0.20	0.13	0.13	0.41	0.31	0.31	0.45	0.38	0.38	0.46	0.41	0.41
v/c Ratio	0.30	0.57	0.47	0.76	0.54	0.61	0.15	0.46	0.19	0.26	0.43	0.21
Control Delay	23.2	51.5	11.6	31.5	31.8	13.5	16.9	25.5	4.8	16.1	24.5	4.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.2	51.5	11.6	31.5	31.8	13.5	16.9	25.5	4.8	16.1	24.5	4.9
LOS	C	D	B	C	C	B	B	C	A	B	C	A
Approach Delay		28.4			25.1			21.6			19.8	
Approach LOS		C			C			C			B	
Queue Length 50th (ft)	30	78	0	198	168	70	16	152	0	27	152	0
Queue Length 95th (ft)	57	149	59	286	249	166	47	252	39	58	252	46
Internal Link Dist (ft)		763			1714			2033			2172	
Turn Bay Length (ft)	450		450	400		400	200		900	650		400
Base Capacity (vph)	268	392	458	708	947	941	356	1363	694	659	1453	743
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.34	0.34	0.59	0.33	0.45	0.15	0.46	0.19	0.25	0.43	0.21

Intersection Summary

Area Type: Other

Cycle Length: 119

Actuated Cycle Length: 98.2

Natural Cycle: 65

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.76

Intersection Signal Delay: 23.0

Intersection LOS: C

Intersection Capacity Utilization 64.9%

ICU Level of Service C

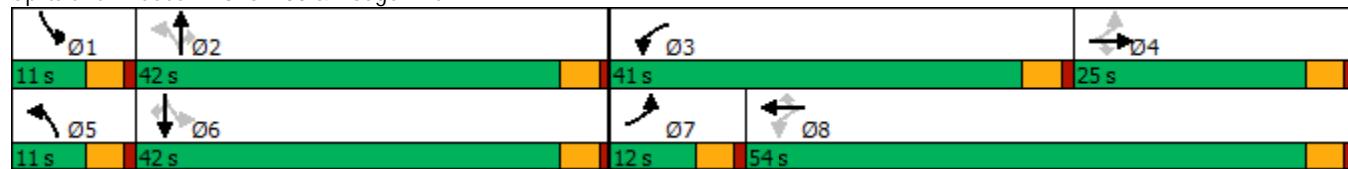
Analysis Period (min) 15

Lanes, Volumes, Timings  
3: SH 83 & Hodgen Rd

2040 Background

AM

Splits and Phases: 3: SH 83 & Hodgen Rd



**6: Cherry Crossing Dr & Hodgen Rd Performance by movement Interval #1 7:00**

Movement	EBT	WBT	WBR	SBL	SBR	All
Denied Del/Veh (s)	0.2	0.0	0.0	0.1	0.1	0.1
Total Del/Veh (s)	0.7	3.1	0.1	7.5	1.8	2.2

**6: Cherry Crossing Dr & Hodgen Rd Performance by movement Interval #2 7:15**

Movement	EBT	WBT	WBR	SBL	SBR	All
Denied Del/Veh (s)	0.3	0.0	0.0	0.1	0.6	0.1
Total Del/Veh (s)	0.6	3.2	0.9	4.0	7.0	2.2

**6: Cherry Crossing Dr & Hodgen Rd Performance by movement Interval #3 7:30**

Movement	EBT	WBT	WBR	SBL	SBR	All
Denied Del/Veh (s)	0.2	0.0	0.0	0.1	0.1	0.1
Total Del/Veh (s)	0.4	3.3	1.7	9.2	8.0	2.3

**6: Cherry Crossing Dr & Hodgen Rd Performance by movement Interval #4 7:45**

Movement	EBT	WBT	SBL	SBR	All
Denied Del/Veh (s)	0.2	0.0	0.1	0.1	0.1
Total Del/Veh (s)	0.7	3.1	23.7	16.4	2.6

**6: Cherry Crossing Dr & Hodgen Rd Performance by movement Entire Run**

Movement	EBT	WBT	WBR	SBL	SBR	All
Denied Del/Veh (s)	0.2	0.0	0.0	0.1	0.2	0.1
Total Del/Veh (s)	0.6	3.2	1.0	12.8	7.1	2.3

Lanes, Volumes, Timings  
3: SH 83 & Hodgen Rd

2040 Background

PM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	150	300	75	125	275	283	150	800	400	375	700	150
Future Volume (vph)	150	300	75	125	275	283	150	800	400	375	700	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	450		450	400		400	0		900	650		400
Storage Lanes	1		1	1		1	1		1	2		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Fr <sub>t</sub>			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	3433	3539	1583
Flt Permitted	0.327			0.364			0.274			0.165		
Satd. Flow (perm)	609	1863	1583	678	1863	1583	510	3539	1583	596	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			169			298			304			158
Link Speed (mph)		40			40			60			60	
Link Distance (ft)		843			4808			4090			2881	
Travel Time (s)		14.4			82.0			46.5			32.7	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	158	316	79	132	289	298	158	842	421	395	737	158
Shared Lane Traffic (%)												
Lane Group Flow (vph)	158	316	79	132	289	298	158	842	421	395	737	158
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right									
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex											
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type	Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex		
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm									
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6

Lanes, Volumes, Timings  
3: SH 83 & Hodgen Rd

2040 Background  
PM



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	23.5	23.5	9.5	23.5	23.5	11.5	24.5	24.5	9.5	24.5	24.5
Total Split (s)	12.0	29.6	29.6	10.2	27.8	27.8	16.2	35.0	35.0	25.2	44.0	44.0
Total Split (%)	12.0%	29.6%	29.6%	10.2%	27.8%	27.8%	16.2%	35.0%	35.0%	25.2%	44.0%	44.0%
Maximum Green (s)	8.0	24.1	24.1	6.2	22.3	22.3	12.2	28.5	28.5	21.2	37.5	37.5
Yellow Time (s)	3.0	4.5	4.5	3.0	4.5	4.5	3.0	5.5	5.5	3.0	5.5	5.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	5.5	5.5	4.0	5.5	5.5	4.0	6.5	6.5	4.0	6.5	6.5
Lead/Lag	Lead	Lag	Lag									
Lead-Lag Optimize?	Yes											
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Min	Min	None	Min	Min						
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	29.0	19.5	19.5	25.7	17.9	17.9	38.0	25.9	25.9	41.7	27.8	27.8
Actuated g/C Ratio	0.35	0.23	0.23	0.31	0.21	0.21	0.46	0.31	0.31	0.50	0.33	0.33
v/c Ratio	0.49	0.73	0.16	0.45	0.72	0.52	0.42	0.77	0.60	0.58	0.63	0.25
Control Delay	24.9	41.0	0.7	25.0	42.8	7.4	14.8	32.3	11.6	14.6	26.8	4.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.9	41.0	0.7	25.0	42.8	7.4	14.8	32.3	11.6	14.6	26.8	4.9
LOS	C	D	A	C	D	A	B	C	B	B	C	A
Approach Delay		30.6			24.9			24.2			20.4	
Approach LOS		C			C			C			C	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 83.5

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 24.0

Intersection LOS: C

Intersection Capacity Utilization 72.3%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 3: SH 83 & Hodgen Rd



**6: Cherry Crossing Dr & Hodgen Rd Performance by movement Interval #1 7:00**

Movement	EBL	EBT	WBT	WBR	All
Denied Del/Veh (s)	0.1	0.4	0.0	0.0	0.2
Total Del/Veh (s)	2.9	0.9	3.3	1.6	2.2

**6: Cherry Crossing Dr & Hodgen Rd Performance by movement Interval #2 7:15**

Movement	EBL	EBT	WBT	WBR	All
Denied Del/Veh (s)	0.4	0.5	0.0	0.0	0.2
Total Del/Veh (s)	5.3	1.9	3.6	1.0	2.8

**6: Cherry Crossing Dr & Hodgen Rd Performance by movement Interval #3 7:30**

Movement	EBL	EBT	WBT	WBR	All
Denied Del/Veh (s)	1.3	0.4	0.0	0.0	0.2
Total Del/Veh (s)	18.2	2.2	3.6	2.7	2.9

**6: Cherry Crossing Dr & Hodgen Rd Performance by movement Interval #4 7:45**

Movement	EBL	EBT	WBT	WBR	SBL	All
Denied Del/Veh (s)	0.1	0.3	0.0	0.0	0.1	0.1
Total Del/Veh (s)	11.8	1.4	3.4	0.2	10.4	2.5

**6: Cherry Crossing Dr & Hodgen Rd Performance by movement Entire Run**

Movement	EBL	EBT	WBT	WBR	SBL	All
Denied Del/Veh (s)	0.4	0.4	0.0	0.0	0.1	0.2
Total Del/Veh (s)	7.2	1.7	3.6	1.3	10.4	2.7

Lanes, Volumes, Timings  
3: SH 83 & Hodgen Rd

2040 Background + Site  
AM

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1	1	1	1	1	1	1	1	1	1	1	1
Traffic Volume (vph)	96	137	185	390	332	392	69	592	125	156	579	187
Future Volume (vph)	96	137	185	390	332	392	69	592	125	156	579	187
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	450		450	400		400	200		900	650		400
Storage Lanes	1		1	1		1	1		1	2		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	3433	3539	1583
Flt Permitted	0.552			0.463			0.357			0.310		
Satd. Flow (perm)	1028	1863	1583	862	1863	1583	665	3539	1583	1120	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			195			283			158			197
Link Speed (mph)		40			40			60			60	
Link Distance (ft)		843			1794			2113			2252	
Travel Time (s)		14.4			30.6			24.0			25.6	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	101	144	195	411	349	413	73	623	132	164	609	197
Shared Lane Traffic (%)												
Lane Group Flow (vph)	101	144	195	411	349	413	73	623	132	164	609	197
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right									
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex											
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type	Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex		
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm									
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6

Lanes, Volumes, Timings  
3: SH 83 & Hodgen Rd

2040 Background + Site  
AM



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	23.5	23.5	9.5	23.5	23.5	9.5	24.5	24.5	9.5	24.5	24.5
Total Split (s)	10.4	24.0	24.0	30.0	43.6	43.6	10.0	36.0	36.0	10.0	36.0	36.0
Total Split (%)	10.4%	24.0%	24.0%	30.0%	43.6%	43.6%	10.0%	36.0%	36.0%	10.0%	36.0%	36.0%
Maximum Green (s)	6.4	18.5	18.5	26.0	38.1	38.1	6.0	29.5	29.5	6.0	29.5	29.5
Yellow Time (s)	3.0	4.5	4.5	3.0	4.5	4.5	3.0	5.5	5.5	3.0	5.5	5.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	5.5	5.5	4.0	5.5	5.5	4.0	6.5	6.5	4.0	6.5	6.5
Lead/Lag	Lead	Lag	Lag									
Lead-Lag Optimize?	Yes											
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Max	Max	None	Max	Max						
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	20.1	12.2	12.2	37.9	28.3	28.3	38.2	29.7	29.7	39.2	32.0	32.0
Actuated g/C Ratio	0.23	0.14	0.14	0.43	0.32	0.32	0.43	0.34	0.34	0.44	0.36	0.36
v/c Ratio	0.35	0.56	0.50	0.71	0.58	0.59	0.20	0.52	0.21	0.25	0.47	0.28
Control Delay	20.6	44.9	10.3	25.8	29.8	11.6	16.6	26.9	3.6	15.5	25.6	5.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.6	44.9	10.3	25.8	29.8	11.6	16.6	26.9	3.6	15.5	25.6	5.1
LOS	C	D	B	C	C	B	B	C	A	B	C	A
Approach Delay		24.0			22.0			22.3			19.7	
Approach LOS		C			C			C			B	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 88.3

Natural Cycle: 70

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.71

Intersection Signal Delay: 21.7

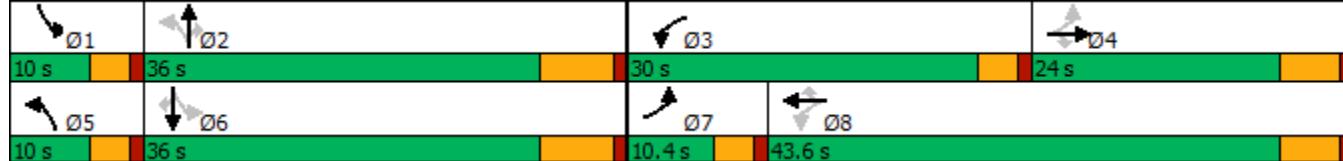
Intersection LOS: C

Intersection Capacity Utilization 66.3%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 3: SH 83 & Hodgen Rd



**6: Cherry Crossing Dr & Hodgen Rd Performance by movement Interval #1 7:00**

Movement	EBL	EBT	EBR	WBL	WBT	NBL	NBR	SBL	SBR	All
Denied Del/Veh (s)	0.1	0.3	3.2	0.0	0.0	0.0	0.0	0.1	0.1	0.2
Total Del/Veh (s)	5.1	1.1	0.2	6.0	3.6	11.7	3.8	13.5	6.3	3.3

**6: Cherry Crossing Dr & Hodgen Rd Performance by movement Interval #2 7:15**

Movement	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SBL	SBR	All
Denied Del/Veh (s)	0.4	2.2	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.2
Total Del/Veh (s)	0.9	0.1	4.2	3.0	3.9	15.0	4.3	10.1	6.0	3.2

**6: Cherry Crossing Dr & Hodgen Rd Performance by movement Interval #3 7:30**

Movement	EBL	EBT	EBR	WBL	WBT	NBL	NBR	SBL	SBR	All
Denied Del/Veh (s)	0.1	0.2	3.2	0.0	0.0	0.0	0.0	0.1	0.1	0.2
Total Del/Veh (s)	0.7	1.2	0.2	4.9	3.9	17.4	4.3	14.4	9.6	3.8

**6: Cherry Crossing Dr & Hodgen Rd Performance by movement Interval #4 7:45**

Movement	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SBL	SBR	All
Denied Del/Veh (s)	0.2	2.8	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
Total Del/Veh (s)	0.9	1.1	5.8	3.9	1.8	14.0	3.7	4.2	4.0	3.4

**6: Cherry Crossing Dr & Hodgen Rd Performance by movement Entire Run**

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SBL	SBR	All
Denied Del/Veh (s)	0.1	0.3	2.8	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2
Total Del/Veh (s)	2.9	1.0	0.4	5.3	3.7	2.5	14.7	4.0	13.5	6.8	3.5

Lanes, Volumes, Timings  
3: SH 83 & Hodgen Rd

2040 Background + Site  
PM

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1	1	1	1	1	1	1	1	1	1	1	1
Traffic Volume (vph)	179	335	116	122	295	283	188	783	394	363	677	199
Future Volume (vph)	179	335	116	122	295	283	188	783	394	363	677	199
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	450		450	400		400	0		900	650		400
Storage Lanes	1		1	1		1	1		1	2		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	3433	3539	1583
Flt Permitted	0.297			0.312			0.262			0.180		
Satd. Flow (perm)	553	1863	1583	581	1863	1583	488	3539	1583	650	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			169			298			293			209
Link Speed (mph)		40			40			60			60	
Link Distance (ft)		843			4808			4090			2881	
Travel Time (s)		14.4			82.0			46.5			32.7	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	188	353	122	128	311	298	198	824	415	382	713	209
Shared Lane Traffic (%)												
Lane Group Flow (vph)	188	353	122	128	311	298	198	824	415	382	713	209
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right									
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex											
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type	Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex		
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm									
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6

Lanes, Volumes, Timings  
3: SH 83 & Hodgen Rd

2040 Background + Site  
PM



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	23.5	23.5	9.5	23.5	23.5	11.5	24.5	24.5	9.5	24.5	24.5
Total Split (s)	12.0	29.6	29.6	10.2	27.8	27.8	16.2	35.0	35.0	25.2	44.0	44.0
Total Split (%)	12.0%	29.6%	29.6%	10.2%	27.8%	27.8%	16.2%	35.0%	35.0%	25.2%	44.0%	44.0%
Maximum Green (s)	8.0	24.1	24.1	6.2	22.3	22.3	12.2	28.5	28.5	21.2	37.5	37.5
Yellow Time (s)	3.0	4.5	4.5	3.0	4.5	4.5	3.0	5.5	5.5	3.0	5.5	5.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	5.5	5.5	4.0	5.5	5.5	4.0	6.5	6.5	4.0	6.5	6.5
Lead/Lag	Lead	Lag	Lag									
Lead-Lag Optimize?	Yes											
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Min	Min	None	Min	Min						
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	30.3	20.6	20.6	26.6	18.8	18.8	38.8	25.7	25.7	40.1	26.4	26.4
Actuated g/C Ratio	0.36	0.24	0.24	0.32	0.22	0.22	0.46	0.31	0.31	0.48	0.31	0.31
v/c Ratio	0.59	0.77	0.24	0.47	0.75	0.51	0.52	0.76	0.60	0.56	0.64	0.33
Control Delay	28.1	43.3	2.9	25.3	43.6	7.1	16.8	32.3	12.1	14.8	28.2	4.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.1	43.3	2.9	25.3	43.6	7.1	16.8	32.3	12.1	14.8	28.2	4.9
LOS	C	D	A	C	D	A	B	C	B	B	C	A
Approach Delay		31.5			25.7			24.3			20.6	
Approach LOS		C			C			C			C	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 84.1

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 24.5

Intersection LOS: C

Intersection Capacity Utilization 74.1%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 3: SH 83 & Hodgen Rd



**6: Cherry Crossing Dr & Hodgen Rd Performance by movement Interval #1 7:00**

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.7	0.6	3.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.3
Total Del/Veh (s)	8.1	2.2	0.6	7.0	3.2	2.0	36.0	4.0	68.1	12.0	4.3

**6: Cherry Crossing Dr & Hodgen Rd Performance by movement Interval #2 7:15**

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	All
Denied Del/Veh (s)	0.1	0.5	2.7	0.0	0.0	0.0	0.0	0.0	0.3
Total Del/Veh (s)	15.5	2.3	1.3	7.2	3.7	1.2	33.4	4.0	4.6

**6: Cherry Crossing Dr & Hodgen Rd Performance by movement Interval #3 7:30**

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.1	0.6	2.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.3
Total Del/Veh (s)	6.7	3.3	1.1	10.5	3.2	2.2	42.9	7.3	9.0	6.3	5.2

**6: Cherry Crossing Dr & Hodgen Rd Performance by movement Interval #4 7:45**

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SBL	SBT	All
Denied Del/Veh (s)	1.1	0.5	2.8	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.3
Total Del/Veh (s)	6.6	2.1	0.7	6.8	3.9	1.7	27.4	7.7	46.5	54.1	4.9

**6: Cherry Crossing Dr & Hodgen Rd Performance by movement Entire Run**

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.5	0.5	2.6	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.3
Total Del/Veh (s)	9.1	2.5	1.0	8.0	3.5	1.8	33.7	6.0	33.2	21.1	4.8