



LSC TRANSPORTATION CONSULTANTS, INC.  
2504 East Pikes Peak Avenue, Suite 304  
Colorado Springs, CO 80909  
(719) 633-2868  
FAX (719) 633-5430  
E-mail: [lsc@lsctrans.com](mailto:lsc@lsctrans.com)  
Website: <http://www.lsctrans.com>

Red Rock Acres  
Traffic Impact Study  
PCD File No P2010  
(LSC #194970)  
May 27, 2021

**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.

\_\_\_\_\_

\_\_\_\_\_  
Date

# Red Rock Acres

## Traffic Impact Study

Prepared for:  
Ingrid Richter  
Olive Real Estate Group, Inc.  
102 N Cascade Avenue, Suite 250  
Colorado Springs, CO 80903

MAY 27, 2021

---

LSC Transportation Consultants  
Prepared by: Colleen Guillotte, P.E., PTOE, RSP  
Reviewed by: Jeffrey C. Hodsdon, P.E.

LSC #194970  
PCD File No P2010



## CONTENTS

|  |   |
|--|---|
| REPORT CONTENTS .....  | 1 |
| PREVIOUS TRAFFIC STUDIES .....                                   | 2 |
| LAND USE AND ACCESS .....  | 2 |
| INTERSECTION SIGHT DISTANCE .....                                | 2 |
| North Subdivision Street Intersections <<(no name shown)>> ..... | 2 |
| Driveway Access to Lots 34, 35, & 36 .....                       | 3 |
| ROAD AND TRAFFIC CONDITIONS .....                                | 3 |
| Area Roads .....   | 3 |
| Traffic Volumes .....  | 3 |
| TRIP GENERATION .....  | 3 |
| BACKGROUND TRAFFIC .....   | 4 |
| TRIP DISTRIBUTION AND ASSIGNMENT .....                           | 5 |
| Trip Directional Distribution .....                              | 5 |
| Site-Generated Traffic .....                                     | 5 |
| Short-Term Total Traffic Volumes .....                           | 5 |
| Long-Term Total Traffic Volumes .....                            | 5 |
| LEVEL OF SERVICE ANALYSIS .....                                  | 5 |
| RECOMMENDED IMPROVEMENTS .....                                   | 6 |
| Auxiliary Turn Lanes .....                                       | 6 |
| Roadway Improvements .....                                       | 7 |
| Rockbrook Road .....   | 7 |
| Red Rock Ranch Drive .....                                       | 7 |
| VEHICLE QUEUING .....  | 8 |
| SUBDIVISION STREET CLASSIFICATIONS .....                         | 8 |
| MTCP ROADWAY IMPROVEMENTS .....                                  | 8 |
| PEDESTRIAN AND BICYCLE ACCOMMODATION .....                       | 8 |
| COUNTY ROAD IMPROVEMENT FEE PROGRAM .....                        | 8 |
| Transportation Impact Fees .....                                 | 8 |
| Reimbursable MTCP Improvements .....                             | 8 |
| DEVIATIONS TO ECM CRITERIA .....                                 | 9 |

|                               |    |
|-------------------------------|----|
| FINDINGS AND CONCLUSIONS..... | 9  |
| Trip Generation.....          | 9  |
| Recommendations .....         | 9  |
| Enclosures: .....             | 10 |
| Tables 4 and 5                |    |
| Figures 1-8                   |    |
| Traffic Counts                |    |
| Level of Service Reports      |    |



**LSC TRANSPORTATION CONSULTANTS, INC.**  
2504 East Pikes Peak Avenue, Suite 304  
Colorado Springs, CO 80909  
(719) 633-2868  
FAX (719) 633-5430  
E-mail: [lsc@lsctrans.com](mailto:lsc@lsctrans.com)  
Website: <http://www.lsctrans.com>

May 27, 2021

Ingrid Richter  
Olive Real Estate Group, Inc.  
102 N Cascade Avenue, Suite 250  
Colorado Springs, CO 80903

RE: Red Rock Acres  
Traffic Impact Study  
El Paso County, Colorado  
PCD File No. P2010  
LSC #194970

Dear Ms. Richter:

LSC Transportation Consultants, Inc. has prepared this transportation memorandum for the proposed development planned to be located southeast of the intersection of State Highway (SH) 105/Red Rock Ranch Drive in El Paso County, Colorado (parcel numbers 7109000024 and 7109014003). The site is proposed to have 37 single-family homes. This report has been prepared for submittal to El Paso County.

## **REPORT CONTENTS**

The preparation of this report included the following:

- Inventory of the existing adjacent and nearby roadway system. This includes functional classifications, street widths, lane configurations, intersection traffic control, posted speed limits, pavement markings, intersection and access spacing, roadway and intersection alignments, auxiliary left- and right-turn lanes, intersection sight distances, etc.;
- A review of the proposed site land use and access locations;
- Morning and evening peak-hour traffic volumes at the intersections of SH 105/Red Rock Ranch Drive and SH 105/Rockbrook Road;
- Estimates of long-term background traffic volumes and total traffic (site traffic plus background traffic). Forecasts include buildout of the adjacent vacant parcel;
- Estimates of the daily and peak-hour trip generation for the proposed land use;
- The estimated directional distribution of site-generated vehicle trips on the study-area roadway system;

- Projections of peak-hour site-generated turning-movement traffic volumes at the study-area intersections;
- Level of service (LOS) analysis at the study-area intersections;
- Evaluation of the short-term and long-term projected intersection volumes to determine the potential need for any new auxiliary right-/left-turn lanes and/or the adequacy of existing lanes at the site access-point intersections and the other study-area intersections; and
- Findings and recommendations.

## **PREVIOUS TRAFFIC STUDIES**

LSC is not aware of any traffic studies completed in the last five years in the study area.

## **LAND USE AND ACCESS**

Figure 1 shows the site location relative to the adjacent and nearby roadways. The site plan is shown in Figure 2. As shown in Figure 2, the development is proposed to include 37 single-family homes.

Of the 37 proposed homes, 32 will have access to both Red Rock Ranch Drive and Rockbrook Road via an internal local street. The access onto Red Rock Ranch Drive will be located approximately 915 feet south of the SH 105 intersection (centerline to centerline). Three additional homes will have a shared access onto Red Rock Ranch Drive located approximately 1,750 feet further south on Red Rock Ranch Drive from the first access. Lastly, two homes will have access via the existing El Rancho Way.

## **INTERSECTION SIGHT DISTANCE**

### **North Subdivision Street Intersections**

The required sight distance, per the El Paso County *Engineering Criteria Manual (ECM)* and based on Table 2-21, is 390 feet for the proposed intersection on Red Rock Ranch Drive based on the current posted speed limit (plus 5 miles per hour (mph) for an assumed design speed of 35 mph). Based on an assumed design speed of 50 mph (the *ECM* standard design speed for Major Collector roadways), the required sight distance would be 555 feet. There is sufficient line of sight at the proposed intersection location to meet both of these minimum sight distance requirements. The intersection line of sight “triangles” will need to be kept free of site improvements and landscaping (that would limit the line of sight needed to maintain *ECM* prescribed sight distance).

### **Driveway Access to Lots 34, 35, & 36**

Based on the current posted speed limit, the access point requires an entering sight distance of 300 feet at this location based on *ECM* Table 2-35. Per Table 2-33, the minimum sight distance for the roadway is 200 feet. The curve to the north of the access point will need to be kept clear to maintain sight distance. Additionally, the slope along the east side of the roadway to the north of the access will potentially need to be regraded/shaved-off to provide minimum sight distance.

Note: At this location, application of an *ECM*-standard posted speed for the classification has not been provided. Given the site-specific conditions at this location, it would be impossible to achieve a design speed of 50 mph through the horizontal curve adjacent to this proposed access point.

### **ROAD AND TRAFFIC CONDITIONS**

#### **Area Roads**

Figure 1 shows the streets in the vicinity of the site. The streets adjacent to the site are identified below, followed by a brief description of each:

- **SH 105** is a two-lane, Non-Rural Principal Highway (NR-A) that extends west from I-25 to Palmer Lake. After Palmer Lake, the roadway turns to the north and becomes Perry Park Road. The posted speed limit is 50 miles per hour (mph). There are currently no acceleration or deceleration lanes at the unsignalized intersections with Red Rock Ranch Drive or Rockbrook Road.
- **Red Rock Ranch Drive** is a two-lane, Rural Major Collector road that extends south from SH 105. The roadway has a posted speed limit of 30 mph.
- **Rockbrook Road** is a two-lane, Rural Gravel Local road that extends 1,400 feet south of SH 105.

#### **Traffic Volumes**

Traffic counts were conducted in November and December 2019 at the study intersections. Figure 3 provides the peak-hour traffic counts. These counts were conducted prior to the COVID-19 pandemic.

### **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). The ITE land use Single-Family Detached Housing (ITE Code 210) was used for the analysis. The average rates, rather than the fitted-curve equation, were used to estimate vehicle trips. This is because the proposed residential development is surrounded by a larger residential development that also is accessed via Red Rock

Ranch Road. The fitted-curve equations reflect that as residential developments get larger, the trip-generation rates per unit drop. Analyzing the 37-unit proposed development using the equations when it is actually part of a larger residential community would show higher trip generation than would be expected.

Table 1, below, presents a summary of the estimated site trip generation on a typical weekday. The detailed trip-generation estimate for the development, including ITE rates for the proposed land use, is presented in Table 4.

Approximately 340 total vehicle trips are projected to enter and exit the site at the access point ("driveway trips") on the average weekday during a 24-hour period. During the morning peak hour, approximately 7 vehicles would enter and 20 vehicles would exit the site. During the evening peak hour, approximately 23 vehicles would enter and 13 vehicles would exit the site.

**Table 1: Estimated Site Vehicle-Trip Generation (Vehicles per Hour)**

| Analysis Period | Total Trips |     |       |
|-----------------|-------------|-----|-------|
|                 | In          | Out | Total |
| A.M. Peak Hour  | 7           | 21  | 28    |
| P.M. Peak Hour  | 24          | 13  | 37    |
| Daily/24-Hour   | 175         | 175 | 350   |

## **BACKGROUND TRAFFIC**

Background traffic includes growth that is projected to occur on the study roadways due to future development in the area. Background volumes do not include projected traffic to be generated by the proposed development.

Long-term volumes have been projected assuming 1.15 percent growth per year for the through volumes on SH 105. This growth rate was based on CDOT forecasted growth for the roadway in the vicinity of the study area.

There is an undeveloped parcel west of Red Rock Ranch Drive. At this time, there are no known plans to develop the parcel. It was assumed that the parcel would be developed based on the current zoning of RR-5, which would allow for approximately 8 single-family homes. The resulting trips were added to Red Rock Ranch Drive. Additionally, it was assumed that the access to these homes would be located across from the proposed access for Red Rock Acres. It should be noted that these are estimates based on current zoning and are subject to change. Figure 4 shows the projected 20-year background traffic volumes for the year 2040.



## **TRIP DISTRIBUTION AND ASSIGNMENT**

### **Trip Directional Distribution**

Estimation 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 5 shows the directional distribution estimates for the proposed development. Estimates were based on the following factors: existing traffic counts, existing area development, and the area roadway system. It was assumed that 15 percent of site-generated traffic would travel to/from the west via SH 105 while the remaining 85 percent would travel to/from the east via SH 105. These splits match the existing traffic splits at this location from the existing residential developments.

### **Site-Generated Traffic**

Site-generated traffic volumes at the study intersections have been calculated by applying the directional-distribution percentages estimated by LSC to the trip-generation estimates (from Table 2). Figure 6 provides the site-generated traffic for the site.

### **Short-Term Total Traffic Volumes**

Figure 7 shows the sum of the existing traffic volumes (from Figure 3) and the site-generated peak-hour traffic volumes for the development (shown in Figure 6). These volumes represent the projected short-term total traffic following construction of the development.

### **Long-Term Total Traffic Volumes**

Figure 8 shows the projected 2040 total traffic volumes, which are the sum of 2040 background traffic volumes (from Figure 4) plus the site-generated traffic volumes (from Figure 6).

## **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 2 shows the level of service delay ranges for signalized and unsignalized intersections.

**Table 2: Intersection Levels of Service Delay Ranges**

| Level of Service   | Signalized Intersections                    | Unsignalized Intersections                                 |
|--|---|--|
|  | Average Control Delay (seconds per vehicle) | Average Control Delay (seconds per vehicle) <sup>(1)</sup> |
| A  | 10.0 sec or less                            | 10.0 sec or less   |
| B  | 10.1-20.0 sec                               | 10.1-15.0 sec  |
| C  | 20.1-35.0 sec                               | 15.1-25.0 sec  |
| D  | 35.1-55.0 sec                               | 25.1-35.0 sec  |
| E  | 55.1-80.0 sec                               | 35.1-50.0 sec  |
| F  | 80.1 sec or more                            | 50.1 sec or more   |
| (1) 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 study intersections have been analyzed to determine the projected control delay and corresponding levels of service for turning movements. Figure 3 provides the existing levels of service. Figure 4 provides the background levels of service for the long-term scenarios. Figure 7 and Figure 8 provide the levels of service for the short-term and long-term total traffic scenarios, respectively.

All yielding turning movements at the unsignalized study intersections currently operate at LOS B or better during both peak hours. In all future scenarios, the yielding turning movements are expected to operate at LOS D or better.

## **RECOMMENDED IMPROVEMENTS**

### **Auxiliary Turn Lanes**

Per the CDOT State Highway Access Code, a left-turn deceleration lane is required on an NR-A when the turning volume exceeds 10 vehicles per hour (vph). A right-turn deceleration lane is required when the turning volume exceeds 25 vph and a right-turn acceleration lane is required when the turning volume exceeds 50 vph.

Based on the existing turning volumes, a left-turn deceleration lane and right-turn acceleration lane are required at the intersection of SH 105/Red Rock Ranch Drive. It is anticipated that in the short-term, with the construction of the development, a left-turn deceleration lane will also be required at the intersection of SH 105/Rockbrook Road.

In the long-term total scenario, it is projected that a right-turn deceleration lane will be required at the intersection of SH 105/Red Rock Ranch Drive. It should be noted that the volume threshold for this movement is not shown to be exceeded with the addition of site-generated traffic from the proposed Red Rock Acres. However, the threshold could be exceeded with the assumed

development of the parcel west of Red Rock Ranch Drive and/or other added background traffic. As the turn lane would be warranted with a volume exceeding 25 vph, this movement should be monitored for volume exceeding 25 vph and the turn lane should be reassessed with the development of the parcel west of Red Rock Ranch Drive. Table 3 provides the required turn-lane lengths and timing for each required acceleration/deceleration lane.

Regarding the northbound (side street, Stop-sign controlled) approach to Highway 105, there is currently a single lane approach (shared for left turn and right turn movements onto SH 105). County staff has indicated that the ECM turning volume thresholds requiring separate turn lanes on this approach are met based on this report and that separate turn lanes would be required (or a deviation to waive this requirement would need to be submitted with the Preliminary Plan). Potential upgrade to Red Rock Ranch Road between the north site access and Highway 105 may nearly provide the street width needed for a two-lane northbound approach to Highway 105 and a southbound “departure” lane of adequate width. The approach could be designed slightly wider to provide any additional width needed for the turn lanes.

**Table 3: Acceleration/Deceleration Lanes**

| Intersection                                 | Lane   | Length   | Timing                                       |
|--|--|--|--|
| SH 105 /<br>Red Rock Ranch Drive             | Westbound<br>Left-Turn Deceleration                | 100' Storage<br>500' Decelation including Taper (180' Taper) | Existing need                                |
| SH 105 /<br>Red Rock Ranch Drive             | Northbound to Eastbound<br>Right-Turn Acceleration | 760' Acceleration including Taper (180' Taper)               | Existing need                                |
| SH 105 /<br>Red Rock Ranch Drive             | Provide Two-Lane Approach<br>Northbound            | 115' NB LT lane plus 50' storage plus 120' taper             | Short-Term                                   |
| SH 105 /<br>Rockbrook Road                   | Westbound<br>Left-Turn Deceleration                | 25' Storage<br>500' Decelation including Taper (180' Taper)  | Short-Term                                   |
| SH 105 /<br>Red Rock Ranch Drive             | Eastbound<br>Right-Turn Deceleration               | 500' Decelation including Taper (180' Taper)                 | When the right-turn volume<br>exceeds 25 vph |
| Source: LSC Transportation Consultants, Inc. |  |  | Rev. 5/27/2021                               |

No other auxiliary turn lanes will be required for the proposed development.

## Roadway Improvements

### Rockbrook Road

Per the ECM, roads must be paved if the average daily volume exceeds 200 vehicles per day (vpd). It is estimated, based on the turning-movement counts, that the current volume on Rockbrook Road is 180 vpd. With the addition of the site-generated traffic, it is expected that this roadway will exceed the 200 vpd threshold. Therefore, it is recommended that Rockbrook Road between the site access and SH 105 be paved.

### Red Rock Ranch Drive

It is recommended that the section between SH 105 and the first intersection be upgraded to Rural Major Collector standards. Credit through the fee program may be available for this improvement.

## **VEHICLE QUEUING**

The 95<sup>th</sup>-percentile queue length at all the study intersection is projected to be 50 feet or less. The projected queue lengths are not expected to impact any adjacent intersections or exceed required storage lengths.

## **SUBDIVISION STREET CLASSIFICATIONS**

The north street that runs through the site between Red Rock Ranch Drive and Rockbrook Road will have a Rural Local classification.

The short stub that connects the southeast lots to El Rancho Way will have a Gravel Local classification. This street currently has 17 lots that use the roadway for access. The additional two lots will result in an estimated 180 vpd, which is below the paving threshold of 200 vpd for El Paso County.

## **MTCP ROADWAY IMPROVEMENTS**

The 2016 El Paso County Major Transportation Corridor Plan does not show any planned improvements in the study area.

## **PEDESTRIAN AND BICYCLE ACCOMMODATION**

No sidewalks are required on the existing or proposed roadways, due to the rural classification. There are no trail connections in the immediate vicinity of the site.

## **COUNTY ROAD IMPROVEMENT FEE PROGRAM**

### **Transportation Impact Fees**

Per ECM Appendix B: *State what the current applicable Transportation Impact Fees are and what option the developer will be selecting for payment.*

The applicant intends to opt out of the PID options and will pay the full-fee amount at the time of building permit. The current “full fee” is \$3,830 per dwelling unit. The total fee amount for the proposed development is \$141,710 for the development.

### **Reimbursable MTCP Improvements**

There may be reimbursable improvements with the upgrading of Red Rock Ranch Drive and the construction of the required auxiliary lanes on SH 105.

## **DEVIATIONS TO ECM CRITERIA**

The following deviations may be required:

- Public street intersection spacing Rural Major Collector for the first intersection back from an arterial roadway
- Access to a Rural Major Collector

## **FINDINGS AND CONCLUSIONS**

### **Trip Generation**

- The development is expected to generate approximately 350 vehicle trips on the average weekday with approximately 28 trips occurring during the morning peak hour and 37 trips during the evening peak hour when first constructed.

### **Recommendations**

- It is recommended that Rockbrook Road be paved between the site access and SH 105.
- It is recommended that Red Rock Ranch Drive be upgraded to meet Rural Major Collector standards.
- At the intersection of SH 105/Red Rock Ranch Drive, the westbound left-turn currently exceeds CDOT thresholds for requiring a deceleration lane. The northbound to eastbound right-turn exceeds the threshold for requiring an acceleration lane.
- With the development of the site, the intersection of SH 105/Rockbrook Road will require a left-turn deceleration lane. LSC and the applicant acknowledge that highway improvements required of this project by CDOT may have impacts on adjacent properties with or without driveway access to this section of Highway 105. It appears that there are about five driveways which may be impacted. Four of the five are located southeast of Rockbrook Road/Highway 105 intersection. The analysis in this report does not indicate that westbound left turn queues on Highway 105 would extend back from the side street intersections and block any of these driveways. Other potential impacts associated with adjacent highway improvements/widening for required left turn lanes on Highway 105 will be addressed during the CDOT access permit process at the Preliminary Plan stage with El Paso County.
- With the development of the vacant parcel located southwest of the SH 105/Red Rock Ranch Drive, an eastbound right-turn deceleration lane will be required OR if prior to that development, if the eastbound right-turn volume exceeds 25 vph.

- See Table 3 for additional auxiliary lane details. See Table 5 for all recommended improvements.
- Colorado State Highway Access Permits will likely be required for Red Rock Ranch Drive and Rockbrook Road intersections with SH 105. Any hydraulics and/or stormwater studies pertaining to future improvements will be addressed during the CDOT access permit process and/or preliminary plan/final plat phases.
- Emergency evacuation scenarios will be discussed with Tri-Lakes Monument Fire Protection District during the CDOT access permit process, as the traffic improvements recommended in this report will likely result in improvements to current traffic conditions.

\* \* \* \* \*

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

Respectfully Submitted,

LSC TRANSPORTATION CONSULTANTS, INC.

By: Colleen Guillotte, P.E., PTOE, RSP  
Project Manager

JCH:jas

Enclosures: Tables 4-5  
Figures 1-8  
Traffic Counts  
Level of Service Reports

# Tables

---

### Table 4: Detailed Site Trip Generation Estimate

| Land Use Code  | Land Use Description  | Trip Generation Units | Trip Generation Rates <sup>(1)</sup>   |                   |      |                     |      |                         | Total Trips Generated |     |                     |     |
|--|-----------------------|-----------------------|--|-------------------|------|---------------------|------|-------------------------|-----------------------|-----|---------------------|-----|
|  |                       |                       | Average Weekday Traffic <sup>(2)</sup> | Morning Peak Hour |      | Afternoon Peak Hour |      | Average Weekday Traffic | Morning Peak Hour     |     | Afternoon Peak Hour |     |
|  |                       |                       |  | In                | Out  | In                  | Out  |                         | In                    | Out | In                  | Out |
| 210  | Single Family Housing | 37                    | 9.44                                   | 0.20              | 0.56 | 0.64                | 0.36 | 349                     | 7                     | 21  | 24                  | 13  |
| Notes:<br>(1) Source: "Trip Generation, 10th Edition, 2017" by the Institute of Transportation Engineers (ITE)<br>(2) DU = dwelling unit |                       |                       |  |                   |      |                     |      |                         |                       |     |                     |     |
| Source: LSC Transportation Consultants, Inc.   |                       |                       |  |                   |      |                     |      |                         |                       |     |                     |     |

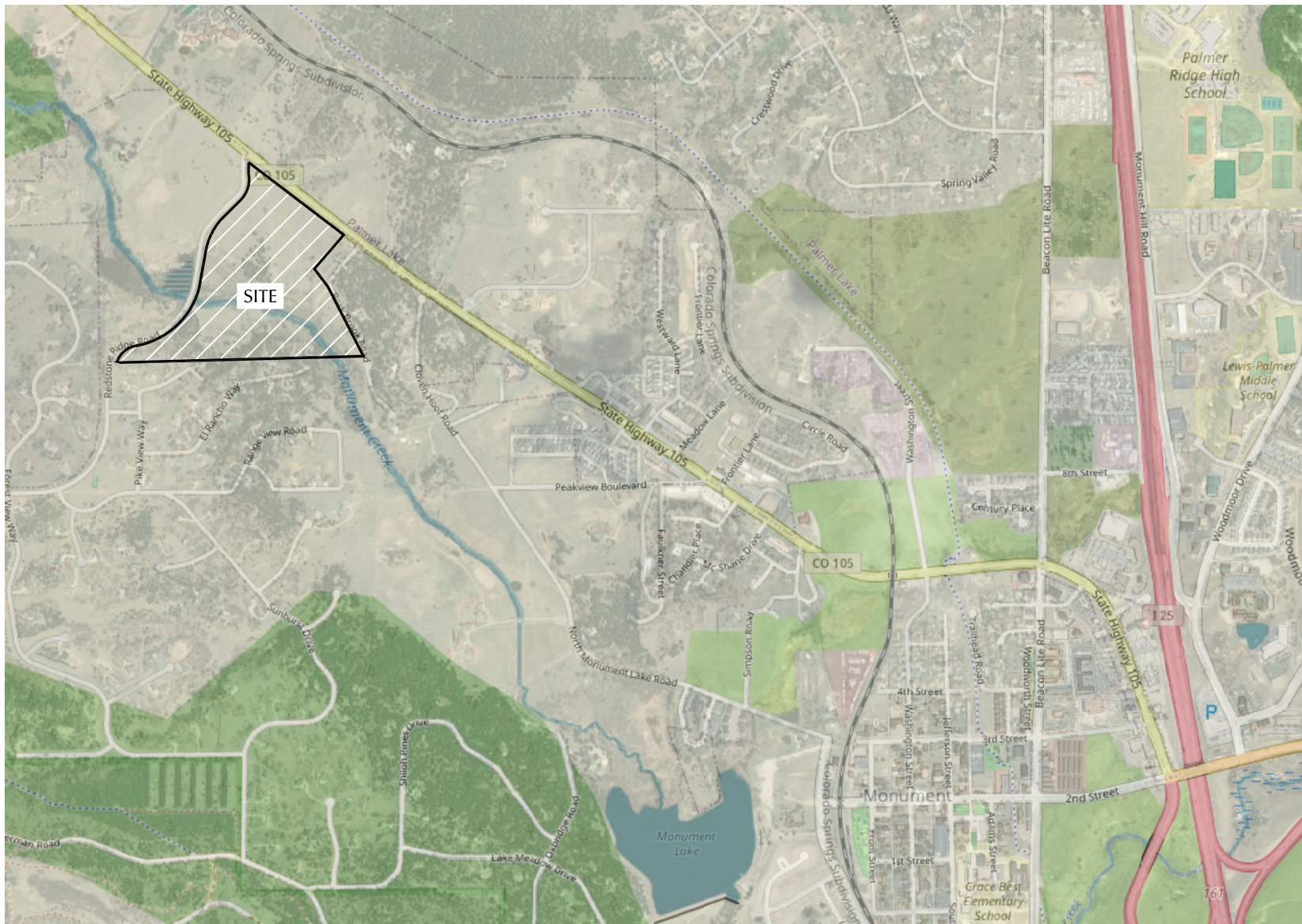


**Table 5: Recommended Improvements**

| Item #                                       | Location                         | Improvement  | Timing                                       | Responsibility   |
|--|----------------------------------|--|--|--|
| 1  | SH 105 /<br>Red Rock Ranch Drive | Westbound<br>Left-Turn Deceleration                | Existing need                                | Red Rock Acres   |
| 2  | SH 105 /<br>Red Rock Ranch Drive | Northbound to Eastbound<br>Right-Turn Acceleration | Existing need                                | Red Rock Acres   |
| 3  | SH 105 /<br>Rockbrook Road       | Westbound<br>Left-Turn Deceleration                | Short-Term                                   | Red Rock Acres   |
| 4  | SH 105 /<br>Red Rock Ranch Drive | Provide Two-Lane Approach<br>Northbound            | Short-Term                                   | Red Rock Acres   |
| 6  | SH 105 /<br>Red Rock Ranch Drive | Eastbound<br>Right-Turn Deceleration               | When the right-turn volume<br>exceeds 25 vph | Shared responsibility between Red Rock<br>Acres/future developer to the west |
| 7  | North Subdivision Street         | Construction                                       | Short-Term                                   | Red Rock Acres   |
| 8  | El Rancho Way                    | Extension  | Short-Term                                   | Red Rock Acres   |
| Source: LSC Transportation Consultants, Inc. |                                  |  |  | Rev. 5/27/2021   |

# Figures

---



Not to  
scale



Scale:  
1"=400'

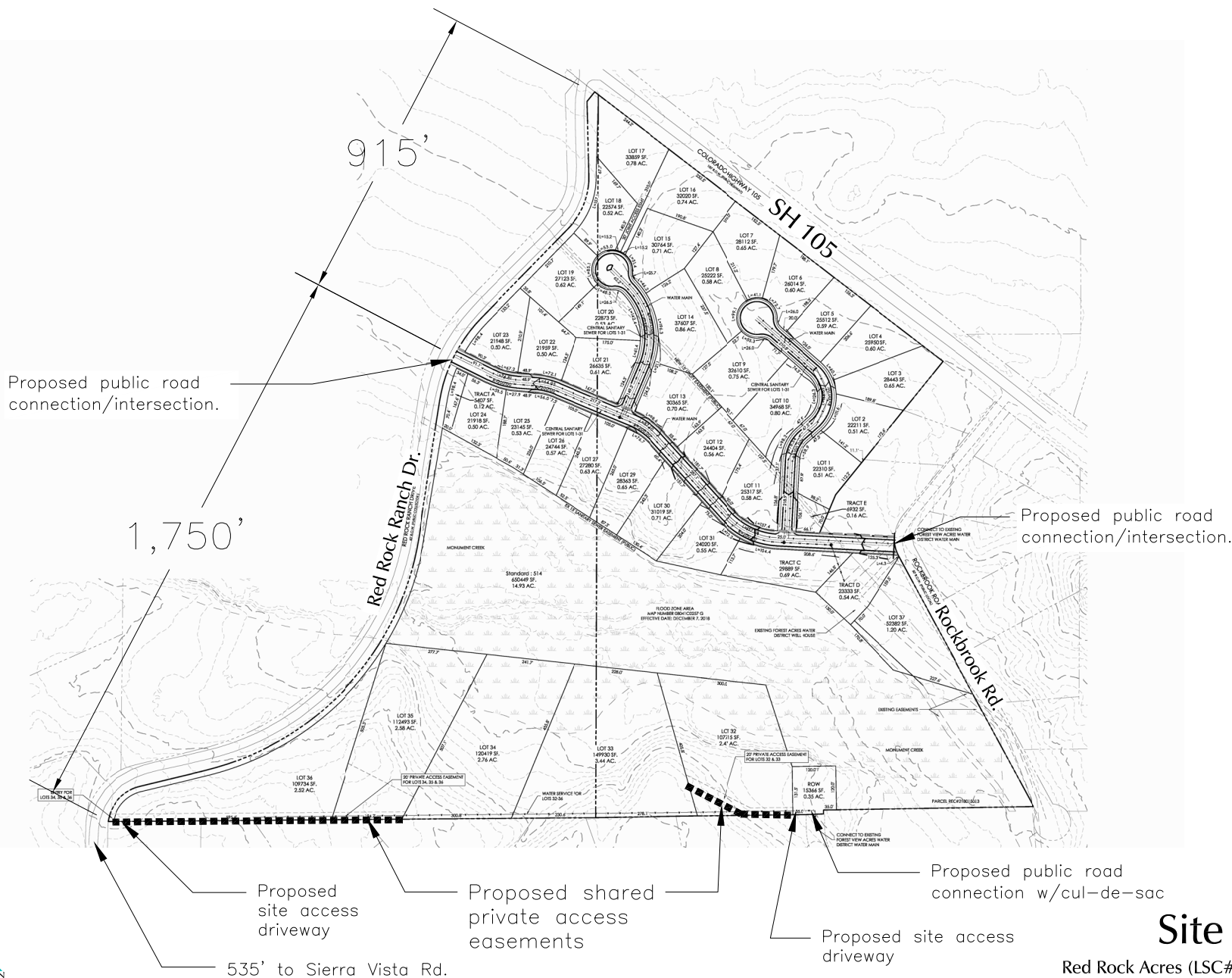
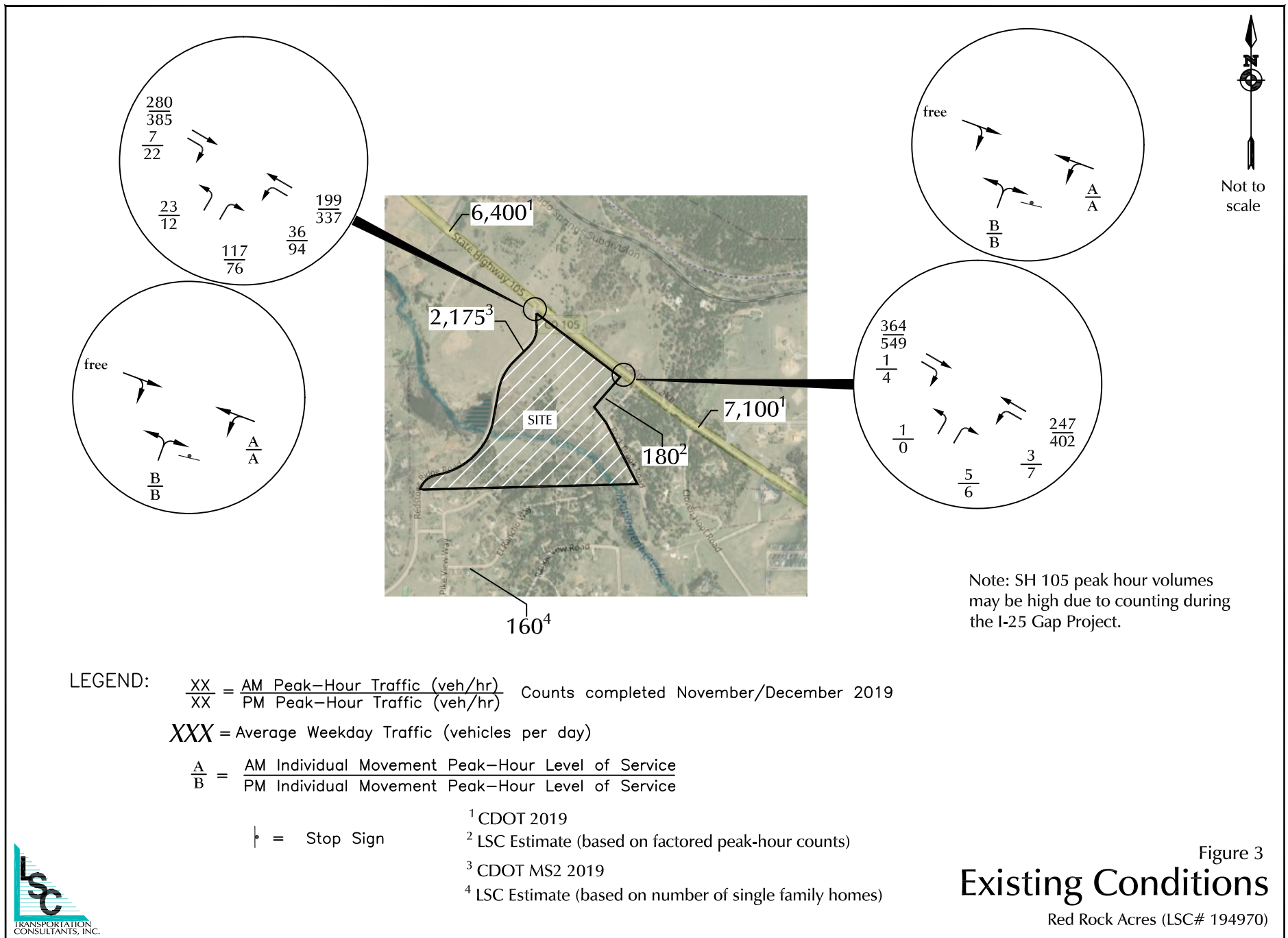


Figure 2  
**Site Plan**

Red Rock Acres (LSC# 194970)





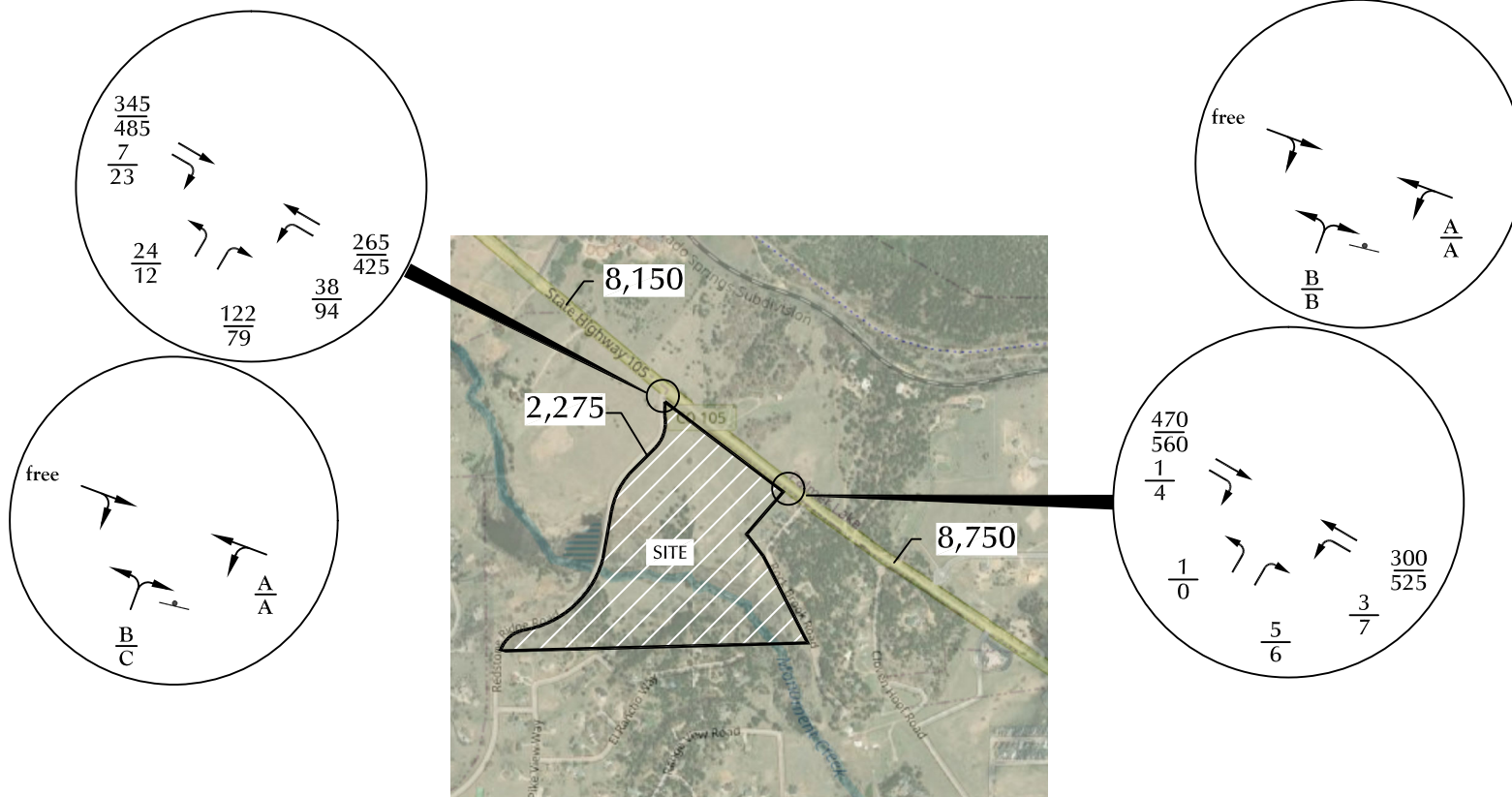
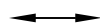
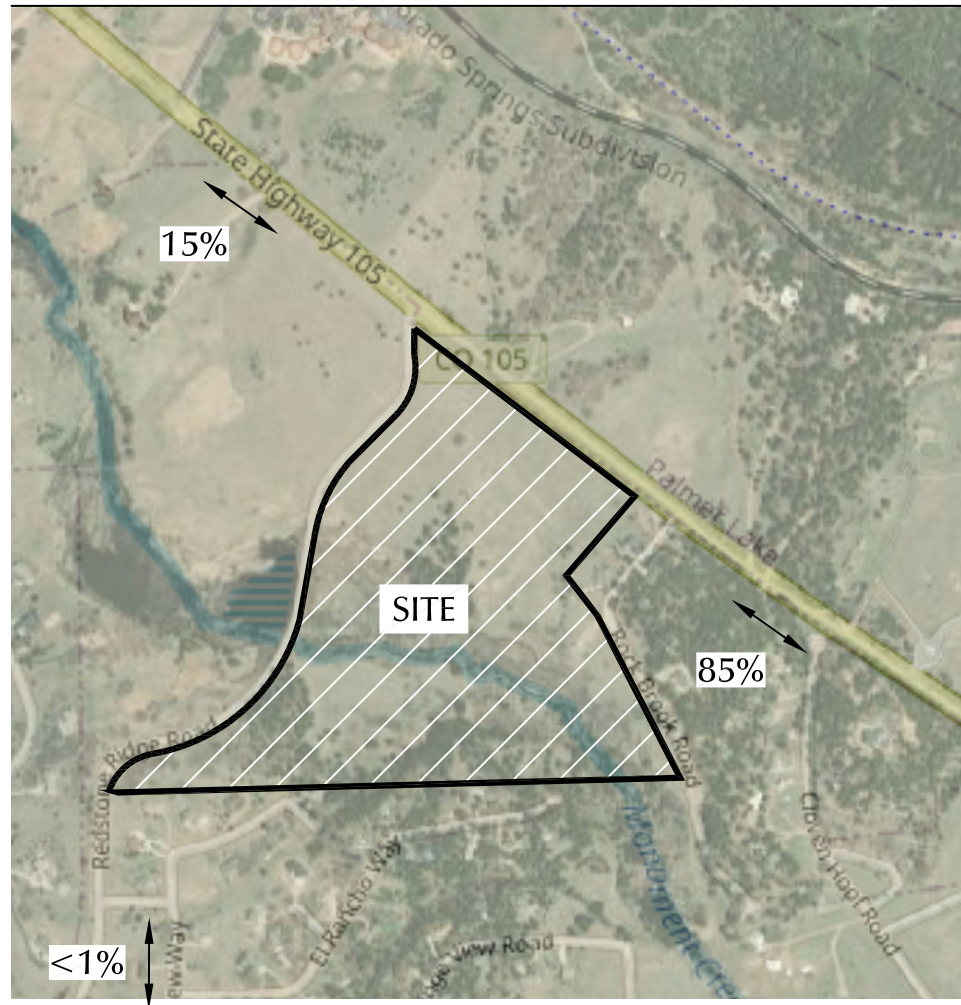


Figure 4  
Long-Term Background Conditions

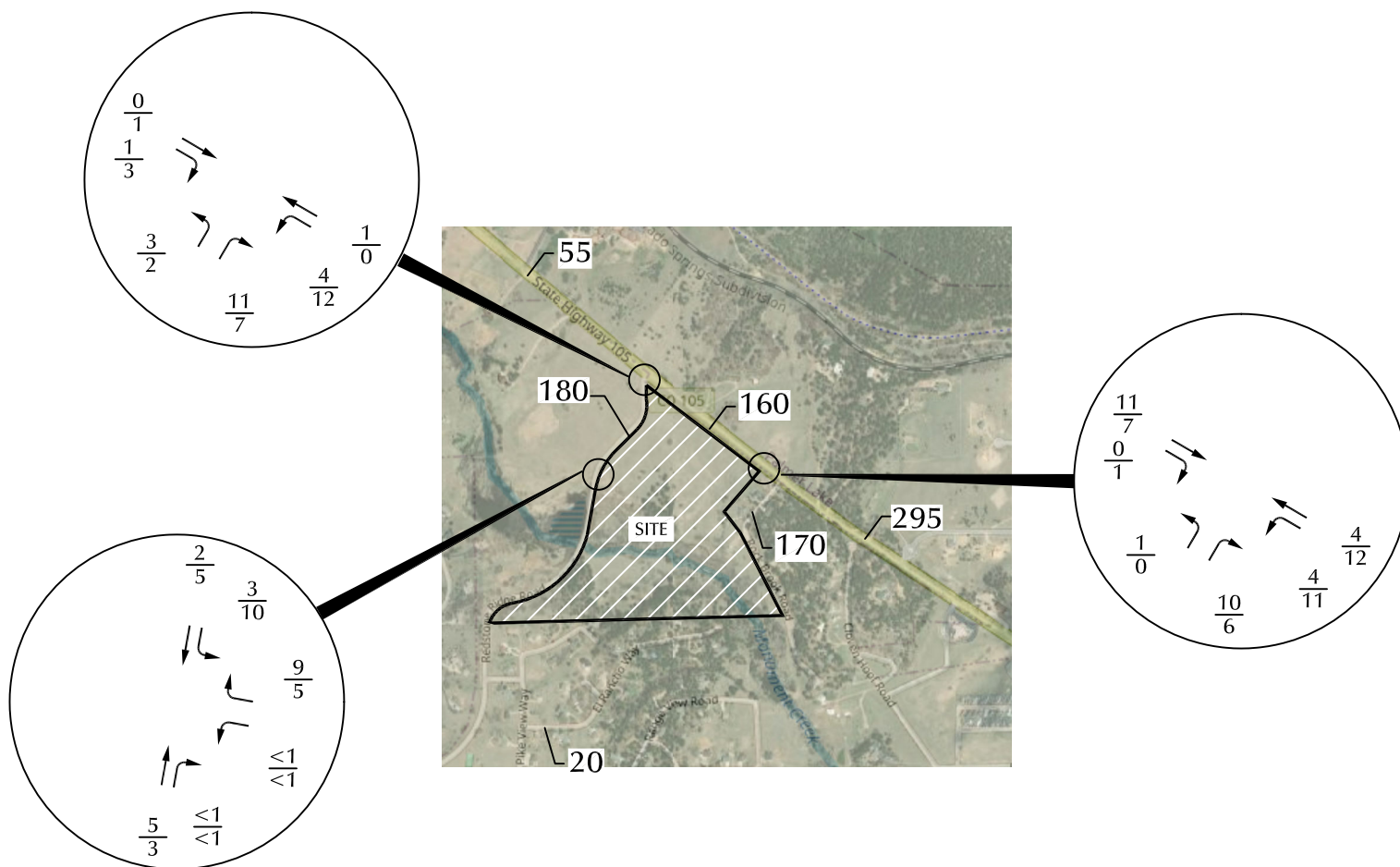
Red Rock Acres (LSC# 194970)



XX% = Percent Directional Distribution



Not to  
scale



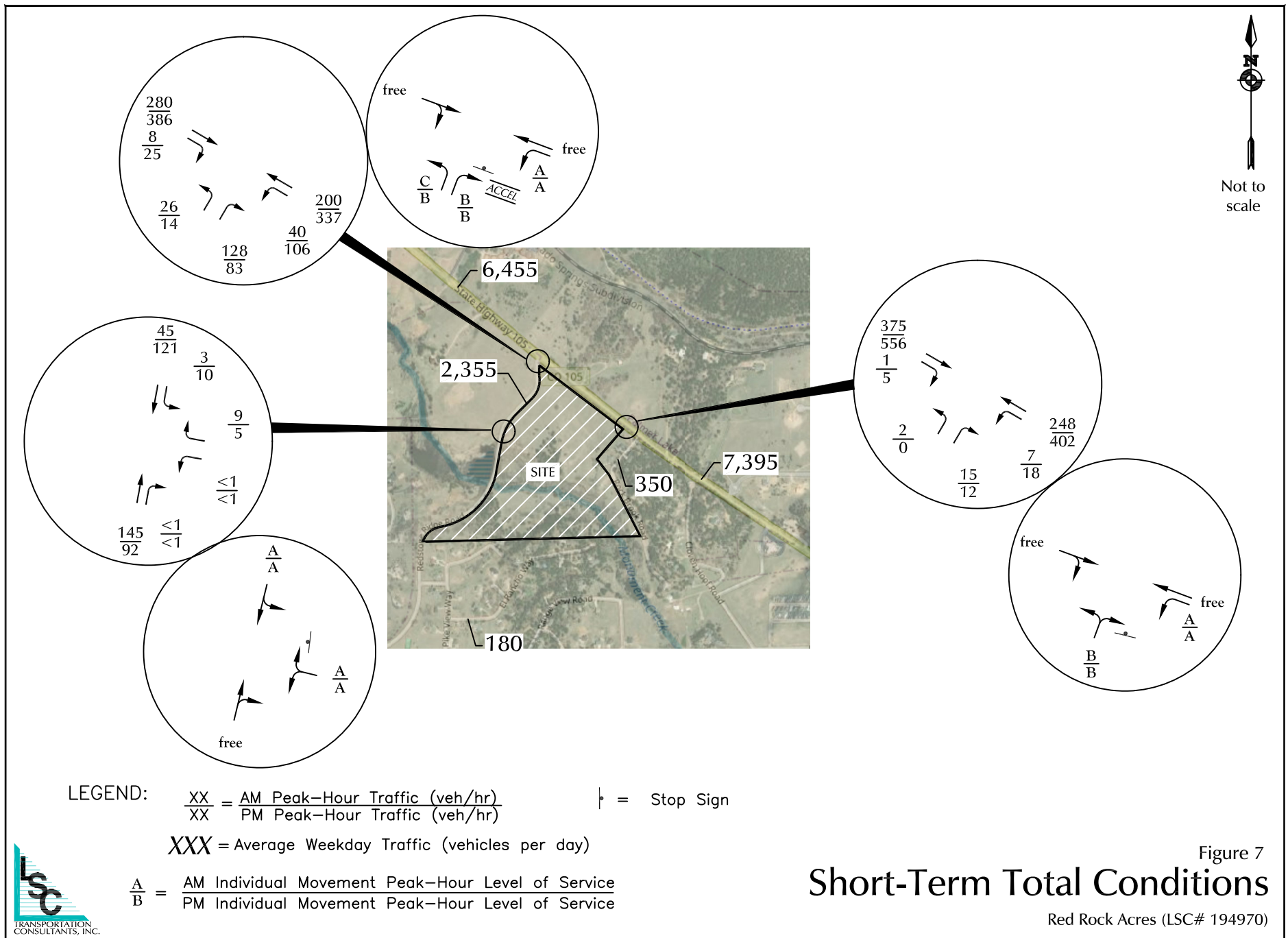
LEGEND:  $\frac{XX}{XX} = \frac{\text{AM Peak-Hour Traffic (veh/hr)}}{\text{PM Peak-Hour Traffic (veh/hr)}}$

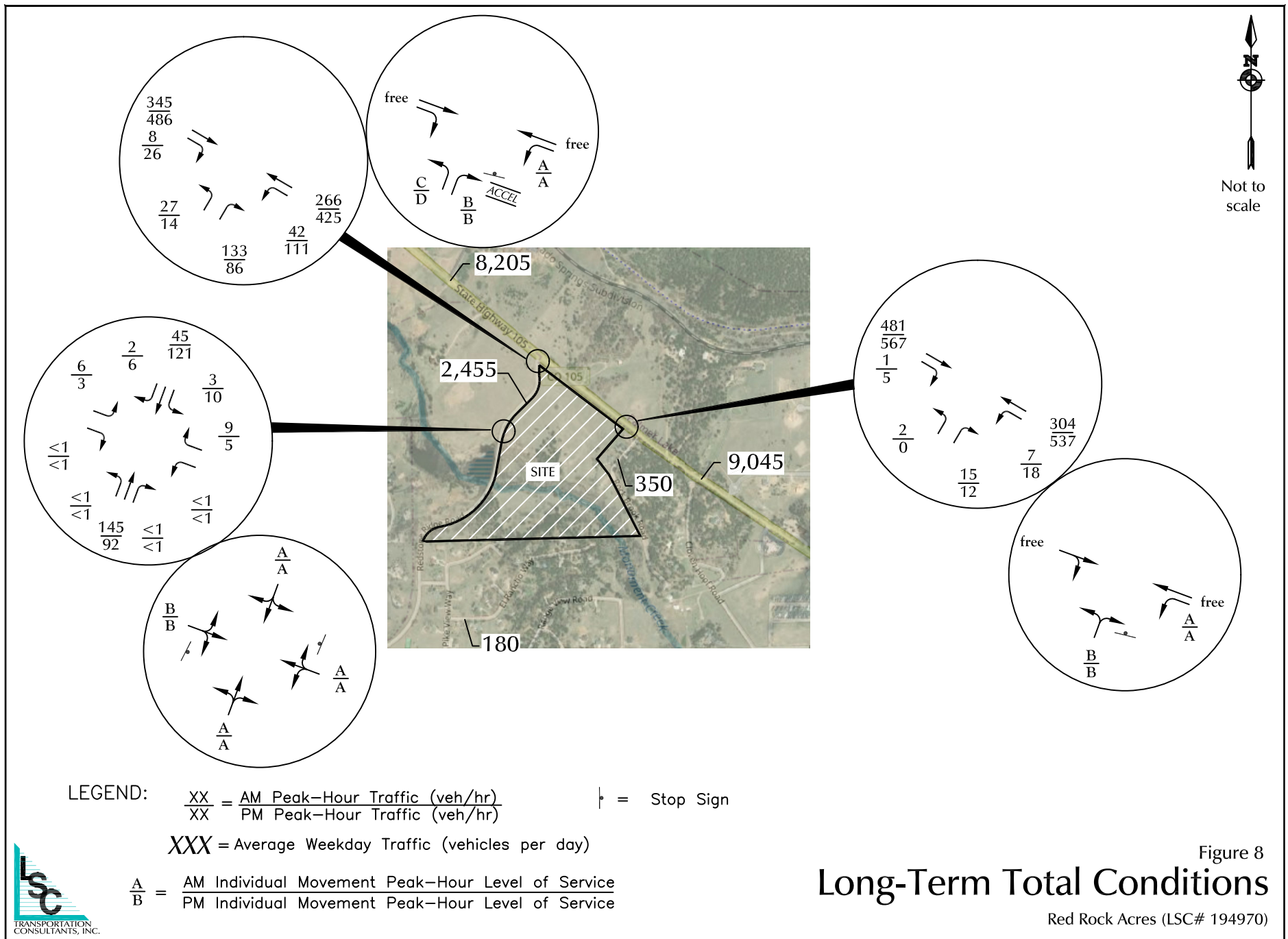
XXX = Average Weekday Traffic (vehicles per day)

Figure 6  
**Site-Generated Traffic**

Red Rock Acres (LSC# 194970)







# Traffic Counts

---



# LSC Transportation Consultants, Inc.

545 E Pikes Peak Ave, Suite 210  
Colorado Springs, CO 80905  
719-633-2868

File Name : Red Rock Ranch Dr - Hwy 105 AM

Site Code : 194970

Start Date : 11/6/2019

Page No : 1

## Groups Printed- Unshifted

| Start Time  | Southbound |         |       |      |            | Hwy 105 Westbound |         |       |      |            | Red Rock Ranch Dr Northbound |         |       |      |            | Hwy 105 Eastbound |         |       |      |            | Int. Total |
|-------------|------------|---------|-------|------|------------|-------------------|---------|-------|------|------------|------------------------------|---------|-------|------|------------|-------------------|---------|-------|------|------------|------------|
|             | Left       | Through | Right | Peds | App. Total | Left              | Through | Right | Peds | App. Total | Left                         | Through | Right | Peds | App. Total | Left              | Through | Right | Peds | App. Total |            |
| 06:30 AM    | 0          | 0       | 0     | 0    | 0          | 1                 | 28      | 0     | 0    | 29         | 6                            | 0       | 14    | 0    | 20         | 0                 | 49      | 0     | 0    | 49         | 98         |
| 06:45 AM    | 0          | 0       | 0     | 0    | 0          | 5                 | 42      | 0     | 0    | 47         | 5                            | 0       | 22    | 0    | 27         | 0                 | 57      | 0     | 0    | 57         | 131        |
| Total       | 0          | 0       | 0     | 0    | 0          | 6                 | 70      | 0     | 0    | 76         | 11                           | 0       | 36    | 0    | 47         | 0                 | 106     | 0     | 0    | 106        | 229        |
| 07:00 AM    | 0          | 0       | 0     | 0    | 0          | 6                 | 36      | 0     | 0    | 42         | 9                            | 0       | 35    | 0    | 44         | 0                 | 75      | 1     | 0    | 76         | 162        |
| 07:15 AM    | 0          | 0       | 0     | 0    | 0          | 5                 | 35      | 0     | 0    | 40         | 6                            | 0       | 36    | 0    | 42         | 0                 | 73      | 3     | 0    | 76         | 158        |
| 07:30 AM    | 0          | 0       | 0     | 0    | 0          | 12                | 60      | 0     | 0    | 72         | 5                            | 0       | 30    | 0    | 35         | 0                 | 67      | 2     | 0    | 69         | 176        |
| 07:45 AM    | 0          | 0       | 0     | 0    | 0          | 13                | 68      | 0     | 0    | 81         | 3                            | 0       | 16    | 0    | 19         | 0                 | 65      | 1     | 0    | 66         | 166        |
| Total       | 0          | 0       | 0     | 0    | 0          | 36                | 199     | 0     | 0    | 235        | 23                           | 0       | 117   | 0    | 140        | 0                 | 280     | 7     | 0    | 287        | 662        |
| 08:00 AM    | 0          | 0       | 0     | 0    | 0          | 20                | 43      | 0     | 0    | 63         | 2                            | 0       | 17    | 0    | 19         | 0                 | 54      | 3     | 0    | 57         | 139        |
| 08:15 AM    | 0          | 0       | 0     | 0    | 0          | 7                 | 41      | 0     | 0    | 48         | 3                            | 0       | 20    | 0    | 23         | 0                 | 53      | 1     | 0    | 54         | 125        |
| Grand Total | 0          | 0       | 0     | 0    | 0          | 69                | 353     | 0     | 0    | 422        | 39                           | 0       | 190   | 0    | 229        | 0                 | 493     | 11    | 0    | 504        | 1155       |
| Apprch %    | 0          | 0       | 0     | 0    |            | 16.4              | 83.6    | 0     | 0    |            | 17                           | 0       | 83    | 0    |            | 0                 | 97.8    | 2.2   | 0    |            |            |
| Total %     | 0          | 0       | 0     | 0    | 0          | 6                 | 30.6    | 0     | 0    | 36.5       | 3.4                          | 0       | 16.5  | 0    | 19.8       | 0                 | 42.7    | 1     | 0    | 43.6       |            |



# LSC Transportation Consultants, Inc.

545 E Pikes Peak Ave, Suite 210  
Colorado Springs, CO 80905  
719-633-2868

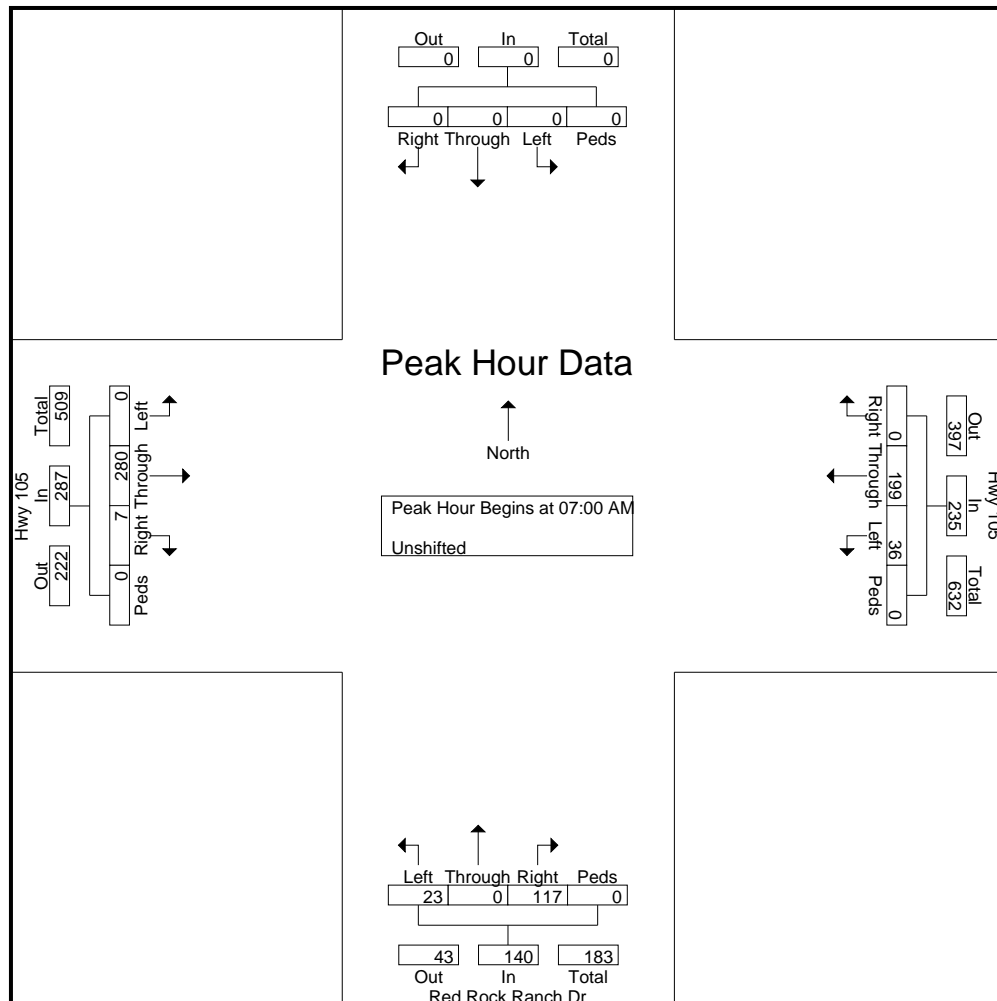
File Name : Red Rock Ranch Dr - Hwy 105 AM

Site Code : 194970

Start Date : 11/6/2019

Page No : 2

|   | Southbound |         |       |      |            | Hwy 105 Westbound |         |       |      |            | Red Rock Ranch Dr Northbound |         |       |      |            | Hwy 105 Eastbound |         |       |      |            |            |
|---|------------|---------|-------|------|------------|-------------------|---------|-------|------|------------|------------------------------|---------|-------|------|------------|-------------------|---------|-------|------|------------|------------|
| Start Time  | Left       | Through | Right | Peds | App. Total | Left              | Through | Right | Peds | App. Total | Left                         | Through | Right | Peds | App. Total | Left              | Through | Right | Peds | App. Total | Int. Total |
| <b>Peak Hour Analysis From 06:30 AM to 08:15 AM - Peak 1 of 1</b> |            |         |       |      |            |                   |         |       |      |            |                              |         |       |      |            |                   |         |       |      |            |            |
| Peak Hour for Entire Intersection Begins at 07:00 AM              |            |         |       |      |            |                   |         |       |      |            |                              |         |       |      |            |                   |         |       |      |            |            |
| 07:00 AM  | 0          | 0       | 0     | 0    | 0          | 6                 | 36      | 0     | 0    | 42         | 9                            | 0       | 35    | 0    | 44         | 0                 | 75      | 1     | 0    | 76         | 162        |
| 07:15 AM  | 0          | 0       | 0     | 0    | 0          | 5                 | 35      | 0     | 0    | 40         | 6                            | 0       | 36    | 0    | 42         | 0                 | 73      | 3     | 0    | 76         | 158        |
| 07:30 AM  | 0          | 0       | 0     | 0    | 0          | 12                | 60      | 0     | 0    | 72         | 5                            | 0       | 30    | 0    | 35         | 0                 | 67      | 2     | 0    | 69         | 176        |
| 07:45 AM  | 0          | 0       | 0     | 0    | 0          | 13                | 68      | 0     | 0    | 81         | 3                            | 0       | 16    | 0    | 19         | 0                 | 65      | 1     | 0    | 66         | 166        |
| Total Volume  | 0          | 0       | 0     | 0    | 0          | 36                | 199     | 0     | 0    | 235        | 23                           | 0       | 117   | 0    | 140        | 0                 | 280     | 7     | 0    | 287        | 662        |
| % App. Total  | 0          | 0       | 0     | 0    | 0          | 15.3              | 84.7    | 0     | 0    |            | 16.4                         | 0       | 83.6  | 0    |            | 0                 | 97.6    | 2.4   | 0    |            |            |
| PHF   | .000       | .000    | .000  | .000 | .000       | .692              | .732    | .000  | .000 | .725       | .639                         | .000    | .813  | .000 | .795       | .000              | .933    | .583  | .000 | .944       | .940       |





# LSC Transportation Consultants, Inc.

545 E Pikes Peak Ave, Suite 210  
Colorado Springs, CO 80905  
719-633-2868

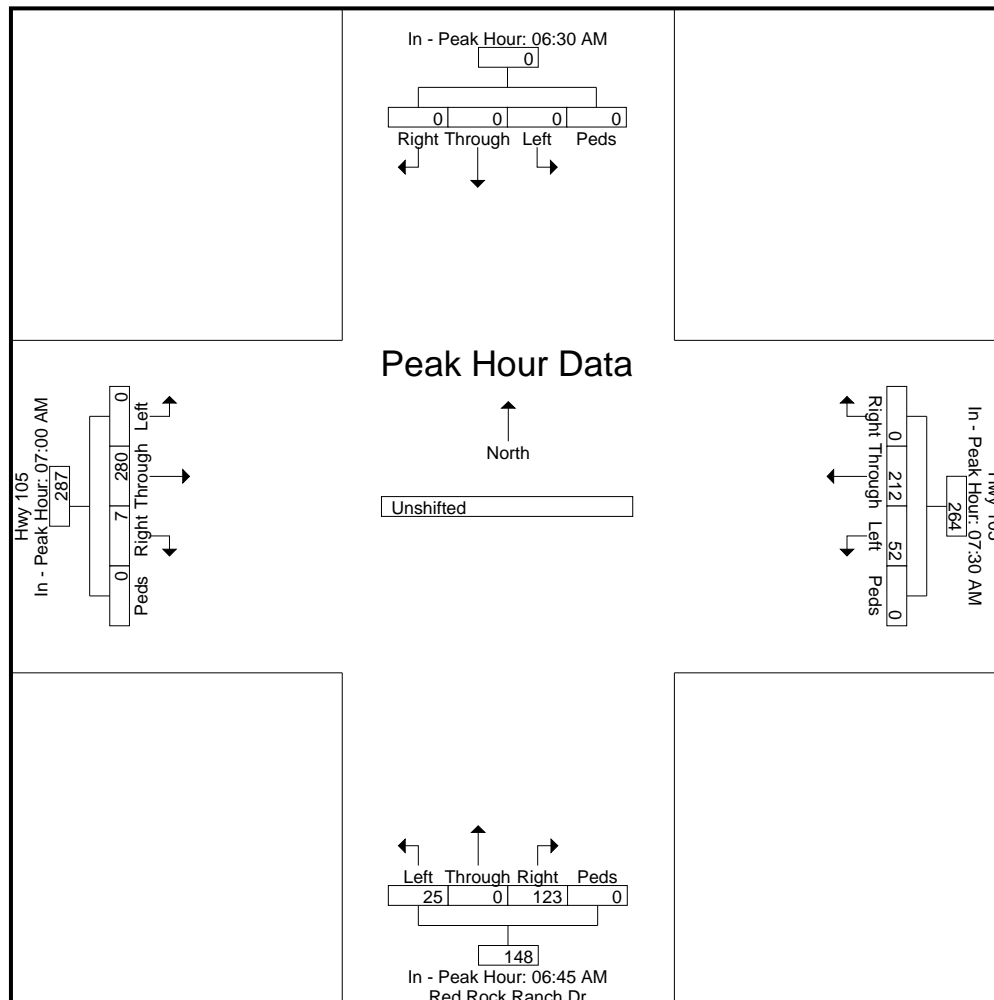
File Name : Red Rock Ranch Dr - Hwy 105 AM

Site Code : 194970

Start Date : 11/6/2019

Page No : 3

|   | Southbound |         |       |      |            | Hwy 105 Westbound |         |       |      |            | Red Rock Ranch Dr Northbound |         |       |      |            | Hwy 105 Eastbound |         |       |      |            |            |
|---|------------|---------|-------|------|------------|-------------------|---------|-------|------|------------|------------------------------|---------|-------|------|------------|-------------------|---------|-------|------|------------|------------|
| Start Time  | Left       | Through | Right | Peds | App. Total | Left              | Through | Right | Peds | App. Total | Left                         | Through | Right | Peds | App. Total | Left              | Through | Right | Peds | App. Total | Int. Total |
| <b>Peak Hour Analysis From 06:30 AM to 08:15 AM - Peak 1 of 1</b> |            |         |       |      |            |                   |         |       |      |            |                              |         |       |      |            |                   |         |       |      |            |            |
| Peak Hour for Each Approach Begins at:                            |            |         |       |      |            |                   |         |       |      |            |                              |         |       |      |            |                   |         |       |      |            |            |
|   | 06:30 AM   |         |       |      |            | 07:30 AM          |         |       |      |            | 06:45 AM                     |         |       |      |            | 07:00 AM          |         |       |      |            |            |
| +0 mins.  | 0          | 0       | 0     | 0    | 0          | 12                | 60      | 0     | 0    | 72         | 5                            | 0       | 22    | 0    | 27         | 0                 | 75      | 1     | 0    | 76         |            |
| +15 mins.   | 0          | 0       | 0     | 0    | 0          | 13                | 68      | 0     | 0    | 81         | 9                            | 0       | 35    | 0    | 44         | 0                 | 73      | 3     | 0    | 76         |            |
| +30 mins.   | 0          | 0       | 0     | 0    | 0          | 20                | 43      | 0     | 0    | 63         | 6                            | 0       | 36    | 0    | 42         | 0                 | 67      | 2     | 0    | 69         |            |
| +45 mins.   | 0          | 0       | 0     | 0    | 0          | 7                 | 41      | 0     | 0    | 48         | 5                            | 0       | 30    | 0    | 35         | 0                 | 65      | 1     | 0    | 66         |            |
| Total Volume  | 0          | 0       | 0     | 0    | 0          | 52                | 212     | 0     | 0    | 264        | 25                           | 0       | 123   | 0    | 148        | 0                 | 280     | 7     | 0    | 287        |            |
| % App. Total  | 0          | 0       | 0     | 0    | 0          | 19.7              | 80.3    | 0     | 0    |            | 16.9                         | 0       | 83.1  | 0    |            | 0                 | 97.6    | 2.4   | 0    |            |            |
| PHF   | .000       | .000    | .000  | .000 | .000       | .650              | .779    | .000  | .000 | .815       | .694                         | .000    | .854  | .000 | .841       | .000              | .933    | .583  | .000 | .944       |            |





# LSC Transportation Consultants, Inc.

545 E Pikes Peak Ave, Suite 210  
Colorado Springs, CO 80905  
719-633-2868

File Name : Red Rock Ranch Dr - Hwy 105 PM  
Site Code : 00194970  
Start Date : 11/14/2019  
Page No : 1

## Groups Printed- Unshifted

| Start Time  | Southbound |         |       |      |            | Hwy 105 Westbound |         |       |      |            | Red Rock Ranch Dr Northbound |         |       |      |            | Hwy 105 Eastbound |         |       |      |            | Int. Total |
|-------------|------------|---------|-------|------|------------|-------------------|---------|-------|------|------------|------------------------------|---------|-------|------|------------|-------------------|---------|-------|------|------------|------------|
|             | Left       | Through | Right | Peds | App. Total | Left              | Through | Right | Peds | App. Total | Left                         | Through | Right | Peds | App. Total | Left              | Through | Right | Peds | App. Total |            |
| 04:00 PM    | 0          | 0       | 0     | 0    | 0          | 24                | 80      | 0     | 0    | 104        | 3                            | 0       | 13    | 0    | 16         | 0                 | 128     | 9     | 0    | 137        | 257        |
| 04:15 PM    | 0          | 0       | 0     | 0    | 0          | 22                | 75      | 0     | 0    | 97         | 2                            | 0       | 17    | 0    | 19         | 0                 | 91      | 8     | 0    | 99         | 215        |
| 04:30 PM    | 0          | 0       | 0     | 0    | 0          | 19                | 87      | 0     | 0    | 106        | 4                            | 0       | 13    | 0    | 17         | 0                 | 83      | 1     | 0    | 84         | 207        |
| 04:45 PM    | 0          | 0       | 0     | 0    | 0          | 23                | 80      | 0     | 0    | 103        | 4                            | 0       | 16    | 0    | 20         | 0                 | 111     | 6     | 0    | 117        | 240        |
| Total       | 0          | 0       | 0     | 0    | 0          | 88                | 322     | 0     | 0    | 410        | 13                           | 0       | 59    | 0    | 72         | 0                 | 413     | 24    | 0    | 437        | 919        |
| 05:00 PM    | 0          | 0       | 0     | 0    | 0          | 19                | 78      | 0     | 0    | 97         | 3                            | 0       | 22    | 0    | 25         | 0                 | 103     | 10    | 0    | 113        | 235        |
| 05:15 PM    | 0          | 0       | 0     | 0    | 0          | 33                | 92      | 0     | 0    | 125        | 1                            | 0       | 25    | 0    | 26         | 0                 | 88      | 5     | 0    | 93         | 244        |
| 05:30 PM    | 0          | 0       | 0     | 0    | 0          | 20                | 74      | 0     | 0    | 94         | 1                            | 0       | 14    | 0    | 15         | 0                 | 92      | 2     | 0    | 94         | 203        |
| 05:45 PM    | 0          | 0       | 0     | 0    | 0          | 18                | 71      | 0     | 0    | 89         | 1                            | 0       | 15    | 0    | 16         | 0                 | 87      | 3     | 0    | 90         | 195        |
| Total       | 0          | 0       | 0     | 0    | 0          | 90                | 315     | 0     | 0    | 405        | 6                            | 0       | 76    | 0    | 82         | 0                 | 370     | 20    | 0    | 390        | 877        |
| Grand Total | 0          | 0       | 0     | 0    | 0          | 178               | 637     | 0     | 0    | 815        | 19                           | 0       | 135   | 0    | 154        | 0                 | 783     | 44    | 0    | 827        | 1796       |
| Apprch %    | 0          | 0       | 0     | 0    |            | 21.8              | 78.2    | 0     | 0    |            | 12.3                         | 0       | 87.7  | 0    |            | 0                 | 94.7    | 5.3   | 0    |            |            |
| Total %     | 0          | 0       | 0     | 0    | 0          | 9.9               | 35.5    | 0     | 0    | 45.4       | 1.1                          | 0       | 7.5   | 0    | 8.6        | 0                 | 43.6    | 2.4   | 0    | 46         |            |



# LSC Transportation Consultants, Inc.

545 E Pikes Peak Ave, Suite 210  
Colorado Springs, CO 80905  
719-633-2868

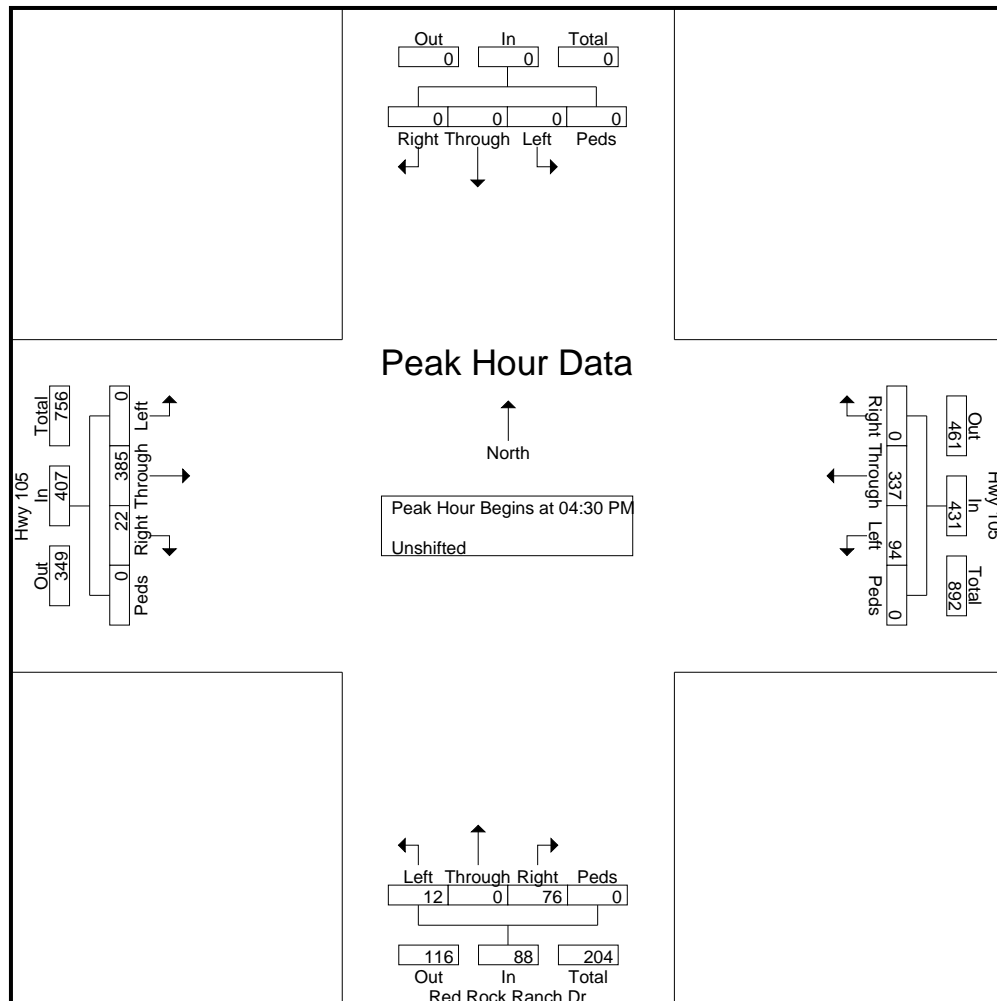
File Name : Red Rock Ranch Dr - Hwy 105 PM

Site Code : 00194970

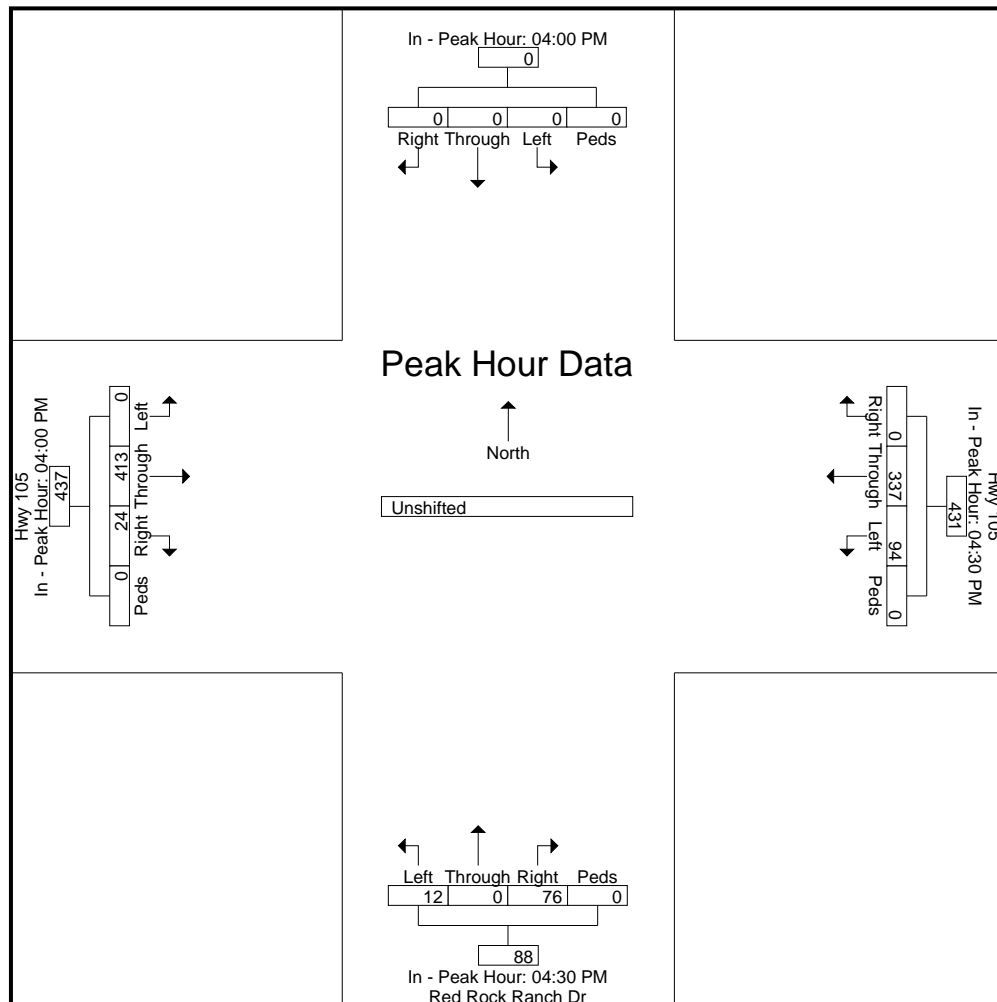
Start Date : 11/14/2019

Page No : 2

|   | Southbound |         |       |      |            | Hwy 105 Westbound |         |       |      |            | Red Rock Ranch Dr Northbound |         |       |      |            | Hwy 105 Eastbound |         |       |      |            |            |
|---|------------|---------|-------|------|------------|-------------------|---------|-------|------|------------|------------------------------|---------|-------|------|------------|-------------------|---------|-------|------|------------|------------|
| Start Time  | Left       | Through | Right | Peds | App. Total | Left              | Through | Right | Peds | App. Total | Left                         | Through | Right | Peds | App. Total | Left              | Through | Right | Peds | App. Total | Int. Total |
| <b>Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1</b> |            |         |       |      |            |                   |         |       |      |            |                              |         |       |      |            |                   |         |       |      |            |            |
| Peak Hour for Entire Intersection Begins at 04:30 PM              |            |         |       |      |            |                   |         |       |      |            |                              |         |       |      |            |                   |         |       |      |            |            |
| 04:30 PM  | 0          | 0       | 0     | 0    | 0          | 19                | 87      | 0     | 0    | 106        | 4                            | 0       | 13    | 0    | 17         | 0                 | 83      | 1     | 0    | 84         | 207        |
| 04:45 PM  | 0          | 0       | 0     | 0    | 0          | 23                | 80      | 0     | 0    | 103        | 4                            | 0       | 16    | 0    | 20         | 0                 | 111     | 6     | 0    | 117        | 240        |
| 05:00 PM  | 0          | 0       | 0     | 0    | 0          | 19                | 78      | 0     | 0    | 97         | 3                            | 0       | 22    | 0    | 25         | 0                 | 103     | 10    | 0    | 113        | 235        |
| 05:15 PM  | 0          | 0       | 0     | 0    | 0          | 33                | 92      | 0     | 0    | 125        | 1                            | 0       | 25    | 0    | 26         | 0                 | 88      | 5     | 0    | 93         | 244        |
| Total Volume  | 0          | 0       | 0     | 0    | 0          | 94                | 337     | 0     | 0    | 431        | 12                           | 0       | 76    | 0    | 88         | 0                 | 385     | 22    | 0    | 407        | 926        |
| % App. Total  | 0          | 0       | 0     | 0    | 0          | 21.8              | 78.2    | 0     | 0    |            | 13.6                         | 0       | 86.4  | 0    |            | 0                 | 94.6    | 5.4   | 0    |            |            |
| PHF   | .000       | .000    | .000  | .000 | .000       | .712              | .916    | .000  | .000 | .862       | .750                         | .000    | .760  | .000 | .846       | .000              | .867    | .550  | .000 | .870       | .949       |









# LSC Transportation Consultants, Inc.

545 E Pikes Peak Ave, Suite 210  
Colorado Springs, CO 80905  
719-633-2868

File Name : Rock Brook Rd - Hwy 105 AM

Site Code : 00194970

Start Date : 12/12/2019

Page No : 1

## Groups Printed- Unshifted

| Start Time  | Southbound |         |       |      |            | Hwy 105 Westbound |         |       |      |            | Rock Brook Rd Northbound |         |       |      |            | Hwy 105 Eastbound |         |       |      |            | Int. Total |
|-------------|------------|---------|-------|------|------------|-------------------|---------|-------|------|------------|--------------------------|---------|-------|------|------------|-------------------|---------|-------|------|------------|------------|
|             | Left       | Through | Right | Peds | App. Total | Left              | Through | Right | Peds | App. Total | Left                     | Through | Right | Peds | App. Total | Left              | Through | Right | Peds | App. Total |            |
| 06:30 AM    | 0          | 0       | 0     | 0    | 0          | 0                 | 36      | 0     | 0    | 36         | 0                        | 0       | 2     | 0    | 2          | 0                 | 79      | 0     | 0    | 79         | 117        |
| 06:45 AM    | 0          | 0       | 0     | 0    | 0          | 0                 | 34      | 0     | 0    | 34         | 0                        | 0       | 1     | 0    | 1          | 0                 | 77      | 0     | 0    | 77         | 112        |
| Total       | 0          | 0       | 0     | 0    | 0          | 0                 | 70      | 0     | 0    | 70         | 0                        | 0       | 3     | 0    | 3          | 0                 | 156     | 0     | 0    | 156        | 229        |
| 07:00 AM    | 0          | 0       | 0     | 0    | 0          | 2                 | 46      | 0     | 0    | 48         | 0                        | 0       | 0     | 0    | 0          | 0                 | 97      | 0     | 0    | 97         | 145        |
| 07:15 AM    | 0          | 0       | 0     | 0    | 0          | 0                 | 49      | 0     | 0    | 49         | 0                        | 0       | 2     | 0    | 2          | 0                 | 88      | 0     | 0    | 88         | 139        |
| 07:30 AM    | 0          | 0       | 0     | 0    | 0          | 0                 | 67      | 0     | 0    | 67         | 0                        | 0       | 1     | 0    | 1          | 0                 | 95      | 0     | 0    | 95         | 163        |
| 07:45 AM    | 0          | 0       | 0     | 0    | 0          | 1                 | 85      | 0     | 0    | 86         | 1                        | 0       | 2     | 0    | 3          | 0                 | 84      | 1     | 0    | 85         | 174        |
| Total       | 0          | 0       | 0     | 0    | 0          | 3                 | 247     | 0     | 0    | 250        | 1                        | 0       | 5     | 0    | 6          | 0                 | 364     | 1     | 0    | 365        | 621        |
| 08:00 AM    | 0          | 0       | 0     | 0    | 0          | 0                 | 60      | 0     | 0    | 60         | 0                        | 0       | 0     | 0    | 0          | 0                 | 76      | 0     | 0    | 76         | 136        |
| 08:15 AM    | 0          | 0       | 0     | 0    | 0          | 0                 | 55      | 0     | 0    | 55         | 0                        | 0       | 1     | 0    | 1          | 0                 | 81      | 1     | 0    | 82         | 138        |
| Grand Total | 0          | 0       | 0     | 0    | 0          | 3                 | 432     | 0     | 0    | 435        | 1                        | 0       | 9     | 0    | 10         | 0                 | 677     | 2     | 0    | 679        | 1124       |
| Apprch %    | 0          | 0       | 0     | 0    |            | 0.7               | 99.3    | 0     | 0    |            | 10                       | 0       | 90    | 0    |            | 0                 | 99.7    | 0.3   | 0    |            |            |
| Total %     | 0          | 0       | 0     | 0    | 0          | 0.3               | 38.4    | 0     | 0    | 38.7       | 0.1                      | 0       | 0.8   | 0    | 0.9        | 0                 | 60.2    | 0.2   | 0    | 60.4       |            |



# LSC Transportation Consultants, Inc.

545 E Pikes Peak Ave, Suite 210  
Colorado Springs, CO 80905  
719-633-2868

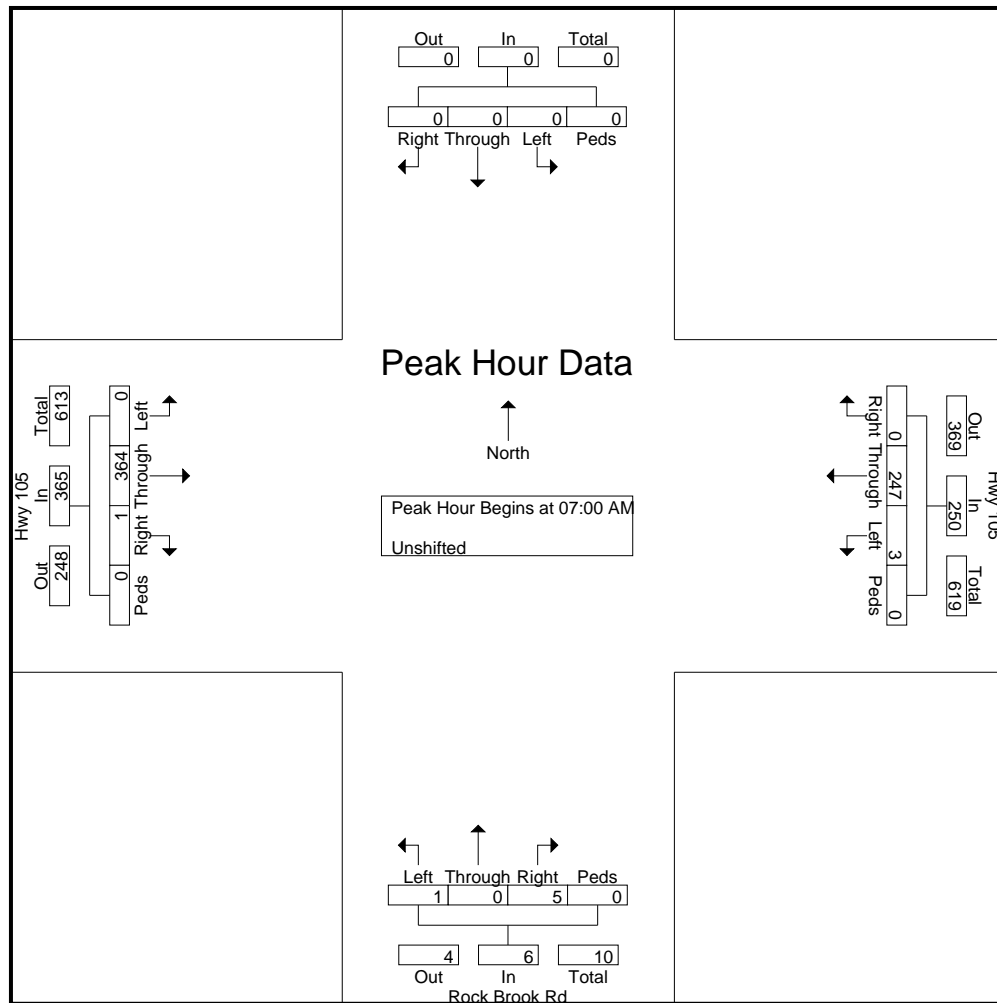
File Name : Rock Brook Rd - Hwy 105 AM

Site Code : 00194970

Start Date : 12/12/2019

Page No : 2

|   | Southbound |         |       |      |            | Hwy 105 Westbound |         |       |      |            | Rock Brook Rd Northbound |         |       |      |            | Hwy 105 Eastbound |         |       |      |            |            |
|---|------------|---------|-------|------|------------|-------------------|---------|-------|------|------------|--------------------------|---------|-------|------|------------|-------------------|---------|-------|------|------------|------------|
| Start Time  | Left       | Through | Right | Peds | App. Total | Left              | Through | Right | Peds | App. Total | Left                     | Through | Right | Peds | App. Total | Left              | Through | Right | Peds | App. Total | Int. Total |
| <b>Peak Hour Analysis From 06:30 AM to 08:15 AM - Peak 1 of 1</b> |            |         |       |      |            |                   |         |       |      |            |                          |         |       |      |            |                   |         |       |      |            |            |
| Peak Hour for Entire Intersection Begins at 07:00 AM              |            |         |       |      |            |                   |         |       |      |            |                          |         |       |      |            |                   |         |       |      |            |            |
| 07:00 AM  | 0          | 0       | 0     | 0    | 0          | 2                 | 46      | 0     | 0    | 48         | 0                        | 0       | 0     | 0    | 0          | 0                 | 97      | 0     | 0    | 97         | 145        |
| 07:15 AM  | 0          | 0       | 0     | 0    | 0          | 0                 | 49      | 0     | 0    | 49         | 0                        | 0       | 2     | 0    | 2          | 0                 | 88      | 0     | 0    | 88         | 139        |
| 07:30 AM  | 0          | 0       | 0     | 0    | 0          | 0                 | 67      | 0     | 0    | 67         | 0                        | 0       | 1     | 0    | 1          | 0                 | 95      | 0     | 0    | 95         | 163        |
| 07:45 AM  | 0          | 0       | 0     | 0    | 0          | 1                 | 85      | 0     | 0    | 86         | 1                        | 0       | 2     | 0    | 3          | 0                 | 84      | 1     | 0    | 85         | 174        |
| Total Volume  | 0          | 0       | 0     | 0    | 0          | 3                 | 247     | 0     | 0    | 250        | 1                        | 0       | 5     | 0    | 6          | 0                 | 364     | 1     | 0    | 365        | 621        |
| % App. Total  | 0          | 0       | 0     | 0    | 0          | 1.2               | 98.8    | 0     | 0    | 0          | 16.7                     | 0       | 83.3  | 0    | 0          | 0                 | 99.7    | 0.3   | 0    | 0          | 0          |
| PHF   | .000       | .000    | .000  | .000 | .000       | .375              | .726    | .000  | .000 | .727       | .250                     | .000    | .625  | .000 | .500       | .000              | .938    | .250  | .000 | .941       | .892       |





# LSC Transportation Consultants, Inc.

545 E Pikes Peak Ave, Suite 210

Colorado Springs, CO 80905

719-633-2868

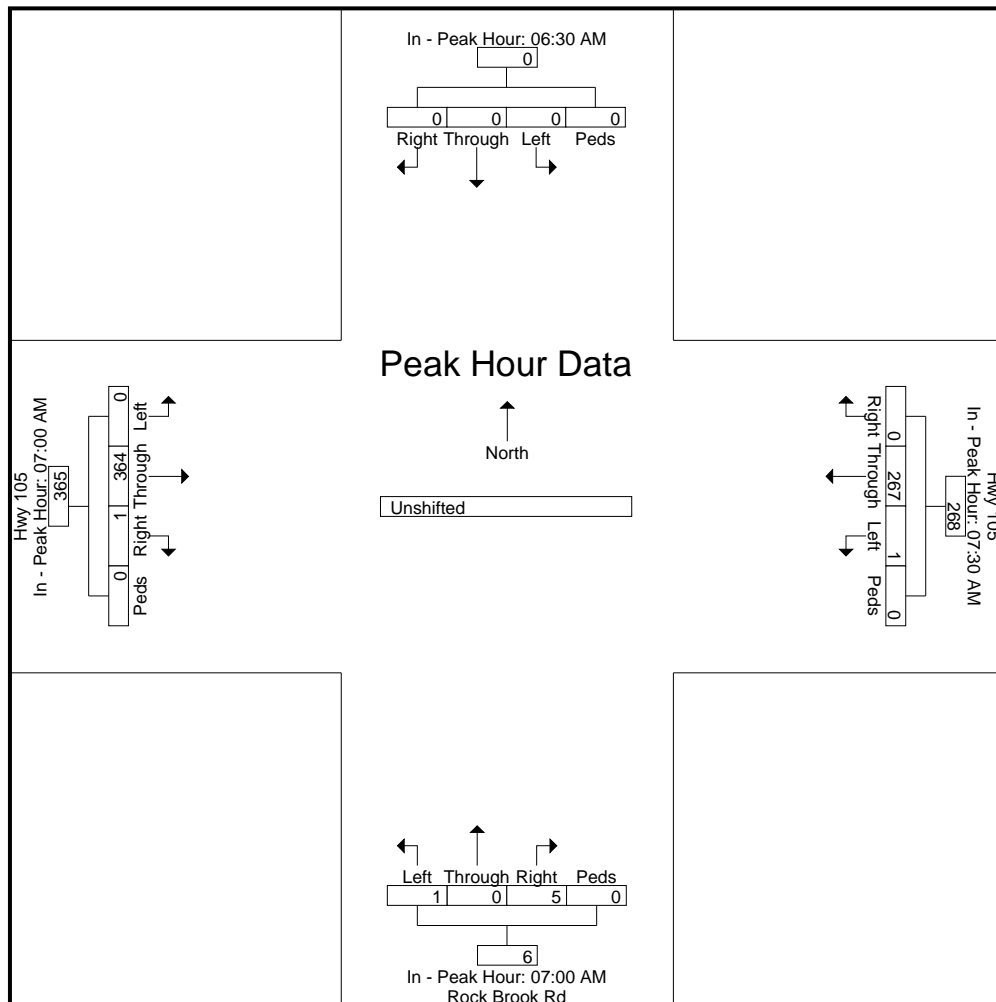
File Name : Rock Brook Rd - Hwy 105 AM

Site Code : 00194970

Start Date : 12/12/2019

Page No : 3

|   | Southbound |         |       |      |            | Hwy 105 Westbound |         |       |      |            | Rock Brook Rd Northbound |         |       |      |            | Hwy 105 Eastbound |         |       |      |            |            |
|---|------------|---------|-------|------|------------|-------------------|---------|-------|------|------------|--------------------------|---------|-------|------|------------|-------------------|---------|-------|------|------------|------------|
| Start Time  | Left       | Through | Right | Peds | App. Total | Left              | Through | Right | Peds | App. Total | Left                     | Through | Right | Peds | App. Total | Left              | Through | Right | Peds | App. Total | Int. Total |
| <b>Peak Hour Analysis From 06:30 AM to 08:15 AM - Peak 1 of 1</b> |            |         |       |      |            |                   |         |       |      |            |                          |         |       |      |            |                   |         |       |      |            |            |
| Peak Hour for Each Approach Begins at:                            |            |         |       |      |            |                   |         |       |      |            |                          |         |       |      |            |                   |         |       |      |            |            |
|   | 06:30 AM   |         |       |      |            | 07:30 AM          |         |       |      |            | 07:00 AM                 |         |       |      |            | 07:00 AM          |         |       |      |            |            |
| +0 mins.  | 0          | 0       | 0     | 0    | 0          | 0                 | 67      | 0     | 0    | 67         | 0                        | 0       | 0     | 0    | 0          | 0                 | 97      | 0     | 0    | 97         |            |
| +15 mins.   | 0          | 0       | 0     | 0    | 0          | 1                 | 85      | 0     | 0    | 86         | 0                        | 0       | 2     | 0    | 2          | 0                 | 88      | 0     | 0    | 88         |            |
| +30 mins.   | 0          | 0       | 0     | 0    | 0          | 0                 | 60      | 0     | 0    | 60         | 0                        | 0       | 1     | 0    | 1          | 0                 | 95      | 0     | 0    | 95         |            |
| +45 mins.   | 0          | 0       | 0     | 0    | 0          | 0                 | 55      | 0     | 0    | 55         | 1                        | 0       | 2     | 0    | 3          | 0                 | 84      | 1     | 0    | 85         |            |
| Total Volume  | 0          | 0       | 0     | 0    | 0          | 1                 | 267     | 0     | 0    | 268        | 1                        | 0       | 5     | 0    | 6          | 0                 | 364     | 1     | 0    | 365        |            |
| % App. Total  | 0          | 0       | 0     | 0    | 0          | 0.4               | 99.6    | 0     | 0    |            | 16.7                     | 0       | 83.3  | 0    |            | 0                 | 99.7    | 0.3   | 0    |            |            |
| PHF   | .000       | .000    | .000  | .000 | .000       | .250              | .785    | .000  | .000 | .779       | .250                     | .000    | .625  | .000 | .500       | .000              | .938    | .250  | .000 | .941       |            |





# LSC Transportation Consultants, Inc.

545 E Pikes Peak Ave, Suite 210  
Colorado Springs, CO 80905  
719-633-2868

File Name : Rock Brook Rd - Hwy 105 PM

Site Code : 00194970

Start Date : 12/19/2019

Page No : 1

## Groups Printed- Unshifted

| Start Time  | Southbound |         |       |      |            | Hwy 105 Westbound |         |       |      |            | Rock Brook Rd Northbound |         |       |      |            | hwy 105 Eastbound |         |       |      |            | Int. Total |
|-------------|------------|---------|-------|------|------------|-------------------|---------|-------|------|------------|--------------------------|---------|-------|------|------------|-------------------|---------|-------|------|------------|------------|
|             | Left       | Through | Right | Peds | App. Total | Left              | Through | Right | Peds | App. Total | Left                     | Through | Right | Peds | App. Total | Left              | Through | Right | Peds | App. Total |            |
| 04:00 PM    | 0          | 0       | 0     | 0    | 0          | 0                 | 104     | 0     | 0    | 104        | 0                        | 0       | 1     | 0    | 1          | 0                 | 164     | 2     | 0    | 166        | 271        |
| 04:15 PM    | 0          | 0       | 0     | 0    | 0          | 3                 | 103     | 0     | 0    | 106        | 0                        | 0       | 0     | 0    | 0          | 0                 | 124     | 1     | 0    | 125        | 231        |
| 04:30 PM    | 0          | 0       | 0     | 0    | 0          | 2                 | 99      | 0     | 0    | 101        | 0                        | 0       | 0     | 0    | 0          | 0                 | 136     | 1     | 0    | 137        | 238        |
| 04:45 PM    | 0          | 0       | 0     | 0    | 0          | 2                 | 96      | 0     | 0    | 98         | 0                        | 0       | 5     | 0    | 5          | 0                 | 125     | 0     | 0    | 125        | 228        |
| Total       | 0          | 0       | 0     | 0    | 0          | 7                 | 402     | 0     | 0    | 409        | 0                        | 0       | 6     | 0    | 6          | 0                 | 549     | 4     | 0    | 553        | 968        |
| 05:00 PM    | 0          | 0       | 0     | 0    | 0          | 1                 | 91      | 0     | 0    | 92         | 0                        | 0       | 2     | 0    | 2          | 0                 | 143     | 0     | 0    | 143        | 237        |
| 05:15 PM    | 0          | 0       | 0     | 0    | 0          | 1                 | 107     | 0     | 0    | 108        | 0                        | 0       | 0     | 0    | 0          | 0                 | 113     | 0     | 0    | 113        | 221        |
| 05:30 PM    | 0          | 0       | 0     | 0    | 0          | 1                 | 87      | 0     | 0    | 88         | 0                        | 0       | 1     | 0    | 1          | 0                 | 81      | 1     | 0    | 82         | 171        |
| 05:45 PM    | 0          | 0       | 0     | 0    | 0          | 1                 | 83      | 0     | 0    | 84         | 0                        | 0       | 0     | 0    | 0          | 0                 | 84      | 0     | 0    | 84         | 168        |
| Total       | 0          | 0       | 0     | 0    | 0          | 4                 | 368     | 0     | 0    | 372        | 0                        | 0       | 3     | 0    | 3          | 0                 | 421     | 1     | 0    | 422        | 797        |
| Grand Total | 0          | 0       | 0     | 0    | 0          | 11                | 770     | 0     | 0    | 781        | 0                        | 0       | 9     | 0    | 9          | 0                 | 970     | 5     | 0    | 975        | 1765       |
| Apprch %    | 0          | 0       | 0     | 0    |            | 1.4               | 98.6    | 0     | 0    |            | 0                        | 0       | 100   | 0    |            | 0                 | 99.5    | 0.5   | 0    |            |            |
| Total %     | 0          | 0       | 0     | 0    | 0          | 0.6               | 43.6    | 0     | 0    | 44.2       | 0                        | 0       | 0.5   | 0    | 0.5        | 0                 | 55      | 0.3   | 0    | 55.2       |            |



# LSC Transportation Consultants, Inc.

545 E Pikes Peak Ave, Suite 210  
Colorado Springs, CO 80905  
719-633-2868

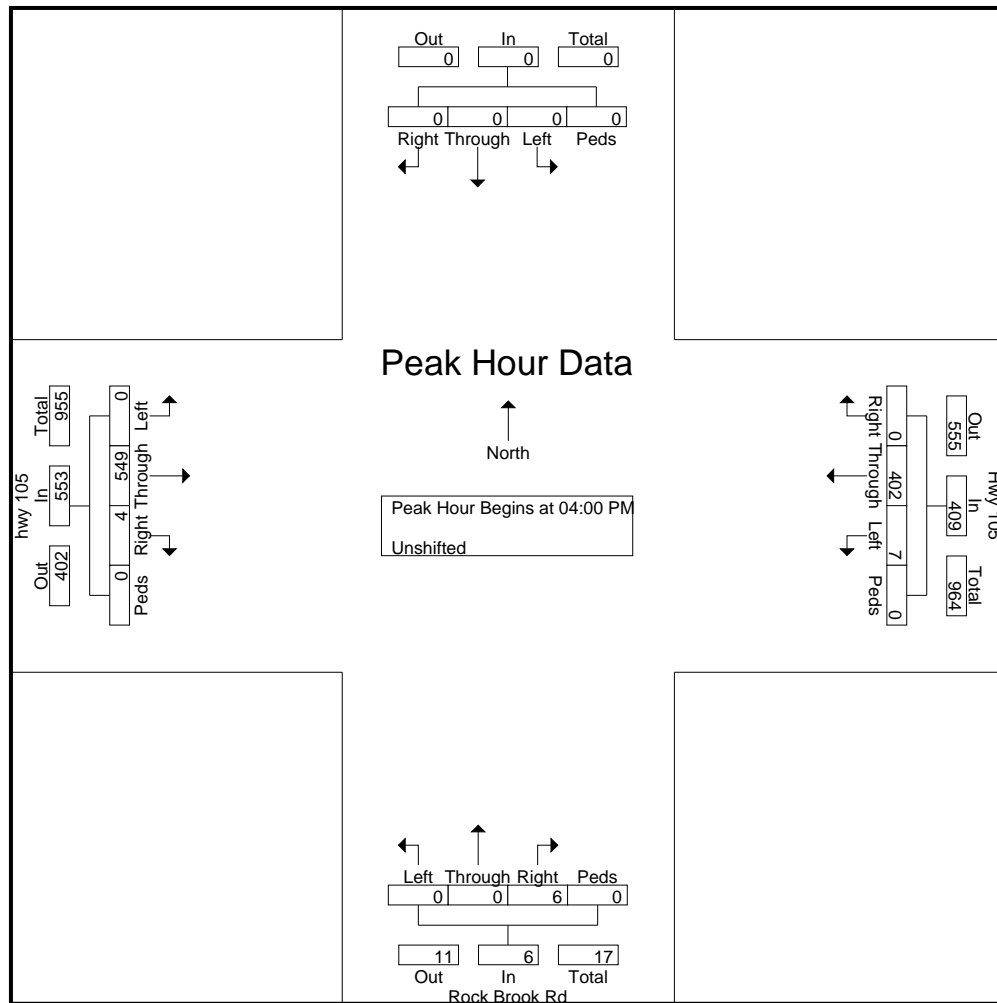
File Name : Rock Brook Rd - Hwy 105 PM

Site Code : 00194970

Start Date : 12/19/2019

Page No : 2

|   | Southbound |         |       |      |            | Hwy 105 Westbound |         |       |      |            | Rock Brook Rd Northbound |         |       |      |            | hwy 105 Eastbound |         |       |      |            |            |
|---|------------|---------|-------|------|------------|-------------------|---------|-------|------|------------|--------------------------|---------|-------|------|------------|-------------------|---------|-------|------|------------|------------|
| Start Time  | Left       | Through | Right | Peds | App. Total | Left              | Through | Right | Peds | App. Total | Left                     | Through | Right | Peds | App. Total | Left              | Through | Right | Peds | App. Total | Int. Total |
| <b>Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1</b> |            |         |       |      |            |                   |         |       |      |            |                          |         |       |      |            |                   |         |       |      |            |            |
| Peak Hour for Entire Intersection Begins at 04:00 PM              |            |         |       |      |            |                   |         |       |      |            |                          |         |       |      |            |                   |         |       |      |            |            |
| 04:00 PM  | 0          | 0       | 0     | 0    | 0          | 0                 | 104     | 0     | 0    | 104        | 0                        | 0       | 1     | 0    | 1          | 0                 | 164     | 2     | 0    | 166        | 271        |
| 04:15 PM  | 0          | 0       | 0     | 0    | 0          | 3                 | 103     | 0     | 0    | 106        | 0                        | 0       | 0     | 0    | 0          | 0                 | 124     | 1     | 0    | 125        | 231        |
| 04:30 PM  | 0          | 0       | 0     | 0    | 0          | 2                 | 99      | 0     | 0    | 101        | 0                        | 0       | 0     | 0    | 0          | 0                 | 136     | 1     | 0    | 137        | 238        |
| 04:45 PM  | 0          | 0       | 0     | 0    | 0          | 2                 | 96      | 0     | 0    | 98         | 0                        | 0       | 5     | 0    | 5          | 0                 | 125     | 0     | 0    | 125        | 228        |
| Total Volume  | 0          | 0       | 0     | 0    | 0          | 7                 | 402     | 0     | 0    | 409        | 0                        | 0       | 6     | 0    | 6          | 0                 | 549     | 4     | 0    | 553        | 968        |
| % App. Total  | 0          | 0       | 0     | 0    |            | 1.7               | 98.3    | 0     | 0    |            | 0                        | 0       | 100   | 0    |            | 0                 | 99.3    | 0.7   | 0    |            |            |
| PHF   | .000       | .000    | .000  | .000 | .000       | .583              | .966    | .000  | .000 | .965       | .000                     | .000    | .300  | .000 | .300       | .000              | .837    | .500  | .000 | .833       | .893       |





# LSC Transportation Consultants, Inc.

545 E Pikes Peak Ave, Suite 210

Colorado Springs, CO 80905

719-633-2868

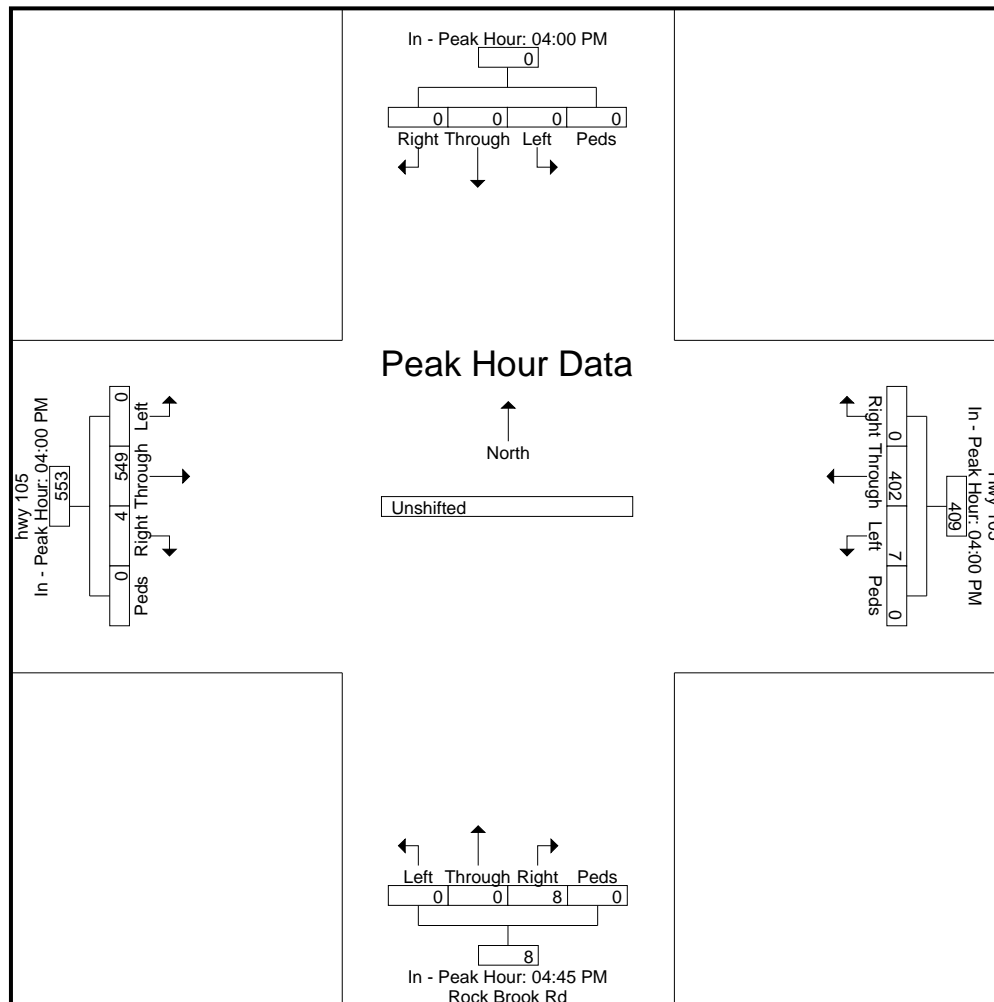
File Name : Rock Brook Rd - Hwy 105 PM

Site Code : 00194970

Start Date : 12/19/2019

Page No : 3

|   | Southbound |         |       |      |            | Hwy 105 Westbound |            |       |      |            | Rock Brook Rd Northbound |         |          |      |            | hwy 105 Eastbound |            |          |      |            |            |
|---|------------|---------|-------|------|------------|-------------------|------------|-------|------|------------|--------------------------|---------|----------|------|------------|-------------------|------------|----------|------|------------|------------|
| Start Time  | Left       | Through | Right | Peds | App. Total | Left              | Through    | Right | Peds | App. Total | Left                     | Through | Right    | Peds | App. Total | Left              | Through    | Right    | Peds | App. Total | Int. Total |
| <b>Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1</b> |            |         |       |      |            |                   |            |       |      |            |                          |         |          |      |            |                   |            |          |      |            |            |
| Peak Hour for Each Approach Begins at:                            |            |         |       |      |            |                   |            |       |      |            |                          |         |          |      |            |                   |            |          |      |            |            |
|   | 04:00 PM   |         |       |      |            | 04:00 PM          |            |       |      |            | 04:45 PM                 |         |          |      |            | 04:00 PM          |            |          |      |            |            |
| +0 mins.  | 0          | 0       | 0     | 0    | 0          | 0                 | <b>104</b> | 0     | 0    | 104        | 0                        | 0       | <b>5</b> | 0    | <b>5</b>   | 0                 | <b>164</b> | <b>2</b> | 0    | <b>166</b> |            |
| +15 mins.   | 0          | 0       | 0     | 0    | 0          | <b>3</b>          | 103        | 0     | 0    | <b>106</b> | 0                        | 0       | 2        | 0    | 2          | 0                 | 124        | 1        | 0    | 125        |            |
| +30 mins.   | 0          | 0       | 0     | 0    | 0          | 2                 | 99         | 0     | 0    | 101        | 0                        | 0       | 0        | 0    | 0          | 0                 | 136        | 1        | 0    | 137        |            |
| +45 mins.   | 0          | 0       | 0     | 0    | 0          | 2                 | 96         | 0     | 0    | 98         | 0                        | 0       | 1        | 0    | 1          | 0                 | 125        | 0        | 0    | 125        |            |
| Total Volume  | 0          | 0       | 0     | 0    | 0          | 7                 | 402        | 0     | 0    | 409        | 0                        | 0       | 8        | 0    | 8          | 0                 | 549        | 4        | 0    | 553        |            |
| % App. Total  | 0          | 0       | 0     | 0    | 0          | 1.7               | 98.3       | 0     | 0    |            | 0                        | 0       | 100      | 0    |            | 0                 | 99.3       | 0.7      | 0    |            |            |
| PHF   | .000       | .000    | .000  | .000 | .000       | .583              | .966       | .000  | .000 | .965       | .000                     | .000    | .400     | .000 | .400       | .000              | .837       | .500     | .000 | .833       |            |






# Levels of Service




---



HCM 6th TWSC  
3: Red Rock Ranch & SH 105




Existing  
AM Peak Hour




| Intersection             |   |        |   |      |       |   |
|--------------------------|---|--------|---|------|-------|---|
| Int Delay, s/veh         | 3.2   |        |   |      |       |   |
| Movement                 | NBL   | NBR    | SET   | SER  | NWL   | NWT   |
| Lane Configurations      |  |        |  |      |       |  |
| Traffic Vol, veh/h       | 23  | 117    | 280   | 7    | 36    | 199   |
| Future Vol, veh/h        | 23  | 117    | 280   | 7    | 36    | 199   |
| Conflicting Peds, #/hr   | 0   | 0      | 0   | 0    | 0     | 0   |
| Sign Control             | Stop  | Stop   | Free  | Free | Free  | Free  |
| RT Channelized           | -   | None   | -   | None | -     | None  |
| Storage Length           | 0   | -      | -   | -    | -     | -   |
| Veh in Median Storage, # | 0   | -      | 0   | -    | -     | 0   |
| Grade, %                 | 0   | -      | 0   | -    | -     | 0   |
| Peak Hour Factor         | 80  | 80     | 92  | 92   | 73    | 73  |
| Heavy Vehicles, %        | 2   | 2      | 2   | 2    | 2     | 2   |
| Mvmt Flow                | 29  | 146    | 304   | 8    | 49    | 273   |
| Major/Minor              | Minor1  | Major1 | Major2  |      |       |   |
| Conflicting Flow All     | 679   | 308    | 0   | 0    | 312   | 0   |
| Stage 1                  | 308   | -      | -   | -    | -     | -   |
| Stage 2                  | 371   | -      | -   | -    | -     | -   |
| Critical Hdwy            | 6.42  | 6.22   | -   | -    | 4.12  | -   |
| Critical Hdwy Stg 1      | 5.42  | -      | -   | -    | -     | -   |
| Critical Hdwy Stg 2      | 5.42  | -      | -   | -    | -     | -   |
| Follow-up Hdwy           | 3.518   | 3.318  | -   | -    | 2.218 | -   |
| Pot Cap-1 Maneuver       | 417   | 732    | -   | -    | 1248  | -   |
| Stage 1                  | 745   | -      | -   | -    | -     | -   |
| Stage 2                  | 698   | -      | -   | -    | -     | -   |
| Platoon blocked, %       |   |        | -   | -    |       | -   |
| Mov Cap-1 Maneuver       | 398   | 732    | -   | -    | 1248  | -   |
| Mov Cap-2 Maneuver       | 398   | -      | -   | -    | -     | -   |
| Stage 1                  | 745   | -      | -   | -    | -     | -   |
| Stage 2                  | 666   | -      | -   | -    | -     | -   |
| Approach                 | NB  | SE     | NW  |      |       |   |
| HCM Control Delay, s     | 12.7  | 0      | 1.2   |      |       |   |
| HCM LOS                  | B   |        |   |      |       |   |
| Minor Lane/Major Mvmt    | NBLn1   | NWL    | NWT   | SET  | SER   |   |
| Capacity (veh/h)         | 643   | 1248   | -   | -    | -     |   |
| HCM Lane V/C Ratio       | 0.272   | 0.04   | -   | -    | -     |   |
| HCM Control Delay (s)    | 12.7  | 8      | 0   | -    | -     |   |
| HCM Lane LOS             | B   | A      | A   | -    | -     |   |
| HCM 95th %tile Q(veh)    | 1.1   | 0.1    | -   | -    | -     |   |




| Intersection             |   |       |        |   |   |       |
|--------------------------|---|-------|--------|---|---|-------|
| Int Delay, s/veh         | 0.2   |       |        |   |   |       |
| Movement                 | SET   | SER   | NWL    | NWT   | NEL   | NER   |
| Lane Configurations      |  |       |        |  |  |       |
| Traffic Vol, veh/h       | 364   | 1     | 3      | 247   | 1   | 5     |
| Future Vol, veh/h        | 364   | 1     | 3      | 247   | 1   | 5     |
| 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   | -     |
| Veh in Median Storage, # | 0   | -     | -      | 0   | 0   | -     |
| Grade, %                 | 0   | -     | -      | 0   | 0   | -     |
| Peak Hour Factor         | 92  | 92    | 73     | 73  | 50  | 50    |
| Heavy Vehicles, %        | 2   | 2     | 2      | 2   | 2   | 2     |
| Mvmt Flow                | 396   | 1     | 4      | 338   | 2   | 10    |
|                          |   |       |        |   |   |       |
| Major/Minor              | Major1  |       | Major2 |   | Minor1  |       |
| Conflicting Flow All     | 0   | 0     | 397    | 0   | 743   | 397   |
| Stage 1                  | -   | -     | -      | -   | 397   | -     |
| Stage 2                  | -   | -     | -      | -   | 346   | -     |
| Critical Hdwy            | -   | -     | 4.12   | -   | 6.42  | 6.22  |
| Critical Hdwy Stg 1      | -   | -     | -      | -   | 5.42  | -     |
| Critical Hdwy Stg 2      | -   | -     | -      | -   | 5.42  | -     |
| Follow-up Hdwy           | -   | -     | 2.218  | -   | 3.518   | 3.318 |
| Pot Cap-1 Maneuver       | -   | -     | 1162   | -   | 383   | 652   |
| Stage 1                  | -   | -     | -      | -   | 679   | -     |
| Stage 2                  | -   | -     | -      | -   | 716   | -     |
| Platoon blocked, %       | -   | -     |        | -   |   |       |
| Mov Cap-1 Maneuver       | -   | -     | 1162   | -   | 381   | 652   |
| Mov Cap-2 Maneuver       | -   | -     | -      | -   | 381   | -     |
| Stage 1                  | -   | -     | -      | -   | 679   | -     |
| Stage 2                  | -   | -     | -      | -   | 713   | -     |
|                          |   |       |        |   |   |       |
|                          |   |       |        |   |   |       |
| Approach                 | SE  |       | NW     |   | NE  |       |
| HCM Control Delay, s     | 0   |       | 0.1    |   | 11.3  |       |
| HCM LOS                  | B   |       |        |   |   |       |
|                          |   |       |        |   |   |       |
|                          |   |       |        |   |   |       |
| Minor Lane/Major Mvmt    | NELn1   | NWL   | NWT    | SET   | SER   |       |
| Capacity (veh/h)         | 583   | 1162  | -      | -   | -   |       |
| HCM Lane V/C Ratio       | 0.021   | 0.004 | -      | -   | -   |       |
| HCM Control Delay (s)    | 11.3  | 8.1   | 0      | -   | -   |       |
| HCM Lane LOS             | B   | A     | A      | -   | -   |       |
| HCM 95th %tile Q(veh)    | 0.1   | 0     | -      | -   | -   |       |

HCM 6th TWSC  
3: Red Rock Ranch & SH 105

Existing  
PM Peak Hour




| Intersection             |   |        |   |      |       |   |
|--------------------------|---|--------|---|------|-------|---|
| Int Delay, s/veh         | 2.3   |        |   |      |       |   |
| Movement                 | NBL   | NBR    | SET   | SER  | NWL   | NWT   |
| Lane Configurations      |  |        |  |      |       |  |
| Traffic Vol, veh/h       | 12  | 76     | 385   | 22   | 94    | 337   |
| Future Vol, veh/h        | 12  | 76     | 385   | 22   | 94    | 337   |
| Conflicting Peds, #/hr   | 0   | 0      | 0   | 0    | 0     | 0   |
| Sign Control             | Stop  | Stop   | Free  | Free | Free  | Free  |
| RT Channelized           | -   | None   | -   | None | -     | None  |
| Storage Length           | 0   | -      | -   | -    | -     | -   |
| Veh in Median Storage, # | 0   | -      | 0   | -    | -     | 0   |
| Grade, %                 | 0   | -      | 0   | -    | -     | 0   |
| Peak Hour Factor         | 85  | 85     | 87  | 87   | 86    | 86  |
| Heavy Vehicles, %        | 2   | 2      | 2   | 2    | 2     | 2   |
| Mvmt Flow                | 14  | 89     | 443   | 25   | 109   | 392   |
| Major/Minor              | Minor1  | Major1 | Major2  |      |       |   |
| Conflicting Flow All     | 1066  | 456    | 0   | 0    | 468   | 0   |
| Stage 1                  | 456   | -      | -   | -    | -     | -   |
| Stage 2                  | 610   | -      | -   | -    | -     | -   |
| Critical Hdwy            | 6.42  | 6.22   | -   | -    | 4.12  | -   |
| Critical Hdwy Stg 1      | 5.42  | -      | -   | -    | -     | -   |
| Critical Hdwy Stg 2      | 5.42  | -      | -   | -    | -     | -   |
| Follow-up Hdwy           | 3.518   | 3.318  | -   | -    | 2.218 | -   |
| Pot Cap-1 Maneuver       | 246   | 604    | -   | -    | 1094  | -   |
| Stage 1                  | 638   | -      | -   | -    | -     | -   |
| Stage 2                  | 542   | -      | -   | -    | -     | -   |
| Platoon blocked, %       |   |        | -   | -    |       | -   |
| Mov Cap-1 Maneuver       | 215   | 604    | -   | -    | 1094  | -   |
| Mov Cap-2 Maneuver       | 215   | -      | -   | -    | -     | -   |
| Stage 1                  | 638   | -      | -   | -    | -     | -   |
| Stage 2                  | 473   | -      | -   | -    | -     | -   |
| Approach                 | NB  | SE     | NW  |      |       |   |
| HCM Control Delay, s     | 14.5  | 0      | 1.9   |      |       |   |
| HCM LOS                  | B   |        |   |      |       |   |
| Minor Lane/Major Mvmt    | NBLn1   | NWL    | NWT   | SET  | SER   |   |
| Capacity (veh/h)         | 484   | 1094   | -   | -    | -     |   |
| HCM Lane V/C Ratio       | 0.214   | 0.1    | -   | -    | -     |   |
| HCM Control Delay (s)    | 14.5  | 8.7    | 0   | -    | -     |   |
| HCM Lane LOS             | B   | A      | A   | -    | -     |   |
| HCM 95th %tile Q(veh)    | 0.8   | 0.3    | -   | -    | -     |   |

| Intersection             |   |       |        |   |   |       |
|--------------------------|---|-------|--------|---|---|-------|
| Int Delay, s/veh         | 0.3   |       |        |   |   |       |
| Movement                 | SET   | SER   | NWL    | NWT   | NEL   | NER   |
| Lane Configurations      |  |       |        |  |  |       |
| Traffic Vol, veh/h       | 549   | 4     | 7      | 402   | 0   | 6     |
| Future Vol, veh/h        | 549   | 4     | 7      | 402   | 0   | 6     |
| 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   | -     |
| Veh in Median Storage, # | 0   | -     | -      | 0   | 0   | -     |
| Grade, %                 | 0   | -     | -      | 0   | 0   | -     |
| Peak Hour Factor         | 83  | 83    | 92     | 92  | 30  | 30    |
| Heavy Vehicles, %        | 2   | 2     | 2      | 2   | 2   | 2     |
| Mvmt Flow                | 661   | 5     | 8      | 437   | 0   | 20    |
|                          |   |       |        |   |   |       |
| Major/Minor              | Major1  |       | Major2 |   | Minor1  |       |
| Conflicting Flow All     | 0   | 0     | 666    | 0   | 1117  | 664   |
| Stage 1                  | -   | -     | -      | -   | 664   | -     |
| Stage 2                  | -   | -     | -      | -   | 453   | -     |
| Critical Hdwy            | -   | -     | 4.12   | -   | 6.42  | 6.22  |
| Critical Hdwy Stg 1      | -   | -     | -      | -   | 5.42  | -     |
| Critical Hdwy Stg 2      | -   | -     | -      | -   | 5.42  | -     |
| Follow-up Hdwy           | -   | -     | 2.218  | -   | 3.518   | 3.318 |
| Pot Cap-1 Maneuver       | -   | -     | 923    | -   | 229   | 461   |
| Stage 1                  | -   | -     | -      | -   | 512   | -     |
| Stage 2                  | -   | -     | -      | -   | 640   | -     |
| Platoon blocked, %       | -   | -     |        | -   |   |       |
| Mov Cap-1 Maneuver       | -   | -     | 923    | -   | 226   | 461   |
| Mov Cap-2 Maneuver       | -   | -     | -      | -   | 226   | -     |
| Stage 1                  | -   | -     | -      | -   | 512   | -     |
| Stage 2                  | -   | -     | -      | -   | 633   | -     |
|                          |   |       |        |   |   |       |
|                          |   |       |        |   |   |       |
| Approach                 | SE  |       | NW     |   | NE  |       |
| HCM Control Delay, s     | 0   |       | 0.2    |   | 13.2  |       |
| HCM LOS                  |   |       |        |   | B   |       |
|                          |   |       |        |   |   |       |
|                          |   |       |        |   |   |       |
| Minor Lane/Major Mvmt    | NELn1   | NWL   | NWT    | SET   | SER   |       |
| Capacity (veh/h)         | 461   | 923   | -      | -   | -   |       |
| HCM Lane V/C Ratio       | 0.043   | 0.008 | -      | -   | -   |       |
| HCM Control Delay (s)    | 13.2  | 8.9   | 0      | -   | -   |       |
| HCM Lane LOS             | B   | A     | A      | -   | -   |       |
| HCM 95th %tile Q(veh)    | 0.1   | 0     | -      | -   | -   |       |

| Intersection             |   |        |   |      |       |   |
|--------------------------|---|--------|---|------|-------|---|
| Int Delay, s/veh         | 3.1   |        |   |      |       |   |
| Movement                 | NBL   | NBR    | SET   | SER  | NWL   | NWT   |
| Lane Configurations      |  |        |  |      |       |  |
| Traffic Vol, veh/h       | 24  | 122    | 345   | 7    | 38    | 265   |
| Future Vol, veh/h        | 24  | 122    | 345   | 7    | 38    | 265   |
| Conflicting Peds, #/hr   | 0   | 0      | 0   | 0    | 0     | 0   |
| Sign Control             | Stop  | Stop   | Free  | Free | Free  | Free  |
| RT Channelized           | -   | None   | -   | None | -     | None  |
| Storage Length           | 0   | -      | -   | -    | -     | -   |
| Veh in Median Storage, # | 0   | -      | 0   | -    | -     | 0   |
| Grade, %                 | 0   | -      | 0   | -    | -     | 0   |
| Peak Hour Factor         | 80  | 80     | 92  | 92   | 73    | 73  |
| Heavy Vehicles, %        | 2   | 2      | 2   | 2    | 2     | 2   |
| Mvmt Flow                | 30  | 153    | 375   | 8    | 52    | 363   |
| Major/Minor              | Minor1  | Major1 | Major2  |      |       |   |
| Conflicting Flow All     | 846   | 379    | 0   | 0    | 383   | 0   |
| Stage 1                  | 379   | -      | -   | -    | -     | -   |
| Stage 2                  | 467   | -      | -   | -    | -     | -   |
| Critical Hdwy            | 6.42  | 6.22   | -   | -    | 4.12  | -   |
| Critical Hdwy Stg 1      | 5.42  | -      | -   | -    | -     | -   |
| Critical Hdwy Stg 2      | 5.42  | -      | -   | -    | -     | -   |
| Follow-up Hdwy           | 3.518   | 3.318  | -   | -    | 2.218 | -   |
| Pot Cap-1 Maneuver       | 333   | 668    | -   | -    | 1175  | -   |
| Stage 1                  | 692   | -      | -   | -    | -     | -   |
| Stage 2                  | 631   | -      | -   | -    | -     | -   |
| Platoon blocked, %       |   |        | -   | -    |       | -   |
| Mov Cap-1 Maneuver       | 315   | 668    | -   | -    | 1175  | -   |
| Mov Cap-2 Maneuver       | 315   | -      | -   | -    | -     | -   |
| Stage 1                  | 692   | -      | -   | -    | -     | -   |
| Stage 2                  | 596   | -      | -   | -    | -     | -   |
| Approach                 | NB  | SE     | NW  |      |       |   |
| HCM Control Delay, s     | 14.4  | 0      | 1   |      |       |   |
| HCM LOS                  | B   |        |   |      |       |   |
| Minor Lane/Major Mvmt    | NBLn1   | NWL    | NWT   | SET  | SER   |   |
| Capacity (veh/h)         | 564   | 1175   | -   | -    | -     |   |
| HCM Lane V/C Ratio       | 0.324   | 0.044  | -   | -    | -     |   |
| HCM Control Delay (s)    | 14.4  | 8.2    | 0   | -    | -     |   |
| HCM Lane LOS             | B   | A      | A   | -    | -     |   |
| HCM 95th %tile Q(veh)    | 1.4   | 0.1    | -   | -    | -     |   |

Intersection




Int Delay, s/veh 0.2

| Movement                 | SET   | SER  | NWL  | NWT   | NEL   | NER  |
|--------------------------|---|------|------|---|---|------|
| Lane Configurations      |  |      |      |  |  |      |
| Traffic Vol, veh/h       | 470   | 1    | 3    | 300   | 1   | 5    |
| Future Vol, veh/h        | 470   | 1    | 3    | 300   | 1   | 5    |
| 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   | -    |
| Veh in Median Storage, # | 0   | -    | -    | 0   | 0   | -    |
| Grade, %                 | 0   | -    | -    | 0   | 0   | -    |
| Peak Hour Factor         | 92  | 92   | 73   | 73  | 50  | 50   |
| Heavy Vehicles, %        | 2   | 2    | 2    | 2   | 2   | 2    |
| Mvmt Flow                | 511   | 1    | 4    | 411   | 2   | 10   |

| Major/Minor          | Major1 | Major2 | Minor1 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 0      | 0      | 512    |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |
| Critical Hdwy        | -      | -      | 4.12   |
| Critical Hdwy Stg 1  | -      | -      | -      |
| Critical Hdwy Stg 2  | -      | -      | -      |
| Follow-up Hdwy       | -      | -      | 2.218  |
| Pot Cap-1 Maneuver   | -      | -      | 1053   |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |
| Platoon blocked, %   | -      | -      | -      |
| Mov Cap-1 Maneuver   | -      | -      | 1053   |
| Mov Cap-2 Maneuver   | -      | -      | -      |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |




| Approach             | SE | NW  | NE   |
|----------------------|----|-----|------|
| HCM Control Delay, s | 0  | 0.1 | 12.6 |
| HCM LOS              |    |     | B    |

| Minor Lane/Major Mvmt | NELn1 | NWL   | NWT | SET | SER |
|-----------------------|-------|-------|-----|-----|-----|
| Capacity (veh/h)      | 488   | 1053  | -   | -   | -   |
| HCM Lane V/C Ratio    | 0.025 | 0.004 | -   | -   | -   |
| HCM Control Delay (s) | 12.6  | 8.4   | 0   | -   | -   |
| HCM Lane LOS          | B     | A     | A   | -   | -   |
| HCM 95th %tile Q(veh) | 0.1   | 0     | -   | -   | -   |

| Intersection             |   |        |   |      |       |   |
|--------------------------|---|--------|---|------|-------|---|
| Int Delay, s/veh         | 2.2   |        |   |      |       |   |
| Movement                 | NBL   | NBR    | SET   | SER  | NWL   | NWT   |
| Lane Configurations      |  |        |  |      |       |  |
| Traffic Vol, veh/h       | 12  | 79     | 485   | 23   | 99    | 425   |
| Future Vol, veh/h        | 12  | 79     | 485   | 23   | 99    | 425   |
| Conflicting Peds, #/hr   | 0   | 0      | 0   | 0    | 0     | 0   |
| Sign Control             | Stop  | Stop   | Free  | Free | Free  | Free  |
| RT Channelized           | -   | None   | -   | None | -     | None  |
| Storage Length           | 0   | -      | -   | -    | -     | -   |
| Veh in Median Storage, # | 0   | -      | 0   | -    | -     | 0   |
| Grade, %                 | 0   | -      | 0   | -    | -     | 0   |
| Peak Hour Factor         | 85  | 85     | 87  | 87   | 86    | 86  |
| Heavy Vehicles, %        | 2   | 2      | 2   | 2    | 2     | 2   |
| Mvmt Flow                | 14  | 93     | 557   | 26   | 115   | 494   |
| Major/Minor              | Minor1  | Major1 | Major2  |      |       |   |
| Conflicting Flow All     | 1294  | 570    | 0   | 0    | 583   | 0   |
| Stage 1                  | 570   | -      | -   | -    | -     | -   |
| Stage 2                  | 724   | -      | -   | -    | -     | -   |
| Critical Hdwy            | 6.42  | 6.22   | -   | -    | 4.12  | -   |
| Critical Hdwy Stg 1      | 5.42  | -      | -   | -    | -     | -   |
| Critical Hdwy Stg 2      | 5.42  | -      | -   | -    | -     | -   |
| Follow-up Hdwy           | 3.518   | 3.318  | -   | -    | 2.218 | -   |
| Pot Cap-1 Maneuver       | 179   | 521    | -   | -    | 991   | -   |
| Stage 1                  | 566   | -      | -   | -    | -     | -   |
| Stage 2                  | 480   | -      | -   | -    | -     | -   |
| Platoon blocked, %       |   |        | -   | -    |       | -   |
| Mov Cap-1 Maneuver       | 150   | 521    | -   | -    | 991   | -   |
| Mov Cap-2 Maneuver       | 150   | -      | -   | -    | -     | -   |
| Stage 1                  | 566   | -      | -   | -    | -     | -   |
| Stage 2                  | 403   | -      | -   | -    | -     | -   |
| Approach                 | NB  | SE     | NW  |      |       |   |
| HCM Control Delay, s     | 17.6  | 0      | 1.7   |      |       |   |
| HCM LOS                  | C   |        |   |      |       |   |
| Minor Lane/Major Mvmt    | NBLn1   | NWL    | NWT   | SET  | SER   |   |
| Capacity (veh/h)         | 393   | 991    | -   | -    | -     |   |
| HCM Lane V/C Ratio       | 0.272   | 0.116  | -   | -    | -     |   |
| HCM Control Delay (s)    | 17.6  | 9.1    | 0   | -    | -     |   |
| HCM Lane LOS             | C   | A      | A   | -    | -     |   |
| HCM 95th %tile Q(veh)    | 1.1   | 0.4    | -   | -    | -     |   |

Intersection

Int Delay, s/veh 0.3

| Movement                 | SET   | SER  | NWL  | NWT   | NEL   | NER  |
|--------------------------|---|------|------|---|---|------|
| Lane Configurations      |  |      |      |  |  |      |
| Traffic Vol, veh/h       | 560   | 4    | 7    | 525   | 0   | 6    |
| Future Vol, veh/h        | 560   | 4    | 7    | 525   | 0   | 6    |
| 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   | -    |
| Veh in Median Storage, # | 0   | -    | -    | 0   | 0   | -    |
| Grade, %                 | 0   | -    | -    | 0   | 0   | -    |
| Peak Hour Factor         | 83  | 83   | 92   | 92  | 30  | 30   |
| Heavy Vehicles, %        | 2   | 2    | 2    | 2   | 2   | 2    |
| Mvmt Flow                | 675   | 5    | 8    | 571   | 0   | 20   |

| Major/Minor          | Major1 | Major2 | Minor1 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 0      | 0      | 680    |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |
| Critical Hdwy        | -      | -      | 4.12   |
| Critical Hdwy Stg 1  | -      | -      | -      |
| Critical Hdwy Stg 2  | -      | -      | -      |
| Follow-up Hdwy       | -      | -      | 2.218  |
| Pot Cap-1 Maneuver   | -      | -      | 912    |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |
| Platoon blocked, %   | -      | -      | -      |
| Mov Cap-1 Maneuver   | -      | -      | 912    |
| Mov Cap-2 Maneuver   | -      | -      | -      |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |






| Approach             | SE | NW  | NE   |
|----------------------|----|-----|------|
| HCM Control Delay, s | 0  | 0.1 | 13.3 |
| HCM LOS              |    |     | B    |

| Minor Lane/Major Mvmt | NELn1 | NWL   | NWT | SET | SER |
|-----------------------|-------|-------|-----|-----|-----|
| Capacity (veh/h)      | 452   | 912   | -   | -   | -   |
| HCM Lane V/C Ratio    | 0.044 | 0.008 | -   | -   | -   |
| HCM Control Delay (s) | 13.3  | 9     | 0   | -   | -   |
| HCM Lane LOS          | B     | A     | A   | -   | -   |
| HCM 95th %tile Q(veh) | 0.1   | 0     | -   | -   | -   |



HCM 6th TWSC  
3: Red Rock Ranch & SH 105

Short Term Total  
AM Peak Hour

| Intersection             |   |   |   |      |   |   |
|--------------------------|---|---|---|------|---|---|
| Int Delay, s/veh         | 3.3   |   |   |      |   |   |
| Movement                 | NBL   | NBR   | SET   | SER  | NWL   | NWT   |
| Lane Configurations      |  |  |  |      |  |  |
| Traffic Vol, veh/h       | 26  | 128   | 280   | 8    | 40  | 200   |
| Future Vol, veh/h        | 26  | 128   | 280   | 8    | 40  | 200   |
| Conflicting Peds, #/hr   | 0   | 0   | 0   | 0    | 0   | 0   |
| Sign Control             | Stop  | Stop  | Free  | Free | Free  | Free  |
| RT Channelized           | -   | None  | -   | None | -   | None  |
| Storage Length           | 0   | 0   | -   | -    | 500   | -   |
| Veh in Median Storage, # | 0   | -   | 0   | -    | -   | 0   |
| Grade, %                 | 0   | -   | 0   | -    | -   | 0   |
| Peak Hour Factor         | 80  | 80  | 92  | 92   | 73  | 73  |
| Heavy Vehicles, %        | 2   | 2   | 2   | 2    | 2   | 2   |
| Mvmt Flow                | 33  | 160   | 304   | 9    | 55  | 274   |





| Major/Minor          | Minor1 | Major1 | Major2 |   |       |   |
|----------------------|--------|--------|--------|---|-------|---|
| Conflicting Flow All | 693    | 309    | 0      | 0 | 313   | 0 |
| Stage 1              | 309    | -      | -      | - | -     | - |
| Stage 2              | 384    | -      | -      | - | -     | - |
| Critical Hdwy        | 6.42   | 6.22   | -      | - | 4.12  | - |
| Critical Hdwy Stg 1  | 5.42   | -      | -      | - | -     | - |
| Critical Hdwy Stg 2  | 5.42   | -      | -      | - | -     | - |
| Follow-up Hdwy       | 3.518  | 3.318  | -      | - | 2.218 | - |
| Pot Cap-1 Maneuver   | 409    | 731    | -      | - | 1247  | - |
| Stage 1              | 745    | -      | -      | - | -     | - |
| Stage 2              | 688    | -      | -      | - | -     | - |
| Platoon blocked, %   |        |        | -      | - |       | - |
| Mov Cap-1 Maneuver   | 391    | 731    | -      | - | 1247  | - |
| Mov Cap-2 Maneuver   | 391    | -      | -      | - | -     | - |
| Stage 1              | 745    | -      | -      | - | -     | - |
| Stage 2              | 658    | -      | -      | - | -     | - |

| Approach             | NB   | SE | NW  |
|----------------------|------|----|-----|
| HCM Control Delay, s | 11.9 | 0  | 1.3 |
| HCM LOS              | B    |    |     |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | NWL   | NWT | SET | SER |
|-----------------------|-------|-------|-------|-----|-----|-----|
| Capacity (veh/h)      | 391   | 731   | 1247  | -   | -   | -   |
| HCM Lane V/C Ratio    | 0.083 | 0.219 | 0.044 | -   | -   | -   |
| HCM Control Delay (s) | 15    | 11.3  | 8     | -   | -   | -   |
| HCM Lane LOS          | C     | B     | A     | -   | -   | -   |
| HCM 95th %tile Q(veh) | 0.3   | 0.8   | 0.1   | -   | -   | -   |

Intersection

Int Delay, s/veh 0.6

| Movement                 | SET   | SER  | NWL   | NWT   | NEL   | NER  |
|--------------------------|---|------|---|---|---|------|
| Lane Configurations      |  |      |  |  |  |      |
| Traffic Vol, veh/h       | 375   | 1    | 7   | 248   | 2   | 15   |
| Future Vol, veh/h        | 375   | 1    | 7   | 248   | 2   | 15   |
| Conflicting Peds, #/hr   | 0   | 0    | 0   | 0   | 0   | 0    |
| Sign Control             | Free  | Free | Free  | Free  | Stop  | Stop |
| RT Channelized           | -   | None | -   | None  | -   | None |
| Storage Length           | -   | -    | 500   | -   | 0   | -    |
| Veh in Median Storage, # | 0   | -    | -   | 0   | 0   | -    |
| Grade, %                 | 0   | -    | -   | 0   | 0   | -    |
| Peak Hour Factor         | 92  | 92   | 73  | 73  | 50  | 50   |
| Heavy Vehicles, %        | 2   | 2    | 2   | 2   | 2   | 2    |
| Mvmt Flow                | 408   | 1    | 10  | 340   | 4   | 30   |




| Major/Minor          | Major1 | Major2 | Minor1 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 0      | 0      | 409    |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |
| Critical Hdwy        | -      | -      | 4.12   |
| Critical Hdwy Stg 1  | -      | -      | -      |
| Critical Hdwy Stg 2  | -      | -      | -      |
| Follow-up Hdwy       | -      | -      | 2.218  |
| Pot Cap-1 Maneuver   | -      | -      | 1150   |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |
| Platoon blocked, %   | -      | -      | -      |
| Mov Cap-1 Maneuver   | -      | -      | 1150   |
| Mov Cap-2 Maneuver   | -      | -      | -      |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |

| Approach             | SE | NW  | NE   |
|----------------------|----|-----|------|
| HCM Control Delay, s | 0  | 0.2 | 11.5 |
| HCM LOS              |    |     | B    |

| Minor Lane/Major Mvmt | NELn1 | NWL   | NWT | SET | SER |
|-----------------------|-------|-------|-----|-----|-----|
| Capacity (veh/h)      | 590   | 1150  | -   | -   | -   |
| HCM Lane V/C Ratio    | 0.058 | 0.008 | -   | -   | -   |
| HCM Control Delay (s) | 11.5  | 8.2   | -   | -   | -   |
| HCM Lane LOS          | B     | A     | -   | -   | -   |
| HCM 95th %tile Q(veh) | 0.2   | 0     | -   | -   | -   |

HCM 6th TWSC  
7: Red Rock Ranch & Access

Short Term Total  
AM Peak Hour






| Intersection             |   |          |   |        |       |   |
|--------------------------|---|----------|---|--------|-------|---|
| Int Delay, s/veh         | 0.5   |          |   |        |       |   |
| Movement                 | WBL   | WBR      | NBT   | NBR    | SBL   | SBT   |
| Lane Configurations      |  |          |  |        |       |  |
| Traffic Vol, veh/h       | 0   | 9        | 145   | 0      | 3     | 45  |
| Future Vol, veh/h        | 0   | 9        | 145   | 0      | 3     | 45  |
| Conflicting Peds, #/hr   | 0   | 0        | 0   | 0      | 0     | 0   |
| Sign Control             | Stop  | Stop     | Free  | Free   | Free  | Free  |
| RT Channelized           | -   | None     | -   | None   | -     | None  |
| Storage Length           | 0   | -        | -   | -      | -     | -   |
| Veh in Median Storage, # | 0   | -        | 0   | -      | -     | 0   |
| Grade, %                 | 0   | -        | 0   | -      | -     | 0   |
| Peak Hour Factor         | 92  | 92       | 92  | 92     | 92    | 92  |
| Heavy Vehicles, %        | 2   | 2        | 2   | 2      | 2     | 2   |
| Mvmt Flow                | 0   | 10       | 158   | 0      | 3     | 49  |
| Major/Minor              | Minor1  | Major1   |   | Major2 |       |   |
| Conflicting Flow All     | 213   | 158      | 0   | 0      | 158   | 0   |
| Stage 1                  | 158   | -        | -   | -      | -     | -   |
| Stage 2                  | 55  | -        | -   | -      | -     | -   |
| Critical Hdwy            | 6.42  | 6.22     | -   | -      | 4.12  | -   |
| Critical Hdwy Stg 1      | 5.42  | -        | -   | -      | -     | -   |
| Critical Hdwy Stg 2      | 5.42  | -        | -   | -      | -     | -   |
| Follow-up Hdwy           | 3.518   | 3.318    | -   | -      | 2.218 | -   |
| Pot Cap-1 Maneuver       | 775   | 887      | -   | -      | 1422  | -   |
| Stage 1                  | 871   | -        | -   | -      | -     | -   |
| Stage 2                  | 968   | -        | -   | -      | -     | -   |
| Platoon blocked, %       |   |          | -   | -      |       | -   |
| Mov Cap-1 Maneuver       | 773   | 887      | -   | -      | 1422  | -   |
| Mov Cap-2 Maneuver       | 773   | -        | -   | -      | -     | -   |
| Stage 1                  | 871   | -        | -   | -      | -     | -   |
| Stage 2                  | 966   | -        | -   | -      | -     | -   |
| Approach                 | WB  | NB       |   | SB     |       |   |
| HCM Control Delay, s     | 9.1   | 0        |   | 0.5    |       |   |
| HCM LOS                  | A   |          |   |        |       |   |
| Minor Lane/Major Mvmt    | NBT   | NBRWBLn1 |   | SBL    | SBT   |   |
| Capacity (veh/h)         | -   | 887      |   | 1422   | -     |   |
| HCM Lane V/C Ratio       | -   | 0.011    |   | 0.002  | -     |   |
| HCM Control Delay (s)    | -   | 9.1      |   | 7.5    | 0     |   |
| HCM Lane LOS             | -   | A        |   | A      | A     |   |
| HCM 95th %tile Q(veh)    | -   | 0        |   | 0      | -     |   |

HCM 6th TWSC  
3: Red Rock Ranch & SH 105

Short Term Total  
PM Peak Hour

Intersection

Int Delay, s/veh 2.4

| Movement                 | NBL   | NBR   | SET   | SER  | NWL   | NWT   |
|--------------------------|---|---|---|------|---|---|
| Lane Configurations      |  |  |  |      |  |  |
| Traffic Vol, veh/h       | 14  | 83  | 386   | 25   | 106   | 337   |
| Future Vol, veh/h        | 14  | 83  | 386   | 25   | 106   | 337   |
| Conflicting Peds, #/hr   | 0   | 0   | 0   | 0    | 0   | 0   |
| Sign Control             | Stop  | Stop  | Free  | Free | Free  | Free  |
| RT Channelized           | -   | None  | -   | None | -   | None  |
| Storage Length           | 0   | 0   | -   | -    | 500   | -   |
| Veh in Median Storage, # | 0   | -   | 0   | -    | -   | 0   |
| Grade, %                 | 0   | -   | 0   | -    | -   | 0   |
| Peak Hour Factor         | 85  | 85  | 87  | 87   | 86  | 86  |
| Heavy Vehicles, %        | 2   | 2   | 2   | 2    | 2   | 2   |
| Mvmt Flow                | 16  | 98  | 444   | 29   | 123   | 392   |






| Major/Minor          | Minor1 | Major1 | Major2 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 1097   | 459    | 0      |
| Stage 1              | 459    | -      | -      |
| Stage 2              | 638    | -      | -      |
| Critical Hdwy        | 6.42   | 6.22   | -      |
| Critical Hdwy Stg 1  | 5.42   | -      | -      |
| Critical Hdwy Stg 2  | 5.42   | -      | -      |
| Follow-up Hdwy       | 3.518  | 3.318  | -      |
| Pot Cap-1 Maneuver   | 236    | 602    | -      |
| Stage 1              | 636    | -      | -      |
| Stage 2              | 526    | -      | -      |
| Platoon blocked, %   |        | -      | -      |
| Mov Cap-1 Maneuver   | 209    | 602    | -      |
| Mov Cap-2 Maneuver   | 209    | -      | -      |
| Stage 1              | 636    | -      | -      |
| Stage 2              | 467    | -      | -      |

| Approach             | NB   | SE | NW  |
|----------------------|------|----|-----|
| HCM Control Delay, s | 13.8 | 0  | 2.1 |
| HCM LOS              | B    |    |     |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | NWL   | NWT | SET | SER |
|-----------------------|-------|-------|-------|-----|-----|-----|
| Capacity (veh/h)      | 209   | 602   | 1089  | -   | -   | -   |
| HCM Lane V/C Ratio    | 0.079 | 0.162 | 0.113 | -   | -   | -   |
| HCM Control Delay (s) | 23.7  | 12.1  | 8.7   | -   | -   | -   |
| HCM Lane LOS          | C     | B     | A     | -   | -   | -   |
| HCM 95th %tile Q(veh) | 0.3   | 0.6   | 0.4   | -   | -   | -   |

Intersection

Int Delay, s/veh 0.6

| Movement                 | SET   | SER  | NWL   | NWT   | NEL   | NER  |
|--------------------------|---|------|---|---|---|--|
| Lane Configurations      |  |      |  |  |  |  |
| Traffic Vol, veh/h       | 556   | 5    | 18  | 402   | 0   | 12   |
| Future Vol, veh/h        | 556   | 5    | 18  | 402   | 0   | 12   |
| Conflicting Peds, #/hr   | 0   | 0    | 0   | 0   | 0   | 0  |
| Sign Control             | Free  | Free | Free  | Free  | Stop  | Stop   |
| RT Channelized           | -   | None | -   | None  | -   | None   |
| Storage Length           | -   | -    | 500   | -   | 0   | -  |
| Veh in Median Storage, # | 0   | -    | -   | 0   | 0   | -  |
| Grade, %                 | 0   | -    | -   | 0   | 0   | -  |
| Peak Hour Factor         | 83  | 83   | 92  | 92  | 30  | 30   |
| Heavy Vehicles, %        | 2   | 2    | 2   | 2   | 2   | 2  |
| Mvmt Flow                | 670   | 6    | 20  | 437   | 0   | 40   |

| Major/Minor          | Major1 | Major2 | Minor1 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 0      | 0      | 676    |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |
| Critical Hdwy        | -      | -      | 4.12   |
| Critical Hdwy Stg 1  | -      | -      | -      |
| Critical Hdwy Stg 2  | -      | -      | -      |
| Follow-up Hdwy       | -      | -      | 2.218  |
| Pot Cap-1 Maneuver   | -      | -      | 915    |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |
| Platoon blocked, %   | -      | -      | -      |
| Mov Cap-1 Maneuver   | -      | -      | 915    |
| Mov Cap-2 Maneuver   | -      | -      | -      |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |

| Approach             | SE | NW  | NE   |
|----------------------|----|-----|------|
| HCM Control Delay, s | 0  | 0.4 | 13.7 |
| HCM LOS              |    |     | B    |




| Minor Lane/Major Mvmt | NELn1 | NWL   | NWT | SET | SER |
|-----------------------|-------|-------|-----|-----|-----|
| Capacity (veh/h)      | 455   | 915   | -   | -   | -   |
| HCM Lane V/C Ratio    | 0.088 | 0.021 | -   | -   | -   |
| HCM Control Delay (s) | 13.7  | 9     | -   | -   | -   |
| HCM Lane LOS          | B     | A     | -   | -   | -   |
| HCM 95th %tile Q(veh) | 0.3   | 0.1   | -   | -   | -   |

HCM 6th TWSC  
7: Red Rock Ranch & Access

Short Term Total  
PM Peak Hour

Intersection

Int Delay, s/veh 0.5

| Movement                 | NBT   | NBR  | SBL  | SBT   | NWL   | NWR  |
|--------------------------|---|------|------|---|---|------|
| Lane Configurations      |  |      |      |  |  |      |
| Traffic Vol, veh/h       | 92  | 0    | 10   | 121   | 0   | 5    |
| Future Vol, veh/h        | 92  | 0    | 10   | 121   | 0   | 5    |
| 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   | -    |
| Veh in Median Storage, # | 0   | -    | -    | 0   | 0   | -    |
| Grade, %                 | 0   | -    | -    | 0   | 0   | -    |
| Peak Hour Factor         | 92  | 92   | 92   | 92  | 92  | 92   |
| Heavy Vehicles, %        | 2   | 2    | 2    | 2   | 2   | 2    |
| Mvmt Flow                | 100   | 0    | 11   | 132   | 0   | 5    |







| Major/Minor          | Major1 | Major2 | Minor1 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 0      | 0      | 100    |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |
| Critical Hdwy        | -      | -      | 4.12   |
| Critical Hdwy Stg 1  | -      | -      | -      |
| Critical Hdwy Stg 2  | -      | -      | -      |
| Follow-up Hdwy       | -      | -      | 2.218  |
| Pot Cap-1 Maneuver   | -      | -      | 1493   |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |
| Platoon blocked, %   | -      | -      | -      |
| Mov Cap-1 Maneuver   | -      | -      | 1493   |
| Mov Cap-2 Maneuver   | -      | -      | -      |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |






| Approach             | NB | SB  | NW  |
|----------------------|----|-----|-----|
| HCM Control Delay, s | 0  | 0.6 | 8.8 |
| HCM LOS              |    |     | A   |

| Minor Lane/Major Mvmt | NBT | NBRNWLn1 | SBL   | SBT   |
|-----------------------|-----|----------|-------|-------|
| Capacity (veh/h)      | -   | -        | 956   | 1493  |
| HCM Lane V/C Ratio    | -   | -        | 0.006 | 0.007 |
| HCM Control Delay (s) | -   | -        | 8.8   | 7.4   |
| HCM Lane LOS          | -   | -        | A     | A     |
| HCM 95th %tile Q(veh) | -   | -        | 0     | 0     |

HCM 6th TWSC  
3: Red Rock Ranch & SH 105

Long Term Total  
AM Peak Hour

| Intersection             |   |   |   |   |   |   |
|--------------------------|---|---|---|---|---|---|
| Int Delay, s/veh         | 3.1   |   |   |   |   |   |
| Movement                 | NBL   | NBR   | SET   | SER   | NWL   | NWT   |
| Lane Configurations      |  |  |  |  |  |  |
| Traffic Vol, veh/h       | 27  | 133   | 345   | 8   | 42  | 266   |
| Future Vol, veh/h        | 27  | 133   | 345   | 8   | 42  | 266   |
| Conflicting Peds, #/hr   | 0   | 0   | 0   | 0   | 0   | 0   |
| Sign Control             | Stop  | Stop  | Free  | Free  | Free  | Free  |
| RT Channelized           | -   | None  | -   | None  | -   | None  |
| Storage Length           | 0   | 0   | -   | 500   | 500   | -   |
| Veh in Median Storage, # | 0   | -   | 0   | -   | -   | 0   |
| Grade, %                 | 0   | -   | 0   | -   | -   | 0   |
| Peak Hour Factor         | 80  | 80  | 92  | 92  | 73  | 73  |
| Heavy Vehicles, %        | 2   | 2   | 2   | 2   | 2   | 2   |
| Mvmt Flow                | 34  | 166   | 375   | 9   | 58  | 364   |
| Major/Minor              | Minor1  | Major1  | Major2  |   |   |   |
| Conflicting Flow All     | 855   | 375   | 0   | 0   | 384   | 0   |
| Stage 1                  | 375   | -   | -   | -   | -   | -   |
| Stage 2                  | 480   | -   | -   | -   | -   | -   |
| Critical Hdwy            | 6.42  | 6.22  | -   | -   | 4.12  | -   |
| Critical Hdwy Stg 1      | 5.42  | -   | -   | -   | -   | -   |
| Critical Hdwy Stg 2      | 5.42  | -   | -   | -   | -   | -   |
| Follow-up Hdwy           | 3.518   | 3.318   | -   | -   | 2.218   | -   |
| Pot Cap-1 Maneuver       | 329   | 671   | -   | -   | 1174  | -   |
| Stage 1                  | 695   | -   | -   | -   | -   | -   |
| Stage 2                  | 622   | -   | -   | -   | -   | -   |
| Platoon blocked, %       |   |   | -   | -   |   | -   |
| Mov Cap-1 Maneuver       | 313   | 671   | -   | -   | 1174  | -   |
| Mov Cap-2 Maneuver       | 313   | -   | -   | -   | -   | -   |
| Stage 1                  | 695   | -   | -   | -   | -   | -   |
| Stage 2                  | 592   | -   | -   | -   | -   | -   |
| Approach                 | NB  | SE  | NW  |   |   |   |
| HCM Control Delay, s     | 13.1  | 0   | 1.1   |   |   |   |
| HCM LOS                  | B   |   |   |   |   |   |
| Minor Lane/Major Mvmt    | NBLn1   | NBLn2   | NWL   | NWT   | SET   | SER   |
| Capacity (veh/h)         | 313   | 671   | 1174  | -   | -   | -   |
| HCM Lane V/C Ratio       | 0.108   | 0.248   | 0.049   | -   | -   | -   |
| HCM Control Delay (s)    | 17.9  | 12.1  | 8.2   | -   | -   | -   |
| HCM Lane LOS             | C   | B   | A   | -   | -   | -   |
| HCM 95th %tile Q(veh)    | 0.4   | 1   | 0.2   | -   | -   | -   |

| Intersection             |   |       |   |   |   |  |
|--------------------------|---|-------|---|---|---|--|
| Int Delay, s/veh         | 0.5   |       |   |   |   |  |
| Movement                 | SET   | SER   | NWL   | NWT   | NEL   | NER  |
| Lane Configurations      |  |       |  |  |  |  |
| Traffic Vol, veh/h       | 481   | 1     | 7   | 304   | 2   | 15   |
| Future Vol, veh/h        | 481   | 1     | 7   | 304   | 2   | 15   |
| Conflicting Peds, #/hr   | 0   | 0     | 0   | 0   | 0   | 0  |
| Sign Control             | Free  | Free  | Free  | Free  | Stop  | Stop   |
| RT Channelized           | -   | None  | -   | None  | -   | None   |
| Storage Length           | -   | -     | 500   | -   | 0   | -  |
| Veh in Median Storage, # | 0   | -     | -   | 0   | 0   | -  |
| Grade, %                 | 0   | -     | -   | 0   | 0   | -  |
| Peak Hour Factor         | 92  | 92    | 73  | 73  | 50  | 50   |
| Heavy Vehicles, %        | 2   | 2     | 2   | 2   | 2   | 2  |
| Mvmt Flow                | 523   | 1     | 10  | 416   | 4   | 30   |
|                          |   |       |   |   |   |  |
| Major/Minor              | Major1  |       | Major2  |   | Minor1  |  |
| Conflicting Flow All     | 0   | 0     | 524   | 0   | 960   | 524  |
| Stage 1                  | -   | -     | -   | -   | 524   | -  |
| Stage 2                  | -   | -     | -   | -   | 436   | -  |
| Critical Hdwy            | -   | -     | 4.12  | -   | 6.42  | 6.22   |
| Critical Hdwy Stg 1      | -   | -     | -   | -   | 5.42  | -  |
| Critical Hdwy Stg 2      | -   | -     | -   | -   | 5.42  | -  |
| Follow-up Hdwy           | -   | -     | 2.218   | -   | 3.518   | 3.318  |
| Pot Cap-1 Maneuver       | -   | -     | 1043  | -   | 285   | 553  |
| Stage 1                  | -   | -     | -   | -   | 594   | -  |
| Stage 2                  | -   | -     | -   | -   | 652   | -  |
| Platoon blocked, %       | -   | -     |   | -   |   |  |
| Mov Cap-1 Maneuver       | -   | -     | 1043  | -   | 282   | 553  |
| Mov Cap-2 Maneuver       | -   | -     | -   | -   | 282   | -  |
| Stage 1                  | -   | -     | -   | -   | 594   | -  |
| Stage 2                  | -   | -     | -   | -   | 645   | -  |
|                          |   |       |   |   |   |  |
|                          |   |       |   |   |   |  |
| Approach                 | SE  |       | NW  |   | NE  |  |
| HCM Control Delay, s     | 0   |       | 0.2   |   | 12.8  |  |
| HCM LOS                  | B   |       |   |   |   |  |
|                          |   |       |   |   |   |  |
|                          |   |       |   |   |   |  |
| Minor Lane/Major Mvmt    | NELn1   | NWL   | NWT   | SET   | SER   |  |
| Capacity (veh/h)         | 497   | 1043  | -   | -   | -   |  |
| HCM Lane V/C Ratio       | 0.068   | 0.009 | -   | -   | -   |  |
| HCM Control Delay (s)    | 12.8  | 8.5   | -   | -   | -   |  |
| HCM Lane LOS             | B   | A     | -   | -   | -   |  |
| HCM 95th %tile Q(veh)    | 0.2   | 0     | -   | -   | -   |  |



HCM 6th TWSC  
7: Red Rock Ranch & Access

Long Term Total  
AM Peak Hour







| Intersection             |        |       |        |       |        |       |        |      |      |       |      |      |
|--------------------------|--------|-------|--------|-------|--------|-------|--------|------|------|-------|------|------|
| Int Delay, s/veh         | 0.8    |       |        |       |        |       |        |      |      |       |      |      |
| Movement                 | EBL    | EBT   | EBR    | WBL   | WBT    | WBR   | NBL    | NBT  | NBR  | SBL   | SBT  | SBR  |
| Lane Configurations      |        | ↕     |        |       | ↕      |       |        | ↕    |      |       | ↕    |      |
| Traffic Vol, veh/h       | 6      | 0     | 0      | 0     | 0      | 9     | 0      | 145  | 0    | 3     | 45   | 2    |
| Future Vol, veh/h        | 6      | 0     | 0      | 0     | 0      | 9     | 0      | 145  | 0    | 3     | 45   | 2    |
| Conflicting Peds, #/hr   | 0      | 0     | 0      | 0     | 0      | 0     | 0      | 0    | 0    | 0     | 0    | 0    |
| Sign Control             | Stop   | Stop  | Stop   | Stop  | Stop   | Stop  | Free   | Free | Free | Free  | Free | Free |
| RT Channelized           | -      | -     | None   | -     | -      | None  | -      | -    | None | -     | -    | None |
| Storage Length           | -      | -     | -      | -     | -      | -     | -      | -    | -    | -     | -    | -    |
| Veh in Median Storage, # | -      | 0     | -      | -     | 0      | -     | -      | 0    | -    | -     | 0    | -    |
| Grade, %                 | -      | 0     | -      | -     | 0      | -     | -      | 0    | -    | -     | 0    | -    |
| Peak Hour Factor         | 92     | 92    | 92     | 92    | 92     | 92    | 92     | 92   | 92   | 92    | 92   | 92   |
| Heavy Vehicles, %        | 2      | 2     | 2      | 2     | 2      | 2     | 2      | 2    | 2    | 2     | 2    | 2    |
| Mvmt Flow                | 7      | 0     | 0      | 0     | 0      | 10    | 0      | 158  | 0    | 3     | 49   | 2    |
|                          |        |       |        |       |        |       |        |      |      |       |      |      |
| Major/Minor              | Minor2 |       | Minor1 |       | Major1 |       | Major2 |      |      |       |      |      |
| Conflicting Flow All     | 219    | 214   | 50     | 214   | 215    | 158   | 51     | 0    | 0    | 158   | 0    | 0    |
| Stage 1                  | 56     | 56    | -      | 158   | 158    | -     | -      | -    | -    | -     | -    | -    |
| Stage 2                  | 163    | 158   | -      | 56    | 57     | -     | -      | -    | -    | -     | -    | -    |
| Critical Hdwy            | 7.12   | 6.52  | 6.22   | 7.12  | 6.52   | 6.22  | 4.12   | -    | -    | 4.12  | -    | -    |
| Critical Hdwy Stg 1      | 6.12   | 5.52  | -      | 6.12  | 5.52   | -     | -      | -    | -    | -     | -    | -    |
| Critical Hdwy Stg 2      | 6.12   | 5.52  | -      | 6.12  | 5.52   | -     | -      | -    | -    | -     | -    | -    |
| Follow-up Hdwy           | 3.518  | 4.018 | 3.318  | 3.518 | 4.018  | 3.318 | 2.218  | -    | -    | 2.218 | -    | -    |
| Pot Cap-1 Maneuver       | 737    | 684   | 1018   | 743   | 683    | 887   | 1555   | -    | -    | 1422  | -    | -    |
| Stage 1                  | 956    | 848   | -      | 844   | 767    | -     | -      | -    | -    | -     | -    | -    |
| Stage 2                  | 839    | 767   | -      | 956   | 847    | -     | -      | -    | -    | -     | -    | -    |
| Platoon blocked, %       |        |       |        |       |        |       |        | -    | -    |       | -    | -    |
| Mov Cap-1 Maneuver       | 727    | 683   | 1018   | 742   | 682    | 887   | 1555   | -    | -    | 1422  | -    | -    |
| Mov Cap-2 Maneuver       | 727    | 683   | -      | 742   | 682    | -     | -      | -    | -    | -     | -    | -    |
| Stage 1                  | 956    | 846   | -      | 844   | 767    | -     | -      | -    | -    | -     | -    | -    |
| Stage 2                  | 830    | 767   | -      | 954   | 845    | -     | -      | -    | -    | -     | -    | -    |
|                          |        |       |        |       |        |       |        |      |      |       |      |      |
|                          |        |       |        |       |        |       |        |      |      |       |      |      |
| Approach                 | EB     |       | WB     |       | NB     |       | SB     |      |      |       |      |      |
| HCM Control Delay, s     | 10     |       | 9.1    |       | 0      |       | 0.5    |      |      |       |      |      |
| HCM LOS                  | B      |       | A      |       |        |       |        |      |      |       |      |      |
|                          |        |       |        |       |        |       |        |      |      |       |      |      |
| Minor Lane/Major Mvmt    | NBL    | NBT   | NBR    | EBLn1 | WBLn1  | SBL   | SBT    | SBR  |      |       |      |      |
| Capacity (veh/h)         | 1555   | -     | -      | 727   | 887    | 1422  | -      | -    |      |       |      |      |
| HCM Lane V/C Ratio       | -      | -     | -      | 0.009 | 0.011  | 0.002 | -      | -    |      |       |      |      |
| HCM Control Delay (s)    | 0      | -     | -      | 10    | 9.1    | 7.5   | 0      | -    |      |       |      |      |
| HCM Lane LOS             | A      | -     | -      | B     | A      | A     | A      | -    |      |       |      |      |
| HCM 95th %tile Q(veh)    | 0      | -     | -      | 0     | 0      | 0     | -      | -    |      |       |      |      |

HCM 6th TWSC  
3: Red Rock Ranch & SH 105

Long Term Total  
PM Peak Hour

Intersection

Int Delay, s/veh 2.3

| Movement                 | NBL   | NBR   | SET   | SER   | NWL   | NWT   |
|--------------------------|---|---|---|---|---|---|
| Lane Configurations      |  |  |  |  |  |  |
| Traffic Vol, veh/h       | 14  | 86  | 486   | 26  | 111   | 425   |
| Future Vol, veh/h        | 14  | 86  | 486   | 26  | 111   | 425   |
| Conflicting Peds, #/hr   | 0   | 0   | 0   | 0   | 0   | 0   |
| Sign Control             | Stop  | Stop  | Free  | Free  | Free  | Free  |
| RT Channelized           | -   | None  | -   | None  | -   | None  |
| Storage Length           | 0   | 0   | -   | 500   | 500   | -   |
| Veh in Median Storage, # | 0   | -   | 0   | -   | -   | 0   |
| Grade, %                 | 0   | -   | 0   | -   | -   | 0   |
| Peak Hour Factor         | 85  | 85  | 87  | 87  | 86  | 86  |
| Heavy Vehicles, %        | 2   | 2   | 2   | 2   | 2   | 2   |
| Mvmt Flow                | 16  | 101   | 559   | 30  | 129   | 494   |






| Major/Minor          | Minor1 | Major1 | Major2 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 1311   | 559    | 0      |
| Stage 1              | 559    | -      | -      |
| Stage 2              | 752    | -      | -      |
| Critical Hdwy        | 6.42   | 6.22   | -      |
| Critical Hdwy Stg 1  | 5.42   | -      | -      |
| Critical Hdwy Stg 2  | 5.42   | -      | -      |
| Follow-up Hdwy       | 3.518  | 3.318  | -      |
| Pot Cap-1 Maneuver   | 175    | 529    | -      |
| Stage 1              | 572    | -      | -      |
| Stage 2              | 466    | -      | -      |
| Platoon blocked, %   |        | -      | -      |
| Mov Cap-1 Maneuver   | 152    | 529    | -      |
| Mov Cap-2 Maneuver   | 152    | -      | -      |
| Stage 1              | 572    | -      | -      |
| Stage 2              | 405    | -      | -      |

| Approach             | NB   | SE | NW  |
|----------------------|------|----|-----|
| HCM Control Delay, s | 15.9 | 0  | 1.9 |
| HCM LOS              | C    |    |     |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | NWL   | NWT | SET | SER |
|-----------------------|-------|-------|-------|-----|-----|-----|
| Capacity (veh/h)      | 152   | 529   | 986   | -   | -   | -   |
| HCM Lane V/C Ratio    | 0.108 | 0.191 | 0.131 | -   | -   | -   |
| HCM Control Delay (s) | 31.5  | 13.4  | 9.2   | -   | -   | -   |
| HCM Lane LOS          | D     | B     | A     | -   | -   | -   |
| HCM 95th %tile Q(veh) | 0.4   | 0.7   | 0.5   | -   | -   | -   |

HCM 6th TWSC  
5: Rockbrook & SH 105

Long Term Total  
PM Peak Hour

| Intersection             |   |        |   |   |   |  |
|--------------------------|---|--------|---|---|---|--|
| Int Delay, s/veh         | 0.6   |        |   |   |   |  |
| Movement                 | SET   | SER    | NWL   | NWT   | NEL   | NER  |
| Lane Configurations      |  |        |  |  |  |  |
| Traffic Vol, veh/h       | 567   | 5      | 18  | 537   | 0   | 12   |
| Future Vol, veh/h        | 567   | 5      | 18  | 537   | 0   | 12   |
| Conflicting Peds, #/hr   | 0   | 0      | 0   | 0   | 0   | 0  |
| Sign Control             | Free  | Free   | Free  | Free  | Stop  | Stop   |
| RT Channelized           | -   | None   | -   | None  | -   | None   |
| Storage Length           | -   | -      | 500   | -   | 0   | -  |
| Veh in Median Storage, # | 0   | -      | -   | 0   | 0   | -  |
| Grade, %                 | 0   | -      | -   | 0   | 0   | -  |
| Peak Hour Factor         | 83  | 83     | 92  | 92  | 30  | 30   |
| Heavy Vehicles, %        | 2   | 2      | 2   | 2   | 2   | 2  |
| Mvmt Flow                | 683   | 6      | 20  | 584   | 0   | 40   |
|                          |   |        |   |   |   |  |
| Major/Minor              | Major1  | Major2 |   | Minor1  |   |  |
| Conflicting Flow All     | 0   | 0      | 689   | 0   | 1310  | 686  |
| Stage 1                  | -   | -      | -   | -   | 686   | -  |
| Stage 2                  | -   | -      | -   | -   | 624   | -  |
| Critical Hdwy            | -   | -      | 4.12  | -   | 6.42  | 6.22   |
| Critical Hdwy Stg 1      | -   | -      | -   | -   | 5.42  | -  |
| Critical Hdwy Stg 2      | -   | -      | -   | -   | 5.42  | -  |
| Follow-up Hdwy           | -   | -      | 2.218   | -   | 3.518   | 3.318  |
| Pot Cap-1 Maneuver       | -   | -      | 905   | -   | 175   | 447  |
| Stage 1                  | -   | -      | -   | -   | 500   | -  |
| Stage 2                  | -   | -      | -   | -   | 534   | -  |
| Platoon blocked, %       | -   | -      |   | -   |   |  |
| Mov Cap-1 Maneuver       | -   | -      | 905   | -   | 171   | 447  |
| Mov Cap-2 Maneuver       | -   | -      | -   | -   | 171   | -  |
| Stage 1                  | -   | -      | -   | -   | 500   | -  |
| Stage 2                  | -   | -      | -   | -   | 522   | -  |
|                          |   |        |   |   |   |  |
| Approach                 | SE  | NW     |   | NE  |   |  |
| HCM Control Delay, s     | 0   | 0.3    |   | 13.8  |   |  |
| HCM LOS                  | B   |        |   |   |   |  |
|                          |   |        |   |   |   |  |
| Minor Lane/Major Mvmt    | NELn1   | NWL    | NWT   | SET   | SER   |  |
| Capacity (veh/h)         | 447   | 905    | -   | -   | -   |  |
| HCM Lane V/C Ratio       | 0.089   | 0.022  | -   | -   | -   |  |
| HCM Control Delay (s)    | 13.8  | 9.1    | -   | -   | -   |  |
| HCM Lane LOS             | B   | A      | -   | -   | -   |  |
| HCM 95th %tile Q(veh)    | 0.3   | 0.1    | -   | -   | -   |  |

HCM 6th TWSC  
7: Red Rock Ranch & Access

Long Term Total  
PM Peak Hour

| Intersection             |        |      |      |        |       |       |        |       |       |        |       |       |
|--------------------------|--------|------|------|--------|-------|-------|--------|-------|-------|--------|-------|-------|
| Int Delay, s/veh         | 0.6    |      |      |        |       |       |        |       |       |        |       |       |
| Movement                 | NBL    | NBT  | NBR  | SBL    | SBT   | SBR   | SEL    | SET   | SER   | NWL    | NWT   | NWR   |
| Lane Configurations      |        | ↕    |      |        | ↕     |       |        | ↕     |       |        | ↕     |       |
| Traffic Vol, veh/h       | 0      | 92   | 0    | 10     | 121   | 6     | 3      | 0     | 0     | 0      | 0     | 5     |
| Future Vol, veh/h        | 0      | 92   | 0    | 10     | 121   | 6     | 3      | 0     | 0     | 0      | 0     | 5     |
| Conflicting Peds, #/hr   | 0      | 0    | 0    | 0      | 0     | 0     | 0      | 0     | 0     | 0      | 0     | 0     |
| Sign Control             | Free   | Free | Free | Free   | Free  | Free  | Stop   | Stop  | Stop  | Stop   | Stop  | Stop  |
| RT Channelized           | -      | -    | None | -      | -     | None  | -      | -     | None  | -      | -     | None  |
| Storage Length           | -      | -    | -    | -      | -     | -     | -      | -     | -     | -      | -     | -     |
| Veh in Median Storage, # | -      | 0    | -    | -      | 0     | -     | -      | 0     | -     | -      | 0     | -     |
| Grade, %                 | -      | 0    | -    | -      | 0     | -     | -      | 0     | -     | -      | 0     | -     |
| Peak Hour Factor         | 92     | 92   | 92   | 92     | 92    | 92    | 92     | 92    | 92    | 92     | 92    | 92    |
| Heavy Vehicles, %        | 2      | 2    | 2    | 2      | 2     | 2     | 2      | 2     | 2     | 2      | 2     | 2     |
| Mvmt Flow                | 0      | 100  | 0    | 11     | 132   | 7     | 3      | 0     | 0     | 0      | 0     | 5     |
| Major/Minor              | Major1 |      |      | Major2 |       |       | Minor2 |       |       | Minor1 |       |       |
| Conflicting Flow All     | 139    | 0    | 0    | 100    | 0     | 0     | 261    | 258   | 136   | 258    | 261   | 100   |
| Stage 1                  | -      | -    | -    | -      | -     | -     | 158    | 158   | -     | 100    | 100   | -     |
| Stage 2                  | -      | -    | -    | -      | -     | -     | 103    | 100   | -     | 158    | 161   | -     |
| Critical Hdwy            | 4.12   | -    | -    | 4.12   | -     | -     | 7.12   | 6.52  | 6.22  | 7.12   | 6.52  | 6.22  |
| Critical Hdwy Stg 1      | -      | -    | -    | -      | -     | -     | 6.12   | 5.52  | -     | 6.12   | 5.52  | -     |
| Critical Hdwy Stg 2      | -      | -    | -    | -      | -     | -     | 6.12   | 5.52  | -     | 6.12   | 5.52  | -     |
| Follow-up Hdwy           | 2.218  | -    | -    | 2.218  | -     | -     | 3.518  | 4.018 | 3.318 | 3.518  | 4.018 | 3.318 |
| Pot Cap-1 Maneuver       | 1445   | -    | -    | 1493   | -     | -     | 692    | 646   | 913   | 695    | 644   | 956   |
| Stage 1                  | -      | -    | -    | -      | -     | -     | 844    | 767   | -     | 906    | 812   | -     |
| Stage 2                  | -      | -    | -    | -      | -     | -     | 903    | 812   | -     | 844    | 765   | -     |
| Platoon blocked, %       | -      | -    | -    | -      | -     | -     | -      | -     | -     | -      | -     | -     |
| Mov Cap-1 Maneuver       | 1445   | -    | -    | 1493   | -     | -     | 684    | 641   | 913   | 691    | 639   | 956   |
| Mov Cap-2 Maneuver       | -      | -    | -    | -      | -     | -     | 684    | 641   | -     | 691    | 639   | -     |
| Stage 1                  | -      | -    | -    | -      | -     | -     | 844    | 761   | -     | 906    | 812   | -     |
| Stage 2                  | -      | -    | -    | -      | -     | -     | 898    | 812   | -     | 837    | 759   | -     |
| Approach                 | NB     |      |      | SB     |       |       | SE     |       |       | NW     |       |       |
| HCM Control Delay, s     | 0      |      |      | 0.5    |       |       | 10.3   |       |       | 8.8    |       |       |
| HCM LOS                  |        |      |      |        |       |       | B      |       |       | A      |       |       |
| Minor Lane/Major Mvmt    | NBL    | NBT  | NBR  | NBL    | NBT   | NBR   | SELn1  | SBL   | SBT   | SBR    | SELn1 | SBL   |
| Capacity (veh/h)         | 1445   | -    | -    | 956    | 684   | 1493  | -      | -     | -     | -      | -     | -     |
| HCM Lane V/C Ratio       | -      | -    | -    | 0.006  | 0.005 | 0.007 | -      | -     | -     | -      | -     | -     |
| HCM Control Delay (s)    | 0      | -    | -    | 8.8    | 10.3  | 7.4   | 0      | -     | -     | -      | -     | -     |
| HCM Lane LOS             | A      | -    | -    | A      | B     | A     | A      | -     | -     | -      | -     | -     |
| HCM 95th %tile Q(veh)    | 0      | -    | -    | 0      | 0     | 0     | -      | -     | -     | -      | -     | -     |