

Falcon Field ReZone

Traffic Impact Study

Prepared for:
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Revise to Master
Traffic Impact Study

Contact: Mr. P.J. Anderson

Add PCD File No. P217

AUGUST 31, 2021

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LSC #S214730



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August 31, 2021

P.J. Anderson
31 N Tejon, Ste 500
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RE: Falcon Field 2021 Rezone
El Paso County, CO
Traffic Impact Study
LSC #S214730

Dear Mr. Anderson,

LSC Transportation Consultants, Inc. has prepared this updated Traffic Impact Study for the Falcon Field development in the Falcon area of El Paso County, Colorado. Falcon Field is a proposed development to be located southeast of the intersection of US Highway 24 (US Hwy 24) and Woodmen Road. This report has been prepared to accompany a rezone application submittal to El Paso County and the Colorado Department of Transportation (CDOT). The plans for development have been revised from commercial to a mix of commercial and residential land uses. LSC previously completed traffic reports for the original rezone and the Preliminary Plan.

REPORT CONTENTS

The preparation of this report included the following:

- An inventory of existing roadway and traffic conditions on the adjacent and nearby roadway system, including functional classification, widths, pavement markings, surface conditions, traffic-control signs, posted speed limits, intersection and access spacing, roadway and intersection alignments, roadway grades, and auxiliary turn lanes;
- Weekday peak-hour turning-movement traffic counts at the following intersections:
 - Woodmen Road/US Hwy 24
 - Rio Lane/US Hwy 24
 - US Highway 24/"New" Meridian Road
- Estimated current average weekday traffic (AWT) volumes on the study-area streets including US Hwy 24, Meridian Road, McLaughlin Road, and Rio Lane;
- Projections of 20-year background traffic volumes on the study-area streets;
- The proposed site land uses;

Please provide general summary/statement how this study compares to the previous two studies i.e. decrease in generated trips, LOS (any significant change in the study area intersections?), how the recommendations/improvements are still the same as the previous two studies).

- Estimates of average weekday and weekday peak-hour trip generation for the proposed Falcon Field development and the estimated directional distribution of site-generated vehicle trips on the area street and roadway network;
- Projected site-generated and resulting total peak-hour intersection traffic volumes at the study-area intersections;
- Projected total daily (AWT) volumes on the study-area streets;
- Intersection level of service analysis at the study-area intersections;
- Vehicle queuing and sight distance analysis at the proposed site access points;
- Recommended street classifications; and
- Findings and recommendations.

LIST OF OTHER TRAFFIC REPORTS USED IN THE PREPARATION OF THIS REPORT

A master TIS report for the original/prior Falcon Field rezone - is dated February 24, 2020. Additionally, a report for the previously submitted preliminary plan is dated November 5, 2020.

The most recent versions of the following traffic reports were utilized in preparing this report: *Falcon Marketplace, Meadowlake Ranch* (LSC), *The Ranch* (LSC), and *US Hwy 24 Planning and Linkage Study* (CDOT). This report is generally consistent with these reports. Minor adjustments to background traffic volumes have been made to account for newer traffic counts, and traffic projections in the CDOT PEL study.

LAND USE AND ACCESS

Figure 1 shows the site location relative to the adjacent and nearby roadways. The development is planned to have commercial land uses and single-family housing. The site is directly southeast of the intersection of Woodmen Road/US Hwy 24 in Parcels 4307000001 and 4307200015. A copy of the site plan/rezone map is attached in Figure 2.

As shown on the site plan, the primary access will be a new southeast leg of the Woodmen Road/US Hwy 24 intersection (currently a T-intersection). This entry/access street will be classified as an Urban Non-Residential Collector. The proposed series of new street connections between this entry drive and existing Rio Lane to the east would be classified as Urban Non-Residential Collectors or Urban Local streets. Recommended street classifications are presented near the end of this report. The intersection of the entry street and other primary internal street (southwest to northeast orientation) is proposed as a modern roundabout.

Street stubs to the west and south are shown, which would allow for future connections to future adjacent developments if ever needed. Currently, these connections are not proposed for use by this project. These are being provided for the benefit of US Hwy 24 access management and adjacent property owners, should future connections to adjacent future developments become necessary.

Is it the intent of the developer to provide ROW dedication and/or preservation for the south leg of the roundabout to the southern property line?

FYI: full roundabout analysis shall be provided with the preliminary plan application.

PROPOSED RIO LANE CLOSURE AT US HIGHWAY 24

The intersection of Rio Lane/US Hwy 24 is proposed to be closed, as shown in the adopted *US Highway 24 Access Management Plan* and the *US 24 Planning and Environmental Linkages Study, October 2017*. The project will help implement the US Hwy 24 Access Management Plan by providing an alternative to the Rio Lane/US Hwy 24 intersection.

The site plan shows the proposed internal public streets for site circulation and the new connection to Rio Lane that would allow for the prescribed closure of the US Hwy 24/Rio intersection per CDOT's *US Highway 24 Access Management Plan*.

EXISTING ROADWAY AND TRAFFIC VOLUMES

Area Roadways

The major roadways in the site's vicinity are shown in Figure 1 and are described below.

- **Woodmen Road** is a four-lane east/west Expressway that ends at the intersection with US Hwy 24. The intersections of Woodmen Road with Meridian Road, McLaughlin Road, and US Hwy 24 are all signalized.
- **US Highway 24** is a two-lane, category EX - Expressway/Major Bypass adjacent to the site that runs northeast/southwest with a 55-mile-per hour (mph) posted speed limit. The corridor was studied in-depth in the *US 24 Planning and Environmental Linkages Study*. Two alternatives were carried forward in this study for the segment of US Hwy 24 adjacent to the site:
 - US Hwy 24 as a six-lane corridor
 - US Hwy 24 as a four-lane corridor with a peak-period shoulder lane in each direction

Because both scenarios result in US Hwy 24 operating a six-lane road during peak hours, this has been assumed for the 2040 analysis.

- **Meridian Road** is a four-lane north/south Principal Arterial. Meridian Road has recently been connected with US Hwy 24 with traffic-signal control. The US Hwy 24/Old Meridian Road intersection is being converted to a right-in/right-out intersection. To the south, Old Meridian Road will continue to connect to Swingline Road and will provide access to the new park-n-ride lot.
- **McLaughlin Road** is a two-lane, Non-Residential Collector road that extends north from Rolling Thunder Avenue to Eastonville Road. The roadway provides retail and residential access, both north and south of Woodmen Road.

- **Rio Lane and Rio Road** are two-lane Rural Local roadways that connect US Hwy 24 to Falcon Highway. The roadways are about 24 feet wide. The intersection with US Hwy 24 is stop-sign-controlled. The intersection with US Hwy 24 is planned to be closed and the new internal roads planned as part of this development will serve as the replacement connection to US Hwy 24.

Existing Traffic Volumes

Figure 3a shows the results of morning and afternoon peak-hour turning-movement traffic counts at the intersections of Woodmen Road/US Hwy 24, US Highway 24/“New” Meridian Road, and Rio Lane/US Hwy 24. The intersection traffic counts were collected in August 2021.

Existing Levels of Service

Level of service (LOS) is a quantitative measure of the level of delay at an intersection. Level of service is indicated on a scale from “A” to “F.” LOS A represents control delay of less than 10 seconds for unsignalized and signalized intersections. LOS F represents control delay of more than 50 seconds for unsignalized intersections and more than 80 seconds for signalized intersections. Table 1 shows the level of service delay ranges.

Table 1. Intersection Levels of Service Delay Ranges

Level of Service	Signalized Intersections	Unsignalized Intersections
	Average Control Delay (seconds per vehicle)	Average Control Delay (seconds per vehicle) ⁽¹⁾
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.		

Figure 3b presents the results of the existing intersection level of service analysis. The signalized intersections were analyzed using Synchro. While the unsignalized intersection of US Hwy 24/Rio Lane was analyzed based on the unsignalized method of analysis procedures from the *Highway Capacity Manual, 6th Edition* by the Transportation Research Board. The level of service reports are attached.

The southwest-bound through/left at the stop-sign-controlled intersection of US Hwy 24/Rio Lane currently operates at LOS B or better during the peak hours. The shared northwest-bound

P.J. Anderson
Falcon Field

Please discuss the trip generation for the residential land use. The request is for RM-12 and RS-5000 zones. The RM-12 zone would allow a higher density and it is not clear if this was taken into account in the trip generation as only 154 DU was identified in table 3. Please adjust your analysis as needed.

left-/right-turning movement on Rio La...
service F for this movement are due both to the volume of left-turning vehicles and the high volume of through vehicles on US Hwy 24.

The intersection of US Hwy 24/Woodmen Road currently operates at LOS B during both peak hours, with all movements operating at LOS C or better.

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, 10th Edition, 2017* by the Institute of Transportation Engineers (ITE). Table 2 below presents a summary of the estimated site trip generation. The detailed trip-generation estimate for the development, including ITE rates for the proposed land use, is presented in Table 3.

Table 2: Estimated External Falcon Field Weekday Vehicle-Trip Generation

Analysis Period	Total Trips			Passby Trips			Diverted Trips		
	In	Out	Total	In	Out	Total	In	Out	Total
A.M. Peak Hour	147	157	304	33	33	66	25	25	50
P.M. Peak Hour	263	243	506	71	71	142	54	54	108
Daily/24-Hour	3,003	3,003	6,006	821	821	1,642	628	628	1,256

Approximately 6,006 total daily trips are projected to enter and exit the site at the access point ("driveway trips") on the average weekday. During the morning peak hour, approximately 147 vehicles would enter, and 157 vehicles would exit the site. During the evening peak, approximately 263 vehicles would enter, and 243 vehicles would exit. The proposed development is projected to generate approximately 3,108 (new/non-pass-by or diverted) vehicle trips on the average weekday during a 24-hour period.

verify

A detailed trip-generation estimate for the Falcon Field development, including ITE rates for the proposed land use, is presented in Table 3 (attached).

Internal Trips

Internal trips are trips that occur within the site and do not impact the external roadways. Because the site is planned to have multiple retail pads and housing, some of the generated trips will be traveling within the site. Table 3 includes estimates of internal trip capture to account for trips generated within the site. Refer to the attached NCHRP 684 worksheet for the internal trip calculations.

Pass-by and Diverted Trips

The trips generated by the commercial portions of the site have also been aggregated by trip type to account for the pass-by phenomenon. A pass-by trip is one made by a motorist who would already be on an adjacent road regardless of the proposed development, but who stops in at the site while passing by. The pass-by motorist would then continue on his or her way to a final destination in the original direction. For purposes of this report, pass-by trips are trips by motorists already traveling through the intersection of US Hwy 24/Woodmen Road.

Because the site is near the intersections of US Hwy 24/Falcon Highway and US Hwy 24/Meridian Road, vehicles traveling through these intersections, but not through the intersection of US Hwy 24/Woodmen Road may still stop at the site on the way to their destination. Because these intersections are not directly adjacent to the site, these trips would be considered “diverted trips”, based on ITE terminology, and therefore are referred to as such in this report. These trips would result in altered turning movements at the nearby major intersections of US Hwy 24/Falcon Highway, US Hwy 24/Meridian Road, and Woodmen Road/Meridian Road and new turning movements at the intersection of US Hwy 24/Woodmen Road. In addition, it has been assumed that some of these diverted trips coming to and from Falcon Highway to the east will use Rio Road and Rio Lane to access the site.

Pass-by and diverted trips are shown in Table 3 and are based on *Trip Generation Handbook - An ITE Proposed Recommended Practice*, 3rd Edition, 2014 by ITE.

TRIP DISTRIBUTION

An estimate of the directional distribution of site-generated vehicle trips to the study-area roads and intersections is a necessary component in determining the site-generated traffic volumes. Figure 4 shows the directional-distribution estimate for the primary site-generated trips. The figure shows the percentages of the site-generated vehicle trips (primary trips) projected to be oriented to and from the site’s major approaches. Estimates have been based on the following factors: traffic counts conducted at major intersections adjacent to the proposed development, the proposed land uses, the access plan, the area road system serving the site, the site’s geographic location, and previously-conducted LSC studies in the vicinity.

The directional-distribution estimates for primary trips are based on the anticipated service area for the retail portion of the development. This commercial center will primarily serve the Falcon area. The higher percentages for Meridian Road north of Woodmen, McLaughlin Road north of Woodmen Road, and US Hwy 24 east of the site reflect the higher current density of “rooftops” and the anticipated growth areas to the north and northeast. The ten-percent split is associated with current residential development and potential future developments to the east (Falcon Highway corridor) and southeast. The five-percent split to/from the southwest on US Hwy 24 (primary trips, like the other directional splits) is intended to account for some future Banning Lewis Ranch connections to US Hwy 24 and potentially some trips from the Cimarron Hills area

(likely limited by the longer trip length and availability of retail shops in the Powers Boulevard corridor). The six-percent split to/from west Rolling Thunder Way reflects the residential development in that direction. While the seven-percent split to/from west Woodmen Road accounts for some traffic coming from areas to the west, including northern Colorado Springs, via this route.

Additionally, Figure 4 shows what percentage of overall pass-by and diverted trips have been pulled from each turning movement at the affected intersections to be rerouted as part of the site-generated traffic.

For the residential portion of the development, the directional distribution of the trips is based on residential-oriented destinations during peak hours, such as places of employment, shopping centers, schools, etc. It is anticipated that most trips will travel to/from the west either via Woodmen Road or US Hwy 24, as most retail and employment centers are to the west. Most of the remaining trips are expected to go to/from the north and east via US Hwy 24, McLaughlin Road, and Meridian Road.

Site-Generated Traffic

Site-generated traffic volumes for the development during the weekday morning and evening peak hours are shown in Figure 5 for the following intersections:

- Woodmen Road/US Hwy 24
- Woodmen Road/Meridian Road
- Woodmen Road/McLaughlin Road
- US Hwy 24/Meridian Road (long-term only)
- US Hwy 24/Old Meridian Road (long-term only)
- Internal roundabout
- Internal access points

Site-generated traffic volumes have been calculated by applying the directional-distribution percentages estimated by LSC (from Figure 4) to the trip-generation estimates (from Table 3). The pass-by trips and diverted trips were assigned, based on the magnitude and direction of the peak-hour traffic volumes projected for the major study-area streets/roads.

BACKGROUND TRAFFIC VOLUMES

Background traffic is traffic on the adjacent roadways that is forecast to be present without the proposed development. Short-term and 2040 background traffic scenarios were developed.

Both future forecasts also assume that the intersection of US Hwy 24/Rio Lane has been closed and the associated traffic has been re-routed. Because Rio Lane will no longer directly access US Hwy 24, LSC projects that some of the previous trips using Rio Lane and Rio Road will redistribute and use Falcon Highway or Meridian Road to access US Hwy 24.

It should be noted, the intersections of US Hwy 24/"New" Meridian Road, US Hwy 24/Old Meridian Road, Woodmen Road/Meridian Road, and Woodmen Road/McLaughlin Road were not updated for this study. The previous study resulted in no recommended improvements at these intersections as a result of the proposed development. The currently-proposed development is projected to have lower trip generation and therefore less impact on these intersections. Please refer to the attached Percent Impact table which evaluates offsite collector and arterial links within the study area per *ECM* Appendix B section B.2.3.A.

Short Term

US Hwy 24/Old Meridian is not included in the percent impact table 6.
Also, please see comments on table 6.

Figure 6a shows the estimated short-term future background traffic volumes at the study-area intersections. The short-term background volumes assume that the US Hwy 24/Rio Lane intersection has been closed and traffic has been rerouted through the new fourth leg of the US Hwy 24/Woodmen Road intersection. Additionally, traffic from proposed adjacent development and background growth has been included in the short-term background traffic volumes.

Long Term

Figure 7a shows the estimated 2040 background traffic volumes. These projected volumes include estimates from planned future Falcon area development and increases in through traffic volumes on the study-area roadways. The 2040 background volumes were developed using the US Hwy 24 PEL study. Volumes were modified as needed, based on newer count volumes and expected development in the study area. The 2040 background assumes future commercial development on the parcel to the west of the site with access through the proposed Falcon Field development and the internal roundabout.

TOTAL TRAFFIC VOLUMES

Site-generated traffic volumes from Figure 5 were added to short-term background traffic volumes from Figure 6a to calculate short-term total traffic volumes provided on Figure 8a. Similarly, 2040 total traffic volumes provided in Figure 9a were calculated by adding the site-generated traffic (Figure 5) with the 2040 background traffic volumes (Figure 7a).

As mentioned previously, the intersections of US Hwy 24/Meridian Road, US Hwy 24/Old Meridian Road, Woodmen Road/Meridian Road, and Woodmen Road/McLaughlin Road were not updated for this study. The study dated November 5, 2020 included these intersections, but had no recommended improvements at these intersections as a result of the development. The proposed development in this report has a lower trip generation for the site than the previous study. Thus, the proposed development would have a lower impact on these intersections than was studied in the previous report. Please refer to the attached Percent Impact table which evaluates offsite collector and arterial links within the study area per *ECM* Appendix B section B.2.3.A.

LEVEL OF SERVICE ANALYSIS

Short-Term

Levels of service were calculated for both the short-term background and short-term total traffic volumes, as shown in Figure 6b and Figure 8b, respectively. Traffic lanes used in the analysis are also provided in these figures.

US Highway 24/Woodmen

In the short-term scenarios, it has been assumed that no baseline capacity improvements (additional eastbound/westbound through lanes) will occur on US Hwy 24. The improvements assumed at the intersection of US Hwy 24/Woodmen Road would include:

- The fourth leg of the intersection with a left-lane, two through-lanes, and right-lane outbound at the site access;
- Auxiliary turn lanes on US Hwy 24 to serve the trips/vehicle turning movements associated with the new fourth leg - the development, and the “replacement” Rio Lane connection;
- Raised right-turn islands for pedestrian accessibility;
- Any lane alignment and/or median modifications on the Woodmen side of the intersection (to be determined with preliminary design); and
- Signal modifications.

The signalized intersection is forecast to operate at LOS C or better during both peak hours in both the background and total scenarios with all movements operating at LOS D or better.

Roundabout Intersection

The proposed roundabout has been analyzed using methodology found in the *Highway Capacity Manual, 6th Edition*. The roundabout is expected to have all approaches operate at LOS A during both peak hours.

Internal Site-Access Points

The access points to the proposed public streets internal to the site have been analyzed as stop-sign-controlled (unsignalized) intersections. All of the yielding turning movements at the access points are anticipated to operate at LOS B or better.

2040

Levels of service and traffic lanes/traffic control are provided for the 2040 background and 2040 total traffic scenarios in Figure 7b and Figure 9b, respectively.

US Highway 24/Woodmen

In the 2040 scenarios it has been assumed that US Hwy 24 has been widened to six lanes. Additionally, it has been assumed that the southeast-bound laneage on Woodmen Road at the US Hwy 24/Woodmen Road intersection reflects the laneage in the US Hwy 24 PEL (dual left turns, single through lane, dual right turns).

The signalized intersection of US Hwy 24/Woodmen Road is projected to operate at LOS C or better during both peak hours in the 2040 scenarios with movements operating at LOS D or better.

Roundabout Intersection

The roundabout is expected to have all approaches operate at LOS A. With both the background commercial traffic traveling to/from the west through the roundabout and the site-generated traffic, LSC is showing a southbound right-turn bypass lane. This is shown to significantly reduce the potential queue length on the southbound approach to avoid impacts to the US Hwy 24/Woodmen Road intersection.

Internal Site-Access Points

The turning movements at the access points are all anticipated to operate at LOS D or better in all long-term scenarios.

QUEUING ANALYSIS

The 95th percentile queues at the intersection of US Hwy 24/Woodmen Road along with the queues at the intersection of the proposed Collector and Rio Lane were analyzed to develop laneage on the Collector. Additionally, the maximum queues were analyzed with SimTraffic. Figure 11 provides the 95th percentile queue lengths for the study intersections.

The El Paso County *Engineering Criteria Manual (ECM)* standards were followed to develop turn-lane recommendations at the intersections. Figure 10 provides the turn-lane conceptual design for the roadway between US Hwy 24 and Rio Lane. As shown, it is recommended that the outbound left turn be 270 feet in length and the outbound right turn should be at least 275 feet. Table 4 provides the proposed recommended turn-lane lengths along with the relevant standards and 95th percentile queues. Queueing reports are attached.

Right-In-Only Access Points

The assumption is that the site will be designed such that traffic entering the businesses via the proposed right-in-only access points will have a “free movement” into internal private-access drives, parking bays etc., such that queues will not form and back onto the right-in access points

or onto the main entry street. This would likely be accomplished with a sufficient entry “throat” and other site-design elements that would give priority to entering traffic. The on-site/internal design and operation of these right-in access points would need to be verified with the Preliminary Plan and/or Site Development Plan stages of development.

SIGHT DISTANCE ANALYSIS

Sight distance will be addressed at the Preliminary Plan and Site Development Plan stages of development.

CONCLUSIONS AND RECOMMENDATIONS

Trip Generation

- Falcon Field is expected to generate about 6,006 new external vehicle trips on the average weekday, with about half entering and half exiting the site during a 24-hour period. During the morning peak hour, about 147 vehicles would enter and 157 vehicles would exit the site. During the afternoon peak hour, approximately 263 vehicles would enter and 243 vehicles would exit the site.

Traffic Operations Analysis

- The signalized intersection of US Hwy 24/Woodmen Road is projected to operate at LOS C or better during both peak hours for the short-term and year-2040 scenarios. The El Paso County *Engineering Criteria Manual (ECM)* standards were followed to develop turn-lane recommendations at the intersections. Figure 10 provides the turn-lane conceptual design for the roadway between US Hwy 24 and Rio Lane. Please refer to the Level of Service and Queuing Analysis sections of this report for additional details and discussion.

Recommended Improvements

- A list of recommended improvements within the site and in the study area is presented in Table 5.
- The intersection of US Hwy 24/Rio Lane is to be closed and the proposed Collector roads within the site will connect Rio Lane to the US Hwy 24/Woodmen intersection.

The short-term improvements assumed at the intersection of US Hwy 24/Woodmen Road would include:

- The fourth leg of the intersection with a left-lane, two through-lanes, and right-lane outbound at the site access;
- Raised right-turn islands for pedestrian accessibility;

- Any lane alignment and/or median modifications on the Woodmen side of the intersection (to be determined with preliminary design);
- Signal modifications; and
- Auxiliary turn lanes on US Hwy 24 to serve the trips/vehicle turning movements associated with the new fourth leg of this intersection. This new fourth leg would serve site traffic and background traffic shifted from the closure of the US Hwy 24/ Rio Lane connection.

Based on the 2040 total traffic volumes shown in Figure 9a and the criteria contained in the *State of Colorado Highway Access Code*, the following deceleration and acceleration lanes are required on US Hwy 24:

- A northeast-bound right-turn deceleration lane is warranted on US Hwy 24 approaching Woodmen Road. Based on a posted speed limit of 55 mph, the prescribed lane length for the deceleration lane is 600 feet plus a 222-foot taper.
- A southwest-bound left-turn deceleration lane is warranted on US Hwy 24 approaching Woodmen Road. Based on a posted speed limit of 55 mph, the prescribed lane length for the deceleration lane is 600 feet plus 100 feet of storage and a 222-foot taper.
- A northwest-bound right-turn acceleration lane is warranted on US Hwy 24 east of Woodmen Road. Based on a posted speed limit of 55 mph, the prescribed lane length for the acceleration lane is 960 feet plus a 222-foot taper.
- Based on the total traffic volumes shown in Figure 9a and the criteria contained in the El Paso County *Engineering Criteria Manual (ECM)*, turn lanes are required on the urban non-residential Collector at the intersection with US Hwy 24 and the intersection with Rio Lane. Additional details are provided in Figure 10.

DEVIATIONS TO ECM CRITERIA

The following deviations may be required. Deviations are not submitted at this stage of the development review process. These would be submitted with the Preliminary Plan.

- Public street intersection spacing along a Non-Residential Collector for the first intersection back from an arterial roadway;
- Access to an Urban Non-Residential Collector;
- Curve Centerline Radius on an Urban, Non-Residential Collector;
- *ECM*-standard auxiliary turn-lane lengths on an Urban Non-Residential Collector.
- Reduced right of way and cross section for the street extending south from the roundabout – to be classified as an Urban, Non-Residential Collector

ROADWAY CLASSIFICATIONS

- The roads proposed for this project would be classified as Urban Non-Residential Collector streets. Please refer to the “Existing Roadways” section above for classification information of existing roads as well as Figure 12.

MTCP-IDENTIFIED FUTURE NEEDED ROADWAY IMPROVEMENT PROJECTS

- The *El Paso County Major Transportation Corridors Plan (MTCP)* calls for improvement to US Hwy 24 from Garrett Road to Woodmen Road and upgrade to a rural six-lane Principal Arterial.
- Although not in the immediate area, the *MTCP* calls for an upgrade to Falcon Highway to a two-lane, rural Minor Arterial from US Hwy 24 to one mile east of Curtis Road. Also, the *MTCP* calls for an upgrade to Eastonville Road from McLaughlin to Latigo Boulevard as a rural road upgrade to a two-lane Rural Minor Arterial.

MULTI-MODAL TRANSPORTATION & TRANSPORTATION DEMAND MANAGEMENT OPPORTUNITIES

- The project would include urban street sections with sidewalks.
- Figure 10 shows the recommendation for pedestrian crossing of US Hwy 24. LSC recommends pedestrian/bicycle trail connections between the US Hwy 24 Woodmen intersection to the Rock Island Trail and the existing sidewalks within the existing shopping center areas of Falcon.
- Also, trail connections exist between the Rock Island Trail and the Woodmen Hills neighborhoods to the north of US Hwy 24.
- A Park & Ride is planned for a site south of US Hwy 24 & Woodmen. Future Mountain Metropolitan Transit bus service may be added to/from this Park & Ride location.
- This site is within two miles of Falcon Elementary School. No residential uses are proposed for this development.

COUNTY ROAD IMPROVEMENT FEE PROGRAM

This project is potentially subject to participation in the County Roadway Improvement Fee Program. The site is located within the Woodmen Road Metropolitan District service area. However, Fee Program participation may replace Woodmen Road fees, depending on timing of development and platting.

US HIGHWAY ACCESS MANAGEMENT PLAN AND RIO LANE CLOSURE AT US HIGHWAY 24

- This project will implement part of the *US Highway Access Management Plan*. The intersection of Rio Lane/US Hwy 24 is proposed to be closed, as shown in the *adopted US Highway 24 Access Management Plan* and the *US 24 Planning and Environmental*

Linkages Study, October 2017. The project will help implement the *US Highway 24 Access Management Plan* by providing an alternative to the Rio Lane/US Hwy 24 intersection.

- The site plan shows the proposed internal public streets for site circulation and the new connection to Rio Lane that would allow for the prescribed closure of the US Hwy 24/Rio intersection per CDOT's *US Highway 24 Access Management Plan*.
- This will benefit safety and traffic operations on US Hwy 24. The existing Rio Lane/US Hwy 24 intersection is substandard, as there are no left- and right-turn lanes. The level of service during the peak hour is LOS F (96 seconds of delay per vehicle on average for vehicles wanting to turn onto US Hwy 24).
- The project will generate trips using Rio Lane and Rio Road between Falcon Highway and the site, but it is important to note that by closing the direct Rio Lane connection to US Hwy 24, the route used by cut-through traffic will be significantly more circuitous and will likely discourage motorists who currently use Rio Lane and Rio Road as a cut-through route to Falcon Highway.
- The recent "New" Meridian Road extension south of Rolling Thunder, across US Hwy 24 to Falcon Highway will also improve the roadway connectivity to Falcon Highway (and further discourage cut through traffic on Rio Lane and Rio Road). This is expected to be a significant improvement to the previous Meridian Road connection across US Hwy 24.
- The County has indicated that they will require upgrades to Rio Lane and Rio Road, necessary to accommodate the resulting net traffic volumes on Rio Lane and Rio Road between Falcon Highway and the site. The details of upgrades will be addressed as part of the upcoming Preliminary Plan application. The "net" traffic volumes will be estimated with the Preliminary Plan. The net volumes would be the current volumes plus increases due to site-generated traffic minus reductions in cut-through traffic and redistribution of area resident traffic (due to the closure of the direct connection of Rio Lane to US Hwy 24).
- The project will add a signal-controlled connection to US Hwy 24 and Woodmen - not only for this development but also for the benefit of the residents in Falcon Ranch Estates and Arrowhead Estates Filing No. 1. This connection will have left- and right-turn lanes on US Hwy 24.
- **[Need client confirmation on this]** The proposed roundabout is proposed to be constructed as a T-intersection (no south leg). However, a fourth (south) leg could be added in the future if/when adjacent propert(ies) southeast of Falcon Field redevelop in the future.

Please confirm and
*update accordingly.

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

Sincerely,

LSC TRANSPORTATION CONSULTANTS, INC.

By: Jeffrey C. Hodsdon, P.E.
Principal

JCH/CRG:jas

Enclosures: Tables 3-6
Figures 1-12
NCHRP 684 Worksheet
Traffic Count Reports
Level of Service Reports
Queuing Reports

References:

Trip Generation Handbook - An ITE Proposed Recommended Practice, Third Edition September 2017, Institute of Transportation Engineers
Trip Generation, 10th Edition, 2017, Institute of Transportation Engineers
El Paso County Major Transportation Corridors Plan, 2016
Engineering Criteria Manual, 2016, El Paso County
NCHRP Report 684 Enhancing Internal Trip Capture Estimation for Mixed-Use Developments, 2011, Transportation Research Board
State Highway Access Code, Volume Two, 2002, Colorado Department of Transportation
US 24 Access Control Plan, 2005
US 24/Meridian Road Construction Plans
US 24 PEL Final Corridor Conditions Report, December 2016

Table 3: Detailed Trip Generation Estimate

Land Use		Land Use Description	Trip Generation Units	Trip Generation Rates ⁽¹⁾				Total Trips Generated					Internal Trip %	Internal Trips Generated					External Trips Generated					Pass-By Trips ⁽²⁾	New External Trips Generated	
				Average Weekday Traffic	Morning Peak Hour In	Morning Peak Hour Out	Afternoon Peak Hour In	Afternoon Peak Hour Out	Average Weekday Traffic	Morning Peak Hour In	Morning Peak Hour Out	Afternoon Peak Hour In		Afternoon Peak Hour Out	Average Weekday Traffic	Morning Peak Hour In	Morning Peak Hour Out	Afternoon Peak Hour In	Afternoon Peak Hour Out	Average Weekday Traffic	Morning Peak Hour In	Morning Peak Hour Out	Afternoon Peak Hour In		Afternoon Peak Hour Out	Average Weekday Traffic
Code				Traffic	In	Out	In	Out	Traffic	In	Out	In	Out	Trip %	Traffic	In	Out	In	Out	Traffic	In	Out	In	Out	Trips ⁽²⁾	Traffic
Falcon Fields Crossing Trip Generation Estimate																										
820		Shopping Center	84 KSF ⁽³⁾	63.57	1.43	0.88	2.73	2.96	5,340	120	74	229	248	10%	509	1	1	22	40	4,831	119	73	207	208	34%	3,188
210		Single Family Homes	154 DU	10.04	0.19	0.56	0.62	0.37	1,547	28	85	96	56	24%	372	1	1	40	22	1,175	27	84	56	34	0%	1,175
Total Trip Generation Estimate									6,887	149	159	325	305		881	2	2	62	62	6,006	147	157	263	243		4,363
Notes:																										
(1) Source: "Trip Generation, 10th Edition, 2017" by the Institute of Transportation Engineers (ITE)																										
(2) Source: "Trip Generation Handbook - An ITE Proposed Recommended Practice, Third Edition September 2017" by ITE																										
(3) KSF = one thousand square feet of floor space																										
Source: LSC Transportation Consultants, Inc.																										

Table 4: Auxiliary Lane Analysis

Intersection	Turning Movement	Recommended Length (feet)	ECM/CDOT Standard (feet)	95th Percentile Queue (feet)
US 24/Woodmen	Northbound Left	270 Decel + Storage 120 Bay Taper	115 Decel 270 Storage 120 Bay Taper	50
	Northbound Through	270 (second through lane)		150
	Northbound Right	320 Decel	115 Decel	75
	Eastbound Right	600 Decel 225 Taper	600 Decel 225 Taper	125
	Westbound Left	600 Decel 100 Storage 225 Taper	600 Decel 100 Storage 225 Taper	100
Falcon Fields/West Access	Eastbound Left	135 Decel + Storage 160 Bay Taper	155 Decel 50 Storage 160 Bay Taper	25
	Westbound Left	190 Decel + Storage 75 Bay Taper	115 Decel 100 Storage 120 Bay Taper	25
Falcon Fields/East Access	Eastbound Left	120 Decel + Storage 75 Bay Taper	115 Decel 250 Storage 120 Bay Taper	25
Falcon Fields/Rio Lane	Eastbound Left	130 Decel + Storage 75 Bay Taper	155 Decel 100 Storage 160 Bay Taper	25

FYI: Please be aware that further analysis of the turn lanes will be provided with the preliminary plan application

item#10?

The plat or site development plan warranting the improvements will be responsible to construct

to an escrow account

Table 5: Recommended Improvements

Item #	Improvement	Timing	Responsibility
Roadway Segment Improvements			
1	Construct an Urban Non-Residential Collector street between the site "entry" street (See Item #8) to existing Rio Lane as per the US Highway 24 Access Management Plan.	With the subdivision (plat)	Applicant
2	Upgrade Rio Lane (Falcon Highway to the site) to Urban Local standards or a County approved alternative; pedestrian facilities would be included in the Urban Local cross section evaluate the roadway for potential traffic calming measures.	Current Traffic Volumes exceed Rural Local Design ADT	Applicant to contribute a proportionate share to El Paso County. Proportionate share shall be finalized with the plat.
3	Widen US Highway 24 to provide three through lanes in each direction.	Shown in 2040 MTCF and the US Highway 24 PEL Study	CDOT/per PEL Study
US 24/Woodmen Road Intersection			
4	Construct a 650 foot-long southwestbound left-turn deceleration lane plus transition taper on US 24 (westbound) approaching Woodmen Road. This requires widening of the box culvert under US 24 just west of the US 24/Rio Lane intersection.	With site development, when the peak hour volume for this movement exceeds 10 vph	Applicant
5	Extend the southwestbound left-turn deceleration lane plus transition taper on US 24 (westbound) approaching Woodmen Road to 700 feet.	With site development, when the peak hour volume for this movement exceeds 60 vph. Requires the closure of Rio Lane	Applicant
6	Lengthening/extension of the westbound right turn deceleration lane on US Highway 24 at Woodmen Road to CDOT standards (600 feet plus transition taper) with the necessary widening of the box culvert under US 24. The culvert widening should accommodate an extension of the westbound right turn deceleration lane on US Highway 24 to CDOT standards.	With the culvert widening	The additional cost associated with the culvert widening for the right turn lane, and the lengthening of the right turn lane itself should not be the responsibility of this applicant. CDOT and/or EPC funds should reimburse the applicant for this improvement if completed as part of this project. NOTE: Staff has indicated that the applicant shall pursue any reimbursements with the advisory committee and/or CDOT. There may be potential for credit through the County Fee program.
7	Construct a 600 foot-long northeastbound right-turn deceleration lane plus transition taper on US 24 (eastbound) approaching Woodmen Road	With site development, when the peak hour volume for this movement exceeds 10 vph	Applicant
8	Construct a continuous northwestbound right-turn acceleration/deceleration lane on US 24 (eastbound) between Woodmen Road and Rio Lane.	With site development, when the peak hour volume for this movement exceeds 10 vph	Applicant
9	Construct a 960 foot-long northwestbound right-turn acceleration lane (plus transition taper) on US 24 (eastbound) east of Woodmen Road.	With the closure of Rio Lane	Applicant
10	Construct the southeast leg of the intersection. Lanes need to align across US 24 (within allowable/acceptable lane offset tolerances and considering protected/permissive left turn sight distance and left turning vehicle paths).	With the subdivision (plat)	Applicant
11	Modify the northwest leg (Woodmen Road) as needed so lanes align across US 24; The details would be determined with the Preliminary Plan (One option would be to narrow raised median nose to about 6 feet); construct raised/curved right turn islands for pedestrians and for installing a signal pole on the northeast corner, construct a sidewalk connection to the Rock Island Trail (which connects to the sidewalk along the north side of Woodmen Road adjacent to the Falcon Town Center (Safeway).	With the subdivision (plat)	Applicant
12	Traffic signal system modifications, pedestrian accommodations, signing/stripping improvements to convert the existing intersection from a T intersection to a four-leg intersection.	With the subdivision (plat)	Applicant
The Planned On-Site Collector Streets			
13	Construct a modern roundabout (See Figure 11)	With the subdivision (plat)	Applicant
14	Construct access points where shown on Figure 10b and incorporate associated left and right turn bays into the design on the Non-Residential Collector Streets	With the subdivision (plat)	Applicant
US Highway 24 Right-of-Way Dedication & Preservation			
15	CDOT required Right-of-way Dedication & Preservation along US Highway 24	With the subdivision (plat)	Applicant
US 24/Rio Lane Intersection			
16	Close intersection in conjunction with Improvement #1	Short-Term - The closing shall be coordinated with CDOT and EPC.	Applicant
Falcon Highway/Rio Lane Intersection			
17	Construct westbound right turn deceleration lane	Once westbound right turning volume exceeds 50 right turning vehicles per hour.	Applicant

Source: LSC Transportation Consultants, Inc. (11-5-2020)

10?

Rio Lane would be closed with the added southern leg of the woodmen/hwy24 intersection. Revise accordingly.

Table 6: Percent Impact at Area Intersections

WB Woodmen at Meridian				
	Site	ST BG from last Rpt	% Increase Site ÷ ST BG	
AM	54	950	5.7%	
PM	85	965	8.8%	

WB Woodmen at McGlaughlin				
	Site	ST BG from last Rpt	% Increase Site ÷ ST BG	
AM	62	875	7.1%	
PM	98	915	10.7%	

WB US 24 at New Meridian				
	Site	2021 Existing Traffic	% Increase Site ÷ Existing	
AM	45	782	5.8%	
PM	35	546	6.4%	

EB US 24 at New Meridian				
	Site	2021 Existing Traffic	% Increase Site ÷ Existing	
AM	13	549	2.4%	
PM	30	896	3.3%	

Should this say % impact instead of increase?

Per ECM B.2.3.A this intersection shall be part of the study area as the impact is 10%

After discussion with the engineering manager and due to the size and complexity of this development, these intersections shall be included in the study area.

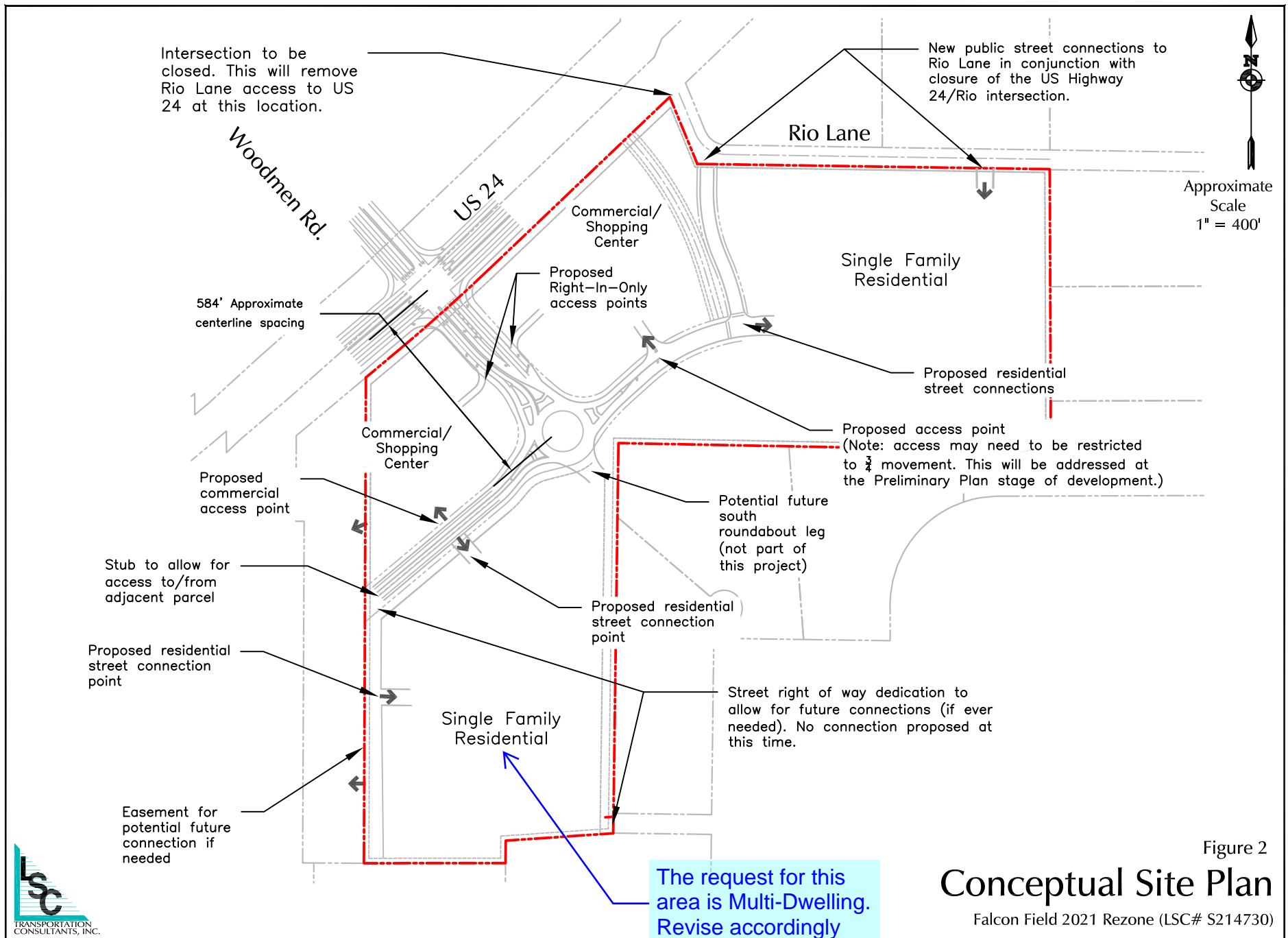
Per the existing traffic figure (3a), the WB/EB volumes do not appear correct. For example it appears that the WB AM volume should be 139(verify) which means that the impact is greater than 10%. It appears that this intersection should be included in the analysis.

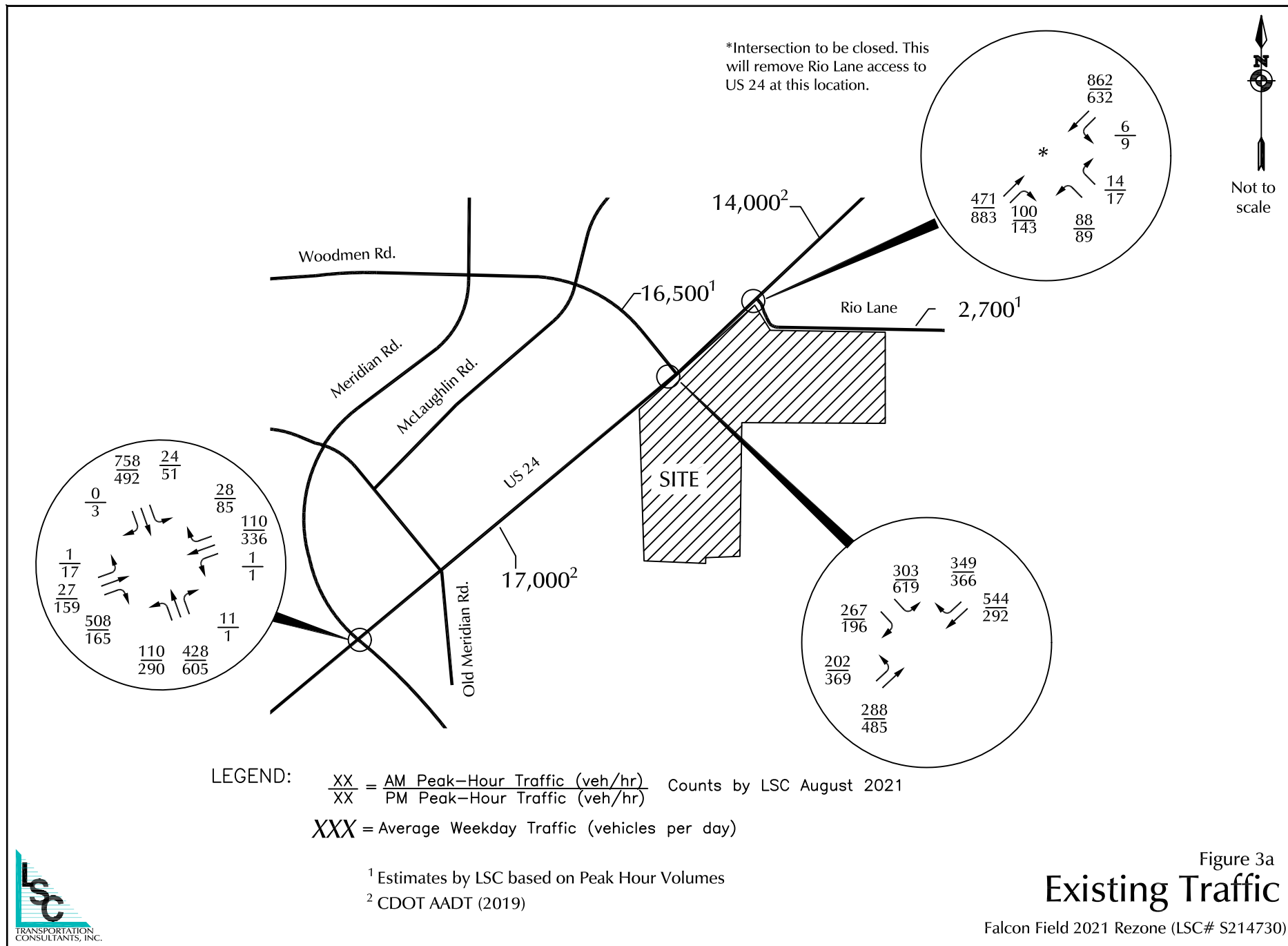


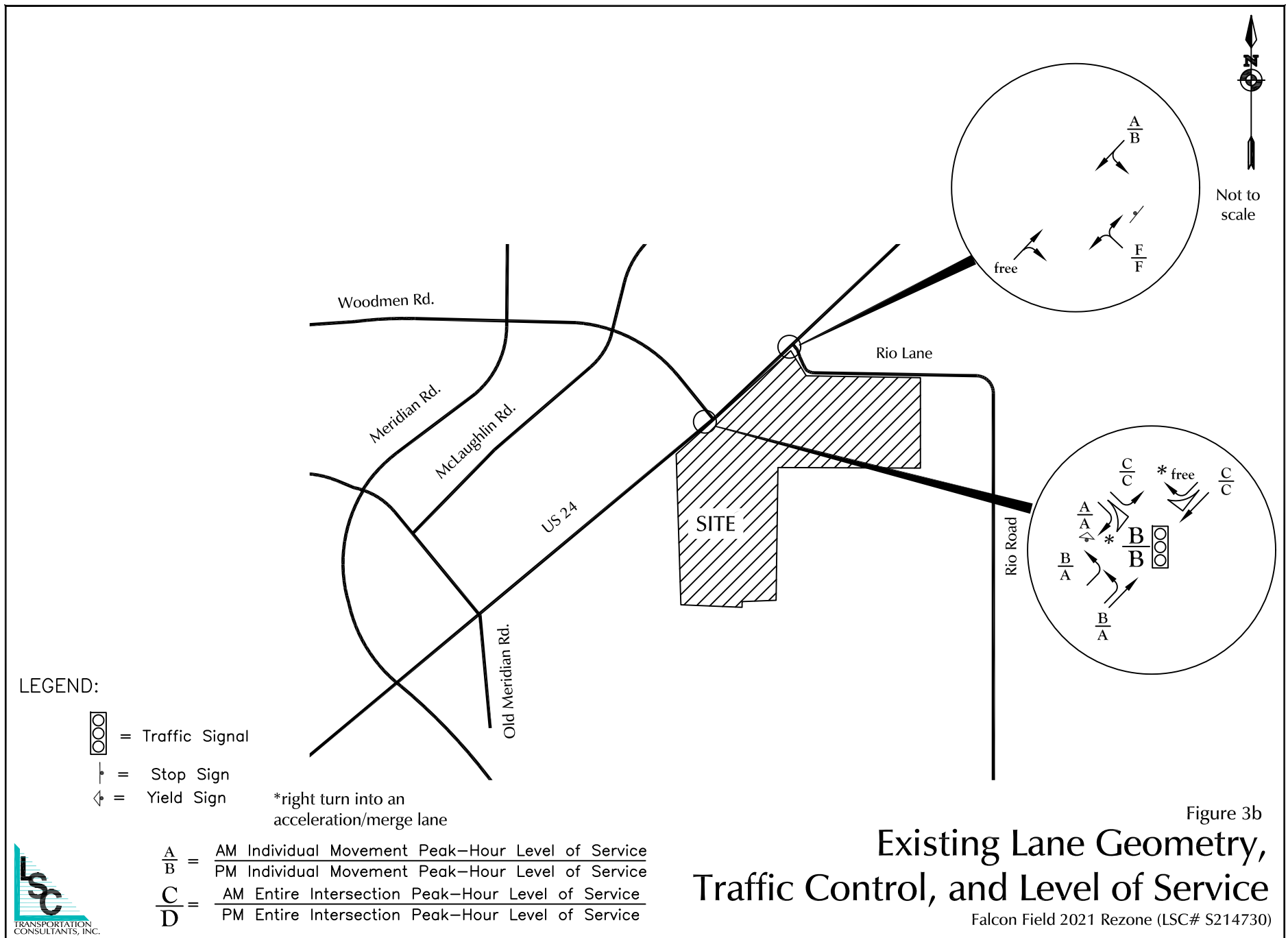
Figure 1

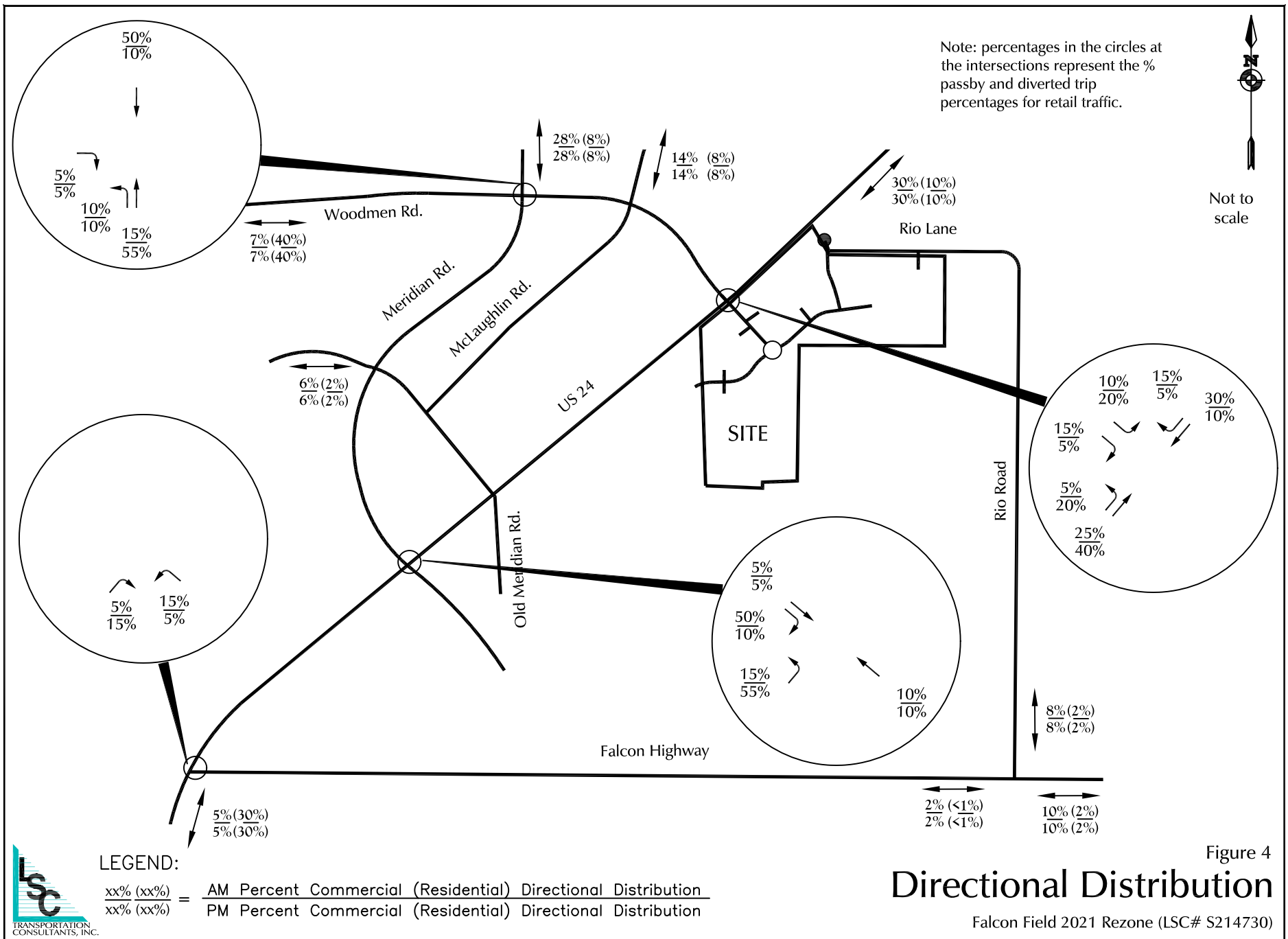
Vicinity Map

Falcon Field 2021 Rezone (LSC# S214730)

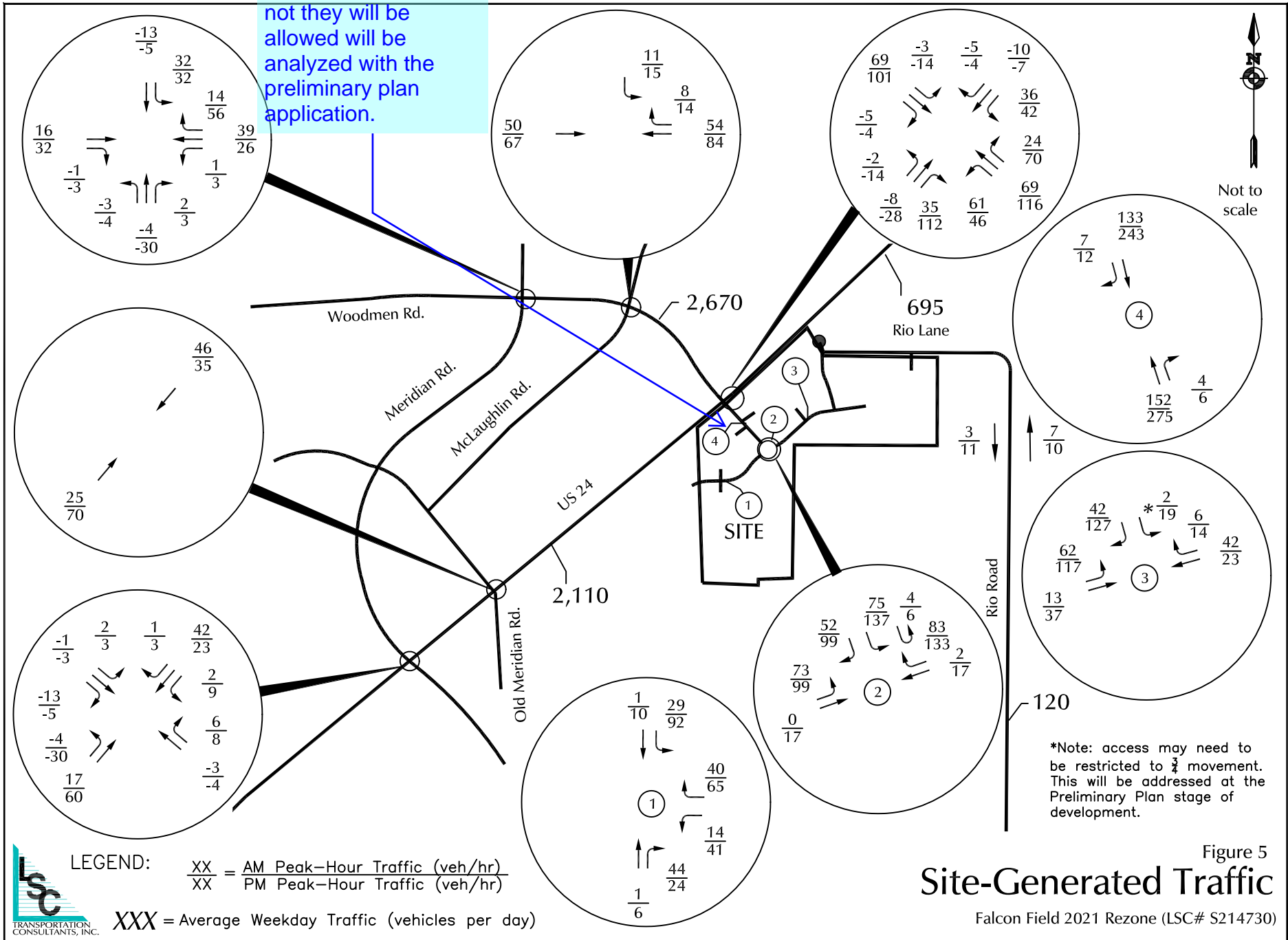






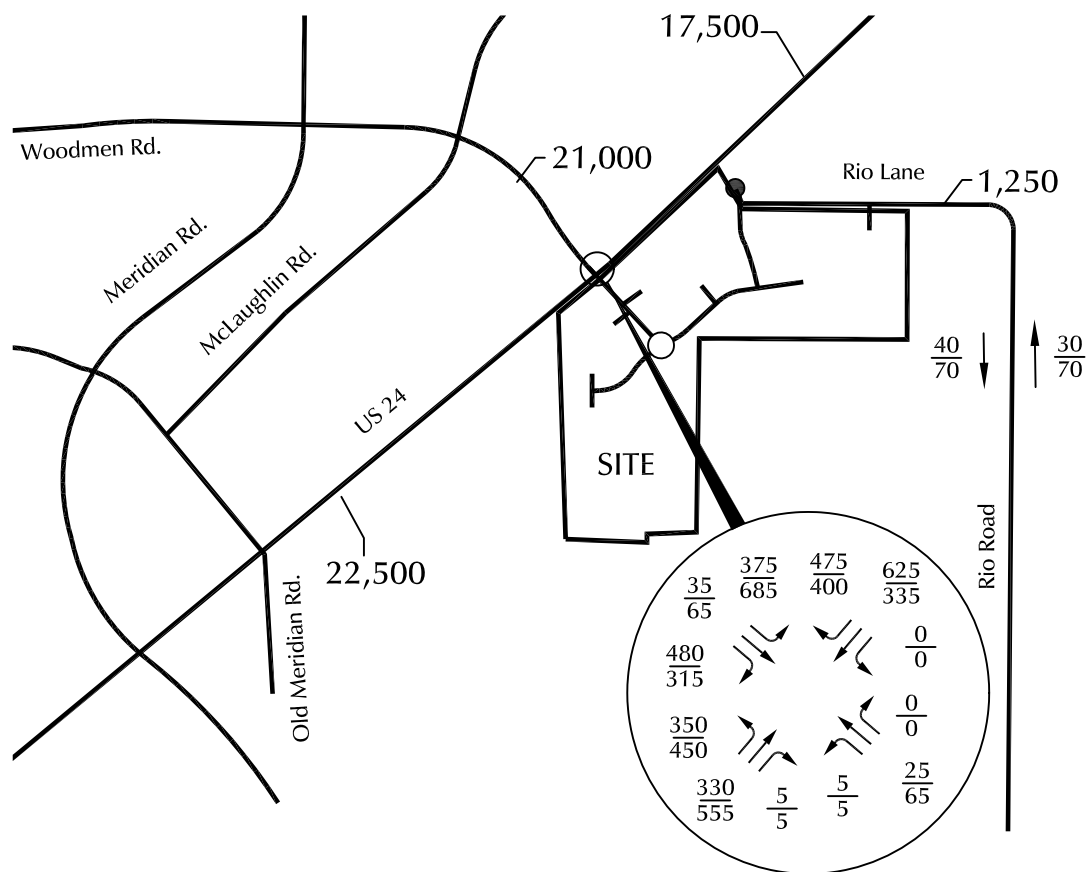


FYI: these access points and whether or not they will be analyzed with the preliminary plan application.





Not to
scale



LEGEND:

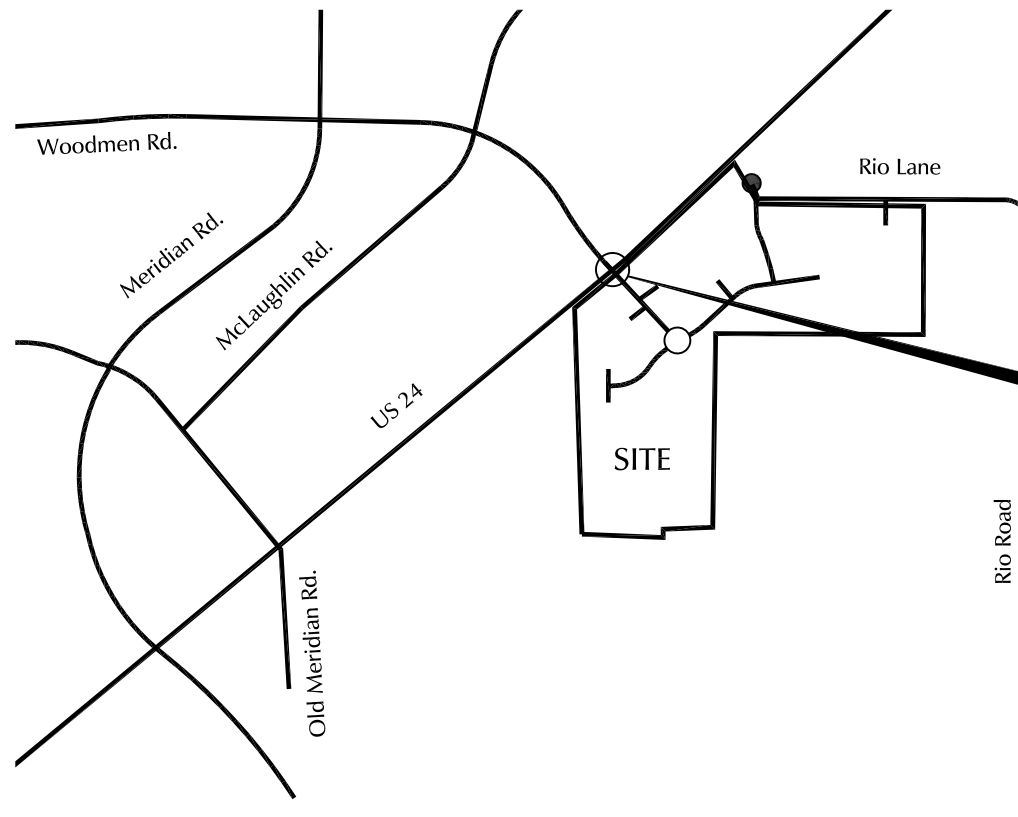
$\frac{XX}{XX}$ = AM Peak-Hour Traffic (veh/hr)
 PM Peak-Hour Traffic (veh/hr)

XXX = Average Weekday Traffic (veh/hr)

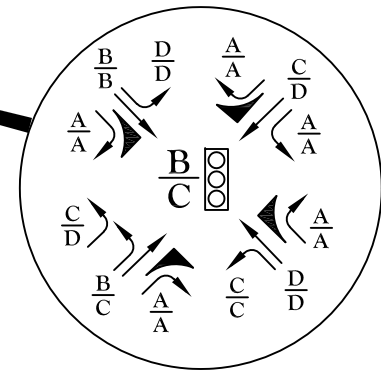
Short-Term Background Traffic

Figure 6a

Falcon Field 2021 Rezone (LSC# S214730)



Not to scale



LEGEND:



= Traffic Signal = Yield Sign

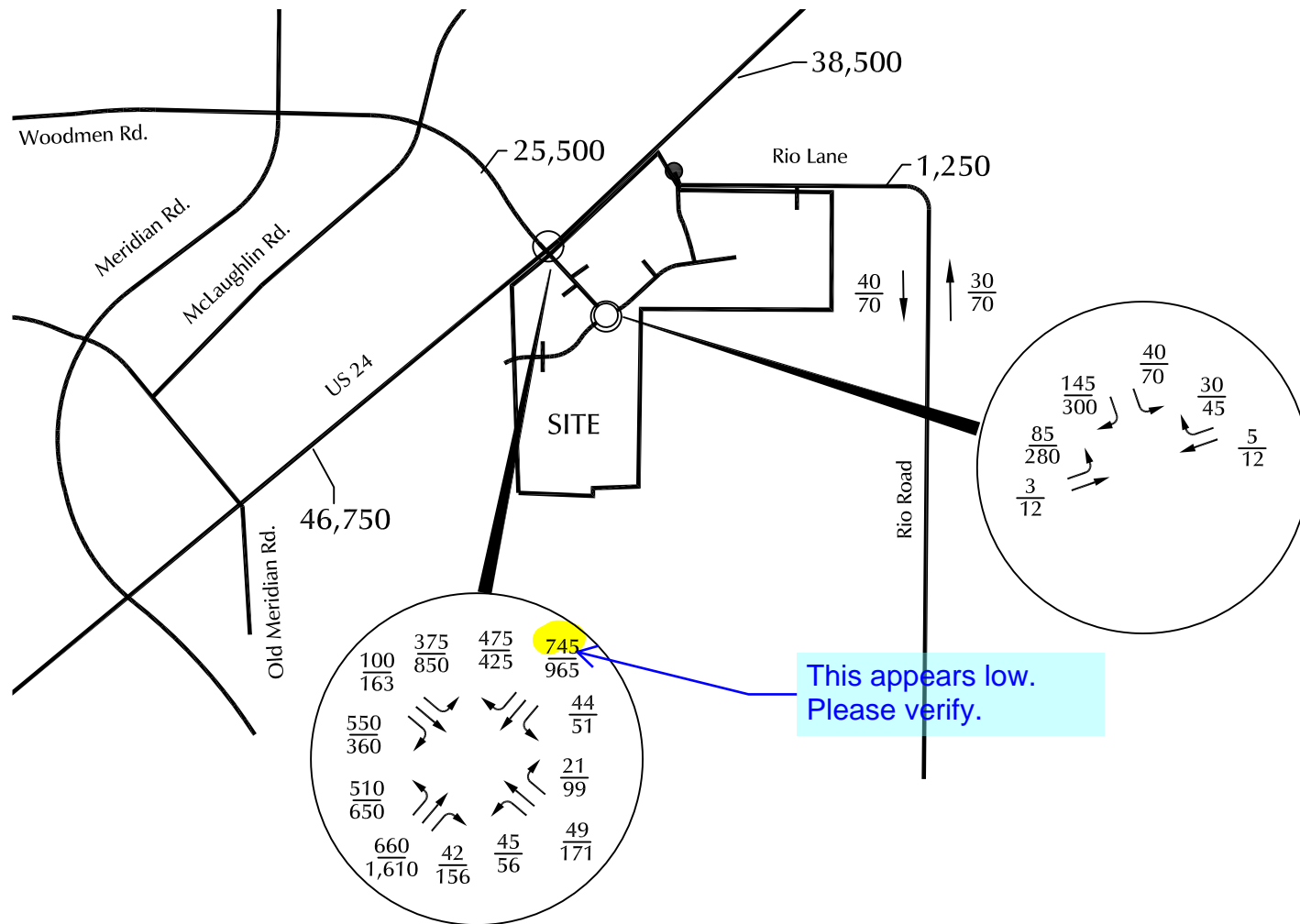
$\frac{A}{B}$ = $\frac{\text{AM Individual Movement Peak-Hour Level of Service}}{\text{PM Individual Movement Peak-Hour Level of Service}}$

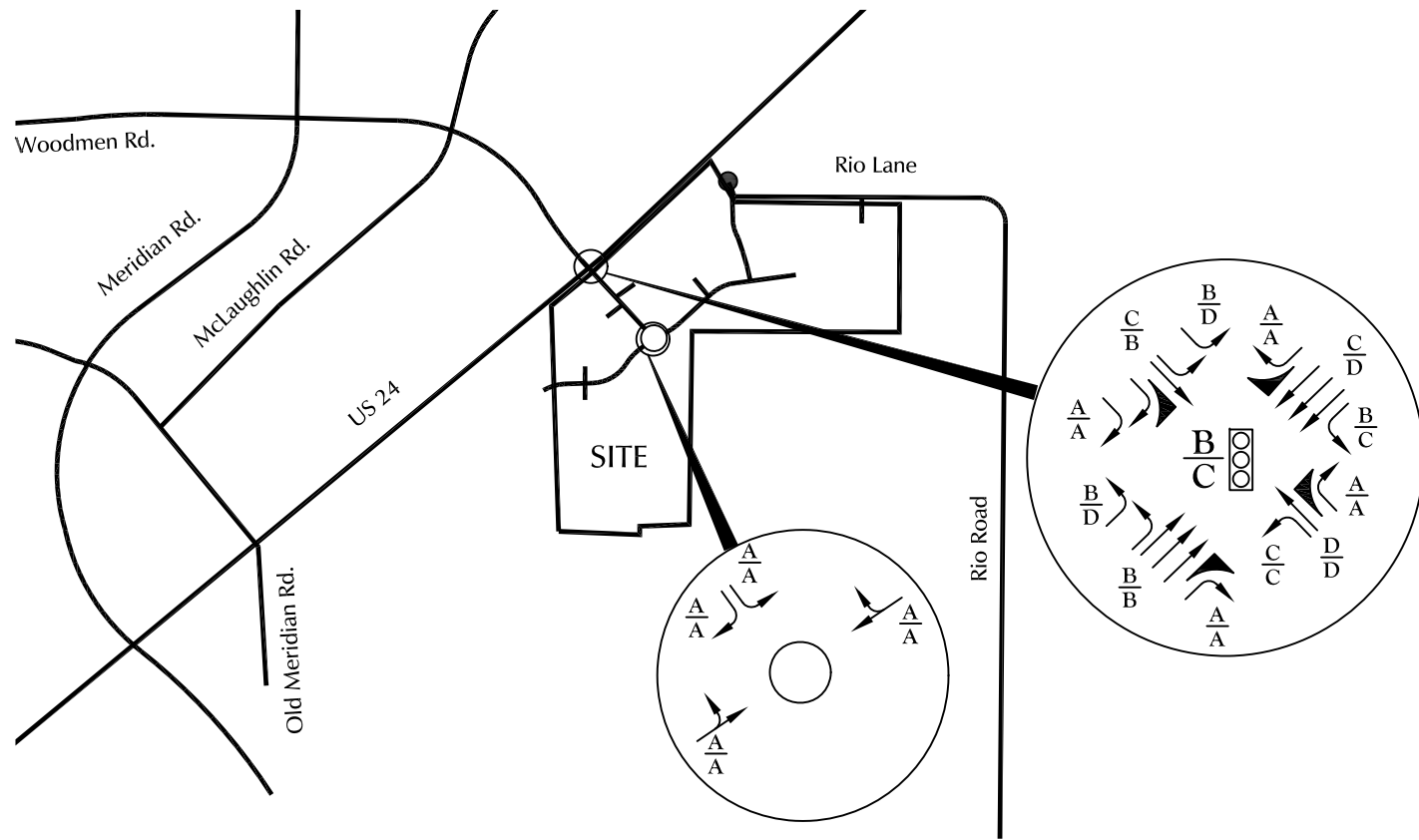
$\frac{C}{D}$ = $\frac{\text{AM Entire Intersection Peak-Hour Level of Service}}{\text{PM Entire Intersection Peak-Hour Level of Service}}$



Figure 6b
Short-Term
Background Lane Geometry,
Traffic Control, and Level of Service

Falcon Field 2021 Rezone (LSC# S214730)





LEGEND:



= Traffic Signal



= Yield Sign



= Roundabout

$\frac{A}{B}$ = $\frac{\text{AM Individual Movement Peak-Hour Level of Service}}{\text{PM Individual Movement Peak-Hour Level of Service}}$

$\frac{C}{D}$ = $\frac{\text{AM Entire Intersection Peak-Hour Level of Service}}{\text{PM Entire Intersection Peak-Hour Level of Service}}$

Figure 7b
2040 Background
Lane Geometry, Traffic
Control, and Level of Service

Falcon Field 2021 Rezone (LSC# S214730)

Note: Maintain single left turn in the short term (one receiving lane on US Highway 24).

*Note: access may need to be restricted to $\frac{3}{4}$ movement. This will be addressed at the Preliminary Plan stage of development.

LEGEND:



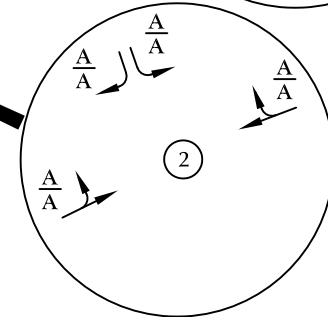
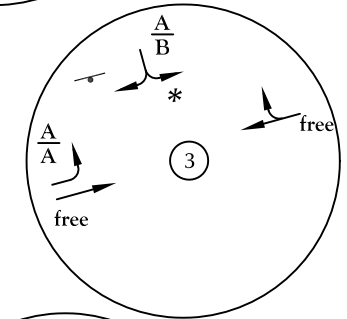
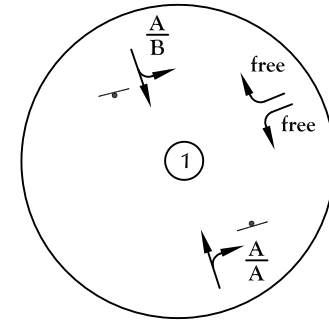
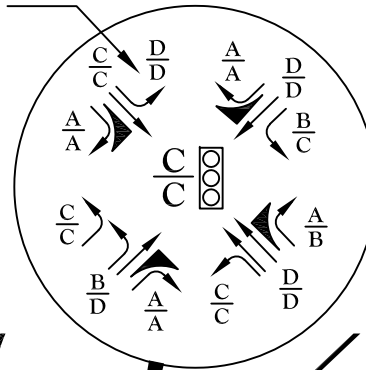
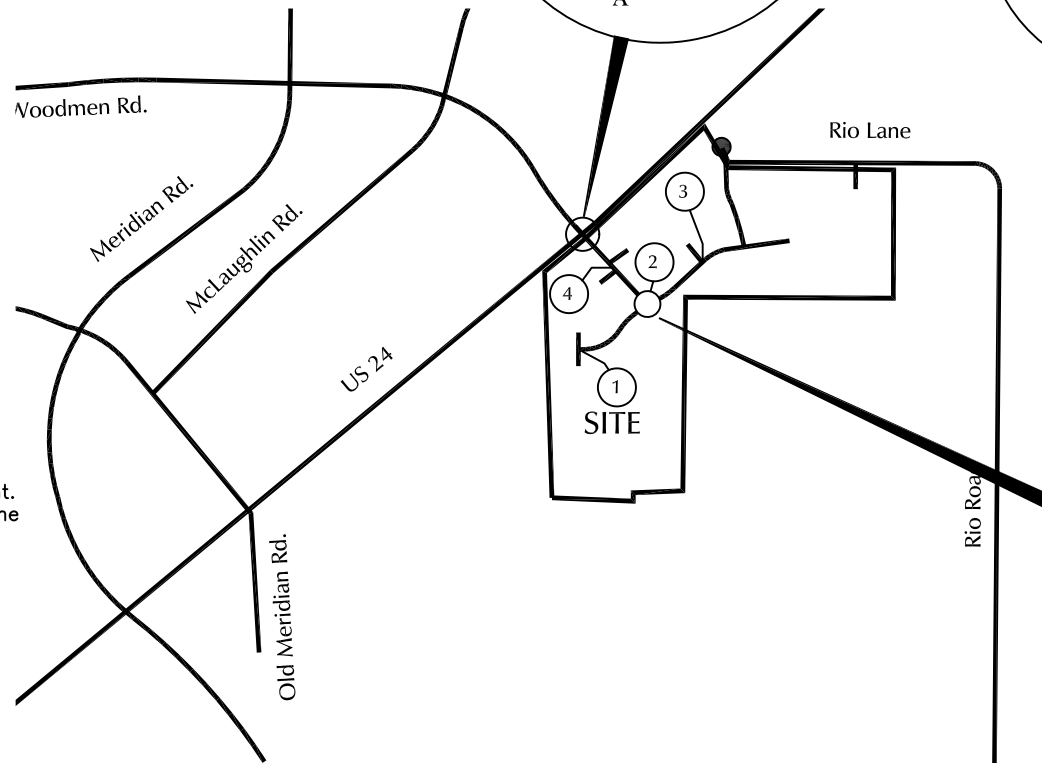
= Traffic Signal



= Stop Sign

$$\frac{A}{B} = \frac{\text{AM Individual Movement Peak-Hour Level of Service}}{\text{PM Individual Movement Peak-Hour Level of Service}}$$

$$\frac{C}{D} = \frac{\text{AM Entire Intersection Peak-Hour Level of Service}}{\text{PM Entire Intersection Peak-Hour Level of Service}}$$



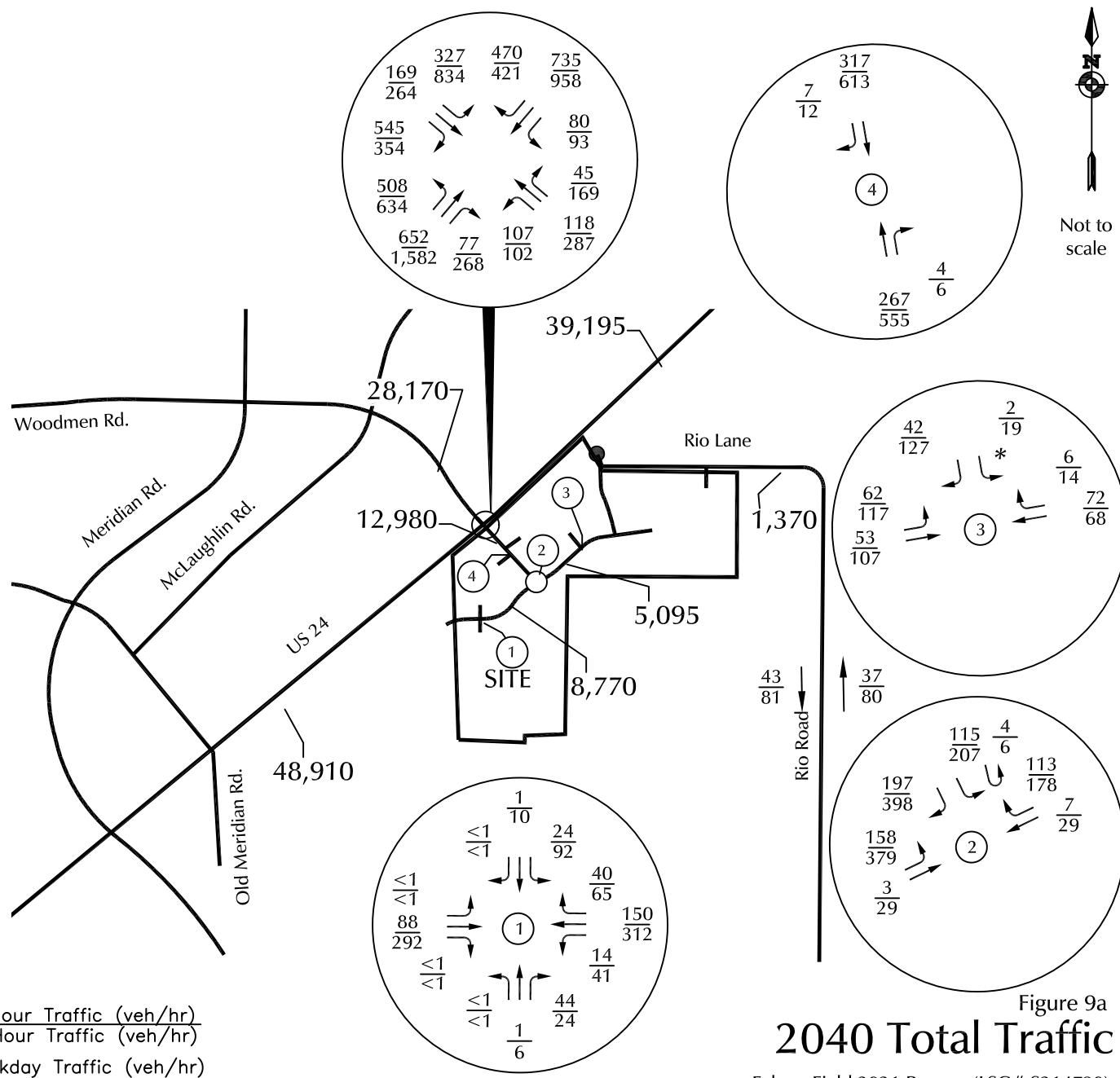
Not to scale

Figure 8b
Short-Term Total
Lane Geometry, Traffic
Control, and Level of Service

Falcon Field 2021 Rezone (LSC# S214730)



Not to scale



*Note: access may need to be restricted to $\frac{3}{4}$ movement. This will be addressed at the Preliminary Plan stage of development.



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

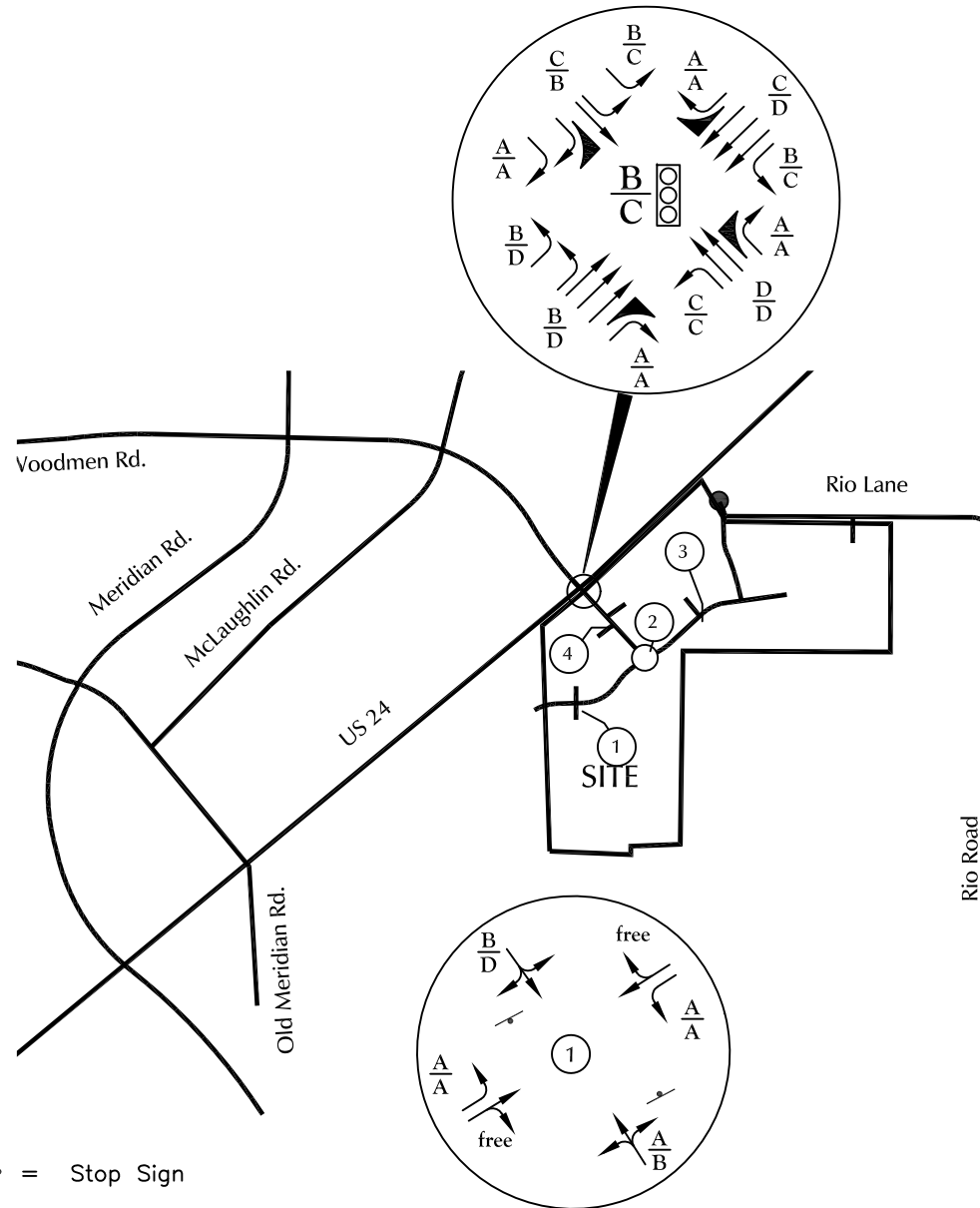
Figure 9a
2040 Total Traffic

Falcon Field 2021 Rezone (LSC# S214730)



Not to scale

*Note: access may need to be restricted to $\frac{3}{4}$ movement. This will be addressed at the Preliminary Plan stage of development.



LEGEND:



= Traffic Signal



= Stop Sign

$\frac{A}{B}$ = $\frac{\text{AM Individual Movement Peak-Hour Level of Service}}{\text{PM Individual Movement Peak-Hour Level of Service}}$

$\frac{C}{D}$ = $\frac{\text{AM Entire Intersection Peak-Hour Level of Service}}{\text{PM Entire Intersection Peak-Hour Level of Service}}$

Figure 9b 2040 Total Lane Geometry, Traffic Control, and Level of Service

Falcon Field 2021 Rezone (LSC# S214730)

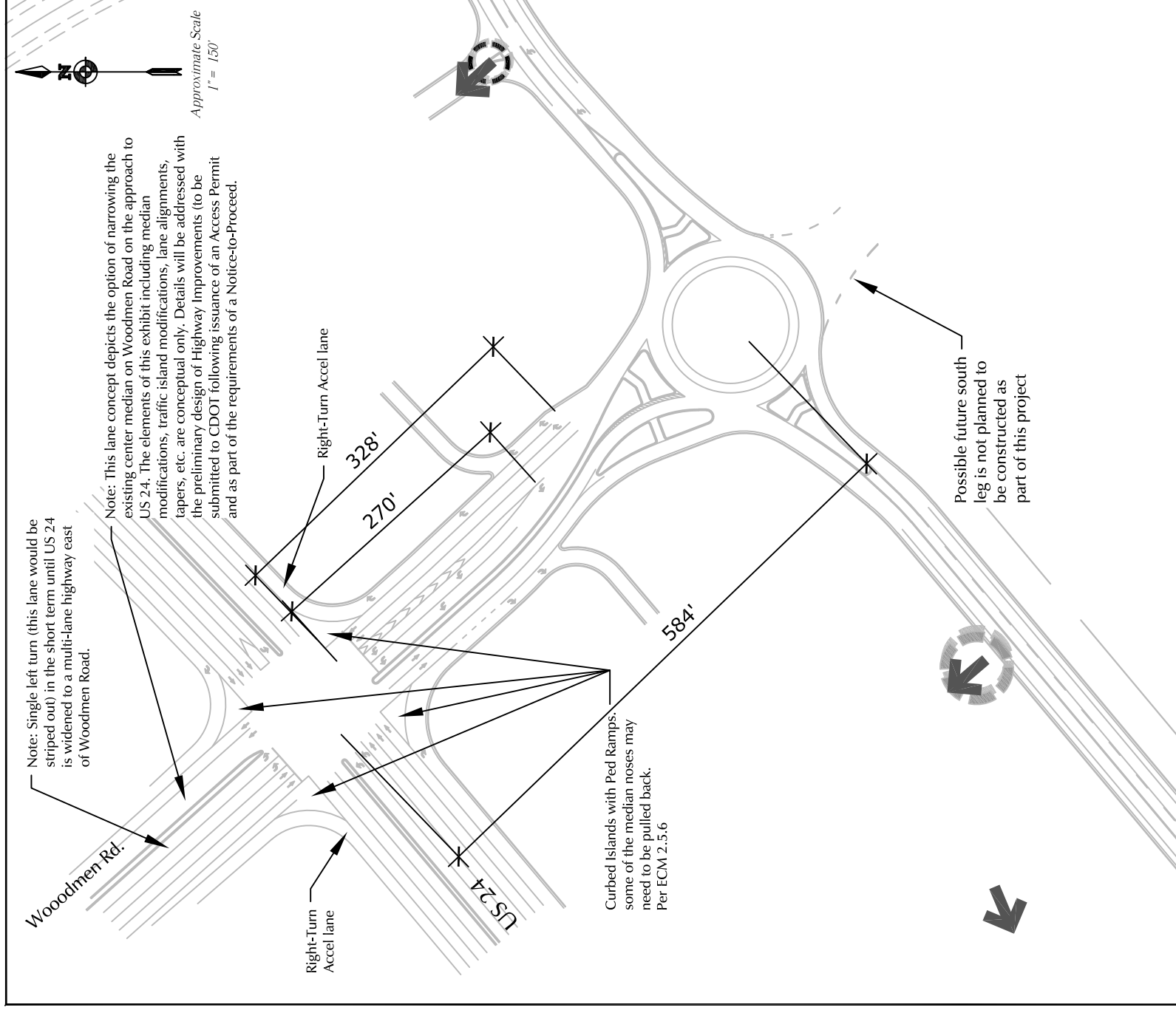


Figure 10a

Preliminary Intersection Lane Concept Plan (2040 - Six Lanes on US 24)

Falcon Field 2021 Rezone (LSC# S214730)

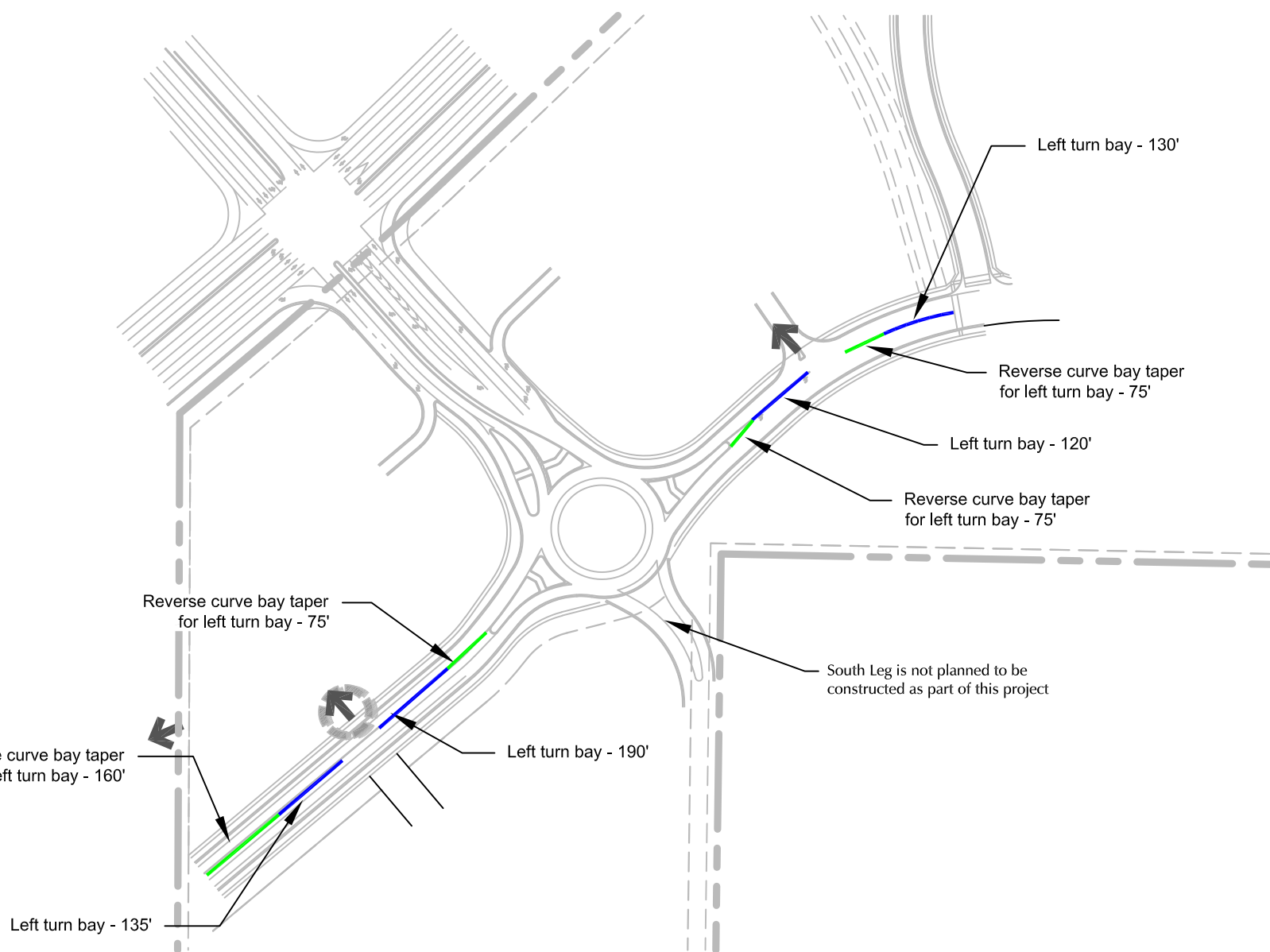


Figure 10b

Preliminary Internal Lane Concept Plan

Falcon Field 2021 Rezone (LSC# S214730)

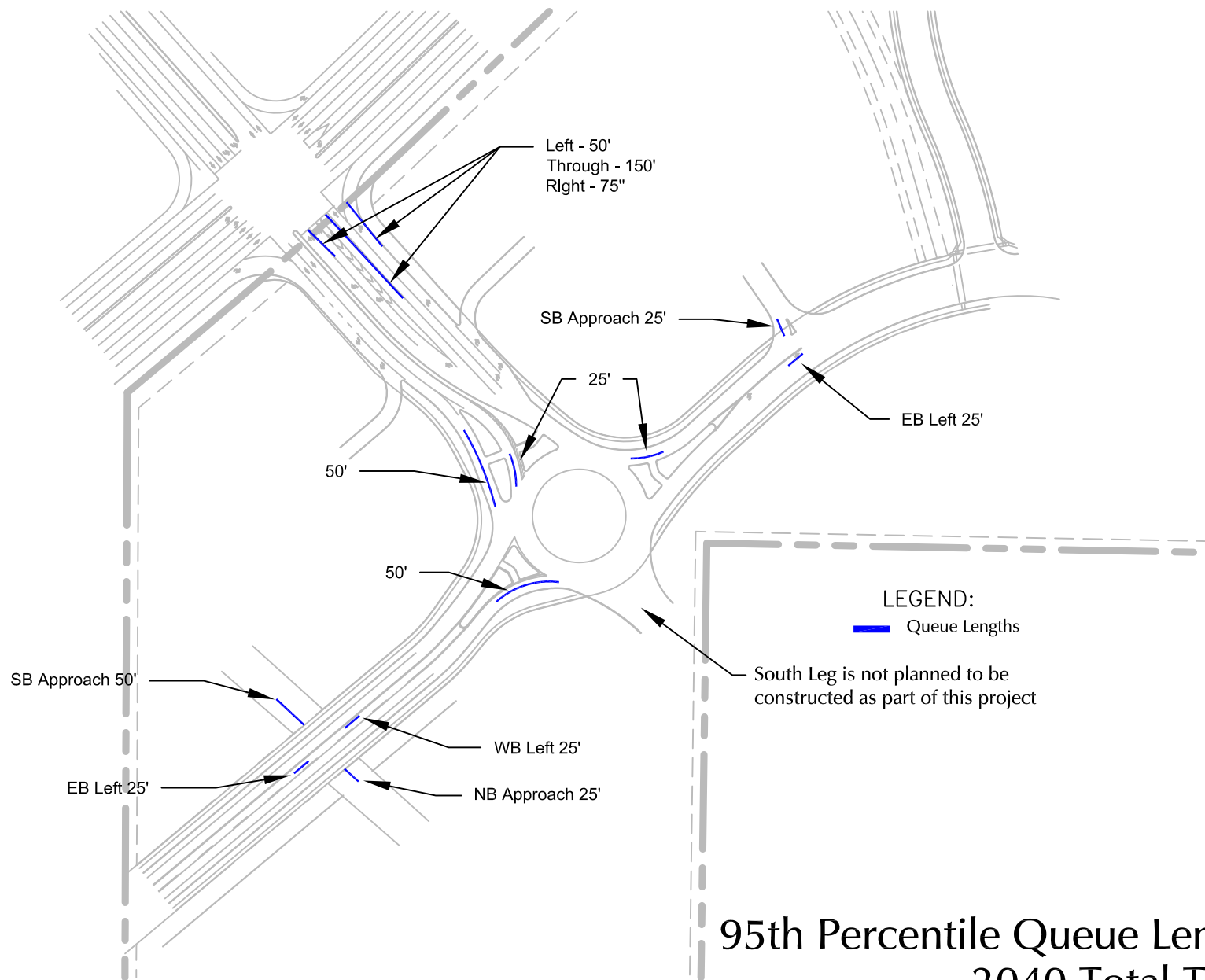
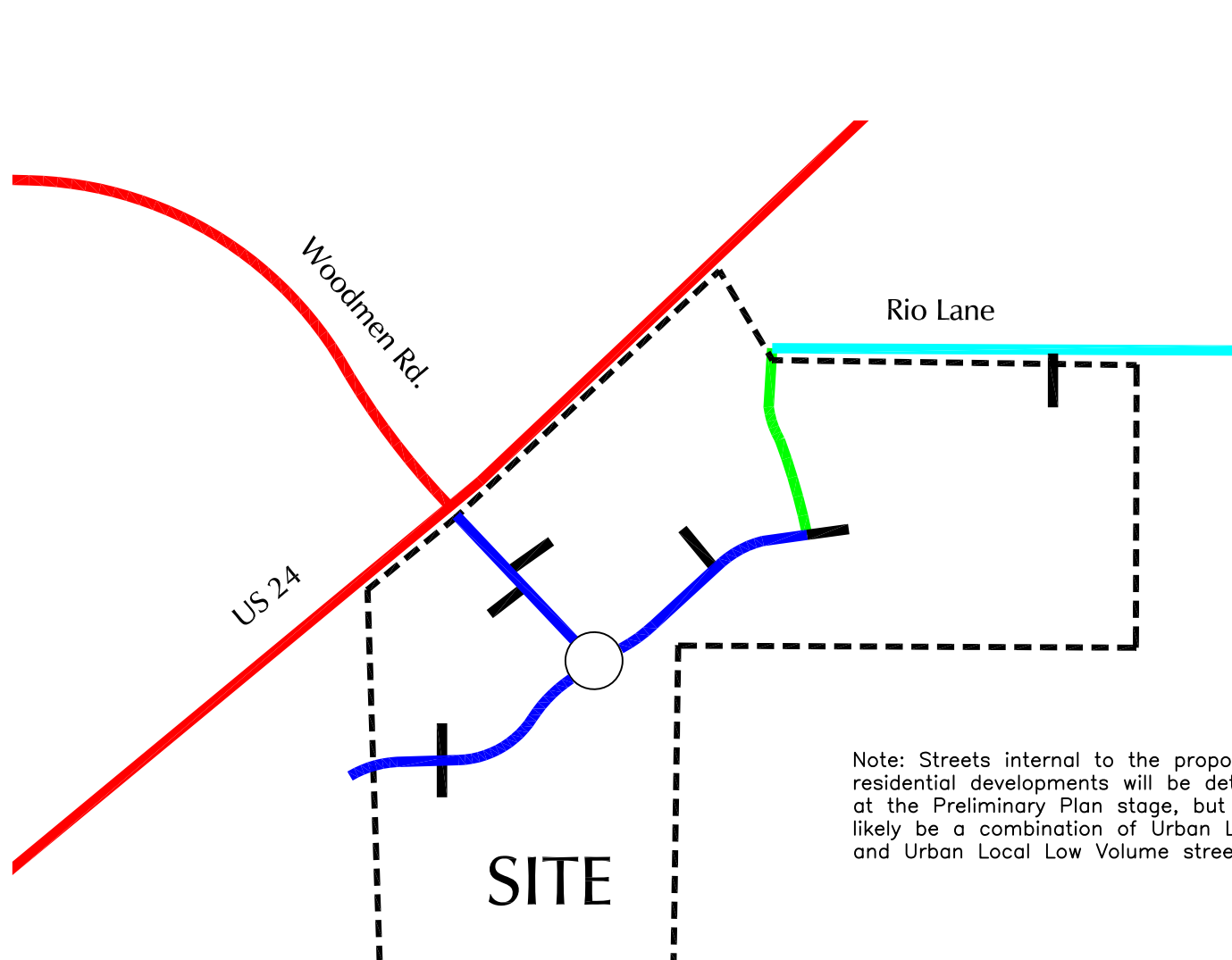


Figure 11
95th Percentile Queue Lengths
2040 Total Traffic
 Falcon Field 2021 Rezone (LSC# S214730)



LEGEND:

- Urban Non-Residential Collector
- Urban Local
- Expressway
- Rural Local Roadway

Project Name:	Falcon Fields Rezone
Analysis Period:	AM Street Peak Hour

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends						
Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	0	0	1.00	0	0
Retail	1.00	120	120	1.00	74	74
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	26	26	1.00	78	78
Hotel	1.00	0	0	1.00	0	0

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	21		10	0	10	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	2	1	16	0		0
Hotel	0	0	0	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		38	0	0	0	0
Retail	0		0	0	1	0
Restaurant	0	10		0	1	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	20	0	0		0
Hotel	0	5	0	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)						
Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	0	0	0	0	0	0
Retail	1	119	120	119	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	1	25	26	25	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)						
Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	0	0	0	0	0	0
Retail	1	73	74	73	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	1	77	78	77	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

¹ Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A
² Person-Trips
³ Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator
*Indicates computation that has been rounded to the nearest whole number.

Project Name:	Falcon Fields Rezone
Analysis Period:	PM Street Peak Hour

Table 7-P: Conversion of Vehicle-Trip Ends to Person-Trip Ends						
Land Use	Table 7-P (D): Entering Trips			Table 7-P (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	0	0	1.00	0	0
Retail	1.00	229	229	1.00	248	248
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	88	88	1.00	52	52
Hotel	1.00	0	0	1.00	0	0

Table 8-P (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	5		72	10	64	12
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	2	22	11	0		2
Hotel	0	0	0	0	0	

Table 8-P (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		18	0	0	4	0
Retail	0		0	0	40	0
Restaurant	0	115		0	14	0
Cinema/Entertainment	0	9	0		4	0
Residential	0	23	0	0		0
Hotel	0	5	0	0	0	

Table 9-P (D): Internal and External Trips Summary (Entering Trips)						
Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	0	0	0	0	0	0
Retail	22	207	229	207	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	40	48	88	48	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

Table 9-P (O): Internal and External Trips Summary (Exiting Trips)						
Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	0	0	0	0	0	0
Retail	40	208	248	208	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	22	30	52	30	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

¹Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

²Person-Trips

³Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

LSC Transportation Consultants, Inc.

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

File Name : Hwy 24 - Woodmen Rd AM
Site Code : S214730
Start Date : 8/12/2021
Page No : 1

Groups Printed- Unshifted

Start Time	Hwy 24 Southbound					Westbound					Hwy 24 Northbound					Woodmen Rd Eastbound					Int. Total
	L	T	R	U	App. Total	L	T	R	U	App. Total	L	T	R	U	App. Total	L	T	R	U	App. Total	
06:30 AM	0	140	79	0	219	0	0	0	0	0	39	59	0	0	98	49	0	71	0	120	437
06:45 AM	0	123	64	0	187	0	0	0	0	0	48	86	0	0	134	84	5	70	0	159	480
Total	0	263	143	0	406	0	0	0	0	0	87	145	0	0	232	133	5	141	0	279	917
07:00 AM	0	137	84	0	221	0	0	0	0	0	52	71	0	0	123	64	2	58	0	124	468
07:15 AM	0	150	99	0	249	0	0	0	0	0	54	72	0	0	126	72	0	74	0	146	521
07:30 AM	0	134	102	0	236	0	0	0	0	0	48	59	0	0	107	83	0	65	0	148	491
07:45 AM	0	100	79	0	179	0	0	0	0	0	63	67	0	0	130	81	0	55	2	138	447
Total	0	521	364	0	885	0	0	0	0	0	217	269	0	0	486	300	2	252	2	556	1927
08:00 AM	0	75	83	0	158	0	0	0	0	0	33	72	0	0	105	68	0	59	0	127	390
08:15 AM	0	93	69	0	162	0	0	0	0	0	44	82	0	0	126	68	0	61	0	129	417
Grand Total	0	952	659	0	1611	0	0	0	0	0	381	568	0	0	949	569	7	513	2	1091	3651
Apprch %	0	59.1	40.9	0		0	0	0	0		40.1	59.9	0	0		52.2	0.6	47	0.2		
Total %	0	26.1	18	0	44.1	0	0	0	0	0	10.4	15.6	0	0	26	15.6	0.2	14.1	0.1	29.9	

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719-633-2868

File Name : Hwy 24 - Woodmen Rd AM
Site Code : S214730
Start Date : 8/12/2021
Page No : 2

	Hwy 24 Southbound					Westbound					Hwy 24 Northbound					Woodmen Rd Eastbound					
Start Time	L	T	R	U	App. Total	L	T	R	U	App. Total	L	T	R	U	App. Total	L	T	R	U	App. Total	Int. Total
Peak Hour Analysis From 6:30:00 AM to 8:15:00 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 6:45:00 AM																					
6:45:00 AM	0	123	64	0	187	0	0	0	0	0	48	86	0	0	134	84	5	70	0	159	480
7:00:00 AM	0	137	84	0	221	0	0	0	0	0	52	71	0	0	123	64	2	58	0	124	468
7:15:00 AM	0	150	99	0	249	0	0	0	0	0	54	72	0	0	126	72	0	74	0	146	521
7:30:00 AM	0	134	102	0	236	0	0	0	0	0	48	59	0	0	107	83	0	65	0	148	491
Total Volume	0	544	349	0	893	0	0	0	0	0	202	288	0	0	490	303	7	267	0	577	1960
% App. Total	0	60.9	39.1	0		0	0	0	0		41.2	58.8	0	0		52.5	1.2	46.3	0		
PHF	.000	.907	.855	.000	.897	.000	.000	.000	.000	.000	.935	.837	.000	.000	.914	.902	.350	.902	.000	.907	.940

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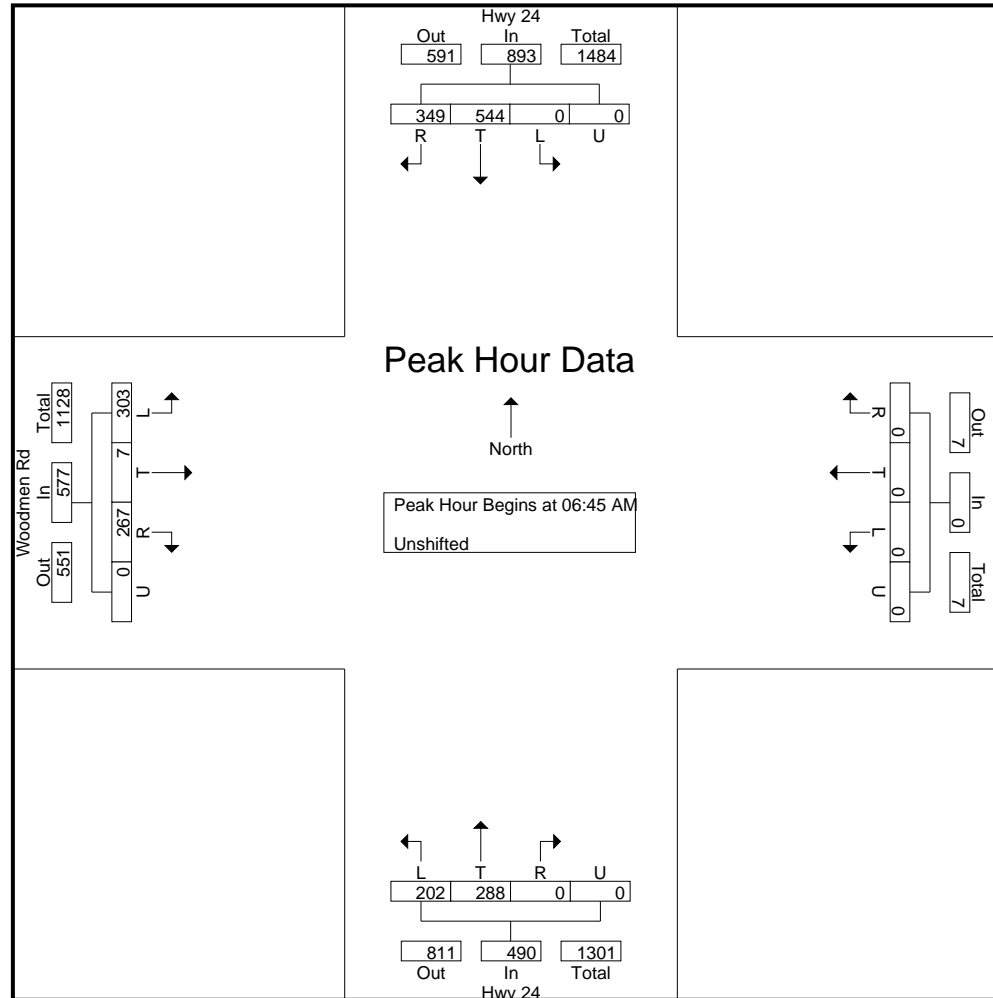
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File Name : Hwy 24 - Woodmen Rd AM

Site Code : S214730

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File Name : Hwy 24 - Woodmen Rd AM
Site Code : S214730
Start Date : 8/12/2021
Page No : 4

	Hwy 24 Southbound					Westbound					Hwy 24 Northbound					Woodmen Rd Eastbound					
Start Time	L	T	R	U	App. Total	L	T	R	U	App. Total	L	T	R	U	App. Total	L	T	R	U	App. Total	Int. Total
Peak Hour Analysis From 6:30:00 AM to 8:15:00 AM - Peak 1 of 1																					
Peak Hour for Each Approach Begins at:																					
	6:45:00 AM					6:30:00 AM					6:45:00 AM					6:45:00 AM					
+0 mins.	0	123	64	0	187	0	0	0	0	0	48	86	0	0	134	84	5	70	0	159	
+5 mins.	0	137	84	0	221	0	0	0	0	0	52	71	0	0	123	64	2	58	0	124	
+10 mins.	0	150	99	0	249	0	0	0	0	0	54	72	0	0	126	72	0	74	0	146	
+15 mins.	0	134	102	0	236	0	0	0	0	0	48	59	0	0	107	83	0	65	0	148	
Total Volume	0	544	349	0	893	0	0	0	0	0	202	288	0	0	490	303	7	267	0	577	
% App. Total	0	60.9	39.1	0		0	0	0	0		41.2	58.8	0	0		52.5	1.2	46.3	0		
PHF	.000	.907	.855	.000	.897	.000	.000	.000	.000	.000	.935	.837	.000	.000	.914	.902	.350	.902	.000	.907	

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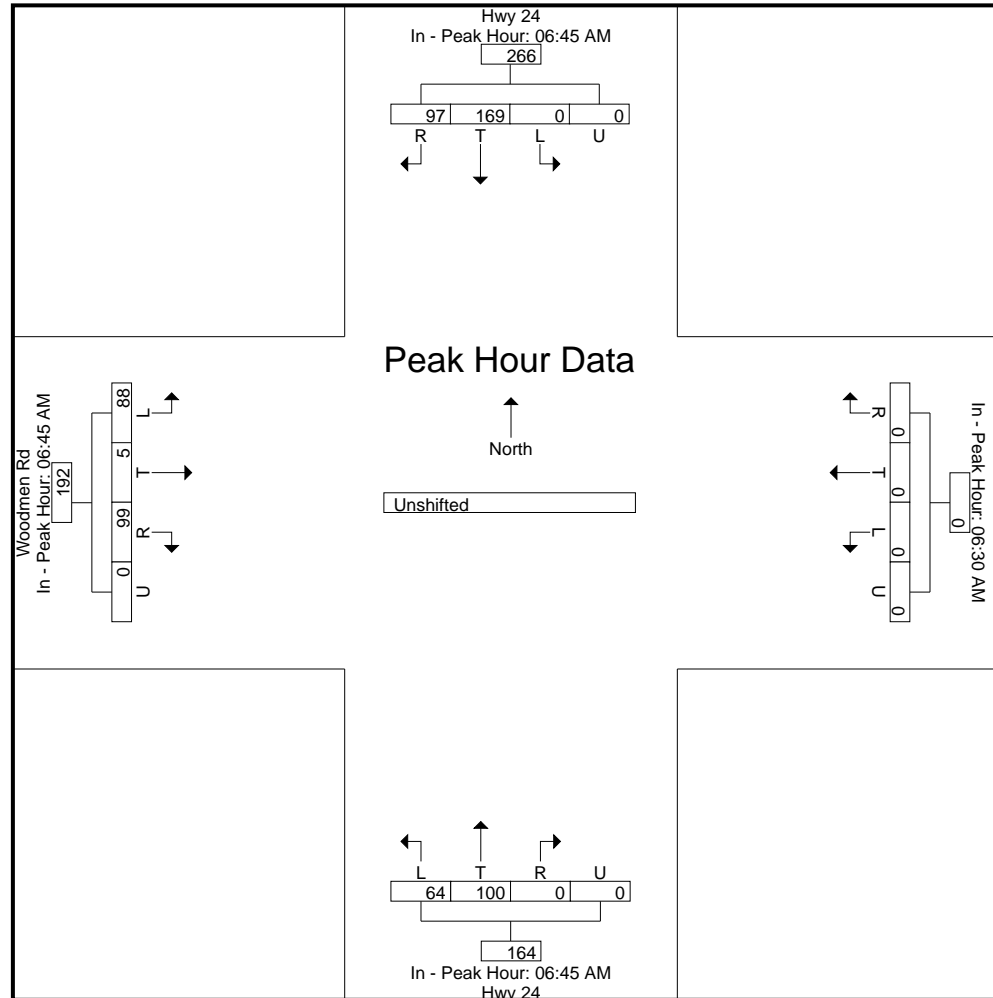
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File Name : Hwy 24 - Woodmen Rd AM

Site Code : S214730

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File Name : Hwy 24 - Woodmen Rd PM
Site Code : S214730
Start Date : 8/12/2021
Page No : 1

Groups Printed- Unshifted

	Hwy 24 Southbound					Westbound					Hwy 24 Northbound					Woodmen Rd Eastbound					
Start Time	L	T	R	U	App. Total	L	T	R	U	App. Total	L	T	R	U	App. Total	L	T	R	U	App. Total	Int. Total
04:00 PM	0	102	91	0	193	0	0	0	0	0	60	117	0	0	177	120	0	44	0	164	534
04:15 PM	0	68	99	2	169	0	0	0	0	0	85	113	0	0	198	144	0	58	2	204	571
04:30 PM	0	70	101	0	171	0	0	0	0	0	85	103	0	0	188	141	0	43	1	185	544
04:45 PM	0	79	105	0	184	0	0	0	0	0	93	120	0	0	213	156	0	51	1	208	605
Total	0	319	396	2	717	0	0	0	0	0	323	453	0	0	776	561	0	196	4	761	2254
05:00 PM	0	72	91	0	163	0	0	0	0	0	108	115	0	0	223	157	0	57	0	214	600
05:15 PM	0	71	69	0	140	0	0	0	0	0	83	147	0	0	230	165	0	45	0	210	580
05:30 PM	0	81	87	0	168	0	0	0	0	0	70	104	0	0	174	130	0	43	0	173	515
05:45 PM	0	42	78	0	120	0	0	0	0	0	74	128	0	0	202	160	0	47	0	207	529
Total	0	266	325	0	591	0	0	0	0	0	335	494	0	0	829	612	0	192	0	804	2224
Grand Total	0	585	721	2	1308	0	0	0	0	0	658	947	0	0	1605	1173	0	388	4	1565	4478
Apprch %	0	44.7	55.1	0.2		0	0	0	0		41	59	0	0		75	0	24.8	0.3		
Total %	0	13.1	16.1	0	29.2	0	0	0	0		14.7	21.1	0	0	35.8	26.2	0	8.7	0.1	34.9	

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File Name : Hwy 24 - Woodmen Rd PM
Site Code : S214730
Start Date : 8/12/2021
Page No : 2

	Hwy 24 Southbound					Westbound					Hwy 24 Northbound					Woodmen Rd Eastbound					
Start Time	L	T	R	U	App. Total	L	T	R	U	App. Total	L	T	R	U	App. Total	L	T	R	U	App. Total	Int. Total
Peak Hour Analysis From 4:00:00 PM to 5:45:00 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 4:30:00 PM																					
4:30:00 PM	0	70	101	0	171	0	0	0	0	0	85	103	0	0	188	141	0	43	1	185	544
4:45:00 PM	0	79	105	0	184	0	0	0	0	0	93	120	0	0	213	156	0	51	1	208	605
5:00:00 PM	0	72	91	0	163	0	0	0	0	0	108	115	0	0	223	157	0	57	0	214	600
5:15:00 PM	0	71	69	0	140	0	0	0	0	0	83	147	0	0	230	165	0	45	0	210	580
Total Volume	0	292	366	0	658	0	0	0	0	0	369	485	0	0	854	619	0	196	2	817	2329
% App. Total	0	44.4	55.6	0		0	0	0	0		43.2	56.8	0	0		75.8	0	24	0.2		
PHF	.000	.924	.871	.000	.894	.000	.000	.000	.000	.000	.854	.825	.000	.000	.928	.938	.000	.860	.500	.954	.962

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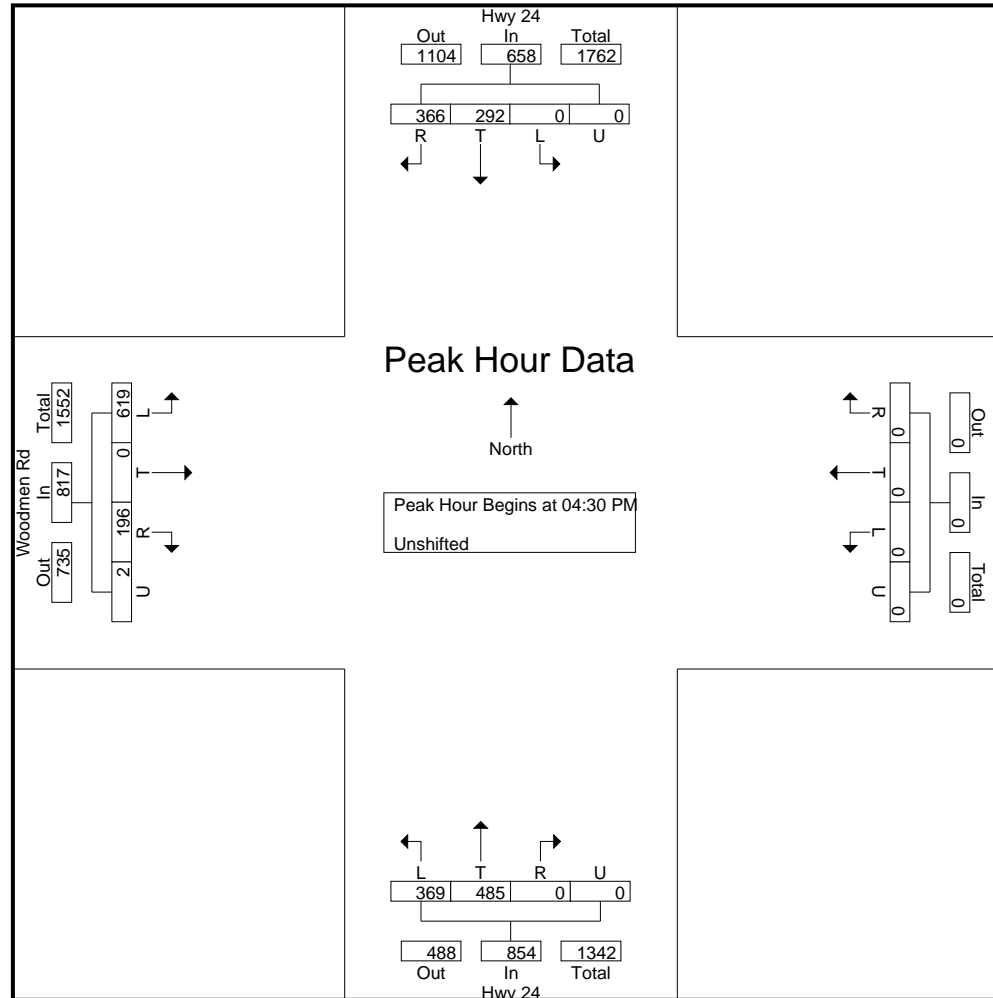
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File Name : Hwy 24 - Woodmen Rd PM

Site Code : S214730

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File Name : Hwy 24 - Woodmen Rd PM
Site Code : S214730
Start Date : 8/12/2021
Page No : 4

	Hwy 24 Southbound					Westbound					Hwy 24 Northbound					Woodmen Rd Eastbound					
Start Time	L	T	R	U	App. Total	L	T	R	U	App. Total	L	T	R	U	App. Total	L	T	R	U	App. Total	Int. Total
Peak Hour Analysis From 4:00:00 PM to 5:45:00 PM - Peak 1 of 1																					
Peak Hour for Each Approach Begins at:																					
	4:00:00 PM					4:00:00 PM					4:30:00 PM					4:30:00 PM					
+0 mins.	0	102	91	0	193	0	0	0	0	0	85	103	0	0	188	141	0	43	1	185	
+5 mins.	0	68	99	2	169	0	0	0	0	0	93	120	0	0	213	156	0	51	1	208	
+10 mins.	0	70	101	0	171	0	0	0	0	0	108	115	0	0	223	157	0	57	0	214	
+15 mins.	0	79	105	0	184	0	0	0	0	0	83	147	0	0	230	165	0	45	0	210	
Total Volume	0	319	396	2	717	0	0	0	0	0	369	485	0	0	854	619	0	196	2	817	
% App. Total	0	44.5	55.2	0.3		0	0	0	0		43.2	56.8	0	0		75.8	0	24	0.2		
PHF	.000	.782	.943	.250	.929	.000	.000	.000	.000	.000	.854	.825	.000	.000	.928	.938	.000	.860	.500	.954	

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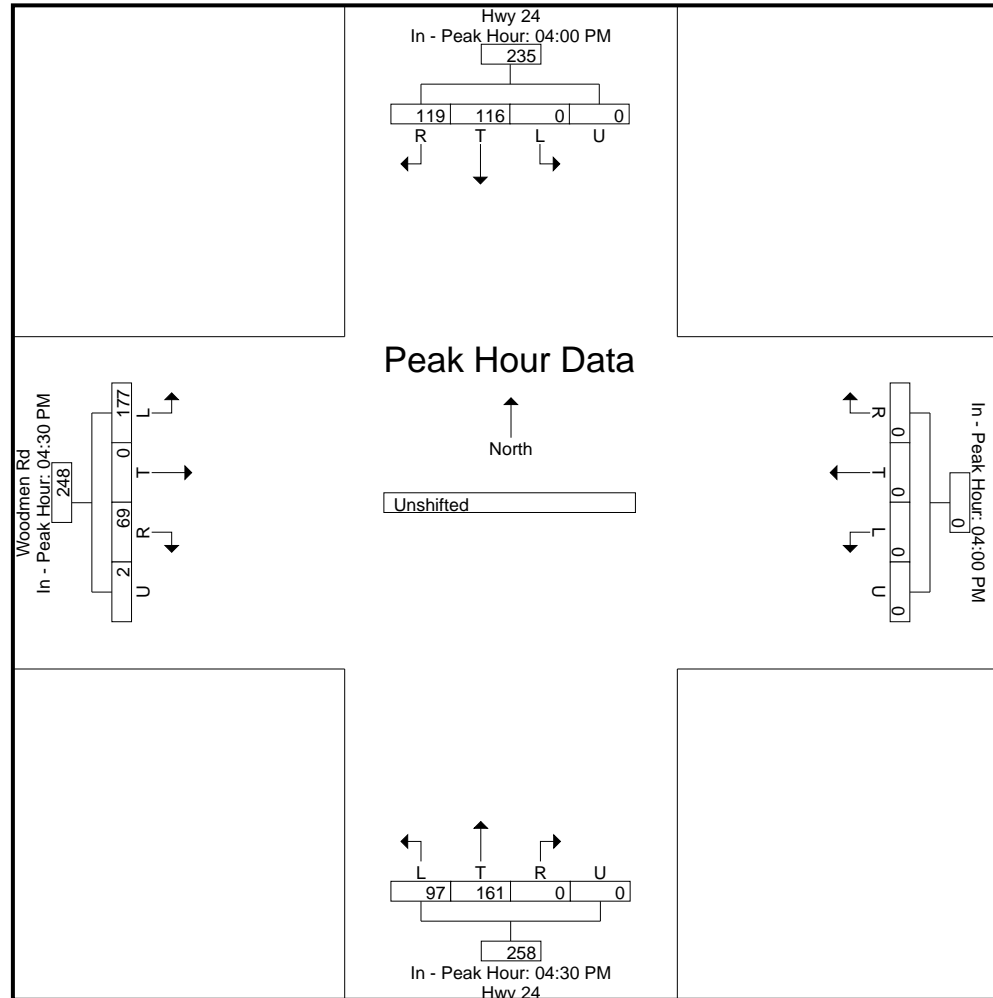
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File Name : Hwy 24 - Woodmen Rd PM

Site Code : S214730

Start Date : 8/12/2021

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File Name : Hwy 24 - New Meridian Rd AM
Site Code : S214620
Start Date : 8/5/2021
Page No : 1

Groups Printed- Unshifted

	Hwy 24 Southbound					New Meridian Rd Westbound					Hwy 24 Northbound					New Meridian Rd Eastbound					
Start Time	L	T	R	U	App. Total	L	T	R	U	App. Total	L	T	R	U	App. Total	L	T	R	U	App. Total	Int. Total
06:30 AM	9	173	0	0	182	1	36	7	0	44	30	109	2	0	141	1	22	93	0	116	483
06:45 AM	10	213	0	0	223	0	28	10	0	38	21	109	4	0	134	0	1	120	0	121	516
Total	19	386	0	0	405	1	64	17	0	82	51	218	6	0	275	1	23	213	0	237	999
07:00 AM	3	171	0	0	174	0	44	10	0	54	15	92	4	0	111	0	4	126	1	131	470
07:15 AM	2	201	0	0	203	0	2	1	0	3	44	118	1	0	163	0	0	169	0	169	538
Grand Total	24	758	0	0	782	1	110	28	0	139	110	428	11	0	549	1	27	508	1	537	2007
Apprch %	3.1	96.9	0	0		0.7	79.1	20.1	0		20	78	2	0		0.2	5	94.6	0.2		
Total %	1.2	37.8	0	0	39	0	5.5	1.4	0	6.9	5.5	21.3	0.5	0	27.4	0	1.3	25.3	0	26.8	

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File Name : Hwy 24 - New Meridian Rd AM
Site Code : S214620
Start Date : 8/5/2021
Page No : 2

	Hwy 24 Southbound					New Meridian Rd Westbound					Hwy 24 Northbound					New Meridian Rd Eastbound					
Start Time	L	T	R	U	App. Total	L	T	R	U	App. Total	L	T	R	U	App. Total	L	T	R	U	App. Total	Int. Total
Peak Hour Analysis From 6:30:00 AM to 7:15:00 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 6:30:00 AM																					
6:30:00 AM	9	173	0	0	182	1	36	7	0	44	30	109	2	0	141	1	22	93	0	116	483
6:45:00 AM	10	213	0	0	223	0	28	10	0	38	21	109	4	0	134	0	1	120	0	121	516
7:00:00 AM	3	171	0	0	174	0	44	10	0	54	15	92	4	0	111	0	4	126	1	131	470
7:15:00 AM	2	201	0	0	203	0	2	1	0	3	44	118	1	0	163	0	0	169	0	169	538
Total Volume	24	758	0	0	782	1	110	28	0	139	110	428	11	0	549	1	27	508	1	537	2007
% App. Total	3.1	96.9	0	0		0.7	79.1	20.1	0		20	78	2	0		0.2	5	94.6	0.2		
PHF	.600	.890	.000	.000	.877	.250	.625	.700	.000	.644	.625	.907	.688	.000	.842	.250	.307	.751	.250	.794	.933

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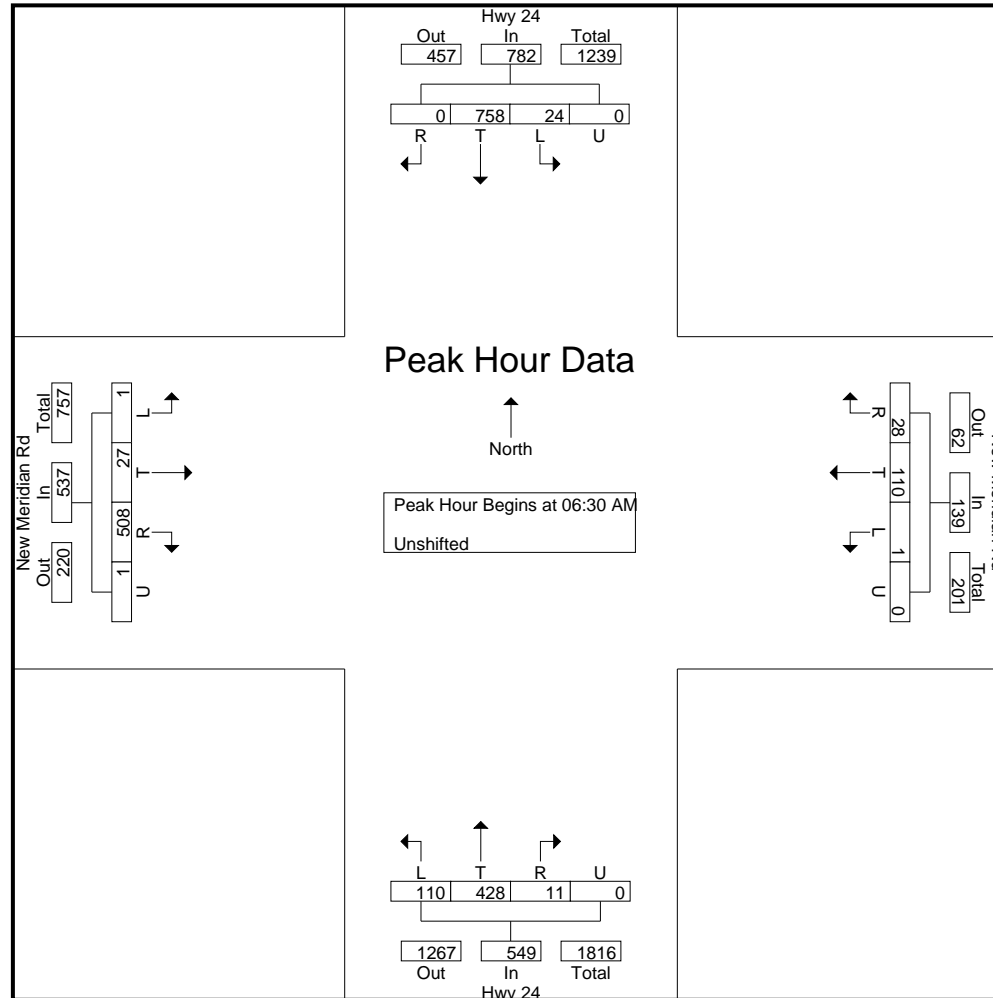
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File Name : Hwy 24 - New Meridian Rd AM

Site Code : S214620

Start Date : 8/5/2021

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File Name : Hwy 24 - New Meridian Rd AM
Site Code : S214620
Start Date : 8/5/2021
Page No : 4

	Hwy 24 Southbound					New Meridian Rd Westbound					Hwy 24 Northbound					New Meridian Rd Eastbound					
Start Time	L	T	R	U	App. Total	L	T	R	U	App. Total	L	T	R	U	App. Total	L	T	R	U	App. Total	Int. Total
Peak Hour Analysis From 6:30:00 AM to 7:15:00 AM - Peak 1 of 1																					
Peak Hour for Each Approach Begins at:																					
	6:30:00 AM					6:30:00 AM					6:30:00 AM					6:30:00 AM					
+0 mins.	9	173	0	0	182	1	36	7	0	44	30	109	2	0	141	1	22	93	0	116	
+5 mins.	10	213	0	0	223	0	28	10	0	38	21	109	4	0	134	0	1	120	0	121	
+10 mins.	3	171	0	0	174	0	44	10	0	54	15	92	4	0	111	0	4	126	1	131	
+15 mins.	2	201	0	0	203	0	2	1	0	3	44	118	1	0	163	0	0	169	0	169	
Total Volume	24	758	0	0	782	1	110	28	0	139	110	428	11	0	549	1	27	508	1	537	
% App. Total	3.1	96.9	0	0		0.7	79.1	20.1	0		20	78	2	0		0.2	5	94.6	0.2		
PHF	.600	.890	.000	.000	.877	.250	.625	.700	.000	.644	.625	.907	.688	.000	.842	.250	.307	.751	.250	.794	

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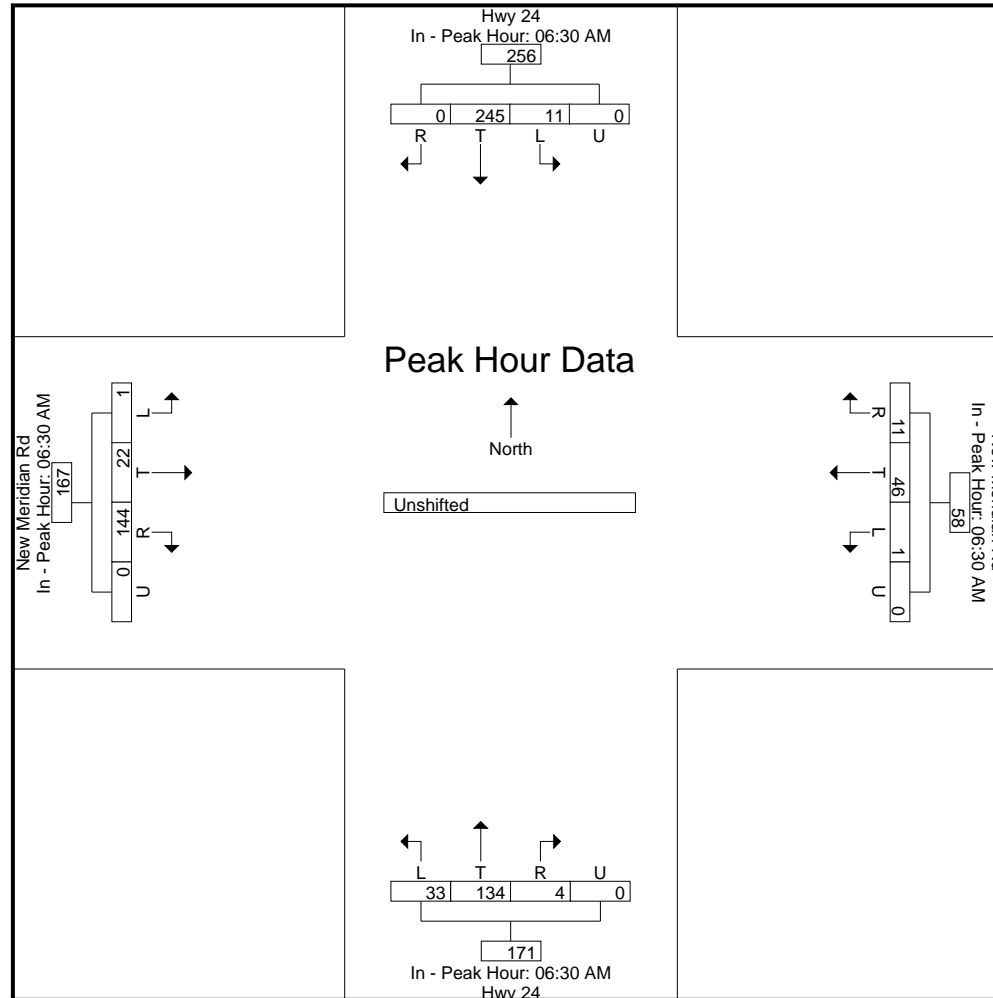
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File Name : Hwy 24 - New Meridian Rd AM

Site Code : S214620

Start Date : 8/5/2021

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File Name : Hwy 24 - New Meridian Rd PM
Site Code : S214620
Start Date : 8/4/2021
Page No : 1

Groups Printed- Unshifted

	Hwy 24 Southbound					New Meridian Rd Westbound					Hwy 24 Northbound					New Meridian Rd Eastbound					
Start Time	L	T	R	U	App. Total	L	T	R	U	App. Total	L	T	R	U	App. Total	L	T	R	U	App. Total	Int. Total
04:00 PM	18	138	0	0	156	1	61	22	0	84	62	156	0	0	218	4	30	43	0	77	535
04:15 PM	9	139	2	0	150	0	72	29	0	101	60	149	1	0	210	4	37	37	0	78	539
04:30 PM	17	105	1	0	123	0	91	17	0	108	88	161	0	0	249	4	40	42	0	86	566
04:45 PM	11	139	0	0	150	1	82	12	0	95	63	145	0	0	208	4	41	38	3	86	539
Total	55	521	3	0	579	2	306	80	0	388	273	611	1	0	885	16	148	160	3	327	2179
05:00 PM	14	109	0	0	123	0	91	27	0	118	79	150	0	0	229	5	41	48	0	94	564
05:15 PM	6	114	1	0	121	0	52	26	0	78	78	162	0	0	240	3	32	42	1	78	517
05:30 PM	11	89	4	0	104	1	81	14	0	96	76	156	0	0	232	1	55	44	0	100	532
05:45 PM	22	119	1	0	142	1	45	10	0	56	81	174	0	0	255	2	52	33	0	87	540
Total	53	431	6	0	490	2	269	77	0	348	314	642	0	0	956	11	180	167	1	359	2153
Grand Total	108	952	9	0	1069	4	575	157	0	736	587	1253	1	0	1841	27	328	327	4	686	4332
Apprch %	10.1	89.1	0.8	0		0.5	78.1	21.3	0		31.9	68.1	0.1	0		3.9	47.8	47.7	0.6		
Total %	2.5	22	0.2	0	24.7	0.1	13.3	3.6	0	17	13.6	28.9	0	0	42.5	0.6	7.6	7.5	0.1	15.8	

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File Name : Hwy 24 - New Meridian Rd PM
Site Code : S214620
Start Date : 8/4/2021
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	Hwy 24 Southbound					New Meridian Rd Westbound					Hwy 24 Northbound					New Meridian Rd Eastbound					
Start Time	L	T	R	U	App. Total	L	T	R	U	App. Total	L	T	R	U	App. Total	L	T	R	U	App. Total	Int. Total
Peak Hour Analysis From 4:00:00 PM to 5:45:00 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 4:15:00 PM																					
4:15:00 PM	9	139	2	0	150	0	72	29	0	101	60	149	1	0	210	4	37	37	0	78	539
4:30:00 PM	17	105	1	0	123	0	91	17	0	108	88	161	0	0	249	4	40	42	0	86	566
4:45:00 PM	11	139	0	0	150	1	82	12	0	95	63	145	0	0	208	4	41	38	3	86	539
5:00:00 PM	14	109	0	0	123	0	91	27	0	118	79	150	0	0	229	5	41	48	0	94	564
Total Volume	51	492	3	0	546	1	336	85	0	422	290	605	1	0	896	17	159	165	3	344	2208
% App. Total	9.3	90.1	0.5	0		0.2	79.6	20.1	0		32.4	67.5	0.1	0		4.9	46.2	48	0.9		
PHF	.750	.885	.375	.000	.910	.250	.923	.733	.000	.894	.824	.939	.250	.000	.900	.850	.970	.859	.250	.915	.975

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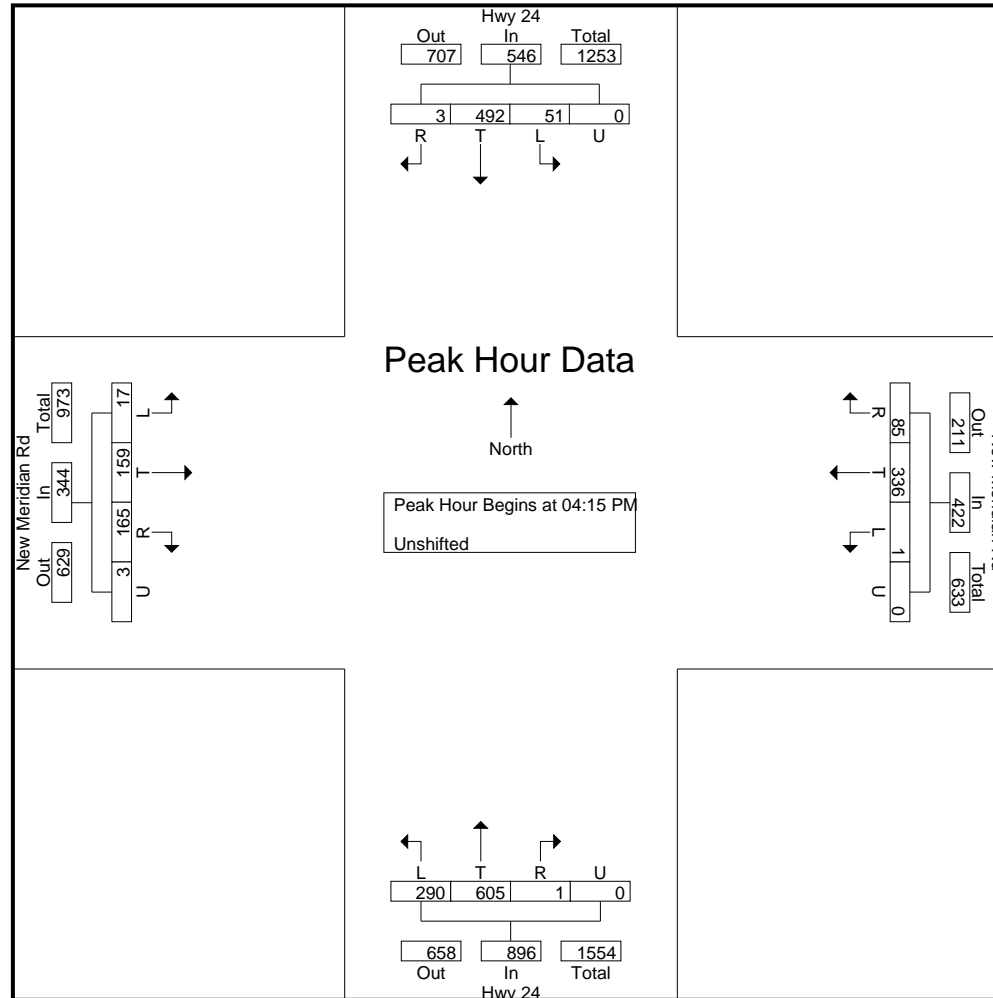
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719-633-2868

File Name : Hwy 24 - New Meridian Rd PM

Site Code : S214620

Start Date : 8/4/2021

Page No : 3



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719-633-2868

File Name : Hwy 24 - New Meridian Rd PM
Site Code : S214620
Start Date : 8/4/2021
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	Hwy 24 Southbound					New Meridian Rd Westbound					Hwy 24 Northbound					New Meridian Rd Eastbound					
Start Time	L	T	R	U	App. Total	L	T	R	U	App. Total	L	T	R	U	App. Total	L	T	R	U	App. Total	Int. Total
Peak Hour Analysis From 4:00:00 PM to 5:45:00 PM - Peak 1 of 1																					
Peak Hour for Each Approach Begins at:																					
	4:00:00 PM					4:15:00 PM					5:00:00 PM					5:00:00 PM					
+0 mins.	18	138	0	0	156	0	72	29	0	101	79	150	0	0	229	5	41	48	0	94	
+5 mins.	9	139	2	0	150	0	91	17	0	108	78	162	0	0	240	3	32	42	1	78	
+10 mins.	17	105	1	0	123	1	82	12	0	95	76	156	0	0	232	1	55	44	0	100	
+15 mins.	11	139	0	0	150	0	91	27	0	118	81	174	0	0	255	2	52	33	0	87	
Total Volume	55	521	3	0	579	1	336	85	0	422	314	642	0	0	956	11	180	167	1	359	
% App. Total	9.5	90	0.5	0		0.2	79.6	20.1	0		32.8	67.2	0	0		3.1	50.1	46.5	0.3		
PHF	.764	.937	.375	.000	.928	.250	.923	.733	.000	.894	.969	.922	.000	.000	.937	.550	.818	.870	.250	.898	

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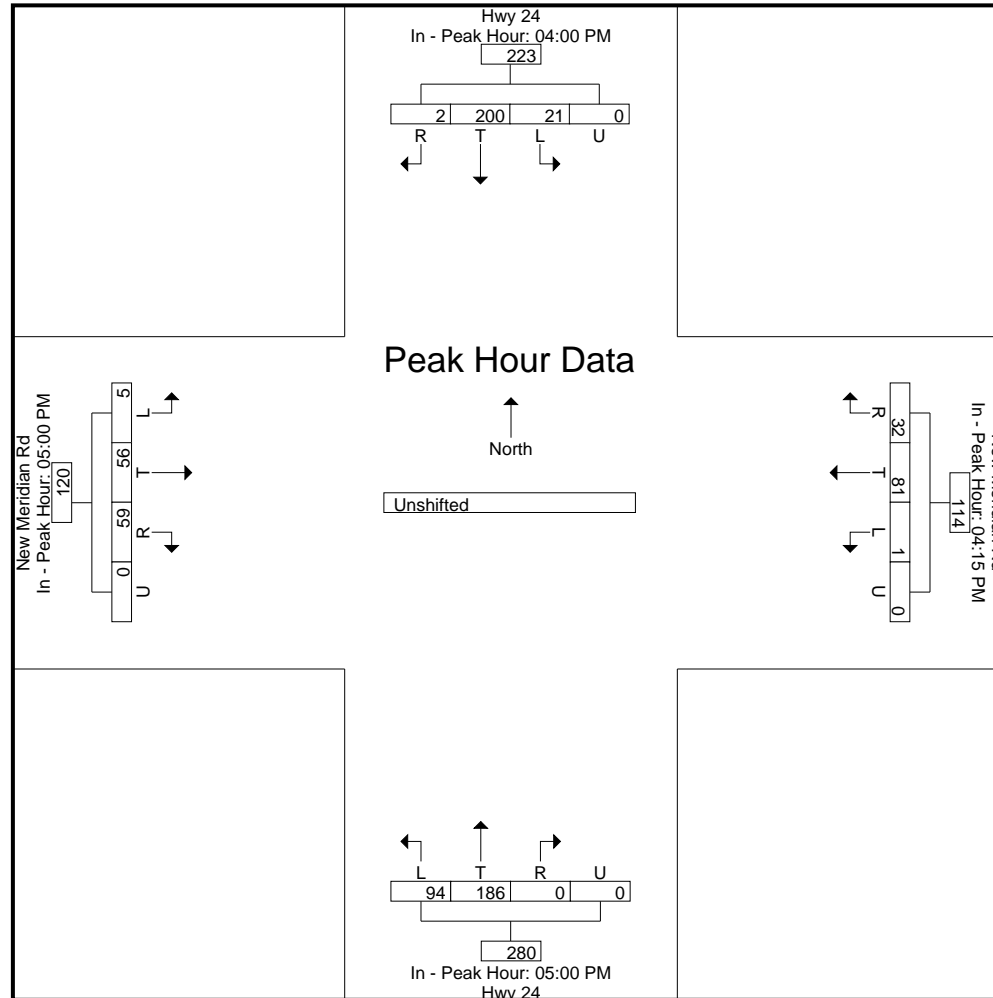
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719-633-2868

File Name : Hwy 24 - New Meridian Rd PM

Site Code : S214620

Start Date : 8/4/2021

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719-633-2868

File Name : Hwy 24 - Rio Ln AM
Site Code : S214730
Start Date : 8/12/2021
Page No : 1

Groups Printed- Unshifted

	Hwy 24 Southbound					Rio Ln Westbound					Hwy 24 Northbound					Eastbound					
Start Time	L	T	R	U	App. Total	L	T	R	U	App. Total	L	T	R	U	App. Total	L	T	R	U	App. Total	Int. Total
06:30 AM	2	213	0	0	215	22	0	0	0	22	0	89	16	0	105	0	0	0	0	0	342
06:45 AM	0	177	0	0	177	23	0	5	0	28	0	135	28	0	163	0	0	0	0	0	368
Total	2	390	0	0	392	45	0	5	0	50	0	224	44	0	268	0	0	0	0	0	710
07:00 AM	0	206	0	0	206	21	0	4	0	25	0	117	20	0	137	0	0	0	0	0	368
07:15 AM	3	241	0	0	244	21	0	3	0	24	0	116	21	0	137	0	0	0	0	0	405
07:30 AM	3	238	0	0	241	23	0	2	0	25	0	103	31	0	134	0	0	0	0	0	400
07:45 AM	2	180	0	0	182	11	0	3	0	14	0	119	31	0	150	0	0	0	0	0	346
Total	8	865	0	0	873	76	0	12	0	88	0	455	103	0	558	0	0	0	0	0	1519
08:00 AM	0	144	0	0	144	14	2	1	0	17	0	115	19	0	134	0	0	0	0	0	295
08:15 AM	1	150	0	0	151	17	0	4	0	21	0	123	30	0	153	0	0	0	0	0	325
Grand Total	11	1549	0	0	1560	152	2	22	0	176	0	917	196	0	1113	0	0	0	0	0	2849
Apprch %	0.7	99.3	0	0		86.4	1.1	12.5	0		0	82.4	17.6	0		0	0	0	0		
Total %	0.4	54.4	0	0	54.8	5.3	0.1	0.8	0	6.2	0	32.2	6.9	0	39.1	0	0	0	0	0	

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545 E Pikes Peak Ave, Suite 210
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719-633-2868

File Name : Hwy 24 - Rio Ln AM
Site Code : S214730
Start Date : 8/12/2021
Page No : 2

	Hwy 24 Southbound					Rio Ln Westbound					Hwy 24 Northbound					Eastbound					
Start Time	L	T	R	U	App. Total	L	T	R	U	App. Total	L	T	R	U	App. Total	L	T	R	U	App. Total	Int. Total
Peak Hour Analysis From 6:30:00 AM to 8:15:00 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 6:45:00 AM																					
6:45:00 AM	0	177	0	0	177	23	0	5	0	28	0	135	28	0	163	0	0	0	0	0	368
7:00:00 AM	0	206	0	0	206	21	0	4	0	25	0	117	20	0	137	0	0	0	0	0	368
7:15:00 AM	3	241	0	0	244	21	0	3	0	24	0	116	21	0	137	0	0	0	0	0	405
7:30:00 AM	3	238	0	0	241	23	0	2	0	25	0	103	31	0	134	0	0	0	0	0	400
Total Volume	6	862	0	0	868	88	0	14	0	102	0	471	100	0	571	0	0	0	0	0	1541
% App. Total	0.7	99.3	0	0		86.3	0	13.7	0		0	82.5	17.5	0		0	0	0	0		
PHF	.500	.894	.000	.000	.889	.957	.000	.700	.000	.911	.000	.872	.806	.000	.876	.000	.000	.000	.000	.000	.951

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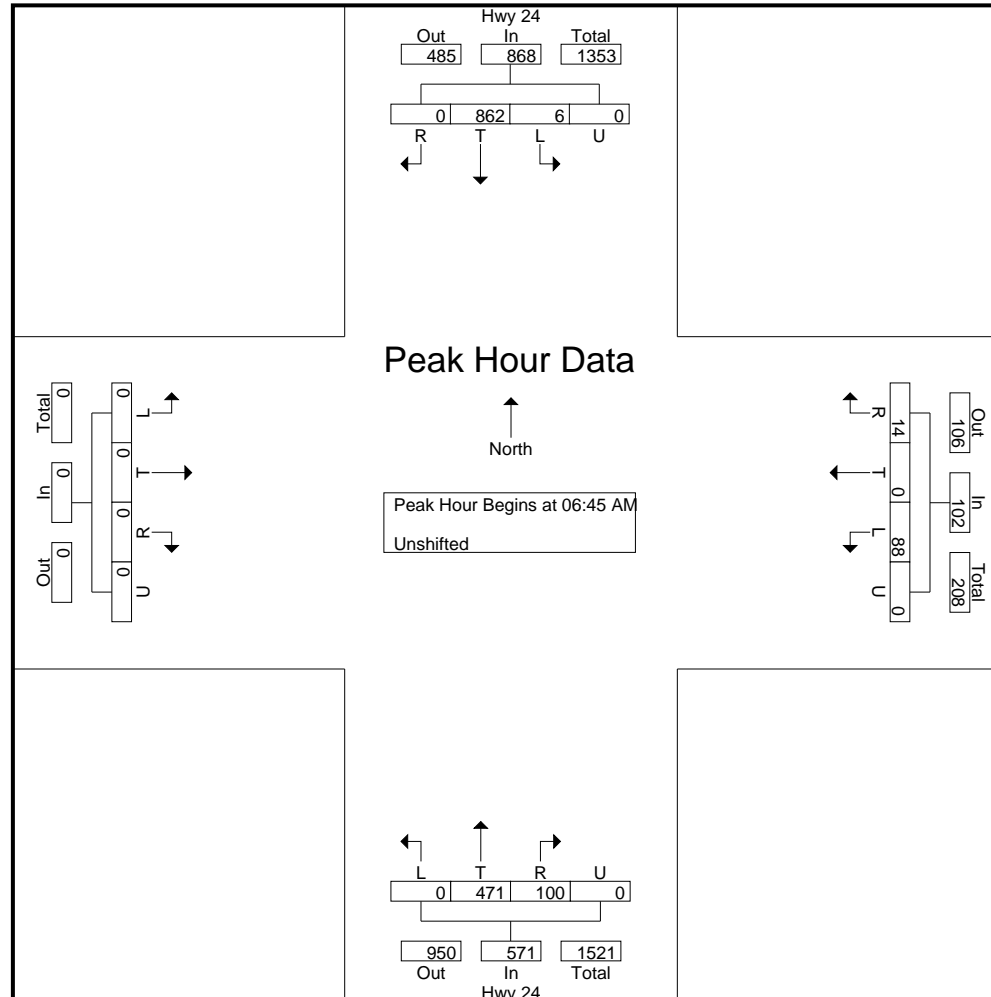
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File Name : Hwy 24 - Rio Ln AM

Site Code : S214730

Start Date : 8/12/2021

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LSC Transportation Consultants, Inc.

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719-633-2868

File Name : Hwy 24 - Rio Ln AM
Site Code : S214730
Start Date : 8/12/2021
Page No : 4

	Hwy 24 Southbound					Rio Ln Westbound					Hwy 24 Northbound					Eastbound					
Start Time	L	T	R	U	App. Total	L	T	R	U	App. Total	L	T	R	U	App. Total	L	T	R	U	App. Total	Int. Total
Peak Hour Analysis From 6:30:00 AM to 8:15:00 AM - Peak 1 of 1																					
Peak Hour for Each Approach Begins at:																					
	7:00:00 AM					6:45:00 AM					6:45:00 AM					6:30:00 AM					
+0 mins.	0	206	0	0	206	23	0	5	0	28	0	135	28	0	163	0	0	0	0	0	
+5 mins.	3	241	0	0	244	21	0	4	0	25	0	117	20	0	137	0	0	0	0	0	
+10 mins.	3	238	0	0	241	21	0	3	0	24	0	116	21	0	137	0	0	0	0	0	
+15 mins.	2	180	0	0	182	23	0	2	0	25	0	103	31	0	134	0	0	0	0	0	
Total Volume	8	865	0	0	873	88	0	14	0	102	0	471	100	0	571	0	0	0	0	0	
% App. Total	0.9	99.1	0	0		86.3	0	13.7	0		0	82.5	17.5	0		0	0	0	0		
PHF	.667	.897	.000	.000	.894	.957	.000	.700	.000	.911	.000	.872	.806	.000	.876	.000	.000	.000	.000	.000	

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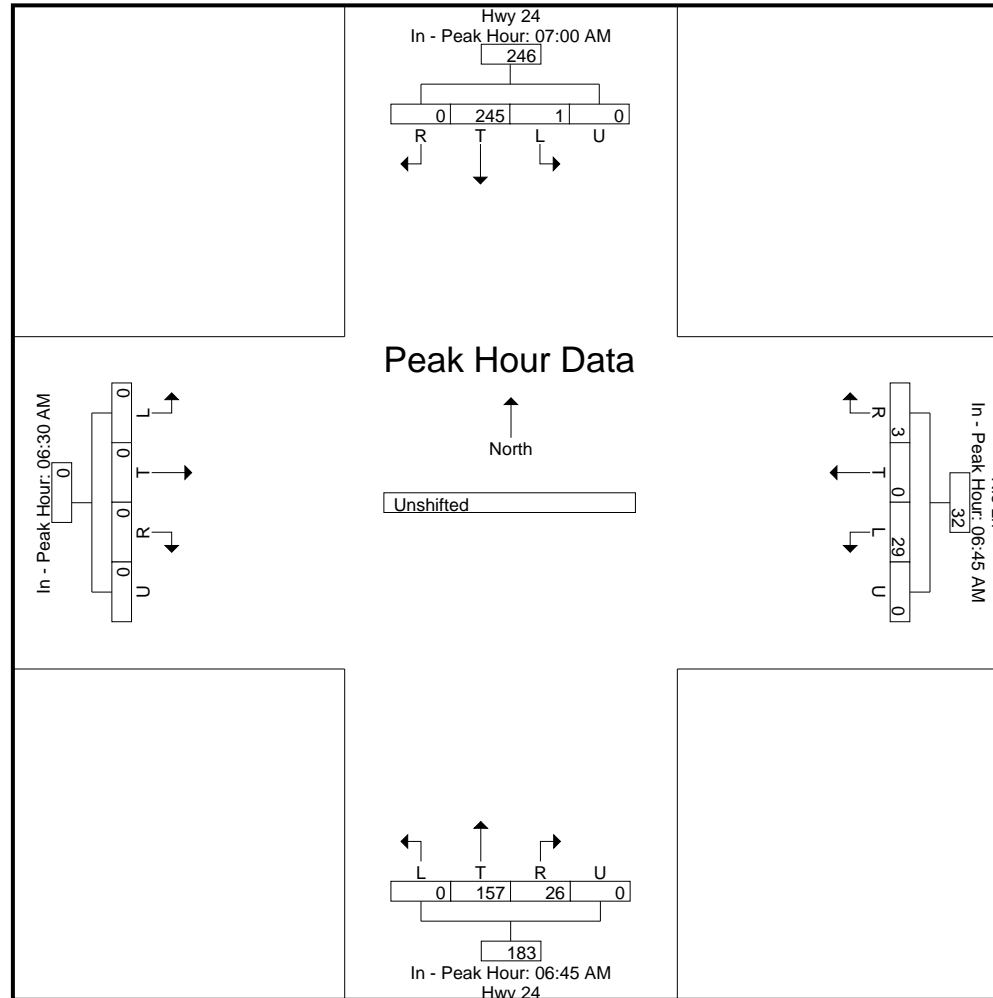
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File Name : Hwy 24 - Rio Ln AM

Site Code : S214730

Start Date : 8/12/2021

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545 E Pikes Peak Ave, Suite 210
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719-633-2868

File Name : Hwy 24 - Rio Ln PM
Site Code : S214730
Start Date : 8/12/2021
Page No : 1

Groups Printed- Unshifted

	Hwy 24 Southbound					Rio Ln Westbound					Hwy 24 Northbound					Eastbound					
Start Time	L	T	R	U	App. Total	L	T	R	U	App. Total	L	T	R	U	App. Total	L	T	R	U	App. Total	Int. Total
04:00 PM	1	184	0	0	185	23	0	1	0	24	0	204	26	0	230	0	0	0	0	0	439
04:15 PM	1	168	0	0	169	20	0	1	0	21	0	204	33	0	237	0	0	0	0	0	427
04:30 PM	1	152	0	0	153	31	0	1	0	32	0	193	27	0	220	0	0	0	0	0	405
04:45 PM	2	181	0	0	183	21	0	2	0	23	0	215	32	0	247	0	0	0	0	0	453
Total	5	685	0	0	690	95	0	5	0	100	0	816	118	0	934	0	0	0	0	0	1724
05:00 PM	5	143	0	0	148	28	0	4	0	32	0	223	49	0	272	0	0	0	0	0	452
05:15 PM	1	156	0	0	157	9	0	10	0	19	0	252	35	0	287	0	0	0	0	0	463
05:30 PM	4	147	0	0	151	25	0	2	0	27	0	194	28	0	222	0	0	0	0	0	400
05:45 PM	1	106	0	0	107	9	0	1	0	10	0	253	35	0	288	0	0	0	0	0	405
Total	11	552	0	0	563	71	0	17	0	88	0	922	147	0	1069	0	0	0	0	0	1720
Grand Total	16	1237	0	0	1253	166	0	22	0	188	0	1738	265	0	2003	0	0	0	0	0	3444
Apprch %	1.3	98.7	0	0		88.3	0	11.7	0		0	86.8	13.2	0		0	0	0	0		
Total %	0.5	35.9	0	0	36.4	4.8	0	0.6	0	5.5	0	50.5	7.7	0	58.2	0	0	0	0	0	

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File Name : Hwy 24 - Rio Ln PM
Site Code : S214730
Start Date : 8/12/2021
Page No : 2

	Hwy 24 Southbound					Rio Ln Westbound					Hwy 24 Northbound					Eastbound					
Start Time	L	T	R	U	App. Total	L	T	R	U	App. Total	L	T	R	U	App. Total	L	T	R	U	App. Total	Int. Total
Peak Hour Analysis From 4:00:00 PM to 5:45:00 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 4:30:00 PM																					
4:30:00 PM	1	152	0	0	153	31	0	1	0	32	0	193	27	0	220	0	0	0	0	0	405
4:45:00 PM	2	181	0	0	183	21	0	2	0	23	0	215	32	0	247	0	0	0	0	0	453
5:00:00 PM	5	143	0	0	148	28	0	4	0	32	0	223	49	0	272	0	0	0	0	0	452
5:15:00 PM	1	156	0	0	157	9	0	10	0	19	0	252	35	0	287	0	0	0	0	0	463
Total Volume	9	632	0	0	641	89	0	17	0	106	0	883	143	0	1026	0	0	0	0	0	1773
% App. Total	1.4	98.6	0	0		84	0	16	0		0	86.1	13.9	0		0	0	0	0		
PHF	.450	.873	.000	.000	.876	.718	.000	.425	.000	.828	.000	.876	.730	.000	.894	.000	.000	.000	.000	.000	.957

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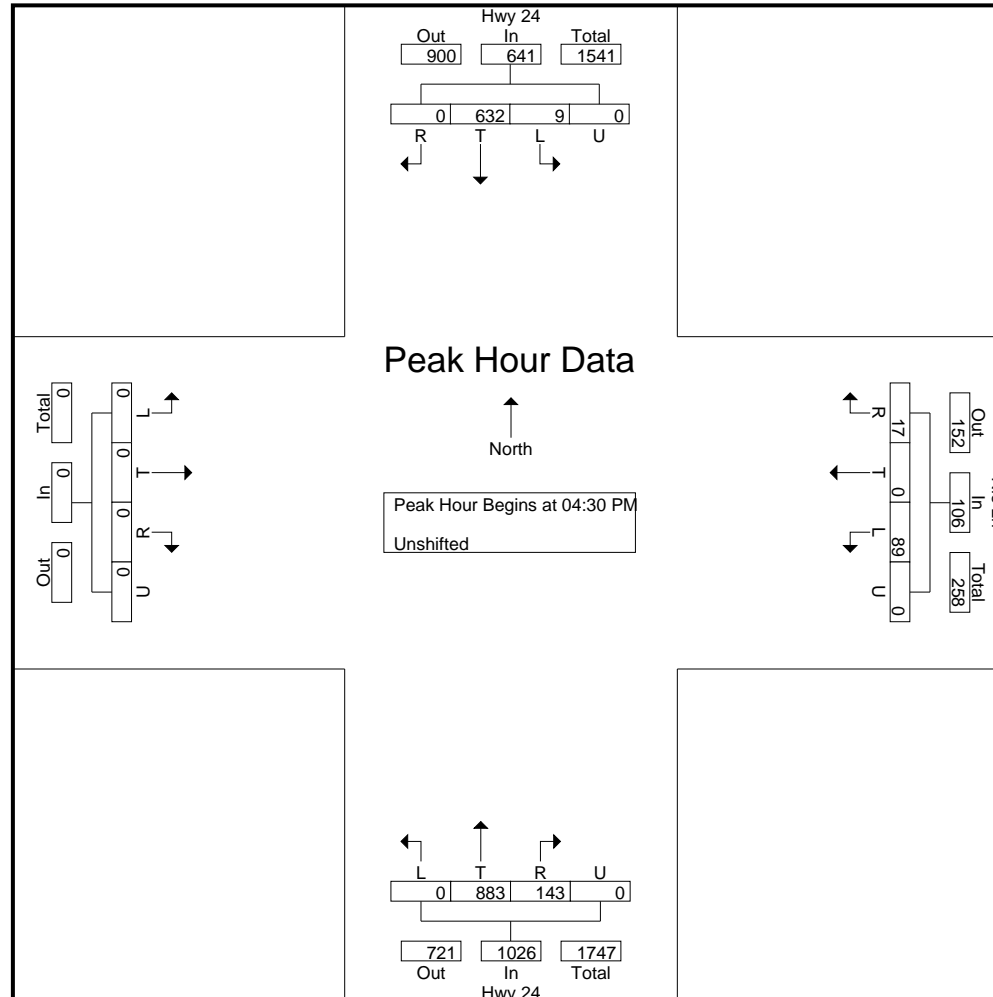
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File Name : Hwy 24 - Rio Ln PM

Site Code : S214730

Start Date : 8/12/2021

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File Name : Hwy 24 - Rio Ln PM
Site Code : S214730
Start Date : 8/12/2021
Page No : 4

	Hwy 24 Southbound					Rio Ln Westbound					Hwy 24 Northbound					Eastbound					
Start Time	L	T	R	U	App. Total	L	T	R	U	App. Total	L	T	R	U	App. Total	L	T	R	U	App. Total	Int. Total

Peak Hour Analysis From 4:00:00 PM to 5:45:00 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	4:00:00 PM					4:15:00 PM					5:00:00 PM					4:00:00 PM				
+0 mins.	1	184	0	0	185	20	0	1	0	21	0	223	49	0	272	0	0	0	0	0
+5 mins.	1	168	0	0	169	31	0	1	0	32	0	252	35	0	287	0	0	0	0	0
+10 mins.	1	152	0	0	153	21	0	2	0	23	0	194	28	0	222	0	0	0	0	0
+15 mins.	2	181	0	0	183	28	0	4	0	32	0	253	35	0	288	0	0	0	0	0
Total Volume	5	685	0	0	690	100	0	8	0	108	0	922	147	0	1069	0	0	0	0	0
% App. Total	0.7	99.3	0	0		92.6	0	7.4	0		0	86.2	13.8	0		0	0	0	0	
PHF	.625	.931	.000	.000	.932	.806	.000	.500	.000	.844	.000	.911	.750	.000	.928	.000	.000	.000	.000	.000

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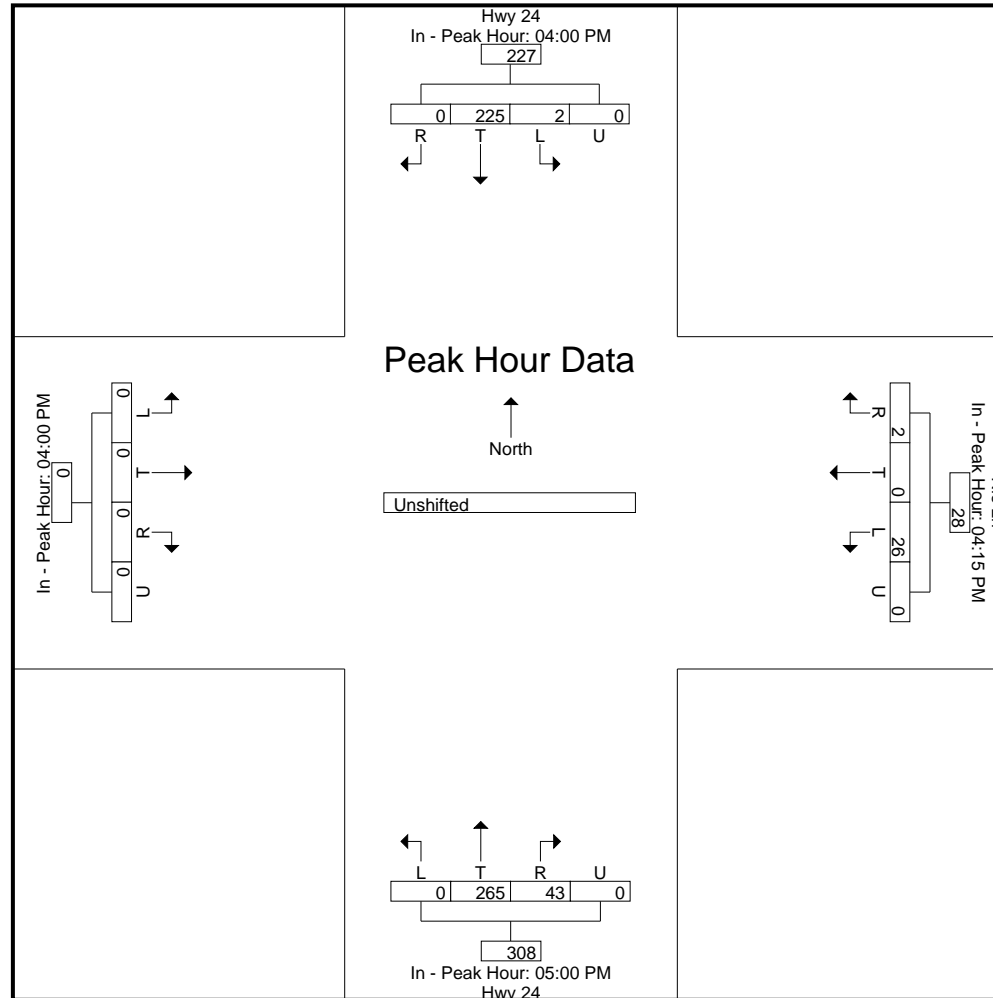
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719-633-2868

File Name : Hwy 24 - Rio Ln PM

Site Code : S214730

Start Date : 8/12/2021

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Lanes, Volumes, Timings
3: US 24 & Woodmen Rd

Existing
AM Peak Hour



Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (vph)	303	267	202	288	544	349
Future Volume (vph)	303	267	202	288	544	349
Satd. Flow (prot)	1770	1583	3433	1863	1863	1583
Flt Permitted	0.950		0.225			
Satd. Flow (perm)	1770	1583	813	1863	1863	1583
Satd. Flow (RTOR)		293				388
Peak Hour Factor	0.91	0.91	0.91	0.91	0.90	0.90
Shared Lane Traffic (%)						
Lane Group Flow (vph)	333	293	222	316	604	388
Turn Type	Prot	Free	pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		Free	2			6
Total Split (s)	32.0		10.0	58.0	48.0	48.0
Total Lost Time (s)	4.0		4.0	4.0	4.0	4.5
Act Effect Green (s)	28.0	90.0	54.0	54.0	44.0	43.5
Actuated g/C Ratio	0.31	1.00	0.60	0.60	0.49	0.48
v/c Ratio	0.61	0.19	0.34	0.28	0.66	0.40
Control Delay	25.2	0.4	11.4	13.1	21.8	2.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.2	0.4	11.4	13.1	21.8	2.8
LOS	C	A	B	B	C	A
Approach Delay	13.6			12.4	14.4	
Approach LOS	B			B	B	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 2:NETL and 6:SWT, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.66

Intersection Signal Delay: 13.7

Intersection LOS: B

Intersection Capacity Utilization 61.2%

ICU Level of Service B




Analysis Period (min) 15

Splits and Phases: 3: US 24 & Woodmen Rd



HCM 6th TWSC
18: US 24 & Rio Lane

Existing
AM Peak Hour

Intersection						
Int Delay, s/veh	6.8					
Movement	NBL	NBR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Vol, veh/h	88	14	471	100	6	862
Future Vol, veh/h	88	14	471	100	6	862
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	91	91	88	88	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	97	15	535	114	7	969
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1575	592	0	0	649	0
Stage 1	592	-	-	-	-	-
Stage 2	983	-	-	-	-	-
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	121	506	-	-	937	-
Stage 1	553	-	-	-	-	-
Stage 2	362	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	119	506	-	-	937	-
Mov Cap-2 Maneuver	119	-	-	-	-	-
Stage 1	553	-	-	-	-	-
Stage 2	356	-	-	-	-	-
Approach	NB	NE	SW			
HCM Control Delay, s	104	0	0.1			
HCM LOS	F					
Minor Lane/Major Mvmt	NET	NER	NBLn1	SWL	SWT	
Capacity (veh/h)	-	-	133	937	-	
HCM Lane V/C Ratio	-	-	0.843	0.007	-	
HCM Control Delay (s)	-	-	104	8.9	0	
HCM Lane LOS	-	-	F	A	A	
HCM 95th %tile Q(veh)	-	-	5.3	0	-	

Lanes, Volumes, Timings

3: US 24 & Woodmen Rd

Baseline



Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (vph)	619	196	369	485	292	366
Future Volume (vph)	619	196	369	485	292	366
Satd. Flow (prot)	1770	1583	3433	1863	1863	1583
Flt Permitted	0.950		0.297			
Satd. Flow (perm)	1770	1583	1073	1863	1863	1583
Satd. Flow (RTOR)		139				411
Peak Hour Factor	0.95	0.95	0.93	0.93	0.89	0.89
Shared Lane Traffic (%)						
Lane Group Flow (vph)	652	206	397	522	328	411
Turn Type	Prot	Free	pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		Free	2			6
Total Split (s)	45.0		15.0	45.0	30.0	30.0
Total Lost Time (s)	4.5		4.5	4.5	4.5	4.5
Act Effect Green (s)	40.5	90.0	40.5	40.5	25.8	25.8
Actuated g/C Ratio	0.45	1.00	0.45	0.45	0.29	0.29
v/c Ratio	0.82	0.13	0.53	0.62	0.62	0.55
Control Delay	26.3	0.2	7.1	9.9	33.8	5.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.3	0.2	7.1	9.9	33.8	5.9
LOS	C	A	A	A	C	A
Approach Delay	20.0			8.7	18.3	
Approach LOS	C			A	B	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 72 (80%), Referenced to phase 2:NETL and 6:SWT, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 15.4

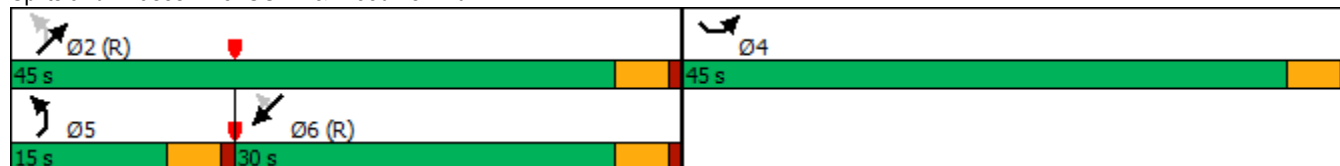
Intersection LOS: B

Intersection Capacity Utilization 71.4%

ICU Level of Service C




Analysis Period (min) 15

Splits and Phases: 3: US 24 & Woodmen Rd



HCM 6th TWSC
18: US 24 & Rio Lane

























Baseline

Intersection						
Int Delay, s/veh	17.2					
Movement	NBL	NBR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Vol, veh/h	89	17	883	143	9	632
Future Vol, veh/h	89	17	883	143	9	632
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	83	83	89	89	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	107	20	992	161	10	687
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	1780	1073	0	0	1153	0
Stage 1	1073	-	-	-	-	-
Stage 2	707	-	-	-	-	-
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	~ 90	268	-	-	606	-
Stage 1	328	-	-	-	-	-
Stage 2	489	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 88	268	-	-	606	-
Mov Cap-2 Maneuver	~ 88	-	-	-	-	-
Stage 1	328	-	-	-	-	-
Stage 2	476	-	-	-	-	-
Approach	NB	NE		SW		
HCM Control Delay, s	265.9	0		0.2		
HCM LOS	F					
Minor Lane/Major Mvmt	NET	NER	NBLn1	SWL	SWT	
Capacity (veh/h)	-	-	99	606	-	
HCM Lane V/C Ratio	-	-	1.29	0.016	-	
HCM Control Delay (s)	-	-	265.9	11	0	
HCM Lane LOS	-	-	F	B	A	
HCM 95th %tile Q(veh)	-	-	8.9	0	-	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Lanes, Volumes, Timings

3: US 24 & Woodmen Rd

Short Term Background
AM Peak

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	375	35	480	5	25	0	350	330	5	0	625	475
Future Volume (vph)	375	35	480	5	25	0	350	330	5	0	625	475
Satd. Flow (prot)	1770	1863	1583	1770	1863	1863	3433	1863	1583	1863	1863	1583
Flt Permitted	0.567			0.732			0.104					
Satd. Flow (perm)	1056	1863	1583	1364	1863	1863	376	1863	1583	1863	1863	1583
Satd. Flow (RTOR)			520						136			342
Peak Hour Factor	0.91	0.91	0.91	0.92	0.92	0.92	0.91	0.91	0.91	0.90	0.90	0.90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	412	38	527	5	27	0	385	363	5	0	694	528
Turn Type	pm+pt	NA	Free	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Free
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		Free	8		8	2		2	6		Free
Detector Phase	7	4		3	8	8	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	22.5	22.5		9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	
Total Split (s)	23.0	36.0		9.5	22.5	22.5	14.0	65.0	65.0	9.5	60.5	
Total Split (%)	19.2%	30.0%		7.9%	18.8%	18.8%	11.7%	54.2%	54.2%	7.9%	50.4%	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	-0.5	0.0		0.0	0.0	0.0	-0.5	-0.5	0.0	0.0	-0.5	
Total Lost Time (s)	4.0	4.5		4.5	4.5	4.5	4.0	4.0	4.5	4.5	4.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	Max	Max		None	None	None	None	C-Max	C-Max	None	C-Max	
Act Effect Green (s)	41.5	39.1	120.0	15.8	13.1		70.5	70.5	70.0		56.5	120.0
Actuated g/C Ratio	0.35	0.33	1.00	0.13	0.11		0.59	0.59	0.58		0.47	1.00
v/c Ratio	0.77	0.06	0.33	0.03	0.13		0.81	0.33	0.01		0.79	0.33
Control Delay	35.4	19.6	1.0	27.8	46.7		30.8	13.7	0.0		34.8	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0
Total Delay	35.4	19.6	1.0	27.8	46.7		30.8	13.7	0.0		34.8	0.6
LOS	D	B	A	C	D		C	B	A		C	A
Approach Delay		16.2			43.7			22.4			20.0	
Approach LOS		B			D			C			C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NETL and 6:SWTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 19.6

Intersection LOS: B

Intersection Capacity Utilization 80.7%

ICU Level of Service D

Analysis Period (min) 15

























Splits and Phases: 3: US 24 & Woodmen Rd

			
Ø1	Ø2 (R)	Ø3	Ø4
9.5 s	65 s	9.5 s	36 s
			
Ø5	Ø6 (R)	Ø7	Ø8
14 s	60.5 s	23 s	22.5 s

Lanes, Volumes, Timings

3: US 24 & Woodmen Rd

Short Term Background
PM Peak

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	685	65	315	5	65	0	450	555	5	0	335	400
Future Volume (vph)	685	65	315	5	65	0	450	555	5	0	335	400
Satd. Flow (prot)	1770	1863	1583	1770	1863	1863	3433	1863	1583	1863	1863	1583
Flt Permitted	0.563			0.711			0.182					
Satd. Flow (perm)	1049	1863	1583	1324	1863	1863	658	1863	1583	1863	1863	1583
Satd. Flow (RTOR)			342						136			449
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.89	0.89	0.89
Shared Lane Traffic (%)												
Lane Group Flow (vph)	745	71	342	5	71	0	489	603	5	0	376	449
Turn Type	pm+pt	NA	Free	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Free
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		Free	8		8	2		2	6		Free
Detector Phase	7	4		3	8	8	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	22.5	22.5		9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	
Total Split (s)	40.7	52.0		11.2	22.5	22.5	17.8	47.3	47.3	9.5	39.0	
Total Split (%)	33.9%	43.3%		9.3%	18.8%	18.8%	14.8%	39.4%	39.4%	7.9%	32.5%	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	Max	Max		None	None	None	None	C-Max	C-Max	None	C-Max	
Act Effect Green (s)	58.7	56.6	120.0	20.1	15.6		52.3	52.3	52.3		34.6	120.0
Actuated g/C Ratio	0.49	0.47	1.00	0.17	0.13		0.44	0.44	0.44		0.29	1.00
v/c Ratio	0.98	0.08	0.22	0.02	0.29		0.83	0.74	0.01		0.70	0.28
Control Delay	47.4	10.3	0.3	21.0	49.0		35.8	35.1	0.0		46.3	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0
Total Delay	47.4	10.3	0.3	21.0	49.0		35.8	35.1	0.0		46.3	0.5
LOS	D	B	A	C	D		D	D	A		D	A
Approach Delay		31.2			47.2			35.3			21.3	
Approach LOS		C			D			D			C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 114 (95%), Referenced to phase 2:NETL and 6:SWTL, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.98

Intersection Signal Delay: 30.4

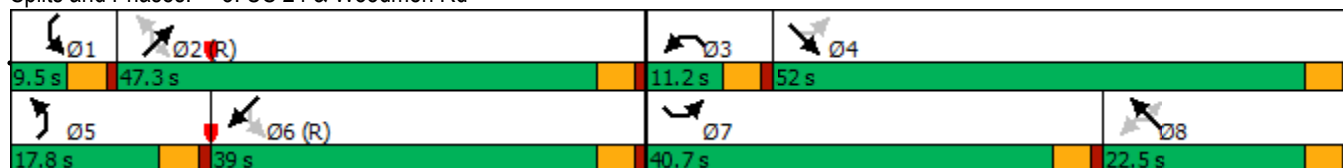
Intersection LOS: C

Intersection Capacity Utilization 89.2%

ICU Level of Service E

Analysis Period (min) 15

























Splits and Phases: 3: US 24 & Woodmen Rd



Lanes, Volumes, Timings

3: US 24 & Woodmen Rd

Long Term Background
AM Peak

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	375	100	550	45	49	21	510	660	42	44	745	475
Future Volume (vph)	375	100	550	45	49	21	510	660	42	44	745	475
Satd. Flow (prot)	3433	1863	2787	1770	1863	1583	3433	5085	1583	1770	5085	1583
Flt Permitted	0.584			0.686			0.216			0.365		
Satd. Flow (perm)	2110	1863	2787	1278	1863	1583	781	5085	1583	680	5085	1583
Satd. Flow (RTOR)			247			218			136			528
Peak Hour Factor	0.91	0.91	0.91	0.92	0.92	0.92	0.91	0.91	0.91	0.90	0.90	0.90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	412	110	604	49	53	23	560	725	46	49	828	528
Turn Type	pm+pt	NA	pt+ov	pm+pt	NA	Free	pm+pt	NA	Perm	pm+pt	NA	Free
Protected Phases	7	4	4 5	3	8		5	2		1	6	
Permitted Phases	4			8		Free	2		2	6		Free
Detector Phase	7	4	4 5	3	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	22.5	22.5		9.5	22.5		9.5	22.5	22.5	9.5	22.5	
Total Split (s)	25.0	39.0		11.0	25.0		28.0	60.5	60.5	9.5	42.0	
Total Split (%)	20.8%	32.5%		9.2%	20.8%		23.3%	50.4%	50.4%	7.9%	35.0%	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	-0.5	0.0		0.0	0.0		-0.5	-0.5	0.0	0.0	-0.5	
Total Lost Time (s)	4.0	4.5		4.5	4.5		4.0	4.0	4.5	4.5	4.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	Max	Max		None	None		None	C-Max	C-Max	None	C-Max	
Act Effct Green (s)	46.0	36.7	59.6	22.7	17.5	120.0	66.0	58.4	57.9	47.6	43.1	120.0
Actuated g/C Ratio	0.38	0.31	0.50	0.19	0.15	1.00	0.55	0.49	0.48	0.40	0.36	1.00
v/c Ratio	0.38	0.19	0.40	0.18	0.19	0.01	0.66	0.29	0.06	0.16	0.45	0.33
Control Delay	19.6	24.6	7.7	27.1	44.7	0.0	14.1	15.9	2.0	15.9	31.0	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.6	24.6	7.7	27.1	44.7	0.0	14.1	15.9	2.0	15.9	31.0	0.6
LOS	B	C	A	C	D	A	B	B	A	B	C	A
Approach Delay		13.7			29.6			14.7			19.0	
Approach LOS		B			C			B			B	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 99 (83%), Referenced to phase 2:NETL and 6:SWTL, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.66

Intersection Signal Delay: 16.4

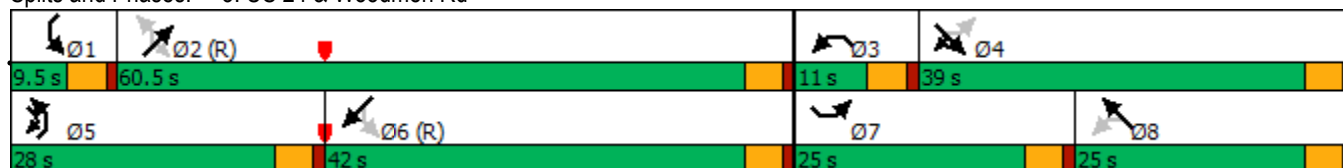
Intersection LOS: B

Intersection Capacity Utilization 56.7%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 3: US 24 & Woodmen Rd



























Intersection			
Intersection Delay, s/veh	3.7		
Intersection LOS	A		
Approach	SE	NE	SW
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	201	95	38
Demand Flow Rate, veh/h	205	97	39
Vehicles Circulating, veh/h	5	44	94
Vehicles Exiting, veh/h	128	166	47
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	3.9	3.4	3.2
Approach LOS	A	A	A
Lane	Left	Left	Left
Designated Moves	R	LT	TR
Assumed Moves	R	LT	TR
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	205	97	39
Cap Entry Lane, veh/h	1373	1319	1254
Entry HV Adj Factor	0.980	0.979	0.972
Flow Entry, veh/h	201	95	38
Cap Entry, veh/h	1346	1291	1218
V/C Ratio	0.149	0.074	0.031
Control Delay, s/veh	3.9	3.4	3.2
LOS	A	A	A
95th %tile Queue, veh	1	0	0

Lanes, Volumes, Timings

3: US 24 & Woodmen Rd

Long Term Background
PM Peak

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	850	163	360	56	171	99	650	1610	156	51	965	425
Future Volume (vph)	850	163	360	56	171	99	650	1610	156	51	965	425
Satd. Flow (prot)	3433	1863	2787	1770	1863	1583	3433	5085	1583	1770	5085	1583
Flt Permitted	0.367			0.646			0.106			0.121		
Satd. Flow (perm)	1326	1863	2787	1203	1863	1583	383	5085	1583	225	5085	1583
Satd. Flow (RTOR)			166			177			136			478
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.89	0.89	0.89
Shared Lane Traffic (%)												
Lane Group Flow (vph)	924	177	391	61	186	108	707	1750	170	57	1084	478
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Free
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		Free
Detector Phase	7	4	5	3	8	8	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	22.5	22.5	9.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	
Total Split (s)	28.0	44.0	29.0	9.6	25.6	25.6	29.0	56.9	56.9	9.5	37.4	
Total Split (%)	23.3%	36.7%	24.2%	8.0%	21.3%	21.3%	24.2%	47.4%	47.4%	7.9%	31.2%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	Max	Max	None	None	None	None	None	C-Max	C-Max	None	C-Max	
Act Effect Green (s)	49.1	41.4	69.3	26.2	21.1	21.1	61.9	54.3	54.3	39.0	34.0	120.0
Actuated g/C Ratio	0.41	0.34	0.58	0.22	0.18	0.18	0.52	0.45	0.45	0.32	0.28	1.00
v/c Ratio	0.97	0.28	0.23	0.21	0.57	0.25	0.89	0.76	0.22	0.42	0.75	0.30
Control Delay	38.6	15.4	1.3	26.0	53.0	1.7	38.4	14.7	1.6	27.6	43.4	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.6	15.4	1.3	26.0	53.0	1.7	38.4	14.7	1.6	27.6	43.4	0.5
LOS	D	B	A	C	D	A	D	B	A	C	D	A
Approach Delay		26.0			32.7			20.3			30.2	
Approach LOS		C			C			C			C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 96 (80%), Referenced to phase 2:NETL and 6:SWTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.97

Intersection Signal Delay: 25.0

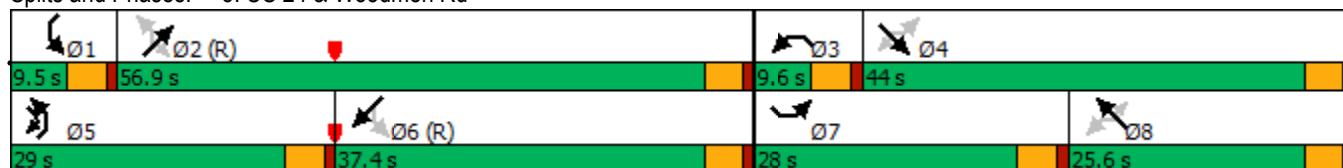
Intersection LOS: C

Intersection Capacity Utilization 85.4%

ICU Level of Service E

Analysis Period (min) 15

























Splits and Phases: 3: US 24 & Woodmen Rd



Intersection			
Intersection Delay, s/veh	5.2		
Intersection LOS	A		
Approach	SE	NE	SW
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	402	317	62
Demand Flow Rate, veh/h	411	323	63
Vehicles Circulating, veh/h	13	78	310
Vehicles Exiting, veh/h	360	346	91
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	5.4	5.1	4.2
Approach LOS	A	A	A
Lane	Left	Left	Left
Designated Moves	R	LT	TR
Assumed Moves	R	LT	TR
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	411	323	63
Cap Entry Lane, veh/h	1362	1274	1006
Entry HV Adj Factor	0.978	0.981	0.980
Flow Entry, veh/h	402	317	62
Cap Entry, veh/h	1332	1250	986
V/C Ratio	0.302	0.253	0.063
Control Delay, s/veh	5.4	5.1	4.2
LOS	A	A	A
95th %tile Queue, veh	1	1	0

Lanes, Volumes, Timings
3: US 24 & Woodmen Rd

Short Term Total
08/23/2021

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	372	104	475	66	94	24	348	328	40	36	615	470
Future Volume (vph)	372	104	475	66	94	24	348	328	40	36	615	470
Satd. Flow (prot)	1770	1863	1583	1770	3539	1583	3433	1863	1583	1770	1863	1583
Flt Permitted	0.570			0.684			0.111			0.500		
Satd. Flow (perm)	1062	1863	1583	1274	3539	1583	401	1863	1583	931	1863	1583
Satd. Flow (RTOR)			441			177			136			344
Peak Hour Factor	0.91	0.91	0.91	0.92	0.92	0.92	0.92	0.92	0.92	0.89	0.89	0.89
Shared Lane Traffic (%)												
Lane Group Flow (vph)	409	114	522	72	102	26	378	357	43	40	691	528
Turn Type	pm+pt	NA	Free	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Free
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		Free	8		8	2		2	6		Free
Detector Phase	7	4		3	8	8	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	22.5	22.5		9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	
Total Split (s)	24.4	33.5		13.4	22.5	22.5	15.2	63.5	63.5	9.6	57.9	
Total Split (%)	20.3%	27.9%		11.2%	18.8%	18.8%	12.7%	52.9%	52.9%	8.0%	48.3%	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	-0.5	0.0		0.0	0.0	0.0	-0.5	-0.5	0.0	0.0	-0.5	
Total Lost Time (s)	4.0	4.5		4.5	4.5	4.5	4.0	4.0	4.5	4.5	4.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	Max	Max		None	None	None	None	C-Max	C-Max	None	C-Max	
Act Effct Green (s)	42.9	32.0	120.0	26.0	18.0	18.0	69.1	61.4	60.9	58.8	54.2	120.0
Actuated g/C Ratio	0.36	0.27	1.00	0.22	0.15	0.15	0.58	0.51	0.51	0.49	0.45	1.00
v/c Ratio	0.82	0.23	0.33	0.23	0.19	0.07	0.75	0.37	0.05	0.08	0.82	0.33
Control Delay	36.9	27.0	1.0	29.4	45.7	0.3	25.3	19.7	0.1	12.2	38.6	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.9	27.0	1.0	29.4	45.7	0.3	25.3	19.7	0.1	12.2	38.6	0.6
LOS	D	C	A	C	D	A	C	B	A	B	D	A
Approach Delay		17.9			34.0			21.3			21.8	
Approach LOS		B			C			C			C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NETL and 6:SWTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 21.2

Intersection LOS: C

Intersection Capacity Utilization 80.0%





ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 3: US 24 & Woodmen Rd

							
9.6 s	63.5 s			13.4 s	33.5 s		
							
15.2 s	57.9 s			24.4 s	22.5 s		

























Intersection				
Intersection Delay, s/veh	3.8			
Intersection LOS	A			
Approach	SE		NE	SW
Entry Lanes	2		1	1
Conflicting Circle Lanes	1		1	1
Adj Approach Flow, veh/h	182		79	125
Demand Flow Rate, veh/h	186		81	127
Vehicles Circulating, veh/h	2		127	81
Vehicles Exiting, veh/h	206		60	127
Ped Vol Crossing Leg, #/h	0		0	0
Ped Cap Adj	1.000		1.000	1.000
Approach Delay, s/veh	3.5		3.9	4.0
Approach LOS	A		A	A
Lane	Left	Right	Left	Left
Designated Moves	L	TR	LT	TR
Assumed Moves	L	TR	LT	TR
RT Channelized				
Lane Util	0.688	0.312	1.000	1.000
Follow-Up Headway, s	2.800	2.800	2.800	2.800
Critical Headway, s	4.544	4.544	4.976	4.976
Entry Flow, veh/h	128	58	81	127
Cap Entry Lane, veh/h	1283	1283	1133	1186
Entry HV Adj Factor	0.977	0.983	0.975	0.984
Flow Entry, veh/h	125	57	79	125
Cap Entry, veh/h	1253	1261	1105	1167
V/C Ratio	0.100	0.045	0.071	0.107
Control Delay, s/veh	3.7	3.2	3.9	4.0
LOS	A	A	A	A
95th %tile Queue, veh	0	0	0	0

Intersection						
Int Delay, s/veh	3.6					
Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Vol, veh/h	2	42	62	53	72	6
Future Vol, veh/h	2	42	62	53	72	6
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	-	-	-
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	2	46	67	58	78	7
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	274	82	85	0	-	0
Stage 1	82	-	-	-	-	-
Stage 2	192	-	-	-	-	-
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	716	978	1512	-	-	-
Stage 1	941	-	-	-	-	-
Stage 2	841	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	684	978	1512	-	-	-
Mov Cap-2 Maneuver	684	-	-	-	-	-
Stage 1	900	-	-	-	-	-
Stage 2	841	-	-	-	-	-
Approach	SE	NE		SW		
HCM Control Delay, s	9	4		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NEL	NET	SELn1	SWT	SWR	
Capacity (veh/h)	1512	-	959	-	-	
HCM Lane V/C Ratio	0.045	-	0.05	-	-	
HCM Control Delay (s)	7.5	-	9	-	-	
HCM Lane LOS	A	-	A	-	-	
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-	

Lanes, Volumes, Timings

3: US 24 & Woodmen Rd

Short Term Total
PM Peak

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	671	166	311	51	181	70	334	527	117	42	328	394
Future Volume (vph)	671	166	311	51	181	70	334	527	117	42	328	394
Satd. Flow (prot)	1770	1863	1583	1770	3539	1583	3433	1863	1583	1770	1863	1583
Flt Permitted	0.414			0.643			0.238			0.117		
Satd. Flow (perm)	771	1863	1583	1198	3539	1583	860	1863	1583	218	1863	1583
Satd. Flow (RTOR)			342			177			136			438
Peak Hour Factor	0.91	0.91	0.91	0.92	0.92	0.92	0.91	0.91	0.91	0.90	0.90	0.90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	737	182	342	55	197	76	367	579	129	47	364	438
Turn Type	pm+pt	NA	Free	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Free
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		Free	8		8	2		2	6		Free
Detector Phase	7	4		3	8	8	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	22.5	22.5		9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	
Total Split (s)	48.0	45.6		20.4	18.0	18.0	14.4	45.0	45.0	9.0	39.6	
Total Split (%)	40.0%	38.0%		17.0%	15.0%	15.0%	12.0%	37.5%	37.5%	7.5%	33.0%	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	Max	Max		None	None	None	None	C-Max	C-Max	None	C-Max	
Act Effct Green (s)	61.5	51.7	120.0	20.8	13.5	13.5	49.5	42.3	42.3	39.6	35.1	120.0
Actuated g/C Ratio	0.51	0.43	1.00	0.17	0.11	0.11	0.41	0.35	0.35	0.33	0.29	1.00
v/c Ratio	0.97	0.23	0.22	0.23	0.49	0.23	0.65	0.88	0.20	0.36	0.67	0.28
Control Delay	54.6	24.0	0.3	24.1	54.7	1.6	29.2	53.8	4.9	29.8	44.4	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.6	24.0	0.3	24.1	54.7	1.6	29.2	53.8	4.9	29.8	44.4	0.4
LOS	D	C	A	C	D	A	C	D	A	C	D	A
Approach Delay		35.4			37.3			39.5			20.9	
Approach LOS		D			D			D			C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NETL and 6:SWTL, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.97

Intersection Signal Delay: 33.4

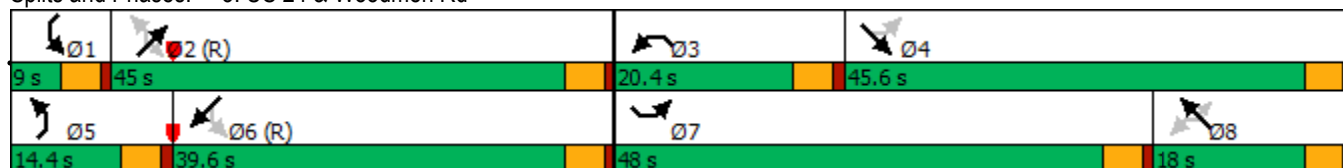
Intersection LOS: C

Intersection Capacity Utilization 89.1%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 3: US 24 & Woodmen Rd



Intersection				
Intersection Delay, s/veh	4.6			
Intersection LOS	A			
Approach	SE		NE	SW
Entry Lanes	2		1	1
Conflicting Circle Lanes	1		1	1
Adj Approach Flow, veh/h	333		126	239
Demand Flow Rate, veh/h	340		128	243
Vehicles Circulating, veh/h	18		229	110
Vehicles Exiting, veh/h	335		128	247
Ped Vol Crossing Leg, #/h	0		0	0
Ped Cap Adj	1.000		1.000	1.000
Approach Delay, s/veh	4.2		4.7	5.1
Approach LOS	A		A	A
Lane	Left	Right	Left	Left
Designated Moves	L	TR	LT	TR
Assumed Moves	L	TR	LT	TR
RT Channelized				
Lane Util	0.676	0.324	1.000	1.000
Follow-Up Headway, s	2.800	2.800	2.800	2.800
Critical Headway, s	4.544	4.544	4.976	4.976
Entry Flow, veh/h	230	110	128	243
Cap Entry Lane, veh/h	1266	1266	1024	1153
Entry HV Adj Factor	0.978	0.982	0.982	0.982
Flow Entry, veh/h	225	108	126	239
Cap Entry, veh/h	1238	1243	1005	1132
V/C Ratio	0.182	0.087	0.125	0.211
Control Delay, s/veh	4.5	3.6	4.7	5.1
LOS	A	A	A	A
95th %tile Queue, veh	1	0	0	1

HCM 6th TWSC
28: Falcon Fields & East Access

Short Term Total
PM Peak

Intersection

Int Delay, s/veh 4.9

Movement SEL SER NEL NET SWT SWR

Lane Configurations 

Traffic Vol, veh/h 19 127 107 117 93 14

Future Vol, veh/h 19 127 107 117 93 14

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 - - -

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 21 138 116 127 101 15

Major/Minor Minor2 Major1 Major2

Conflicting Flow All 468 109 116 0 - 0

Stage 1 109 - - - - -

Stage 2 359 - - - - -

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 553 945 1473 - - -

Stage 1 916 - - - - -

Stage 2 707 - - - - -

Platoon blocked, % - - -

Mov Cap-1 Maneuver 509 945 1473 - - -

Mov Cap-2 Maneuver 509 - - - - -

Stage 1 844 - - - - -

Stage 2 707 - - - - -

Approach SE NE SW

HCM Control Delay, s 10.2 3.7 0

HCM LOS B

Minor Lane/Major Mvmt NEL NET SELn1 SWT SWR

Capacity (veh/h) 1473 - 850 - -

HCM Lane V/C Ratio 0.079 - 0.187 - -

HCM Control Delay (s) 7.7 - 10.2 - -

HCM Lane LOS A - B - -




































HCM 95th %tile Q(veh) 0.3 - 0.7 - -

Lanes, Volumes, Timings

3: US 24 & Woodmen Rd

Long Term Total

AM Peak

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	 		 	 	 		 	  		 	  	 
Traffic Volume (vph)	372	169	545	107	118	45	508	652	77	80	735	470
Future Volume (vph)	372	169	545	107	118	45	508	652	77	80	735	470
Satd. Flow (prot)	3433	1863	2787	3433	3539	1583	3433	5085	1583	1770	5085	1583
Flt Permitted	0.564			0.640			0.218			0.368		
Satd. Flow (perm)	2038	1863	2787	2313	3539	1583	788	5085	1583	685	5085	1583
Satd. Flow (RTOR)			312			218			136			522
Peak Hour Factor	0.91	0.91	0.91	0.92	0.92	0.92	0.91	0.91	0.91	0.90	0.90	0.90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	409	186	599	116	128	49	558	716	85	89	817	522
Turn Type	pm+pt	NA	pt+ov	pm+pt	NA	Free	pm+pt	NA	Perm	pm+pt	NA	Free
Protected Phases	7	4	4 5	3	8		5	2		1	6	
Permitted Phases	4			8		Free	2		2	6		Free
Detector Phase	7	4	4 5	3	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	22.5	22.5		9.5	22.5		9.5	22.5	22.5	9.5	22.5	
Total Split (s)	26.0	33.0		18.0	25.0		30.0	54.0	54.0	15.0	39.0	
Total Split (%)	21.7%	27.5%		15.0%	20.8%		25.0%	45.0%	45.0%	12.5%	32.5%	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	-0.5	0.0		0.0	0.0		-0.5	-0.5	0.0	0.0	-0.5	
Total Lost Time (s)	4.0	4.5		4.5	4.5		4.0	4.0	4.5	4.5	4.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	Max	Max		None	None		None	C-Max	C-Max	None	C-Max	
Act Effect Green (s)	47.0	34.0	57.2	28.5	20.5	120.0	65.0	52.1	51.6	49.6	41.7	120.0
Actuated g/C Ratio	0.39	0.28	0.48	0.24	0.17	1.00	0.54	0.43	0.43	0.41	0.35	1.00
v/c Ratio	0.39	0.35	0.40	0.19	0.21	0.03	0.66	0.32	0.11	0.25	0.46	0.33
Control Delay	18.2	27.3	7.7	25.4	43.9	0.0	12.6	18.4	4.4	16.7	32.1	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.2	27.3	7.7	25.4	43.9	0.0	12.6	18.4	4.4	16.7	32.1	0.6
LOS	B	C	A	C	D	A	B	B	A	B	C	A
Approach Delay		14.3			29.2			15.1			19.6	
Approach LOS		B			C			B			B	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 99 (83%), Referenced to phase 2:NETL and 6:SWTL, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.66

Intersection Signal Delay: 17.4

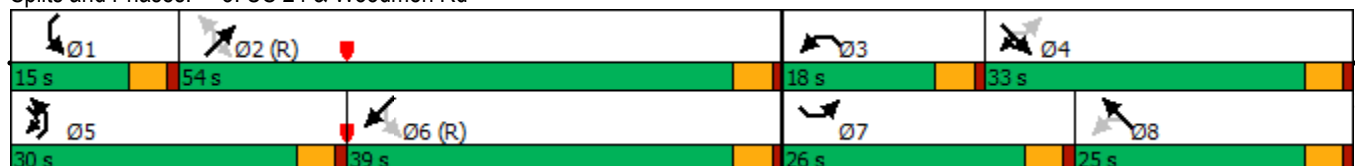
Intersection LOS: B

Intersection Capacity Utilization 57.2%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 3: US 24 & Woodmen Rd



Intersection				
Intersection Delay, s/veh	4.3			
Intersection LOS	A			
Approach	SE		NE	SW
Entry Lanes	2		1	1
Conflicting Circle Lanes	1		1	1
Adj Approach Flow, veh/h	339		175	131
Demand Flow Rate, veh/h	346		178	133
Vehicles Circulating, veh/h	8		127	175
Vehicles Exiting, veh/h	300		226	130
Ped Vol Crossing Leg, #/h	0		0	0
Ped Cap Adj	1.000		1.000	1.000
Approach Delay, s/veh	4.1		4.6	4.5
Approach LOS	A		A	A
Lane	Left	Right	Left	Left
Designated Moves	L	TR	LT	TR
Assumed Moves	L	TR	LT	TR
RT Channelized				
Lane Util	0.370	0.630	1.000	1.000
Follow-Up Headway, s	2.800	2.800	2.800	2.800
Critical Headway, s	4.544	4.544	4.976	4.976
Entry Flow, veh/h	128	218	178	133
Cap Entry Lane, veh/h	1277	1277	1133	1081
Entry HV Adj Factor	0.977	0.982	0.983	0.984
Flow Entry, veh/h	125	214	175	131
Cap Entry, veh/h	1247	1253	1114	1063
V/C Ratio	0.100	0.171	0.157	0.123
Control Delay, s/veh	3.7	4.3	4.6	4.5
LOS	A	A	A	A
95th %tile Queue, veh	0	1	1	0

HCM 6th TWSC
24: Falcon Fields & West Access

Long Term Total
AM Peak

Intersection												
Int Delay, s/veh	2.3											
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Vol, veh/h	29	1	0	0	1	44	0	88	0	14	150	40
Future Vol, veh/h	29	1	0	0	1	44	0	88	0	14	150	40
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	-	-	-	-	-	-	0	-	-	0	-	-
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	32	1	0	0	1	48	0	96	0	15	163	43






Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	336	311	185	311	332	96	206	0	0	96	0	0
Stage 1	215	215	-	96	96	-	-	-	-	-	-	-
Stage 2	121	96	-	215	236	-	-	-	-	-	-	-
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	618	604	857	642	588	960	1365	-	-	1498	-	-
Stage 1	787	725	-	911	815	-	-	-	-	-	-	-
Stage 2	883	815	-	787	710	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	582	598	857	636	582	960	1365	-	-	1498	-	-
Mov Cap-2 Maneuver	582	598	-	636	582	-	-	-	-	-	-	-
Stage 1	787	718	-	911	815	-	-	-	-	-	-	-
Stage 2	838	815	-	778	703	-	-	-	-	-	-	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	11.5	9	0	0.5
HCM LOS	B	A		

Minor Lane/Major Mvmt	NEL	NET	NERNWLn1	SELn1	SWL	SWT	SWR
Capacity (veh/h)	1365	-	-	946	583	1498	-
HCM Lane V/C Ratio	-	-	-	0.052	0.056	0.01	-
HCM Control Delay (s)	0	-	-	9	11.5	7.4	-
HCM Lane LOS	A	-	-	A	B	A	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.2	0	-

























HCM 6th TWSC
28: Falcon Fields & East Access

Long Term Total
AM Peak

Intersection						
Int Delay, s/veh	3.6					
Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Vol, veh/h	2	42	62	53	72	6
Future Vol, veh/h	2	42	62	53	72	6
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	-	-	-
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	2	46	67	58	78	7
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	274	82	85	0	-	0
Stage 1	82	-	-	-	-	-
Stage 2	192	-	-	-	-	-
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	716	978	1512	-	-	-
Stage 1	941	-	-	-	-	-
Stage 2	841	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	684	978	1512	-	-	-
Mov Cap-2 Maneuver	684	-	-	-	-	-
Stage 1	900	-	-	-	-	-
Stage 2	841	-	-	-	-	-
Approach	SE	NE		SW		
HCM Control Delay, s	9	4		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NEL	NET	SELn1	SWT	SWR	
Capacity (veh/h)	1512	-	959	-	-	
HCM Lane V/C Ratio	0.045	-	0.05	-	-	
HCM Control Delay (s)	7.5	-	9	-	-	
HCM Lane LOS	A	-	A	-	-	
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-	

Lanes, Volumes, Timings
3: US 24 & Woodmen Rd

Long Term Total
PM Peak

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	834	264	354	102	287	169	634	1582	268	93	958	421
Future Volume (vph)	834	264	354	102	287	169	634	1582	268	93	958	421
Satd. Flow (prot)	3433	1863	2787	3433	3539	1583	3433	5085	1583	1770	5085	1583
Flt Permitted	0.399			0.584			0.117			0.135		
Satd. Flow (perm)	1442	1863	2787	2110	3539	1583	423	5085	1583	251	5085	1583
Satd. Flow (RTOR)			385			181			136			473
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.89	0.89	0.89
Shared Lane Traffic (%)												
Lane Group Flow (vph)	907	287	385	111	312	184	689	1720	291	104	1076	473
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Free
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		Free
Detector Phase	7	4	5	3	8	8	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	22.5	22.5	9.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	
Total Split (s)	28.0	39.8	26.0	20.2	32.0	32.0	26.0	45.0	45.0	15.0	34.0	
Total Split (%)	23.3%	33.2%	21.7%	16.8%	26.7%	26.7%	21.7%	37.5%	37.5%	12.5%	28.3%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	Max	Max	None	None	None	None	None	C-Max	C-Max	None	C-Max	
Act Effct Green (s)	55.5	43.4	69.3	35.1	27.5	27.5	55.5	41.9	41.9	38.7	29.6	120.0
Actuated g/C Ratio	0.46	0.36	0.58	0.29	0.23	0.23	0.46	0.35	0.35	0.32	0.25	1.00
v/c Ratio	0.86	0.43	0.22	0.16	0.38	0.37	0.94	0.97	0.45	0.53	0.86	0.30
Control Delay	23.3	15.1	0.7	20.3	40.8	7.9	37.6	37.0	10.0	31.7	51.3	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.3	15.1	0.7	20.3	40.8	7.9	37.6	37.0	10.0	31.7	51.3	0.5
LOS	C	B	A	C	D	A	D	D	A	C	D	A
Approach Delay		16.3			27.1			34.2			35.5	
Approach LOS		B			C			C			D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 96 (80%), Referenced to phase 2:NETL and 6:SWTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.97

Intersection Signal Delay: 29.6









Intersection LOS: C

Intersection Capacity Utilization 83.3%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 3: US 24 & Woodmen Rd

			
15 s	45 s	20.2 s	39.8 s
			
26 s	34 s	28 s	32 s







HCM 6th Roundabout
19: Falcon Fields & Woodmen Rd

Long Term Total
PM Peak

Intersection				
Intersection Delay, s/veh	6.9			
Intersection LOS	A			
Approach	SE		NE	SW
Entry Lanes	2		1	1
Conflicting Circle Lanes	1		1	1
Adj Approach Flow, veh/h	658		444	225
Demand Flow Rate, veh/h	672		453	230
Vehicles Circulating, veh/h	33		229	420
Vehicles Exiting, veh/h	617		475	262
Ped Vol Crossing Leg, #/h	0		0	0
Ped Cap Adj	1.000		1.000	1.000
Approach Delay, s/veh	5.7		8.6	7.3
Approach LOS	A		A	A
Lane	Left	Right	Left	Left
Designated Moves	L	TR	LT	TR
Assumed Moves	L	TR	LT	TR
RT Channelized				
Lane Util	0.342	0.658	1.000	1.000
Follow-Up Headway, s	2.800	2.800	2.800	2.800
Critical Headway, s	4.544	4.544	4.976	4.976
Entry Flow, veh/h	230	442	453	230
Cap Entry Lane, veh/h	1249	1249	1024	847
Entry HV Adj Factor	0.978	0.980	0.981	0.980
Flow Entry, veh/h	225	433	444	225
Cap Entry, veh/h	1222	1224	1005	830
V/C Ratio	0.184	0.354	0.442	0.272
Control Delay, s/veh	4.5	6.3	8.6	7.3
LOS	A	A	A	A
95th %tile Queue, veh	1	2	2	1

HCM 6th TWSC
24: Falcon Fields & West Access

Long Term Total
PM Peak

Intersection												
Int Delay, s/veh	3.9											
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	92	10	0	0	6	24	0	292	0	41	312	65
Future Vol, veh/h	92	10	0	0	6	24	0	292	0	41	312	65
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	-	-	-	-	-	-	0	-	-	0	-	-
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	100	11	0	0	7	26	0	317	0	45	339	71
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	799	782	375	787	817	317	410	0	0	317	0	0
Stage 1	465	465	-	317	317	-	-	-	-	-	-	-
Stage 2	334	317	-	470	500	-	-	-	-	-	-	-
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	304	326	671	309	311	724	1149	-	-	1243	-	-
Stage 1	578	563	-	694	654	-	-	-	-	-	-	-
Stage 2	680	654	-	574	543	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	280	314	671	293	300	724	1149	-	-	1243	-	-
Mov Cap-2 Maneuver	280	314	-	293	300	-	-	-	-	-	-	-
Stage 1	578	543	-	694	654	-	-	-	-	-	-	-
Stage 2	649	654	-	542	523	-	-	-	-	-	-	-
Approach	SE		NW		NE		SW					
HCM Control Delay, s	25.7		11.8		0		0.8					
HCM LOS	D		B									
Minor Lane/Major Mvmt	NEL	NET	NERNWLn1	SELn1	SWL	SWT	SWR					
Capacity (veh/h)	1149	-	-	564	283	1243	-	-				
HCM Lane V/C Ratio	-	-	-	0.058	0.392	0.036	-	-				
HCM Control Delay (s)	0	-	-	11.8	25.7	8	-	-				
HCM Lane LOS	A	-	-	B	D	A	-	-				
HCM 95th %tile Q(veh)	0	-	-	0.2	1.8	0.1	-	-				

HCM 6th TWSC
28: Falcon Fields & East Access

Long Term Total
PM Peak

Intersection

Int Delay, s/veh 5.2

Movement SEL SER NEL NET SWT SWR

Lane Configurations 

Traffic Vol, veh/h 19 127 117 107 68 14

Future Vol, veh/h 19 127 117 107 68 14

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 - - -

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 21 138 127 116 74 15

Major/Minor Minor2 Major1 Major2

Conflicting Flow All 452 82 89 0 - 0

Stage 1 82 - - - - -

Stage 2 370 - - - - -

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 565 978 1506 - - -

Stage 1 941 - - - - -

Stage 2 699 - - - - -

Platoon blocked, % - - -

Mov Cap-1 Maneuver 518 978 1506 - - -

Mov Cap-2 Maneuver 518 - - - - -

Stage 1 862 - - - - -

Stage 2 699 - - - - -

Approach SE NE SW

HCM Control Delay, s 10 4 0

HCM LOS B

Minor Lane/Major Mvmt NEL NET SELn1 SWT SWR

Capacity (veh/h) 1506 - 877 - -

HCM Lane V/C Ratio 0.084 - 0.181 - -













HCM Control Delay (s) 7.6 - 10 - -

HCM Lane LOS A - B - -

HCM 95th %tile Q(veh) 0.3 - 0.7 - -













Queues
3: US 24 & Woodmen Rd

Long Term Total
AM Peak

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Group Flow (vph)	409	186	599	116	128	49	558	716	85	89	817	522
v/c Ratio	0.39	0.35	0.40	0.19	0.21	0.03	0.66	0.32	0.11	0.25	0.46	0.33
Control Delay	18.2	27.3	7.7	25.4	43.9	0.0	12.6	18.4	4.4	16.7	32.1	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.2	27.3	7.7	25.4	43.9	0.0	12.6	18.4	4.4	16.7	32.1	0.6
Queue Length 50th (ft)	110	102	84	28	45	0	155	164	15	32	177	0
Queue Length 95th (ft)	143	155	111	48	75	0	56	200	36	59	238	0
Internal Link Dist (ft)		248			195			896			1308	
Turn Bay Length (ft)	250		100	250		250	850		100	250		350
Base Capacity (vph)	1053	527	1631	781	604	1583	999	2208	758	390	1768	1583
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.35	0.37	0.15	0.21	0.03	0.56	0.32	0.11	0.23	0.46	0.33
Intersection Summary												

Queues
3: US 24 & Woodmen Rd

Long Term Total
PM Peak

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Group Flow (vph)	907	287	385	111	312	184	689	1720	291	104	1076	473
v/c Ratio	0.86	0.43	0.22	0.16	0.38	0.37	0.94	0.97	0.45	0.53	0.86	0.30
Control Delay	23.3	15.1	0.7	20.3	40.8	7.9	37.6	37.0	10.0	31.7	51.3	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.3	15.1	0.7	20.3	40.8	7.9	37.6	37.0	10.0	31.7	51.3	0.5
Queue Length 50th (ft)	91	82	0	24	108	2	183	508	99	45	293	0
Queue Length 95th (ft)	#181	140	3	41	152	60	m#223	m#576	m122	81	345	0
Internal Link Dist (ft)		248			210			896			1308	
Turn Bay Length (ft)	250		100	250		200	850		100	250		350
Base Capacity (vph)	1056	673	1774	932	811	502	734	1776	641	216	1253	1583
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.86	0.43	0.22	0.12	0.38	0.37	0.94	0.97	0.45	0.48	0.86	0.30

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.