DRAFT

Falcon Field Preliminary Plan

Traffic Impact Study

Prepared for:
P.J. Anderson
31 N Tejon, Ste 500
Colorado Springs, CO 80903

Contact: Mr. P.J. Anderson

NOVEMBER 5, 2020

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

LSC #204120

CONTENTS

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

November 5, 2020

P.J. Anderson
31 N Tejon, Ste 500
Colorado Springs, CO 80903

RE: Falcon Field
El Paso County, CO
Preliminary Plan
Traffic Impact Study
LSC #204120
PCD File No. CR191

Dear Mr. Anderson,

LSC Transportation Consultants, Inc. has prepared this Traffic Impact Study for the Falcon Field development in the Falcon area of El Paso County, Colorado. Falcon Field is a proposed commercial 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 the Preliminary Plan submittal to El Paso County and the Colorado Department of Transportation (CDOT).

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
    - Woodmen Road/McLaughlin Road
    - Woodmen Road/Meridian Road
    - Rio Lane/US Hwy 24
- Estimated current average weekday traffic (AWT) volumes on the study-area streets including US Hwy 24, Meridian Road, McLaughlin Road, Rio Lane;
- Projections of 20-year background traffic volumes on the study-area streets;
- The proposed site land uses;

- 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
- Findings and recommendations.

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

The prior report for the Falcon Field rezone application – the master TIS - is dated February 24, 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. Also, the background traffic volumes attempt to adjust for some of the pairing of trips between developments (i.e. some trips shown to exit one development may be paired with an arriving trip at another development). Each project's Traffic Impact Study (TIS) shows the trip ends generated at each trip end. This can result in "double counting" of trips on roadways in intersections between these two developments.

Other known reports completed within the past five years include: Big O tires (Meridian Road/US Hwy 24), Falcon Highlands Taco Bell deviation request memo, Meridian Crossing memo.

LAND USE AND ACCESS

Figure 1 shows the site location relative to the adjacent and nearby roadways. The development is planned to have a home improvement store (possibly) and other commercial land uses. 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 is attached in Figure 2.

As shown on the Preliminary 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 also be classified as Urban Non-Residential Collectors. 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.

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 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 currently does not connect with US Hwy 24 but is proposed to connect (traffic-signal control) in the short-term future. The current US Hwy 24/Old Meridian Road intersection is planned to be converted to a right-in/right-out intersection.

- **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** is a two-lane Rural Local roadway that connects US Hwy 24 to Falcon Highway. The roadway is 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 intersection of Woodmen Road/US Hwy 24 and Rio Lane/US Hwy 24. The intersection traffic counts were collected in June 2018 and January 2019 (prior to the Covid-19 pandemic).

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 Average Control Delay (seconds per vehicle)	Unsignalized Intersections 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 left-/right-turning movement on Rio Lane operates at LOS E during the morning peak hour and LOS F during the evening peak hour. The levels of service E/F for this movement are due to both 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.

The intersection of McLaughlin Road/Woodmen Road currently operates at LOS B during both peak hours. All turning movements operate at LOS C or better during both peak hours, except for the northbound through movement, which operates at LOS D during the evening peak hour.

The intersection of Meridian Road/Woodmen Road currently operates at LOS C during both peak hours. The left-turning movements operate at LOS D during both peak hours. The through and right-turning movements operate at LOS C or better, except for the northbound through movement, which currently operates at LOS D during both peak hours.

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 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	265	183	448	94	94	188	53	53	106
P.M. Peak Hour	590	631	1,221	234	234	468	151	151	302
Daily/24-Hour	6,772	6,772	13,544	2,649	2,649	5,298	1,661	1,661	3,223

Approximately 13,550 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 265 vehicles would enter, and 183 vehicles would exit the site. During the evening peak, approximately 590 vehicles would enter, and 631 vehicles would exit. The proposed development is projected to generate approximately 4,900 (new/non-pass-by or diverted) vehicle trips on the average weekday during a 24-hour period.

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, 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.

Pass-by and Diverted Trips

The trips generated by 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 Lane to access the site.

Passby 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. 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.

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 will redistribute and use Falcon Highway or Meridian Road to access US Hwy 24.

Short Term

Figure 6a shows the estimated short-term future background traffic volumes at the study-area intersections, while 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.

Long Term

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 on Figure 9a were calculated by adding the site generated traffic (Figure 5) with the 2040 background traffic volumes (Figure 7a).

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 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 intersections are all forecast to operate at LOS D or better during both peak hours in both the background and total scenarios. The intersection of Woodmen/Meridian is projected to operate at an overall LOS D or better, based on the short-term and 2040 total traffic volumes with and without this proposed development. Some of the individual intersection turning/lane group movements are shown to operate with delay in the LOS E range, in both the background and total traffic scenarios, (with and without site-generated traffic). This is a major, four-leg intersection of a Principal Arterial and an Expressway. As such, this intersection has a high projected background traffic demand and some individual LOS E movements are to be expected during peak periods. These "E" levels of service are due to the high volumes of left-turning background traffic forecast on all approaches. The reported v/c ratios for individual E level of service movements are less than 1.0. The site is forecast to add approximately three percent to the overall intersection traffic.

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).

All of the signalized intersections are projected to operate at LOS D or better during both peak hours in the 2040 scenarios. The intersection of Woodmen/Meridian is projected to operate at an overall LOS D or better, based on the 2040 total traffic volumes, with and without this proposed development. Some of the individual intersection turning/lane group movements are shown to operate with delay in the LOS E range in both the background and total traffic scenarios (with and without site-generated traffic). This is a major four-leg intersection of a Principal

Arterial and an Expressway. As such, the intersection has a high projected background traffic demand and some individual LOS E movements are to be expected during peak periods. The reported v/c ratios for individual E level of service movements are less than 1.0.

Roundabout Intersection

The roundabout is expected to have all approaches operate at LOS C or better. 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 B or better with the exception of the southbound approach at the west access point. This movement is anticipated to operate at LOS F during the afternoon peak hour. It should be noted that the LOS F is due to the volume of through traffic estimated as part of the background traffic. These volume estimates include assumed commercial development to the west of Falcon Field. It was assumed that the development would not have any additional access points (to be conservative). If this development does not generate the forecast volume of traffic and/or if that parcel is granted access to US Hwy 24, then the southbound level of service would likely be better than these projections indicate. Alternatively, this access intersection was analyzed as an all-way stop controlled intersection. Results indicate all movements would operate at LOS C or better.

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 12 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 also 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 final plan and site development plan stages of development.

SIGHT DISTANCE ANALYSIS

Entering sight distance for the proposed access locations has been analyzed and compared to ECM standards. As shown in Figure 11, both access points will meet the minimum required sight distance for a multi-unit truck on a roadway with a 35-mph posted speed limit when looking away from the roundabout. The sight distance is more restricted when looking in the direction of the roundabout, due to the roundabout itself. When looking towards the roundabout, the sight distance will meet the minimum distance required for a single-unit truck if travel speeds were 25 mph. This is reasonable because vehicles exiting the roundabout will not be traveling above 25 mph. Figure 11b – 11c provide the entering sight distance for single-unit trucks and passenger cars.

Line of sight "triangles" will need to be kept free of site improvements (that would limit the line of sight needed to maintain ECM prescribed sight distance). Examples of site improvements include landscaping, monument signs, parking areas, berms, etc. Obstruction height to maintain passenger car line of sight is about 18 inches. Obstruction height to maintain truck line of sight is higher as the truck "driver's eye" is significantly higher than the "driver's eye" for a passenger vehicle.

Stopping sight distance was also analyzed at the internal intersections. Figure 11d provides the stopping sight distance. As shown, there is adequate sight distance on all approaches to the internal access points.

Sight distance for the roundabout approaches and departures will be included with the roundabout design report.

Sight distance at US Hwy 24/Woodmen/Main Access street will need to be meet CDOT State Highway Access Code standards. US Hwy 24 through this section has a relatively straight alignment and is relatively level. The site design will need to maintain line of sight "triangles" to/from the east and west along US Hwy 24, as described in the paragraph above.

CONCLUSIONS AND RECOMMENDATIONS

Trip Generation

- Falcon Field is expected to generate about 13,544 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 265 vehicles would enter and 183 vehicles would exit the site. During the afternoon peak hour, approximately 590 vehicles would enter and 631 vehicles would exit the site.

Traffic Operations Analysis

- All of the study-area signalized intersections are projected to operate at LOS D 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 - the development, and the “replacement” 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 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 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 150 feet of storage and a 222-foot taper.
- A northwest-bound right-turn acceleration 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:

- 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.
-

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.

MTCP-IDENTIFIED ROADWAY IMPROVEMENT PROJECTS

- The 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 & TDM 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 be 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 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 as a cut-through route to Falcon Highway.

- The planned 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). This will be a significant improvement to the current Meridian Road connection across US Hwy 24.

- The County has indicated that they will require upgrades to Rio Lane, necessary to accommodate the resulting net traffic volumes on Rio Lane 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 - for not only 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.

* * * * *

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

Sincerely,

LSC TRANSPORTATION CONSULTANTS, INC.

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

CRG:jas

Enclosures: Tables 3- 5
Figures 1-12
Traffic Count Reports
Level of Service Reports
Queuing Reports

Tables

TRANSPORTATION
CONSULTANTS, INC.

Table 3: Detailed Trip Generation Estimate

Land Use Code	Land Use Description	Trip Generation Units	Trip Generation Rates [1] Average Weekday Traffic	Morning Peak Hour In	Morning Peak Hour Out	Afternoon Peak Hour In	Afternoon Peak Hour Out	Total Trips Generated Average Weekday Traffic	Morning Peak Hour In	Morning Peak Hour Out	Afternoon Peak Hour In	Afternoon Peak Hour Out	Internal Trip %	Internal Trips Generated Average Weekday Traffic	Morning Peak Hour In	Morning Peak Hour Out	Afternoon Peak Hour In	Afternoon Peak Hour Out	External Trips Generated Average Weekday Traffic	Morning Peak Hour In	Morning Peak Hour Out	Afternoon Peak Hour In	Afternoon Peak Hour Out	Pass-By Trips [2]	New External Trips Generated Average Weekday Traffic
Falcon Fields Crossing Trip Generation Estimate																									
820	Shopping Center	233.66 KSF[3]	38.32	0.54	0.33	1.81	1.96	8,953	126	77	423	458	4%	358	5	3	17	18	8,595	121	74	406	440	34%	5,673
862	Home Improvement Superstore	175 KSF	30.74	0.89	0.68	1.14	1.19	5,380	157	118	200	208	8%	430	13	9	16	17	4,949	144	109	184	191	48%	2,574
					Total Trip Generation Estimate			**14,333**	**283**	**196**	**622**	**666**		**788**	**18**	**13**	**33**	**35**	**13,544**	**265**	**183**	**590**	**631**		**8,247**

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

Turning Movement	Recommended Length (feet)	ECM/CDOT Standard (feet)	95th Percentile Queue (feet)
Northbound Left	270 Decel + Storage 120 Bay Taper	115 Decel 270 Storage 120 Bay Taper	75
Northbound Through	270 (second through lane)		240
Northbound Right	320 Decel	115 Decel	225 (1)
Eastbound Right	600 Decel 225 Taper	600 Decel 225 Taper	340 (1)
Westbound Left	600 Decel 150 Storage 225 Taper	600 Decel 150 Storage 225 Taper	180
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
Eastbound Left	120 Decel + Storage 75 Bay Taper	115 Decel 250 Storage 120 Bay Taper	25
Eastbound Left	130 Decel + Storage 75 Bay Taper	155 Decel 100 Storage 160 Bay Taper	25

(1) In calculating queue lengths, Synchro does not assume the use of a free or yielding right turn. As a result, these queue lengths represent the worst case scenario. These turns are proposed to be channelized with yielding or free right turn operations, which will result in lower queues.

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 MTCP 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 750 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/curbed 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/striping 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 conjuction 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)

Figures

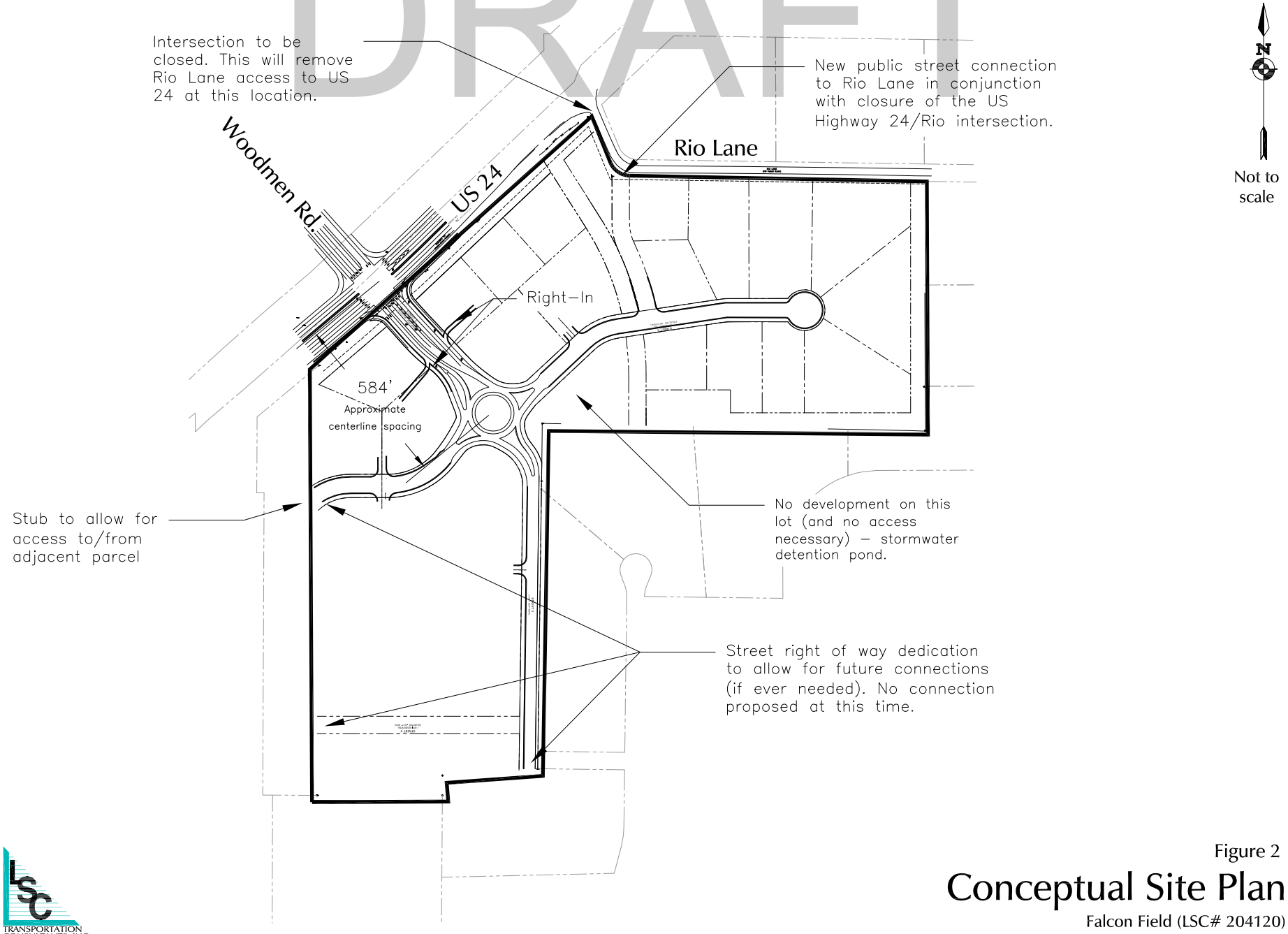
TRANSPORTATION
CONSULTANTS, INC.

Figure 1

Vicinity Map

Falcon Field (LSC# 204120)

LSC TRANSPORTATION CONSULTANTS, INC.

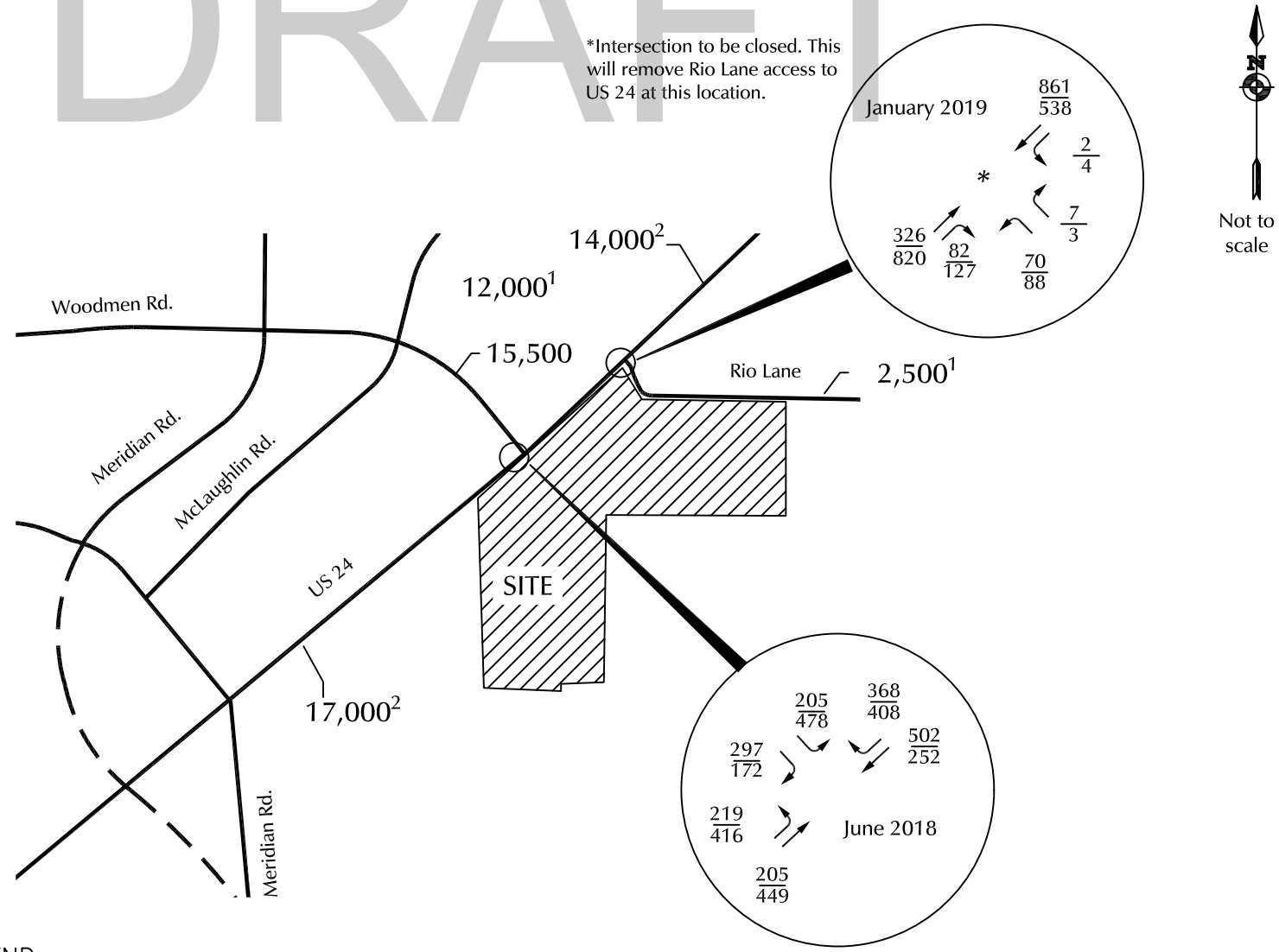


LSC TRANSPORTATION CONSULTANTS, INC.

Figure 2

Conceptual Site Plan

Falcon Field (LSC# 204120)



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

XXX = Average Weekday Traffic (vehicles per day)

[1] Estimates by LSC based on Peak Hour Volumes

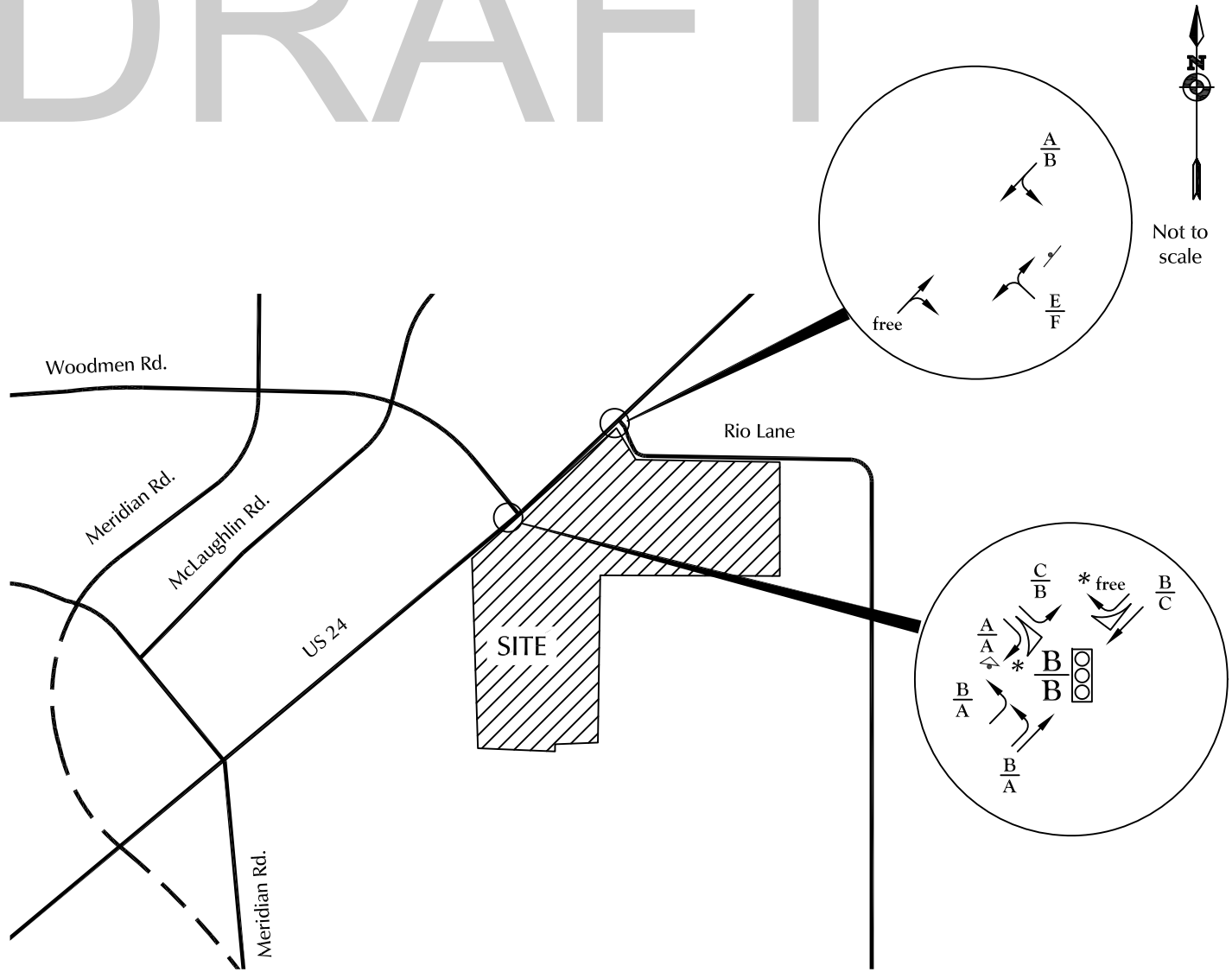
[2] CDOT AADT (2019)

LSC TRANSPORTATION CONSULTANTS, INC.

Figure 3a

Existing Traffic

Falcon Field (LSC# 204120)



LEGEND:

= Traffic Signal

= Stop Sign

= Yield Sign

*right turn into an acceleration/merge lane

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

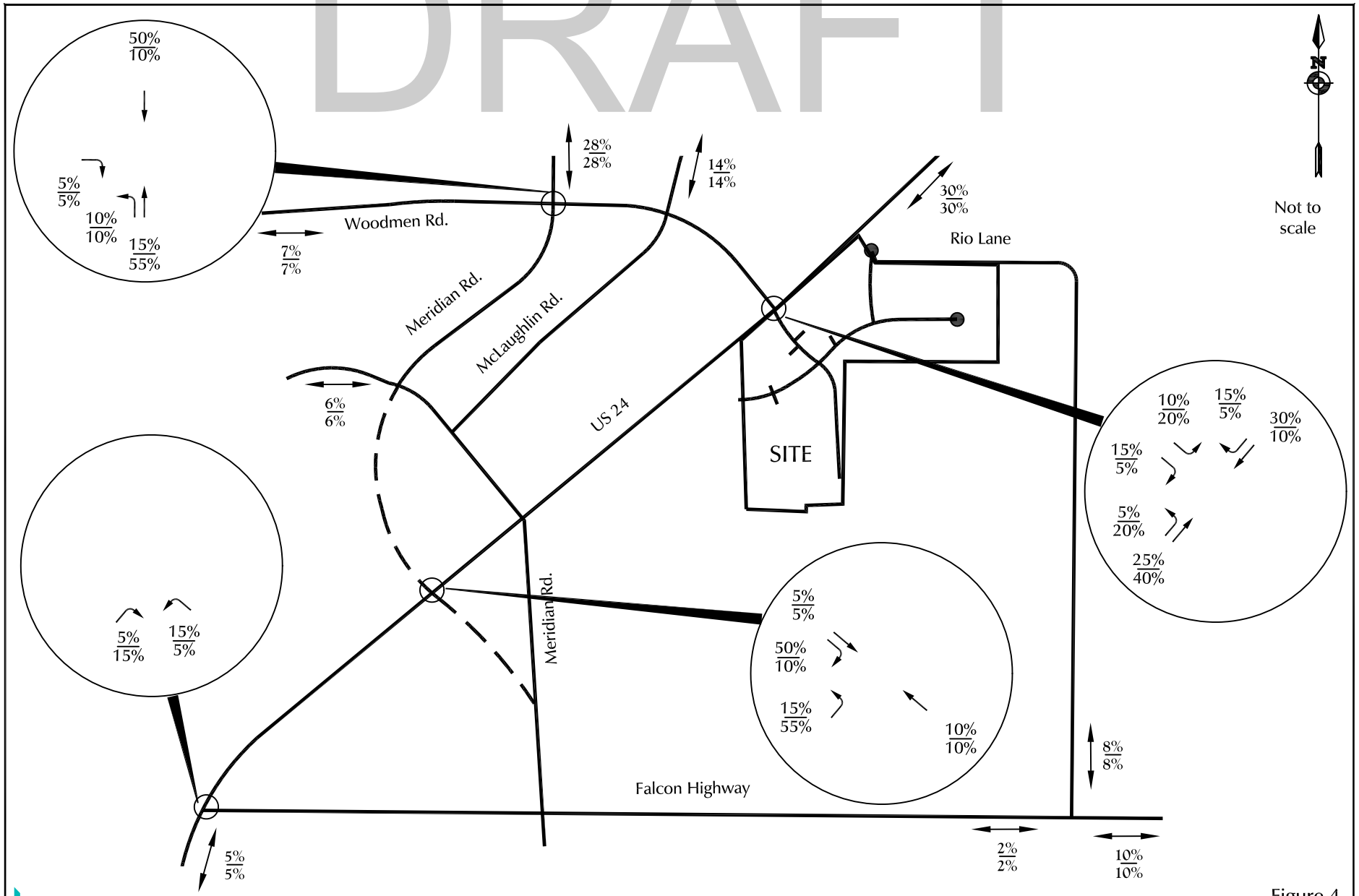
$$\frac{C}{D} = \frac{\text{AM Entire Intersection Peak–Hour Level of Service}}{\text{PM Entire Intersection Peak–Hour Level of Service}}$$

LSC TRANSPORTATION CONSULTANTS, INC.

Figure 3b

Existing Lane Geometry, Traffic Control, and Level of Service

Falcon Field (LSC# 204120)



LEGEND:

$$\frac{XX}{XX} = \frac{\text{AM Percent Directional Distribution}}{\text{PM Percent Directional Distribution}}$$

Note: percentages in the circles at the intersections represent the % passby and diverted trip percentages.

Figure 4

Directional Distribution

Falcon Field (LSC# 204120)

LSC TRANSPORTATION CONSULTANTS, INC.

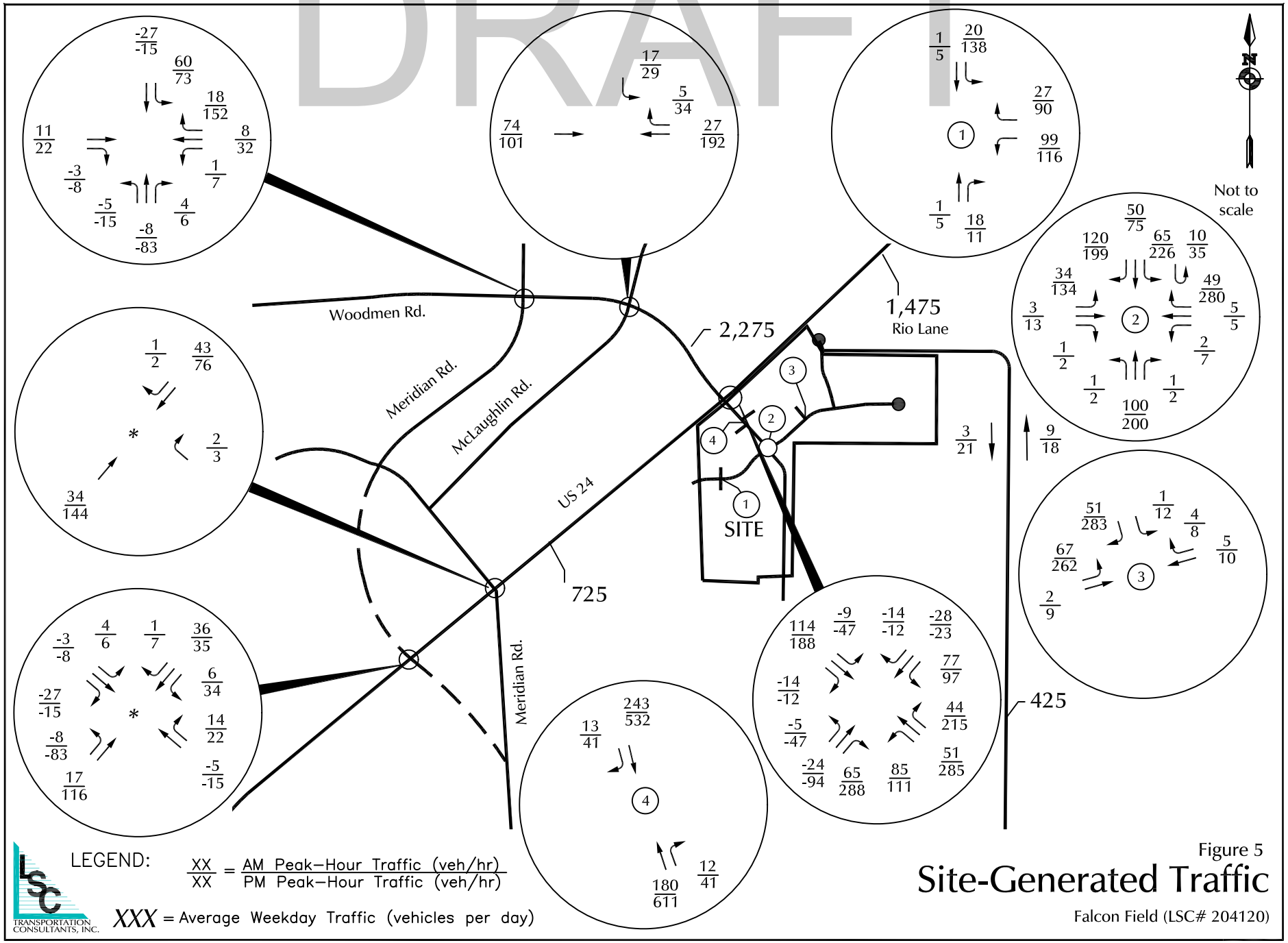
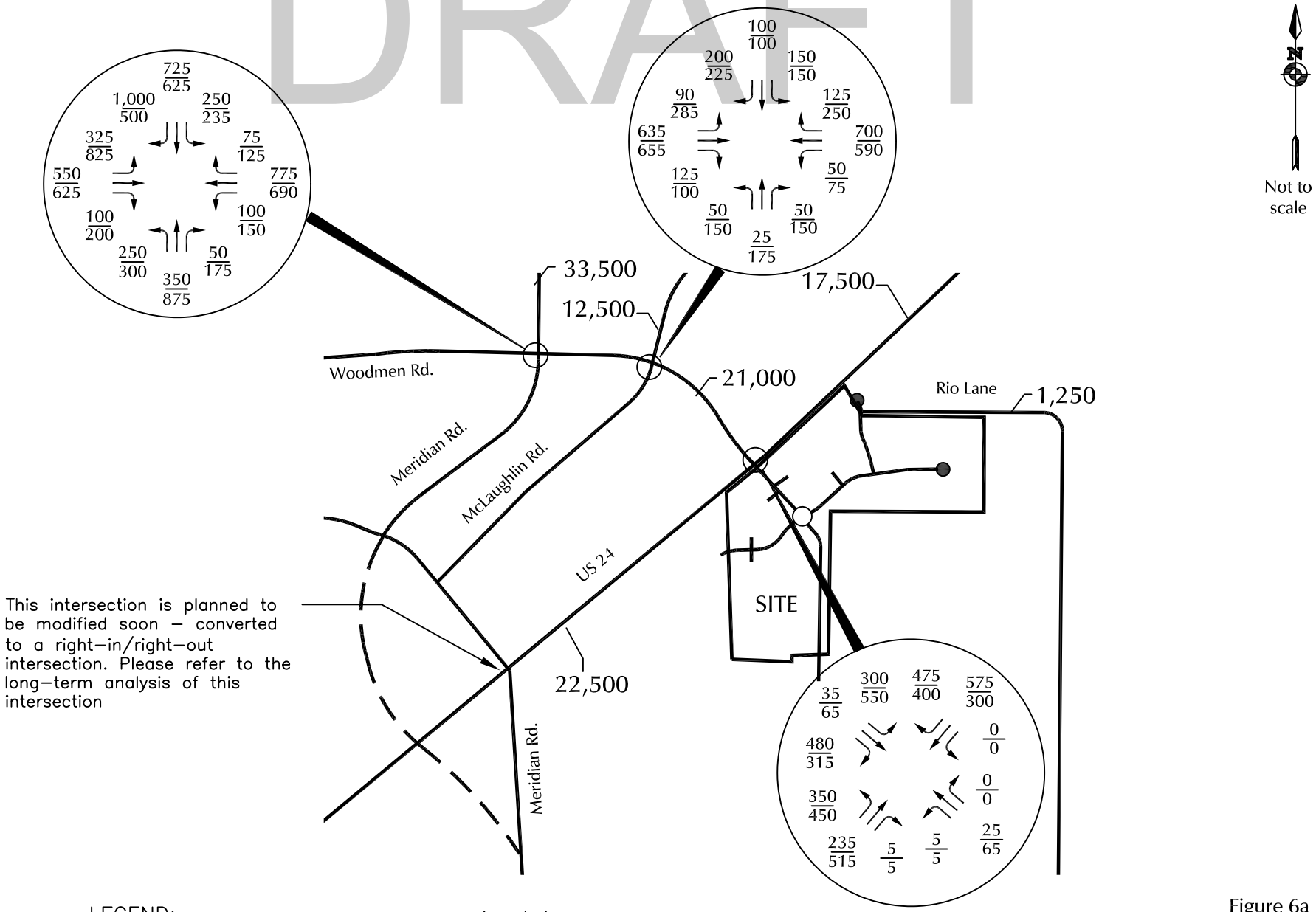


Figure 5

Site-Generated Traffic

Falcon Field (LSC# 204120)



This intersection is planned to be modified soon – converted to a right–in/right–out intersection. Please refer to the long–term analysis of this intersection

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

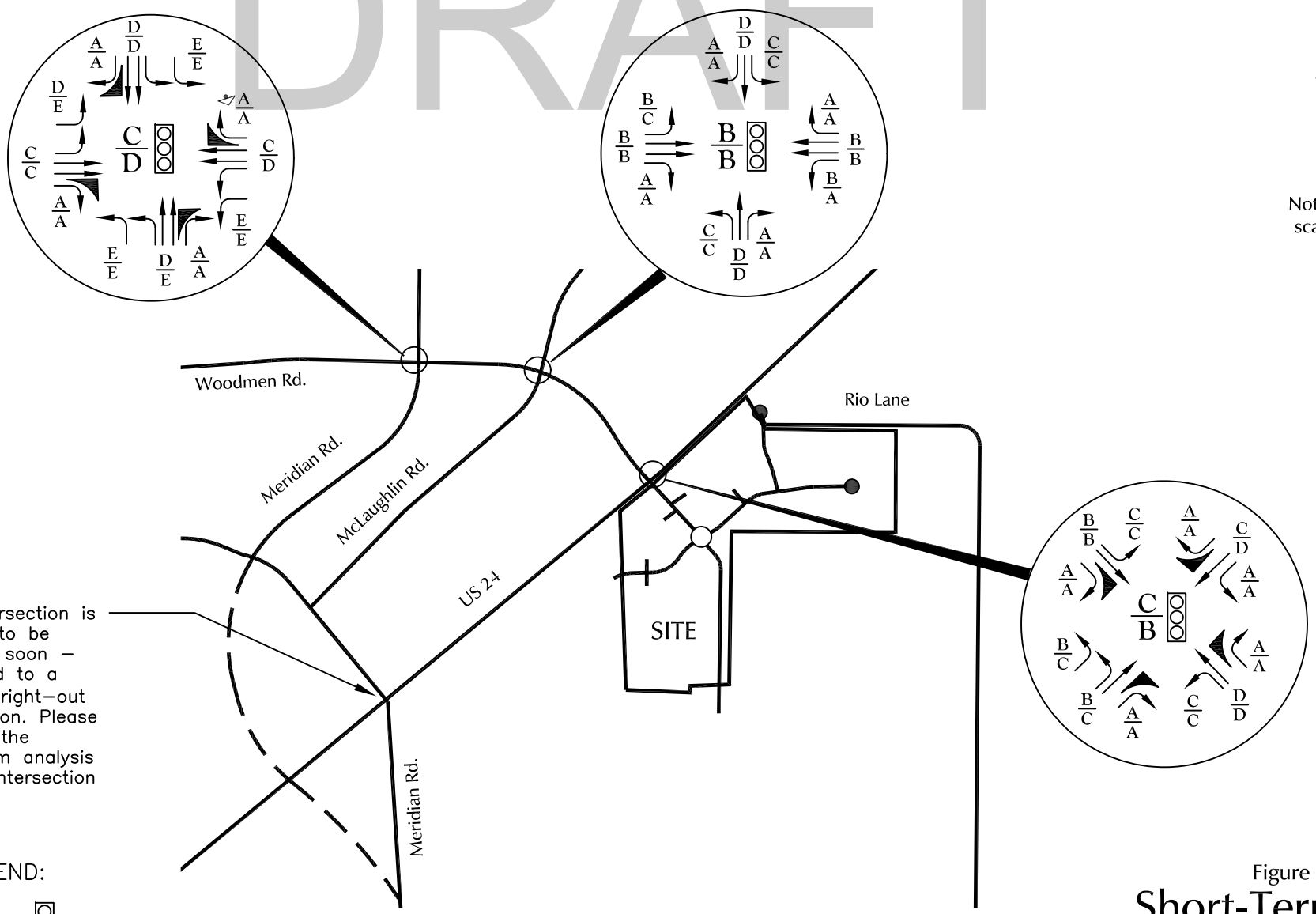
XXX = Average Weekday Traffic (veh/hr)

LSC TRANSPORTATION CONSULTANTS, INC.

Figure 6a

Short-Term Background Traffic

Falcon Field (LSC# 204120)



LEGEND:

= Traffic Signal = Yield Sign

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

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

TRANSPORTATION CONSULTANTS, INC.

Figure 6b

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

Falcon Field (LSC# 204120)

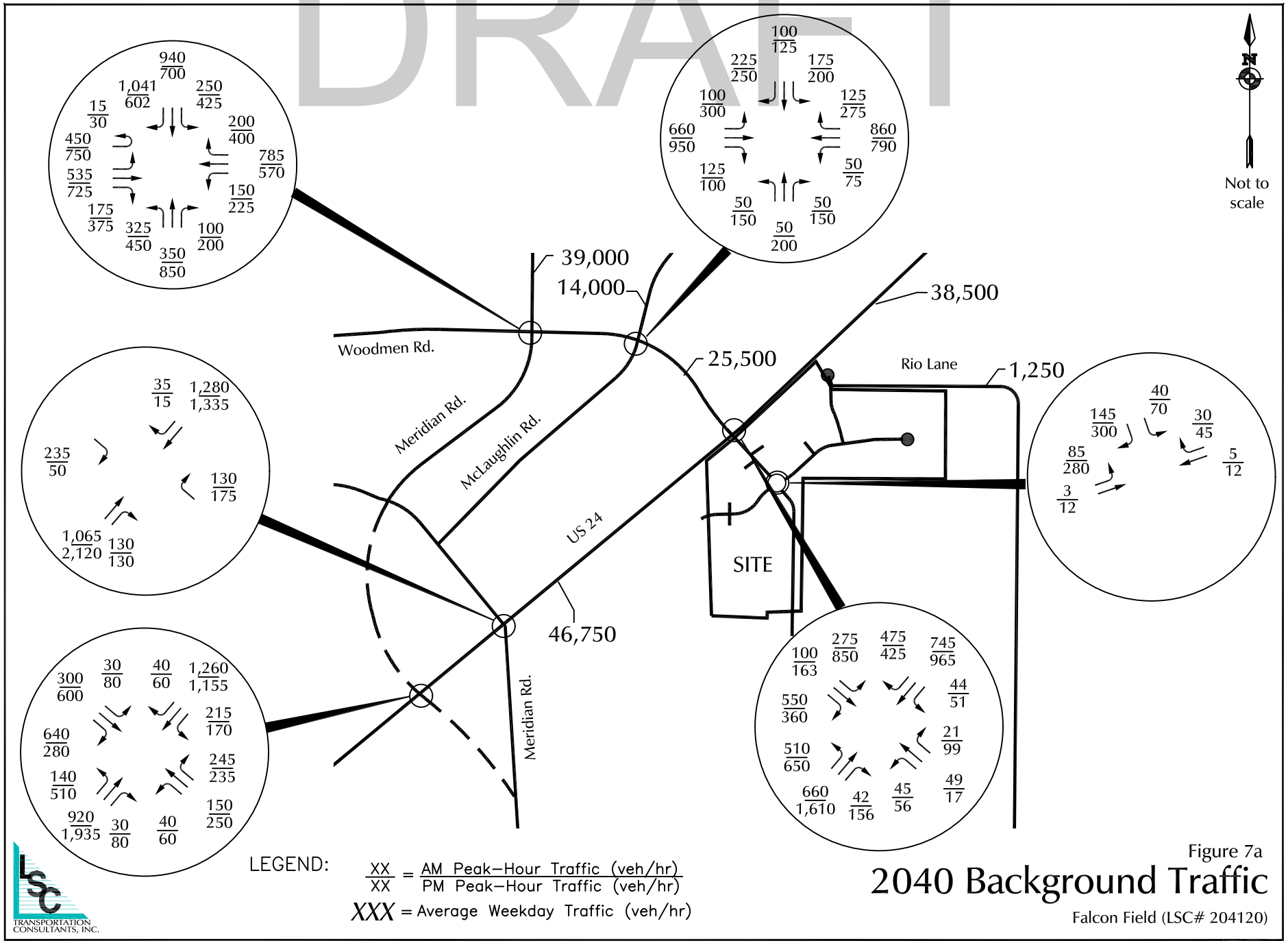


Figure 7a

2040 Background Traffic

Falcon Field (LSC# 204120)

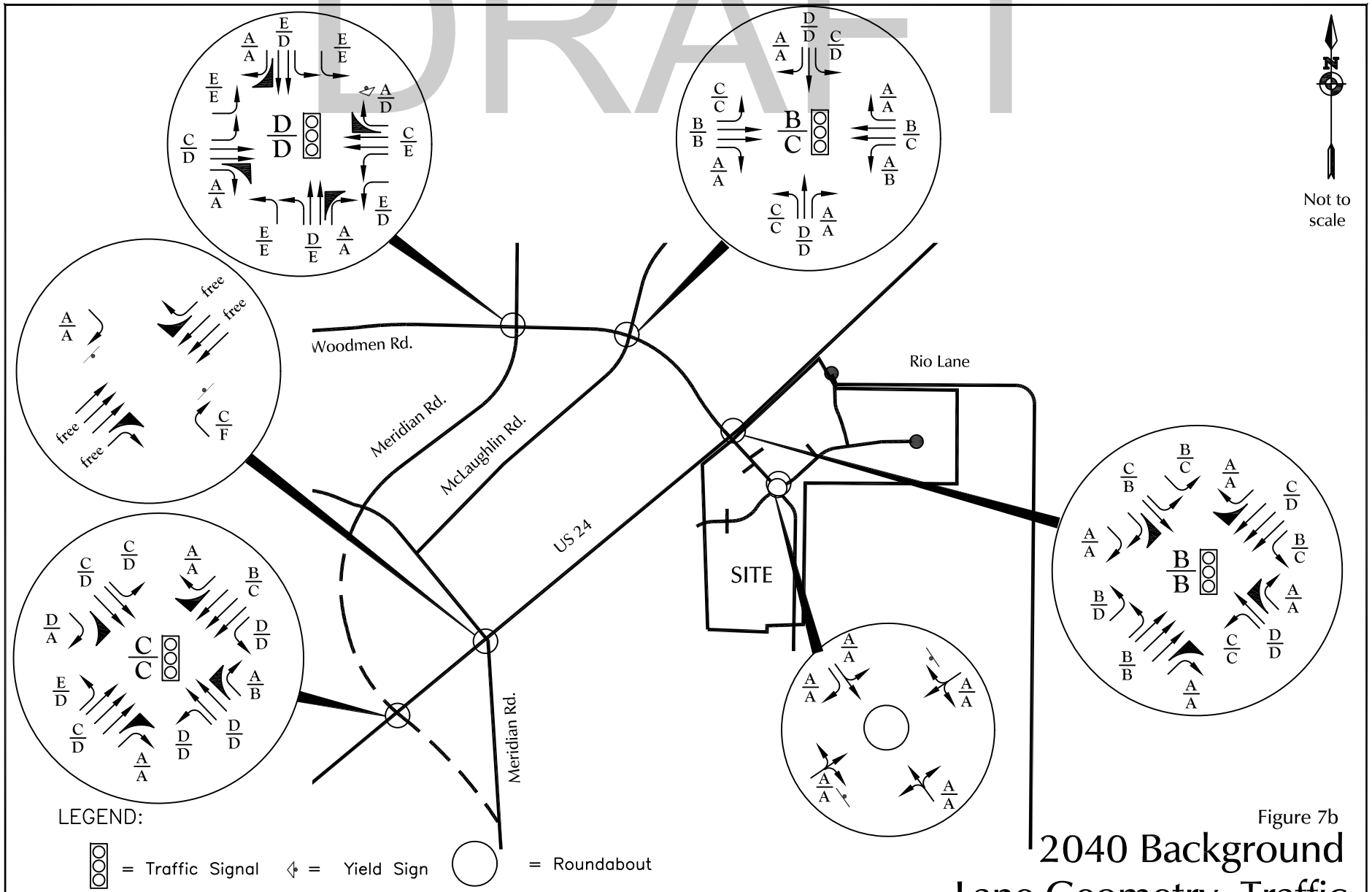


Figure 7b

2040 Background Lane Geometry, Traffic Control, and Level of Service

Falcon Field (LSC# 204120)

LSC TRANSPORTATION CONSULTANTS, INC.

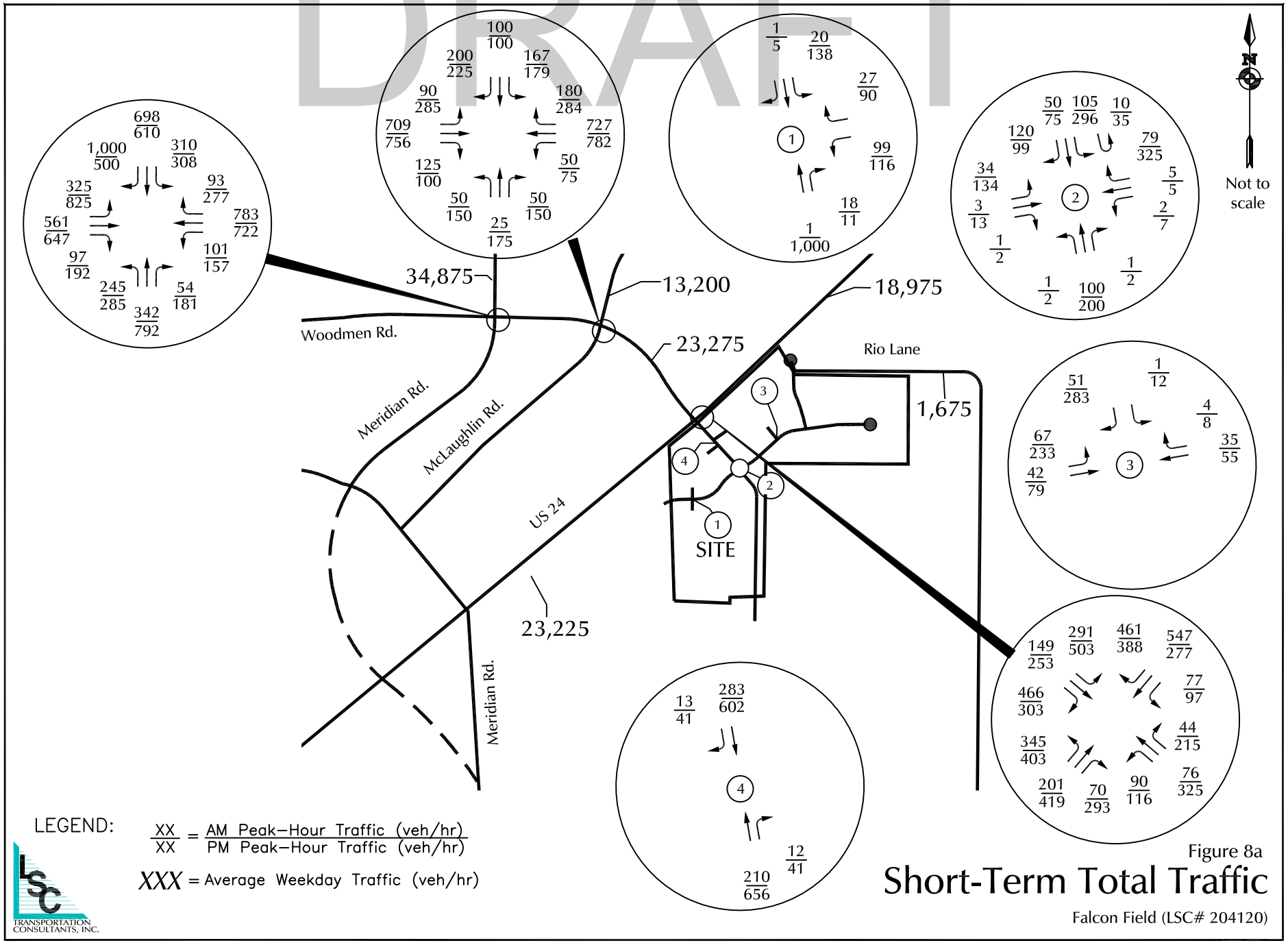
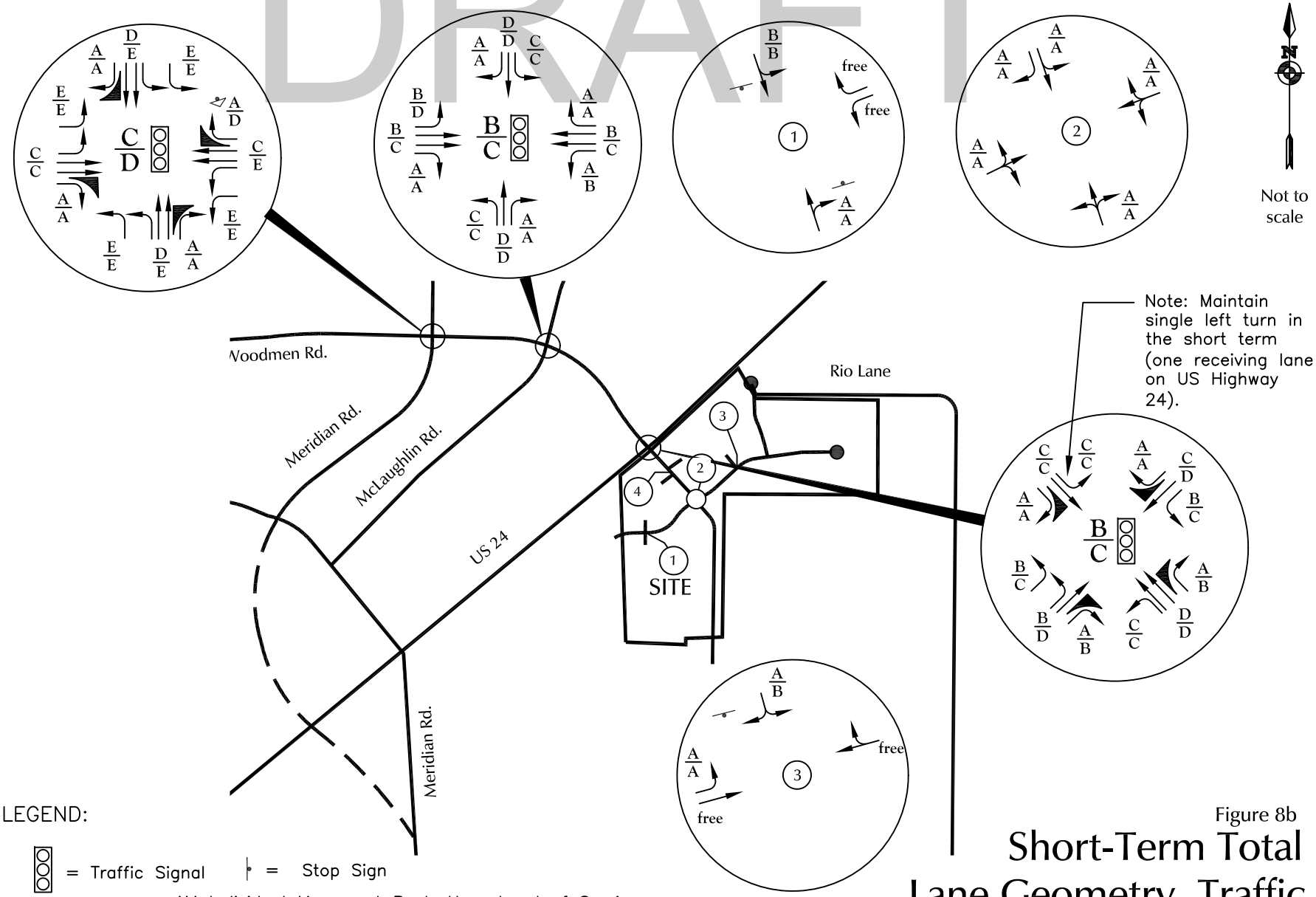


Figure 8a

Short-Term Total Traffic

Falcon Field (LSC# 204120)



LEGEND:

= Traffic Signal = Stop Sign

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

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

TRANSPORTATION CONSULTANTS, INC.

Figure 8b

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

Falcon Field (LSC# 204120)

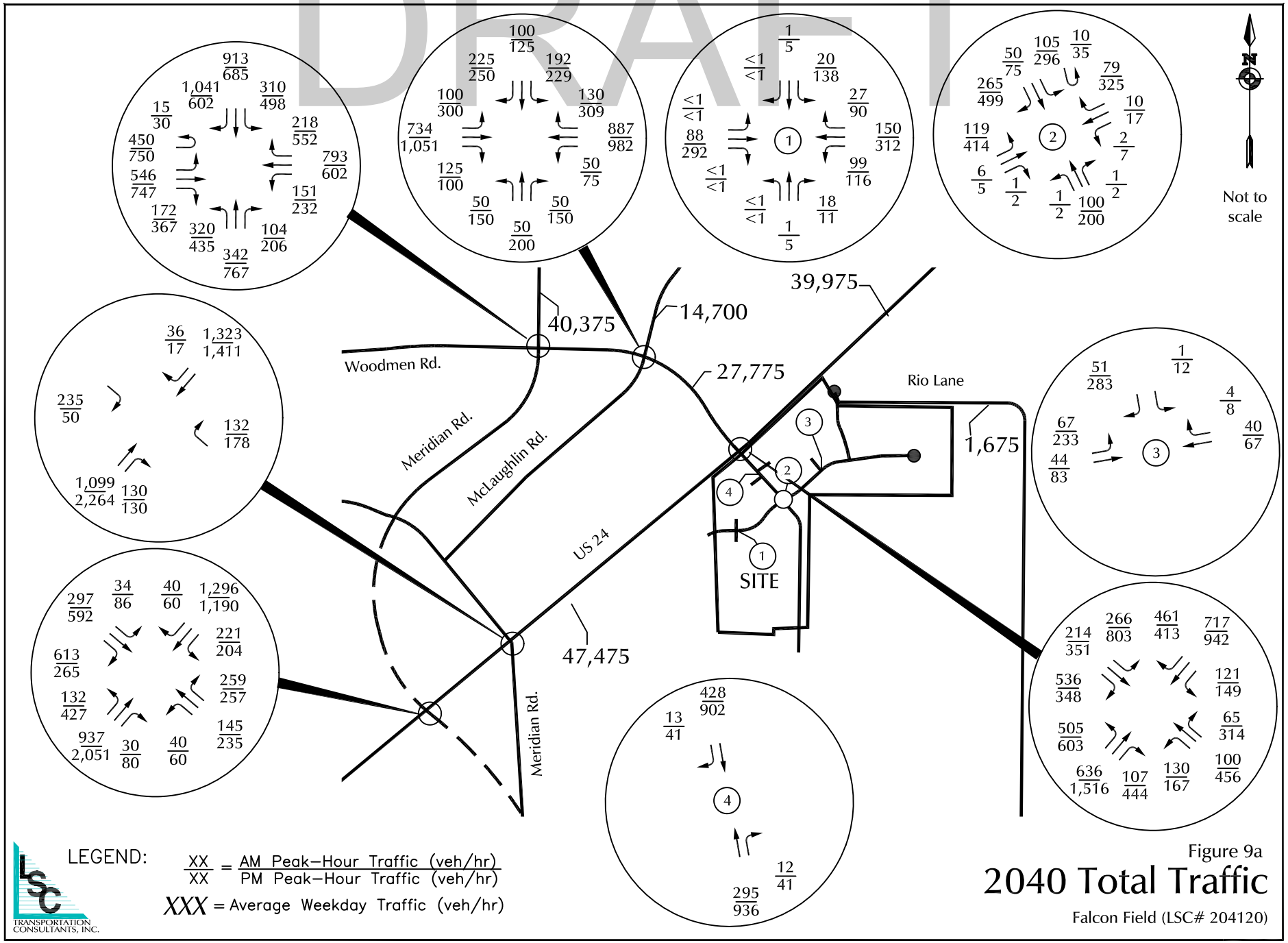


Figure 9a

2040 Total Traffic

Falcon Field (LSC# 204120)

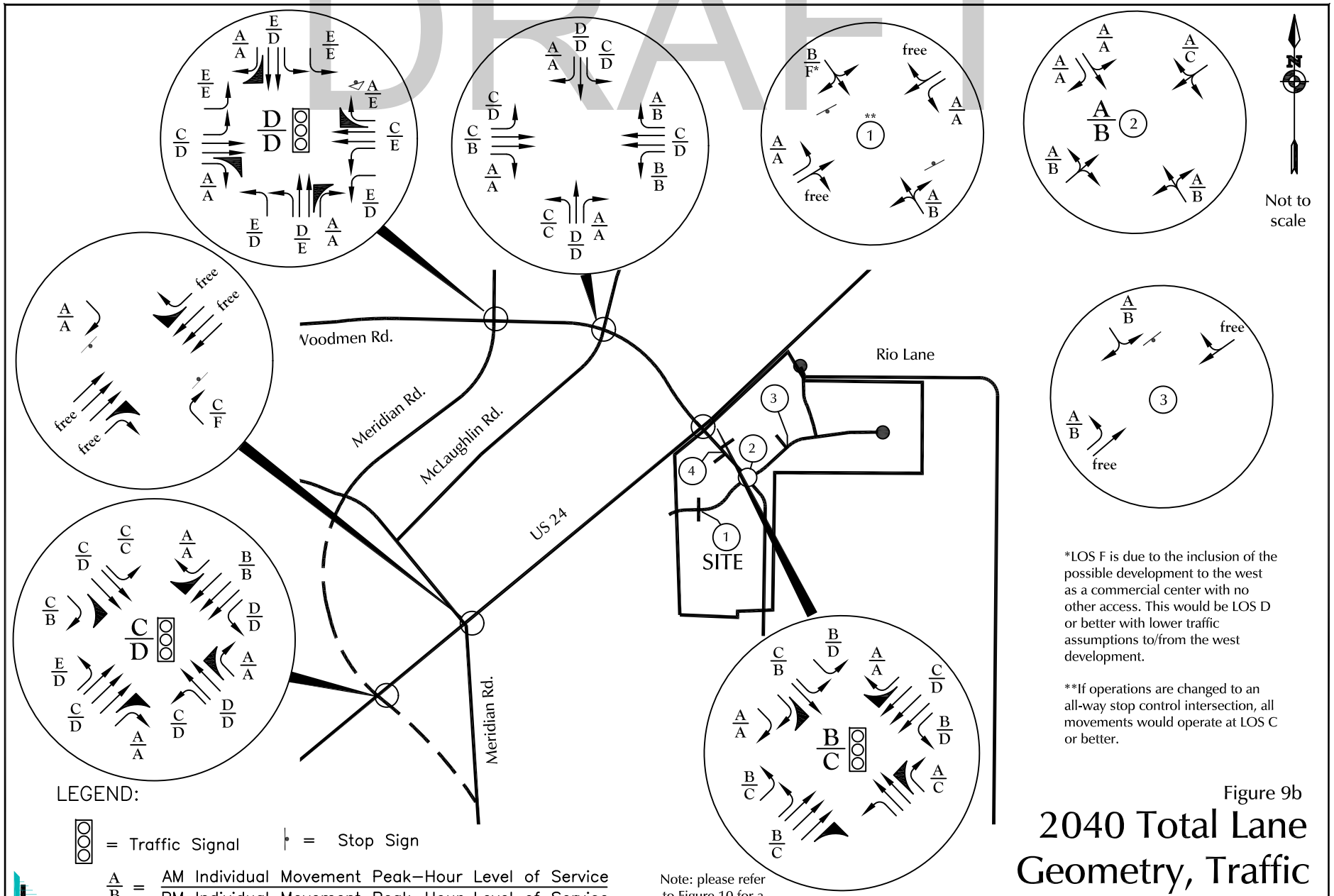


Figure 9b

2040 Total Lane Geometry, Traffic Control, and Level of Service

Falcon Field (LSC# 204120)

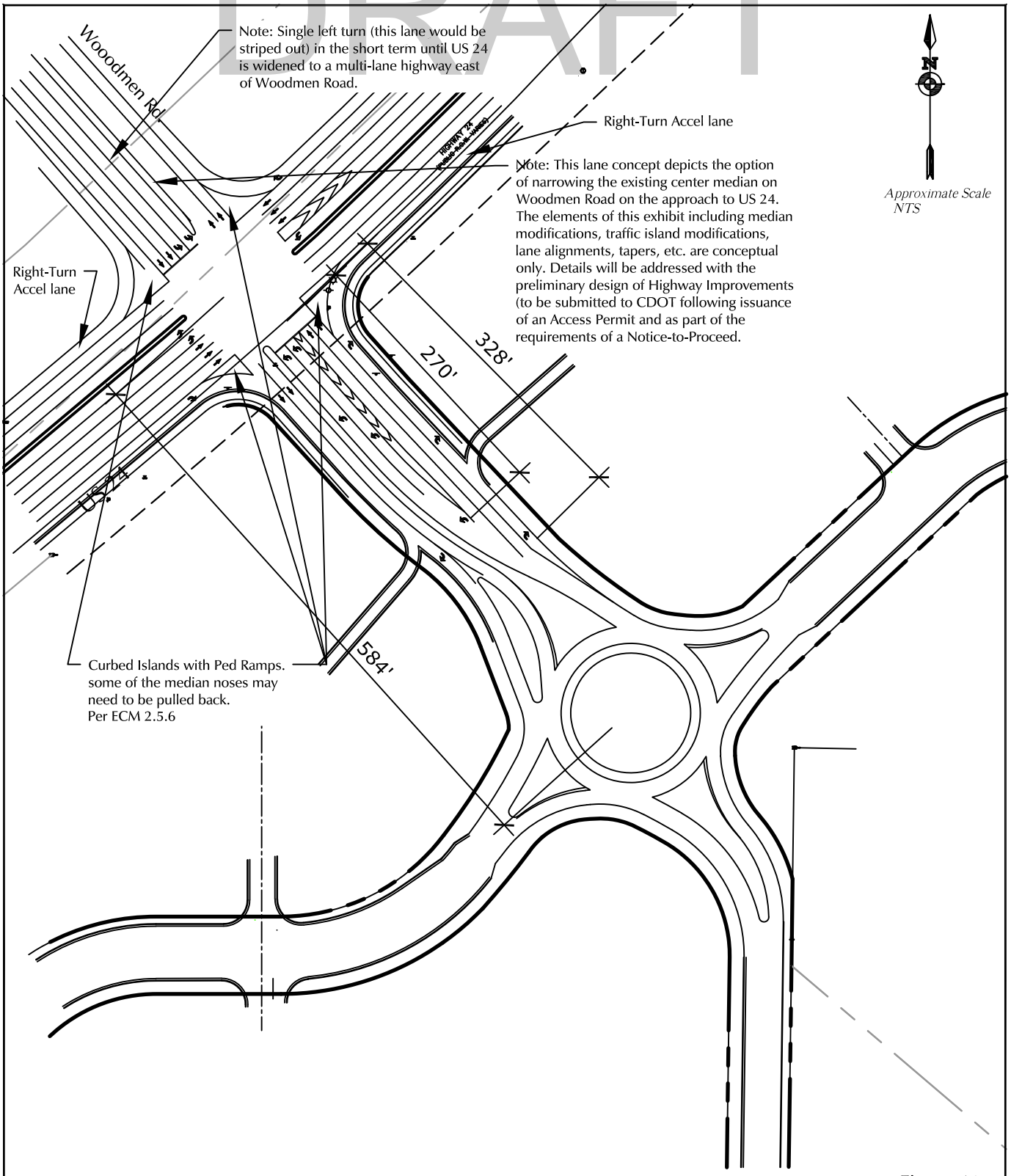


Figure 10a

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

(Falcon Field LSC #204120)

LSC TRANSPORTATION CONSULTANTS, INC.

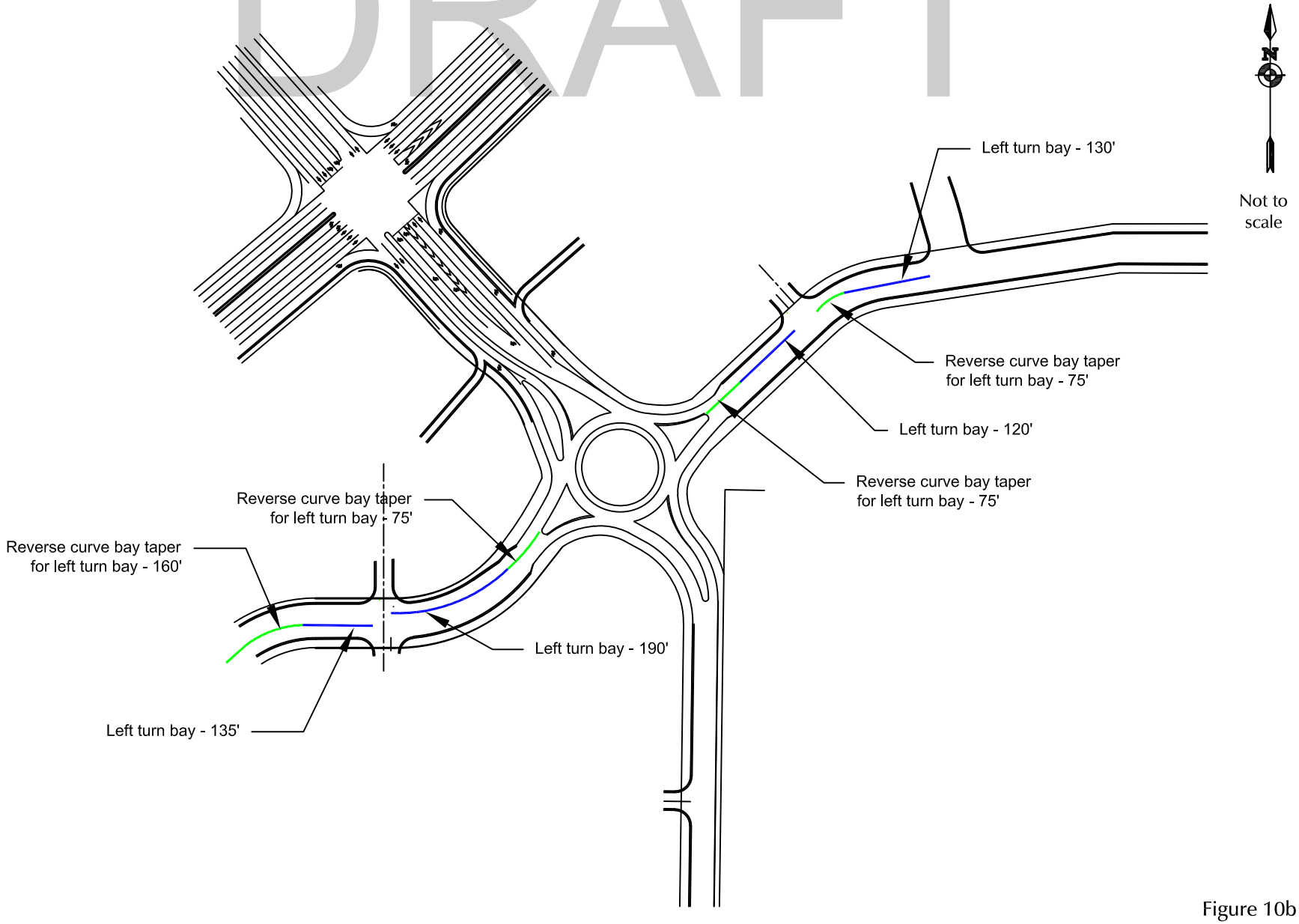
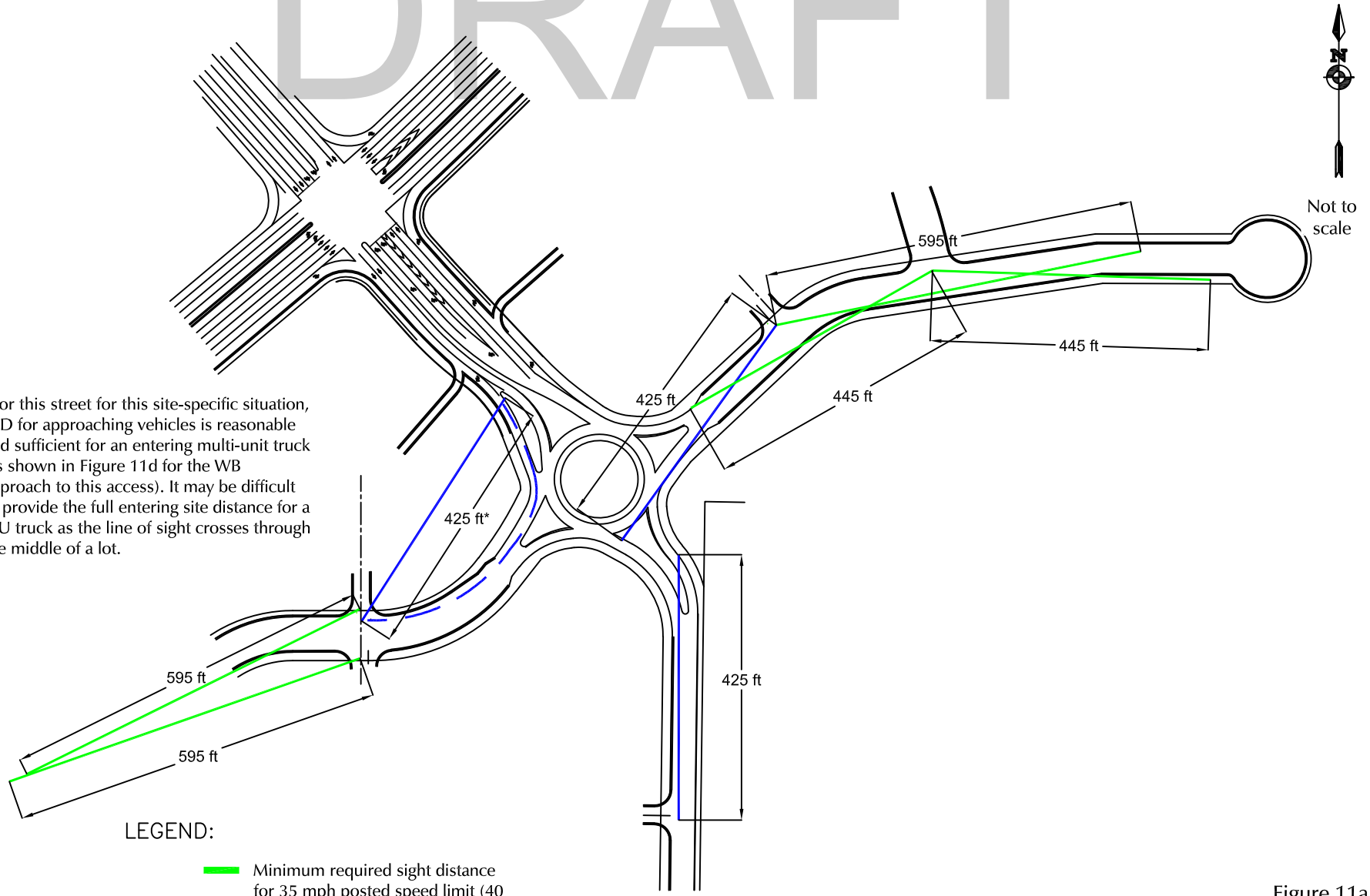


Figure 10b

Preliminary Internal Lane Concept Plan

Falcon Field (LSC# 204120)

LSC TRANSPORTATION CONSULTANTS, INC.



*For this street for this site-specific situation, SSD for approaching vehicles is reasonable and sufficient for an entering multi-unit truck (as shown in Figure 11d for the WB approach to this access). It may be difficult to provide the full entering site distance for a MU truck as the line of sight crosses through the middle of a lot.

LEGEND:

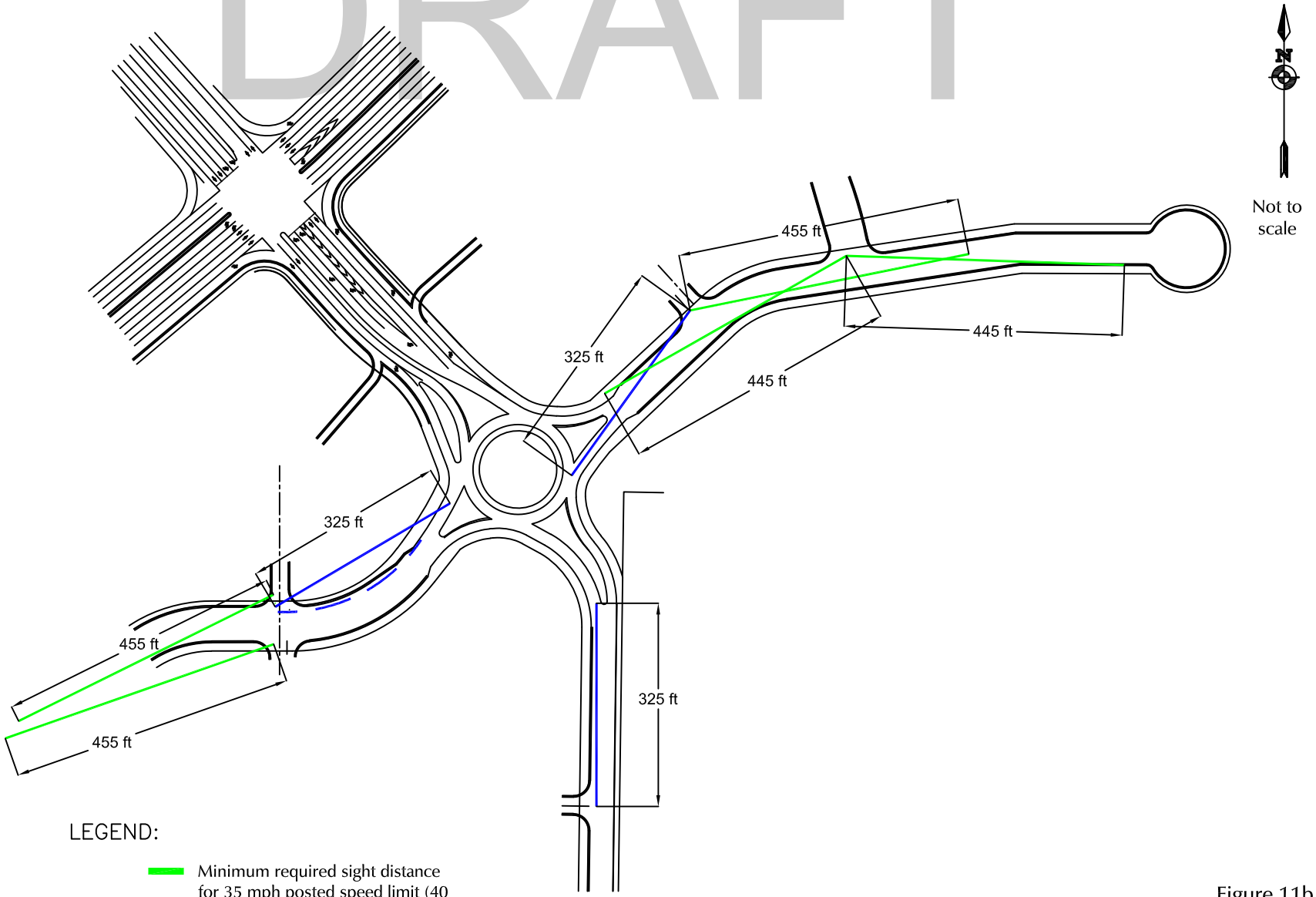
- Minimum required sight distance for 35 mph posted speed limit (40 mph design speed).
- Minimum sight distance for 30 mph design speed. It is estimated that vehicles exiting the roundabout will not be traveling faster than 25 mph. (ECM tables 2-35 and 2-21)

LSC TRANSPORTATION CONSULTANTS, INC.

Figure 11a

Access Entering Sight Distances Multi-Unit Trucks

Falcon Field (LSC# 204120)



LEGEND:

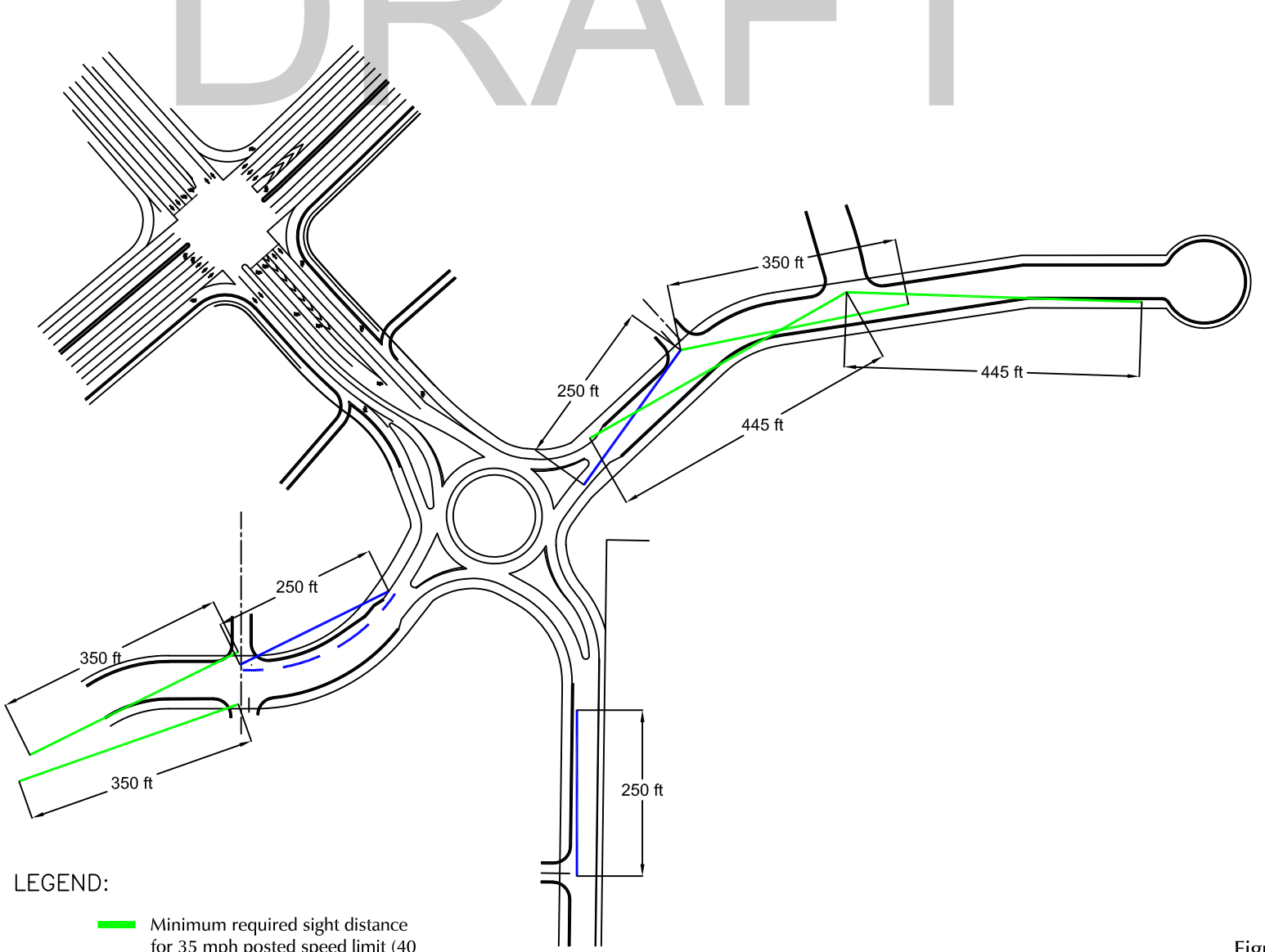
- Minimum required sight distance for 35 mph posted speed limit (40 mph design speed).
- Minimum sight distance for 30 mph design speed. It is estimated that vehicles exiting the roundabout will not be traveling faster than 25 mph. (ECM tables 2-35 and 2-21)

LSC TRANSPORTATION CONSULTANTS, INC.

Figure 11b

Access Entering Sight Distances Single-Unit Trucks

Falcon Field (LSC# 204120)



LEGEND:

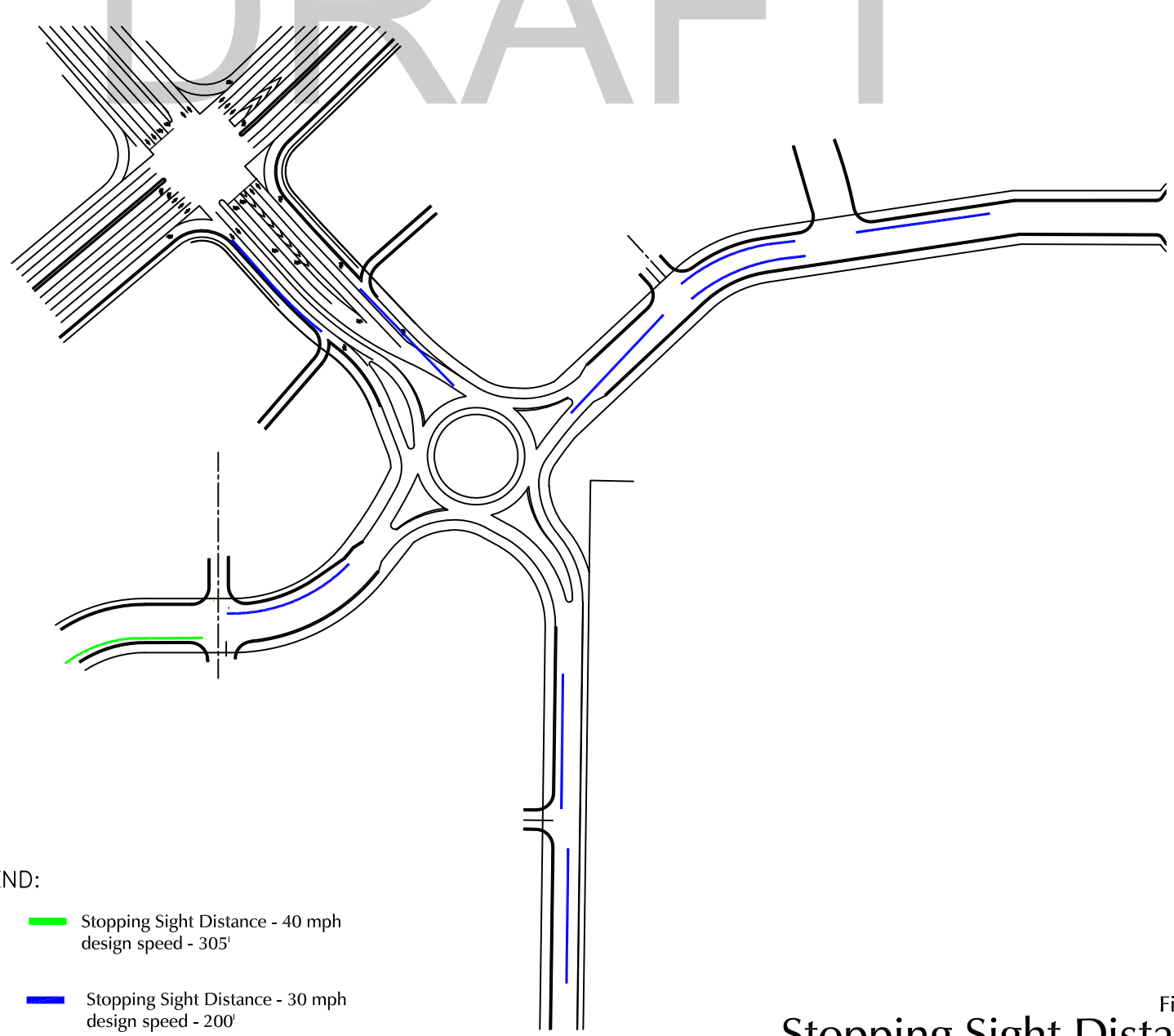
- Minimum required sight distance for 35 mph posted speed limit (40 mph design speed).
- Minimum sight distance for 30 mph design speed. It is estimated that vehicles exiting the roundabout will not be traveling faster than 25 mph. (ECM tables 2-35 and 2-21)

Figure 11c

Access Entering Sight Distances Passenger Cars

Falcon Field (LSC# 204120)

LSC TRANSPORTATION CONSULTANTS, INC.



Not to scale

LEGEND:

Stopping Sight Distance - 40 mph design speed - 305'

Stopping Sight Distance - 30 mph design speed - 200'

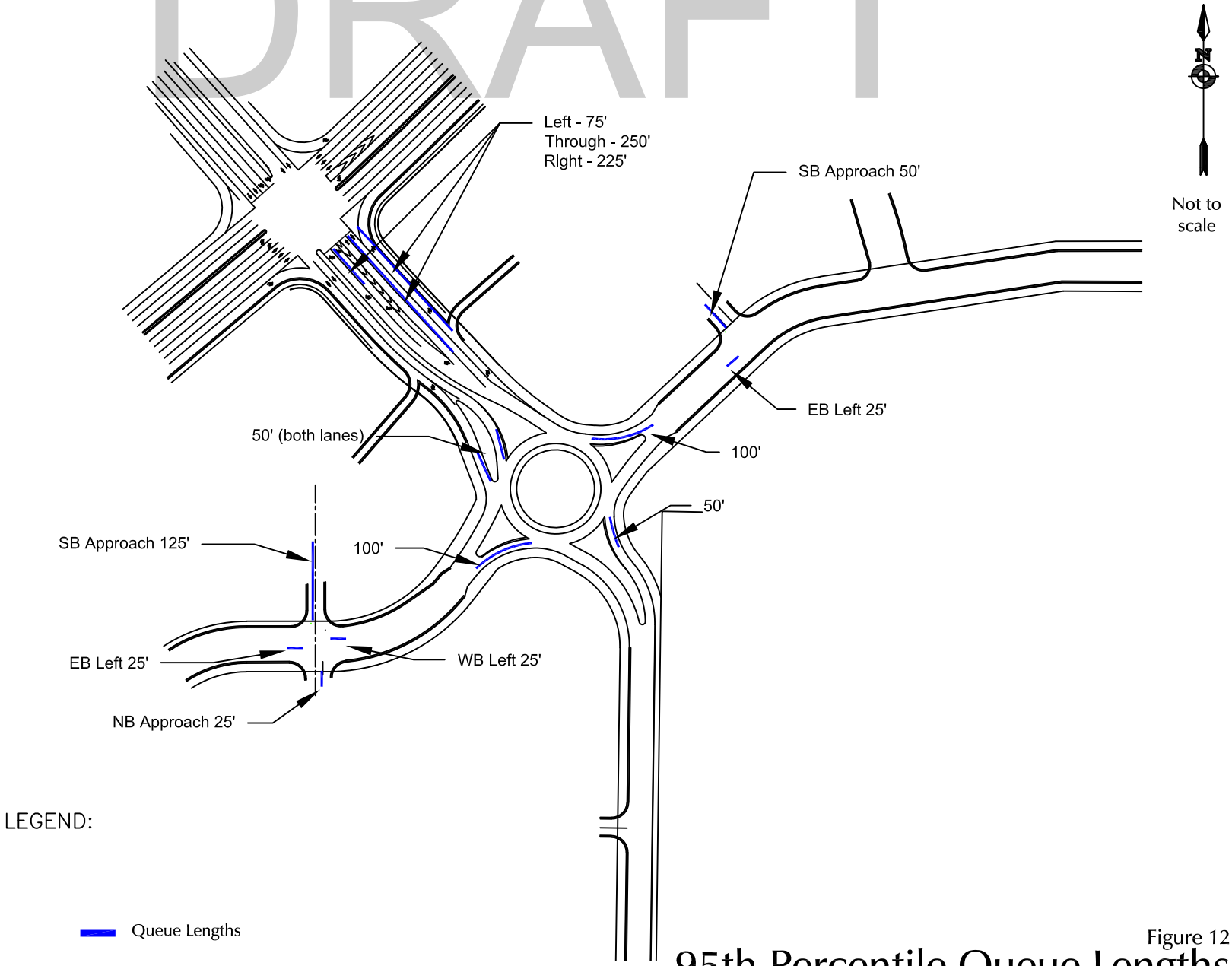
ECM table 2-17

LSC TRANSPORTATION CONSULTANTS, INC.

Figure 11d

Stopping Sight Distances

Falcon Field (LSC# 204120)



LSC TRANSPORTATION CONSULTANTS, INC.

Figure 12

95th Percentile Queue Lengths

Falcon Field (LSC# 204120)

Traffic Counts

TRANSPORTATION
CONSULTANTS, INC.

LSC Transportation Consultants, Inc.
545 E Pikes Peak Ave, Suite 210
Colorado Springs, CO 80905
719-633-2868

File Name : Mclaughlin Rd - Woodmen Rd AM
Site Code : 184560
Start Date : 7/17/2019
Page No : 1

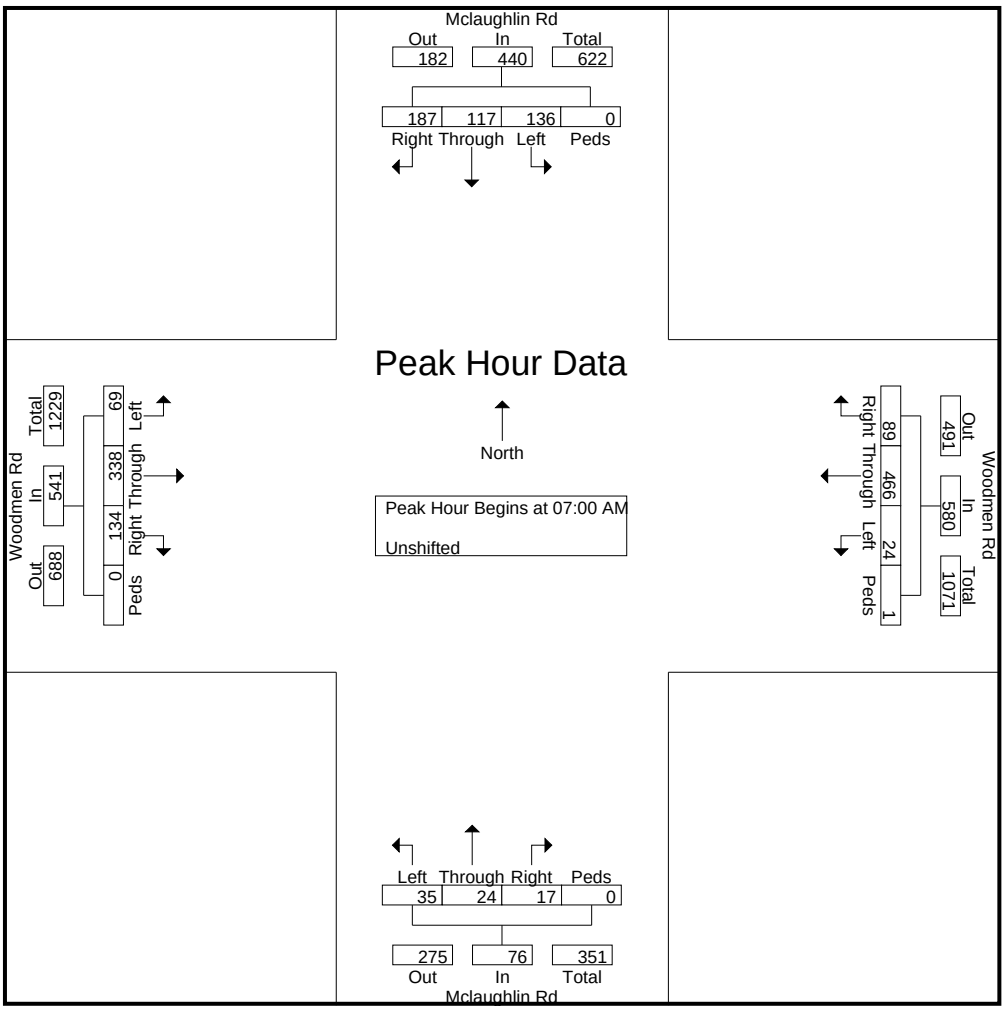
Groups Printed- Unshifted

	Mclaughlin Rd Southbound					Woodmen Rd Westbound					Mclaughlin Rd Northbound					Woodmen Rd Eastbound					
Start Time	**Left**	Through	**Right**	**Peds**	App. Total	**Left**	Through	**Right**	**Peds**	App. Total	**Left**	Through	**Right**	**Peds**	App. Total	**Left**	Through	**Right**	**Peds**	App. Total	Int. Total
06:30 AM	24	26	21	0	71	3	64	10	0	77	3	5	3	0	11	7	74	28	0	109	268
06:45 AM	23	23	15	0	61	3	69	11	0	83	4	6	3	0	13	8	76	26	0	110	267
Total	47	49	36	0	132	6	133	21	0	160	7	11	6	0	24	15	150	54	0	219	535
07:00 AM	32	30	44	0	106	3	103	14	0	120	7	6	4	0	17	9	98	36	0	143	386
07:15 AM	43	29	57	0	129	4	119	20	1	144	12	5	2	0	19	15	78	40	0	133	425
07:30 AM	39	33	45	0	117	8	143	23	0	174	5	5	3	0	13	19	94	28	0	141	445
07:45 AM	22	25	41	0	88	9	101	32	0	142	11	8	8	0	27	26	68	30	0	124	381
Total	136	117	187	0	440	24	466	89	1	580	35	24	17	0	76	69	338	134	0	541	1637
08:00 AM	29	24	43	0	96	7	94	24	0	125	6	9	6	0	21	24	81	15	0	120	362
08:15 AM	28	20	38	0	86	5	89	19	0	113	12	14	6	0	32	17	74	23	0	114	345
Grand Total	240	210	304	0	754	42	782	153	1	978	60	58	35	0	153	125	643	226	0	994	2879
Apprch %	31.8	27.9	40.3	0		4.3	80	15.6	0.1		39.2	37.9	22.9	0		12.6	64.7	22.7	0		
Total %	8.3	7.3	10.6	0	26.2	1.5	27.2	5.3	0	34	2.1	2	1.2	0	5.3	4.3	22.3	7.8	0	34.5	

LSC Transportation Consultants, Inc.
545 E Pikes Peak Ave, Suite 210
Colorado Springs, CO 80905
719-633-2868

File Name : Mclaughlin Rd - Woodmen Rd AM
Site Code : 184560
Start Date : 7/17/2019
Page No : 2

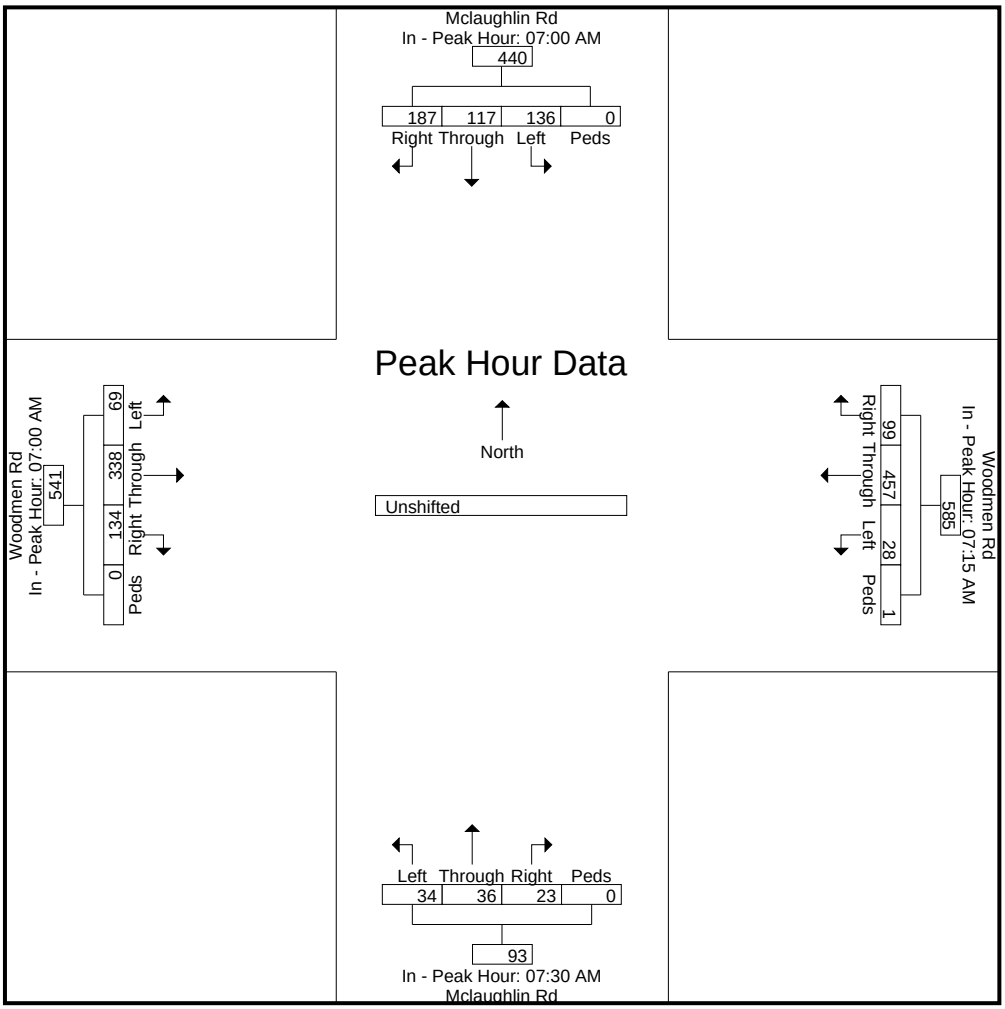
	Mclaughlin Rd Southbound					Woodmen Rd Westbound					Mclaughlin Rd Northbound					Woodmen Rd Eastbound					
Start Time	**Left**	**Through**	**Right**	**Peds**	**App. Total**	**Left**	**Through**	**Right**	**Peds**	**App. Total**	**Left**	**Through**	**Right**	**Peds**	**App. Total**	**Left**	**Through**	**Right**	**Peds**	**App. Total**	**Int. Total**
Peak Hour Analysis From 06:30 AM to 08:15 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	32	30	44	0	106	3	103	14	0	120	7	6	4	0	17	9	**98**	36	0	**143**	386
07:15 AM	**43**	29	**57**	0	**129**	4	119	20	**1**	144	**12**	5	2	0	19	15	78	**40**	0	133	425
07:30 AM	39	**33**	45	0	117	8	**143**	23	0	**174**	5	5	3	0	13	19	94	28	0	141	**445**
07:45 AM	22	25	41	0	88	**9**	101	**32**	0	142	11	**8**	**8**	0	**27**	**26**	68	30	0	124	381
Total Volume	136	117	187	0	440	24	466	89	1	580	35	24	17	0	76	69	338	134	0	541	1637
% App. Total	30.9	26.6	42.5	0		4.1	80.3	15.3	0.2		46.1	31.6	22.4	0		12.8	62.5	24.8	0		
PHF	.791	.886	.820	.000	.853	.667	.815	.695	.250	.833	.729	.750	.531	.000	.704	.663	.862	.838	.000	.946	.920



LSC Transportation Consultants, Inc.
545 E Pikes Peak Ave, Suite 210
Colorado Springs, CO 80905
719-633-2868

File Name : Mclaughlin Rd - Woodmen Rd AM
Site Code : 184560
Start Date : 7/17/2019
Page No : 3

	Mclaughlin Rd Southbound					Woodmen Rd Westbound					Mclaughlin Rd Northbound					Woodmen Rd Eastbound					
Start Time	**Left**	**Through**	**Right**	**Peds**	**App. Total**	**Left**	**Through**	**Right**	**Peds**	**App. Total**	**Left**	**Through**	**Right**	**Peds**	**App. Total**	**Left**	**Through**	**Right**	**Peds**	**App. Total**	**Int. Total**
Peak Hour Analysis From 06:30 AM to 08:15 AM - Peak 1 of 1																					
Peak Hour for Each Approach Begins at:																					
	07:00 AM					07:15 AM					07:30 AM					07:00 AM					
+0 mins.	32	30	44	0	106	4	119	20	**1**	144	5	5	3	0	13	9	**98**	36	0	**143**	
+15 mins.	**43**	29	**57**	0	**129**	8	**143**	23	0	**174**	11	8	**8**	0	27	15	78	**40**	0	133	
+30 mins.	39	**33**	45	0	117	**9**	101	**32**	0	142	6	9	6	0	21	19	94	28	0	141	
+45 mins.	22	25	41	0	88	7	94	24	0	125	**12**	**14**	6	0	**32**	**26**	68	30	0	124	
Total Volume	136	117	187	0	440	28	457	99	1	585	34	36	23	0	93	69	338	134	0	541	
% App. Total	30.9	26.6	42.5	0		4.8	78.1	16.9	0.2		36.6	38.7	24.7	0		12.8	62.5	24.8	0		
PHF	.791	.886	.820	.000	.853	.778	.799	.773	.250	.841	.708	.643	.719	.000	.727	.663	.862	.838	.000	.946	



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Colorado Springs, CO 80905
719-633-2868

File Name : Mclaughlin Rd - Woodmen Rd PM
Site Code : 184560
Start Date : 7/16/2019
Page No : 1

Groups Printed- Unshifted

	Mclaughlin Rd Southbound					Woodmen Rd Westbound					Mclaughlin Rd Northbound					Woodmen Rd Eastbound					
Start Time	**Left**	Through	**Right**	**Peds**	App. Total	**Left**	Through	**Right**	**Peds**	App. Total	**Left**	Through	**Right**	**Peds**	App. Total	**Left**	Through	**Right**	**Peds**	App. Total	Int. Total
04:00 PM	32	22	26	0	80	6	110	38	0	154	12	40	12	0	64	32	86	15	0	133	431
04:15 PM	47	29	49	0	125	16	118	50	0	184	24	37	25	0	86	62	102	16	0	180	575
04:30 PM	56	36	50	0	142	10	131	37	0	178	20	52	24	0	96	71	110	27	0	208	624
04:45 PM	46	25	50	0	121	6	136	46	0	188	23	34	20	0	77	69	113	34	0	216	602
Total	181	112	175	0	468	38	495	171	0	704	79	163	81	0	323	234	411	92	0	737	2232
05:00 PM	34	32	55	1	122	16	128	68	0	212	22	39	36	0	97	62	87	24	1	174	605
05:15 PM	47	25	50	0	122	12	107	53	0	172	25	50	27	0	102	63	99	30	0	192	588
05:30 PM	43	25	49	0	117	8	124	54	0	186	38	55	21	0	114	68	121	35	0	224	641
05:45 PM	57	37	44	1	139	10	80	57	3	150	26	39	20	0	85	69	119	19	0	207	581
Total	181	119	198	2	500	46	439	232	3	720	111	183	104	0	398	262	426	108	1	797	2415
Grand Total	362	231	373	2	968	84	934	403	3	1424	190	346	185	0	721	496	837	200	1	1534	4647
Apprch %	37.4	23.9	38.5	0.2		5.9	65.6	28.3	0.2		26.4	48	25.7	0		32.3	54.6	13	0.1		
Total %	7.8	5	8	0	20.8	1.8	20.1	8.7	0.1	30.6	4.1	7.4	4	0	15.5	10.7	18	4.3	0	33	

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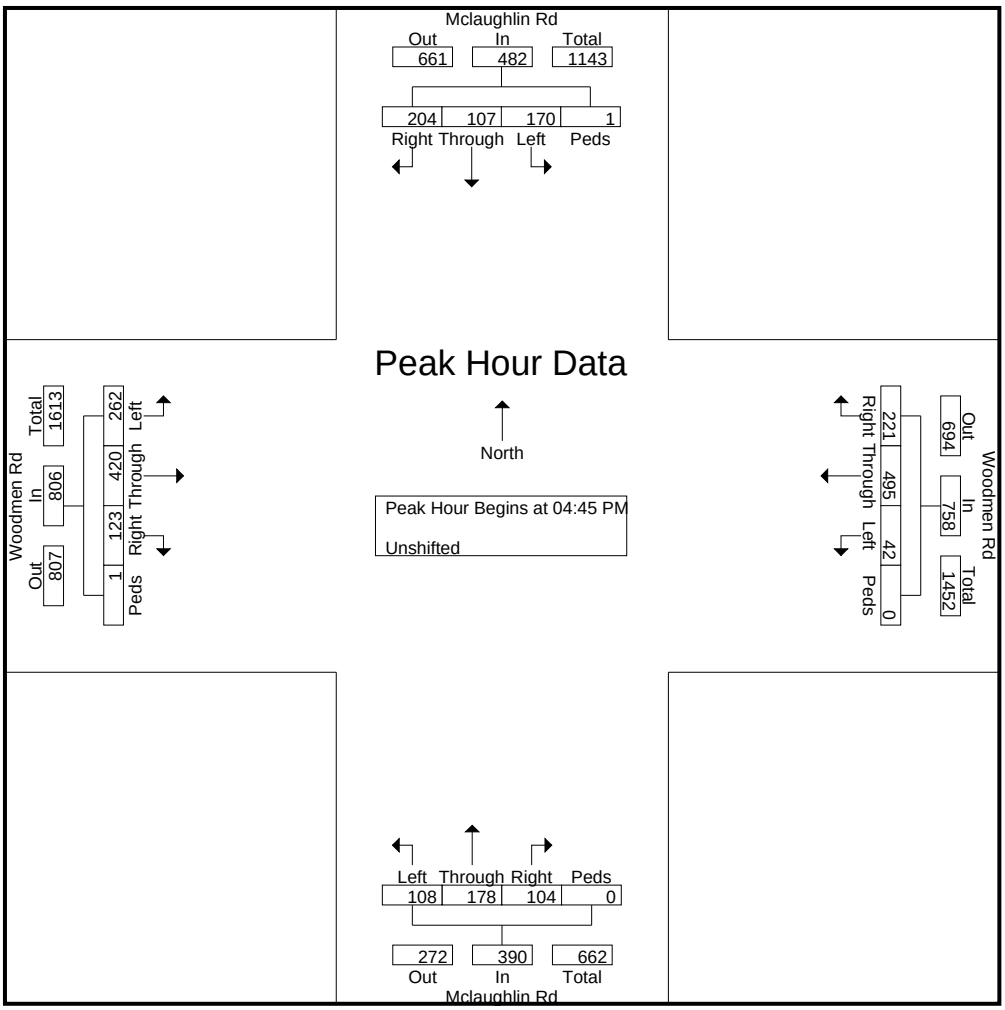
File Name : Mclaughlin Rd - Woodmen Rd PM
Site Code : 184560
Start Date : 7/16/2019
Page No : 2

	Mclaughlin Rd Southbound					Woodmen Rd Westbound					Mclaughlin Rd Northbound					Woodmen Rd Eastbound					
Start Time	**Left**	**Through**	**Right**	**Peds**	**App. Total**	**Left**	**Through**	**Right**	**Peds**	**App. Total**	**Left**	**Through**	**Right**	**Peds**	**App. Total**	**Left**	**Through**	**Right**	**Peds**	**App. Total**	**Int. Total**
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	46	25	50	0	121	6	**136**	46	0	188	23	34	20	0	77	**69**	113	34	0	216	602
05:00 PM	34	**32**	**55**	**1**	**122**	**16**	128	**68**	0	**212**	22	39	**36**	0	97	62	87	24	**1**	174	605
05:15 PM	**47**	25	50	0	122	12	107	53	0	172	25	50	27	0	102	63	99	30	0	192	588
05:30 PM	43	25	49	0	117	8	124	54	0	186	**38**	**55**	21	0	**114**	68	**121**	**35**	0	**224**	**641**
Total Volume	170	107	204	1	482	42	495	221	0	758	108	178	104	0	390	262	420	123	1	806	2436
% App. Total	35.3	22.2	42.3	0.2		5.5	65.3	29.2	0		27.7	45.6	26.7	0		32.5	52.1	15.3	0.1		
PHF	.904	.836	.927	.250	.988	.656	.910	.813	.000	.894	.711	.809	.722	.000	.855	.949	.868	.879	.250	.900	.950



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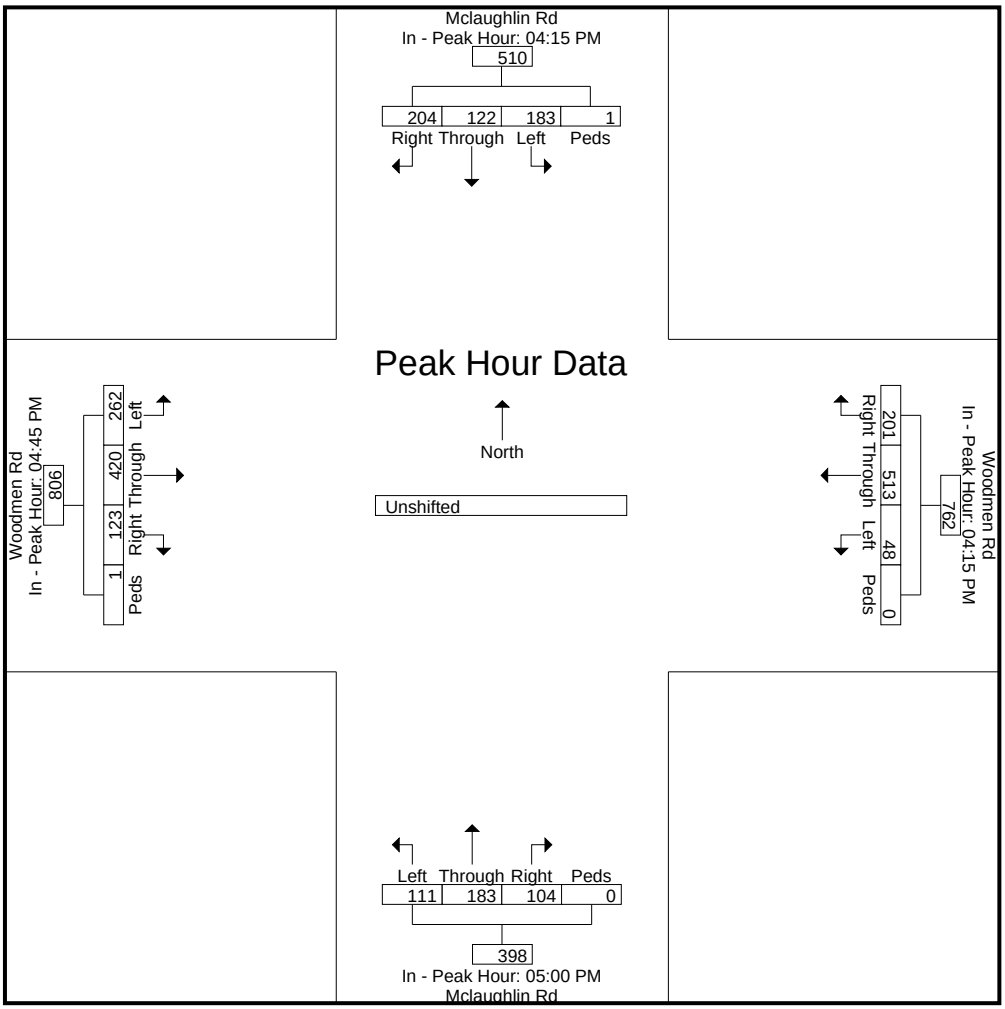
719-633-2868

File Name : Mclaughlin Rd - Woodmen Rd PM
Site Code : 184560
Start Date : 7/16/2019
Page No : 3

	Mclaughlin Rd Southbound					Woodmen Rd Westbound					Mclaughlin Rd Northbound					Woodmen Rd Eastbound					
Start Time	**Left**	**Through**	**Right**	**Peds**	**App. Total**	**Left**	**Through**	**Right**	**Peds**	**App. Total**	**Left**	**Through**	**Right**	**Peds**	**App. Total**	**Left**	**Through**	**Right**	**Peds**	**App. Total**	**Int. Total**
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Each Approach Begins at:																					
	04:15 PM					04:15 PM					05:00 PM					04:45 PM					
+0 mins.	47	29	49	0	125	**16**	118	50	0	184	22	39	**36**	0	97	**69**	113	34	0	216	
+15 mins.	**56**	**36**	50	0	**142**	10	131	37	0	178	25	50	27	0	102	62	87	24	**1**	174	
+30 mins.	46	25	50	0	121	6	**136**	46	0	188	**38**	**55**	21	0	**114**	63	99	30	0	192	
+45 mins.	34	32	**55**	**1**	122	16	128	**68**	0	**212**	26	39	20	0	85	68	**121**	**35**	0	**224**	
Total Volume	183	122	204	1	510	48	513	201	0	762	111	183	104	0	398	262	420	123	1	806	
% App. Total	35.9	23.9	40	0.2		6.3	67.3	26.4	0		27.9	46	26.1	0		32.5	52.1	15.3	0.1		
PHF	.817	.847	.927	.250	.898	.750	.943	.739	.000	.899	.730	.832	.722	.000	.873	.949	.868	.879	.250	.900	



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719-633-2868

File Name : Hwy 24 - Rio Ln AM
Site Code : 184560
Start Date : 1/16/2019
Page No : 1

Groups Printed- Unshifted

	Hwy 24 Southbound				Rio Ln Westbound				Hwy 24 Northbound				Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
06:30	1	217	0	0	16	0	2	0	0	91	16	0	0	0	0	0	343
06:45	0	236	0	0	15	0	0	0	0	84	24	0	0	0	0	0	359
Total	1	453	0	0	31	0	2	0	0	175	40	0	0	0	0	0	702
07:00	0	201	0	0	20	0	3	0	0	83	16	0	0	0	0	0	323
07:15	1	207	0	0	19	0	2	0	0	68	26	0	0	0	0	0	323
07:30	1	209	0	0	21	0	1	0	0	69	21	0	0	0	0	0	322
07:45	0	137	0	0	18	0	0	0	0	82	24	0	0	0	0	0	261
Total	2	754	0	0	78	0	6	0	0	302	87	0	0	0	0	0	1229
08:00	0	158	0	0	17	0	0	0	0	69	18	0	0	0	0	0	262
08:15	0	142	0	0	15	0	0	0	0	101	9	0	0	0	0	0	267
Grand Total	3	1507	0	0	141	0	8	0	0	647	154	0	0	0	0	0	2460
Apprch %	0.2	99.8	0	0	94.6	0	5.4	0	0	80.8	19.2	0	0	0	0	0	
Total %	0.1	61.3	0	0	5.7	0	0.3	0	0	26.3	6.3	0	0	0	0	0	

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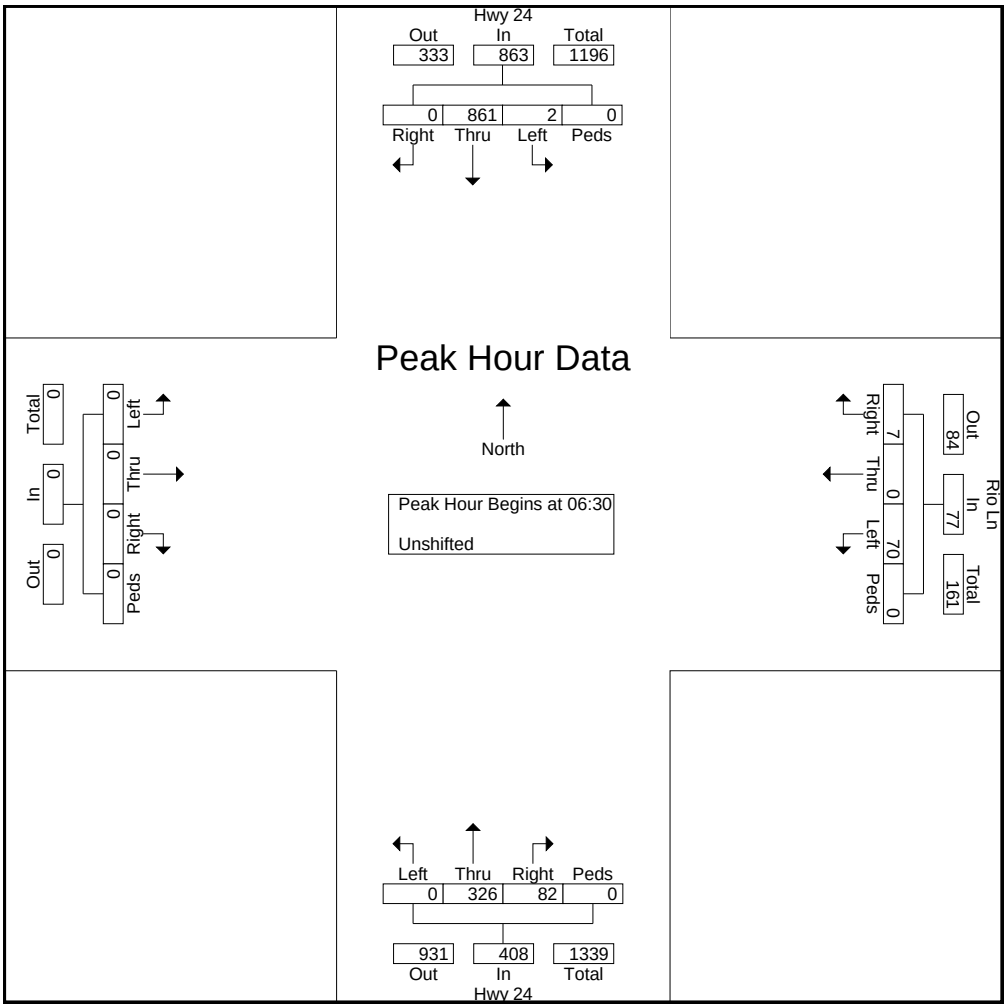
File Name : Hwy 24 - Rio Ln AM
Site Code : 184560
Start Date : 1/16/2019
Page No : 2

	Hwy 24 Southbound					Rio Ln Westbound					Hwy 24 Northbound					Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:30 to 08:15 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 06:30																					
06:30	**1**	217	0	0	218	16	0	2	0	18	0	**91**	16	0	107	0	0	0	0	0	343
06:45	0	**236**	0	0	**236**	15	0	0	0	15	0	84	24	0	**108**	0	0	0	0	0	**359**
07:00	0	201	0	0	201	**20**	0	**3**	0	**23**	0	83	16	0	99	0	0	0	0	0	323
07:15	1	207	0	0	208	19	0	2	0	21	0	68	**26**	0	94	0	0	0	0	0	323
Total Volume	2	861	0	0	863	70	0	7	0	77	0	326	82	0	408	0	0	0	0	0	1348
% App. Total	0.2	99.8	0	0		90.9	0	9.1	0		0	79.9	20.1	0		0	0	0	0		
PHF	.500	.912	.000	.000	.914	.875	.000	.583	.000	.837	.000	.896	.788	.000	.944	.000	.000	.000	.000	.000	.939



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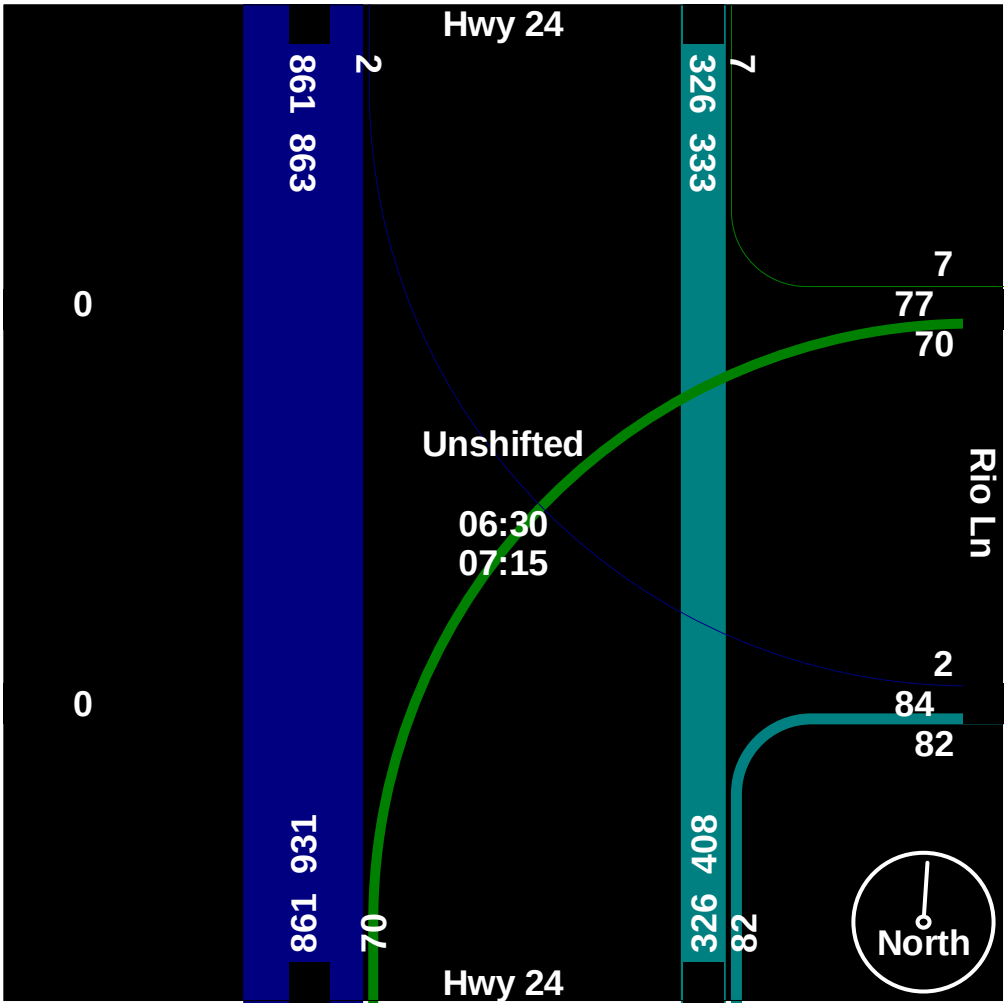
File Name : Hwy 24 - Rio Ln AM
Site Code : 184560
Start Date : 1/16/2019
Page No : 3



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719-633-2868

File Name : Hwy 24 - Rio Ln PM
Site Code : 184560
Start Date : 1/16/2019
Page No : 1

Groups Printed- Unshifted

	Hwy 24 Southbound				Rio Ln Westbound				Hwy 24 Northbound				Rio Ln Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
16:00	0	140	0	0	28	0	0	0	0	178	21	0	0	0	0	0	367
16:15	1	116	0	0	24	0	0	0	0	233	39	0	0	0	0	0	413
16:30	1	148	0	0	21	0	0	0	0	201	21	0	0	0	0	0	392
16:45	0	120	0	0	22	0	2	0	0	204	28	0	0	0	0	0	376
Total	2	524	0	0	95	0	2	0	0	816	109	0	0	0	0	0	1548
17:00	2	154	0	0	21	0	1	0	0	182	39	0	0	0	0	0	399
17:15	3	126	0	0	24	0	3	0	0	195	38	0	0	0	0	0	389
17:30	2	113	0	0	23	0	1	0	0	208	29	0	0	0	0	0	376
17:45	1	85	0	0	22	0	1	0	0	214	27	0	0	0	0	0	350
Total	8	478	0	0	90	0	6	0	0	799	133	0	0	0	0	0	1514
Grand Total	10	1002	0	0	185	0	8	0	0	1615	242	0	0	0	0	0	3062
Apprch %	1	99	0	0	95.9	0	4.1	0	0	87	13	0	0	0	0	0	
Total %	0.3	32.7	0	0	6	0	0.3	0	0	52.7	7.9	0	0	0	0	0	

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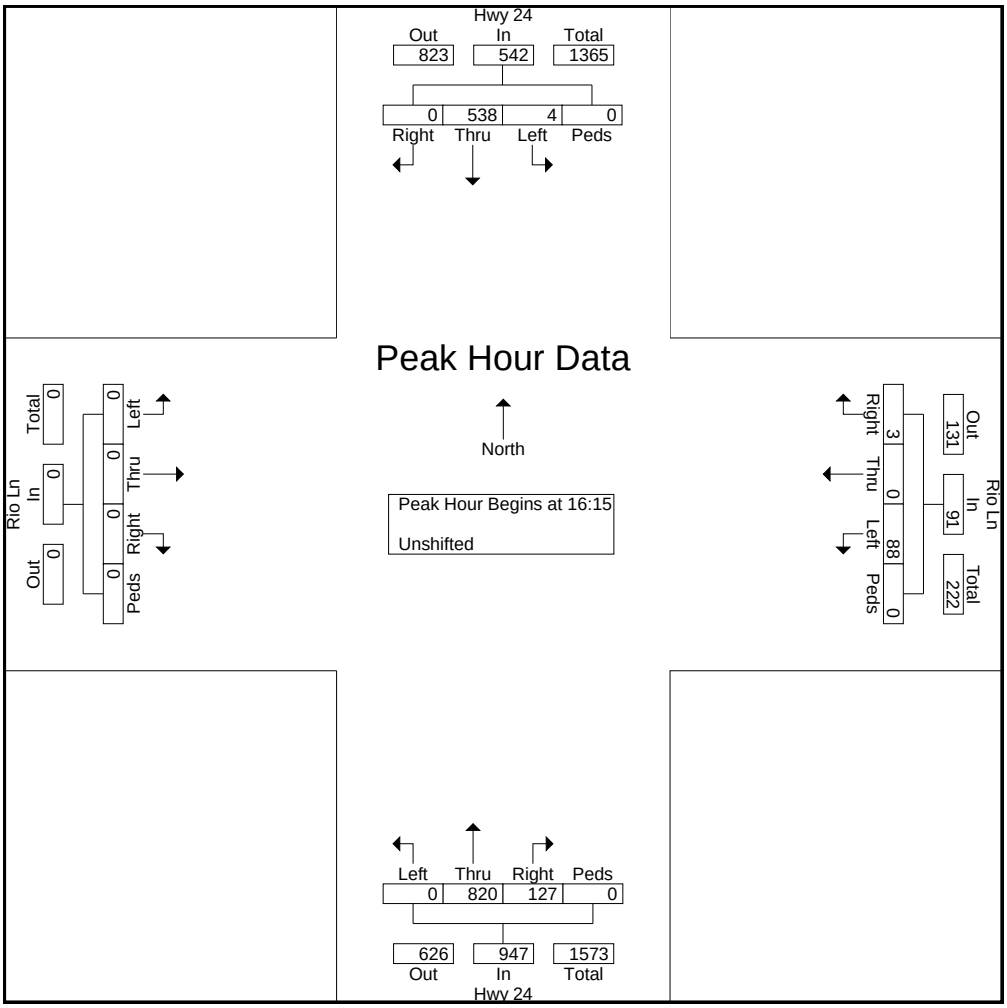
File Name : Hwy 24 - Rio Ln PM
Site Code : 184560
Start Date : 1/16/2019
Page No : 2

	Hwy 24 Southbound					Rio Ln Westbound					Hwy 24 Northbound					Rio Ln Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:15																					
16:15	1	116	0	0	117	**24**	0	0	0	**24**	0	**233**	**39**	0	**272**	0	0	0	0	0	**413**
16:30	1	148	0	0	149	21	0	0	0	21	0	201	21	0	222	0	0	0	0	0	392
16:45	0	120	0	0	120	22	0	**2**	0	24	0	204	28	0	232	0	0	0	0	0	376
17:00	**2**	**154**	0	0	**156**	21	0	1	0	22	0	182	39	0	221	0	0	0	0	0	399
Total Volume	4	538	0	0	542	88	0	3	0	91	0	820	127	0	947	0	0	0	0	0	1580
% App. Total	0.7	99.3	0	0		96.7	0	3.3	0		0	86.6	13.4	0		0	0	0	0		
PHF	.500	.873	.000	.000	.869	.917	.000	.375	.000	.948	.000	.880	.814	.000	.870	.000	.000	.000	.000	.000	.956



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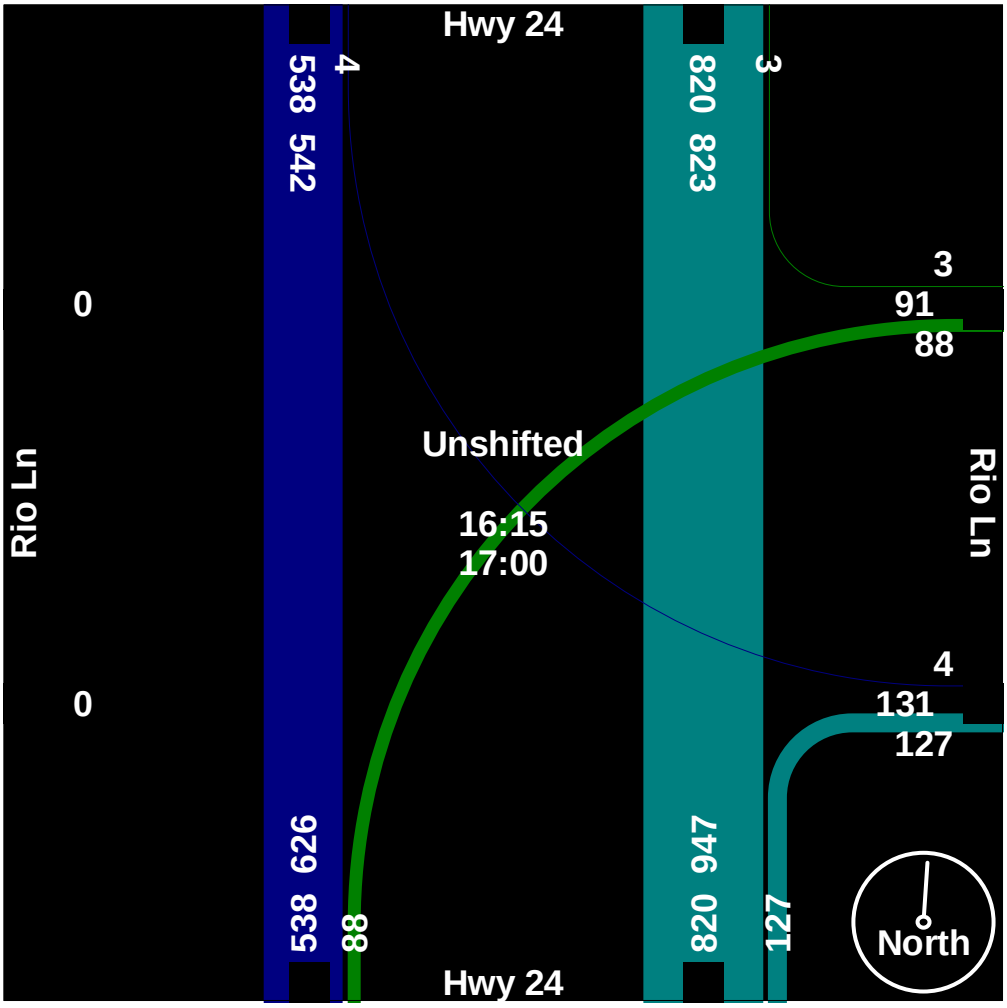
File Name : Hwy 24 - Rio Ln PM
Site Code : 184560
Start Date : 1/16/2019
Page No : 3



Counts by LSC

LSC Transportation Consultants, Inc.

File Name : Hwy 24 - Meridian Rd AM
Site Code : 00174890
Start Date : 12/14/2017
Page No : 1

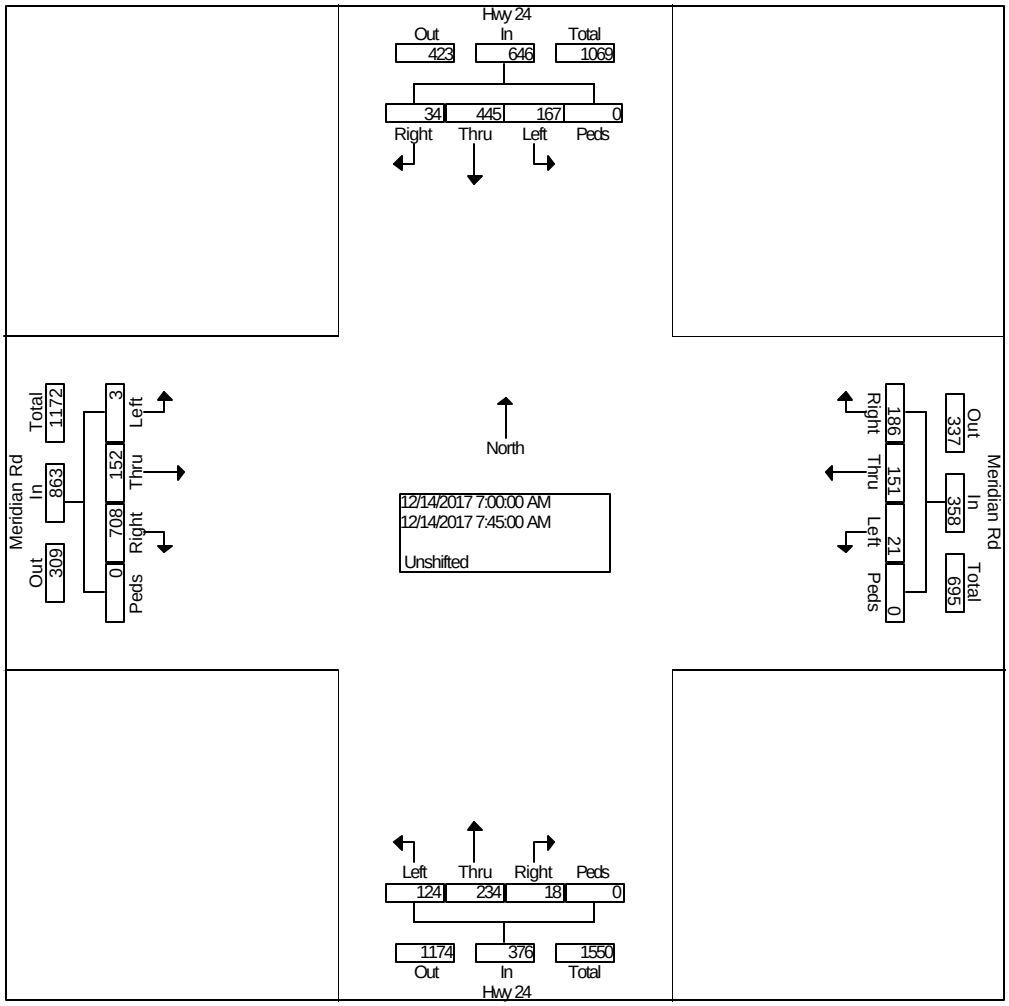
Groups Printed- Unshifted

	Hwy 24 From North				Meridian Rd From East				Hwy 24 From South				Meridian Rd From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
06:30 AM	2	175	19	0	40	21	2	0	1	58	15	0	142	16	0	0	491
06:45 AM	6	119	34	0	34	19	1	0	4	50	28	0	171	29	1	0	496
Total	8	294	53	0	74	40	3	0	5	108	43	0	313	45	1	0	987
07:00 AM	13	96	39	0	43	30	8	0	2	41	30	0	217	29	1	0	549
07:15 AM	15	105	51	0	59	36	3	0	1	50	39	0	209	40	2	0	610
07:30 AM	4	117	37	0	45	42	5	0	7	66	24	0	175	45	0	0	567
07:45 AM	2	127	40	0	39	43	5	0	8	77	31	0	107	38	0	0	517
Total	34	445	167	0	186	151	21	0	18	234	124	0	708	152	3	0	2243
08:00 AM	4	102	26	0	33	34	2	0	2	52	39	0	84	47	3	0	428
08:15 AM	1	111	22	0	57	39	3	0	3	61	31	0	86	44	0	0	458
Grand Total	47	952	268	0	350	264	29	0	28	455	237	0	1191	288	7	0	4116
Apprch %	3.7	75.1	21.2	0.0	54.4	41.1	4.5	0.0	3.9	63.2	32.9	0.0	80.1	19.4	0.5	0.0	
Total %	1.1	23.1	6.5	0.0	8.5	6.4	0.7	0.0	0.7	11.1	5.8	0.0	28.9	7.0	0.2	0.0	

Counts by LSC

File Name : Hwy 24 - Meridian Rd AM
Site Code : 00174890
Start Date : 12/14/2017
Page No : 2

	Hwy 24 From North					Meridian Rd From East					Hwy 24 From South					Meridian Rd From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour From 06:30 AM to 08:15 AM - Peak 1 of 1																					
Intersection	07:00 AM																				
Volume	34	445	167	0	646	186	151	21	0	358	18	234	124	0	376	708	152	3	0	863	2243
Percent	5.3	68.9	25.9	0.0		52.0	42.2	5.9	0.0		4.8	62.2	33.0	0.0		82.0	17.6	0.3	0.0		
07:15 Volume	15	105	51	0	171	59	36	3	0	98	1	50	39	0	90	209	40	2	0	251	610
Peak Factor																					0.919
High Int.	07:15 AM					07:15 AM					07:45 AM					07:15 AM					
Volume	15	105	51	0	171	59	36	3	0	98	8	77	31	0	116	209	40	2	0	251	
Peak Factor					0.944					0.913					0.810					0.860	



Counts by LSC

LSC Transportation Consultants, Inc.

File Name : Hwy 24 - Meridian Rd PM
Site Code : 00174890
Start Date : 12/14/2017
Page No : 1

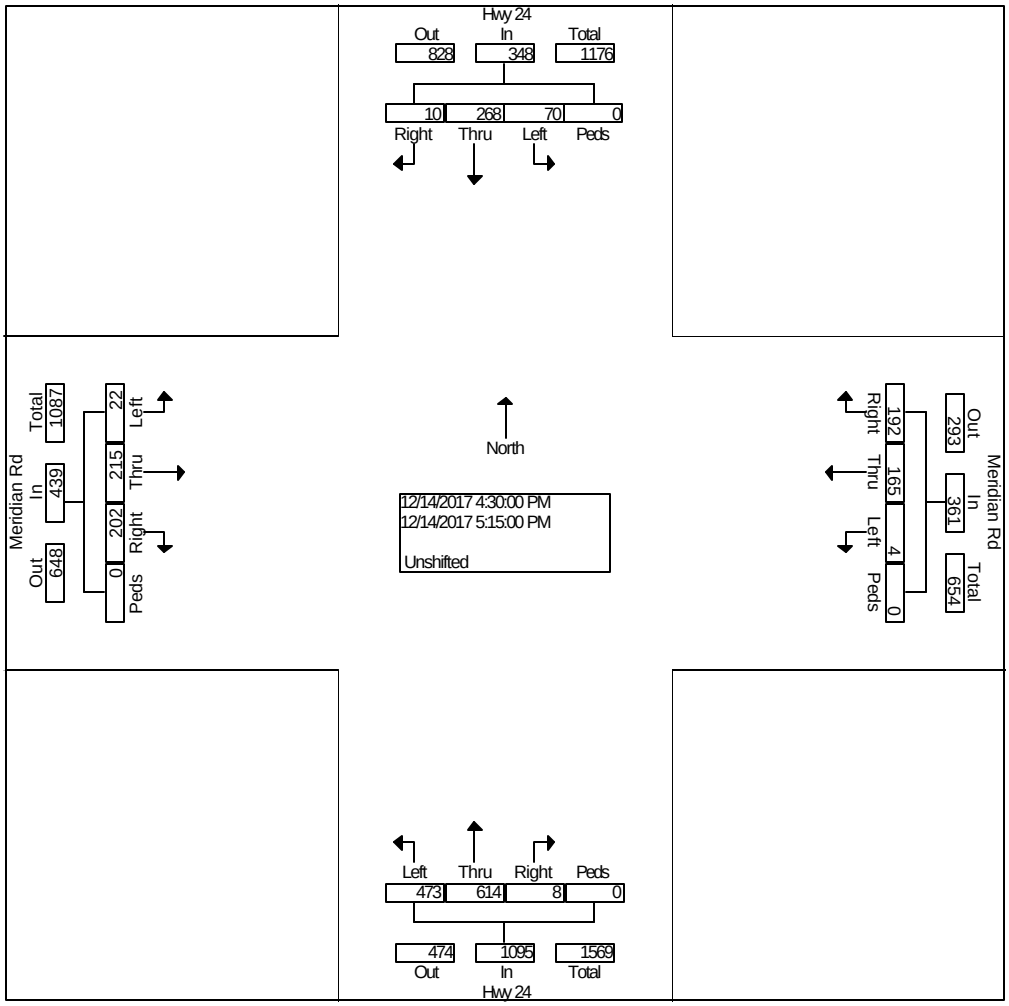
Groups Printed- Unshifted

	Hwy 24 From North				Meridian Rd From East				Hwy 24 From South				Meridian Rd From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
04:00 PM	3	55	14	0	34	46	1	0	1	147	105	0	49	46	5	0	506
04:15 PM	3	59	15	0	35	47	2	0	1	144	109	0	50	48	7	0	520
04:30 PM	4	69	20	0	47	36	1	0	3	156	121	0	48	56	4	0	565
04:45 PM	1	58	21	0	53	42	0	0	2	147	104	0	48	49	6	0	531
Total	11	241	70	0	169	171	4	0	7	594	439	0	195	199	22	0	2122
05:00 PM	4	67	14	0	40	52	2	0	2	154	122	0	70	52	10	0	589
05:15 PM	1	74	15	0	52	35	1	0	1	157	126	0	36	58	2	0	558
05:30 PM	2	81	21	0	30	31	3	0	0	165	98	0	46	54	6	0	537
05:45 PM	2	79	19	0	29	33	2	0	1	159	96	0	44	53	4	0	521
Total	9	301	69	0	151	151	8	0	4	635	442	0	196	217	22	0	2205
Grand Total	20	542	139	0	320	322	12	0	11	1229	881	0	391	416	44	0	4327
Apprch %	2.9	77.3	19.8	0.0	48.9	49.2	1.8	0.0	0.5	57.9	41.5	0.0	45.9	48.9	5.2	0.0	
Total %	0.5	12.5	3.2	0.0	7.4	7.4	0.3	0.0	0.3	28.4	20.4	0.0	9.0	9.6	1.0	0.0	

Counts by LSC

File Name : Hwy 24 - Meridian Rd PM
Site Code : 00174890
Start Date : 12/14/2017
Page No : 2

	Hwy 24 From North					Meridian Rd From East					Hwy 24 From South					Meridian Rd From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Intersection	04:30 PM																				
Volume	10	268	70	0	348	192	165	4	0	361	8	614	473	0	1095	202	215	22	0	439	2243
Percent	2.9	77.0	20.1	0.0		53.2	45.7	1.1	0.0		0.7	56.1	43.2	0.0		46.0	49.0	5.0	0.0		
05:00 Volume	4	67	14	0	85	40	52	2	0	94	2	154	122	0	278	70	52	10	0	132	589
Peak Factor																					0.952
High Int.	04:30 PM					04:45 PM					05:15 PM					05:00 PM					
Volume	4	69	20	0	93	53	42	0	0	95	1	157	126	0	284	70	52	10	0	132	
Peak Factor					0.935					0.950					0.964					0.831	



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Default Comments
Change These in The Preferences Window
Select File/Preference in the Main Scree
Then Click the Comments Tab

Groups Printed- Unshifted

	Hwy 24 Southbound					Westbound					Hwy 24 Northbound					Woodmen Rd Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
06:30	0	106	49	0	155	0	0	0	0	0	61	33	0	0	94	32	0	48	1	81	330
06:45	0	145	90	0	235	0	0	0	0	0	59	37	0	0	96	46	0	83	0	129	460
Total	0	251	139	0	390	0	0	0	0	0	120	70	0	0	190	78	0	131	1	210	790
07:00	0	135	98	0	233	0	0	0	0	0	40	41	0	0	81	44	0	87	0	131	445
07:15	0	112	104	0	216	0	0	0	0	0	60	58	0	0	118	52	0	64	0	116	450
07:30	0	110	76	1	187	0	0	0	0	0	60	70	0	0	130	63	0	63	0	126	443
07:45	0	99	94	0	193	0	0	0	0	0	37	68	0	0	105	62	0	55	1	118	416
Total	0	456	372	1	829	0	0	0	0	0	197	237	0	0	434	221	0	269	1	491	1754
08:00	0	73	70	0	143	0	0	0	0	0	56	66	0	0	122	60	0	47	0	107	372
08:15	0	76	98	0	174	0	0	0	0	0	50	45	0	0	95	50	0	62	0	112	381

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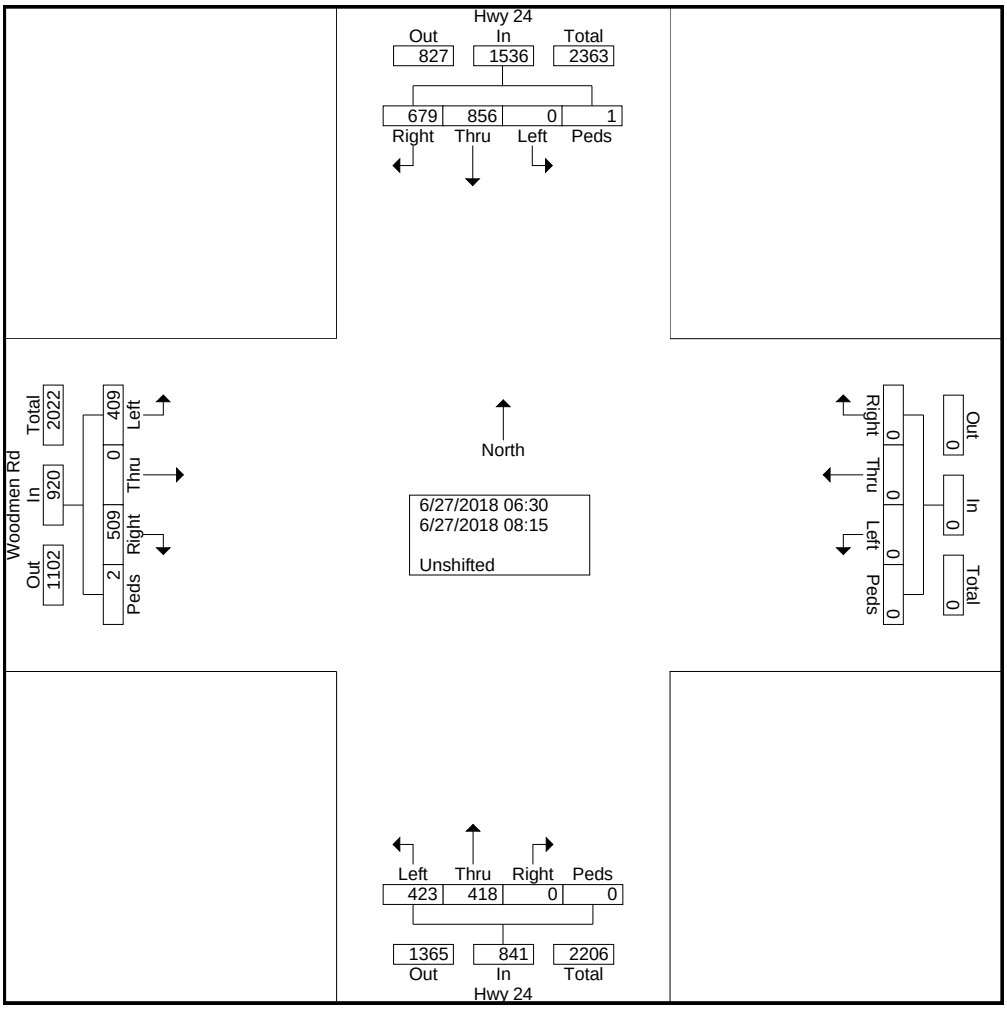
Groups Printed- Unshifted

	Hwy 24 Southbound					Westbound					Hwy 24 Northbound					Woodmen Rd Eastbound					
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Grand Total	0	856	679	1	1536	0	0	0	0	0	423	418	0	0	841	409	0	509	2	920	3297
Apprch %	0	55.7	44.2	0.1		0	0	0	0		50.3	49.7	0	0		44.5	0	55.3	0.2		
Total %	0	26	20.6	0	46.6	0	0	0	0	0	12.8	12.7	0	0	25.5	12.4	0	15.4	0.1	27.9	



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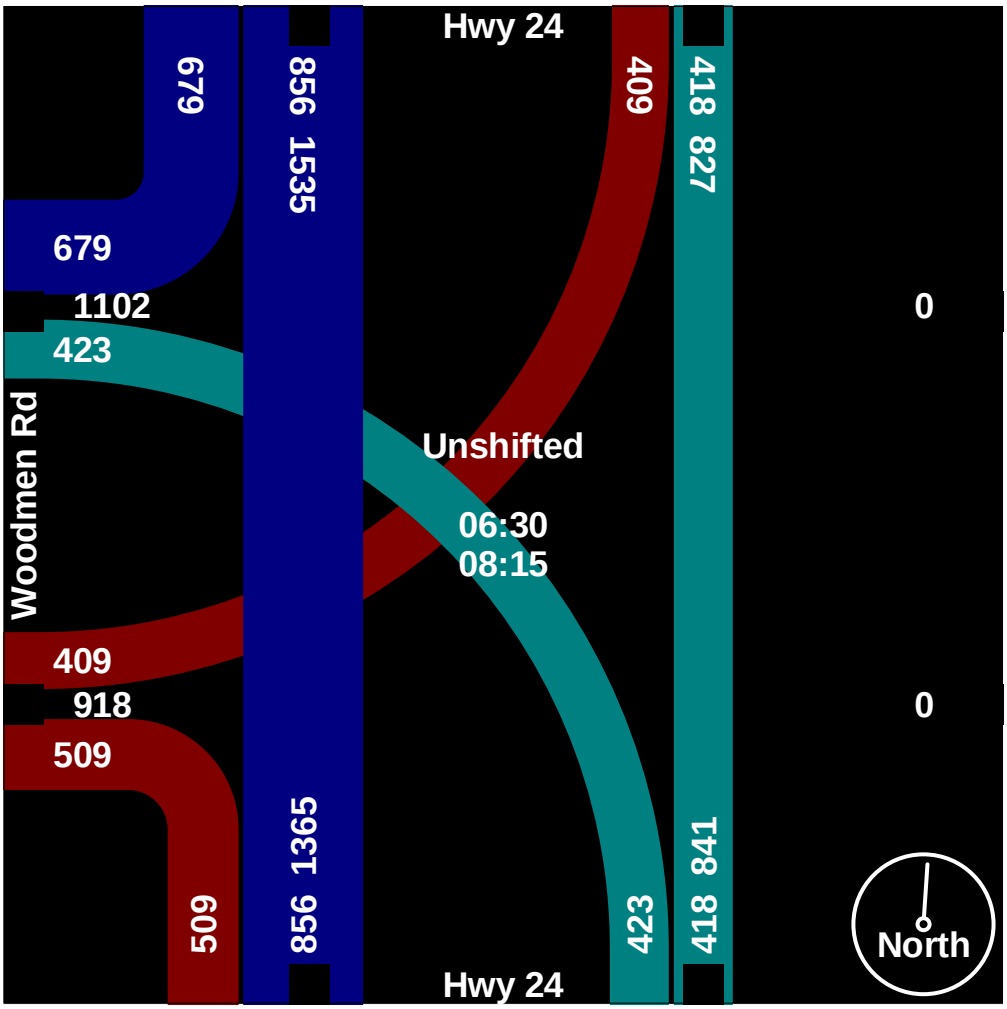

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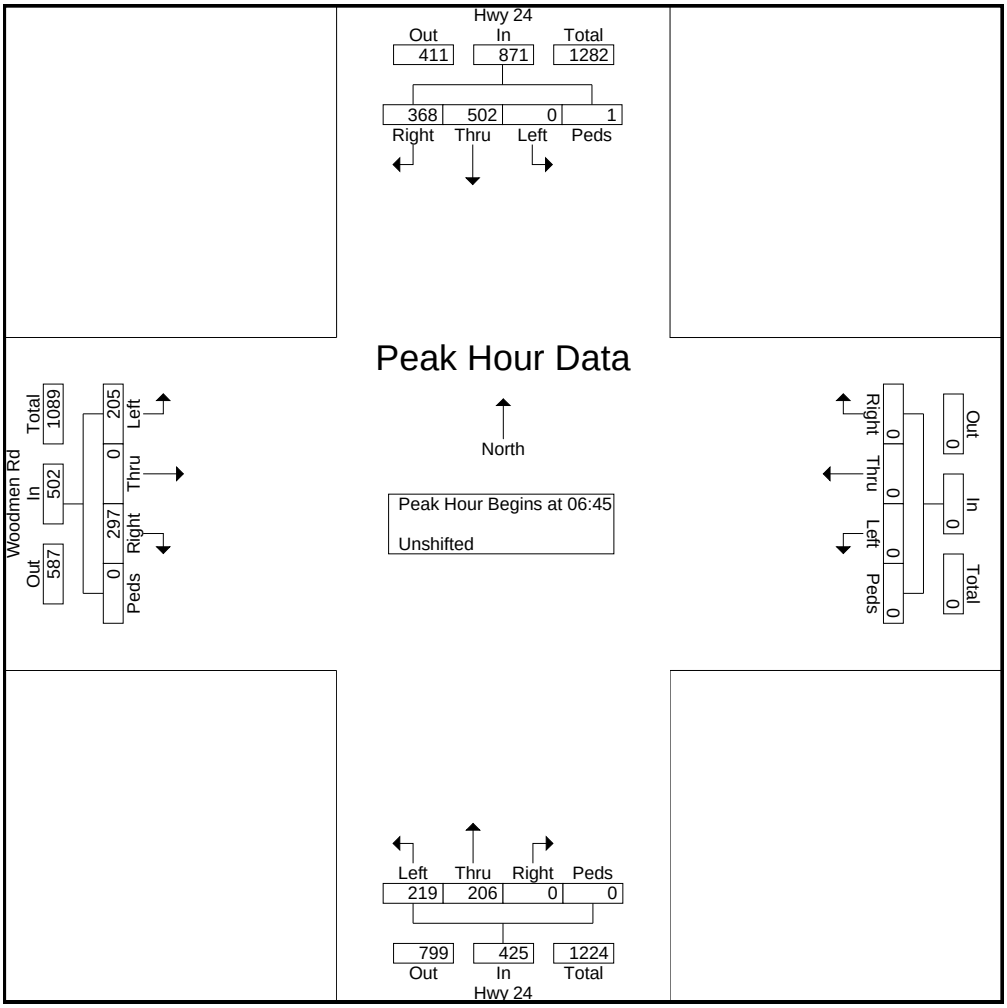
	Hwy 24 Southbound					Westbound					Hwy 24 Northbound					Woodmen Rd Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:30 to 08:15 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 06:45																					
06:45	0	**145**	90	0	**235**	0	0	0	0	0	59	37	0	0	96	46	0	83	0	129	**460**
07:00	0	135	98	0	233	0	0	0	0	0	40	41	0	0	81	44	0	**87**	0	**131**	445
07:15	0	112	**104**	0	216	0	0	0	0	0	**60**	58	0	0	118	52	0	64	0	116	450
07:30	0	110	76	**1**	187	0	0	0	0	0	60	**70**	0	0	**130**	**63**	0	63	0	126	443
Total Volume	0	502	368	1	871	0	0	0	0	0	219	206	0	0	425	205	0	297	0	502	1798
% App. Total	0	57.6	42.3	0.1		0	0	0	0		51.5	48.5	0	0		40.8	0	59.2	0		
PHF	.000	.866	.885	.250	.927	.000	.000	.000	.000	.000	.913	.736	.000	.000	.817	.813	.000	.853	.000	.958	.977



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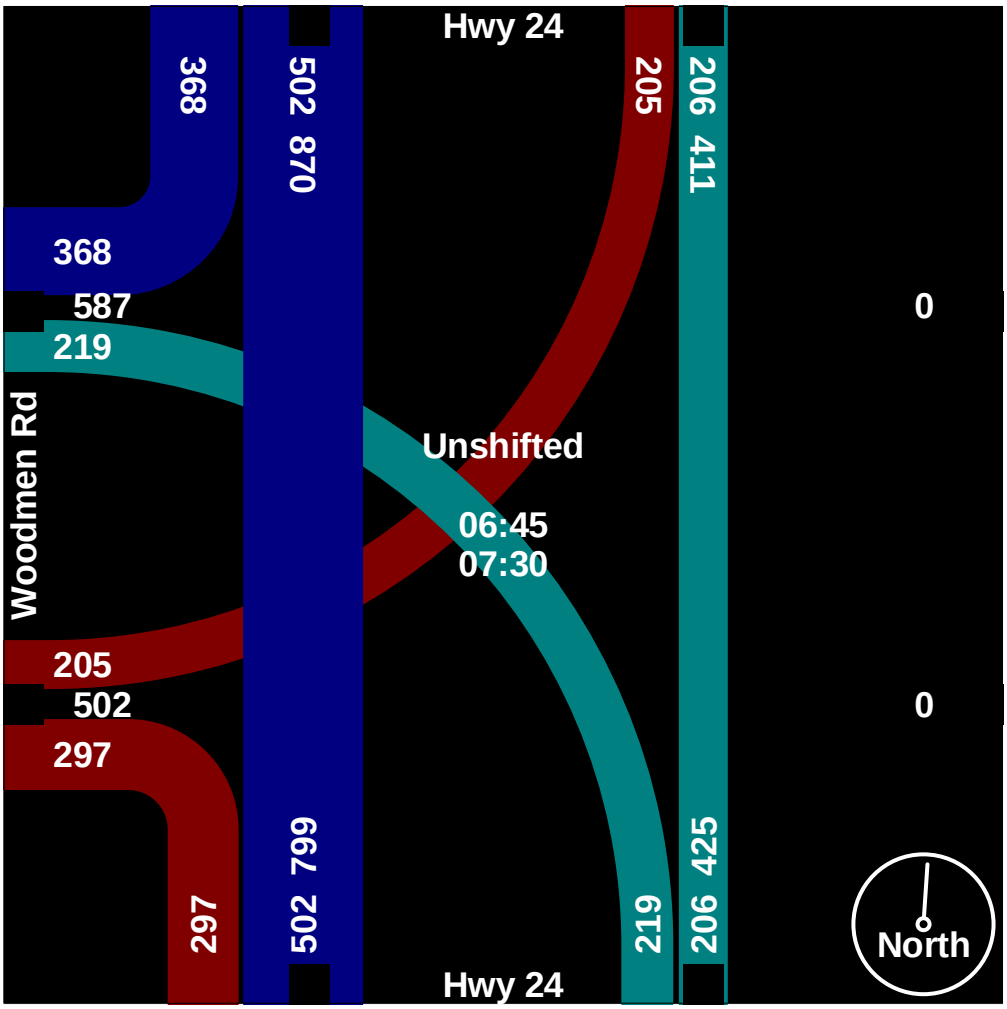

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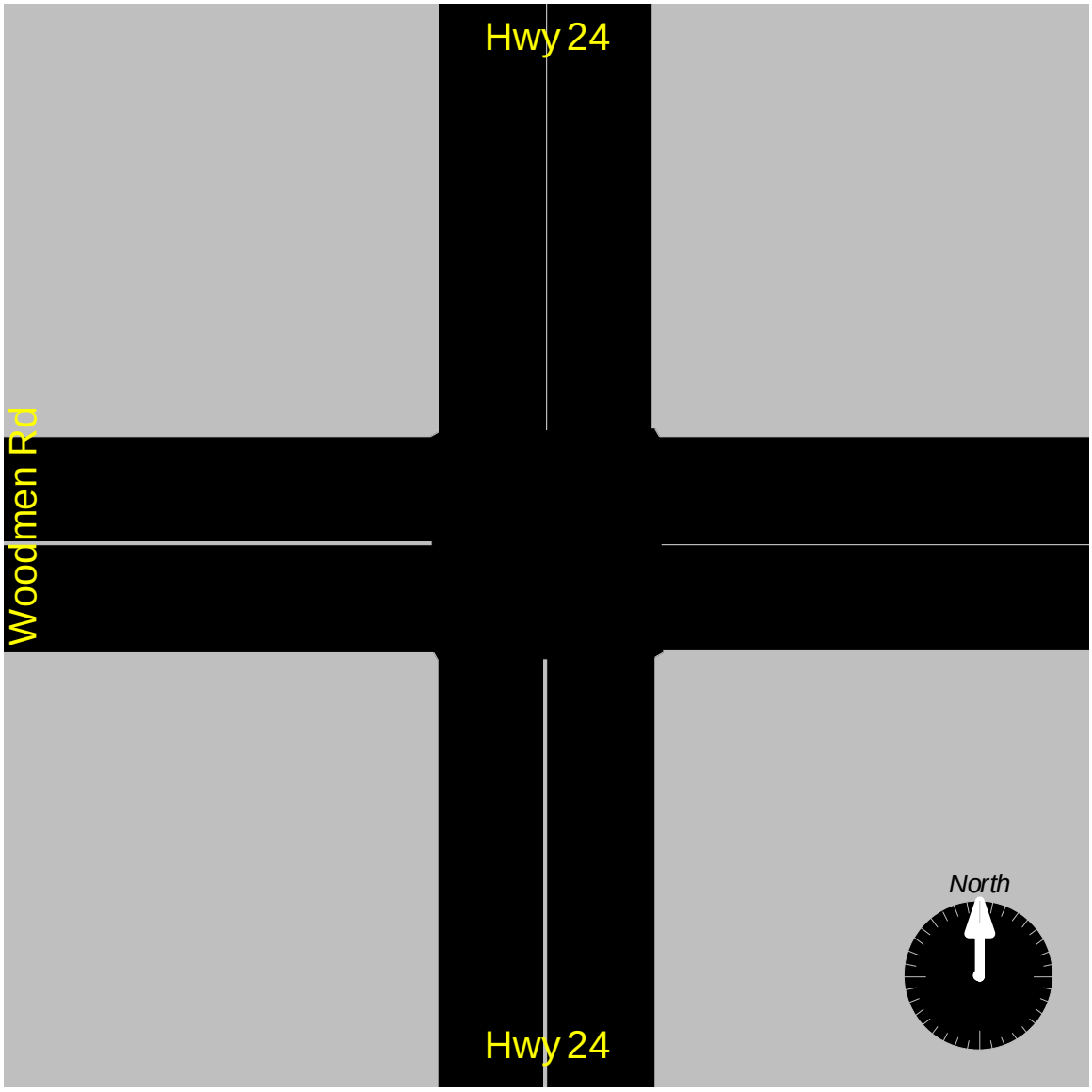

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Groups Printed- Unshifted

	Hwy 24 Southbound					Westbound					Hwy 24 Northbound					Woodmen Rd Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
16:00	0	52	73	0	125	0	0	0	0	0	91	94	0	0	185	122	0	38	0	160	470
16:15	0	72	95	0	167	0	0	0	0	0	88	120	0	0	208	99	0	47	0	146	521
16:30	0	63	113	0	176	0	0	0	0	0	111	111	0	0	222	119	0	52	0	171	569
16:45	0	60	106	3	169	0	0	0	0	0	93	117	0	0	210	110	0	38	0	148	527
Total	0	247	387	3	637	0	0	0	0	0	383	442	0	0	825	450	0	175	0	625	2087
17:00	0	65	94	0	159	0	0	0	0	0	106	117	0	0	223	135	0	35	0	170	552
17:15	0	64	95	0	159	0	0	0	0	0	106	104	0	0	210	114	0	47	0	161	530
17:30	0	71	79	0	150	0	0	0	0	0	93	104	0	0	197	142	0	49	0	191	538
17:45	0	76	75	0	151	0	0	0	0	0	91	119	0	0	210	109	0	52	0	161	522
Total	0	276	343	0	619	0	0	0	0	0	396	444	0	0	840	500	0	183	0	683	2142

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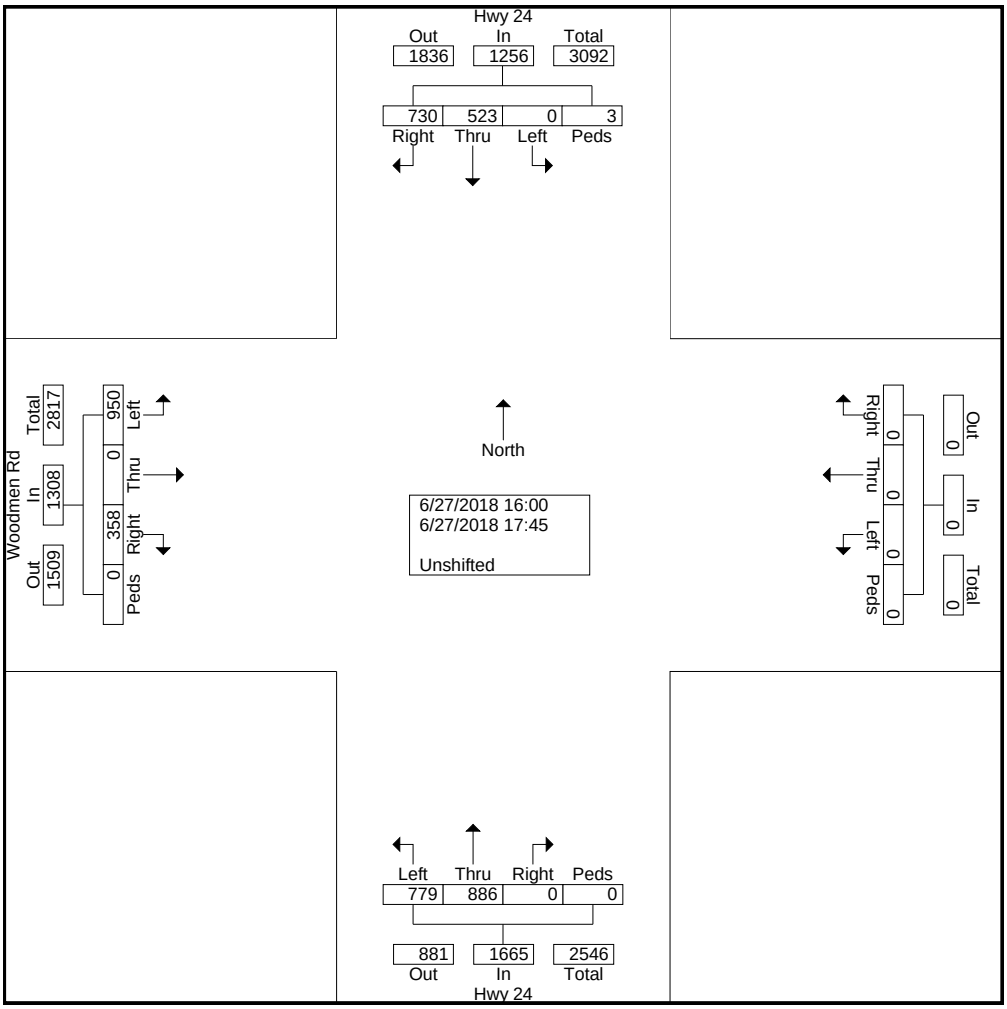
Groups Printed- Unshifted

	Hwy 24 Southbound					Westbound					Hwy 24 Northbound					Woodmen Rd Eastbound					
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Grand Total	0	523	730	3	1256	0	0	0	0	0	779	886	0	0	1665	950	0	358	0	1308	4229
Apprch %	0	41.6	58.1	0.2		0	0	0	0		46.8	53.2	0	0		72.6	0	27.4	0		
Total %	0	12.4	17.3	0.1	29.7	0	0	0	0	0	18.4	21	0	0	39.4	22.5	0	8.5	0	30.9	



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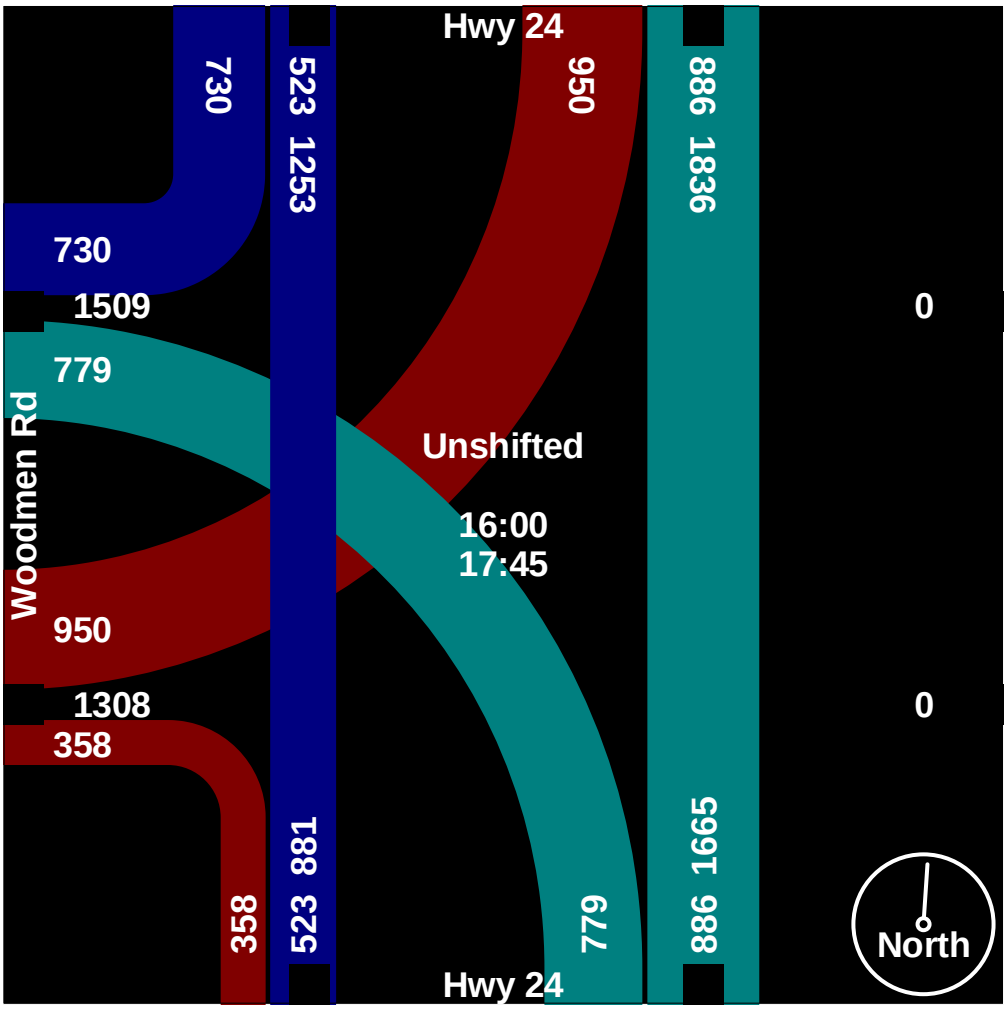

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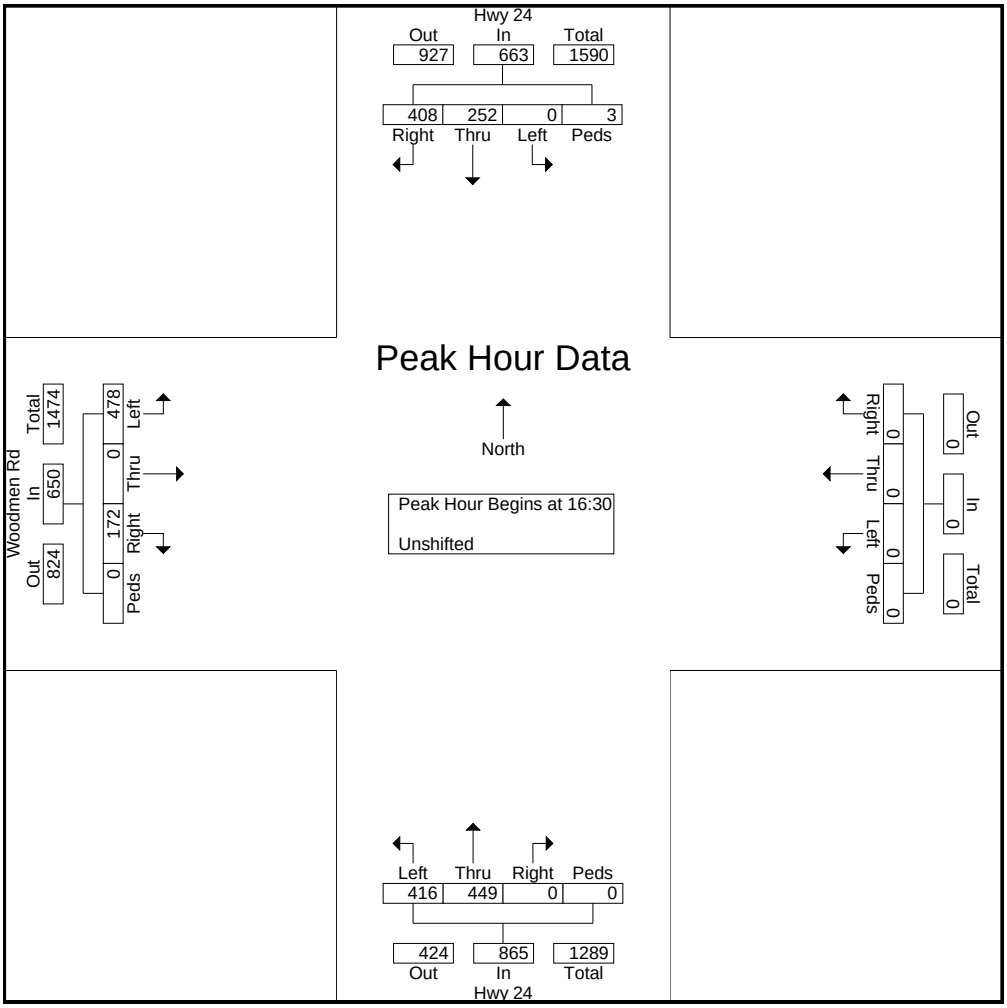
	Hwy 24 Southbound					Westbound					Hwy 24 Northbound					Woodmen Rd Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:30																					
16:30	0	63	**113**	0	**176**	0	0	0	0	0	**111**	111	0	0	222	119	0	**52**	0	**171**	**569**
16:45	0	60	106	**3**	169	0	0	0	0	0	93	**117**	0	0	210	110	0	38	0	148	527
17:00	0	**65**	94	0	159	0	0	0	0	0	106	117	0	0	**223**	**135**	0	35	0	170	552
17:15	0	64	95	0	159	0	0	0	0	0	106	104	0	0	210	114	0	47	0	161	530
Total Volume	0	252	408	3	663	0	0	0	0	0	416	449	0	0	865	478	0	172	0	650	2178
% App. Total	0	38	61.5	0.5		0	0	0	0		48.1	51.9	0	0		73.5	0	26.5	0		
PHF	.000	.969	.903	.250	.942	.000	.000	.000	.000	.000	.937	.959	.000	.000	.970	.885	.000	.827	.000	.950	.957



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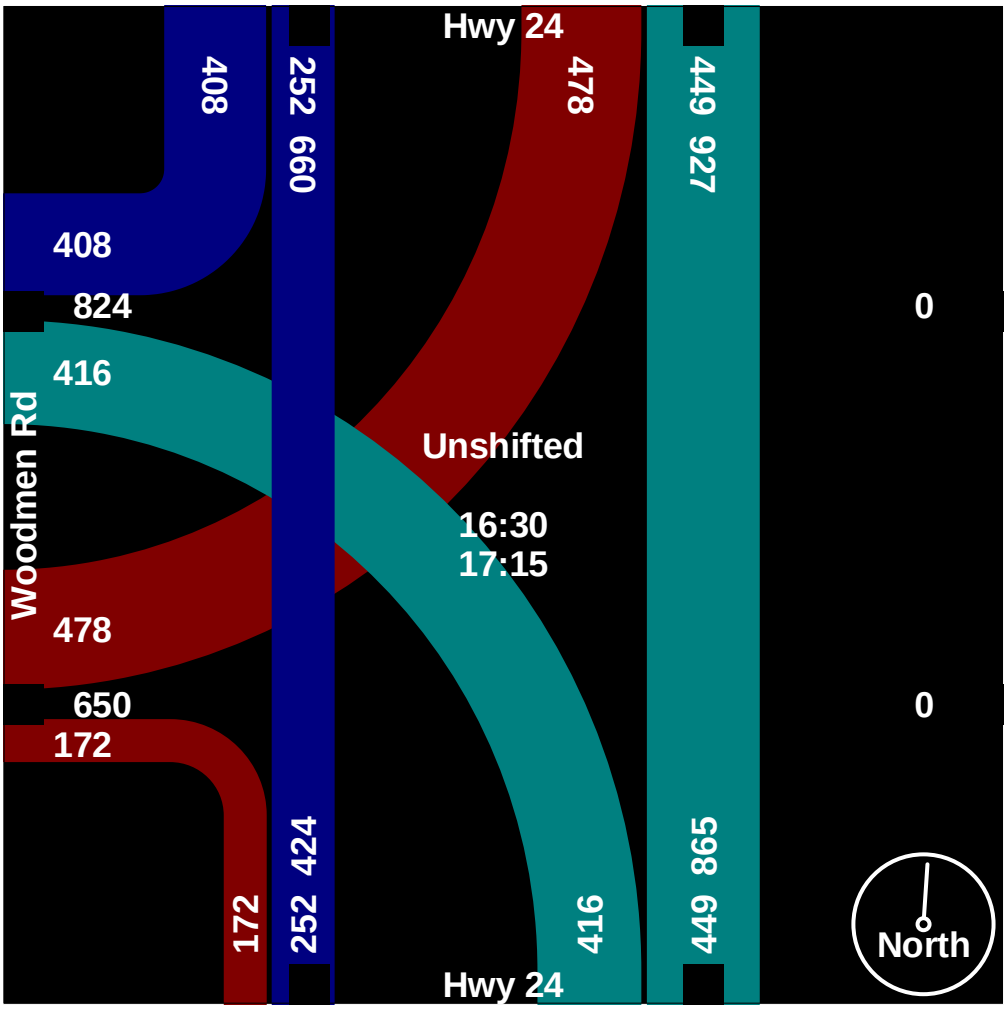

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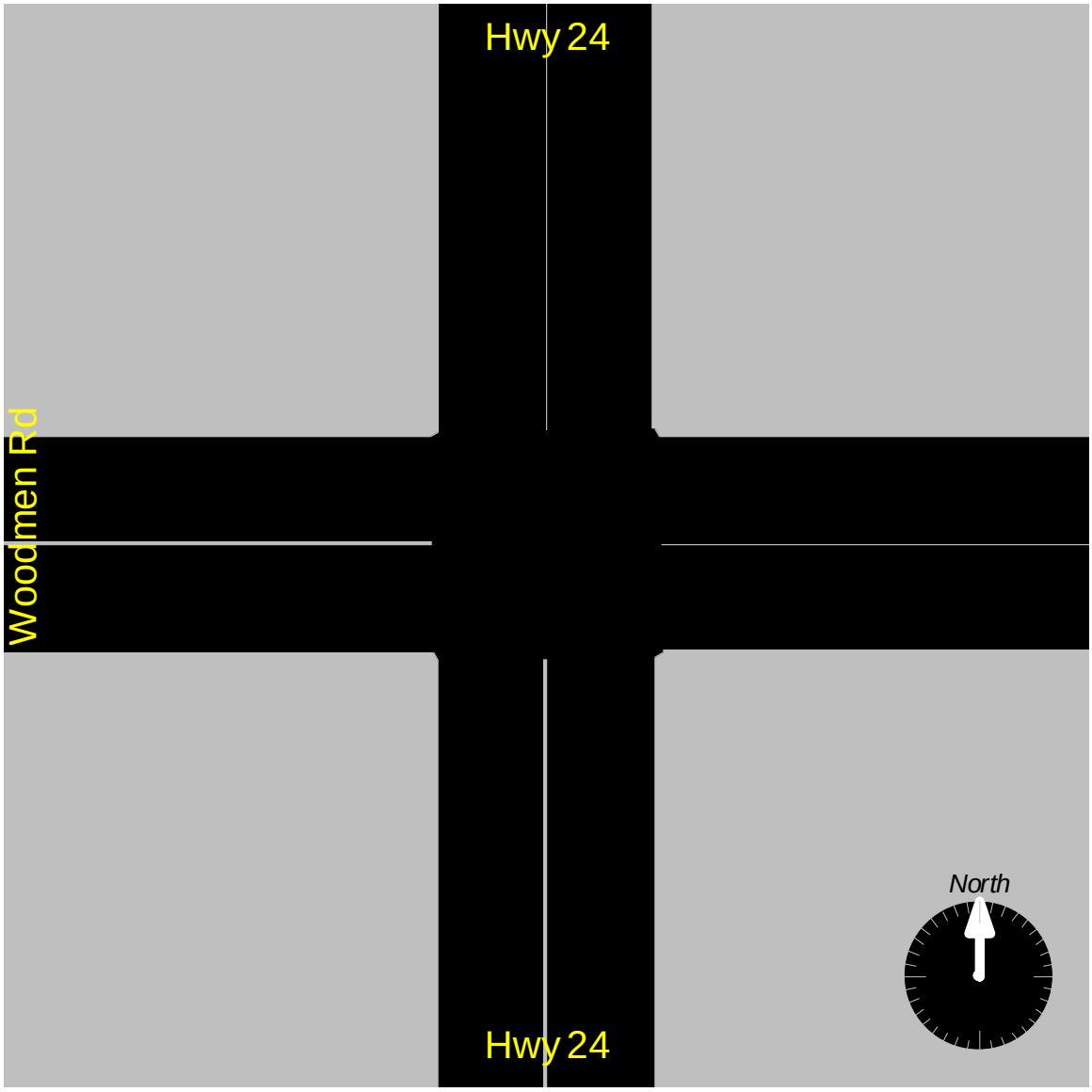

LSC Transportation Consultants, Inc.
545 E Pikes Peak Ave, Suite 210
Colorado Springs, CO 80905
719-633-2868

File Name : Meridian Rd - Woodmen Rd AM
Site Code : 184390
Start Date : 05/24/2018
Page No : 1

Groups Printed- Unshifted

	Meridian Rd Southbound					Woodmen Rd Westbound					Meridian Rd Northbound					Woodmen Rd Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
06:30	16	38	84	0	138	1	69	9	0	79	7	8	1	0	16	37	35	4	0	76	309
06:45	61	95	139	1	296	12	135	30	0	177	13	26	3	0	42	58	92	18	0	168	683
Total	77	133	223	1	434	13	204	39	0	256	20	34	4	0	58	95	127	22	0	244	992
07:00	72	98	174	0	344	30	137	32	0	199	12	22	6	0	40	87	121	18	1	227	810
07:15	81	100	232	0	413	21	164	31	0	216	15	30	4	0	49	92	90	19	0	201	879
07:30	51	104	216	0	371	17	196	20	0	233	18	34	4	1	57	84	104	17	0	205	866
07:45	58	102	131	0	291	19	95	28	0	142	18	50	10	0	78	97	90	10	0	197	708
Total	262	404	753	0	1419	87	592	111	0	790	63	136	24	1	224	360	405	64	1	830	3263
08:00	43	75	150	0	268	13	109	27	0	149	15	24	7	0	46	103	90	24	0	217	680
08:15	40	60	143	0	243	17	139	22	0	178	19	27	7	2	55	94	56	17	0	167	643

LSC Transportation Consultants, Inc.
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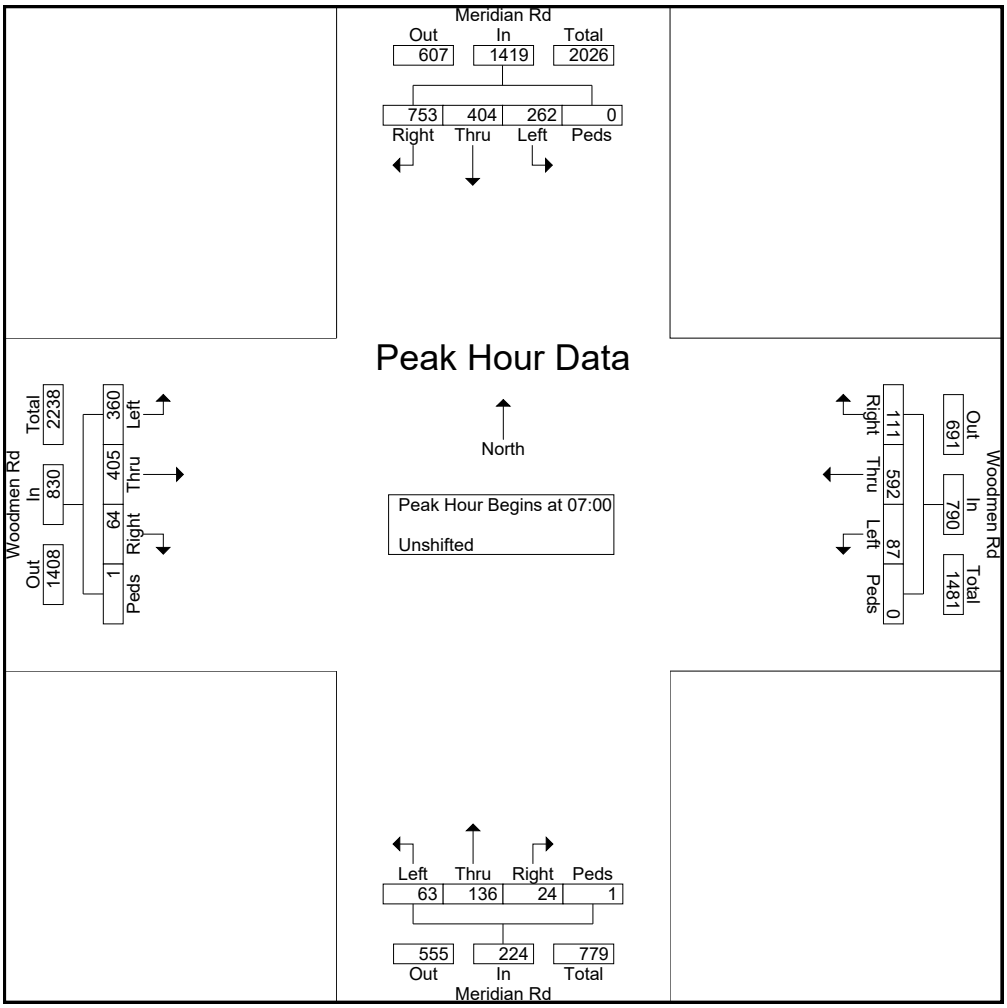
File Name : Meridian Rd - Woodmen Rd AM
Site Code : 184390
Start Date : 05/24/2018
Page No : 3

	Meridian Rd Southbound					Woodmen Rd Westbound					Meridian Rd Northbound					Woodmen Rd Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:30 to 08:15 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00																					
07:00	72	98	174	0	344	**30**	137	**32**	0	199	12	22	6	0	40	87	**121**	18	**1**	**227**	810
07:15	**81**	100	**232**	0	**413**	21	164	31	0	216	15	30	4	0	49	92	90	**19**	0	201	**879**
07:30	51	**104**	216	0	371	17	**196**	20	0	**233**	**18**	34	4	**1**	57	84	104	17	0	205	866
07:45	58	102	131	0	291	19	95	28	0	142	18	**50**	**10**	0	**78**	**97**	90	10	0	197	708
Total Volume	262	404	753	0	1419	87	592	111	0	790	63	136	24	1	224	360	405	64	1	830	3263
% App. Total	18.5	28.5	53.1	0		11	74.9	14.1	0		28.1	60.7	10.7	0.4		43.4	48.8	7.7	0.1		
PHF	.809	.971	.811	.000	.859	.725	.755	.867	.000	.848	.875	.680	.600	.250	.718	.928	.837	.842	.250	.914	.928



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719-633-2868

File Name : Meridian Rd - Woodmen Rd PM
Site Code : 184390
Start Date : 05/24/2018
Page No : 1

Groups Printed- Unshifted

	Meridian Rd Southbound					Woodmen Rd Westbound					Meridian Rd Northbound					Woodmen Rd Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
16:00	41	86	117	0	244	14	131	29	0	174	23	111	26	2	162	187	127	8	1	323	903
16:15	37	86	115	0	238	34	105	37	0	176	30	112	23	0	165	187	169	21	0	377	956
16:30	38	70	111	0	219	38	170	22	0	230	23	111	17	2	153	191	164	19	0	374	976
16:45	41	79	136	0	256	29	111	44	1	185	32	97	28	2	159	190	146	30	0	366	966
Total	157	321	479	0	957	115	517	132	1	765	108	431	94	6	639	755	606	78	1	1440	3801
17:00	29	72	113	0	214	30	133	52	0	215	21	89	30	2	142	147	140	23	0	310	881
17:15	47	78	95	0	220	60	84	34	0	178	25	121	22	3	171	185	150	32	0	367	936
17:30	34	68	104	0	206	47	79	32	0	158	18	102	26	2	148	222	166	26	0	414	926
17:45	34	58	94	0	186	37	106	40	0	183	20	81	15	2	118	157	151	18	0	326	813
Total	144	276	406	0	826	174	402	158	0	734	84	393	93	9	579	711	607	99	0	1417	3556

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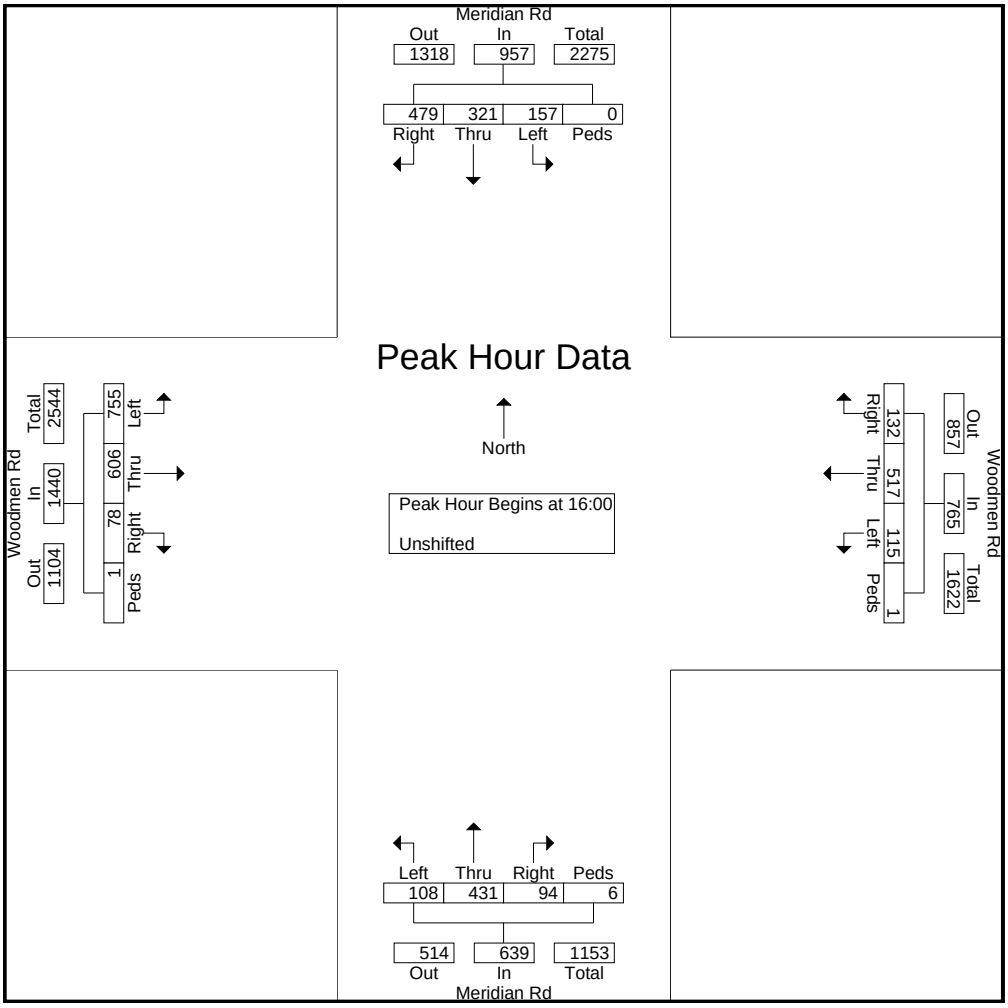
719-633-2868

File Name : Meridian Rd - Woodmen Rd PM
Site Code : 184390
Start Date : 05/24/2018
Page No : 3

	Meridian Rd Southbound					Woodmen Rd Westbound					Meridian Rd Northbound					Woodmen Rd Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:00																					
16:00	**41**	**86**	117	0	244	14	131	29	0	174	23	111	26	**2**	162	187	127	8	**1**	323	903
16:15	37	86	115	0	238	34	105	37	0	176	30	**112**	23	0	**165**	187	**169**	21	0	**377**	956
16:30	38	70	111	0	219	**38**	**170**	22	0	**230**	23	111	17	2	153	**191**	164	19	0	374	**976**
16:45	41	79	**136**	0	**256**	29	111	**44**	**1**	185	**32**	97	**28**	2	159	190	146	**30**	0	366	966
Total Volume	157	321	479	0	957	115	517	132	1	765	108	431	94	6	639	755	606	78	1	1440	3801
% App. Total	16.4	33.5	50.1	0		15	67.6	17.3	0.1		16.9	67.4	14.7	0.9		52.4	42.1	5.4	0.1		
PHF	.957	.933	.881	.000	.935	.757	.760	.750	.250	.832	.844	.962	.839	.750	.968	.988	.896	.650	.250	.955	.974



Levels of Service

TRANSPORTATION
CONSULTANTS, INC.

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (vph)	297	205	219	205	502	368
Future Volume (vph)	297	205	219	205	502	368
Satd. Flow (prot)	1770	1583	3433	1863	1863	1583
Flt Permitted	0.950		0.273			
Satd. Flow (perm)	1770	1583	987	1863	1863	1583
Satd. Flow (RTOR)		211				396
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.97	0.97	1.00	1.00	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	306	211	219	205	540	396
Shared Lane Traffic (%)						
Lane Group Flow (vph)	306	211	219	205	540	396
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 Effct 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	0.56	0.13	0.29	0.18	0.59	0.41
Control Delay	22.5	0.2	11.3	11.9	19.9	2.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.5	0.2	11.3	11.9	19.9	2.8
LOS	C	A	B	B	B	A
Approach Delay	13.4			11.6	12.7	
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: 0.59	
Intersection Signal Delay: 12.6	Intersection LOS: B
Intersection Capacity Utilization 59.1%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 3: US 24 & Woodmen Rd

Intersection	
Int Delay, s/veh	2.1

Movement	NBL	NBR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Vol, veh/h	70	7	326	82	2	861
Future Vol, veh/h	70	7	326	82	2	861
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	100	100	94	94	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	70	7	347	87	2	946

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1341	391	0	0	434	0
Stage 1	391	-	-	-	-	-
Stage 2	950	-	-	-	-	-
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	168	658	-	-	1126	-
Stage 1	683	-	-	-	-	-
Stage 2	376	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	167	658	-	-	1126	-
Mov Cap-2 Maneuver	167	-	-	-	-	-
Stage 1	683	-	-	-	-	-
Stage 2	374	-	-	-	-	-

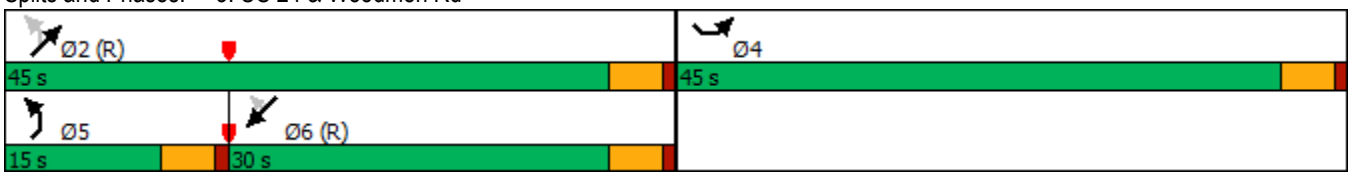
Approach	NB	NE	SW
HCM Control Delay, s	39.5	0	0
HCM LOS	E		

Minor Lane/Major Mvmt	NET	NER	NBLn1	SWL	SWT
Capacity (veh/h)	-	-	179	1126	-
HCM Lane V/C Ratio	-	-	0.43	0.002	-
HCM Control Delay (s)	-	-	39.5	8.2	0
HCM Lane LOS	-	-	E	A	A
HCM 95th %tile Q(veh)	-	-	2	0	-

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (vph)	478	172	416	449	252	408
Future Volume (vph)	478	172	416	449	252	408
Satd. Flow (prot)	1770	1583	3433	1863	1863	1583
Flt Permitted	0.950		0.373			
Satd. Flow (perm)	1770	1583	1348	1863	1863	1583
Satd. Flow (RTOR)		158				434
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.95	0.95	0.97	0.97	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	503	181	429	463	268	434
Shared Lane Traffic (%)						
Lane Group Flow (vph)	503	181	429	463	268	434
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 Effct Green (s)	40.5	90.0	40.5	40.5	25.7	25.7
Actuated g/C Ratio	0.45	1.00	0.45	0.45	0.29	0.29
v/c Ratio	0.63	0.11	0.51	0.55	0.50	0.57
Control Delay	17.0	0.1	6.6	8.3	30.9	6.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.0	0.1	6.6	8.3	30.9	6.0
LOS	B	A	A	A	C	A
Approach Delay	12.5			7.5	15.5	
Approach LOS	B			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: 0.63	
Intersection Signal Delay: 11.5	Intersection LOS: B
Intersection Capacity Utilization 62.9%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 3: US 24 & Woodmen Rd



Intersection	
Int Delay, s/veh	5.3

Movement	NBL	NBR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Vol, veh/h	88	3	820	127	4	538
Future Vol, veh/h	88	3	820	127	4	538
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	95	95	87	87	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	93	3	943	146	4	538

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1562	1016	0	0	1089	0
Stage 1	1016	-	-	-	-	-
Stage 2	546	-	-	-	-	-
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	123	289	-	-	641	-
Stage 1	350	-	-	-	-	-
Stage 2	580	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	122	289	-	-	641	-
Mov Cap-2 Maneuver	122	-	-	-	-	-
Stage 1	350	-	-	-	-	-
Stage 2	575	-	-	-	-	-

Approach	NB	NE	SW
HCM Control Delay, s	95.6	0	0.1
HCM LOS	F		

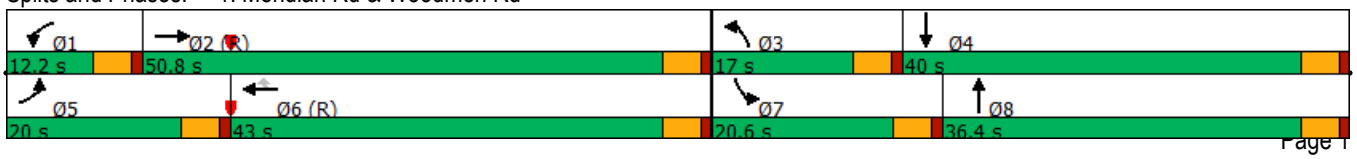
Minor Lane/Major Mvmt	NET	NER	NBLn1	SWL	SWT
Capacity (veh/h)	-	-	124	641	-
HCM Lane V/C Ratio	-	-	0.772	0.006	-
HCM Control Delay (s)	-	-	95.6	10.7	0
HCM Lane LOS	-	-	F	B	A
HCM 95th %tile Q(veh)	-	-	4.5	0	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	325	550	100	100	775	75	250	350	50	250	725	1000
Future Volume (vph)	325	550	100	100	775	75	250	350	50	250	725	1000
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Satd. Flow (RTOR)			177			136			177			518
Peak Hour Factor	1.00	1.00	1.00	0.91	0.91	0.91	1.00	1.00	1.00	0.86	0.86	0.86
Shared Lane Traffic (%)												
Lane Group Flow (vph)	325	550	100	110	852	82	250	350	50	291	843	1163
Turn Type	Prot	NA	Free	Prot	NA	Perm	Prot	NA	Free	Prot	NA	Free
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			Free			6			Free			Free
Detector Phase	5	2		1	6	6	3	8		7	4	
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)	9.5	22.5		9.5	22.5	22.5	9.5	22.5		9.5	22.5	
Total Split (s)	20.0	50.8		12.2	43.0	43.0	17.0	36.4		20.6	40.0	
Total Split (%)	16.7%	42.3%		10.2%	35.8%	35.8%	14.2%	30.3%		17.2%	33.3%	
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	-0.5		-0.5	-0.5	-0.5	-0.5	-0.5		-0.5	-0.5	
Total Lost Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None		None	None	
Act Effct Green (s)	15.2	49.4	120.0	8.1	42.3	42.3	12.5	31.5	120.0	15.0	34.0	120.0
Actuated g/C Ratio	0.13	0.41	1.00	0.07	0.35	0.35	0.10	0.26	1.00	0.12	0.28	1.00
v/c Ratio	0.75	0.38	0.06	0.48	0.68	0.13	0.70	0.38	0.03	0.68	0.84	0.73
Control Delay	61.9	26.2	0.1	75.8	22.4	0.4	62.9	37.3	0.0	58.4	48.9	3.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.9	26.2	0.1	75.8	22.4	0.4	62.9	37.3	0.0	58.4	48.9	3.1
LOS	E	C	A	E	C	A	E	D	A	E	D	A
Approach Delay		35.4			26.3			44.3			26.9	
Approach LOS		D			C			D			C	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 18 (15%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 30.7 — Intersection LOS: C
Intersection Capacity Utilization 71.2% — ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 1: Meridian Rd & Woodmen Rd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	635	125	50	700	125	50	25	50	150	100	200
Future Volume (vph)	90	635	125	50	700	125	50	25	50	150	100	200
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1863	1583	1770	1863	1583
Flt Permitted	0.229			0.345			0.689			0.636		
Satd. Flow (perm)	427	3539	1583	643	3539	1583	1283	1863	1583	1185	1863	1583
Satd. Flow (RTOR)			136			151			177			213
Peak Hour Factor	0.96	0.96	0.96	0.83	0.83	0.83	1.00	1.00	1.00	0.94	0.94	0.94
Shared Lane Traffic (%)												
Lane Group Flow (vph)	94	661	130	60	843	151	50	25	50	160	106	213
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Free	pm+pt	NA	Free
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		Free	4		Free
Detector Phase	5	2	2	1	6	6	3	8		7	4	
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)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5		9.5	22.5	
Total Split (s)	15.0	63.0	63.0	12.0	60.0	60.0	12.0	24.0		21.0	33.0	
Total Split (%)	12.5%	52.5%	52.5%	10.0%	50.0%	50.0%	10.0%	20.0%		17.5%	27.5%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5		3.5	3.5	
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	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5		-0.5	-0.5	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Max		None	Max	
Act Effct Green (s)	69.1	61.7	61.7	65.6	58.3	58.3	30.9	23.4	120.0	41.0	31.5	120.0
Actuated g/C Ratio	0.58	0.51	0.51	0.55	0.49	0.49	0.26	0.20	1.00	0.34	0.26	1.00
v/c Ratio	0.27	0.36	0.15	0.14	0.49	0.18	0.14	0.07	0.03	0.34	0.22	0.13
Control Delay	14.0	18.6	5.5	10.2	18.7	2.0	28.5	41.9	0.0	31.0	37.5	0.2
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	14.0	18.6	5.5	10.2	18.7	2.0	28.5	41.9	0.0	31.0	37.5	0.2
LOS	B	B	A	B	B	A	C	D	A	C	D	A
Approach Delay		16.2			15.8			19.8			18.7	
Approach LOS		B			B			B			B	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 4 (3%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.49
Intersection Signal Delay: 16.7 — Intersection LOS: B
Intersection Capacity Utilization 49.3% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 2: McLaughlin Rd & Woodmen Rd

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	300	35	480	5	25	0	350	235	5	0	575	475
Future Volume (vph)	300	35	480	5	25	0	350	235	5	0	575	475
Satd. Flow (prot)	1770	1863	1583	1770	1863	1863	3433	1863	1583	1863	1863	1583
Flt Permitted	0.567			0.732			0.166					
Satd. Flow (perm)	1056	1863	1583	1364	1863	1863	600	1863	1583	1863	1863	1583
Satd. Flow (RTOR)			495						136			372
Peak Hour Factor	0.97	0.92	0.97	0.92	0.92	0.92	1.00	1.00	0.92	0.92	0.93	0.93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	309	38	495	5	27	0	350	235	5	0	618	511
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 Effct Green (s)	41.5	39.1	120.0	15.8	13.1		70.5	70.5	70.0		56.6	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	0.58	0.06	0.31	0.03	0.13		0.60	0.21	0.01		0.70	0.32
Control Delay	24.6	18.4	1.1	27.8	46.7		15.9	12.3	0.0		30.4	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0
Total Delay	24.6	18.4	1.1	27.8	46.7		15.9	12.3	0.0		30.4	0.5
LOS	C	B	A	C	D		B	B	A		C	A
Approach Delay		10.5			43.7			14.4			16.9	
Approach LOS		B			D			B			B	

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: 0.70
Intersection Signal Delay: 14.6 — Intersection LOS: B
Intersection Capacity Utilization 74.0% — ICU Level of Service D
Analysis Period (min) 15

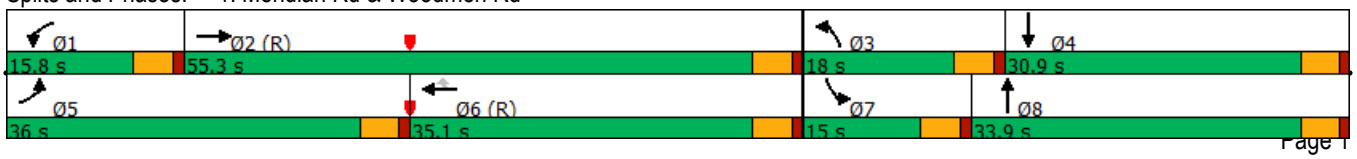
Splits and Phases: 3: US 24 & Woodmen Rd

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	825	625	200	150	690	125	300	875	175	235	625	500
Future Volume (vph)	825	625	200	150	690	125	300	875	175	235	625	500
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Satd. Flow (RTOR)			200			151			177			500
Peak Hour Factor	0.96	0.96	0.96	0.83	0.83	0.83	1.00	1.00	1.00	1.00	1.00	1.00
Shared Lane Traffic (%)												
Lane Group Flow (vph)	859	651	208	181	831	151	300	875	175	235	625	500
Turn Type	Prot	NA	Free	Prot	NA	Perm	Prot	NA	Free	Prot	NA	Free
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			Free			6			Free			Free
Detector Phase	5	2		1	6	6	3	8		7	4	
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)	9.5	22.5		9.5	22.5	22.5	9.5	22.5		9.5	22.5	
Total Split (s)	36.0	55.3		15.8	35.1	35.1	18.0	33.9		15.0	30.9	
Total Split (%)	30.0%	46.1%		13.2%	29.3%	29.3%	15.0%	28.3%		12.5%	25.8%	
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)	0.0	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	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None		None	None	
Act Effct Green (s)	31.3	51.6	120.0	10.5	30.8	30.8	13.2	29.5	120.0	10.4	26.7	120.0
Actuated g/C Ratio	0.26	0.43	1.00	0.09	0.26	0.26	0.11	0.25	1.00	0.09	0.22	1.00
v/c Ratio	0.96	0.43	0.13	0.60	0.92	0.29	0.80	1.01	0.11	0.79	0.79	0.32
Control Delay	65.6	25.2	0.2	66.3	48.6	3.1	68.4	77.6	0.1	72.8	52.6	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	65.6	25.2	0.2	66.3	48.6	3.1	68.4	77.6	0.1	72.8	52.6	0.5
LOS	E	C	A	E	D	A	E	E	A	E	D	A
Approach Delay		42.4			45.5			65.5			36.9	
Approach LOS		D			D			E			D	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 24 (20%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.01
Intersection Signal Delay: 47.3 — Intersection LOS: D
Intersection Capacity Utilization 88.5% — ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 1: Meridian Rd & Woodmen Rd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	285	655	100	75	590	250	150	175	150	150	100	225
Future Volume (vph)	285	655	100	75	590	250	150	175	150	150	100	225
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1863	1583	1770	1863	1583
Flt Permitted	0.297			0.372			0.687			0.451		
Satd. Flow (perm)	553	3539	1583	693	3539	1583	1280	1863	1583	840	1863	1583
Satd. Flow (RTOR)			111			250			177			225
Peak Hour Factor	0.90	0.90	0.90	1.00	1.00	1.00	0.86	0.86	0.86	1.00	1.00	1.00
Shared Lane Traffic (%)												
Lane Group Flow (vph)	317	728	111	75	590	250	174	203	174	150	100	225
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Free	pm+pt	NA	Free
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		Free	4		Free
Detector Phase	5	2	2	1	6	6	3	8		7	4	
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)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5		9.5	22.5	
Total Split (s)	33.0	61.0	61.0	11.0	39.0	39.0	16.0	30.0		18.0	32.0	
Total Split (%)	27.5%	50.8%	50.8%	9.2%	32.5%	32.5%	13.3%	25.0%		15.0%	26.7%	
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	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Max		None	Max	
Act Effct Green (s)	67.5	58.7	58.7	52.2	45.8	45.8	38.3	27.3	120.0	39.7	28.0	120.0
Actuated g/C Ratio	0.56	0.49	0.49	0.44	0.38	0.38	0.32	0.23	1.00	0.33	0.23	1.00
v/c Ratio	0.65	0.42	0.13	0.21	0.44	0.33	0.38	0.48	0.11	0.41	0.23	0.14
Control Delay	32.1	18.7	3.8	9.8	19.1	1.5	30.4	45.3	0.1	30.4	39.3	0.2
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	32.1	18.7	3.8	9.8	19.1	1.5	30.4	45.3	0.1	30.4	39.3	0.2
LOS	C	B	A	A	B	A	C	D	A	C	D	A
Approach Delay		20.9			13.5			26.3			18.0	
Approach LOS		C			B			C			B	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 15 (13%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.65
Intersection Signal Delay: 19.2 — Intersection LOS: B
Intersection Capacity Utilization 64.6% — ICU Level of Service C
Analysis Period (min) 15

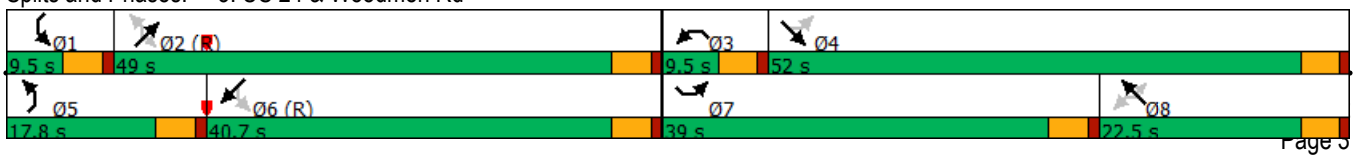
Splits and Phases: 2: McLaughlin Rd & Woodmen Rd

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	550	65	315	5	40	0	450	515	5	0	300	400
Future Volume (vph)	550	65	315	5	40	0	450	515	5	0	300	400
Satd. Flow (prot)	1770	1863	1583	1770	1863	1863	3433	1863	1583	1863	1863	1583
Flt Permitted	0.577			0.711			0.282					
Satd. Flow (perm)	1075	1863	1583	1324	1863	1863	1019	1863	1583	1863	1863	1583
Satd. Flow (RTOR)			332						136			426
Peak Hour Factor	0.95	0.92	0.95	0.92	0.92	0.92	0.97	0.97	0.92	0.92	0.94	0.94
Shared Lane Traffic (%)												
Lane Group Flow (vph)	579	71	332	5	43	0	464	531	5	0	319	426
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)	39.0	52.0		9.5	22.5	22.5	17.8	49.0	49.0	9.5	40.7	
Total Split (%)	32.5%	43.3%		7.9%	18.8%	18.8%	14.8%	40.8%	40.8%	7.9%	33.9%	
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)	57.0	55.1	120.0	19.4	15.5		54.0	54.0	54.0		36.4	120.0
Actuated g/C Ratio	0.48	0.46	1.00	0.16	0.13		0.45	0.45	0.45		0.30	1.00
v/c Ratio	0.79	0.08	0.21	0.02	0.18		0.64	0.63	0.01		0.56	0.27
Control Delay	21.7	10.1	0.3	21.8	46.5		25.6	29.6	0.0		39.8	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0
Total Delay	21.7	10.1	0.3	21.8	46.5		25.6	29.6	0.0		39.8	0.4
LOS	C	B	A	C	D		C	C	A		D	A
Approach Delay		13.6			44.0			27.6			17.3	
Approach LOS		B			D			C			B	

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: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.79
Intersection Signal Delay: 20.2 — Intersection LOS: C
Intersection Capacity Utilization 79.7% — ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 3: US 24 & Woodmen Rd

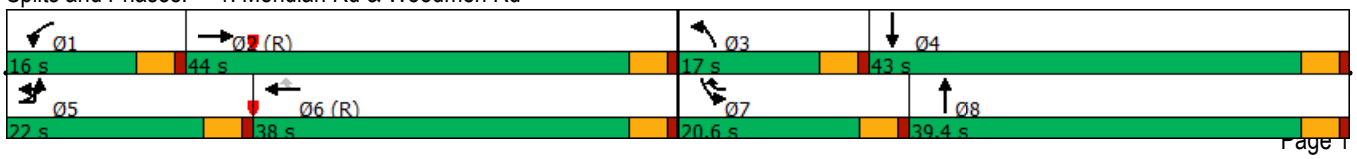


Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	15	450	535	175	150	785	200	325	350	100	250	940
Future Volume (vph)	15	450	535	175	150	785	200	325	350	100	250	940
Satd. Flow (prot)	0	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539
Flt Permitted		0.950			0.950			0.950			0.950	
Satd. Flow (perm)	0	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539
Satd. Flow (RTOR)				177			174			177		
Peak Hour Factor	0.92	1.00	1.00	1.00	0.91	0.91	0.91	1.00	1.00	1.00	0.86	0.86
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	466	535	175	165	863	220	325	350	100	291	1093
Turn Type	Prot	Prot	NA	Free	Prot	NA	pm+ov	Prot	NA	Free	Prot	NA
Protected Phases	5	5	2		1	6	7	3	8		7	4
Permitted Phases				Free			6			Free		
Detector Phase	5	5	2		1	6	7	3	8		7	4
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)	9.5	9.5	22.5		9.5	22.5	9.5	9.5	22.5		9.5	22.5
Total Split (s)	22.0	22.0	44.0		16.0	38.0	20.6	17.0	39.4		20.6	43.0
Total Split (%)	18.3%	18.3%	36.7%		13.3%	31.7%	17.2%	14.2%	32.8%		17.2%	35.8%
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	-0.5		-0.5	-0.5	-0.5	-0.5	-0.5		-0.5	-0.5
Total Lost Time (s)		4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0
Lead/Lag	Lead	Lead	Lag		Lead	Lag	Lead	Lead	Lag		Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes
Recall Mode	None	None	C-Max		None	C-Max	None	None	None		None	None
Act Effct Green (s)		18.0	41.1	120.0	10.9	34.0	53.0	13.0	37.0	120.0	15.0	39.0
Actuated g/C Ratio		0.15	0.34	1.00	0.09	0.28	0.44	0.11	0.31	1.00	0.12	0.32
v/c Ratio		0.91	0.44	0.11	0.53	0.86	0.28	0.88	0.32	0.06	0.68	0.95
Control Delay		72.7	32.2	0.1	79.4	29.8	0.8	64.3	35.7	0.1	58.4	56.9
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		72.7	32.2	0.1	79.4	29.8	0.8	64.3	35.7	0.1	58.4	56.9
LOS		E	C	A	E	C	A	E	D	A	E	E
Approach Delay			43.5			31.2			43.1			32.2
Approach LOS			D			C			D			C

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.95
Intersection Signal Delay: 35.7 — Intersection LOS: D
Intersection Capacity Utilization 83.6% — ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 1: Meridian Rd & Woodmen Rd



Lane Group	SBR
Lane Configurations	↱
Traffic Volume (vph)	1040
Future Volume (vph)	1040
Satd. Flow (prot)	1583
Flt Permitted	
Satd. Flow (perm)	1583
Satd. Flow (RTOR)	546
Peak Hour Factor	0.86
Shared Lane Traffic (%)	
Lane Group Flow (vph)	1209
Turn Type	Free
Protected Phases	
Permitted Phases	Free
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	
Act Effct Green (s)	120.0
Actuated g/C Ratio	1.00
v/c Ratio	0.76
Control Delay	3.6
Queue Delay	0.0
Total Delay	3.6
LOS	A
Approach Delay	
Approach LOS	

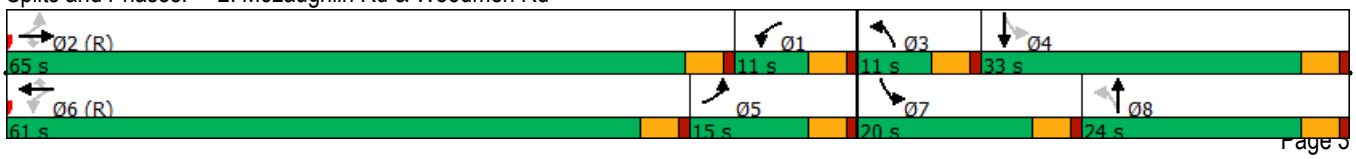
Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	660	125	50	860	125	50	50	50	175	140	225
Future Volume (vph)	100	660	125	50	860	125	50	50	50	175	140	225
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1863	1583	1770	1863	1583
Flt Permitted	0.164			0.312			0.662			0.622		
Satd. Flow (perm)	305	3539	1583	581	3539	1583	1233	1863	1583	1159	1863	1583
Satd. Flow (RTOR)			136			151			177			239
Peak Hour Factor	0.96	0.96	0.96	0.83	0.83	0.83	1.00	1.00	1.00	0.94	0.94	0.94
Shared Lane Traffic (%)												
Lane Group Flow (vph)	104	688	130	60	1036	151	50	50	50	186	149	239
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Free	pm+pt	NA	Free
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		Free	4		Free
Detector Phase	5	2	2	1	6	6	3	8		7	4	
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)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5		9.5	22.5	
Total Split (s)	15.0	65.0	65.0	11.0	61.0	61.0	11.0	24.0		20.0	33.0	
Total Split (%)	12.5%	54.2%	54.2%	9.2%	50.8%	50.8%	9.2%	20.0%		16.7%	27.5%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5		3.5	3.5	
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	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5		-0.5	-0.5	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Max		None	Max	
Act Effct Green (s)	70.4	62.2	62.2	63.2	57.0	57.0	30.5	23.3	120.0	41.6	32.3	120.0
Actuated g/C Ratio	0.59	0.52	0.52	0.53	0.48	0.48	0.25	0.19	1.00	0.35	0.27	1.00
v/c Ratio	0.35	0.38	0.15	0.16	0.62	0.18	0.14	0.14	0.03	0.39	0.30	0.15
Control Delay	22.1	19.0	5.7	8.3	19.3	0.9	28.9	43.5	0.0	31.9	38.5	0.2
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	22.1	19.0	5.7	8.3	19.3	0.9	28.9	43.5	0.0	31.9	38.5	0.2
LOS	C	B	A	A	B	A	C	D	A	C	D	A
Approach Delay		17.5			16.6			24.2			20.4	
Approach LOS		B			B			C			C	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 98 (82%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.62
Intersection Signal Delay: 18.0 — Intersection LOS: B
Intersection Capacity Utilization 56.5% — ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 2: McLaughlin Rd & Woodmen Rd

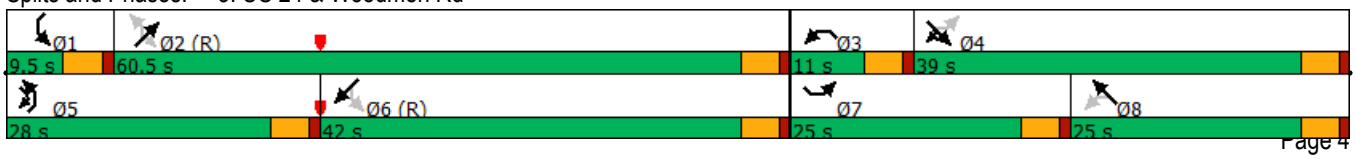


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	275	100	550	45	49	21	510	660	42	44	745	475
Future Volume (vph)	275	100	550	45	49	21	510	660	42	44	745	475
Satd. Flow (prot)	3433	1863	2787	1770	1863	1583	3433	5085	1583	1770	5085	1583
Flt Permitted	0.584			0.687			0.232			0.390		
Satd. Flow (perm)	2110	1863	2787	1280	1863	1583	838	5085	1583	726	5085	1583
Satd. Flow (RTOR)			254			218			136			511
Peak Hour Factor	0.97	0.92	0.97	0.92	0.92	0.92	1.00	1.00	0.92	0.92	0.93	0.93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	284	109	567	49	53	23	510	660	46	48	801	511
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	58.0	22.7	17.5	120.0	66.0	58.4	57.9	49.2	44.7	120.0
Actuated g/C Ratio	0.38	0.31	0.48	0.19	0.15	1.00	0.55	0.49	0.48	0.41	0.37	1.00
v/c Ratio	0.26	0.19	0.38	0.18	0.19	0.01	0.61	0.27	0.06	0.14	0.42	0.32
Control Delay	17.1	23.1	7.9	27.1	44.7	0.0	12.9	15.4	2.1	15.3	29.4	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	17.1	23.1	7.9	27.1	44.7	0.0	12.9	15.4	2.1	15.3	29.4	0.5
LOS	B	C	A	C	D	A	B	B	A	B	C	A
Approach Delay		12.3			29.6			13.8			18.0	
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: 0.61
Intersection Signal Delay: 15.5 — Intersection LOS: B
Intersection Capacity Utilization 53.9% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 3: US 24 & Woodmen Rd



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	0	235	0	0	130	0	1065	130	0	1280	35
Future Volume (vph)	0	0	235	0	0	130	0	1065	130	0	1280	35
Satd. Flow (prot)	0	0	1611	0	0	1611	0	5085	1583	0	5085	1583
Flt Permitted												
Satd. Flow (perm)	0	0	1611	0	0	1611	0	5085	1583	0	5085	1583
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	255	0	0	141	0	1158	141	0	1391	38
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Control Type: Unsignalized	
Intersection Capacity Utilization 45.9%	ICU Level of Service A
Analysis Period (min) 15	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	30	300	640	40	150	245	140	920	30	215	1260	40
Future Volume (vph)	30	300	640	40	150	245	140	920	30	215	1260	40
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	3433	5085	1583	1770	5085	1583
Flt Permitted	0.649			0.390			0.950			0.950		
Satd. Flow (perm)	1209	3539	1583	726	3539	1583	3433	5085	1583	1770	5085	1583
Satd. Flow (RTOR)			492			266			95			95
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	33	326	696	43	163	266	152	1000	33	234	1370	43
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2		2			4			8
Detector Phase	1	6	6	5	2	2	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	10.0	25.0	25.0	11.0	26.0	26.0	37.0	47.0	47.0	37.0	47.0	47.0
Total Split (%)	8.3%	20.8%	20.8%	9.2%	21.7%	21.7%	30.8%	39.2%	39.2%	30.8%	39.2%	39.2%
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	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	Max	None	Max	Max	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	27.1	22.7	22.7	29.4	25.5	25.5	10.7	53.8	53.8	21.2	64.3	64.3
Actuated g/C Ratio	0.23	0.19	0.19	0.24	0.21	0.21	0.09	0.45	0.45	0.18	0.54	0.54
v/c Ratio	0.11	0.49	1.00	0.19	0.22	0.49	0.50	0.44	0.04	0.75	0.50	0.05
Control Delay	26.0	31.4	46.9	35.7	41.4	8.4	57.4	24.2	0.1	49.9	17.4	1.8
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	26.0	31.4	46.9	35.7	41.4	8.4	57.4	24.2	0.1	49.9	17.4	1.8
LOS	C	C	D	D	D	A	E	C	A	D	B	A
Approach Delay		41.4			22.3			27.8			21.6	
Approach LOS		D			C			C			C	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 100 (83%), Referenced to phase 4:NET and 8:SWT, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.00
Intersection Signal Delay: 28.2 — Intersection LOS: C
Intersection Capacity Utilization 79.4% — ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 19: US 24 & Meridian Rd

Intersection	
Intersection Delay, s/veh	3.3
Intersection LOS	A

Approach	SE	NW	NE	SW
Entry Lanes	2	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	201	0	95	38
Demand Flow Rate, veh/h	205	0	97	39
Vehicles Circulating, veh/h	5	141	44	94
Vehicles Exiting, veh/h	128	0	166	47
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	3.4	0.0	3.4	3.2
Approach LOS	A	-	A	A

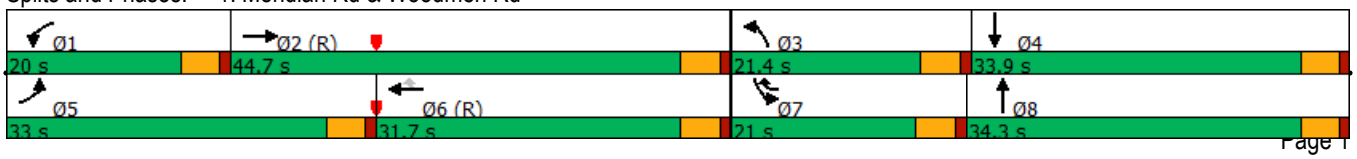
Lane	Left	Right	Left	Left	Left
Designated Moves	LT	R	LTR	LTR	LTR
Assumed Moves	LT	R	LTR	LTR	LTR
RT Channelized					
Lane Util	0.215	0.785	1.000	1.000	1.000
Follow-Up Headway, s	2.535	2.535	2.609	2.609	2.609
Critical Headway, s	4.544	4.544	4.976	4.976	4.976
Entry Flow, veh/h	44	161	0	97	39
Cap Entry Lane, veh/h	1414	1414	1195	1319	1254
Entry HV Adj Factor	0.977	0.981	1.000	0.979	0.972
Flow Entry, veh/h	43	158	0	95	38
Cap Entry, veh/h	1382	1387	1195	1291	1218
V/C Ratio	0.031	0.114	0.000	0.074	0.031
Control Delay, s/veh	2.8	3.5	3.0	3.4	3.2
LOS	A	A	A	A	A
95th %tile Queue, veh	0	0	0	0	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	750	725	375	225	570	400	450	850	200	425	700	600
Future Volume (vph)	750	725	375	225	570	400	450	850	200	425	700	600
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Satd. Flow (RTOR)			325			95			200			600
Peak Hour Factor	0.96	0.96	0.96	0.83	0.83	0.83	1.00	1.00	1.00	1.00	1.00	1.00
Shared Lane Traffic (%)												
Lane Group Flow (vph)	781	755	391	271	687	482	450	850	200	425	700	600
Turn Type	Prot	NA	Free	Prot	NA	pm+ov	Prot	NA	Free	Prot	NA	Free
Protected Phases	5	2		1	6	7	3	8		7	4	
Permitted Phases			Free			6			Free			Free
Detector Phase	5	2		1	6	7	3	8		7	4	
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)	9.5	22.5		9.5	22.5	9.5	9.5	22.5		9.5	22.5	
Total Split (s)	33.0	44.7		20.0	31.7	21.0	21.4	34.3		21.0	33.9	
Total Split (%)	27.5%	37.3%		16.7%	26.4%	17.5%	17.8%	28.6%		17.5%	28.3%	
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)	0.0	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	
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max		None	C-Max	None	None	None		None	None	
Act Effct Green (s)	28.5	41.8	120.0	13.9	27.2	48.2	16.9	29.8	120.0	16.5	29.4	120.0
Actuated g/C Ratio	0.24	0.35	1.00	0.12	0.23	0.40	0.14	0.25	1.00	0.14	0.24	1.00
v/c Ratio	0.96	0.61	0.25	0.68	0.86	0.70	0.93	0.97	0.13	0.90	0.81	0.38
Control Delay	68.5	35.3	0.4	44.9	57.2	43.3	71.5	59.3	0.2	74.5	51.0	0.7
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	68.5	35.3	0.4	44.9	57.2	43.3	71.5	59.3	0.2	74.5	51.0	0.7
LOS	E	D	A	D	E	D	E	E	A	E	D	A
Approach Delay		41.7			50.3			55.1			39.3	
Approach LOS		D			D			E			D	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 78 (65%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.97
Intersection Signal Delay: 46.0 — Intersection LOS: D
Intersection Capacity Utilization 87.8% — ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 1: Meridian Rd & Woodmen Rd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	300	950	100	75	790	275	150	200	150	200	125	250
Future Volume (vph)	300	950	100	75	790	275	150	200	150	200	125	250
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1863	1583	1770	1863	1583
Flt Permitted	0.190			0.220			0.677			0.332		
Satd. Flow (perm)	354	3539	1583	410	3539	1583	1261	1863	1583	618	1863	1583
Satd. Flow (RTOR)			111			275			177			250
Peak Hour Factor	0.90	0.90	0.90	1.00	1.00	1.00	0.86	0.86	0.86	1.00	1.00	1.00
Shared Lane Traffic (%)												
Lane Group Flow (vph)	333	1056	111	75	790	275	174	233	174	200	125	250
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Free	pm+pt	NA	Free
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		Free	4		Free
Detector Phase	5	2	2	1	6	6	3	8		7	4	
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)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5		9.5	22.5	
Total Split (s)	31.0	62.1	62.1	10.9	42.0	42.0	15.0	28.0		19.0	32.0	
Total Split (%)	25.8%	51.8%	51.8%	9.1%	35.0%	35.0%	12.5%	23.3%		15.8%	26.7%	
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	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Max		None	Max	
Act Effct Green (s)	68.5	59.8	59.8	50.8	44.5	44.5	34.9	24.7	120.0	41.1	27.8	120.0
Actuated g/C Ratio	0.57	0.50	0.50	0.42	0.37	0.37	0.29	0.21	1.00	0.34	0.23	1.00
v/c Ratio	0.77	0.60	0.13	0.31	0.60	0.36	0.43	0.61	0.11	0.59	0.29	0.16
Control Delay	23.4	13.3	2.5	16.8	31.2	8.7	32.3	51.5	0.1	36.1	40.4	0.2
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	23.4	13.3	2.5	16.8	31.2	8.7	32.3	51.5	0.1	36.1	40.4	0.2
LOS	C	B	A	B	C	A	C	D	A	D	D	A
Approach Delay		14.7			24.8			30.4			21.4	
Approach LOS		B			C			C			C	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 5 (4%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.77
Intersection Signal Delay: 21.2 — Intersection LOS: C
Intersection Capacity Utilization 75.1% — ICU Level of Service D
Analysis Period (min) 15

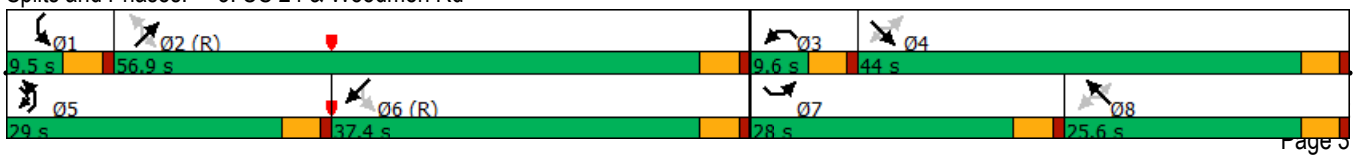
Splits and Phases: 2: McLaughlin Rd & Woodmen Rd

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			0.108			0.118		
Satd. Flow (perm)	1326	1863	2787	1203	1863	1583	390	5085	1583	220	5085	1583
Satd. Flow (RTOR)			168			177			136			452
Peak Hour Factor	0.95	0.92	0.95	0.92	0.92	0.92	0.97	0.97	0.92	0.92	0.94	0.94
Shared Lane Traffic (%)												
Lane Group Flow (vph)	895	177	379	61	186	108	670	1660	170	55	1027	452
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 Effct Green (s)	49.1	41.4	68.6	26.2	21.1	21.1	61.9	54.3	54.3	39.7	34.7	120.0
Actuated g/C Ratio	0.41	0.34	0.57	0.22	0.18	0.18	0.52	0.45	0.45	0.33	0.29	1.00
v/c Ratio	0.94	0.28	0.23	0.21	0.57	0.25	0.86	0.72	0.22	0.40	0.70	0.29
Control Delay	32.9	15.0	1.3	26.0	53.0	1.7	35.1	12.7	1.6	27.0	41.4	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	32.9	15.0	1.3	26.0	53.0	1.7	35.1	12.7	1.6	27.0	41.4	0.5
LOS	C	B	A	C	D	A	D	B	A	C	D	A
Approach Delay		22.4			32.7			18.0			28.8	
Approach LOS		C			C			B			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: 0.94
Intersection Signal Delay: 22.8 — 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



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	0	50	0	0	175	0	2120	130	0	1335	15
Future Volume (vph)	0	0	50	0	0	175	0	2120	130	0	1335	15
Satd. Flow (prot)	0	0	1611	0	0	1611	0	5085	1583	0	5085	1583
Flt Permitted												
Satd. Flow (perm)	0	0	1611	0	0	1611	0	5085	1583	0	5085	1583
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	54	0	0	190	0	2304	141	0	1451	16
Sign Control		Stop			Stop			Free			Free	

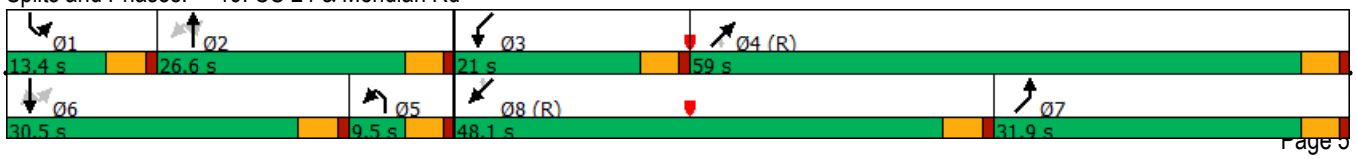
Intersection Summary	
Control Type: Unsignalized	
Intersection Capacity Utilization 58.5%	ICU Level of Service B
Analysis Period (min) 15	

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	60	250	235	80	600	280	510	1935	80	170	1155	60
Future Volume (vph)	60	250	235	80	600	280	510	1935	80	170	1155	60
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	3433	5085	1583	1770	5085	1583
Flt Permitted	0.315			0.334			0.950			0.950		
Satd. Flow (perm)	587	3539	1583	622	3539	1583	3433	5085	1583	1770	5085	1583
Satd. Flow (RTOR)			255			304			136			136
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	65	272	255	87	652	304	554	2103	87	185	1255	65
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2		2	6		6			4			8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	9.5	26.6	26.6	13.4	30.5	30.5	31.9	59.0	59.0	21.0	48.1	48.1
Total Split (%)	7.9%	22.2%	22.2%	11.2%	25.4%	25.4%	26.6%	49.2%	49.2%	17.5%	40.1%	40.1%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	Max	None	Max	Max	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	22.6	22.6	22.6	27.9	27.9	27.9	27.4	55.5	55.5	15.5	43.6	43.6
Actuated g/C Ratio	0.19	0.19	0.19	0.23	0.23	0.23	0.23	0.46	0.46	0.13	0.36	0.36
v/c Ratio	0.41	0.41	0.50	0.39	0.79	0.51	0.71	0.89	0.11	0.81	0.68	0.10
Control Delay	54.3	45.2	8.9	39.2	48.8	19.3	48.3	35.8	0.9	55.0	22.1	1.0
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	54.3	45.2	8.9	39.2	48.8	19.3	48.3	35.8	0.9	55.0	22.1	1.0
LOS	D	D	A	D	D	B	D	D	A	D	C	A
Approach Delay		30.5			39.4			37.3			25.2	
Approach LOS		C			D			D			C	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 95 (79%), Referenced to phase 4:NET and 8:SWT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 33.9 — Intersection LOS: C
Intersection Capacity Utilization 82.6% — ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 19: US 24 & Meridian Rd



Intersection	
Intersection Delay, s/veh	4.6
Intersection LOS	A

Approach	SE	NW	NE	SW
Entry Lanes	2	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	402	0	317	62
Demand Flow Rate, veh/h	411	0	323	63
Vehicles Circulating, veh/h	13	401	78	310
Vehicles Exiting, veh/h	360	0	346	91
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	4.3	0.0	5.1	4.2
Approach LOS	A	-	A	A

Lane	Left	Right	Left	Left	Left
Designated Moves	LT	R	LTR	LTR	LTR
Assumed Moves	LT	R	LTR	LTR	LTR
RT Channelized					
Lane Util	0.190	0.810	1.000	1.000	1.000
Follow-Up Headway, s	2.535	2.535	2.609	2.609	2.609
Critical Headway, s	4.544	4.544	4.976	4.976	4.976
Entry Flow, veh/h	78	333	0	323	63
Cap Entry Lane, veh/h	1403	1403	917	1274	1006
Entry HV Adj Factor	0.974	0.979	1.000	0.981	0.980
Flow Entry, veh/h	76	326	0	317	62
Cap Entry, veh/h	1367	1374	917	1250	986
V/C Ratio	0.056	0.237	0.000	0.253	0.063
Control Delay, s/veh	3.1	4.6	3.9	5.1	4.2
LOS	A	A	A	A	A
95th %tile Queue, veh	0	1	0	1	0

Lanes, Volumes, Timings
1: Meridian Rd & Woodmen Rd

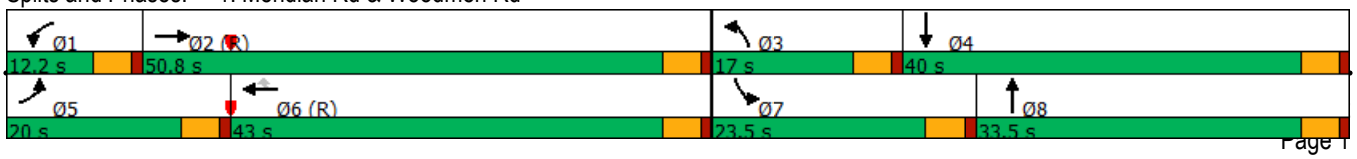
Short Term Total
11/04/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	325	561	97	101	783	93	245	342	54	310	698	1000
Future Volume (vph)	325	561	97	101	783	93	245	342	54	310	698	1000
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Satd. Flow (RTOR)			218			177			218			512
Peak Hour Factor	1.00	1.00	1.00	0.91	0.91	0.91	1.00	1.00	1.00	0.86	0.86	0.86
Shared Lane Traffic (%)												
Lane Group Flow (vph)	325	561	97	111	860	102	245	342	54	360	812	1163
Turn Type	Prot	NA	Free	Prot	NA	Perm	Prot	NA	Free	Prot	NA	Free
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			Free			6			Free			Free
Detector Phase	5	2		1	6	6	3	8		7	4	
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)	9.5	22.5		9.5	22.5	22.5	9.5	22.5		9.5	22.5	
Total Split (s)	20.0	50.8		12.2	43.0	43.0	17.0	33.5		23.5	40.0	
Total Split (%)	16.7%	42.3%		10.2%	35.8%	35.8%	14.2%	27.9%		19.6%	33.3%	
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	-0.5		-0.5	-0.5	-0.5	-0.5	-0.5		-0.5	-0.5	
Total Lost Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None		None	None	
Act Effct Green (s)	15.4	49.9	120.0	8.3	42.8	42.8	12.5	28.3	120.0	17.5	33.3	120.0
Actuated g/C Ratio	0.13	0.42	1.00	0.07	0.36	0.36	0.10	0.24	1.00	0.15	0.28	1.00
v/c Ratio	0.74	0.38	0.06	0.47	0.68	0.15	0.69	0.41	0.03	0.72	0.83	0.73
Control Delay	61.2	26.0	0.1	77.6	21.0	0.4	62.4	40.1	0.0	57.6	48.4	3.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.2	26.0	0.1	77.6	21.0	0.4	62.4	40.1	0.0	57.6	48.4	3.1
LOS	E	C	A	E	C	A	E	D	A	E	D	A
Approach Delay		35.1			24.9			45.3			27.2	
Approach LOS		D			C			D			C	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 20 (17%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.83
Intersection Signal Delay: 30.6 — Intersection LOS: C
Intersection Capacity Utilization 70.5% — ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 1: Meridian Rd & Woodmen Rd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	709	125	50	727	130	50	25	50	167	100	200
Future Volume (vph)	90	709	125	50	727	130	50	25	50	167	100	200
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1863	1583	1770	1863	1583
Flt Permitted	0.216			0.306			0.689			0.634		
Satd. Flow (perm)	402	3539	1583	570	3539	1583	1283	1863	1583	1181	1863	1583
Satd. Flow (RTOR)			136			157			177			213
Peak Hour Factor	0.96	0.96	0.96	0.83	0.83	0.83	1.00	1.00	1.00	0.94	0.94	0.94
Shared Lane Traffic (%)												
Lane Group Flow (vph)	94	739	130	60	876	157	50	25	50	178	106	213
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Free	pm+pt	NA	Free
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		Free	4		Free
Detector Phase	5	2	2	1	6	6	3	8		7	4	
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)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5		9.5	22.5	
Total Split (s)	16.0	63.0	63.0	12.0	59.0	59.0	12.0	24.0		21.0	33.0	
Total Split (%)	13.3%	52.5%	52.5%	10.0%	49.2%	49.2%	10.0%	20.0%		17.5%	27.5%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5		3.5	3.5	
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	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5		-0.5	-0.5	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Max		None	Max	
Act Effct Green (s)	69.1	61.7	61.7	65.6	58.3	58.3	30.2	22.7	120.0	41.0	31.5	120.0
Actuated g/C Ratio	0.58	0.51	0.51	0.55	0.49	0.49	0.25	0.19	1.00	0.34	0.26	1.00
v/c Ratio	0.28	0.41	0.15	0.16	0.51	0.18	0.14	0.07	0.03	0.38	0.22	0.13
Control Delay	13.6	19.5	6.0	9.7	18.9	2.0	28.6	42.4	0.0	31.6	37.5	0.2
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	13.6	19.5	6.0	9.7	18.9	2.0	28.6	42.4	0.0	31.6	37.5	0.2
LOS	B	B	A	A	B	A	C	D	A	C	D	A
Approach Delay		17.1			16.0			19.9			19.4	
Approach LOS		B			B			B			B	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 4 (3%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.51
Intersection Signal Delay: 17.2 — Intersection LOS: B
Intersection Capacity Utilization 51.0% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 2: McLaughlin Rd & Woodmen Rd

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	291	149	466	90	76	44	345	211	70	77	547	461
Future Volume (vph)	291	149	466	90	76	44	345	211	70	77	547	461
Satd. Flow (prot)	1770	1863	1583	1770	3539	1583	3433	1863	1583	1770	1863	1583
Flt Permitted	0.552			0.654			0.194			0.626		
Satd. Flow (perm)	1028	1863	1583	1218	3539	1583	701	1863	1583	1166	1863	1583
Satd. Flow (RTOR)			443			177			136			380
Peak Hour Factor	0.97	0.92	0.97	0.92	0.92	0.92	1.00	1.00	0.92	0.92	0.93	0.93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	300	162	480	98	83	48	345	211	76	84	588	496
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	29.4	120.0	22.9	15.6	15.6	69.1	61.4	60.9	59.0	54.4	120.0
Actuated g/C Ratio	0.36	0.24	1.00	0.19	0.13	0.13	0.58	0.51	0.51	0.49	0.45	1.00
v/c Ratio	0.58	0.36	0.30	0.36	0.18	0.13	0.53	0.22	0.09	0.14	0.70	0.31
Control Delay	23.6	29.1	0.8	33.3	46.0	0.8	15.2	17.5	0.2	12.6	31.8	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	23.6	29.1	0.8	33.3	46.0	0.8	15.2	17.5	0.2	12.6	31.8	0.5
LOS	C	C	A	C	D	A	B	B	A	B	C	A
Approach Delay		12.9			31.1			14.2			17.1	
Approach LOS		B			C			B			B	

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: 0.70
Intersection Signal Delay: 16.3 — Intersection LOS: B
Intersection Capacity Utilization 72.7% — ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 3: US 24 & Woodmen Rd

Intersection	
Intersection Delay, s/veh	4.0
Intersection LOS	A

Approach	SE	NW	NE	SW
Entry Lanes	2	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	309	111	41	93
Demand Flow Rate, veh/h	316	113	42	95
Vehicles Circulating, veh/h	8	168	184	150
Vehicles Exiting, veh/h	237	58	139	131
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	3.9	4.3	3.8	4.1
Approach LOS	A	A	A	A

Lane	Left	Right	Left	Left	Left
Designated Moves	LT	R	LTR	LTR	LTR
Assumed Moves	LT	R	LTR	LTR	LTR
RT Channelized					
Lane Util	0.579	0.421	1.000	1.000	1.000
Follow-Up Headway, s	2.800	2.800	2.800	2.800	2.800
Critical Headway, s	4.544	4.544	4.976	4.976	4.976
Entry Flow, veh/h	183	133	113	42	95
Cap Entry Lane, veh/h	1277	1277	1088	1071	1108
Entry HV Adj Factor	0.978	0.977	0.981	0.975	0.978
Flow Entry, veh/h	179	130	111	41	93
Cap Entry, veh/h	1248	1248	1067	1044	1083
V/C Ratio	0.143	0.104	0.104	0.039	0.086
Control Delay, s/veh	4.1	3.7	4.3	3.8	4.1
LOS	A	A	A	A	A
95th %tile Queue, veh	1	0	0	0	0

Intersection	
Int Delay, s/veh	4.8

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Vol, veh/h	1	51	67	42	35	4
Future Vol, veh/h	1	51	67	42	35	4
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	1	55	73	46	38	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	232	40	42	0	-	0
Stage 1	40	-	-	-	-	-
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	756	1031	1567	-	-	-
Stage 1	982	-	-	-	-	-
Stage 2	841	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	720	1031	1567	-	-	-
Mov Cap-2 Maneuver	720	-	-	-	-	-
Stage 1	936	-	-	-	-	-
Stage 2	841	-	-	-	-	-

Approach	SE	NE	SW
HCM Control Delay, s	8.7	4.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NEL	NET	SELn1	SWT	SWR
Capacity (veh/h)	1567	-	1023	-	-
HCM Lane V/C Ratio	0.046	-	0.055	-	-
HCM Control Delay (s)	7.4	-	8.7	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-

Lanes, Volumes, Timings
1: Meridian Rd & Woodmen Rd

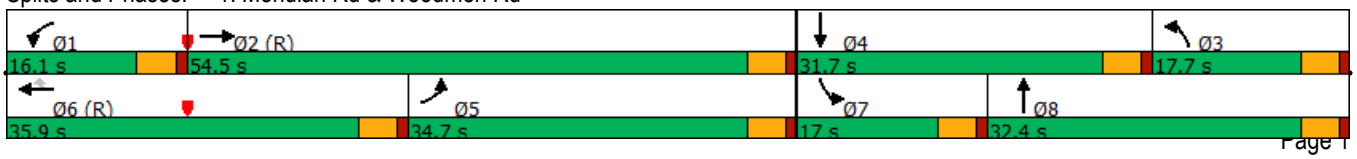
Short Term Total
PM Peak

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	825	647	192	157	722	277	285	792	181	308	610	500
Future Volume (vph)	825	647	192	157	722	277	285	792	181	308	610	500
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Satd. Flow (RTOR)			218			214			218			500
Peak Hour Factor	0.96	0.96	0.96	0.83	0.83	0.83	1.00	1.00	1.00	1.00	1.00	1.00
Shared Lane Traffic (%)												
Lane Group Flow (vph)	859	674	200	189	870	334	285	792	181	308	610	500
Turn Type	Prot	NA	Free	Prot	NA	Perm	Prot	NA	Free	Prot	NA	Free
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			Free			6			Free			Free
Detector Phase	5	2		1	6	6	3	8		7	4	
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)	9.5	22.5		9.5	22.5	22.5	9.5	22.5		9.5	22.5	
Total Split (s)	34.7	54.5		16.1	35.9	35.9	17.7	32.4		17.0	31.7	
Total Split (%)	28.9%	45.4%		13.4%	29.9%	29.9%	14.8%	27.0%		14.2%	26.4%	
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)	0.0	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	
Lead/Lag	Lag	Lag		Lead	Lead	Lead	Lag	Lag		Lead	Lead	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None		None	None	
Act Effct Green (s)	30.2	50.8	120.0	10.8	31.4	31.4	15.4	27.9	120.0	12.5	25.0	120.0
Actuated g/C Ratio	0.25	0.42	1.00	0.09	0.26	0.26	0.13	0.23	1.00	0.10	0.21	1.00
v/c Ratio	1.00	0.45	0.13	0.61	0.94	0.58	0.65	0.96	0.11	0.86	0.83	0.32
Control Delay	74.6	26.0	0.2	71.8	77.6	36.2	58.1	69.5	0.1	76.3	55.6	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	74.6	26.0	0.2	71.8	77.6	36.2	58.1	69.5	0.1	76.3	55.6	0.5
LOS	E	C	A	E	E	D	E	E	A	E	E	A
Approach Delay		47.1			66.9			56.9			40.7	
Approach LOS		D			E			E			D	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.00
Intersection Signal Delay: 52.4 — Intersection LOS: D
Intersection Capacity Utilization 89.2% — ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 1: Meridian Rd & Woodmen Rd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	285	756	100	75	782	284	150	175	150	179	100	225
Future Volume (vph)	285	756	100	75	782	284	150	175	150	179	100	225
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1863	1583	1770	1863	1583
Flt Permitted	0.185			0.328			0.692			0.433		
Satd. Flow (perm)	345	3539	1583	611	3539	1583	1289	1863	1583	807	1863	1583
Satd. Flow (RTOR)			111			284			177			225
Peak Hour Factor	0.90	0.90	0.90	1.00	1.00	1.00	0.86	0.86	0.86	1.00	1.00	1.00
Shared Lane Traffic (%)												
Lane Group Flow (vph)	317	840	111	75	782	284	174	203	174	179	100	225
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Free	pm+pt	NA	Free
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		Free	4		Free
Detector Phase	5	2	2	1	6	6	3	8		7	4	
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)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5		9.5	22.5	
Total Split (s)	33.0	61.0	61.0	11.0	39.0	39.0	16.0	30.0		18.0	32.0	
Total Split (%)	27.5%	50.8%	50.8%	9.2%	32.5%	32.5%	13.3%	25.0%		15.0%	26.7%	
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	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Max		None	Max	
Act Effct Green (s)	67.5	58.7	58.7	49.4	43.1	43.1	37.6	26.6	120.0	40.4	28.0	120.0
Actuated g/C Ratio	0.56	0.49	0.49	0.41	0.36	0.36	0.31	0.22	1.00	0.34	0.23	1.00
v/c Ratio	0.74	0.49	0.13	0.24	0.62	0.38	0.39	0.49	0.11	0.48	0.23	0.14
Control Delay	41.9	25.4	8.1	11.3	21.8	2.0	30.4	46.0	0.1	32.1	39.3	0.2
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	41.9	25.4	8.1	11.3	21.8	2.0	30.4	46.0	0.1	32.1	39.3	0.2
LOS	D	C	A	B	C	A	C	D	A	C	D	A
Approach Delay		28.0			16.1			26.6			19.3	
Approach LOS		C			B			C			B	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.74
Intersection Signal Delay: 22.6 — Intersection LOS: C
Intersection Capacity Utilization 71.5% — ICU Level of Service C
Analysis Period (min) 15

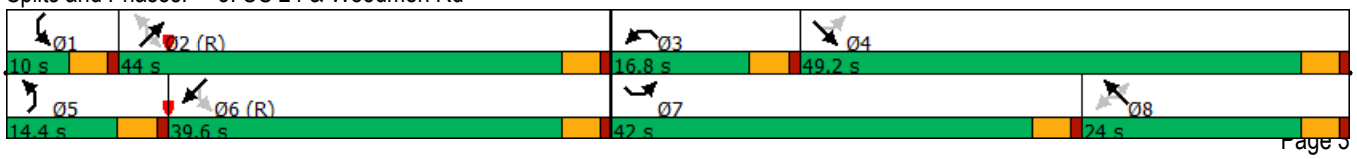
Splits and Phases: 2: McLaughlin Rd & Woodmen Rd

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	503	253	303	116	325	215	403	421	293	97	277	388
Future Volume (vph)	503	253	303	116	325	215	403	421	293	97	277	388
Satd. Flow (prot)	1770	1863	1583	1770	3539	1583	3433	1863	1583	1770	1863	1583
Flt Permitted	0.280			0.590			0.337			0.268		
Satd. Flow (perm)	522	1863	1583	1099	3539	1583	1218	1863	1583	499	1863	1583
Satd. Flow (RTOR)			319			225			164			413
Peak Hour Factor	0.95	0.92	0.95	0.92	0.92	0.92	0.97	0.97	0.92	0.92	0.94	0.94
Shared Lane Traffic (%)												
Lane Group Flow (vph)	529	275	319	126	353	234	415	434	318	105	295	413
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)	42.0	49.2		16.8	24.0	24.0	14.4	44.0	44.0	10.0	39.6	
Total Split (%)	35.0%	41.0%		14.0%	20.0%	20.0%	12.0%	36.7%	36.7%	8.3%	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	47.2	120.0	29.3	19.5	19.5	49.4	39.5	39.5	40.6	35.1	120.0
Actuated g/C Ratio	0.51	0.39	1.00	0.24	0.16	0.16	0.41	0.33	0.33	0.34	0.29	1.00
v/c Ratio	0.81	0.38	0.20	0.39	0.61	0.53	0.61	0.71	0.50	0.46	0.54	0.26
Control Delay	32.1	29.5	0.3	23.8	51.9	11.3	28.0	42.7	18.1	30.6	40.1	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	32.1	29.5	0.3	23.8	51.9	11.3	28.0	42.7	18.1	30.6	40.1	0.4
LOS	C	C	A	C	D	B	C	D	B	C	D	A
Approach Delay		22.4			33.6			30.8			18.7	
Approach LOS		C			C			C			B	

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: 26.3 — Intersection LOS: C
Intersection Capacity Utilization 79.4% — ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 3: US 24 & Woodmen Rd



Intersection	
Intersection Delay, s/veh	7.1
Intersection LOS	A

Approach	SE	NW	NE	SW
Entry Lanes	2	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	658	221	162	366
Demand Flow Rate, veh/h	671	225	165	373
Vehicles Circulating, veh/h	15	530	459	372
Vehicles Exiting, veh/h	730	94	227	383
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	5.6	8.3	6.7	9.2
Approach LOS	A	A	A	A

Lane	Left	Right	Left	Left	Left
Designated Moves	LT	R	LTR	LTR	LTR
Assumed Moves	LT	R	LTR	LTR	LTR
RT Channelized					
Lane Util	0.672	0.328	1.000	1.000	1.000
Follow-Up Headway, s	2.800	2.800	2.800	2.800	2.800
Critical Headway, s	4.544	4.544	4.976	4.976	4.976
Entry Flow, veh/h	451	220	225	165	373
Cap Entry Lane, veh/h	1269	1269	759	815	889
Entry HV Adj Factor	0.981	0.982	0.981	0.980	0.981
Flow Entry, veh/h	442	216	221	162	366
Cap Entry, veh/h	1245	1246	745	799	872
V/C Ratio	0.355	0.173	0.296	0.202	0.420
Control Delay, s/veh	6.3	4.4	8.3	6.7	9.2
LOS	A	A	A	A	A
95th %tile Queue, veh	2	1	1	1	2

Intersection	
Int Delay, s/veh	7.5

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Vol, veh/h	12	283	233	79	55	8
Future Vol, veh/h	12	283	233	79	55	8
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	13	308	253	86	60	9

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	657	65	69	0	-	0
Stage 1	65	-	-	-	-	-
Stage 2	592	-	-	-	-	-
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	430	999	1532	-	-	-
Stage 1	958	-	-	-	-	-
Stage 2	553	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	359	999	1532	-	-	-
Mov Cap-2 Maneuver	359	-	-	-	-	-
Stage 1	800	-	-	-	-	-
Stage 2	553	-	-	-	-	-

Approach	SE	NE	SW
HCM Control Delay, s	10.9	5.8	0
HCM LOS	B		

Minor Lane/Major Mvmt	NEL	NET	SELn1	SWT	SWR
Capacity (veh/h)	1532	-	931	-	-
HCM Lane V/C Ratio	0.165	-	0.344	-	-
HCM Control Delay (s)	7.8	-	10.9	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.6	-	1.5	-	-

Lanes, Volumes, Timings
1: Meridian Rd & Woodmen Rd

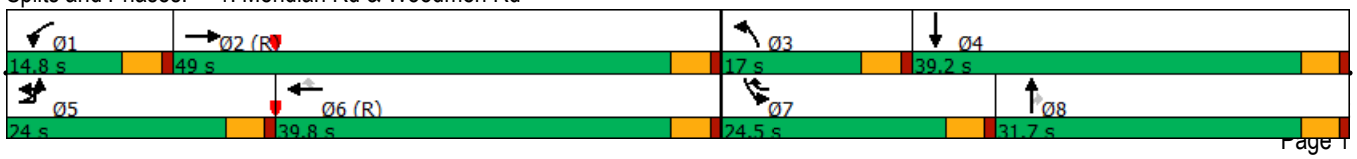
Long Term Total
AM Peak

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	15	450	546	172	151	793	218	320	342	104	310	913
Future Volume (vph)	15	450	546	172	151	793	218	320	342	104	310	913
Satd. Flow (prot)	0	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539
Flt Permitted		0.950			0.950			0.950			0.950	
Satd. Flow (perm)	0	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539
Satd. Flow (RTOR)				218			110			177		
Peak Hour Factor	0.92	1.00	1.00	1.00	0.91	0.91	0.91	1.00	1.00	1.00	0.86	0.86
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	466	546	172	166	871	240	320	342	104	360	1062
Turn Type	Prot	Prot	NA	Free	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA
Protected Phases	5	5	2		1	6	7	3	8		7	4
Permitted Phases				Free			6			8		
Detector Phase	5	5	2		1	6	7	3	8	8	7	4
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)	9.5	9.5	22.5		9.5	22.5	9.5	9.5	22.5	22.5	9.5	22.5
Total Split (s)	24.0	24.0	49.0		14.8	39.8	24.5	17.0	31.7	31.7	24.5	39.2
Total Split (%)	20.0%	20.0%	40.8%		12.3%	33.2%	20.4%	14.2%	26.4%	26.4%	20.4%	32.7%
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)		-0.5	-0.5		-0.5	-0.5	-0.5	-0.5	-0.5	0.0	-0.5	-0.5
Total Lost Time (s)		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.5	4.0	4.0
Lead/Lag	Lead	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	C-Max		None	C-Max	None	None	None	None	None	None
Act Effct Green (s)		19.4	45.5	120.0	10.3	36.4	58.2	13.0	30.4	29.9	17.8	35.2
Actuated g/C Ratio		0.16	0.38	1.00	0.09	0.30	0.48	0.11	0.25	0.25	0.15	0.29
v/c Ratio		0.84	0.41	0.11	0.57	0.81	0.29	0.86	0.38	0.20	0.71	1.02
Control Delay		63.1	28.6	0.1	79.2	24.3	0.9	63.5	41.3	6.6	56.5	75.9
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		63.1	28.6	0.1	79.2	24.3	0.9	63.5	41.3	6.6	56.5	75.9
LOS		E	C	A	E	C	A	E	D	A	E	E
Approach Delay			38.0			27.1			45.8			40.0
Approach LOS			D			C			D			D

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.02
Intersection Signal Delay: 37.5 — Intersection LOS: D
Intersection Capacity Utilization 82.9% — ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 1: Meridian Rd & Woodmen Rd



Lane Group	SBR
Lane Configurations	↱
Traffic Volume (vph)	1041
Future Volume (vph)	1041
Satd. Flow (prot)	1583
Flt Permitted	
Satd. Flow (perm)	1583
Satd. Flow (RTOR)	520
Peak Hour Factor	0.86
Shared Lane Traffic (%)	
Lane Group Flow (vph)	1210
Turn Type	Free
Protected Phases	
Permitted Phases	Free
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	
Act Effct Green (s)	120.0
Actuated g/C Ratio	1.00
v/c Ratio	0.76
Control Delay	3.6
Queue Delay	0.0
Total Delay	3.6
LOS	A
Approach Delay	
Approach LOS	

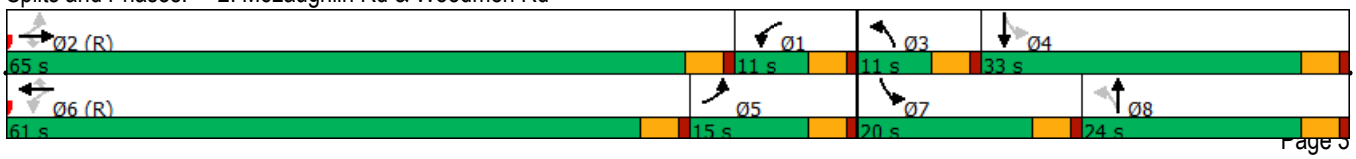
Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	734	125	50	887	130	50	50	50	192	100	225
Future Volume (vph)	100	734	125	50	887	130	50	50	50	192	100	225
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1863	1583	1770	1863	1583
Flt Permitted	0.152			0.275			0.689			0.620		
Satd. Flow (perm)	283	3539	1583	512	3539	1583	1283	1863	1583	1155	1863	1583
Satd. Flow (RTOR)			136			157			177			239
Peak Hour Factor	0.96	0.96	0.96	0.83	0.83	0.83	1.00	1.00	1.00	0.94	0.94	0.94
Shared Lane Traffic (%)												
Lane Group Flow (vph)	104	765	130	60	1069	157	50	50	50	204	106	239
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Free	pm+pt	NA	Free
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		Free	4		Free
Detector Phase	5	2	2	1	6	6	3	8		7	4	
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)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5		9.5	22.5	
Total Split (s)	15.0	65.0	65.0	11.0	61.0	61.0	11.0	24.0		20.0	33.0	
Total Split (%)	12.5%	54.2%	54.2%	9.2%	50.8%	50.8%	9.2%	20.0%		16.7%	27.5%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5		3.5	3.5	
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	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5		-0.5	-0.5	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Max		None	Max	
Act Effct Green (s)	70.4	62.2	62.2	63.2	57.0	57.0	30.0	22.8	120.0	41.6	32.3	120.0
Actuated g/C Ratio	0.59	0.52	0.52	0.53	0.48	0.48	0.25	0.19	1.00	0.35	0.27	1.00
v/c Ratio	0.37	0.42	0.15	0.18	0.64	0.19	0.14	0.14	0.03	0.43	0.21	0.15
Control Delay	24.2	20.4	6.3	10.0	20.9	1.5	28.9	43.8	0.0	32.6	37.2	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.2	20.4	6.3	10.0	20.9	1.5	28.9	43.8	0.0	32.6	37.2	0.2
LOS	C	C	A	B	C	A	C	D	A	C	D	A
Approach Delay		19.0			18.0			24.3			19.4	
Approach LOS		B			B			C			B	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 98 (82%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.64
Intersection Signal Delay: 18.9 — Intersection LOS: B
Intersection Capacity Utilization 57.4% — ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 2: McLaughlin Rd & Woodmen Rd

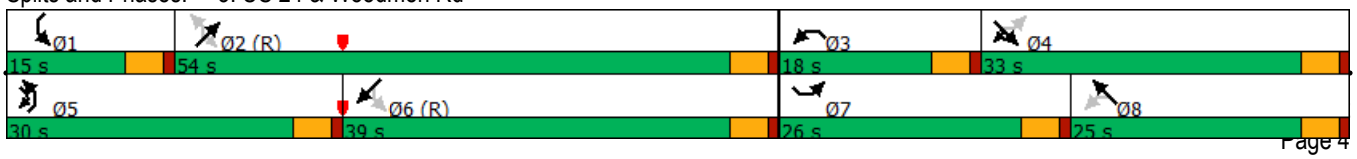


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	266	214	536	130	100	65	505	636	107	121	717	461
Future Volume (vph)	266	214	536	130	100	65	505	636	107	121	717	461
Satd. Flow (prot)	3433	1863	2787	3433	3539	1583	3433	5085	1583	1770	5085	1583
Flt Permitted	0.574			0.613			0.244			0.399		
Satd. Flow (perm)	2074	1863	2787	2215	3539	1583	882	5085	1583	743	5085	1583
Satd. Flow (RTOR)			278			218			136			496
Peak Hour Factor	0.97	0.92	0.97	0.92	0.92	0.92	1.00	1.00	0.92	0.92	0.93	0.93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	274	233	553	141	109	71	505	636	116	132	771	496
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 Effct Green (s)	47.0	33.4	54.7	29.1	20.5	120.0	65.0	51.2	50.7	52.5	43.7	120.0
Actuated g/C Ratio	0.39	0.28	0.46	0.24	0.17	1.00	0.54	0.43	0.42	0.44	0.36	1.00
v/c Ratio	0.26	0.45	0.39	0.23	0.18	0.04	0.60	0.29	0.16	0.33	0.42	0.31
Control Delay	15.7	28.1	9.1	25.7	43.5	0.0	11.3	18.4	6.0	17.1	30.0	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	15.7	28.1	9.1	25.7	43.5	0.0	11.3	18.4	6.0	17.1	30.0	0.5
LOS	B	C	A	C	D	A	B	B	A	B	C	A
Approach Delay		15.0			26.1			14.4			18.3	
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: 0.60
Intersection Signal Delay: 16.8 — Intersection LOS: B
Intersection Capacity Utilization 57.9% — ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 3: US 24 & Woodmen Rd



Intersection	
Int Delay, s/veh	1

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations			↱			↱		↑↑↑	↱		↑↑↑	↱
Traffic Vol, veh/h	0	0	235	0	0	132	0	1099	130	0	1323	36
Future Vol, veh/h	0	0	235	0	0	132	0	1099	130	0	1323	36
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	-	-	Free	-	-	Yield	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	500	-	-	550
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	255	0	0	143	0	1195	141	0	1438	39

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	-	-	-	598	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.14	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.92	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	0	0	0	382	0	-	-	0	-	-
Stage 1	0	0	0	0	0	-	0	-	-	0	-	-
Stage 2	0	0	0	0	0	-	0	-	-	0	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	-	-	-	382	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	0	20	0	0
HCM LOS	A	C		

Minor Lane/Major Mvmt	NET	NER	NWLn1	SELn1	SWT	SWR
Capacity (veh/h)	-	-	382	-	-	-
HCM Lane V/C Ratio	-	-	0.376	-	-	-
HCM Control Delay (s)	-	-	20	0	-	-
HCM Lane LOS	-	-	C	A	-	-
HCM 95th %tile Q(veh)	-	-	1.7	-	-	-

Intersection	
Intersection Delay, s/veh	4.6
Intersection LOS	A

Approach	SE	NW	NE	SW
Entry Lanes	2	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	467	111	137	99
Demand Flow Rate, veh/h	477	113	140	101
Vehicles Circulating, veh/h	14	266	184	244
Vehicles Exiting, veh/h	331	58	306	135
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	4.6	4.8	4.6	4.6
Approach LOS	A	A	A	A

Lane	Left	Right	Left	Left	Left
Designated Moves	LT	R	LTR	LTR	LTR
Assumed Moves	LT	R	LTR	LTR	LTR
RT Channelized					
Lane Util	0.384	0.616	1.000	1.000	1.000
Follow-Up Headway, s	2.800	2.800	2.800	2.800	2.800
Critical Headway, s	4.544	4.544	4.976	4.976	4.976
Entry Flow, veh/h	183	294	113	140	101
Cap Entry Lane, veh/h	1270	1270	987	1071	1009
Entry HV Adj Factor	0.978	0.980	0.981	0.978	0.978
Flow Entry, veh/h	179	288	111	137	99
Cap Entry, veh/h	1242	1244	968	1047	987
V/C Ratio	0.144	0.231	0.114	0.131	0.100
Control Delay, s/veh	4.1	4.9	4.8	4.6	4.6
LOS	A	A	A	A	A
95th %tile Queue, veh	1	1	0	0	0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	34	297	613	40	145	259	132	937	30	221	1296	41
Future Volume (vph)	34	297	613	40	145	259	132	937	30	221	1296	41
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	3433	5085	1583	1770	5085	1583
Flt Permitted	0.652			0.428			0.950			0.950		
Satd. Flow (perm)	1215	3539	1583	797	3539	1583	3433	5085	1583	1770	5085	1583
Satd. Flow (RTOR)			491			282			136			95
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	37	323	666	43	158	282	143	1018	33	240	1409	45
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2		2			4			8
Detector Phase	1	6	6	5	2	2	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	9.6	28.0	28.0	9.6	28.0	28.0	34.3	41.4	41.4	41.0	48.1	48.1
Total Split (%)	8.0%	23.3%	23.3%	8.0%	23.3%	23.3%	28.6%	34.5%	34.5%	34.2%	40.1%	40.1%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	Max	None	Max	Max	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	29.5	25.4	25.4	30.4	27.3	27.3	10.4	51.7	51.7	21.7	63.0	63.0
Actuated g/C Ratio	0.25	0.21	0.21	0.25	0.23	0.23	0.09	0.43	0.43	0.18	0.52	0.52
v/c Ratio	0.11	0.43	0.92	0.18	0.20	0.49	0.48	0.46	0.04	0.75	0.53	0.05
Control Delay	22.8	26.4	29.2	34.3	39.6	7.9	57.4	26.0	0.1	52.7	16.9	2.2
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	22.8	26.4	29.2	34.3	39.6	7.9	57.4	26.0	0.1	52.7	16.9	2.2
LOS	C	C	C	C	D	A	E	C	A	D	B	A
Approach Delay		28.1			20.6			29.0			21.5	
Approach LOS		C			C			C			C	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 105 (88%), Referenced to phase 4:NET and 8:SWT, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 25.0 — Intersection LOS: C
Intersection Capacity Utilization 78.4% — ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 21: US 24

Intersection	
Int Delay, s/veh	3

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		✥			✥		↰	↱		↰	↱	
Traffic Vol, veh/h	20	1	0	0	1	18	0	88	0	99	150	27
Future Vol, veh/h	20	1	0	0	1	18	0	88	0	99	150	27
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	22	1	0	0	1	20	0	96	0	108	163	29

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	501	490	178	490	504	96	192	0	0	96	0	0
Stage 1	394	394	-	96	96	-	-	-	-	-	-	-
Stage 2	107	96	-	394	408	-	-	-	-	-	-	-
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	480	479	865	489	470	960	1381	-	-	1498	-	-
Stage 1	631	605	-	911	815	-	-	-	-	-	-	-
Stage 2	898	815	-	631	597	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	444	445	865	461	436	960	1381	-	-	1498	-	-
Mov Cap-2 Maneuver	444	445	-	461	436	-	-	-	-	-	-	-
Stage 1	631	561	-	911	815	-	-	-	-	-	-	-
Stage 2	879	815	-	584	554	-	-	-	-	-	-	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	13.5	9.1	0	2.7
HCM LOS	B	A		

Minor Lane/Major Mvmt	NEL	NET	NER	NWLn1	SELn1	SWL	SWT	SWR
Capacity (veh/h)	1381	-	-	903	444	1498	-	-
HCM Lane V/C Ratio	-	-	-	0.023	0.051	0.072	-	-
HCM Control Delay (s)	0	-	-	9.1	13.5	7.6	-	-
HCM Lane LOS	A	-	-	A	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.2	0.2	-	-

Intersection	
Int Delay, s/veh	4.6

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Vol, veh/h	1	51	67	44	40	4
Future Vol, veh/h	1	51	67	44	40	4
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	1	55	73	48	43	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	239	45	47	0	-	0
Stage 1	45	-	-	-	-	-
Stage 2	194	-	-	-	-	-
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	749	1025	1560	-	-	-
Stage 1	977	-	-	-	-	-
Stage 2	839	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	714	1025	1560	-	-	-
Mov Cap-2 Maneuver	714	-	-	-	-	-
Stage 1	931	-	-	-	-	-
Stage 2	839	-	-	-	-	-

Approach	SE	NE	SW
HCM Control Delay, s	8.8	4.5	0
HCM LOS	A		

Minor Lane/Major Mvmt	NEL	NET	SELn1	SWT	SWR
Capacity (veh/h)	1560	-	1016	-	-
HCM Lane V/C Ratio	0.047	-	0.056	-	-
HCM Control Delay (s)	7.4	-	8.8	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-

Intersection	
Intersection Delay, s/veh	8.6
Intersection LOS	A

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	20	1	0	0	1	18	0	88	0	99	150	27
Future Vol, veh/h	20	1	0	0	1	18	0	88	0	99	150	27
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	22	1	0	0	1	20	0	96	0	108	163	29
Number of Lanes	0	1	0	0	1	0	1	1	0	1	1	0

Approach	SE	NW	NE	SW
Opposing Approach	NW	SE	SW	NE
Opposing Lanes	1	1	2	2
Conflicting Approach Left	SW	NE	SE	NW
Conflicting Lanes Left	2	2	1	1
Conflicting Approach Right	NE	SW	NW	SE
Conflicting Lanes Right	2	2	1	1
HCM Control Delay	8.2	7.4	8.3	8.8
HCM LOS	A	A	A	A

Lane	NELn1	NELn2	NWLn1	SELn1	SWLn1	SWLn2
Vol Left, %	0%	0%	0%	95%	100%	0%
Vol Thru, %	100%	100%	5%	5%	0%	85%
Vol Right, %	0%	0%	95%	0%	0%	15%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	0	88	19	21	99	177
LT Vol	0	0	0	20	99	0
Through Vol	0	88	1	1	0	150
RT Vol	0	0	18	0	0	27
Lane Flow Rate	0	96	21	23	108	192
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0	0.13	0.025	0.032	0.154	0.243
Departure Headway (Hd)	4.884	4.884	4.307	5.063	5.157	4.55
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	0	737	835	710	691	783
Service Time	2.593	2.593	2.314	3.071	2.922	2.314
HCM Lane V/C Ratio	0	0.13	0.025	0.032	0.156	0.245
HCM Control Delay	7.6	8.3	7.4	8.2	8.9	8.8
HCM Lane LOS	N	A	A	A	A	A
HCM 95th-tile Q	0	0.4	0.1	0.1	0.5	1

Lanes, Volumes, Timings
1: Meridian Rd & Woodmen Rd

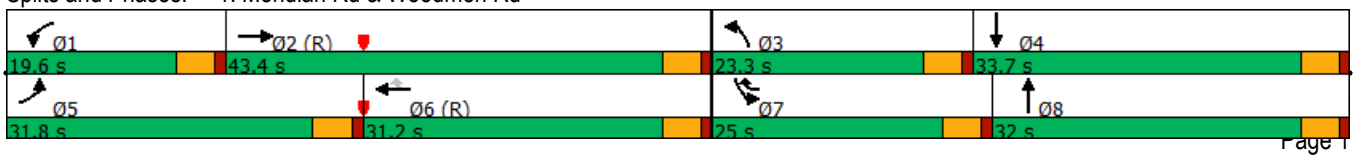
Long Term Total
PM Peak

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	750	747	367	232	602	552	435	767	206	498	685	602
Future Volume (vph)	750	747	367	232	602	552	435	767	206	498	685	602
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Satd. Flow (RTOR)			308			95			206			581
Peak Hour Factor	0.96	0.96	0.96	0.83	0.83	0.83	1.00	1.00	1.00	1.00	1.00	1.00
Shared Lane Traffic (%)												
Lane Group Flow (vph)	781	778	382	280	725	665	435	767	206	498	685	602
Turn Type	Prot	NA	Free	Prot	NA	pm+ov	Prot	NA	Free	Prot	NA	Free
Protected Phases	5	2		1	6	7	3	8		7	4	
Permitted Phases			Free			6			Free			Free
Detector Phase	5	2		1	6	7	3	8		7	4	
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)	9.5	22.5		9.5	22.5	9.5	9.5	22.5		9.5	22.5	
Total Split (s)	31.8	43.4		19.6	31.2	25.0	23.3	32.0		25.0	33.7	
Total Split (%)	26.5%	36.2%		16.3%	26.0%	20.8%	19.4%	26.7%		20.8%	28.1%	
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)	0.0	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	
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max		None	C-Max	None	None	None		None	None	
Act Effct Green (s)	27.7	40.4	120.0	13.9	26.7	51.3	18.1	27.5	120.0	20.1	29.5	120.0
Actuated g/C Ratio	0.23	0.34	1.00	0.12	0.22	0.43	0.15	0.23	1.00	0.17	0.25	1.00
v/c Ratio	0.99	0.65	0.24	0.70	0.92	0.91	0.84	0.95	0.13	0.87	0.79	0.38
Control Delay	75.3	37.3	0.4	44.0	60.9	58.0	47.6	63.9	0.2	64.8	49.9	0.7
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	75.3	37.3	0.4	44.0	60.9	58.0	47.6	63.9	0.2	64.8	49.9	0.7
LOS	E	D	A	D	E	E	D	E	A	E	D	A
Approach Delay		45.3			56.9			49.5			37.5	
Approach LOS		D			E			D			D	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 78 (65%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.99
Intersection Signal Delay: 47.0 — Intersection LOS: D
Intersection Capacity Utilization 88.4% — ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 1: Meridian Rd & Woodmen Rd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	300	1051	100	75	982	309	150	200	150	229	125	250
Future Volume (vph)	300	1051	100	75	982	309	150	200	150	229	125	250
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1863	1583	1770	1863	1583
Flt Permitted	0.113			0.187			0.612			0.340		
Satd. Flow (perm)	210	3539	1583	348	3539	1583	1140	1863	1583	633	1863	1583
Satd. Flow (RTOR)			111			309			177			250
Peak Hour Factor	0.90	0.90	0.90	1.00	1.00	1.00	0.86	0.86	0.86	1.00	1.00	1.00
Shared Lane Traffic (%)												
Lane Group Flow (vph)	333	1168	111	75	982	309	174	233	174	229	125	250
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Free	pm+pt	NA	Free
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		Free	4		Free
Detector Phase	5	2	2	1	6	6	3	8		7	4	
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)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5		9.5	22.5	
Total Split (s)	29.0	64.0	64.0	11.0	46.0	46.0	18.4	27.0		18.0	26.6	
Total Split (%)	24.2%	53.3%	53.3%	9.2%	38.3%	38.3%	15.3%	22.5%		15.0%	22.2%	
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	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Max		None	Max	
Act Effct Green (s)	70.5	61.7	61.7	51.2	44.9	44.9	35.5	22.9	120.0	36.5	23.4	120.0
Actuated g/C Ratio	0.59	0.51	0.51	0.43	0.37	0.37	0.30	0.19	1.00	0.30	0.20	1.00
v/c Ratio	0.84	0.64	0.13	0.34	0.74	0.39	0.43	0.66	0.11	0.72	0.34	0.16
Control Delay	38.3	12.9	2.4	19.4	42.7	13.8	33.2	55.0	0.1	45.4	45.5	0.2
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	38.3	12.9	2.4	19.4	42.7	13.8	33.2	55.0	0.1	45.4	45.5	0.2
LOS	D	B	A	B	D	B	C	D	A	D	D	A
Approach Delay		17.4			34.9			32.0			26.7	
Approach LOS		B			C			C			C	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 5 (4%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 26.5 — Intersection LOS: C
Intersection Capacity Utilization 82.0% — ICU Level of Service D
Analysis Period (min) 15

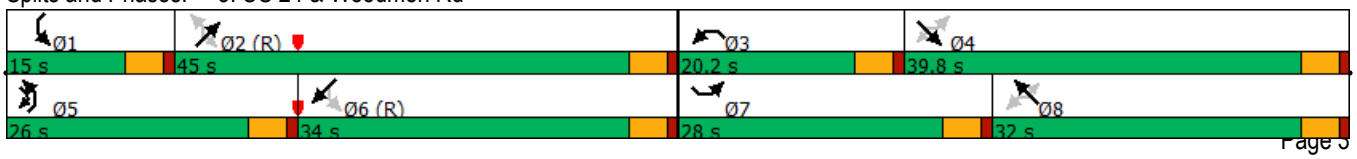
Splits and Phases: 2: McLaughlin Rd & Woodmen Rd

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	803	351	348	167	456	314	603	1516	444	149	942	413
Future Volume (vph)	803	351	348	167	456	314	603	1516	444	149	942	413
Satd. Flow (prot)	3433	1863	2787	3433	3539	1583	3433	5085	1583	1770	5085	1583
Flt Permitted	0.240			0.494			0.114			0.130		
Satd. Flow (perm)	867	1863	2787	1785	3539	1583	412	5085	1583	242	5085	1583
Satd. Flow (RTOR)			265			180			191			439
Peak Hour Factor	0.95	0.92	0.95	0.92	0.92	0.92	0.97	0.97	0.92	0.92	0.94	0.94
Shared Lane Traffic (%)												
Lane Group Flow (vph)	845	382	366	182	496	341	622	1563	483	162	1002	439
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	41.9	66.7	36.6	27.5	27.5	55.5	40.8	40.8	40.9	30.7	120.0
Actuated g/C Ratio	0.46	0.35	0.56	0.30	0.23	0.23	0.46	0.34	0.34	0.34	0.26	1.00
v/c Ratio	0.94	0.59	0.22	0.27	0.61	0.68	0.89	0.90	0.73	0.77	0.77	0.28
Control Delay	42.0	19.2	1.0	21.0	45.2	27.1	30.8	30.2	17.9	50.5	46.4	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	42.0	19.2	1.0	21.0	45.2	27.1	30.8	30.2	17.9	50.5	46.4	0.4
LOS	D	B	A	C	D	C	C	C	B	D	D	A
Approach Delay		27.1			34.9			28.1			34.2	
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: 0.94
Intersection Signal Delay: 30.3 — Intersection LOS: C
Intersection Capacity Utilization 88.1% — ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 3: US 24 & Woodmen Rd



Intersection	
Int Delay, s/veh	11.1

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations			↱			↱		↑↑↑	↱		↑↑↑	↱
Traffic Vol, veh/h	0	0	50	0	0	178	0	2264	130	0	1411	17
Future Vol, veh/h	0	0	50	0	0	178	0	2264	130	0	1411	17
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	-	-	Free	-	-	Yield	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	500	-	-	550
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	54	0	0	193	0	2461	141	0	1534	18

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	-	-	-	1231	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.14	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.92	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	0	0	0	~ 145	0	-	-	0	-	-
Stage 1	0	0	0	0	0	-	0	-	-	0	-	-
Stage 2	0	0	0	0	0	-	0	-	-	0	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	-	-	-	~ 145	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	0	248.5	0	0
HCM LOS	A	F		

Minor Lane/Major Mvmt	NET	NER	NWLn1	SELn1	SWT	SWR
Capacity (veh/h)	-	-	145	-	-	-
HCM Lane V/C Ratio	-	-	1.334	-	-	-
HCM Control Delay (s)	-	-	248.5	0	-	-
HCM Lane LOS	-	-	F	A	-	-
HCM 95th %tile Q(veh)	-	-	12.1	-	-	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Intersection Delay, s/veh	11.0
Intersection LOS	B

Approach	SE	NW	NE	SW
Entry Lanes	2	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	984	221	479	379
Demand Flow Rate, veh/h	1004	225	489	386
Vehicles Circulating, veh/h	28	854	459	682
Vehicles Exiting, veh/h	1040	94	573	397
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	6.9	13.2	14.0	16.4
Approach LOS	A	B	B	C

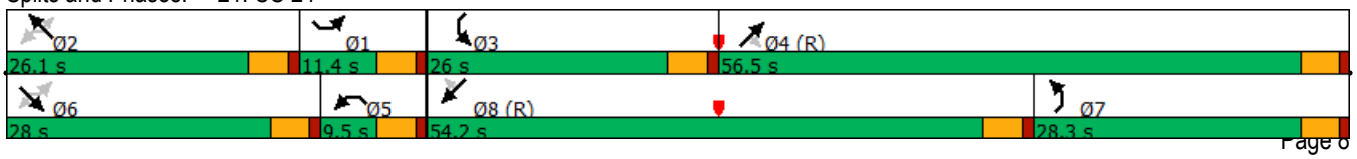
Lane	Left	Right	Left	Left	Left
Designated Moves	LT	R	LTR	LTR	LTR
Assumed Moves	LT	R	LTR	LTR	LTR
RT Channelized					
Lane Util	0.449	0.551	1.000	1.000	1.000
Follow-Up Headway, s	2.800	2.800	2.800	2.800	2.800
Critical Headway, s	4.544	4.544	4.976	4.976	4.976
Entry Flow, veh/h	451	553	225	489	386
Cap Entry Lane, veh/h	1255	1255	550	815	653
Entry HV Adj Factor	0.981	0.980	0.981	0.980	0.981
Flow Entry, veh/h	442	542	221	479	379
Cap Entry, veh/h	1231	1230	540	799	641
V/C Ratio	0.359	0.441	0.409	0.600	0.591
Control Delay, s/veh	6.4	7.4	13.2	14.0	16.4
LOS	A	A	B	B	C
95th %tile Queue, veh	2	2	2	4	4

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	86	592	265	60	235	257	427	2051	80	204	1190	67
Future Volume (vph)	86	592	265	60	235	257	427	2051	80	204	1190	67
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	3433	5085	1583	1770	5085	1583
Flt Permitted	0.513			0.185			0.950			0.950		
Satd. Flow (perm)	956	3539	1583	345	3539	1583	3433	5085	1583	1770	5085	1583
Satd. Flow (RTOR)			288			279			95			95
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	93	643	288	65	255	279	464	2229	87	222	1293	73
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2		2			4			8
Detector Phase	1	6	6	5	2	2	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	11.4	28.0	28.0	9.5	26.1	26.1	28.3	56.5	56.5	26.0	54.2	54.2
Total Split (%)	9.5%	23.3%	23.3%	7.9%	21.8%	21.8%	23.6%	47.1%	47.1%	21.7%	45.2%	45.2%
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	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	Max	None	Max	Max	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	30.6	25.1	25.1	26.6	21.6	21.6	23.8	54.9	54.9	18.8	50.0	50.0
Actuated g/C Ratio	0.26	0.21	0.21	0.22	0.18	0.18	0.20	0.46	0.46	0.16	0.42	0.42
v/c Ratio	0.32	0.87	0.52	0.48	0.40	0.54	0.68	0.96	0.11	0.80	0.61	0.10
Control Delay	32.2	47.5	15.6	54.5	45.7	9.3	50.4	43.2	3.8	54.5	16.4	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	32.2	47.5	15.6	54.5	45.7	9.3	50.4	43.2	3.8	54.5	16.4	0.4
LOS	C	D	B	D	D	A	D	D	A	D	B	A
Approach Delay		37.2			29.7			43.2			21.0	
Approach LOS		D			C			D			C	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 89 (74%), Referenced to phase 4:NET and 8:SWT, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.96
Intersection Signal Delay: 34.9 — Intersection LOS: C
Intersection Capacity Utilization 86.5% — ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 21: US 24



Intersection	
Int Delay, s/veh	10

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	138	5	0	0	5	11	0	292	0	116	312	90
Future Vol, veh/h	138	5	0	0	5	11	0	292	0	116	312	90
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	150	5	0	0	5	12	0	317	0	126	339	98

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	966	957	388	960	1006	317	437	0	0	317	0	0
Stage 1	640	640	-	317	317	-	-	-	-	-	-	-
Stage 2	326	317	-	643	689	-	-	-	-	-	-	-
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	234	258	660	236	241	724	1123	-	-	1243	-	-
Stage 1	464	470	-	694	654	-	-	-	-	-	-	-
Stage 2	687	654	-	462	446	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	208	232	660	214	217	724	1123	-	-	1243	-	-
Mov Cap-2 Maneuver	208	232	-	214	217	-	-	-	-	-	-	-
Stage 1	464	423	-	694	654	-	-	-	-	-	-	-
Stage 2	670	654	-	410	401	-	-	-	-	-	-	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	59.9	14	0	1.8
HCM LOS	F	B		

Minor Lane/Major Mvmt	NEL	NET	NER	NWLn1	SELn1	SWL	SWT	SWR
Capacity (veh/h)	1123	-	-	418	209	1243	-	-
HCM Lane V/C Ratio	-	-	-	0.042	0.744	0.101	-	-
HCM Control Delay (s)	0	-	-	14	59.9	8.2	-	-
HCM Lane LOS	A	-	-	B	F	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	5	0.3	-	-

Intersection	
Int Delay, s/veh	7.4

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Vol, veh/h	12	283	233	83	67	8
Future Vol, veh/h	12	283	233	83	67	8
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	13	308	253	90	73	9

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	674	78	82	0	-	0
Stage 1	78	-	-	-	-	-
Stage 2	596	-	-	-	-	-
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	420	983	1515	-	-	-
Stage 1	945	-	-	-	-	-
Stage 2	550	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	350	983	1515	-	-	-
Mov Cap-2 Maneuver	350	-	-	-	-	-
Stage 1	787	-	-	-	-	-
Stage 2	550	-	-	-	-	-

Approach	SE	NE	SW
HCM Control Delay, s	11	5.8	0
HCM LOS	B		

Minor Lane/Major Mvmt	NEL	NET	SELn1	SWT	SWR
Capacity (veh/h)	1515	-	916	-	-
HCM Lane V/C Ratio	0.167	-	0.35	-	-
HCM Control Delay (s)	7.9	-	11	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.6	-	1.6	-	-

Intersection	
Intersection Delay, s/veh	14.6
Intersection LOS	B

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	138	5	0	0	5	11	0	292	0	116	312	90
Future Vol, veh/h	138	5	0	0	5	11	0	292	0	116	312	90
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	150	5	0	0	5	12	0	317	0	126	339	98
Number of Lanes	0	1	0	0	1	0	1	1	0	1	1	0

Approach	SE	NW	NE	SW
Opposing Approach	NW	SE	SW	NE
Opposing Lanes	1	1	2	2
Conflicting Approach Left	SW	NE	SE	NW
Conflicting Lanes Left	2	2	1	1
Conflicting Approach Right	NE	SW	NW	SE
Conflicting Lanes Right	2	2	1	1
HCM Control Delay	11.7	9.3	14.3	15.7
HCM LOS	B	A	B	C

Lane	NELn1	NELn2	NWLn1	SELn1	SWLn1	SWLn2
Vol Left, %	0%	0%	0%	97%	100%	0%
Vol Thru, %	100%	100%	31%	3%	0%	78%
Vol Right, %	0%	0%	69%	0%	0%	22%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	0	292	16	143	116	402
LT Vol	0	0	0	138	116	0
Through Vol	0	292	5	5	0	312
RT Vol	0	0	11	0	0	90
Lane Flow Rate	0	317	17	155	126	437
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0	0.508	0.029	0.271	0.21	0.646
Departure Headway (Hd)	5.762	5.762	6.076	6.287	5.99	5.326
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	0	625	588	572	600	682
Service Time	3.489	3.489	4.125	4.323	3.712	3.048
HCM Lane V/C Ratio	0	0.507	0.029	0.271	0.21	0.641
HCM Control Delay	8.5	14.3	9.3	11.7	10.3	17.3
HCM Lane LOS	N	B	A	B	B	C
HCM 95th-tile Q	0	2.9	0.1	1.1	0.8	4.7

Queuing Reports

TRANSPORTATION
CONSULTANTS, INC.

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Group Flow (vph)	274	233	553	141	109	71	505	636	116	132	771	496
v/c Ratio	0.26	0.45	0.39	0.23	0.18	0.04	0.60	0.29	0.16	0.33	0.42	0.31
Control Delay	15.7	28.1	9.1	25.7	43.5	0.0	11.3	18.4	6.0	17.1	30.0	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	15.7	28.1	9.1	25.7	43.5	0.0	11.3	18.4	6.0	17.1	30.0	0.5
Queue Length 50th (ft)	62	126	85	35	38	0	134	146	28	49	162	0
Queue Length 95th (ft)	85	184	117	57	65	0	42	177	57	83	214	0
Internal Link Dist (ft)		248			195			896			1308	
Turn Bay Length (ft)	250		100	250		250	850		100	250		350
Base Capacity (vph)	1061	518	1603	764	604	1583	1030	2167	746	422	1851	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	0.26	0.45	0.34	0.18	0.18	0.04	0.49	0.29	0.16	0.31	0.42	0.31

Intersection Summary

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Group Flow (vph)	845	382	366	182	496	341	622	1563	483	162	1002	439
v/c Ratio	0.94	0.59	0.22	0.27	0.61	0.68	0.89	0.90	0.73	0.77	0.77	0.28
Control Delay	42.0	19.2	1.0	21.0	45.2	27.1	30.8	30.2	17.9	50.5	46.4	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	42.0	19.2	1.0	21.0	45.2	27.1	30.8	30.2	17.9	50.5	46.4	0.4
Queue Length 50th (ft)	141	154	3	40	182	114	150	456	299	73	268	0
Queue Length 95th (ft)	#341	251	11	62	241	222	m176	m482	m339	#180	322	0
Internal Link Dist (ft)		248			210			896			1308	
Turn Bay Length (ft)	250		100	250		200	850		100	250		350
Base Capacity (vph)	903	650	1692	858	811	501	731	1730	664	216	1301	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	0.94	0.59	0.22	0.21	0.61	0.68	0.85	0.90	0.73	0.75	0.77	0.28

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.