LSC TRANSPORTATION CONSULTANTS, INC.
545 East Pikes Peak Avenue, Suite 210
Colorado Springs, CO 80903
(719) 633-2868
FAX (719) 633-5430
E-mail: lsc@lsctrans.com
Website: http://www.lsctrans.com

Claremont Commercial Subdivision Filing No. 2
Updated Traffic Impact Study
(LSC #164840)

PCD

PCD Project No. SP-17-004

December 11, 2017

Traffic Engineer's Statement

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

Jeffrey C. Hodsdon, P.E., #31684 — Date 12/12/17

COLORADO LICENSED
JEFFREY C. HODSDON
31684
12-12-17
PROFESSIONAL ENGINEER

Developer's Statement

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

12/11/17
Date

LSC TRANSPORTATION CONSULTANTS, INC.
545 East Pikes Peak Avenue, Suite 210
Colorado Springs, CO 80903
(719) 633-2868
FAX (719) 633-5430
E-mail: lsc@lsctrans.com
Website: http://www.lsctrans.com

December 11, 2017

Mr. Ron Waldthausen
Land First, Inc.
1378 Promontory Bluff View
Colorado Springs, CO 80921

RE: Claremont Commercial
Filing No. 2
El Paso County, CO
Updated Traffic Impact Study
LSC #164840

Dear Ron:

LSC Transportation Consultants, Inc. has prepared this updated traffic impact study for the proposed Claremont Commercial Filing No. 2 development. The site is located northwest of US Highway (US) 24 and Marksheffel Road in El Paso County, Colorado. Access to the site is to Meadowbrook Parkway only via two proposed access points. The area is shown in Figure 1.

REPORT CONTENTS

The report contains the following:

- Existing street and traffic conditions in the vicinity of the site, including the intersection lane geometries, traffic controls, posted speed limits, functional classifications, intersection spacing and alignment, sight distances, etc.
- Existing peak-hour turning movement traffic counts and estimates of future background traffic volumes at the intersections of:
    - Marksheffel Road/Meadowbrook Parkway
    - Marksheffel Road/US 24
    - Meadowbrook Parkway/US 24/SH 94
    - Meadowbrook Parkway/north and south site accesses
- Description of the proposed land use.
- Estimates of the average weekday and peak-hour vehicle-trips to be generated by the site.
- Assignment of projected peak-hour site-generated traffic volumes at the study area and access point intersections.
- Resulting traffic impacts of the proposed development expressed in terms of intersection levels of service and vehicle queuing.
- Traffic signal warrant analysis.
- Findings and recommendations.

LAND USE AND ACCESS

Proposed Land Use

Claremont Commercial Filing No. 2 is a proposed replat of Tract C, Claremont Business Park Filing No. 2. This proposed 16-lot commercial and industrial subdivision is located northwest of the intersection of US 24 and Marksheffel Road. Site access to Meadowbrook Parkway would be via two proposed accesses, both of which would be stop-controlled full-movement intersections.

Access to the east site driveway is approximately 490 feet west of Marksheffel Road and aligns with the existing commercial full-movement access on the north side of Meadowbrook Parkway. West access is approximately 780 feet south of the east access. The site plan is shown in Figure 2. Anticipated land use is a mix of commercial and industrial park uses, with the northernmost five lots (lots 1, 2, 3, 15, and 16) expected to be developed as commercial and the remaining lots expected to be developed with industrial park uses. Future building square footage of the five lots expected to be commercial has been estimated using a 0.2 floor area ratio – 29,750 square feet.

Access sight distance will be acceptable at the proposed site access points. Overgrown weeds on the site will be removed with the start of site work. Figure 1 shows the site location and the adjacent roadways. A diagram of the internal site layout is attached in Figure 2.

Adjacent Future Development Parcels

A residential townhome development, The Villas at Claremont Ranch is proposed adjacent to the intersection of Marksheffel/Meadowbrook on the northeast corner. Other area development anticipated in the short term includes a Circle K gas station and the Meadowbrook Crossing single-family residential development—both located to the southwest adjacent to the intersection of Meadowbrook Parkway and the Meadowbrook Parkway connection to the US Highway 24/SH 94 intersection. The long-term analysis includes the remaining buildout of the Claremont Business Park and the commercial parcel northeast of US Highway 24 and Marksheffel Road.

CURRENT ROADWAY AND TRAFFIC CONDITIONS

Study Area Roadway System

Major roadways in the vicinity of the site are summarized below:

US Highway 24 (US 24) is a state highway extending locally from the City of Colorado Springs to Peyton in a northeasterly direction and then continuing east. US 24 is classified as an Expressway by the Colorado Department of Transportation (CDOT) in the vicinity of the site and is shown as an Expressway on the El Paso County *Major Transportation Corridors Plan (MTCP)*.

Marksheffel Road extends north from C&S Road to just north of Woodmen Road. The section of Marksheffel Road adjacent to the site is classified as Principal Arterial. The Marksheffel Road/US

24 intersection is currently signalized. Marksheffel Road has been upgraded to a four-lane Modified Urban Minor Arterial south of US Highway 24.

Meadowbrook Parkway is a paved, Non-Residential Collector that extends through the Claremont Business Park from the US 24/SH 94 intersection to Marksheffel Road (generally parallel to US 24). Meadowbrook Parkway continues east from Marksheffel Road into Claremont Ranch to the east. The posted speed limit is 35 miles per hour.

Existing intersection lane geometry and traffic control is shown in Figure 3.

Existing Traffic Volumes

Turning movement counts were conducted on at the intersection of Marksheffel Road/ Meadowbrook Parkway at the following times:

- Tuesday, May 18, 2017 – 6:30 to 8:30 a.m.
- Wednesday, May 19, 2017 – 11:30 a.m. to 1:30 p.m.
- Tuesday, October 10, 2017 – 2:00 to 6:00 p.m.

Existing morning (6:45-7:45 a.m.) and evening (4:30-5:30 p.m.) weekday peak-hour traffic volumes at this intersection are shown in Figure 3. Count reports are attached. Figure 3 also shows the results of turning movement counts at the commercial access points north of the site, the Meadowbrook/Highway 24 intersection, and the Highway 24/Marksheffel intersection.

Existing Levels of Service

Level of service (LOS) is a quantitative measure of the level of congestion or delay at an intersection and is indicated on a scale from "A" to "F." LOS A is indicative of little congestion or delay. LOS F indicates a high level of congestion or delay. Table 1 shows the level of service delay ranges for signalized and unsignalized intersections.

Table 1: Intersection Levels of Service Delay Ranges

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

(1) Source: *Transportation Research Circular 212*
(2) For unsignalized intersections, if V/C is > 1.00, then LOS is LOS F regardless of the projected average control delay per vehicle

The following existing intersections have been analyzed to determine the current levels of service: Marksheffel/Meadowbrook, US Highway 24/Marksheffel, US Highway 24/SH 94/Meadowbrook Parkway, and Meadowbrook Parkway/full-movement access intersection to the Mobil gas station north of the site. The results of the LOS analysis are included in Table 10 (attached).

Traffic Signal Warrant Analysis

The intersection of Marksheffel/Meadowbrook has been analyzed to determine if a warrant(s) for a traffic control signal is currently met at this intersection based on the traffic data collected. The combinations of major street approach volumes (includes the sum of eastbound and westbound approach volumes) and minor street volumes (northbound left turn) were analyzed to determine **if** the combination exceeds the threshold criteria for Four-Hour and/or Eight-Hour Vehicular Volume Traffic Signal Warrants in the *2009 Manual on Uniform Traffic Control Devices (MUTCD)*. Warrant No 7 – Crash Experience has also been evaluated.

MUTCD Warrants Analyzed

Warrant No. 2 - Four-Hour Vehicular Warrant

The MUTCD Warrant 2 (Four-Hour Vehicular Volume) contains a graph with threshold curves based on major and minor street traffic volumes, the number of intersection approach lanes on the major and minor streets and the speed of the major street. This graph is shown in MUTCD Figure 4C-1.

Warrant No. 1 - Eight-Hour Vehicular Warrant

According to "Warrant 1, Eight-Hour Vehicular Warrant", as described in Section 4C.02 of the 2009 MUTCD:

> *Standard:*
> *07 The need for a traffic control signal shall be considered if an engineering study finds that both of the following conditions exist for each of any 8 hours of an average day:*
> *A. The vehicles per hour given in both of the 80 percent columns of Condition A in Table 4C-1 exist on the major-street and the higher-volume minor-street approaches, respectively, to the intersection;* ***and***
> *B. The vehicles per hour given in both of the 80 percent columns of Condition B in Table 4C-1 exist on the major-street and the higher-volume minor-street approaches, respectively, to the intersection.*

Section 4C.02 contains an option, which states that when, *"the posted or statutory speed limit or the 85th-percentile speed on the major street exceeds 40 mph… the traffic volumes in the 70-percent columns in Table 4C-1 may be used in place of the 100-percent columns*." Table 4C-1 of the MUTCD contains the minimum vehicular volumes (Condition A) and the interruption of continuous traffic volumes (Condition B) required to satisfy "Warrant 1, Eight-Hour Vehicular Volume."

Marksheffel Road has a posted speed limit of 50 mph, so the 70-percent columns in Table 4C-1 were used in place of the 100-percent columns. The intersection of Marksheffel/Meadowbrook has two major street lanes and two minor street lanes for each approach. A minimum of 630 vehicles on the major street (total of both approaches) and 70 vehicles (higher-volume minor street approach, one direction only) are required during each of the eight hours analyzed.

Warrant No. 7 - Crash Experience

According to "Warrant 7, Crash Experience", as described in Section 4C.08 of the 2009 MUTCD:

> *02 The need for a traffic control signal shall be considered if an engineering study finds that **all** of the following criteria are met:*
> *A. Adequate trial of alternatives with satisfactory observance and enforcement has failed to reduce the crash frequency; **and***
> *B. Five or more reported crashes, of types susceptible to correction by a traffic control signal, have occurred within a 12-month period, each crash involving personal injury or property damage apparently exceeding the applicable requirements for a reportable crash; **and***
> *C. For each of any 8 hours of an average day, the vehicles per hour (vph) given in both of the 80 percent columns of Condition A in Table 4C-1 (see Section 4C.02), or the vph in both of the 80 percent columns of Condition B in Table 4C-1 exists on the major-street and the higher-volume minor-street approach, respectively, to the intersection, or the volume of pedestrian traffic is not less than 80 percent of the requirements specified in the Pedestrian Volume warrant. These major-street and minor-street volumes shall be for the same 8 hours. On the minor street, the higher volume shall not be required to be on the same approach during each of the 8 hours.*

Warrant Analysis – Marksheffel/Meadowbrook

Two one-hour periods during the morning peak period, two one-hour mid-day periods, and four one-hour periods during the afternoon have been analyzed:

- 6:30 – 8:30 a.m.
- 11:30 a.m. – 1:30 p.m.
- 2:00 – 6:00 p.m.

<u>Four-Hour Vehicular Volume Warrant</u>

Based on existing background traffic volumes only, the intersection of Marksheffel/Meadowbrook does **not** currently satisfy Four-Hour Vehicular Volume Warrant thresholds. Only three (four needed) of the eight separate one-hour periods analyzed fall above the minimum threshold curve for an intersection with two or more lanes for both the major approaches and the minor (eastbound) approach, as shown in Figure 11.

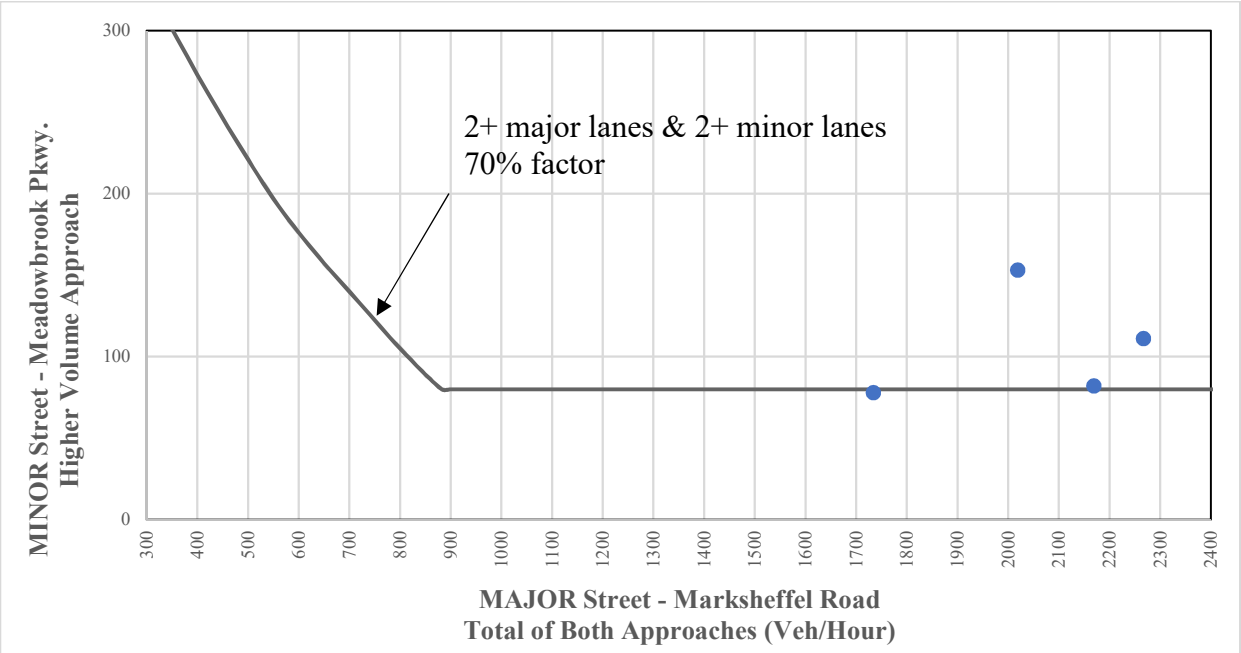


Figure 11: Four-Hour Traffic Signal Warrant Analysis Results (2017 Existing)

Table 2 shows the major/minor street volume combinations plotted in Figure 11.

Table 2: Major/Minor Street Volumes for 4-Hour Volume Signal Warrants (2017 Existing)

Start	End	Major Street Volume	Minor Street Volume	4-Hour Warrant Threshold Met?
6:45 a.m.	7:45 p.m.	2169	82	Yes
3:00 p.m.	4:00 p.m.	1734	78	No
4:00 p.m.	5:00 p.m.	2267	111	Yes
5:00 p.m.	6:00 p.m.	2019	153	Yes
# of hours meeting warrant thresholds/hours required to satisfy the warrant (warrant satisfied?)				***3 / 4 (No)***

Eight-Hour Vehicular Volume Warrant

Only seven of the eight one-hour analysis periods are projected to meet eight-hour vehicular volume criteria for the existing background traffic only condition. A minimum of 630 vehicles on the major street (total of both approaches) and 70 vehicles (higher-volume minor street approach, one direction only) are required during each of the eight hours analyzed. Refer to Table 3 for the major/minor street volume combinations used for the Eight-Hour Vehicular Volume Warrant analysis during the 2017 existing traffic condition.

Table 3: Major/Minor Street Volumes for 8-Hour Volume Signal Warrants (2017 Existing)

Start	End	Major Street Volume	Minor Street Volume	8-Hour Warrant Threshold Met?
6:30 a.m.	7:30 a.m.	2074	77	Yes
7:30 a.m.	8:30 a.m.	1797	77	Yes
11:30 a.m.	12:30 p.m.	917	54	Yes
12:30 p.m.	1:30 p.m.	937	67	No
2:00 p.m.	3:00 p.m.	1129	75	Yes
3:00 p.m.	4:00 p.m.	1734	78	Yes
4:00 p.m.	5:00 p.m.	2267	111	Yes
5:00 p.m.	6:00 p.m.	2019	153	Yes
# of hours meeting warrant thresholds/hours required to satisfy the warrant (warrant satisfied?)				***7 / 8 (No)***

Warrant No. 7 – Crash Experience

A crash analysis was completed with the most recently available accident data (through July 2017) from the Colorado State Patrol. Detailed crash type data (i.e., property or bodily injury type, high-speed, left-turn, involving pedestrians/cyclists, etc.) was included in the crash reports. There were four total crashes at the intersection of Marksheffel/Meadowbrook in the 12 months prior to July 2017, and none of the crashes were fatal. Criteria B above, requiring five or more reported crashes, was not met in the prior 12 months. Thus, Warrant 7 is not satisfied.

SITE-GENERATED TRIP GENERATION, DISTRIBUTION, AND ASSIGNMENT

Estimates for the traffic volumes expected to be generated by the site were made using the nationally published trip generation rates from *Trip Generation, 9th Edition, 2012* by the Institute of Transportation Engineers (ITE). Land use 820 – Shopping Center has been used to estimate the trip generation for the northernmost five lots, while land use 130 – Industrial Park has been used to estimate the trip generation for the remaining lots to the south. Table 4 presents a summary of the site trip generation and a detailed estimate of trip generation is presented in Table 9 (attached).

Pass-By and Diverted Trips

The total number of trips generated by the site has also been adjusted to account for the pass-by phenomenon. A pass-by trip is one made by a motorist who would already be on an adjacent street 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. Table 9 (attached) shows the percent of the trips generated by each use that were assumed to be pass-by trips. The pass-by percentage has been based on data from the *Trip Generation Handbook – An ITE Proposed Recommended Practice, 3rd Edition, 2014* by ITE. LSC has adjusted the average ITE percentage as pass-by trips for this site to only include trips from adjacent Meadowbrook Parkway.

Diverted trips from adjacent US Highway 24 and Marksheffel Road are considered non-pass-by trips. These trips would be added to Meadowbrook Parkway and would result in altered turning movements at the nearby major intersections but in general would not add "new impact" trips to US Highway 24 or Marksheffel Road.

Average Daily Non-Pass-By Trips

ITE *Trip Generation* estimated that the proposed 16-lot commercial/industrial development is projected to generate about 2,924 total non-pass-by vehicle-trips on the average weekday during a 24-hour period, with about half entering the site and half exiting the site during the evening peak hour.

Peak-Hour "Driveway" Trips

During the morning peak hour, 85 vehicles are projected to enter the site while 33 are projected to exit. Approximately 128 vehicles would enter, and 169 vehicles would exit the site during the evening peak hour. The morning peak hour generally occurs for one hour between 6:30 and 8:30 a.m., and the afternoon peak hour occurs for one hour between 4:00 and 6:00 p.m. ITE totals were reduced assuming that approximately four percent of site-generated trips are projected to be internal. Table 4 shows a summary of the results of the trip generation estimate.

Table 4: Estimated Site Vehicle Trip Generation

Analysis Period	In	Out	Total
Morning Peak Hour (vehicle trips/hour)	85	35	120
Evening Peak Hour (vehicle trips/hour)	128	169	297
Weekday – Non-pass-by (vehicle trips/day)	1,462	1,462	2,924
* Please refer to Table 9 (attached) for detailed trip generation table			

Trip Distribution

Distribution of the site-generated trips to the adjacent streets and key off-site intersections is a necessary step in the process of determining the site's traffic impacts. Figure 4 shows the directional distribution estimate for the site-generated trips. The distribution shown represents estimates of percentages of site-generated vehicle-trips oriented to and from the major roadway approaches. The non-pass-by trips, including destination (primary) trips as well as trips diverted from US 24 and Marksheffel Road, have been distributed according to the percentages shown in the figure.

Separate distributions have been estimated for the commercial and industrial park land uses. These estimated percentages have been based on the following factors: the site's proposed land uses, existing and planned other development in the general area, the area roadway system, and the existing and projected peak-hour traffic volumes. The pass-by trips (from Meadowbrook Parkway) have been distributed separately based on the magnitude and direction of projected future traffic on Meadowbrook Parkway.

Trip Assignment and Site-Generated Traffic Volumes

When the directional distribution percentages (from Figure 4) were applied to the trip generation estimates (from Table 9), the site-generated traffic volumes on the adjacent streets were determined. Figure 5 shows the projected site-generated traffic volumes.

PROJECTED FUTURE BASELINE ROADWAY NETWORK AND TRAFFIC VOLUMES

The total traffic volumes on Marksheffel Road (north of Meadowbrook) represents annual growth rate of about 2.4 percent. The CDOT 20-year factor (1.77) was used to calculate the projected total traffic volumes on US Highway 24 west of Marksheffel Road.

Note: CDOT is in the process of preparing a US 24 Planning and Environmental Linkage (PEL) study. The projected daily traffic volumes presented as part of project public meetings indicate significantly higher volumes than those calculated based on the CDOT 20-year factor.

Projected lane geometry and traffic control modifications are shown in the attached Synchro reports.

US 24/Marksheffel

It is anticipated that the intersection of US 24/Marksheffel will be widened from four through lanes to six through lanes in the long term. Additionally, once funding becomes available, the intersection may be upgraded to a grade-separated interchange. The CDOT US 24 Planning and Environmental Linkage (PEL) study is in the process of identifying future lane and intersection needs.

Marksheffel/Meadowbrook

Traffic signal warrant thresholds are projected to be satisfied at the intersection of Marksheffel/ Meadowbrook in the short term (as discussed later in this report). As such, the intersection's traffic control would be converted from two-way stop-sign-controlled to signalized.

Existing Plus Site-Generated Traffic Volumes

Figure 6 shows the short-term total weekday traffic volumes, which are the sum of the site-generated weekday traffic volumes (from Figure 5) and the 2017 existing background weekday traffic volumes (from Figure 3).

Short-Term Background and Short-Term Background Plus Site-Generated Traffic Volumes

Figure 7 shows the projected short-term background (baseline) traffic volumes. These estimates have been based on the existing turning movement counts (from Figure 3) and the assumed project completion for the nearby Circle K gas station, Meadowbrook Crossing, and The Villas at Claremont. Projected short-term background plus site-generated weekday traffic volumes are shown in Figure 8.

Figure 8 shows the short-term total weekday traffic volumes, which are the sum of the site-generated weekday traffic volumes (from Figure 5) and the short-term background weekday traffic volumes (from Figure 7). Short-term traffic scenarios assume buildout of the nearby Circle K gas station, the Meadowbrook Crossing single-family residential development, and The Villas at Claremont Ranch townhome development before completion of this project.

2040 Background and 2040 Background Plus Site-Generated Traffic Volumes

Figure 9 shows the projected 2040 background traffic volumes. These have been estimated based on existing turning movement counts (from Figure 3), the *Marksheffel South Corridor Preservation Plan*, and expected future nearby development. Projected 2040 background plus site-generated weekday traffic volumes are shown in Figure 10.

Figure 10 shows the year 2040 total weekday traffic volumes, which are the sum of the site-generated weekday traffic volumes (from Figure 5) and the 2040 background weekday traffic volumes (from Figure 9).

A summary of 2040 background and background plus site-generated LOS and control delays for the study area signalized intersections and for individual turning movements during both peak hours is described below. Refer to Table 11 (attached) for a detailed table summary of each intersection.

LINK ADT VOLUME ANALYSIS/GENERAL ROADWAY LINK CAPACITY

Projected average daily traffic (ADT) volumes are within the County's design ADT threshold for the classification for streets in the vicinity of the site. For example, the County's design ADT threshold for an Urban Non-Residential Collector is 20,000 vehicles per day (vpd), which Meadowbrook Parkway is not projected to exceed in the 2040 background plus site-generated traffic scenario.

INTERSECTION LEVELS OF SERVICE

The following intersections were analyzed in Synchro and SimTraffic using the signalized method of analysis procedures from the *Highway Capacity Manual, 2010 Edition*:

- Marksheffel Road/US 24
- Marksheffel Road/Meadowbrook Parkway
- US 24/SH 94/Meadowbrook Parkway

The following intersections were analyzed in Synchro using the unsignalized method of analysis procedures from the *Highway Capacity Manual, 2010 Edition*:

- Meadowbrook Parkway/full-movement gas station/northern site access
- Meadowbrook Parkway/southern site access

A summary of projected short-term background and short-term background plus site-generated LOS and control delays during both peak hours is shown in Table 10 (attached).

Short Term

Marksheffel Road at Meadowbrook Parkway

Once signalized, this intersection is projected to operate at LOS B during both the morning and evening peak hours based on short-term background plus site-generated traffic conditions. During the long term, this intersection is projected to operate at LOS B during the morning and LOS C during the evening peak hours, respectively. All turning movements are projected to operate at LOS D or better in the short term upon site buildout.

Meadowbrook Parkway/Site Access Points

All projected levels of service for the side street approaches and the major street left-turn movements operate at LOS B or better at both site access point intersections during both the short- and long-term scenarios.

Marksheffel Road/US 24

The intersection of Marksheffel Road/US 24 is projected to operate at LOS E and LOS C overall during both the morning and evening short-term peak hours, respectively. Southeast left-, northwest through-, and northwest left-turning movements are projected to operate at LOS E or worse before and after considering site-generated traffic during both peak hours. All other turning movements at this intersection are projected to operate at LOS D or better during the short term upon site buildout.

US 24/SH 94

Overall, this intersection is projected to operate at LOS C during both the short-term morning and evening peak hours. The southeast- and northwest left-turning movements at this intersection besides southwest-left are projected to operate at LOS E during both peak hours based on projected short-term plus site-generated traffic conditions.

Long Term

Marksheffel Road/Meadowbrook Parkway

Overall, this intersection is projected to operate at LOS B during the 2040 morning peak hour and LOS C during the 2040 evening peak hour, both before and after considering site-generated traffic. Traffic modeling analysis assumed a traffic signal would be installed at the intersection of Marksheffel Road/Meadowbrook Parkway by 2040 and that the signal timings would be coordinated with the intersection of US 24/Marksheffel further to the south. Analysis shows several side street approaches operating at LOS E. Levels of service in the E range are due to the assumed long cycle length and minimum phase splits for eastbound/westbound to maximize green time and signal progression for northbound Marksheffel Road.

Meadowbrook Parkway/Site Access Points

All projected long-term levels of service for side street approaches and major street left-turn movements operate at LOS C or better at both site access point intersections.

Marksheffel Road/US 24

The intersection of Marksheffel Road/US 24 is projected to operate at LOS F overall during the 2040 morning peak hour and LOS E during the 2040 evening peak hour, with and without considering site-generated traffic. All left-turning movements are projected to operate at LOS E or worse before and after considering site-generated traffic during the morning peak hour. High through volumes on US 24 and a high eastbound to northbound left-turn volume (background traffic) are projected to result in LOS E overall operational performance during the 2040 evening peak hour.

US 24/SH 94

Due to high through volumes on US 24 and a high left-turn volume from westbound SH 94 to westbound US 24 (background traffic), the intersection of US 24/SH 94/Meadowbrook Parkway is projected to operate at LOS F overall during the 2040 morning peak hour and LOS E overall during the 2040 evening peak hour. All left-turning movements are projected to operate at LOS E or worse during both 2040 peak hours. All other approaches are projected to operate at LOS D or better.

TRAFFIC SIGNAL WARRANT ANALYSIS

The intersection of Marksheffel/Meadowbrook has the potential to meet (a) warrant(s) for a traffic control signal in the future. The combinations of projected major street approach volumes (includes the sum of eastbound and westbound approach volumes) and minor street volumes (northbound left turn) were analyzed to determine **if** the combination would exceed the threshold criteria for Four-Hour and/or Eight-Hour Vehicular Volume Traffic Signal Warrants in the *2009 Manual on Uniform Traffic Control Devices (MUTCD)*.

Projected volumes for two one-hour periods during the morning peak period, two one-hour midday periods, and four one-hour periods during the afternoon have been analyzed:

- 6:30 – 8:30 a.m.
- 11:30 a.m. – 1:30 p.m.
- 2:00 – 6:00 p.m.

The Four-Hour Volume and Eight-Hour Volume Warrant criteria have been presented earlier in the Existing Conditions section of this report.

Short-Term Background Conditions

The need for a traffic signal at the intersection of Marksheffel/Meadowbrook was assessed for the short-term background condition. Turning movement counts for this scenario (shown in Figure 7) assumed project completion for the nearby Circle K gas station, Meadowbrook Crossing, and The

Villas at Claremont Ranch townhomes. Site-generated traffic volumes associated with this project were not considered in this scenario.

Four-Hour Vehicular Volume Warrant

Results from the four-hour traffic signal warrant analysis for the short-term background plus site traffic scenario are shown in the Warrant 2, Four-Hour Vehicular Volume (MUTCD Figure 4C-1) signal warrant chart in Figure 12. Projected combined major/minor street volumes for four separate one-hour periods during the afternoon peak **would** be above the minimum threshold curve for an intersection with two or more lanes for both the major approaches and the minor (eastbound) approach. Thus, a Four-Hour Vehicular Volume warrant would be satisfied.

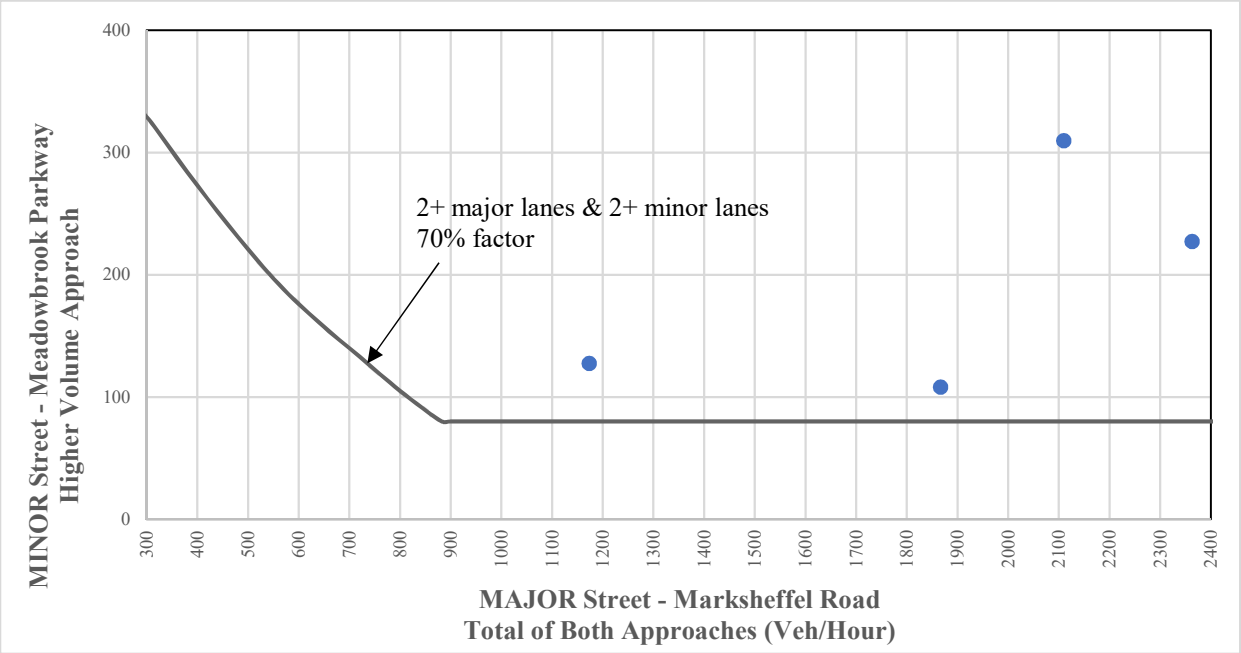


Figure 12: Four-Hour Traffic Signal Warrant Analysis Results

Table 5 shows the major/minor street volume combinations plotted in Figure 12.

Table 5: Major/Minor Street Volumes for Four-Hour Volume Signal Warrant (Short-Term Background Plus Site Traffic Condition)

Start	End	Major Street Volume	Minor Street Volume	4-Hour Warrant Threshold Met?
7:30	8:30	1,812	108	Yes
3:00	4:00	1,155	127	Yes
4:00	5:00	2,300	227	Yes
5:00	6:00	2,054	310	Yes
# of hours meeting warrant thresholds/hours required to satisfy the warrant (warrant satisfied?)				***4 / 4 (Yes)***

Eight-Hour Vehicular Volume Warrant

All eight one-hour analysis periods are projected to meet eight-hour vehicular volume criteria for the short-term background plus site-generated traffic condition. A minimum of 630 vehicles on the major street (total of both approaches) and 70 vehicles (higher-volume minor street approach, one direction only) are required during each of the eight hours analyzed. Refer to Table 6 for the major/minor street volume combinations used for the Eight-Hour Vehicular Volume Warrant analysis.

Table 6: Major/Minor Street Volumes for Eight-Hour Signal Warrants (Short-Term Background)

Start	End	Major Street Volume	Minor Street Volume	8-Hour Warrant Threshold Met?
6:30	7:30	2148	103	Yes
7:30	8:30	1860	134	Yes
11:30	12:30	944	78	Yes
12:30	1:30	983	120	Yes
2:00	3:00	1173	128	Yes
3:00	4:00	1787	127	Yes
4:00	5:00	2363	227	Yes
5:00	6:00	2110	310	Yes
# of hours meeting respective warrant thresholds/hours required to satisfy the warrant (warrant satisfied?)				***8 / 8 (Yes)***

VEHICLE QUEUING ANALYSIS

A queuing analysis was performed for the eastbound approach at the intersection of Meadowbrook Road/Marksheffel Road and for the westbound left turn at the east site access. Queue lengths have also been projected for other key turning movements at this intersection. Table 7 and Table 8 present the results of the analysis.

Both tables show the anticipated available back-to-back left-turn vehicle storage lengths and the available stacking distance between the two intersections for the eastbound through/right lane. These left-turn stacking lengths have been based on the short- and long-term striping plans for Meadowbrook Parkway. The latter distance is a function of the intersection spacing.

The short-term and long-term analyses assume restriping for dual left-turn lanes on this same approach. These analyses have been run utilizing the projected short-term background plus site-generated and 2040 background plus site-generated traffic volumes.

Figure 14 contains a visual of the key turning movements analyzed with respect to queuing in Table 7 and Table 8 at the intersection of Marksheffel/Meadowbrook and the proposed north site access on Meadowbrook Parkway.

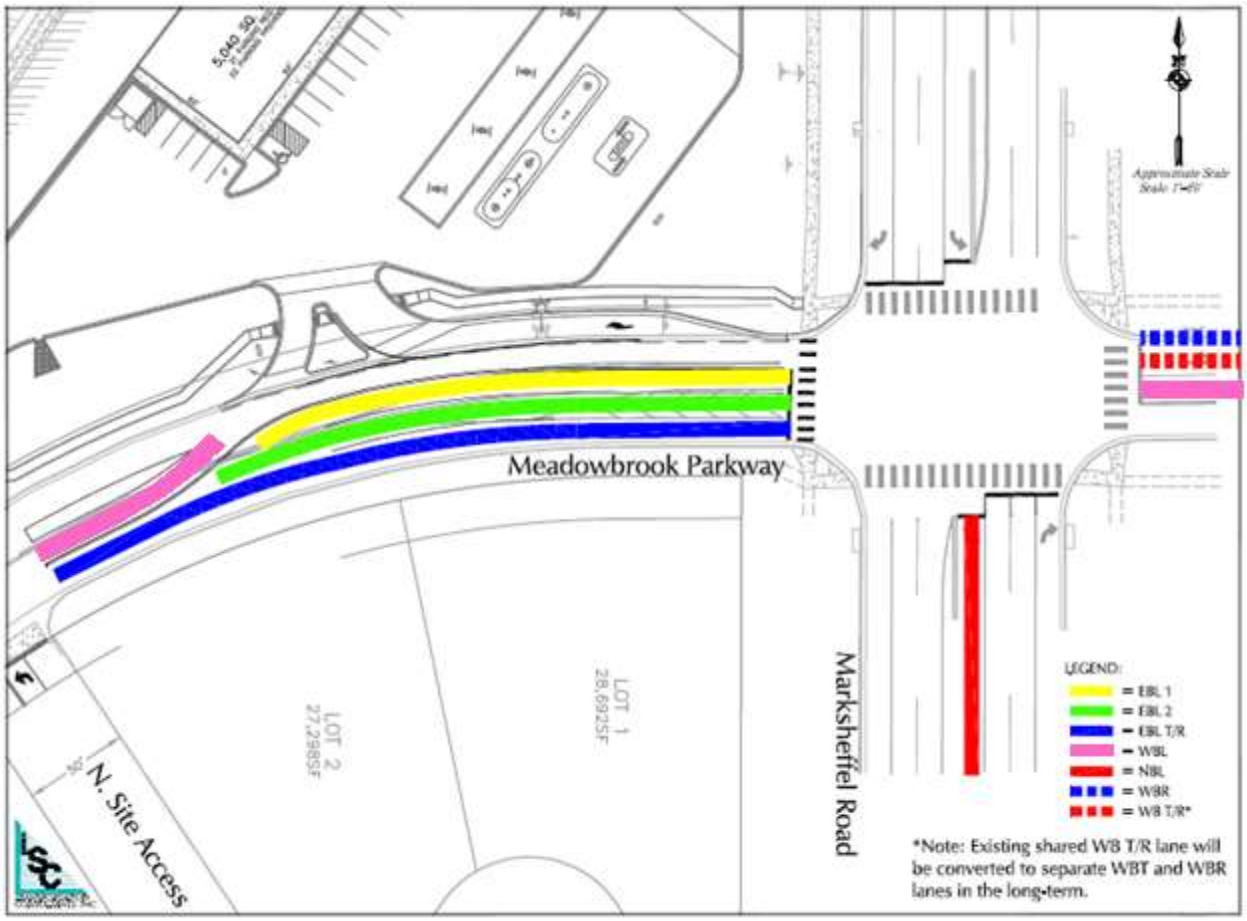


Figure 14: Queuing Analysis Lane Configurations

Short-Term Background Plus Site-Generated Buildout Queuing

Table 7 summarizes queueing analysis results assuming short-term site buildout traffic added to the projected short-term background traffic volumes. The effective left-turn lane stacking length for this eastbound approach will be about 250 feet based on the proposed striping plan. Simulations indicated that if the intersection were to **remain stop-sign-controlled**, the queue would **not** exceed the stacking length during the peak 15-minute interval throughout both the morning and evening peak hours. If a traffic signal is installed, the eastbound left-turn lane queue is **not** projected to exceed the available stacking distance during either peak hour.

Table 7: Queuing Analysis Results (Short-Term Background Plus Site-generated Traffic)

Intersection	Lane	Storage Length (ft)	Max Queue (ft) AM	Max Queue (ft) PM	Storage Block Time (%) AM	Storage Block Time (%) PM
Short-Term Background + Site (Assuming Current Two-Way Stop-Control)						
Marksheffel @ Meadowbrook	EBL 1	225'	174'	186'	0%	0%
	EBL 2	250'	189'	206'	0%	0%
	EB T/R	390'	41'	119'	0%	0%
	WBL	400'	145'	44'	0%	0%
	WB T/R	---	193'	128'	0%	0%
	NBL	425 '	140'	51'	0%	0%
N Access	WBL	85'	31'	37'	0%	0%
Short-Term Background + Site (w/ Traffic Signal)						
Marksheffel @ Meadowbrook	EBL 1	225'	92'	135'	0%	0%
	EBL 2	250'	106'	158'	0%	0%
	EB T/R	390'	102'	134'	0%	0%
	WBL	400'	30'	69'	0%	0%
	WB T/R	---	48'	65'	0%	0%
	NBL	425 '	188'	72'	0%	0%
N Access	WBL	85'	31'	49'	0%	0%

The northbound left-turn queue on Marksheffel Road approaching Meadowbrook Parkway is projected to be 140 feet and 51 feet long during the short-term morning and evening peak hours, respectively, if the intersection were to remain stop-sign-controlled. Based on the projected short-term total traffic volumes, these queue lengths would decrease to 188 feet and 172 feet, respectively, if a traffic signal control were installed at this intersection, which is less than the 425 feet of available stacking distance for this turn lane.

The proposed westbound left-turn lane into the north site access point from Meadowbrook Parkway is 85 feet long plus taper. This available stacking distance would provide adequate storage capacity for projected site driveway volumes.

2040 Background Plus Site-Generated Queuing

Assuming restriping for future dual eastbound left-turn lanes on the Meadowbrook Parkway approach to Marksheffel Road and based on projected 2040 projected total volumes, the maximum eastbound left-turn queue is projected to be about 131 and 389 feet upon site buildout during the morning and evening peak hours, respectively, for the inner and outer left-turn lanes. The effective left-turn storage length of the outside left-turn lane will be about 250 feet as shown on the Meadowbrook Parkway restriping plan and the simulation indicated storage block time of 25 percent.

Table 8: Queuing Analysis Results (2040 Background Plus Site-generated Traffic)

Intersection	Lane	Storage Length (ft)	Max Queue (ft) AM	Max Queue (ft) PM	Storage Block Time (%) AM	Storage Block Time (%) PM
2040 Background + Site (Signal)						
Marksheffel @ Meadowbrook	EBL 1	225'	107'	317'	0%	10%
	EBL 2	250'	131'	389'	0%	18%
	EB T/R	390'	170'	405'	0%	25%
	WBL	400'	259'	217'	0%	0%
	WBT	---	234'	136'	0%	0%
	WBR	400'	91'	131'	0%	0%
	NBL	425'	205'	134'	0%	0%
N Access	WBL	85'	53'	53'	0%	0%

The projected northbound left-turn queue on Marksheffel Road approaching Meadowbrook Parkway is projected to be about 205 feet and 134 feet long during the 2040 morning and evening peak hours, respectively. These queue lengths are based on the projected long-term total traffic volumes, assuming traffic signal control at this intersection. The full-width lane length not including taper is about 425 feet.

The proposed westbound left-turn lane into the north driveway from Meadowbrook Parkway is 85 feet long plus taper. The queuing analysis indicates the projected maximum queue for this turn lane would reach a length of 53 feet.

CONCLUSIONS AND RECOMMENDATIONS

Trip Generation

Anticipated site land uses consisting of commercial uses on the north portion and industrial park uses on the south portion of the site are projected to generate about 2,924 external, non-pass-by vehicle-trips on the average weekday, with about half entering and half exiting the site. Projected morning **peak-hour** trip generation for the site (total "driveway" trips) is 85 entering and 35 exiting trips. Projected evening **peak-hour** trip generation for the site (total "driveway" trips) is 128 entering and 169 exiting trips. Both estimates assume that about four percent of the commercial site-generated trips to be internal.

Level of Service Analysis

The intersection of Marksheffel/Meadowbrook is projected to operate at LOS B during both the morning and evening peak hours upon site buildout, assuming a traffic signal is installed. If the intersection were to remain two-way stop sign-controlled, all eastbound and westbound turn lanes are projected to operate at LOS F with significant control delay. Overall, this intersection is projected to operate at LOS B during the 2040 morning peak hour and LOS C during the 2040 evening peak hour if signalized, both before and after considering site-generated traffic. All proposed site access points are projected to operate at satisfactory levels of service.

Please refer to the Level of Service section above for the complete and detailed intersection level of service analysis.

Traffic Signal Warrant Analysis

The intersection of Marksheffel/Meadowbrook is projected to meet the MUTCD thresholds for both a Four-Hour and Eight-Hour Vehicular Volume Traffic Signal Warrant in the **short-term background traffic scenario** based on the eight hours analyzed. This scenario assumes buildout of the nearby planned Circle K gas station, Meadowbrook Crossing subdivision, and The Villas at Claremont Ranch proposed townhome project. Signal warrants are guidelines and a decision to install this traffic signal and the timing of installation rests with El Paso County. Signal plans have been prepared. The traffic signal at Meadowbrook/Marksheffel will likely need to be coordinated with the signal at US Highway 24/Marksheffel.

Queuing Analysis

A queuing analysis was performed for the Meadowbrook/Marksheffel intersection. Short-term scenario simulations indicate that if the intersection were to remain **stop-sign-controlled** or if a **traffic signal** were to be installed, the queue would not exceed the stacking length during both the morning and evening peak hours.

Long-term simulations indicated that the eastbound left-turn queue is projected to exceed this lane length 25 percent of the time during the peak 15-minute interval during the evening peak hour.

Please refer to the Queuing Analysis section above for the complete queuing analysis and queue length results.

Intersection Lane Configuration and Traffic Control Recommendations

Current and recommended intersection lane configurations and traffic controls are shown in the attached striping plan. As discussed in the Traffic Signal Warrant Analysis section earlier in this report, it is recommended that a traffic signal be installed at the intersection of Marksheffel/ Meadowbrook in the short term.

The following intersection lane configuration modifications are recommended, by intersection:

- Marksheffel/Meadowbrook:
    - Eastbound – restripe for dual left-turn lanes (once needed).
    - Westbound – A separate westbound right-turn lane on Meadowbrook Parkway may need to be added with the future commercial development on the southeast corner of the intersection. It is our understanding that sufficient land will be provided by the proposed townhome development on the northeast corner to accommodate a future exclusive right turn lane.
- Meadowbrook/site accesses:
    - Westbound – auxiliary left-turn bays for entering vehicles – accomplished through restriping.

- Marksheffel/US 24 and US 24/Meadowbrook:
  - The CDOT PEL study is currently evaluating the options for expansion of US Highway 24. The Marksheffel widening project was recently completed.

Auxiliary Turn Lane Recommendations

According to the El Paso County *Engineering Criteria Manual* (ECM), exclusive left-turn lanes shall be provided for any access on a Minor Arterial or Collector with a projected peak-hour ingress turning volume of 25 vehicles per hour (vph) or greater. The projected left turn volumes at both site access points are expected to exceed the minimum left-turn volume thresholds outlined in the *ECM* upon site buildout.

Please refer to the Meadowbrook Parkway striping plan (reduced copy attached), which shows the proposed long-term configuration of the back-to-back left-turn lanes on Meadowbrook Parkway between the northeast site access and Marksheffel Road and between the north and south access points for this project. The outside eastbound left-turn lane at Marksheffel/Meadowbrook may be striped-out until operation with dual left-turn lanes is necessary.

Northeast-bound right-turn deceleration lanes would not be needed at either of the two site access points.

Traffic Signal Cost-Sharing/Participation

This project has no direct responsibility/obligation for funding the planned traffic signal at Marksheffel/Meadowbrook. This property is part of the Central Marksheffel Metropolitan District, which is responsible for funding the planned signal.

* * * * *

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

Sincerely,

LSC TRANSPORTATION CONSULTANTS, INC.

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

JCH:JAB:bjwb

Enclosures: Table 9 – Table 11
Figure 1 – Figure 10
Meadowbrook Parkway Striping Plan
Traffic Count Reports
Level of Service Reports
Queuing Analysis Reports

Table 9: Trip Generation Estimate and Comparison

ITE				Trip Generation Rates (1)						Driveway Trips				
Code	Description	Value	Units	Avg Weekday Traffic	A.M. In	A.M. Out	P.M. In	P.M. Out	% Internal Trips	Avg Weekday Traffic	A.M. In	A.M. Out	P.M. In	P.M. Out
820	Shopping Center	27.80	KSF(2)	106.30	1.53	0.83	4.21	4.57	4%	2837	42	23	117	127
130	Industrial Park	6.26	Acres(3)	61.17	6.81	1.39	1.79	6.74	0%	383	43	9	11	42
									Total	**3220**	**85**	**32**	**128**	**169**

ITE			Pass-by Trips						Non-Pass-by Trips				
Code	Description	% Pass-by Trips	Avg Weekday Traffic	A.M. In	A.M. Out	P.M. In	P.M. Out	% Non-Pass-by Trips	Avg Weekday Traffic	A.M. In	A.M. Out	P.M. In	P.M. Out
820	Shopping Center	10%	296	4	2	12	13	90%	2541	38	21	105	114
130	Industrial Park	0%	0	0	0	0	0	100%	383	43	9	11	42
		Total	**296**	**4**	**2**	**12**	**13**	**Total**	**2924**	**81**	**29**	**117**	**156**

(1) Source: "Trip Generation, 9th Edition, 2012" by the Institute of Transportation Engineers (ITE)
(2) KSF = 1,000 square feet of floor space
(3) Note: “Acres” refers to developable acres

Table 10: Comparison of Projected Peak-Hour LOS and Control Delays by Intersection (A.M.)

Scenario	US 24 @ Marksheffel										Marksheffel @ Meadowbrook Pkwy										US 24 @ SH 94/Meadowbrook Pkwy										Meadowbrook			South Access				North Access/Mobil				
	Control	Overall	SEL	SET	NWL	NWT	NEL	NET	SWL	SWT	Control	Overall	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	Control	Overall	SEL	SET	NWL	NWT	NEL	NET	SWL	SWT	Control	NER	SWL	Control	WBL	WBR	SBL	Control	NBL	NBR	WBL	SBL
LOS																																										
Short-Term Background	Signal	E	F	C	E	C	F	C	F	D	TWSC	F	F	F	F	F	B	A	A	A	Signal	C	E	D	E	D	D	B	A	C	Two-Way Stop Sign Control	A	A	Two-Way Stop Sign Control	-	-	-	Two-Way Stop Sign Control	-	-	-	-
Short-Term Background		E	F	C	E	C	F	C	F	D	Signal	B	D	C	D	C	B	B	A	A		C	E	D	E	D	D	B	A	C		A	A		-	-	-		-	-	-	-
Short-Term Background + Site		E	F	C	E	C	F	C	F	D	TWSC	F	F	F	F	F	C	A	A	A		C	E	D	E	D	D	B	A	C		A	A		B	A	A		B	A	A	A
Short-Term Background + Site		E	F	C	E	C	F	C	F	D	Signal	B	D	C	D	C	B	B	A	B		C	E	D	E	D	D	B	A	C		A	A		B	A	A		B	A	A	A
2040 Background		F	F	C	E	D	F	C	F	D		B	D	D	E	E	D	B	A	B		F	E	D	F	D	E	B	A	F		C	C		-	-	-		-	-	-	-
2040 Background + Site		F	F	C	E	D	F	C	F	D		B	D	D	E	E	D	B	A	B		F	E	D	F	D	F	B	A	F		C	C		B	A	A		A	A	A	B
Control Delay (Seconds)																																										
Short-Term Background	Signal	59.2	99.2	23.5	62.7	25.9	101.0	28.9	310.7	35.6	TWSC	-	-	-	-	1081.5	14.6	0.0	8.5	0.0	Signal	22.1	58.0	52.9	57.6	45.5	36.6	12.2	7.5	24.0	Two-Way Stop Sign Control	0.0	8.4	Two-Way Stop Sign Control	-	-	-	Two-Way Stop Sign Control	-	-	-	-
Short-Term Background		59.2	99.2	23.5	62.7	25.9	101.0	28.9	310.7	35.6	Signal	11.4	51.8	31.9	49.3	26.1	11.1	13.0	3.8	9.1		22.1	58.0	52.9	57.6	45.5	36.6	12.2	7.5	24.0		0.0	8.4		-	-	-		-	-	-	-
Short-Term Background + Site		60.2	99.7	22.8	62.7	25.9	112.8	28.9	310.7	35.6	TWSC	-	-	-	-	1142.2	16.0	0.0	8.5	0.0		22.5	57.9	53.0	57.6	45.5	41.4	12.2	7.5	24.3		0.0	8.4		10.5	8.7	7.4		11.4	3.0	2.3	5.7
Short-Term Background + Site		60.2	99.7	22.8	62.7	25.9	112.8	28.9	310.7	35.6	Signal	12.5	52.1	29.7	49.1	27.8	13.1	13.2	3.8	10.4		22.5	57.9	53.0	57.6	45.5	41.4	12.2	7.5	24.3		0.0	8.4		10.5	8.7	7.4		11.4	4.2	2.4	7.2
2040 Background		150.8	177.8	30.6	145.3	35.2	229.2	33.2	1090.7	53.3		16.1	53.5	50.5	55.5	63.6	36.7	13.8	4.8	12.7		127.4	60.1	53.9	369.7	46.9	70.5	15.9	8.8	140.0		15.7	23.1		-	-	-		-	-	-	-
2040 Background + Site		152.2	190.2	30.3	63.0	35.3	248.2	33.2	1090.7	52.9		17.3	51.3	49.9	56.6	64.8	51.6	14.2	4.8	13.1		128.3	60.1	54.1	369.7	46.9	86.8	15.9	8.8	150.3		16.0	23.9		13.5	9.2	7.6		5.8	3.8	3.7	11.7

Table 11: Comparison of Projected Peak-Hour LOS and Control Delays by Intersection (P.M.)

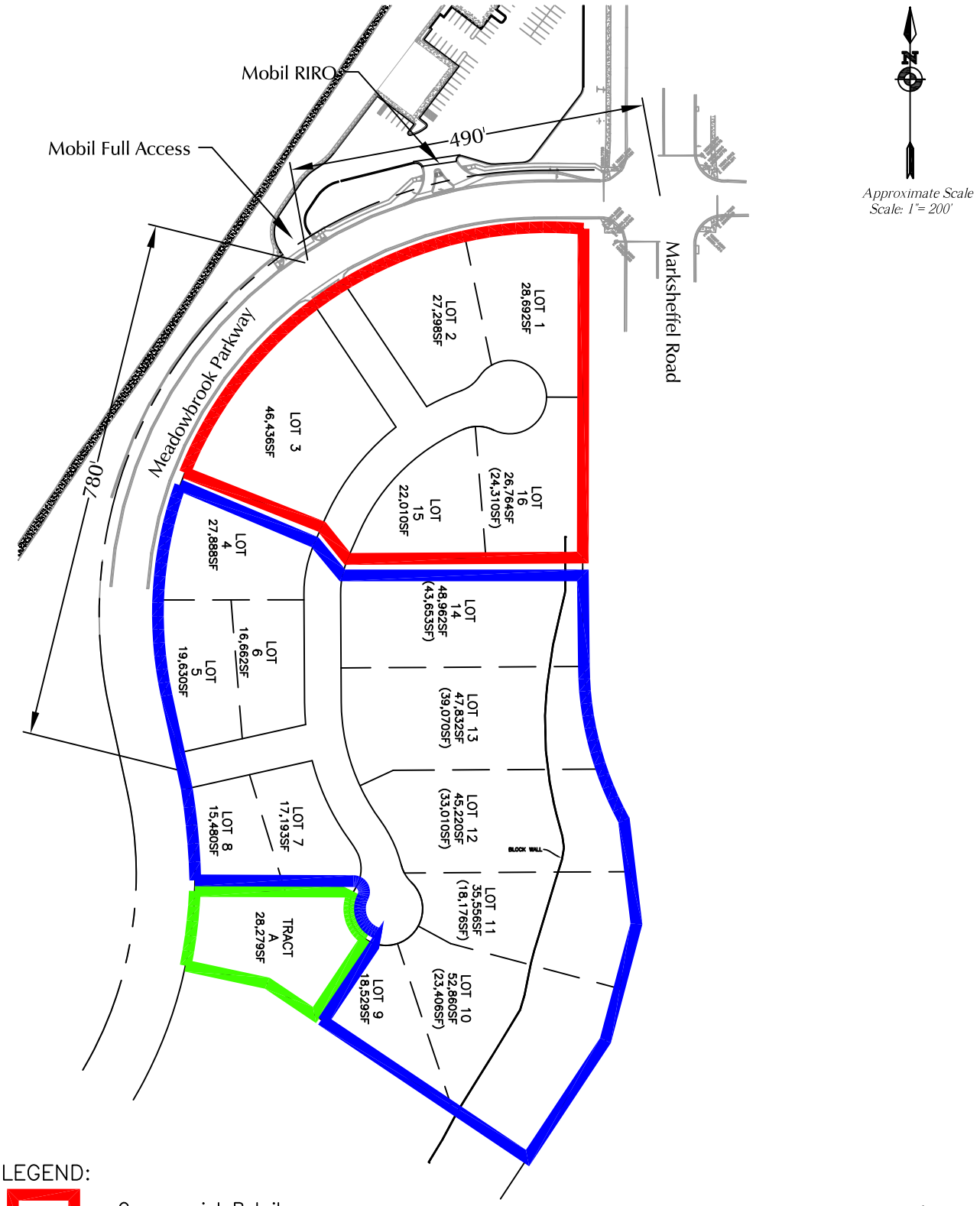
Scenario	US 24 @ Marksheffel										Marksheffel @ Meadowbrook Pkwy										US 24 @ SH 94/Meadowbrook Pkwy										Meadowbrook			South Access				North Access/Mobil				
	Control	Overall	SEL	SET	NWL	NWT	NEL	NET	SWL	SWT	Control	Overall	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	Control	Overall	SEL	SET	NWL	NWT	NEL	NET	SWL	SWT	Control	NER	SWL	Control	WBL	WBR	SBL	Control	NBL	NBR	WBL	SBL
LOS																																										
Short-Term Background	Signal	C	F	C	E	D	D	B	E	D	TWSC	F	F	F	F	F	A	A	A	A	Signal	C	E	D	F	D	B	B	A	B	Two-Way Stop Sign Control	A	A	Two-Way Stop Sign Control	-	-	-	Two-Way Stop Sign Control	-	-	-	-
Short-Term Background		C	F	C	E	D	D	B	E	D	Signal	A	D	D	D	C	A	A	A	A		C	E	D	F	D	B	B	A	B		A	A		-	-	-		-	-	-	-
Short-Term Background + Site		C	F	C	E	D	D	C	E	D	TWSC	F	F	F	F	F	A	A	A	A		C	E	D	F	D	B	B	A	B		A	A		B	A	A		A	A	A	A
Short-Term Background + Site		C	F	C	E	D	D	C	E	D	Signal	B	D	C	D	C	A	A	A	B		C	E	D	F	D	B	B	A	B		A	A		B	A	A		A	A	A	A
2040 Background		E	F	C	E	E	F	D	F	D		C	E	D	E	E	A	C	D	B		E	F	E	F	D	F	C	A	B		A	F		-	-	-		-	-	-	-
2040 Background + Site		E	F	C	E	E	F	D	F	D		C	E	E	E	E	A	C	D	B		E	F	E	F	D	F	C	A	B		A	F		C	B	A		B	B	A	C
Control Delay (Seconds)																																										
Short-Term Background	Signal	32.6	83.6	34.2	66.1	49.8	37.8	19.4	68.8	45.5	TWSC	-	-	-	-	1183.5	9.3	0.0	13.4	0.0	Signal	33.3	62.0	51.4	141.8	46.6	13.6	15.0	7.5	17.1	Two-Way Stop Sign Control	0.0	8.6	Two-Way Stop Sign Control	-	-	-	Two-Way Stop Sign Control	-	-	-	-
Short-Term Background		32.6	83.6	34.2	66.1	49.8	37.8	19.4	68.8	45.5	Signal	8.7	51.2	35.2	47.5	30.1	3.6	5.2	5.5	8.0		33.3	62.0	51.4	141.8	46.6	13.6	15.0	7.5	17.1		0.0	8.6		-	-	-		-	-	-	-
Short-Term Background + Site		34.2	110.1	31.9	66.1	49.7	41.8	21.5	69.0	45.4	TWSC	-	-	-	-	1269.5	9.7	0.0	13.3	0.0		33.1	61.5	51.3	141.8	46.6	16.4	14.9	7.5	17.2		0.0	8.6		11.2	9.2	7.6		7.1	5.1	2.7	7.7
Short-Term Background + Site		34.2	110.1	31.9	66.1	49.7	41.8	21.5	69.0	45.4	Signal	11.2	50.8	32.3	44.8	31.2	4.0	6.0	6.6	10.7		33.1	61.5	51.3	141.8	46.6	16.4	14.9	7.5	17.2		0.0	8.6		11.2	9.2	7.6		7.1	4.7	3.1	6.7
2040 Background		68.1	112.0	26.4	66.1	50.1	181.1	46.4	119.8	51.0		22.3	56.6	48.6	57.6	61.8	7.0	20.3	45.5	12.1		76.1	261.8	58.2	419.5	51.7	194.7	28.8	8.6	19.3		0.0	-		-	-	-		-	-	-	-
2040 Background + Site		75.2	192.2	25.9	66.1	63.5	208.7	45.9	158.6	50.9		25.4	61.5	66.1	56.9	60.7	7.5	22.6	48.3	13.8		79.6	261.8	58.1	419.5	51.7	265.3	28.3	8.6	19.4		0.0	-		22.0	11.7	8.5		18.5	15.6	5.2	26.4

Approximate Scale
Scale: 1"= 1,200'

Figure 1

Vicinity Map

Claremont Commercial Subdivision Filing No. 2 (LSC #164840)



LEGEND:

= Commercial Retail

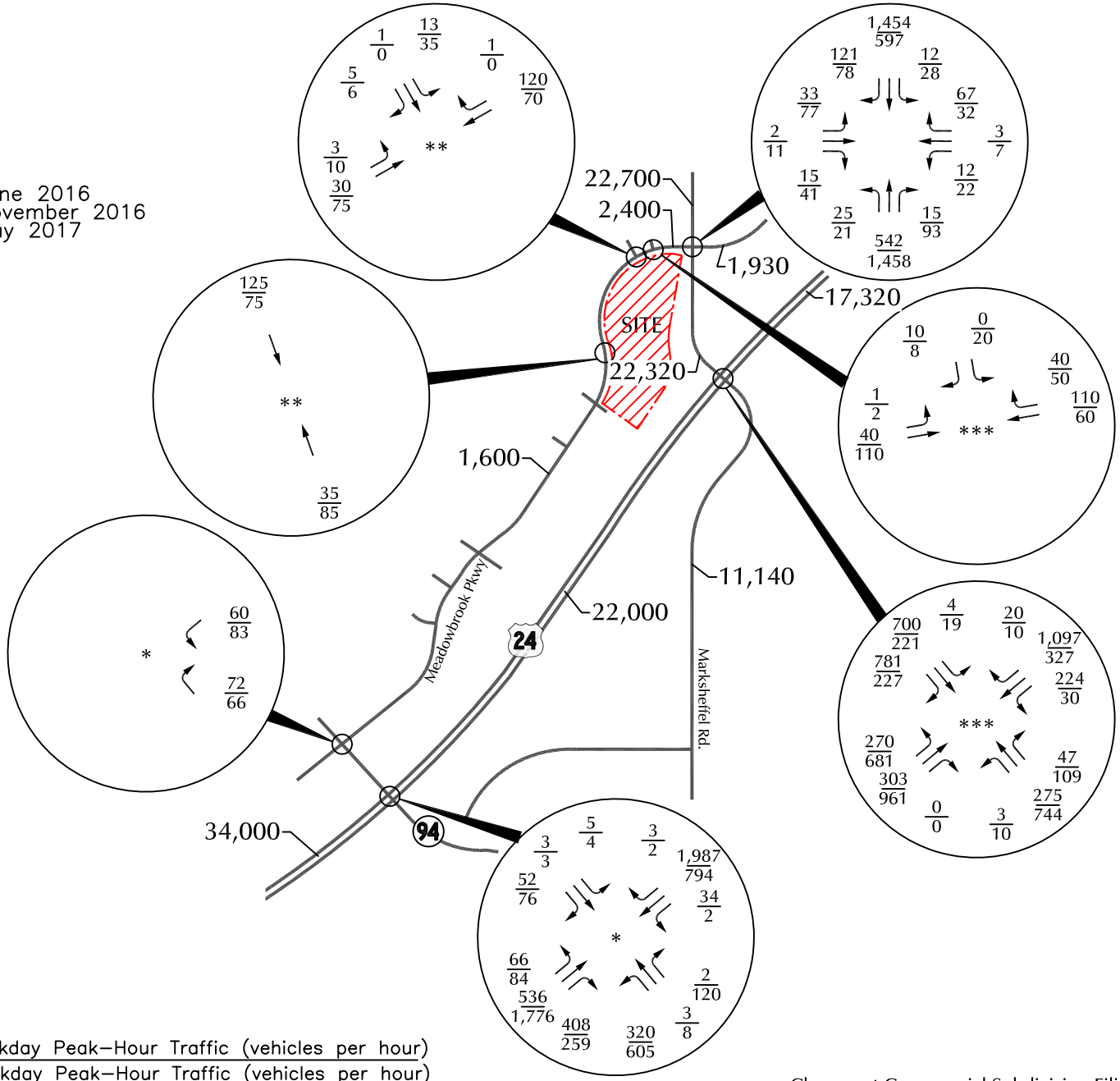
= Industrial Park

= Drainage Area

Figure 2

Site Plan

Claremont Commercial Subdivision Filing No. 2 (LSC #164840)



LEGEND:

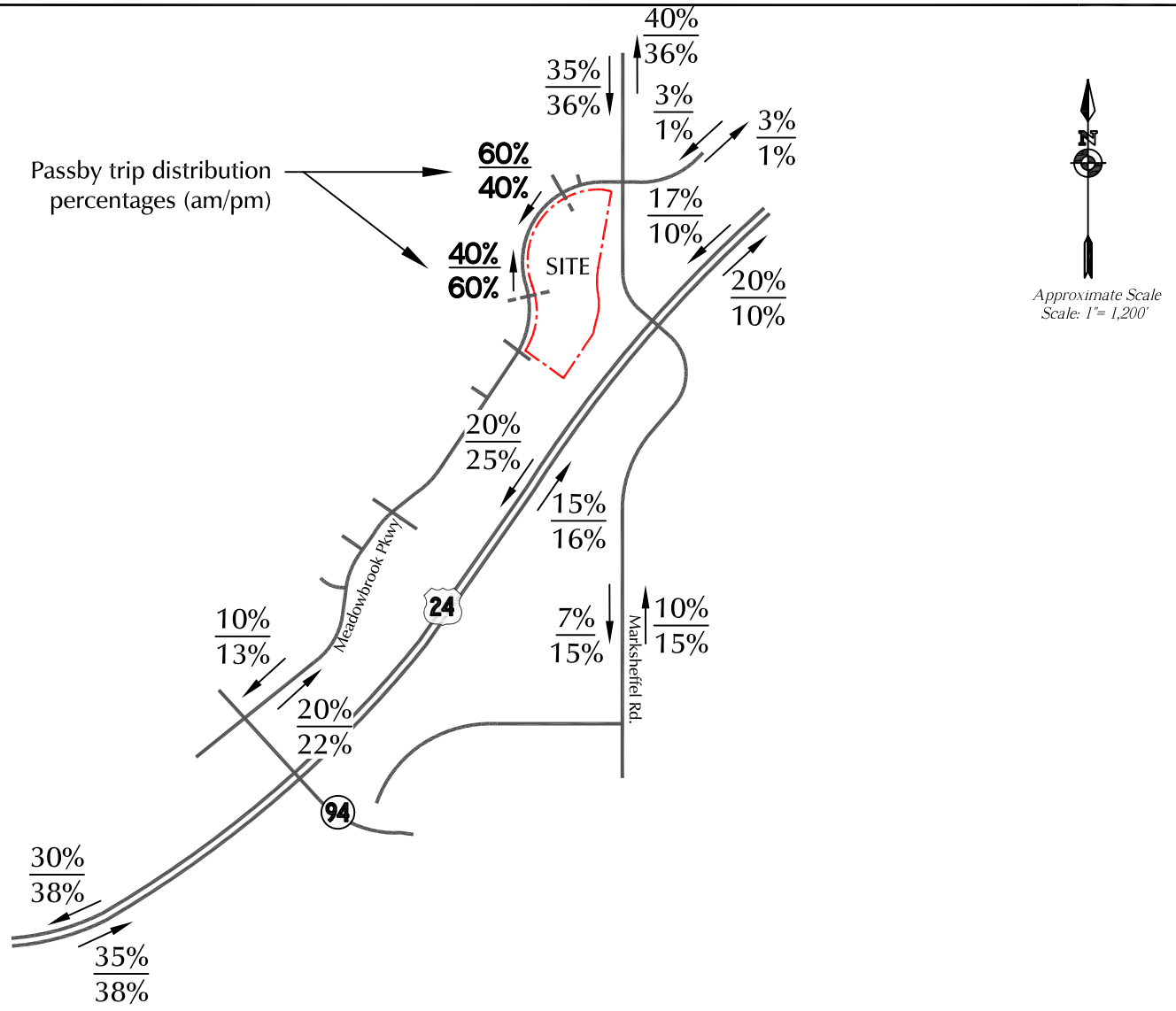
$\frac{XX}{XX}$ = $\frac{\text{AM Weekday Peak-Hour Traffic (vehicles per hour)}}{\text{PM Weekday Peak-Hour Traffic (vehicles per hour)}}$

XXX = Average Daily Traffic

Figure 3

Existing Traffic

Claremont Commercial Subdivision Filing No. 2 (LSC #164840)



LEGEND:

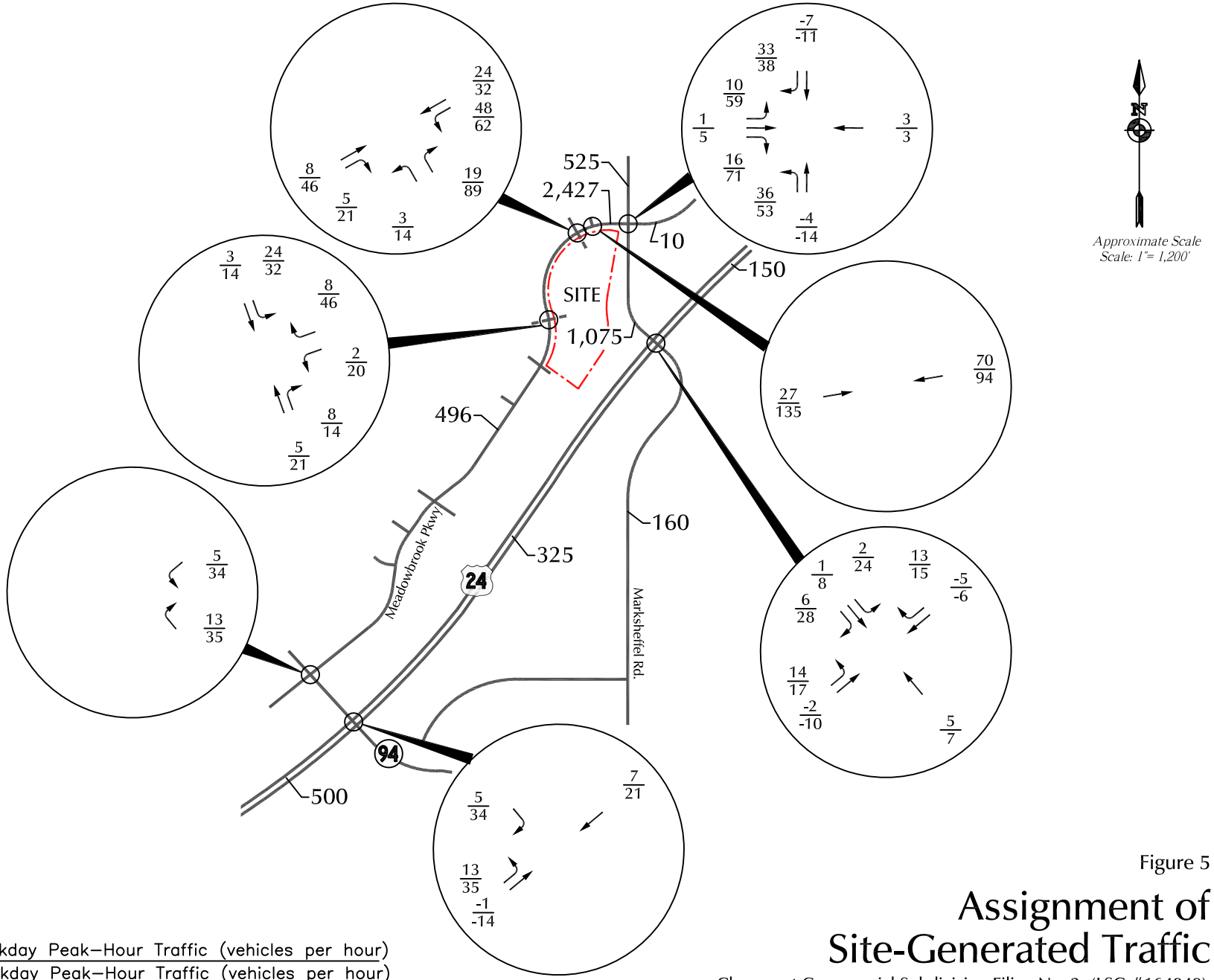
$\frac{35\%}{25\%}$ = $\frac{\text{Percent Directional Distribution (Commercial)}}{\text{Percent Non–Passby* Trip Directional Distribution (Industrial Park)}}$

*Blended percentages of primary + diverted trips distribution

Figure 4

Directional Distribution of Site-Generated Traffic

Claremont Commercial Subdivision Filing No. 2 (LSC #164840)



LEGEND:

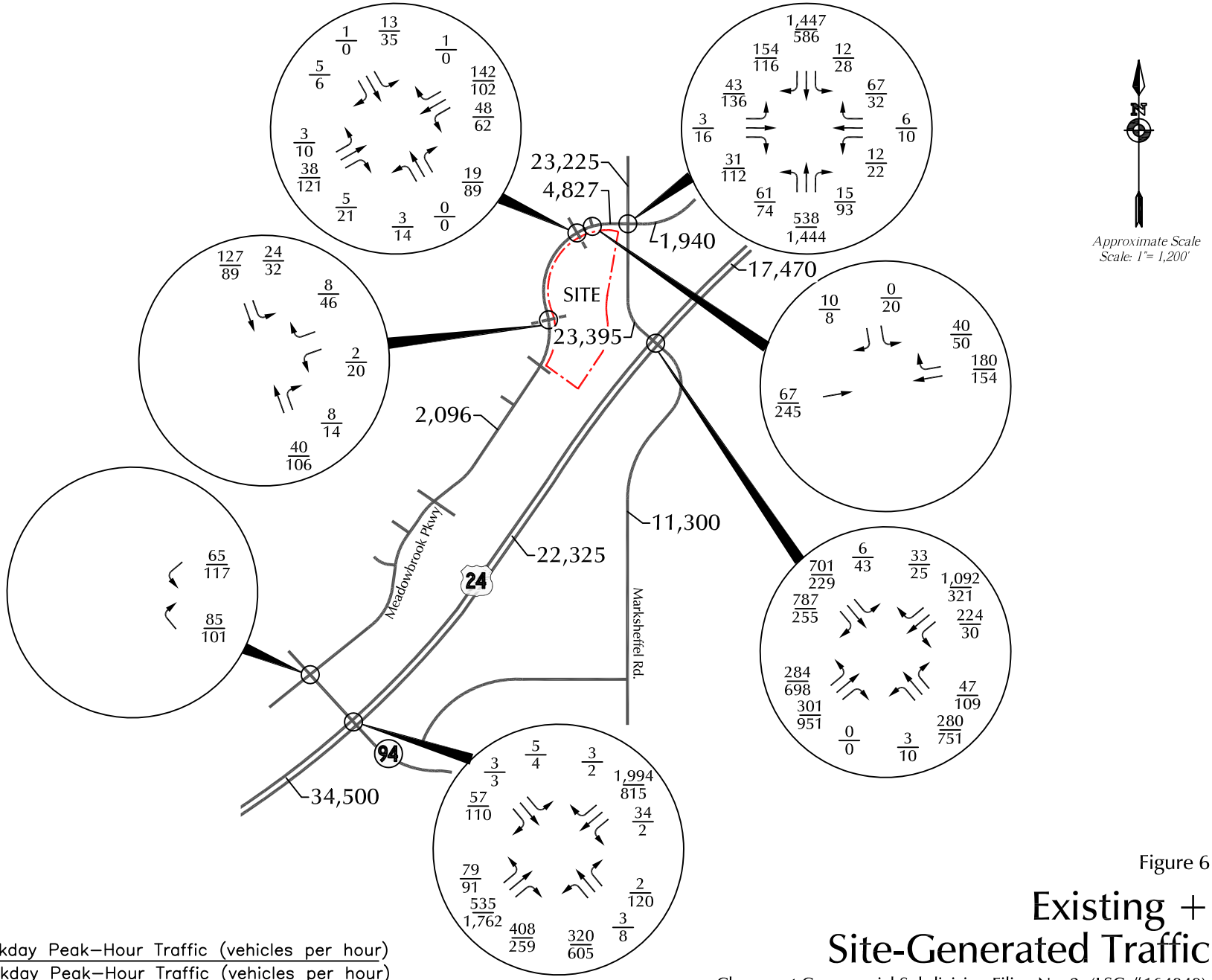
$\frac{XX}{XX}$ = $\frac{\text{AM Weekday Peak-Hour Traffic (vehicles per hour)}}{\text{PM Weekday Peak-Hour Traffic (vehicles per hour)}}$

XXX = Average Daily Traffic

Figure 5

Assignment of Site-Generated Traffic

Claremont Commercial Subdivision Filing No. 2 (LSC #164840)



LEGEND:

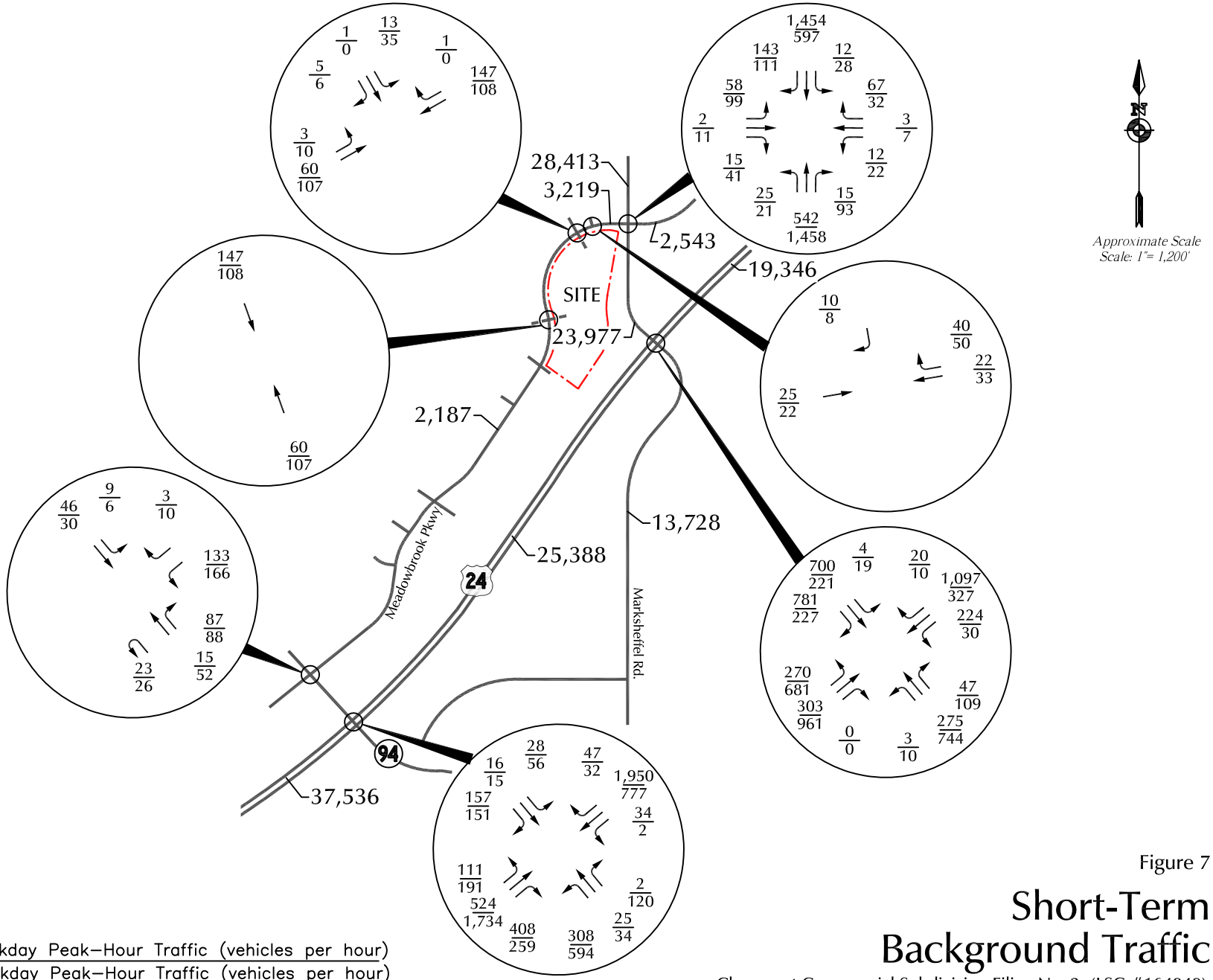
$\frac{XX}{XX}$ = $\frac{\text{AM Weekday Peak–Hour Traffic (vehicles per hour)}}{\text{PM Weekday Peak–Hour Traffic (vehicles per hour)}}$

XXX = Average Daily Traffic

Figure 6

Existing + Site-Generated Traffic

Claremont Commercial Subdivision Filing No. 2 (LSC #164840)



LEGEND:

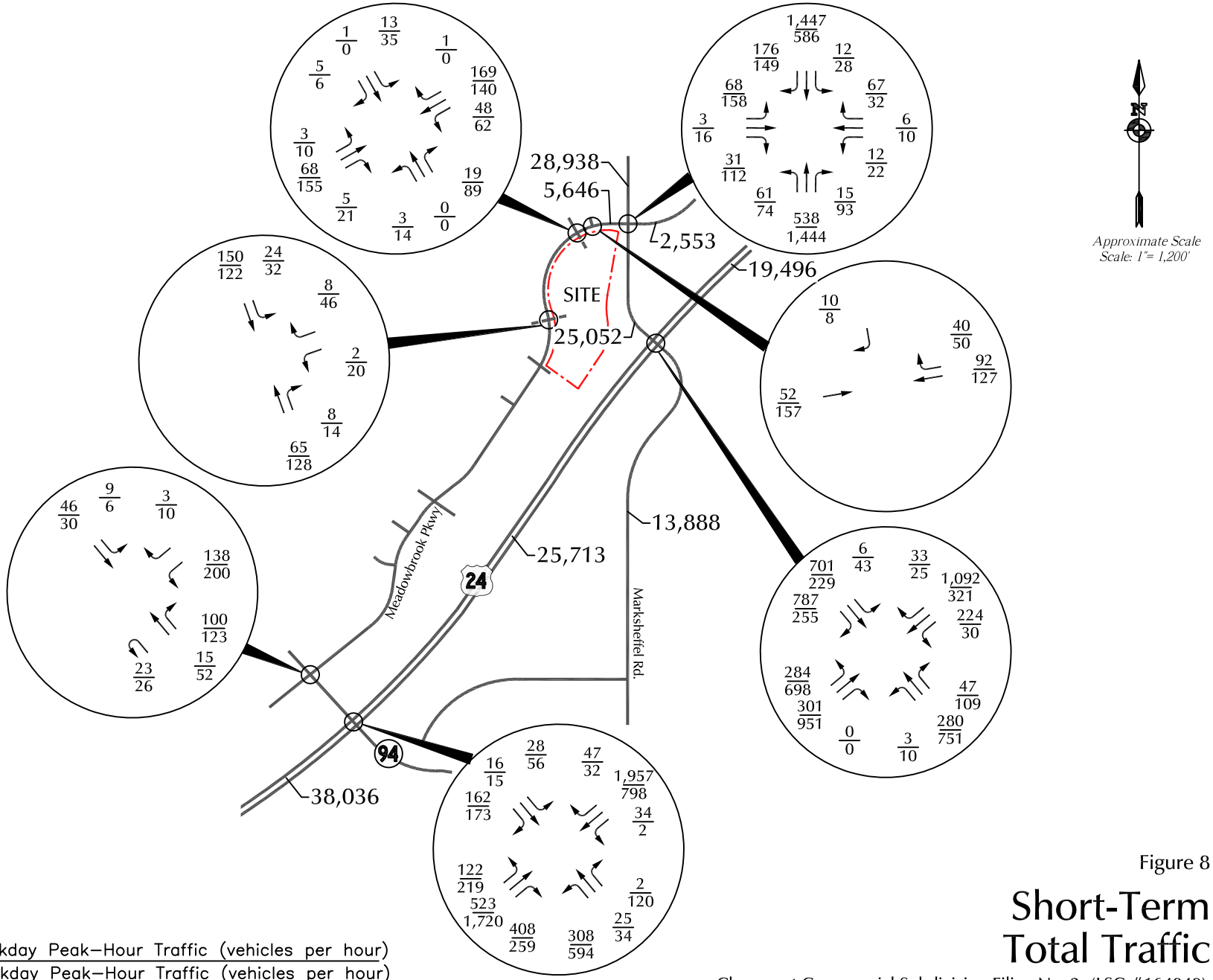
$\frac{XX}{XX}$ = $\frac{\text{AM Weekday Peak-Hour Traffic (vehicles per hour)}}{\text{PM Weekday Peak-Hour Traffic (vehicles per hour)}}$

XXX = Average Daily Traffic

Figure 7

Short-Term Background Traffic

Claremont Commercial Subdivision Filing No. 2 (LSC #164840)



LEGEND:

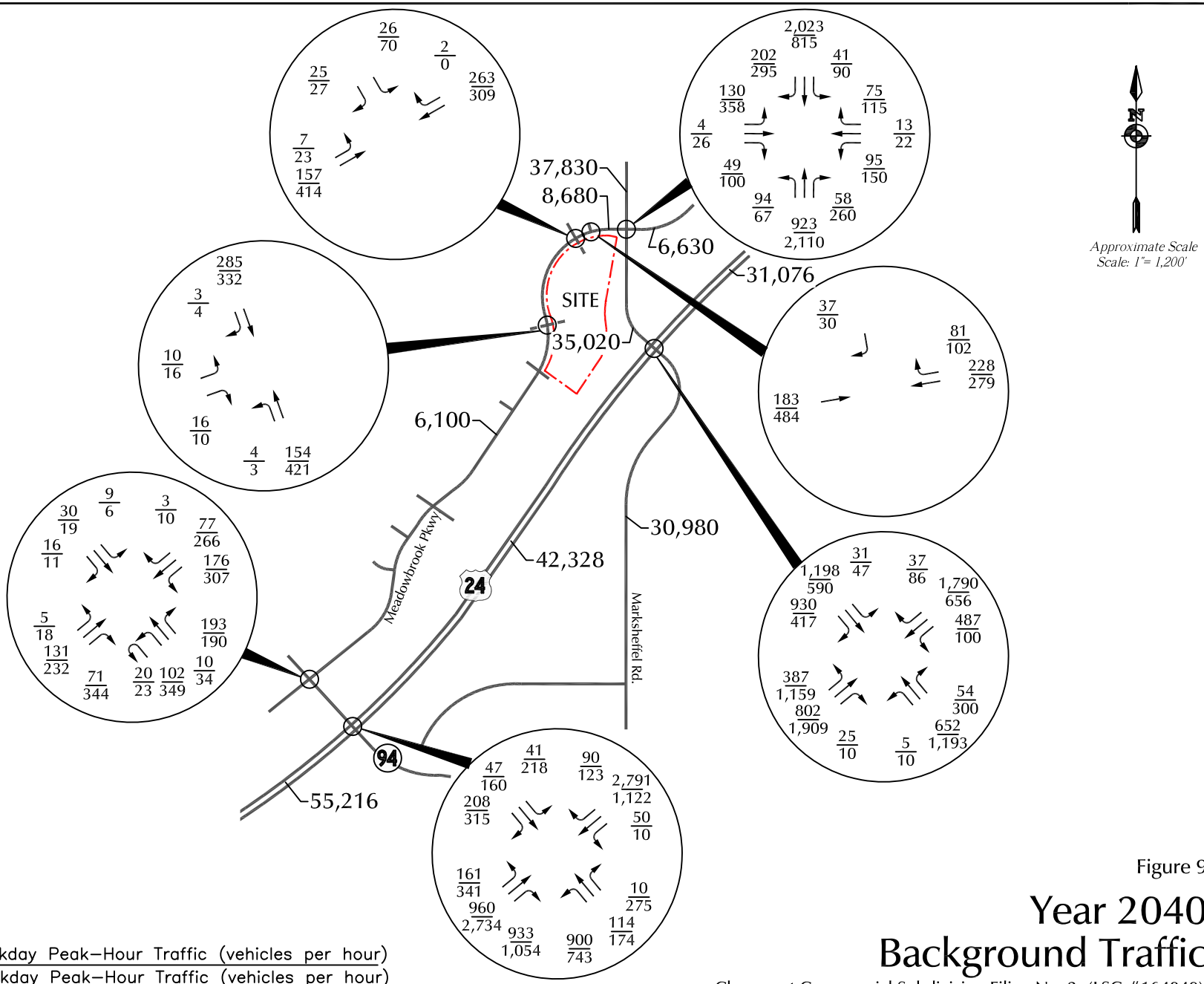
$\frac{XX}{XX}$ = $\frac{\text{AM Weekday Peak-Hour Traffic (vehicles per hour)}}{\text{PM Weekday Peak-Hour Traffic (vehicles per hour)}}$

XXX = Average Daily Traffic

Figure 8

Short-Term Total Traffic

Claremont Commercial Subdivision Filing No. 2 (LSC #164840)



LEGEND:

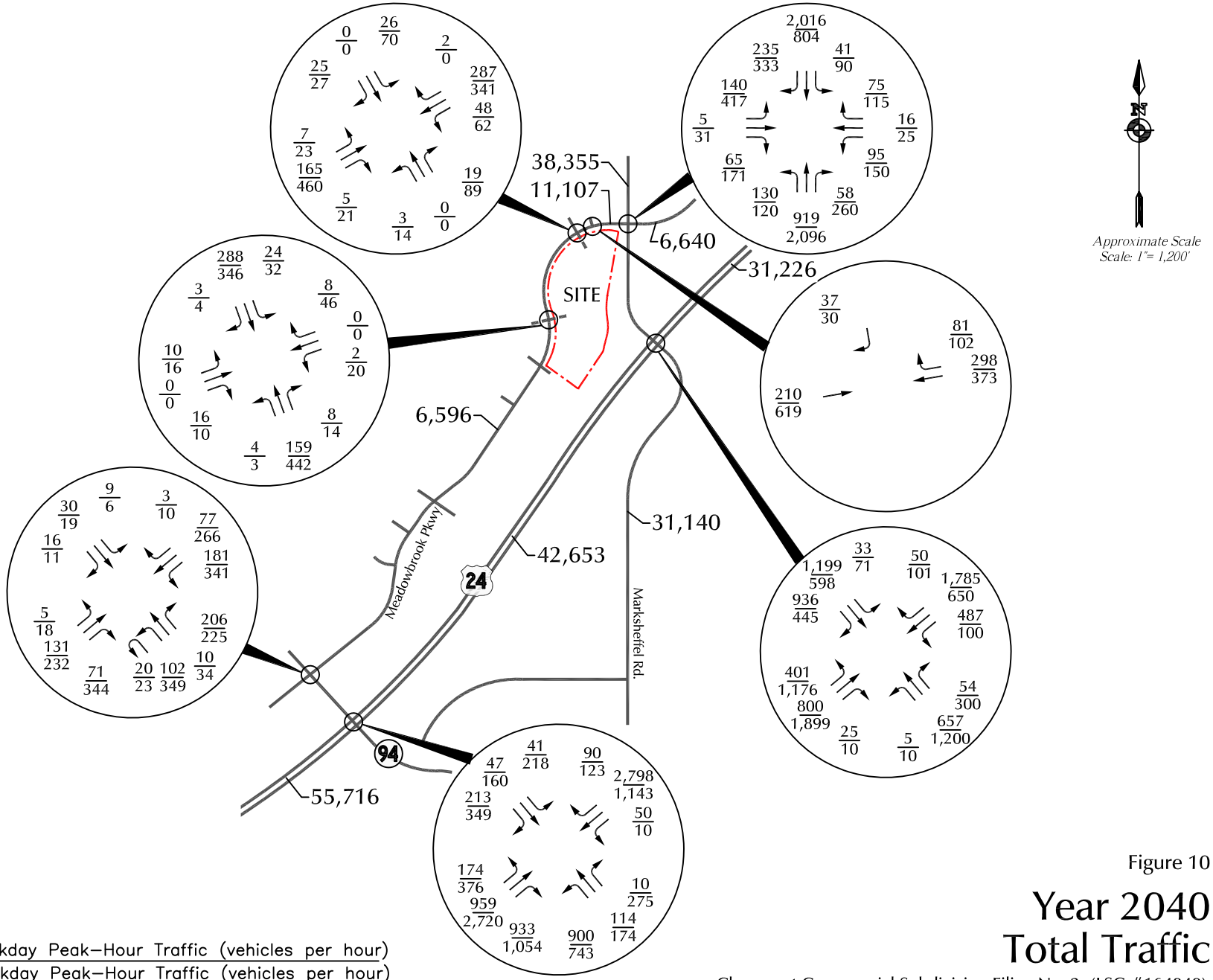
$\frac{XX}{XX}$ = $\frac{\text{AM Weekday Peak-Hour Traffic (vehicles per hour)}}{\text{PM Weekday Peak-Hour Traffic (vehicles per hour)}}$

XXX = Average Daily Traffic

Figure 9

Year 2040 Background Traffic

Claremont Commercial Subdivision Filing No. 2 (LSC #164840)



LEGEND:

$\frac{XX}{XX}$ = $\frac{\text{AM Weekday Peak-Hour Traffic (vehicles per hour)}}{\text{PM Weekday Peak-Hour Traffic (vehicles per hour)}}$

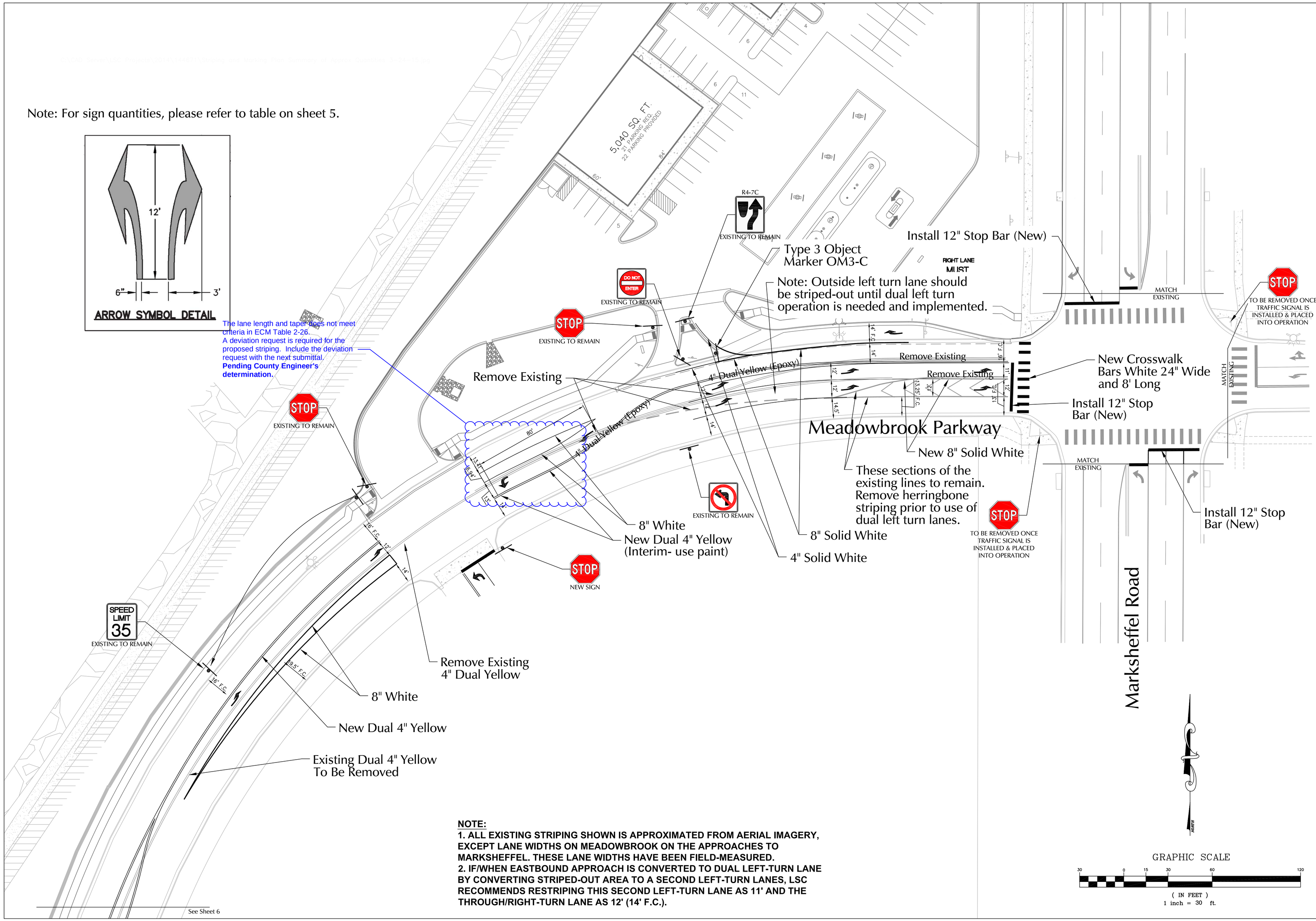
XXX = Average Daily Traffic

Figure 10

Year 2040 Total Traffic

Claremont Commercial Subdivision Filing No. 2 (LSC #164840)

Note: For sign quantities, please refer to table on sheet 5.



NOTE:
1. ALL EXISTING STRIPING SHOWN IS APPROXIMATED FROM AERIAL IMAGERY, EXCEPT LANE WIDTHS ON MEADOWBROOK ON THE APPROACHES TO MARKSHEFFEL. THESE LANE WIDTHS HAVE BEEN FIELD-MEASURED.
2. IF/WHEN EASTBOUND APPROACH IS CONVERTED TO DUAL LEFT-TURN LANE BY CONVERTING STRIPED-OUT AREA TO A SECOND LEFT-TURN LANES, LSC RECOMMENDS RESTRIPING THIS SECOND LEFT-TURN LANE AS 11' AND THE THROUGH/RIGHT-TURN LANE AS 12' (14' F.C.).

STREET PAVEMENT MARKING & MEADOWBROOK PKWY. SIGN PLAN
Meadowbrook Parkway @ Marksheffel Road

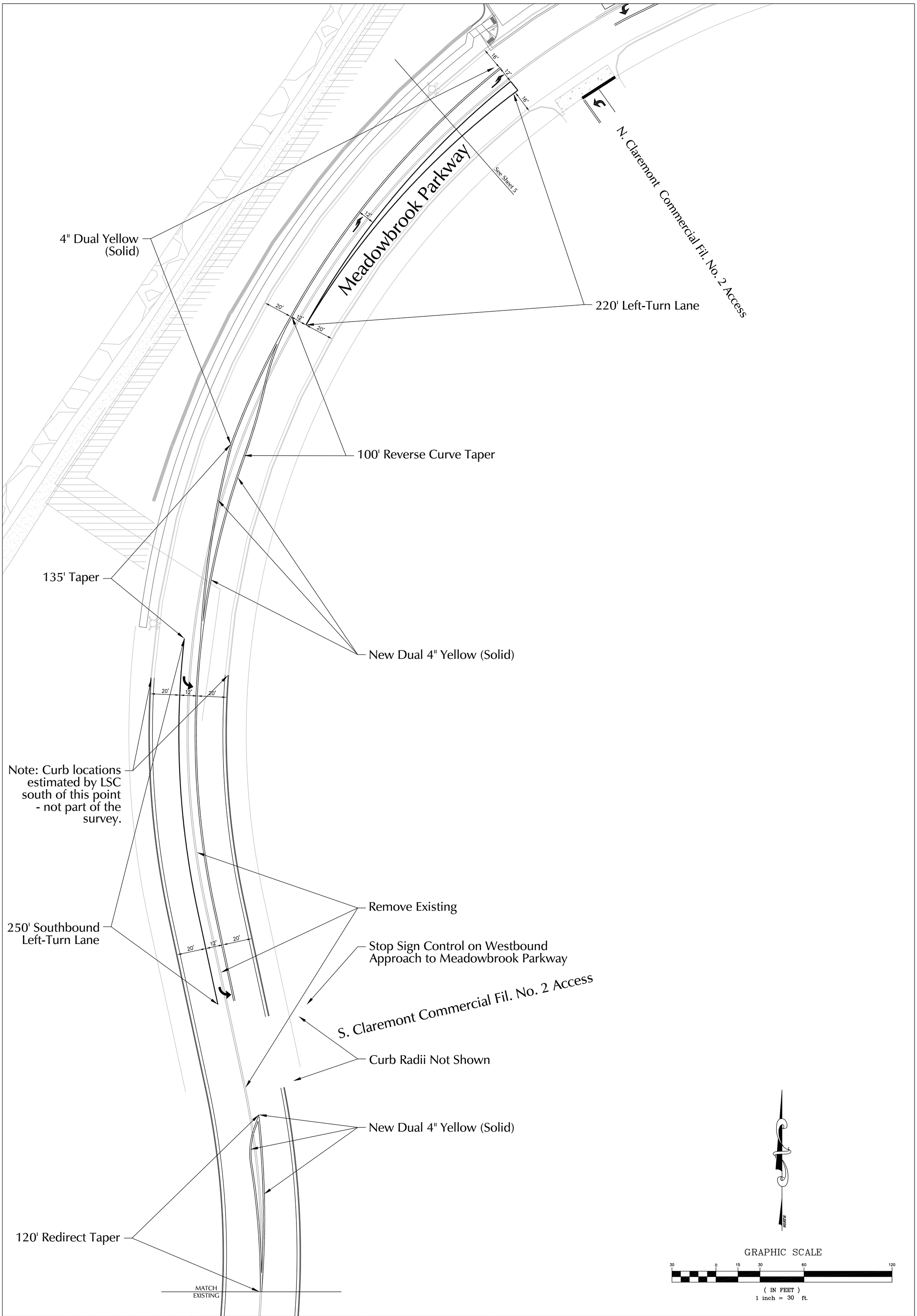
LSC TRANSPORTATION CONSULTANTS
LINSCOTT, LAW & GREENSPAN, ENGINEERS
545 E. Pikes Peak Ave, Suite 210 Colorado Springs, Co. 80903
TELEPHONE: 719.633.2868 FAX: 719.633.5430

Project Manager
JEFFREY C. HODSDON, PE, PTOE

REVISIONS	DATE
Revisions #1	6/19/15
Revisions #2	7/29/15
Revisions #3	12/10/17

DATE: 8/3/15
SCALE: 1" = 30'
DRAWN BY: MR
JOB NO.: 144671
DWG: 144671_5 11-28-17.dwg

SHT NO. : 5
OF 7



MEADOWBROOK PKWY. STREET PAVMENT MARKING & SIGN PLAN
Meadowbrook Parkway @ Marksheffel Road

LSC TRANSPORTATION CONSULTANTS
LSC TRANSPORTATION CONSULTANTS, INC.
545 E. Pikes Peak Ave. Suite #210 Colorado Springs, Co. 80903
TELEPHONE: 719.633.2868 FAX: 719.633.5430

Project Manager
JEFFREY C. HODSDON, PE, PTOE

REVISIONS	DATE

DATE: 8/3/15
SCALE: 1" = 30'
DRAWN BY: MR
JOB NO.: 144671
DWG: 144671_5 11-28-17.dwg

SHT NO.: 6
OF 7

Counts by LSC

LSC Transportation Consultants, Inc.

File Name : Marksheffel - Meadowbrook Pkwy AM
Site Code : 00174080
Start Date : 05/17/2017
Page No : 1

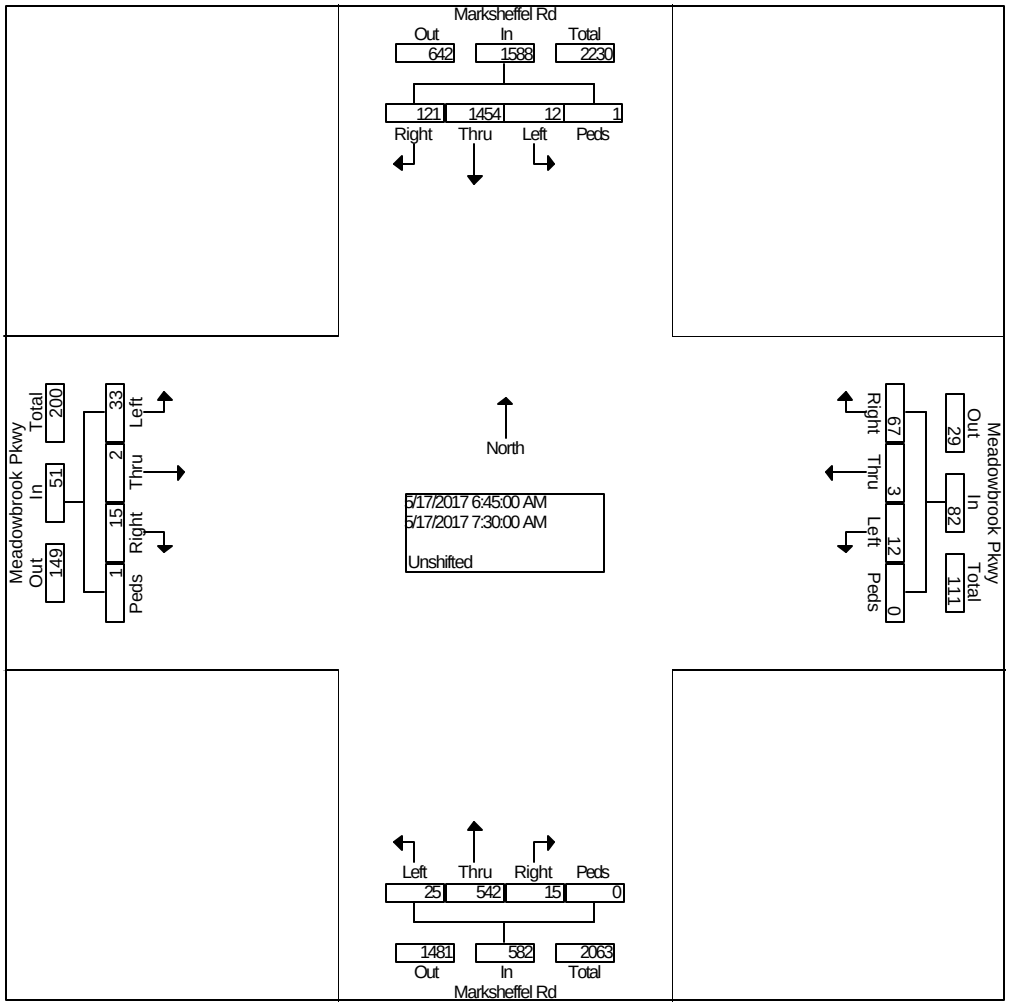
Groups Printed- Unshifted

	Marksheffel Rd From North				Meadowbrook Pkwy From East				Marksheffel Rd From South				Meadowbrook Pkwy 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	16	318	1	0	10	1	6	0	2	120	2	0	4	0	8	0	488
06:45 AM	32	336	1	0	13	0	4	0	2	143	11	0	3	1	8	0	554
Total	48	654	2	0	23	1	10	0	4	263	13	0	7	1	16	0	1042
07:00 AM	24	377	3	1	21	1	6	0	4	124	5	0	7	1	8	0	582
07:15 AM	32	370	4	0	12	2	1	0	2	140	5	0	1	0	6	1	576
07:30 AM	33	371	4	0	21	0	1	0	7	135	4	0	4	0	11	0	591
07:45 AM	19	300	6	0	9	2	6	0	11	132	8	0	4	1	11	0	509
Total	108	1418	17	1	63	5	14	0	24	531	22	0	16	2	36	1	2258
08:00 AM	14	279	8	0	14	3	5	0	3	99	3	0	5	1	13	0	447
08:15 AM	16	219	4	0	8	0	8	0	7	110	5	0	7	2	13	0	399
Grand Total	186	2570	31	1	108	9	37	0	38	1003	43	0	35	6	78	1	4146
Apprch %	6.7	92.2	1.1	0.0	70.1	5.8	24.0	0.0	3.5	92.5	4.0	0.0	29.2	5.0	65.0	0.8	
Total %	4.5	62.0	0.7	0.0	2.6	0.2	0.9	0.0	0.9	24.2	1.0	0.0	0.8	0.1	1.9	0.0	

Counts by LSC

File Name : Marksheffel - Meadowbrook Pkwy AM
Site Code : 00174080
Start Date : 05/17/2017
Page No : 2

	Marksheffel Rd From North					Meadowbrook Pkwy From East					Marksheffel Rd From South					Meadowbrook Pkwy 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	06:45 AM																				
Volume	121	1454	12	1	1588	67	3	12	0	82	15	542	25	0	582	15	2	33	1	51	2303
Percent	7.6	91.6	0.8	0.1		81.7	3.7	14.6	0.0		2.6	93.1	4.3	0.0		29.4	3.9	64.7	2.0		
07:30 Volume	33	371	4	0	408	21	0	1	0	22	7	135	4	0	146	4	0	11	0	15	591
Peak Factor																					0.974
High Int.	07:30 AM					07:00 AM					06:45 AM					07:00 AM					
Volume	33	371	4	0	408	21	1	6	0	28	2	143	11	0	156	7	1	8	0	16	
Peak Factor					0.973					0.732					0.933					0.797	



Counts by LSC

LSC Transportation Consultants, Inc.

File Name : Marksheffel Rd - Meadowbrook 10-10 Noon
Site Code : 00164840
Start Date : 10/10/2017
Page No : 1

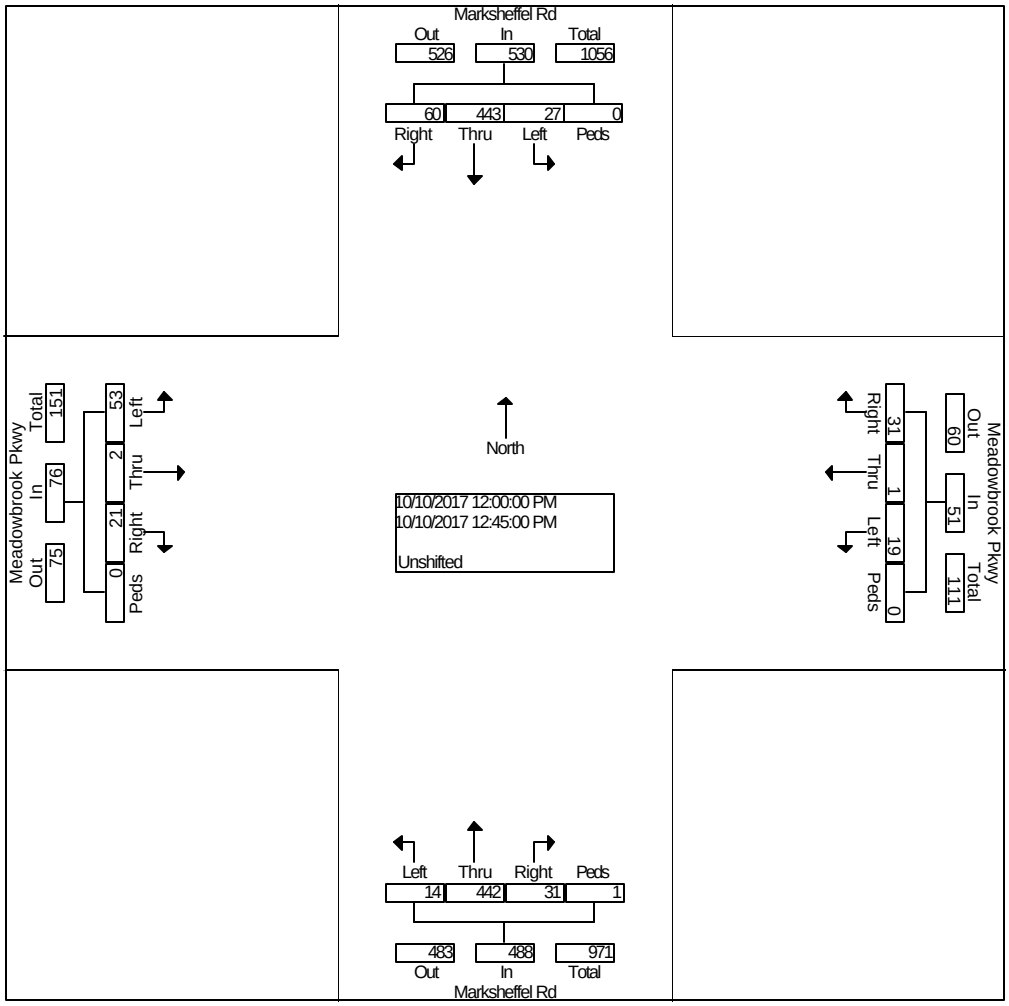
Groups Printed- Unshifted

	Marksheffel Rd From North				Meadowbrook Pkwy From East				Marksheffel Rd From South				Meadowbrook Pkwy 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	
11:30 AM	12	89	3	0	0	1	4	0	9	88	3	0	2	1	7	0	219
11:45 AM	13	91	4	0	13	1	5	0	10	91	5	0	2	0	8	0	243
Total	25	180	7	0	13	2	9	0	19	179	8	0	4	1	15	0	462
12:00 PM	12	96	3	0	10	0	6	0	10	99	1	0	4	1	13	0	255
12:15 PM	15	108	11	0	8	1	2	0	12	128	4	0	5	0	11	0	305
12:30 PM	15	129	5	0	8	0	7	0	4	114	4	0	6	1	12	0	305
12:45 PM	18	110	8	0	5	0	4	0	5	101	5	1	6	0	17	0	280
Total	60	443	27	0	31	1	19	0	31	442	14	1	21	2	53	0	1145
01:00 PM	16	100	4	0	6	1	1	0	9	78	3	1	4	0	9	0	232
01:15 PM	15	98	4	0	3	1	2	0	6	84	2	0	1	1	10	0	227
Grand Total	116	821	42	0	53	5	31	0	65	783	27	2	30	4	87	0	2066
Apprch %	11.8	83.9	4.3	0.0	59.6	5.6	34.8	0.0	7.4	89.3	3.1	0.2	24.8	3.3	71.9	0.0	
Total %	5.6	39.7	2.0	0.0	2.6	0.2	1.5	0.0	3.1	37.9	1.3	0.1	1.5	0.2	4.2	0.0	

Counts by LSC

File Name : Marksheffel Rd - Meadowbrook 10-10 Noon
Site Code : 00164840
Start Date : 10/10/2017
Page No : 2

	Marksheffel Rd From North					Meadowbrook Pkwy From East					Marksheffel Rd From South					Meadowbrook Pkwy 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 11:30 AM to 01:15 PM - Peak 1 of 1																					
Intersection	12:00 PM																				
Volume	60	443	27	0	530	31	1	19	0	51	31	442	14	1	488	21	2	53	0	76	1145
Percent	11.3	83.6	5.1	0.0		60.8	2.0	37.3	0.0		6.4	90.6	2.9	0.2		27.6	2.6	69.7	0.0		
12:30 Volume	15	129	5	0	149	8	0	7	0	15	4	114	4	0	122	6	1	12	0	19	305
Peak Factor																					0.939
High Int.	12:30 PM					12:00 PM					12:15 PM					12:45 PM					
Volume	15	129	5	0	149	10	0	6	0	16	12	128	4	0	144	6	0	17	0	23	
Peak Factor					0.889					0.797					0.847					0.826	



Counts by LSC

LSC Transportation Consultants, Inc.

File Name : Marksheffel Rd - Meadowbrook 10-10 Mid
Site Code : 00164840
Start Date : 10/10/2017
Page No : 1

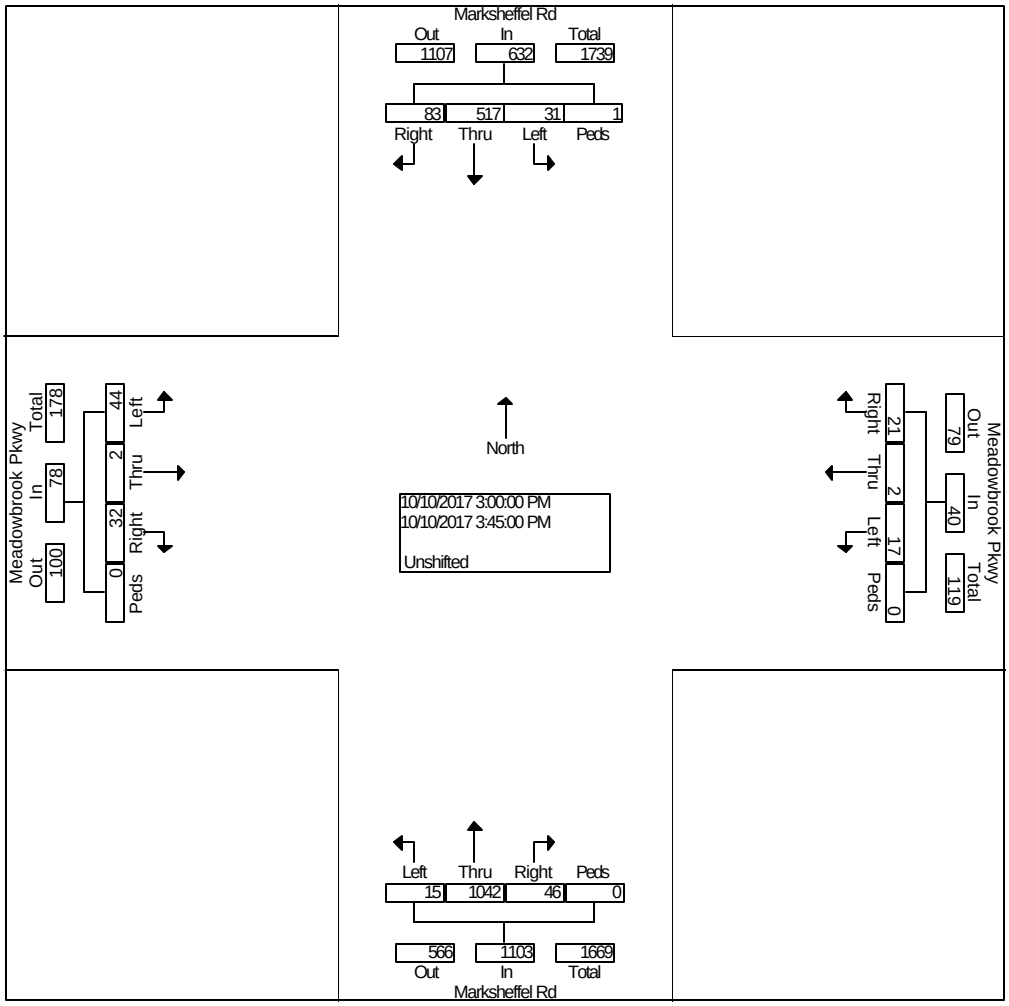
Groups Printed- Unshifted

	Marksheffel Rd From North				Meadowbrook Pkwy From East				Marksheffel Rd From South				Meadowbrook Pkwy 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	
02:00 PM	10	118	2	0	1	0	4	0	6	112	4	0	5	0	16	0	278
02:15 PM	20	118	4	1	5	1	1	0	3	117	3	0	3	3	16	0	295
02:30 PM	14	104	5	0	4	0	1	0	8	170	4	0	5	2	11	0	328
02:45 PM	18	100	4	0	5	0	0	0	3	177	5	0	5	0	9	0	326
Total	62	440	15	1	15	1	6	0	20	576	16	0	18	5	52	0	1227
03:00 PM	17	111	6	0	4	0	4	0	10	218	1	0	7	1	14	0	393
03:15 PM	19	143	10	0	5	0	5	0	8	237	4	0	6	0	5	0	442
03:30 PM	20	134	6	0	6	1	6	0	15	298	5	0	10	1	11	0	513
03:45 PM	27	129	9	1	6	1	2	0	13	289	5	0	9	0	14	0	505
Total	83	517	31	1	21	2	17	0	46	1042	15	0	32	2	44	0	1853
Grand Total	145	957	46	2	36	3	23	0	66	1618	31	0	50	7	96	0	3080
Apprch %	12.6	83.2	4.0	0.2	58.1	4.8	37.1	0.0	3.8	94.3	1.8	0.0	32.7	4.6	62.7	0.0	
Total %	4.7	31.1	1.5	0.1	1.2	0.1	0.7	0.0	2.1	52.5	1.0	0.0	1.6	0.2	3.1	0.0	

Counts by LSC

File Name : Marksheffel Rd - Meadowbrook 10-10 Mid
Site Code : 00164840
Start Date : 10/10/2017
Page No : 2

	Marksheffel Rd From North					Meadowbrook Pkwy From East					Marksheffel Rd From South					Meadowbrook Pkwy 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 02:00 PM to 03:45 PM - Peak 1 of 1																					
Intersection	03:00 PM																				
Volume	83	517	31	1	632	21	2	17	0	40	46	1042	15	0	1103	32	2	44	0	78	1853
Percent	13.1	81.8	4.9	0.2		52.5	5.0	42.5	0.0		4.2	94.5	1.4	0.0		41.0	2.6	56.4	0.0		
03:30 Volume	20	134	6	0	160	6	1	6	0	13	15	298	5	0	318	10	1	11	0	22	513
Peak Factor																					0.903
High Int.	03:15 PM					03:30 PM					03:30 PM					03:45 PM					
Volume	19	143	10	0	172	6	1	6	0	13	15	298	5	0	318	9	0	14	0	23	
Peak Factor					0.919					0.769					0.867					0.848	



Counts by LSC

LSC Transportation Consultants, Inc.

File Name : Marksheffel - Meadowbrook Pkwy PM
Site Code : 00174080
Start Date : 05/17/2017
Page No : 1

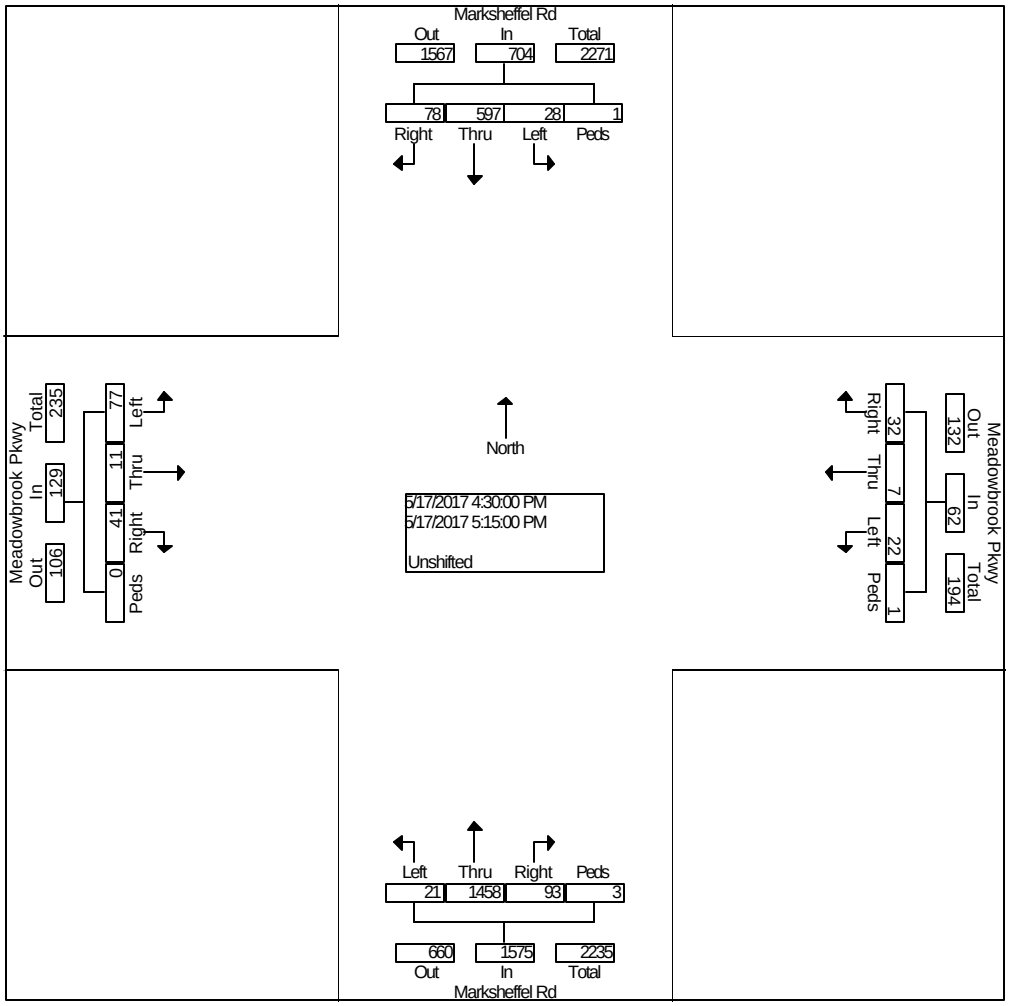
Groups Printed- Unshifted

	Marksheffel Rd From North				Meadowbrook Pkwy From East				Marksheffel Rd From South				Meadowbrook Pkwy 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	13	148	13	1	6	2	5	0	13	347	7	1	8	1	23	0	588
04:15 PM	28	121	8	0	7	2	1	0	19	365	6	0	7	1	29	0	594
04:30 PM	13	157	4	0	4	2	8	0	15	374	2	1	8	2	13	0	603
04:45 PM	25	132	5	0	6	0	7	1	26	419	7	0	7	0	12	0	647
Total	79	558	30	1	23	6	21	1	73	1505	22	2	30	4	77	0	2432
05:00 PM	18	156	8	1	10	2	3	0	24	322	8	1	13	5	39	0	610
05:15 PM	22	152	11	0	12	3	4	0	28	343	4	1	13	4	13	0	610
05:30 PM	23	121	16	0	10	2	5	0	19	296	3	0	13	5	32	0	545
05:45 PM	20	125	6	0	8	0	3	0	18	267	9	0	5	2	9	0	472
Total	83	554	41	1	40	7	15	0	89	1228	24	2	44	16	93	0	2237
Grand Total	162	1112	71	2	63	13	36	1	162	2733	46	4	74	20	170	0	4669
Apprch %	12.0	82.6	5.3	0.1	55.8	11.5	31.9	0.9	5.5	92.8	1.6	0.1	28.0	7.6	64.4	0.0	
Total %	3.5	23.8	1.5	0.0	1.3	0.3	0.8	0.0	3.5	58.5	1.0	0.1	1.6	0.4	3.6	0.0	

Counts by LSC

File Name : Marksheffel - Meadowbrook Pkwy PM
Site Code : 00174080
Start Date : 05/17/2017
Page No : 2

	Marksheffel Rd From North					Meadowbrook Pkwy From East					Marksheffel Rd From South					Meadowbrook Pkwy 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	78	597	28	1	704	32	7	22	1	62	93	1458	21	3	1575	41	11	77	0	129	2470
Percent	11.1	84.8	4.0	0.1		51.6	11.3	35.5	1.6		5.9	92.6	1.3	0.2		31.8	8.5	59.7	0.0		
04:45 Volume	25	132	5	0	162	6	0	7	1	14	26	419	7	0	452	7	0	12	0	19	647
Peak Factor																					0.954
High Int.	05:15 PM					05:15 PM					04:45 PM					05:00 PM					
Volume	22	152	11	0	185	12	3	4	0	19	26	419	7	0	452	13	5	39	0	57	
Peak Factor					0.951					0.816					0.871					0.566	



Counts by LSC

LSC Transportation Consultants, Inc.

File Name : marksheffel rd - us hwy 24 am
Site Code : 00174080
Start Date : 05/18/2017
Page No : 1

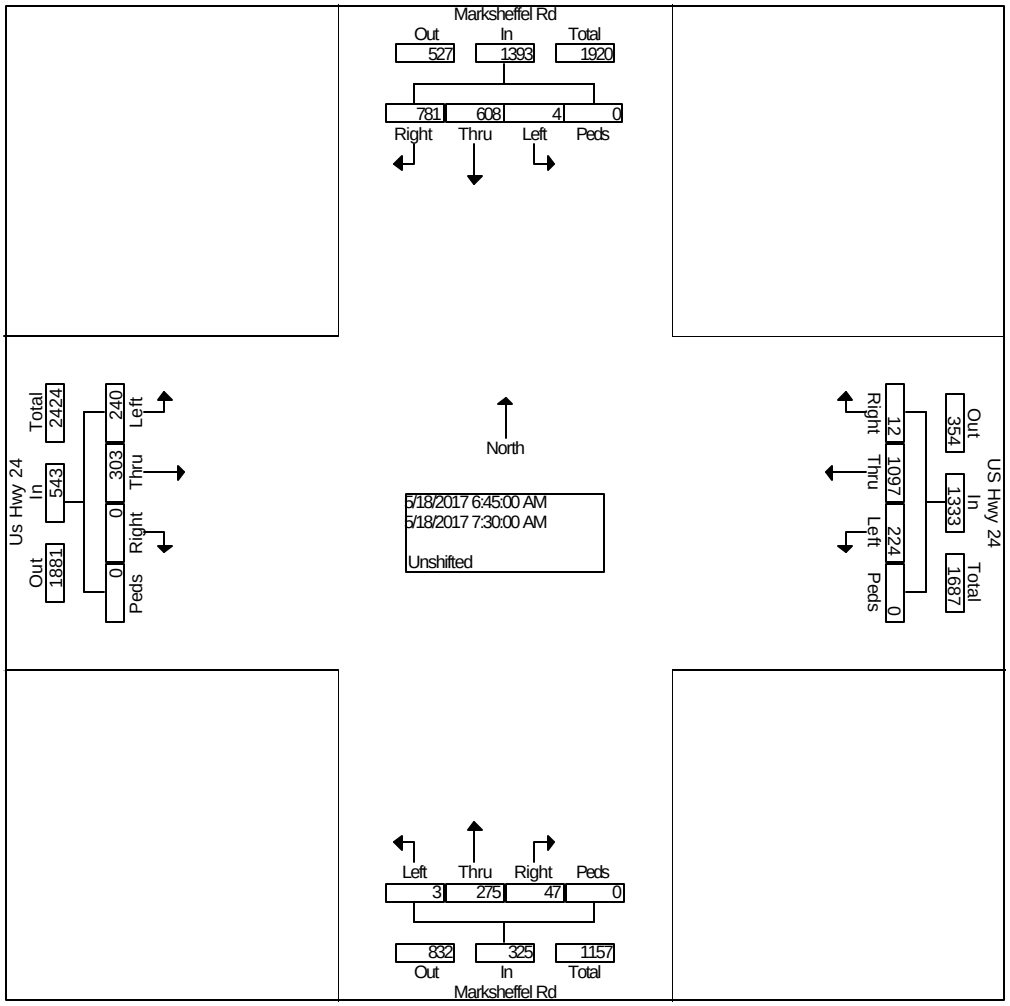
Groups Printed- Unshifted

	Marksheffel Rd From North				US Hwy 24 From East				Marksheffel Rd From South				Us Hwy 24 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	145	148	2	0	3	264	41	0	5	45	1	0	0	71	73	0	798
06:45 AM	169	143	1	0	1	276	53	0	9	55	1	0	0	84	80	0	872
Total	314	291	3	0	4	540	94	0	14	100	2	0	0	155	153	0	1670
07:00 AM	182	149	1	0	7	285	68	0	11	78	1	0	0	64	49	0	895
07:15 AM	232	159	2	0	2	233	52	0	16	69	0	0	0	79	58	0	902
07:30 AM	198	157	0	0	2	303	51	0	11	73	1	0	0	76	53	0	925
07:45 AM	172	116	1	0	2	181	38	0	9	58	0	0	0	91	69	0	737
Total	784	581	4	0	13	1002	209	0	47	278	2	0	0	310	229	0	3459
08:00 AM	141	100	1	0	3	183	30	0	6	43	0	0	0	73	45	0	625
08:15 AM	128	89	5	0	4	147	9	0	4	54	0	0	2	91	54	0	587
Grand Total	1367	1061	13	0	24	1872	342	0	71	475	4	0	2	629	481	0	6341
Apprch %	56.0	43.5	0.5	0.0	1.1	83.6	15.3	0.0	12.9	86.4	0.7	0.0	0.2	56.6	43.3	0.0	
Total %	21.6	16.7	0.2	0.0	0.4	29.5	5.4	0.0	1.1	7.5	0.1	0.0	0.0	9.9	7.6	0.0	

Counts by LSC

File Name : marksheffel rd - us hwy 24 am
Site Code : 00174080
Start Date : 05/18/2017
Page No : 2

	Marksheffel Rd From North					US Hwy 24 From East					Marksheffel Rd From South					Us Hwy 24 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	06:45 AM																				
Volume	781	608	4	0	1393	12	1097	224	0	1333	47	275	3	0	325	0	303	240	0	543	3594
Percent	56.1	43.6	0.3	0.0		0.9	82.3	16.8	0.0		14.5	84.6	0.9	0.0		0.0	55.8	44.2	0.0		
07:30 Volume	198	157	0	0	355	2	303	51	0	356	11	73	1	0	85	0	76	53	0	129	925
Peak Factor																					0.971
High Int.	07:15 AM					07:00 AM					07:00 AM					06:45 AM					
Volume	232	159	2	0	393	7	285	68	0	360	11	78	1	0	90	0	84	80	0	164	
Peak Factor					0.886					0.926					0.903					0.828	



Counts by LSC

LSC Transportation Consultants, Inc.

File Name : marksheffel rd - us hwy 24 PM
Site Code : 00174080
Start Date : 05/18/2017
Page No : 1

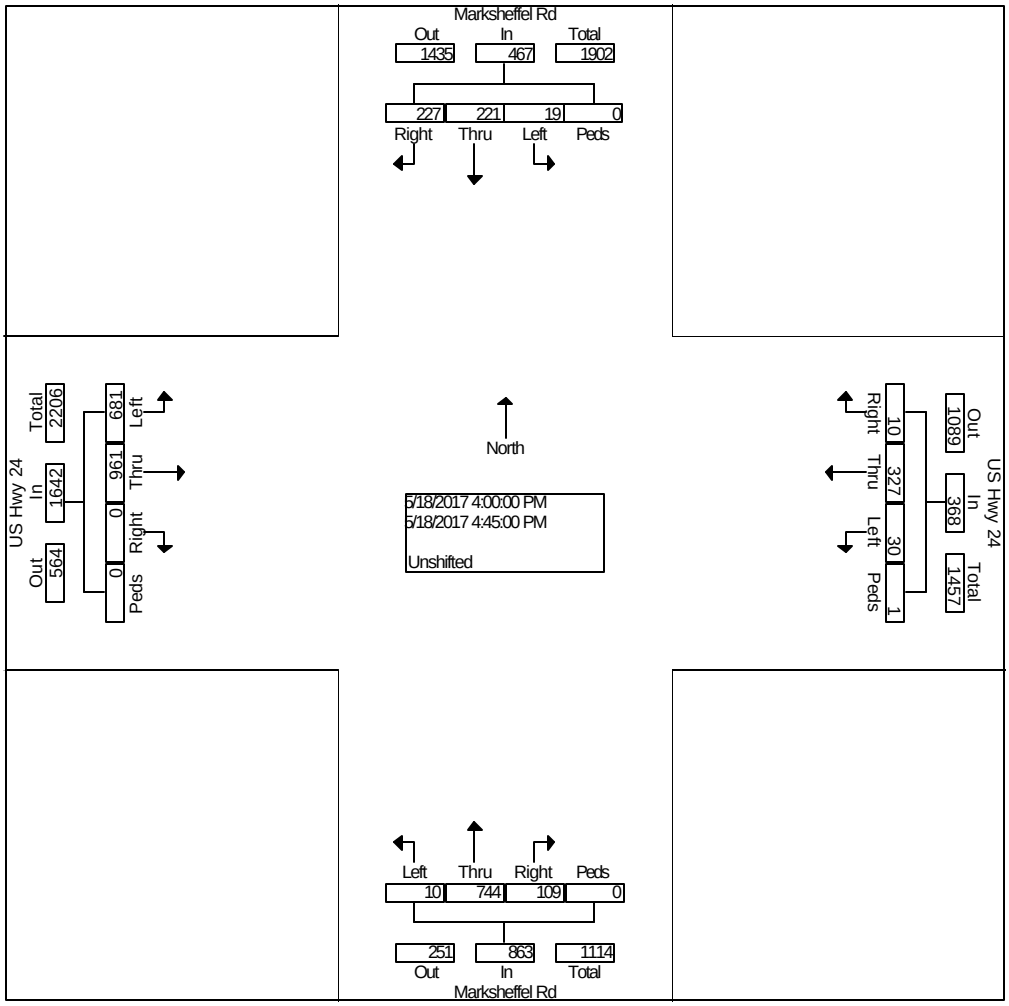
Groups Printed- Unshifted

	Marksheffel Rd From North				US Hwy 24 From East				Marksheffel Rd From South				US Hwy 24 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	64	65	4	0	4	80	7	0	28	201	3	0	0	220	153	0	829
04:15 PM	57	56	5	0	3	73	8	0	31	177	4	0	0	231	175	0	820
04:30 PM	55	54	9	0	1	93	6	1	21	200	2	0	0	245	161	0	848
04:45 PM	51	46	1	0	2	81	9	0	29	166	1	0	0	265	192	0	843
Total	227	221	19	0	10	327	30	1	109	744	10	0	0	961	681	0	3340
05:00 PM	51	81	8	0	1	79	10	0	17	174	1	0	0	202	120	0	744
05:15 PM	42	54	5	0	1	97	10	0	25	130	1	0	0	250	197	0	812
05:30 PM	49	67	1	0	6	93	7	0	23	141	4	0	0	187	135	0	713
05:45 PM	60	54	2	1	3	61	8	0	18	97	0	0	1	151	139	0	595
Total	202	256	16	1	11	330	35	0	83	542	6	0	1	790	591	0	2864
Grand Total	429	477	35	1	21	657	65	1	192	1286	16	0	1	1751	1272	0	6204
Apprch %	45.5	50.6	3.7	0.1	2.8	88.3	8.7	0.1	12.9	86.1	1.1	0.0	0.0	57.9	42.1	0.0	
Total %	6.9	7.7	0.6	0.0	0.3	10.6	1.0	0.0	3.1	20.7	0.3	0.0	0.0	28.2	20.5	0.0	

Counts by LSC

File Name : marksheffel rd - us hwy 24 PM
Site Code : 00174080
Start Date : 05/18/2017
Page No : 2

	Marksheffel Rd From North					US Hwy 24 From East					Marksheffel Rd From South					US Hwy 24 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	04:00 PM																				
Volume	227	221	19	0	467	10	327	30	1	368	109	744	10	0	863	0	961	681	0	1642	3340
Percent	48.6	47.3	4.1	0.0		2.7	88.9	8.2	0.3		12.6	86.2	1.2	0.0		0.0	58.5	41.5	0.0		
04:30 Volume	55	54	9	0	118	1	93	6	1	101	21	200	2	0	223	0	245	161	0	406	848
Peak Factor																					0.985
High Int.	04:00 PM					04:30 PM					04:00 PM					04:45 PM					
Volume	64	65	4	0	133	1	93	6	1	101	28	201	3	0	232	0	265	192	0	457	
Peak Factor					0.878					0.911					0.930					0.898	



LSC Transportation Consultants, Inc.
545 E. Pikes Peak Ave., #210
Colorado Springs, CO 80903
(719) 633-2868

LSC Transportation Consultants, Inc.

File Name : Meadowbrook Pkwy - Mobile RIRO Access AM
Site Code : 00164840
Start Date : 11/02/2016
Page No : 1

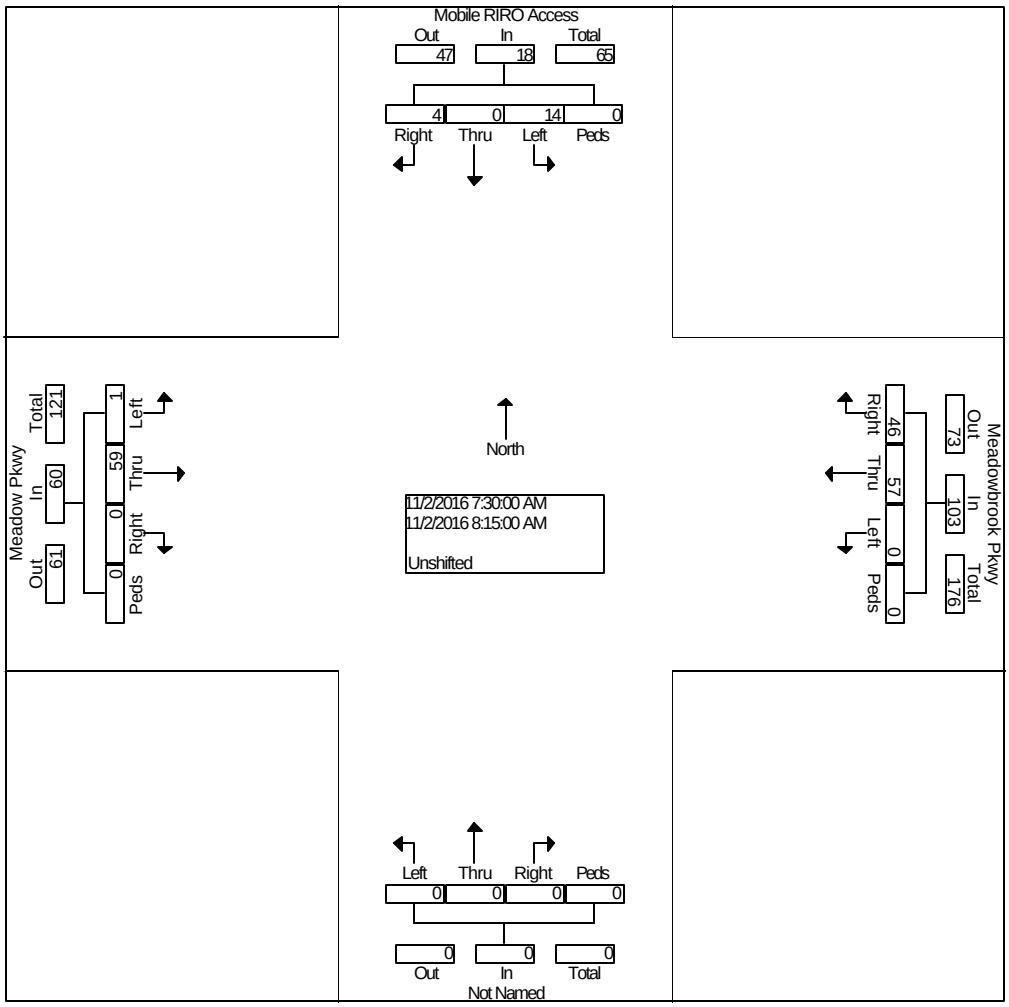
Groups Printed- Unshifted

	Mobile RIRO Access From North				Meadowbrook Pkwy From East								Meadow Pkwy 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	1	0	1	0	8	18	0	0	0	0	0	0	0	1	0	0	29
06:45 AM	2	0	4	0	10	26	0	0	0	0	0	0	0	2	0	0	44
Total	3	0	5	0	18	44	0	0	0	0	0	0	0	3	0	0	73
07:00 AM	1	0	0	0	5	18	0	0	0	0	0	0	0	9	0	0	33
07:15 AM	4	0	2	0	7	17	0	0	0	0	0	0	0	7	0	0	37
07:30 AM	3	0	3	0	15	12	0	0	0	0	0	0	0	12	0	0	45
07:45 AM	0	0	3	0	10	13	0	0	0	0	0	0	0	19	0	0	45
Total	8	0	8	0	37	60	0	0	0	0	0	0	0	47	0	0	160
08:00 AM	0	0	5	0	11	18	0	0	0	0	0	0	0	15	1	0	50
08:15 AM	1	0	3	0	10	14	0	0	0	0	0	0	0	13	0	0	41
Grand Total	12	0	21	0	76	136	0	0	0	0	0	0	0	78	1	0	324
Apprch %	36.4	0.0	63.6	0.0	35.8	64.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	98.7	1.3	0.0	
Total %	3.7	0.0	6.5	0.0	23.5	42.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24.1	0.3	0.0	

LSC Transportation Consultants, Inc.
545 E. Pikes Peak Ave., #210
Colorado Springs, CO 80903
(719) 633-2868

File Name : Meadowbrook Pkwy - Mobile RIRO Access AM
Site Code : 00164840
Start Date : 11/02/2016
Page No : 2

	Mobile RIRO Access From North					Meadowbrook Pkwy From East					From South					Meadow Pkwy 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	07:30 AM																				
Volume	4	0	14	0	18	46	57	0	0	103	0	0	0	0	0	0	59	1	0	60	181
Percent	22.2	0.0	77.8	0.0		44.7	55.3	0.0	0.0		0.0	0.0	0.0	0.0		0.0	98.3	1.7	0.0		
08:00 Volume	0	0	5	0	5	11	18	0	0	29	0	0	0	0	0	0	15	1	0	16	50
Peak Factor																					0.905
High Int.	07:30 AM					08:00 AM					6:15:00 AM					07:45 AM					
Volume	3	0	3	0	6	11	18	0	0	29	0	0	0	0	0	0	19	0	0	19	
Peak Factor					0.750					0.888										0.789	



LSC Transportation Consultants, Inc.
545 E. Pikes Peak Ave., #210
Colorado Springs, CO 80903
(719) 633-2868

LSC Transportation Consultants, Inc.

File Name : Meadowbrook Pkwy - Mobile RIRO Access PM
Site Code : 00164840
Start Date : 11/02/2016
Page No : 1

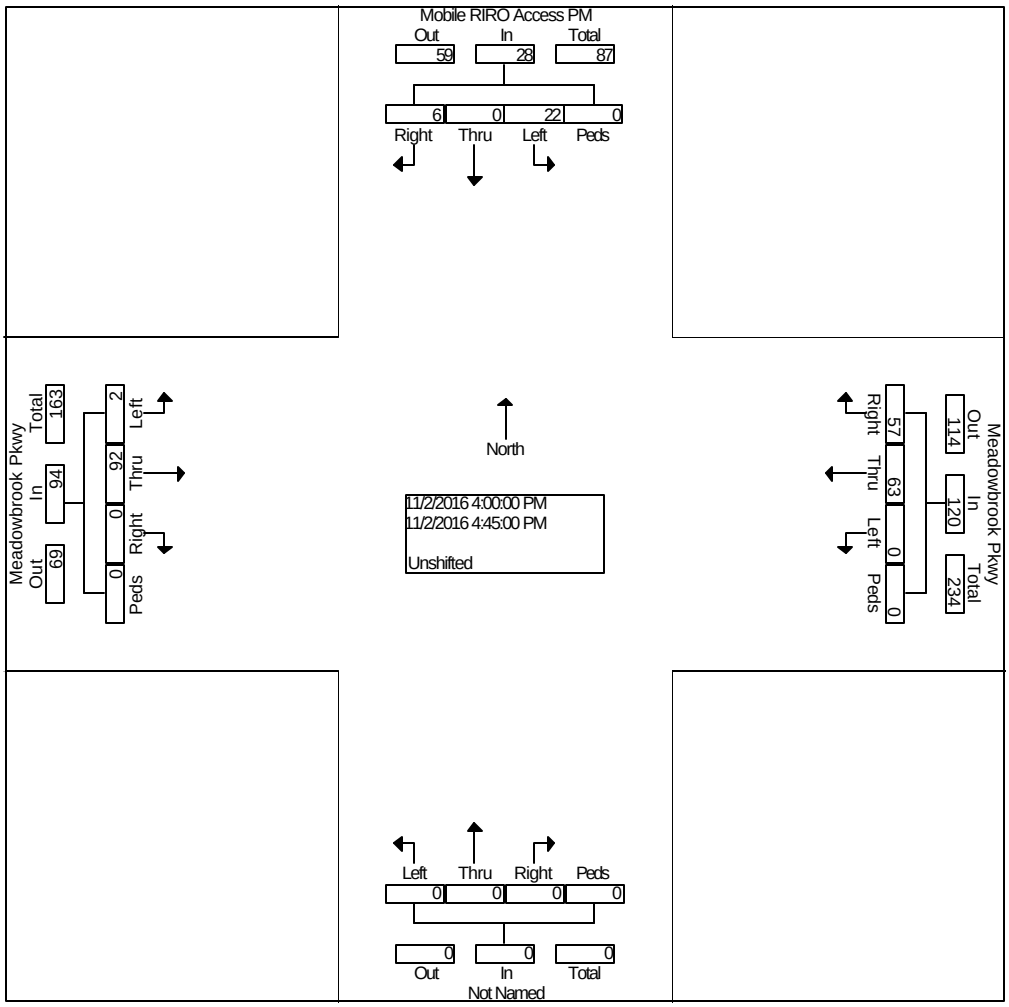
Groups Printed- Unshifted

	Mobile RIRO Access PM From North				Meadowbrook Pkwy From East				From South				Meadowbrook Pkwy 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	0	0	6	0	19	19	0	0	0	0	0	0	0	25	0	0	69
04:15 PM	1	0	7	0	12	18	0	0	0	0	0	0	0	23	1	0	62
04:30 PM	3	0	4	0	16	11	0	0	0	0	0	0	0	28	1	0	63
04:45 PM	2	0	5	0	10	15	0	0	0	0	0	0	0	16	0	0	48
Total	6	0	22	0	57	63	0	0	0	0	0	0	0	92	2	0	242
05:00 PM	1	0	6	0	13	10	0	0	0	0	0	0	0	33	0	0	63
05:15 PM	2	0	4	0	16	15	0	0	0	0	0	0	0	18	0	0	55
05:30 PM	3	0	4	0	10	16	0	0	0	0	0	0	0	26	1	0	60
05:45 PM	2	0	3	0	9	14	0	0	0	0	0	0	0	23	0	0	51
Total	8	0	17	0	48	55	0	0	0	0	0	0	0	100	1	0	229
Grand Total	14	0	39	0	105	118	0	0	0	0	0	0	0	192	3	0	471
Apprch %	26.4	0.0	73.6	0.0	47.1	52.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	98.5	1.5	0.0	
Total %	3.0	0.0	8.3	0.0	22.3	25.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	40.8	0.6	0.0	

LSC Transportation Consultants, Inc.
545 E. Pikes Peak Ave., #210
Colorado Springs, CO 80903
(719) 633-2868

File Name : Meadowbrook Pkwy - Mobile RIRO Access PM
Site Code : 00164840
Start Date : 11/02/2016
Page No : 2

	Mobile RIRO Access PM From North					Meadowbrook Pkwy From East					From South					Meadowbrook Pkwy 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	04:00 PM																				
Volume	6	0	22	0	28	57	63	0	0	120	0	0	0	0	0	0	92	2	0	94	242
Percent	21.4	0.0	78.6	0.0		47.5	52.5	0.0	0.0		0.0	0.0	0.0	0.0		0.0	97.9	2.1	0.0		
04:00 Volume	0	0	6	0	6	19	19	0	0	38	0	0	0	0	0	0	25	0	0	25	69
Peak Factor																					0.877
High Int.	04:15 PM					04:00 PM					3:45:00 PM					04:30 PM					
Volume	1	0	7	0	8	19	19	0	0	38	0	0	0	0	0	0	28	1	0	29	
Peak Factor					0.875					0.789										0.810	



LSC Transportation Consultants, Inc.
545 E. Pikes Peak Ave., #210
Colorado Springs, CO 80903
(719) 633-2868

LSC Transportation Consultants, Inc.

File Name : Meadowbrook Pkwy - Mobile Full Access AM
Site Code : 00164840
Start Date : 11/02/2016
Page No : 1

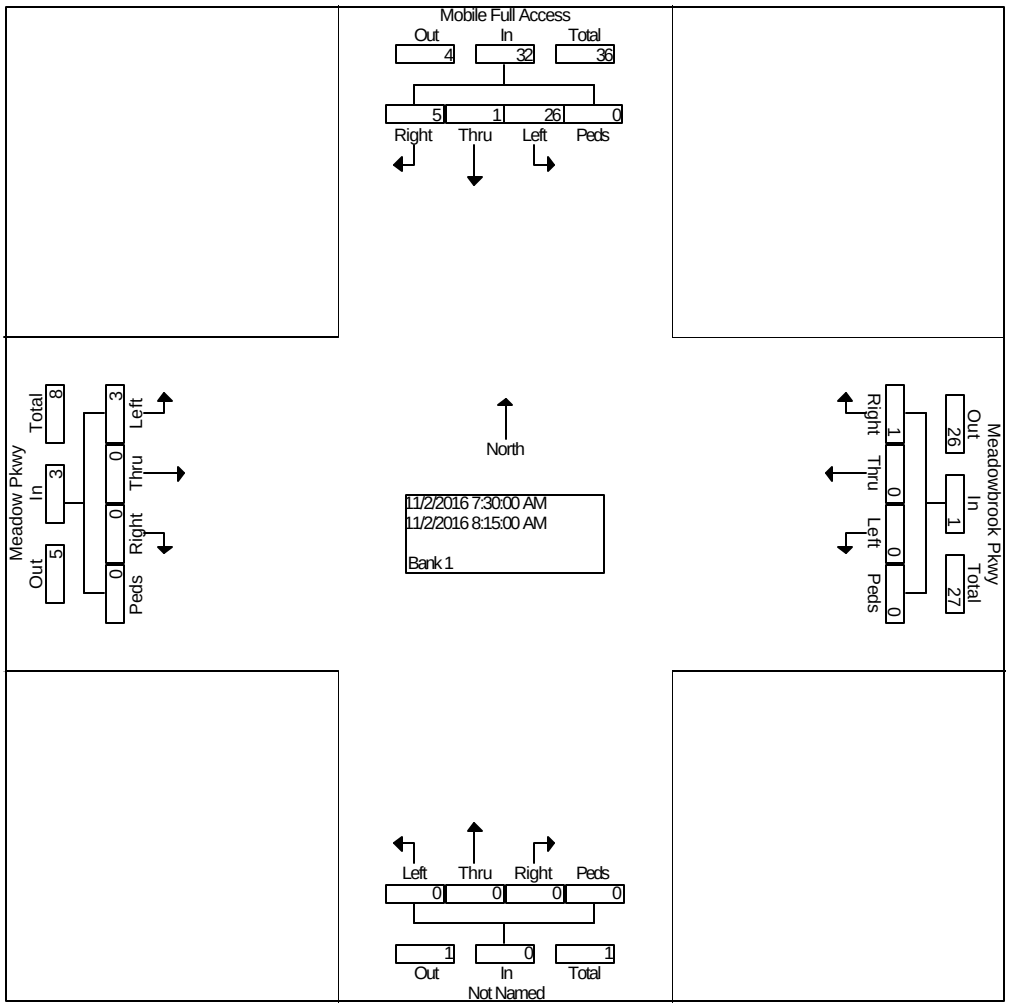
Groups Printed- Bank 1

	Mobile Full Access From North				Meadowbrook Pkwy From East				From South				Meadow Pkwy 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	4	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	9
06:45 AM	0	0	3	0	0	0	0	0	0	0	0	0	0	0	1	0	4
Total	4	0	8	0	0	0	0	0	0	0	0	0	0	0	1	0	13
07:00 AM	2	0	3	0	0	0	0	0	0	0	0	0	0	0	2	0	7
07:15 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0	3
07:30 AM	2	0	6	0	0	0	0	0	0	0	0	0	0	0	1	0	9
07:45 AM	1	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	9
Total	5	0	18	0	0	0	0	0	0	0	0	0	0	0	5	0	28
08:00 AM	1	1	7	0	1	0	0	0	0	0	0	0	0	0	1	0	11
08:15 AM	1	0	5	0	0	0	0	0	0	0	0	0	0	0	1	0	7
Grand Total	11	1	38	0	1	0	0	0	0	0	0	0	0	0	8	0	59
Apprch %	22.0	2.0	76.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	
Total %	18.6	1.7	64.4	0.0	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.6	0.0	

LSC Transportation Consultants, Inc.
545 E. Pikes Peak Ave., #210
Colorado Springs, CO 80903
(719) 633-2868

File Name : Meadowbrook Pkwy - Mobile Full Access AM
Site Code : 00164840
Start Date : 11/02/2016
Page No : 2

	Mobile Full Access From North					Meadowbrook Pkwy From East					From South					Meadow Pkwy 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	07:30 AM																				
Volume	5	1	26	0	32	1	0	0	0	1	0	0	0	0	0	0	0	3	0	3	36
Percent	15.6	3.1	81.3	0.0		100.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	100.0	0.0		
08:00 Volume	1	1	7	0	9	1	0	0	0	1	0	0	0	0	0	0	0	1	0	1	11
Peak Factor																					0.818
High Int.	07:45 AM					08:00 AM					6:15:00 AM					07:30 AM					
Volume	1	0	8	0	9	1	0	0	0	1	0	0	0	0	0	0	0	1	0	1	
Peak Factor					0.889					0.250										0.750	



LSC Transportation Consultants, Inc.
545 E. Pikes Peak Ave., #210
Colorado Springs, CO 80903
(719) 633-2868

LSC Transportation Consultants, Inc.

File Name : Meadowbrook Pkwy - Mobile Access PM
Site Code : 00164840
Start Date : 11/02/2016
Page No : 1

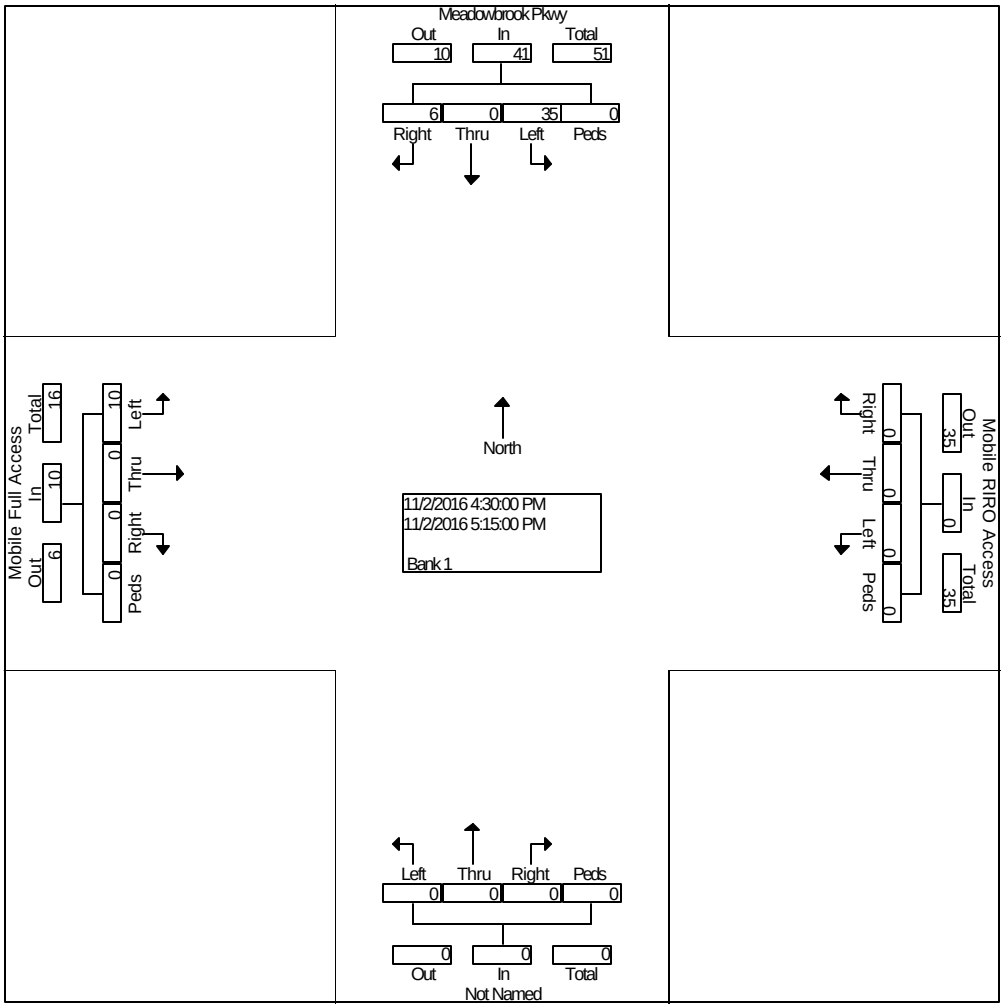
Groups Printed- Bank 1

	Meadowbrook Pkwy From North				Mobile RIRO Access From East				From South				Mobile Full Access 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	0	9	0	0	0	0	0	0	0	0	0	0	0	2	0	14
04:15 PM	0	0	8	0	0	0	0	0	0	0	0	0	0	0	2	0	10
04:30 PM	2	0	14	0	0	0	0	0	0	0	0	0	0	0	2	0	18
04:45 PM	1	0	5	0	0	0	0	0	0	0	0	0	0	0	2	0	8
Total	6	0	36	0	0	0	0	0	0	0	0	0	0	0	8	0	50
05:00 PM	0	0	8	0	0	0	0	0	0	0	0	0	0	0	3	0	11
05:15 PM	3	0	8	0	0	0	0	0	0	0	0	0	0	0	3	0	14
05:30 PM	0	0	9	0	0	0	0	0	0	0	0	0	0	0	4	0	13
05:45 PM	1	0	7	0	0	0	0	0	0	0	0	0	0	0	3	0	11
Total	4	0	32	0	0	0	0	0	0	0	0	0	0	0	13	0	49
Grand Total	10	0	68	0	0	0	0	0	0	0	0	0	0	0	21	0	99
Apprch %	12.8	0.0	87.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	
Total %	10.1	0.0	68.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21.2	0.0	

LSC Transportation Consultants, Inc.
545 E. Pikes Peak Ave., #210
Colorado Springs, CO 80903
(719) 633-2868

File Name : Meadowbrook Pkwy - Mobile Access PM
Site Code : 00164840
Start Date : 11/02/2016
Page No : 2

	Meadowbrook Pkwy From North					Mobile RIRO Access From East					From South					Mobile Full Access 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	6	0	35	0	41	0	0	0	0	0	0	0	0	0	0	0	0	10	0	10	51
Percent	14.6	0.0	85.4	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	100.0	0.0		
04:30 Volume	2	0	14	0	16	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	18
Peak Factor																					0.708
High Int.	04:30 PM					3:45:00 PM					3:45:00 PM					05:00 PM					
Volume	2	0	14	0	16	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	
Peak Factor					0.641															0.833	



LSC Transportation Consultants, Inc.
545 E. Pikes Peak Ave., #210
Colorado Springs, CO 80903
(719) 633-2868

LSC Transportation Consultants, Inc.

File Name : Marksheffel Rd - Hwy 94 AM
Site Code : 00164430
Start Date : 06/21/2016
Page No : 1

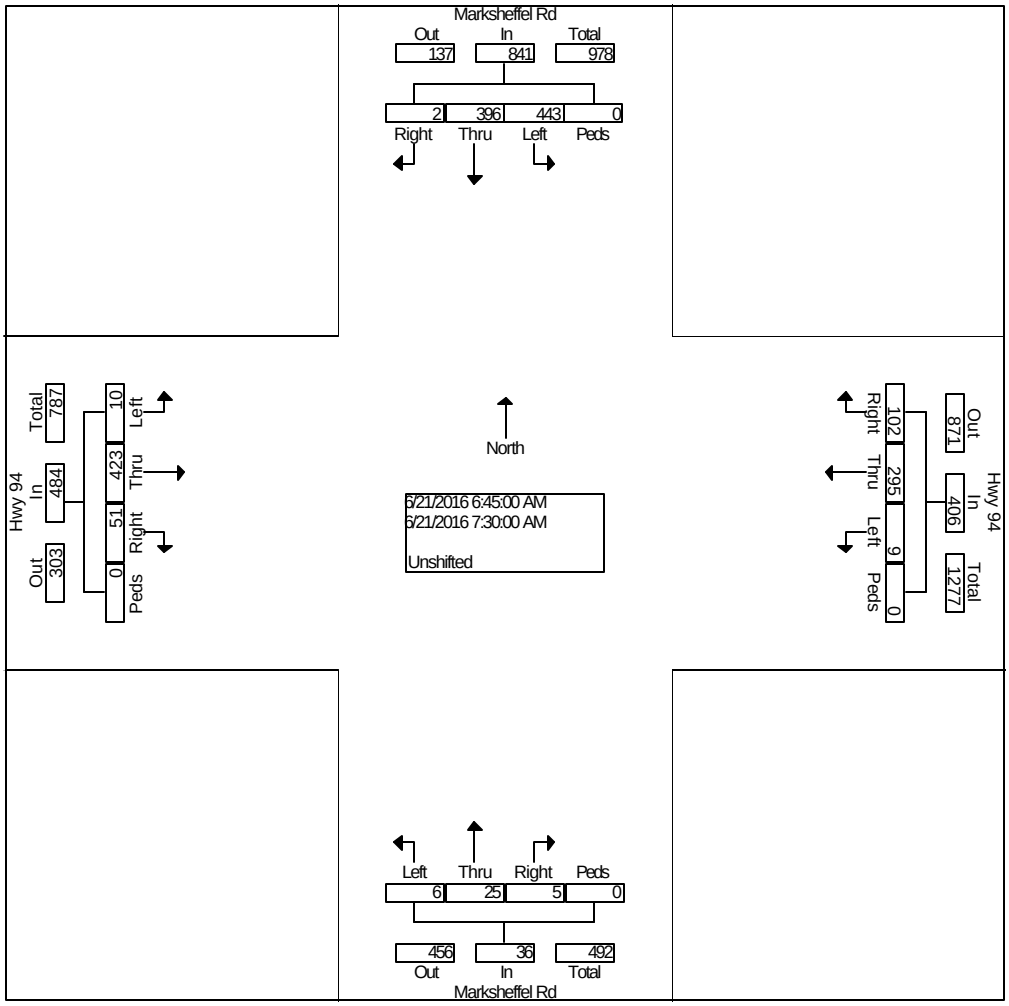
Groups Printed- Unshifted

	Marksheffel Rd From North				Hwy 94 From East				Marksheffel Rd From South				Hwy 94 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	0	91	118	0	34	65	4	0	1	2	0	0	7	91	1	0	414
06:45 AM	0	85	104	0	26	78	3	0	1	4	1	0	15	117	2	0	436
Total	0	176	222	0	60	143	7	0	2	6	1	0	22	208	3	0	850
07:00 AM	0	106	156	0	26	49	1	0	4	9	1	0	11	115	1	0	479
07:15 AM	2	114	94	0	24	71	2	0	0	7	1	0	12	96	4	0	427
07:30 AM	0	91	89	0	26	97	3	0	0	5	3	0	13	95	3	0	425
07:45 AM	1	84	59	0	18	73	2	0	2	12	2	0	11	50	2	0	316
Total	3	395	398	0	94	290	8	0	6	33	7	0	47	356	10	0	1647
08:00 AM	0	53	49	0	18	67	2	0	1	13	4	0	5	41	0	0	253
08:15 AM	0	54	42	0	20	54	3	0	0	7	2	0	4	37	1	0	224
Grand Total	3	678	711	0	192	554	20	0	9	59	14	0	78	642	14	0	2974
Apprch %	0.2	48.7	51.1	0.0	25.1	72.3	2.6	0.0	11.0	72.0	17.1	0.0	10.6	87.5	1.9	0.0	
Total %	0.1	22.8	23.9	0.0	6.5	18.6	0.7	0.0	0.3	2.0	0.5	0.0	2.6	21.6	0.5	0.0	

LSC Transportation Consultants, Inc.
545 E. Pikes Peak Ave., #210
Colorado Springs, CO 80903
(719) 633-2868

File Name : Marksheffel Rd - Hwy 94 AM
Site Code : 00164430
Start Date : 06/21/2016

	Marksheffel Rd From North					Hwy 94 From East					Marksheffel Rd From South					Hwy 94 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	06:45 AM																				
Volume	2	396	443	0	841	102	295	9	0	406	5	25	6	0	36	51	423	10	0	484	1767
Percent	0.2	47.1	52.7	0.0		25.1	72.7	2.2	0.0		13.9	69.4	16.7	0.0		10.5	87.4	2.1	0.0		
07:00 Volume	0	106	156	0	262	26	49	1	0	76	4	9	1	0	14	11	115	1	0	127	479
Peak Factor																					0.922
High Int.	07:00 AM					07:30 AM					07:00 AM					06:45 AM					
Volume	0	106	156	0	262	26	97	3	0	126	4	9	1	0	14	15	117	2	0	134	
Peak Factor					0.802					0.806					0.643					0.903	



LSC Transportation Consultants, Inc.
545 E. Pikes Peak Ave., #210
Colorado Springs, CO 80903
(719) 633-2868

LSC Transportation Consultants, Inc.

File Name : Marksheffel Rd - Hwy 94 PM
Site Code : 00164430
Start Date : 06/21/2016
Page No : 1

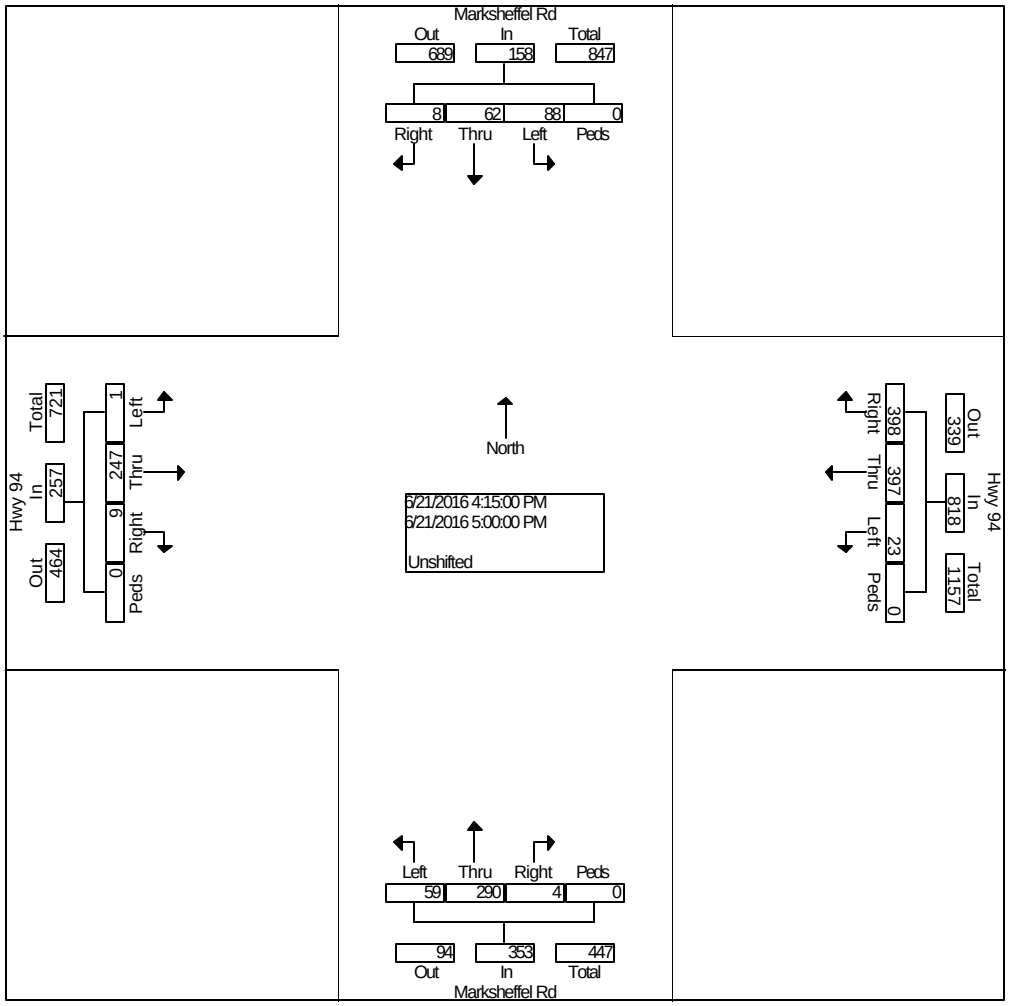
Groups Printed- Unshifted

	Marksheffel Rd From North				Hwy 94 From East				Marksheffel Rd From South				Hwy 94 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	0	8	27	0	66	81	1	0	0	92	16	0	2	61	0	0	354
04:15 PM	3	15	15	0	99	105	4	0	0	88	18	0	0	59	0	0	406
04:30 PM	1	11	25	0	94	104	6	0	0	88	14	0	1	62	0	0	406
04:45 PM	3	23	27	0	112	108	7	0	1	56	16	0	2	56	1	0	412
Total	7	57	94	0	371	398	18	0	1	324	64	0	5	238	1	0	1578
05:00 PM	1	13	21	0	93	80	6	0	3	58	11	0	6	70	0	0	362
05:15 PM	2	13	33	0	79	58	2	0	0	74	14	0	2	60	0	0	337
05:30 PM	1	13	21	0	66	58	3	0	1	47	6	0	2	56	0	0	274
05:45 PM	3	11	32	0	39	35	3	0	2	44	5	0	0	60	0	0	234
Total	7	50	107	0	277	231	14	0	6	223	36	0	10	246	0	0	1207
Grand Total	14	107	201	0	648	629	32	0	7	547	100	0	15	484	1	0	2785
Apprch %	4.3	33.2	62.4	0.0	49.5	48.1	2.4	0.0	1.1	83.6	15.3	0.0	3.0	96.8	0.2	0.0	
Total %	0.5	3.8	7.2	0.0	23.3	22.6	1.1	0.0	0.3	19.6	3.6	0.0	0.5	17.4	0.0	0.0	

LSC Transportation Consultants, Inc.
545 E. Pikes Peak Ave., #210
Colorado Springs, CO 80903
(719) 633-2868

File Name : Marksheffel Rd - Hwy 94 PM
Site Code : 00164430
Start Date : 06/21/2016

	Marksheffel Rd From North					Hwy 94 From East					Marksheffel Rd From South					Hwy 94 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	04:15 PM																				
Volume	8	62	88	0	158	398	397	23	0	818	4	290	59	0	353	9	247	1	0	257	1586
Percent	5.1	39.2	55.7	0.0		48.7	48.5	2.8	0.0		1.1	82.2	16.7	0.0		3.5	96.1	0.4	0.0		
04:45 Volume	3	23	27	0	53	112	108	7	0	227	1	56	16	0	73	2	56	1	0	59	412
Peak Factor																					0.962
High Int.	04:45 PM					04:45 PM					04:15 PM					05:00 PM					
Volume	3	23	27	0	53	112	108	7	0	227	0	88	18	0	106	6	70	0	0	76	
Peak Factor					0.745					0.901					0.833					0.845	



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	4	700	781	3	275	47	270	303	0	224	1097	20
Future Volume (vph)	4	700	781	3	275	47	270	303	0	224	1097	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	500		0	300		300	1000		700	1000		750
Storage Lanes	1		1	1		0	2		1	1		1
Taper Length (ft)	100			300			300			100		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.91	1.00	1.00	0.91	1.00
Frt			0.850			0.850						0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	3574	1599	1787	3574	1599	3467	5136	1881	1787	5136	1599
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1787	3574	1599	1787	3574	1599	3467	5136	1881	1787	5136	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			295			113						145
Link Speed (mph)		30			30			55			55	
Link Distance (ft)		1121			885			1842			2739	
Travel Time (s)		25.5			20.1			22.8			34.0	
Peak Hour Factor	0.92	0.99	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.99	0.92
Adj. Flow (vph)	4	707	849	3	299	51	293	329	0	243	1108	22
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	707	849	3	299	51	293	329	0	243	1108	22
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		18			18			52			52	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	Prot	NA	Prot
Protected Phases	5	2		1	6		7	4	4	3	8	8
Permitted Phases			2			6						

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Detector Phase	5	2	2	1	6	6	7		4	3		8
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	28.0	28.0	6.0	28.0	28.0
Minimum Split (s)	15.0	16.0	16.0	15.0	16.0	16.0	15.0	35.0	35.0	15.0	35.0	35.0
Total Split (s)	8.0	48.0	48.0	15.0	55.0	55.0	17.0	55.0	55.0	17.0	55.0	55.0
Total Split (%)	5.9%	35.6%	35.6%	11.1%	40.7%	40.7%	12.6%	40.7%	40.7%	12.6%	40.7%	40.7%
Maximum Green (s)	3.0	42.0	42.0	10.0	49.0	49.0	12.0	48.0	48.0	12.0	48.0	48.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	2.0	3.0	3.0	2.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	-1.0	1.0	0.0	-1.0	1.0	0.0	-2.0	-2.0	0.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	7.0	5.0	5.0	7.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Max	Max	None	Max	Max	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	3.0	55.7	53.7	6.1	56.4	54.4	12.0	50.0		12.0	50.0	50.0
Actuated g/C Ratio	0.02	0.41	0.40	0.05	0.42	0.40	0.09	0.37		0.09	0.37	0.37
v/c Ratio	0.10	0.48	1.04	0.04	0.20	0.07	0.95	0.17		1.54	0.58	0.03
Control Delay	99.2	23.5	61.4	62.7	25.9	0.2	101.0	28.9		310.7	35.6	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	99.2	23.5	61.4	62.7	25.9	0.2	101.0	28.9		310.7	35.6	0.1
LOS	F	C	E	E	C	A	F	C		F	D	A
Approach Delay		44.3			22.5			62.9			83.8	
Approach LOS		D			C			E			F	
Queue Length 50th (ft)	4	112	~290	3	84	0	134	70		~298	283	0
Queue Length 95th (ft)	m7	212	#958	14	130	0	#225	95		#471	332	0
Internal Link Dist (ft)		1041			805			1762			2659	
Turn Bay Length (ft)	500			300		300	1000			1000		750
Base Capacity (vph)	39	1474	813	132	1493	711	308	1902		158	1902	683
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.10	0.48	1.04	0.02	0.20	0.07	0.95	0.17		1.54	0.58	0.03

Intersection Summary

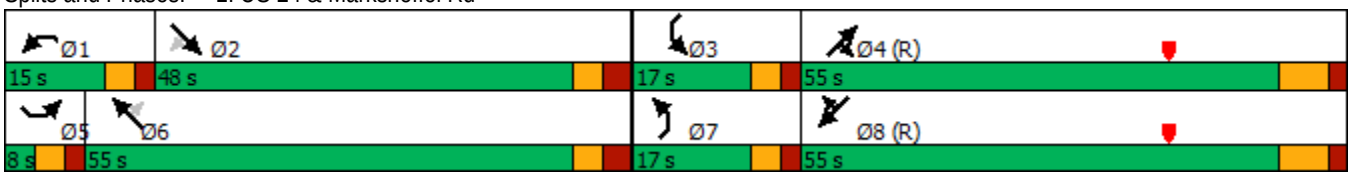
Area Type: Other
Cycle Length: 135
Actuated Cycle Length: 135
Offset: 30 (22%), Referenced to phase 4:NET and 8:SWT, Start of FDW or yellow
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.54
Intersection Signal Delay: 59.2 Intersection LOS: E
Intersection Capacity Utilization 90.9% ICU Level of Service E
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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.

Splits and Phases: 1: US 24 & Marksheffel Rd



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	28	16	157	308	25	2	111	524	408	34	1950	47
Future Volume (vph)	28	16	157	308	25	2	111	524	408	34	1950	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	500		500	1000		1000	800		800
Storage Lanes	1		1	2		0	1		1	1		1
Taper Length (ft)	100			300			100			100		
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	3574	1599	3467	3574	1599	1787	5136	1599	1787	5136	1599
Flt Permitted	0.950			0.950			0.059			0.440		
Satd. Flow (perm)	1787	3574	1599	3467	3574	1599	111	5136	1599	828	5136	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			182			182			421			182
Link Speed (mph)		40			40			55			55	
Link Distance (ft)		575			1072			1668			1125	
Travel Time (s)		9.8			18.3			20.7			13.9	
Peak Hour Factor	0.94	0.94	0.94	0.93	0.93	0.93	0.97	0.97	0.97	0.82	0.82	0.82
Adj. Flow (vph)	30	17	167	331	27	2	114	540	421	41	2378	57
Shared Lane Traffic (%)												
Lane Group Flow (vph)	30	17	167	331	27	2	114	540	421	41	2378	57
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			52			52	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split	NA	Free	Split	NA	Free	D.P+P	NA	Free	D.P+P	NA	Free
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			Free			Free	6		Free	2		Free

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		6.0	28.0		6.0	28.0	
Minimum Split (s)	16.0	16.0		16.0	16.0		13.0	35.0		11.0	35.0	
Total Split (s)	16.0	16.0		21.0	21.0		13.0	70.0		13.0	70.0	
Total Split (%)	13.3%	13.3%		17.5%	17.5%		10.8%	58.3%		10.8%	58.3%	
Maximum Green (s)	11.0	11.0		15.0	15.0		8.0	63.0		8.0	63.0	
Yellow Time (s)	3.0	3.0		4.0	4.0		3.0	5.0		3.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0		6.0	6.0		5.0	7.0		5.0	7.0	
Lead/Lag	Lead	Lead		Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.8	3.8		6.0	6.0		3.0	6.0		3.0	6.0	
Minimum Gap (s)	3.8	3.8		3.8	3.8		3.0	6.0		3.0	6.0	
Time Before Reduce (s)	0.0	0.0		8.0	8.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0		12.0	12.0		0.0	0.0		0.0	0.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effct Green (s)	8.3	8.3	120.0	16.6	16.6	120.0	78.8	72.4	120.0	79.8	69.4	120.0
Actuated g/C Ratio	0.07	0.07	1.00	0.14	0.14	1.00	0.66	0.60	1.00	0.66	0.58	1.00
v/c Ratio	0.24	0.07	0.10	0.69	0.05	0.00	0.65	0.17	0.26	0.07	0.80	0.04
Control Delay	58.0	52.9	0.1	57.6	45.5	0.0	36.6	12.2	0.4	7.5	24.0	0.0
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	58.0	52.9	0.1	57.6	45.5	0.0	36.6	12.2	0.4	7.5	24.0	0.0
LOS	E	D	A	E	D	A	D	B	A	A	C	A
Approach Delay		12.4			56.4			10.2			23.2	
Approach LOS		B			E			B			C	
Queue Length 50th (ft)	23	6	0	126	9	0	36	75	0	11	575	0
Queue Length 95th (ft)	m52	m18	0	#182	24	0	#110	100	0	21	544	0
Internal Link Dist (ft)		495			992			1588			1045	
Turn Bay Length (ft)	200			500		500	1000		1000	800		800
Base Capacity (vph)	163	327	1599	479	494	1599	185	3098	1599	621	2968	1599
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	0.18	0.05	0.10	0.69	0.05	0.00	0.62	0.17	0.26	0.07	0.80	0.04

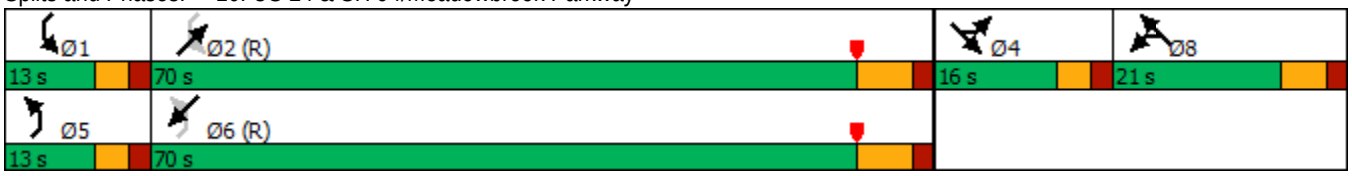
Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 4 (3%), Referenced to phase 2:NESW and 6:NESW, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.80
Intersection Signal Delay: 22.1 Intersection LOS: C
Intersection Capacity Utilization 74.3% ICU Level of Service D
Analysis Period (min) 15
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.

Splits and Phases: 10: US 24 & SH 94/Meadowbrook Parkway



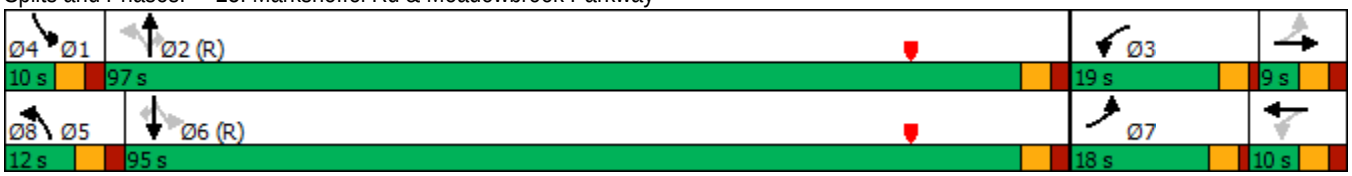
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	2	15	12	3	67	25	542	15	12	1454	143
Future Volume (vph)	58	2	15	12	3	67	25	542	15	12	1454	143
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	210		0	400		0	500		0	375		375
Storage Lanes	2		0	1		0	1		1	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	0.51	0.52		0.87								
Frt		0.868			0.856				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3467	853	0	1787	1610	0	1787	3574	1599	1787	3574	1599
Flt Permitted	0.467			0.746			0.133			0.444		
Satd. Flow (perm)	870	853	0	1214	1610	0	250	3574	1599	835	3574	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15			68				89			146
Link Speed (mph)		35			35			50			50	
Link Distance (ft)		466			924			1121			582	
Travel Time (s)		9.1			18.0			15.3			7.9	
Confl. Peds. (#/hr)	1159		1928	70								
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	59	2	15	12	3	68	26	553	15	12	1484	146
Shared Lane Traffic (%)												
Lane Group Flow (vph)	59	17	0	12	71	0	26	553	15	12	1484	146
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	L NA	Right	Left	L NA	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	7	4		3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	9.0		10.0	9.0		10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	18.0	9.0		19.0	10.0		12.0	97.0	97.0	10.0	95.0	95.0
Total Split (%)	13.3%	6.7%		14.1%	7.4%		8.9%	71.9%	71.9%	7.4%	70.4%	70.4%
Maximum Green (s)	14.0	4.0		15.0	5.0		7.0	92.0	92.0	5.0	90.0	90.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	2.0		1.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
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)	4.0	5.0		4.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	16.3	12.0		12.9	6.9		109.0	107.5	107.5	107.2	104.9	104.9
Actuated g/C Ratio	0.12	0.09		0.10	0.05		0.81	0.80	0.80	0.79	0.78	0.78
v/c Ratio	0.24	0.19		0.08	0.49		0.10	0.19	0.01	0.02	0.53	0.11
Control Delay	51.8	31.9		49.3	26.1		11.1	13.0	2.6	3.8	9.1	1.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.8	31.9		49.3	26.1		11.1	13.0	2.6	3.8	9.1	1.3
LOS	D	C		D	C		B	B	A	A	A	A
Approach Delay		47.3			29.5			12.7			8.4	
Approach LOS		D			C			B			A	
Queue Length 50th (ft)	23	2		9	3		12	132	0	2	300	0
Queue Length 95th (ft)	43	27		28	52		m21	m153	m3	7	422	22
Internal Link Dist (ft)		386			844			1041			502	
Turn Bay Length (ft)	210			400			500			375		375
Base Capacity (vph)	391	89		236	146		282	2845	1291	701	2777	1275
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.19		0.05	0.49		0.09	0.19	0.01	0.02	0.53	0.11

Intersection Summary

Area Type: Other
Cycle Length: 135
Actuated Cycle Length: 135
Offset: 111 (82%), Referenced to phase 2:NBTL and 6:SBTL, Start of FDW or yellow
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.53
Intersection Signal Delay: 11.4 Intersection LOS: B
Intersection Capacity Utilization 63.2% ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 25: Marksheffel Rd & Meadowbrook Parkway



Intersection	
Int Delay, s/veh	4.4

Movement	SEL	SET	SER	NWU	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations													
Traffic Vol, veh/h	9	46	0	23	0	15	87	0	0	0	133	0	3
Future Vol, veh/h	9	46	0	23	0	15	87	0	0	0	133	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	-	150	-	0	-	-	-	100	-	-
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	92
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	10	50	0	25	0	16	95	0	0	0	145	0	3

Major/Minor	Major1			Major2				Minor1			Minor2		
Conflicting Flow All	111	0	0	-	50	0	0	-	231	-	86	136	16
Stage 1	-	-	-	-	-	-	-	-	70	-	16	66	-
Stage 2	-	-	-	-	-	-	-	-	161	-	70	70	-
Critical Hdwy	4.11	-	-	-	4.11	-	-	-	6.51	-	7.11	6.51	6.21
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	5.51	-	6.11	5.51	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	5.51	-	6.11	5.51	-
Follow-up Hdwy	2.209	-	-	-	2.209	-	-	-	4.009	-	3.509	4.009	3.309
Pot Cap-1 Maneuver	1485	-	-	-	1563	-	-	0	671	0	902	757	1066
Stage 1	-	-	-	-	-	-	-	0	839	0	1006	842	-
Stage 2	-	-	-	-	-	-	-	0	767	0	942	839	-
Platoon blocked, %		-	-			-	-						
Mov Cap-1 Maneuver	1485	-	-	-	1563	-	-	-	666	-	897	752	1066
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	666	-	897	752	-
Stage 1	-	-	-	-	-	-	-	-	833	-	999	842	-
Stage 2	-	-	-	-	-	-	-	-	767	-	936	833	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	1.2		0	9.8
HCM LOS			A	A

Minor Lane/Major Mvmt	NELn1	NWU	NWL	NWT	NWR	SEL	SET	SER	SWLn1	SWLn2
Capacity (veh/h)	-	-	1563	-	-	1485	-	-	897	1066
HCM Lane V/C Ratio	-	-	-	-	-	0.007	-	-	0.161	0.003
HCM Control Delay (s)	0	-	0	-	-	7.4	-	-	9.8	8.4
HCM Lane LOS	A	-	A	-	-	A	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0	-	-	0	-	-	0.6	0

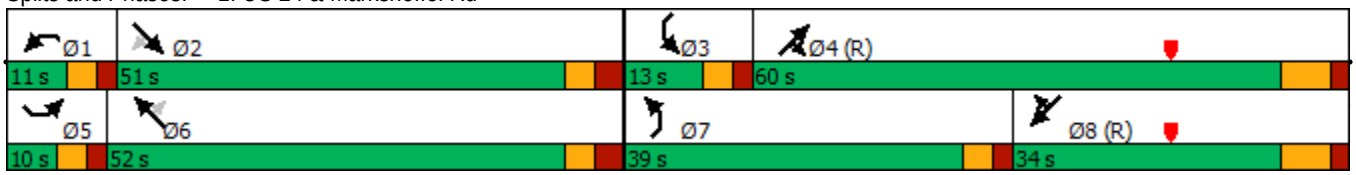
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	19	221	227	10	744	109	681	961	0	30	327	10
Future Volume (vph)	19	221	227	10	744	109	681	961	0	30	327	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	500		0	300		300	1000		700	1000		750
Storage Lanes	1		1	1		0	2		1	1		1
Taper Length (ft)	100			300			300			100		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.91	1.00	1.00	0.91	1.00
Frt			0.850			0.850						0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	3574	1599	1787	3574	1599	3467	5136	1881	1787	5136	1599
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1787	3574	1599	1787	3574	1599	3467	5136	1881	1787	5136	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			247			154						145
Link Speed (mph)		30			30			55			55	
Link Distance (ft)		1126			885			1842			11941	
Travel Time (s)		25.6			20.1			22.8			148.0	
Peak Hour Factor	0.99	0.99	0.92	0.92	0.99	0.95	0.99	0.99	0.92	0.92	0.95	0.92
Adj. Flow (vph)	19	223	247	11	752	115	688	971	0	33	344	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	19	223	247	11	752	115	688	971	0	33	344	11
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		18			18			52			52	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	Prot	NA	Prot
Protected Phases	5	2		1	6		7	4	4	3	8	8
Permitted Phases			2			6						

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Detector Phase	5	2	2	1	6	6	7		4	3		8
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	28.0	28.0	6.0	28.0	28.0
Minimum Split (s)	15.0	16.0	16.0	15.0	16.0	16.0	15.0	35.0	35.0	15.0	35.0	35.0
Total Split (s)	10.0	51.0	51.0	11.0	52.0	52.0	39.0	60.0	60.0	13.0	34.0	34.0
Total Split (%)	7.4%	37.8%	37.8%	8.1%	38.5%	38.5%	28.9%	44.4%	44.4%	9.6%	25.2%	25.2%
Maximum Green (s)	5.0	45.0	45.0	6.0	46.0	46.0	34.0	53.0	53.0	8.0	27.0	27.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	2.0	3.0	3.0	2.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	-1.0	-1.0	0.0	-1.0	-1.0	0.0	-2.0	-2.0	0.0	-2.0	-2.0
Total Lost Time (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
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	Max	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	5.0	36.9	36.9	6.0	37.3	37.3	49.7	75.4		7.8	29.0	29.0
Actuated g/C Ratio	0.04	0.27	0.27	0.04	0.28	0.28	0.37	0.56		0.06	0.21	0.21
v/c Ratio	0.29	0.23	0.40	0.14	0.76	0.21	0.54	0.34		0.32	0.31	0.02
Control Delay	83.6	34.2	3.9	66.1	49.8	2.5	37.8	19.4		68.8	45.5	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	83.6	34.2	3.9	66.1	49.8	2.5	37.8	19.4		68.8	45.5	0.1
LOS	F	C	A	E	D	A	D	B		E	D	A
Approach Delay		20.8			43.8			27.0			46.2	
Approach LOS		C			D			C			D	
Queue Length 50th (ft)	18	69	0	9	318	0	231	165		28	93	0
Queue Length 95th (ft)	m0	79	31	30	359	18	359	267		64	126	0
Internal Link Dist (ft)		1046			805			1762			11861	
Turn Bay Length (ft)	500			300		300	1000			1000		750
Base Capacity (vph)	66	1217	707	79	1244	657	1275	2868		112	1103	457
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.29	0.18	0.35	0.14	0.60	0.18	0.54	0.34		0.29	0.31	0.02

Intersection Summary

Area Type: Other
Cycle Length: 135
Actuated Cycle Length: 135
Offset: 0 (0%), Referenced to phase 4:NET and 8:SWT, Start of FDW or yellow
Natural Cycle: 95
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.76
Intersection Signal Delay: 32.6 — Intersection LOS: C
Intersection Capacity Utilization 75.8% — ICU Level of Service D
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: US 24 & Marksheffel Rd



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	56	15	151	594	34	120	191	1734	259	2	777	32
Future Volume (vph)	56	15	151	594	34	120	191	1734	259	2	777	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	500		500	1000		1000	800		800
Storage Lanes	1		1	2		0	1		1	1		1
Taper Length (ft)	100			300			100			100		
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	3574	1599	3467	3574	1599	1787	5136	1599	1787	5136	1599
Flt Permitted	0.950			0.950			0.258			0.081		
Satd. Flow (perm)	1787	3574	1599	3467	3574	1599	485	5136	1599	152	5136	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			182			182			267			182
Link Speed (mph)		40			40			55			55	
Link Distance (ft)		575			9509			11173			1125	
Travel Time (s)		9.8			162.1			138.5			13.9	
Peak Hour Factor	0.94	0.94	0.94	0.93	0.93	0.93	0.97	0.97	0.97	0.82	0.82	0.82
Adj. Flow (vph)	60	16	161	639	37	129	197	1788	267	2	948	39
Shared Lane Traffic (%)												
Lane Group Flow (vph)	60	16	161	639	37	129	197	1788	267	2	948	39
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			52			52	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split	NA	Free	Split	NA	Free	D.P+P	NA	Free	D.P+P	NA	Free
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			Free			Free	6		Free	2		Free

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		6.0	28.0		6.0	28.0	
Minimum Split (s)	16.0	16.0		16.0	16.0		13.0	35.0		11.0	35.0	
Total Split (s)	16.0	16.0		21.0	21.0		13.0	70.0		13.0	70.0	
Total Split (%)	13.3%	13.3%		17.5%	17.5%		10.8%	58.3%		10.8%	58.3%	
Maximum Green (s)	11.0	11.0		15.0	15.0		8.0	63.0		8.0	63.0	
Yellow Time (s)	3.0	3.0		4.0	4.0		3.0	5.0		3.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0		6.0	6.0		5.0	7.0		5.0	7.0	
Lead/Lag	Lead	Lead		Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.8	3.8		6.0	6.0		3.0	6.0		3.0	6.0	
Minimum Gap (s)	3.8	3.8		3.8	3.8		3.0	6.0		3.0	6.0	
Time Before Reduce (s)	0.0	0.0		8.0	8.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0		12.0	12.0		0.0	0.0		0.0	0.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effct Green (s)	9.5	9.5	120.0	18.8	18.8	120.0	73.0	73.8	120.0	77.0	63.0	120.0
Actuated g/C Ratio	0.08	0.08	1.00	0.16	0.16	1.00	0.61	0.62	1.00	0.64	0.52	1.00
v/c Ratio	0.43	0.06	0.10	1.18	0.07	0.08	0.52	0.57	0.17	0.01	0.35	0.02
Control Delay	62.0	51.4	0.1	141.8	46.6	0.1	13.6	15.0	0.2	7.5	17.1	0.0
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	62.0	51.4	0.1	141.8	46.6	0.1	13.6	15.0	0.2	7.5	17.1	0.0
LOS	E	D	A	F	D	A	B	B	A	A	B	A
Approach Delay		19.2			114.7			13.1			16.4	
Approach LOS		B			F			B			B	
Queue Length 50th (ft)	45	5	0	~341	13	0	56	265	0	1	150	0
Queue Length 95th (ft)	m90	m18	0	#468	30	0	87	392	0	3	162	0
Internal Link Dist (ft)		495			9429			11093			1045	
Turn Bay Length (ft)	200			500		500	1000		1000	800		800
Base Capacity (vph)	163	327	1599	543	560	1599	381	3158	1599	206	2697	1599
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	0.37	0.05	0.10	1.18	0.07	0.08	0.52	0.57	0.17	0.01	0.35	0.02

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 4 (3%), Referenced to phase 2:NESW and 6:NESW, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.18
Intersection Signal Delay: 33.3 Intersection LOS: C
Intersection Capacity Utilization 77.1% ICU Level of Service D
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

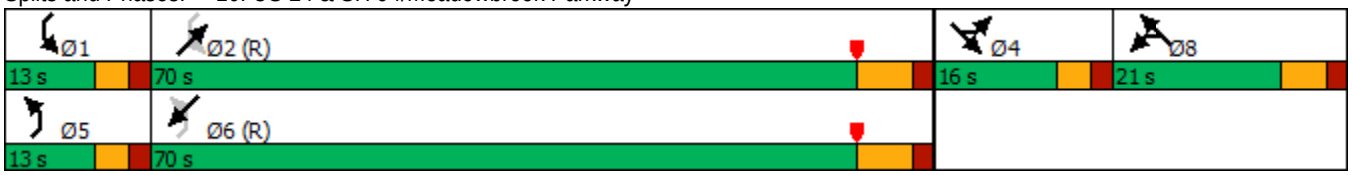
Queue shown is maximum after two cycles.

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.

Splits and Phases: 10: US 24 & SH 94/Meadowbrook Parkway



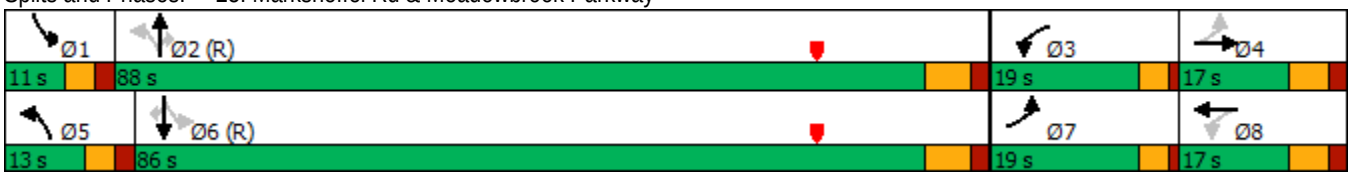
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	99	11	41	22	7	32	21	1458	93	28	597	111
Future Volume (vph)	99	11	41	22	7	32	21	1458	93	28	597	111
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		300	400		0	150		0	0		0
Storage Lanes	2		0	1		0	1		1	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	0.49	0.58		0.90								
Frt		0.883			0.876				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3467	958	0	1787	1648	0	1787	3574	1599	1787	3574	1599
Flt Permitted	0.460			0.721			0.402			0.131		
Satd. Flow (perm)	822	958	0	1219	1648	0	756	3574	1599	246	3574	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		43			34				97			117
Link Speed (mph)		35			35			50			50	
Link Distance (ft)		466			959			1126			555	
Travel Time (s)		9.1			18.7			15.4			7.6	
Confl. Peds. (#/hr)	1159		1928	70								
Peak Hour Factor	0.98	0.95	0.95	0.95	0.95	0.95	0.95	0.99	0.95	0.95	0.95	0.95
Adj. Flow (vph)	101	12	43	23	7	34	22	1473	98	29	628	117
Shared Lane Traffic (%)												
Lane Group Flow (vph)	101	55	0	23	41	0	22	1473	98	29	628	117
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	7	4		3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	10.0		10.0	10.0		10.0	11.5	11.5	10.0	11.5	11.5
Total Split (s)	19.0	17.0		19.0	17.0		13.0	88.0	88.0	11.0	86.0	86.0
Total Split (%)	14.1%	12.6%		14.1%	12.6%		9.6%	65.2%	65.2%	8.1%	63.7%	63.7%
Maximum Green (s)	15.0	11.0		15.0	11.0		8.0	81.5	81.5	6.0	79.5	79.5
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.5	4.5	3.0	4.5	4.5
All-Red Time (s)	1.0	2.0		1.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
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)	4.0	6.0		4.0	6.0		5.0	6.5	6.5	5.0	6.5	6.5
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	19.0	11.1		15.0	7.5		102.7	97.5	97.5	102.9	97.6	97.6
Actuated g/C Ratio	0.14	0.08		0.11	0.06		0.76	0.72	0.72	0.76	0.72	0.72
v/c Ratio	0.35	0.47		0.14	0.34		0.04	0.57	0.08	0.11	0.24	0.10
Control Delay	51.2	35.2		47.5	30.1		3.6	5.2	1.2	5.5	8.0	1.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.2	35.2		47.5	30.1		3.6	5.2	1.2	5.5	8.0	1.8
LOS	D	D		D	C		A	A	A	A	A	A
Approach Delay		45.6			36.4			4.9			6.9	
Approach LOS		D			D			A			A	
Queue Length 50th (ft)	40	10		18	6		1	57	0	5	101	0
Queue Length 95th (ft)	62	55		42	44		m7	177	m12	16	158	23
Internal Link Dist (ft)		386			879			1046			475	
Turn Bay Length (ft)	250			400			150					
Base Capacity (vph)	425	130		258	168		642	2581	1181	258	2584	1188
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.42		0.09	0.24		0.03	0.57	0.08	0.11	0.24	0.10

Intersection Summary

Area Type: Other
Cycle Length: 135
Actuated Cycle Length: 135
Offset: 102.5 (76%), Referenced to phase 2:NBTL and 6:SBTL, Start of FDW or yellow
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.57
Intersection Signal Delay: 8.7 Intersection LOS: A
Intersection Capacity Utilization 66.0% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 25: Marksheffel Rd & Meadowbrook Parkway



Intersection	
Int Delay, s/veh	4.8

Movement	SEL	SET	SER	NWU	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations													
Traffic Vol, veh/h	6	30	0	26	0	52	88	0	0	0	166	0	10
Future Vol, veh/h	6	30	0	26	0	52	88	0	0	0	166	0	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	-	150	-	0	-	-	-	100	-	-
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	92
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	7	33	0	28	0	57	96	0	0	0	180	0	11

Major/Minor	Major1			Major2				Minor1			Minor2		
Conflicting Flow All	153	0	0	-	33	0	0	-	256	-	104	160	57
Stage 1	-	-	-	-	-	-	-	-	47	-	57	113	-
Stage 2	-	-	-	-	-	-	-	-	209	-	47	47	-
Critical Hdwy	4.11	-	-	-	4.11	-	-	-	6.51	-	7.11	6.51	6.21
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	5.51	-	6.11	5.51	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	5.51	-	6.11	5.51	-
Follow-up Hdwy	2.209	-	-	-	2.209	-	-	-	4.009	-	3.509	4.009	3.309
Pot Cap-1 Maneuver	1434	-	-	-	1585	-	-	0	650	0	878	734	1012
Stage 1	-	-	-	-	-	-	-	0	858	0	957	804	-
Stage 2	-	-	-	-	-	-	-	0	731	0	969	858	-
Platoon blocked, %		-	-			-	-						
Mov Cap-1 Maneuver	1434	-	-	-	1585	-	-	-	647	-	874	730	1012
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	647	-	874	730	-
Stage 1	-	-	-	-	-	-	-	-	854	-	952	804	-
Stage 2	-	-	-	-	-	-	-	-	731	-	964	854	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	1.3		0	10.1
HCM LOS			A	B

Minor Lane/Major Mvmt	NELn1	NWU	NWL	NWT	NWR	SEL	SET	SER	SWLn1	SWLn2
Capacity (veh/h)	-	-	1585	-	-	1434	-	-	874	1012
HCM Lane V/C Ratio	-	-	-	-	-	0.005	-	-	0.206	0.011
HCM Control Delay (s)	0	-	0	-	-	7.5	-	-	10.2	8.6
HCM Lane LOS	A	-	A	-	-	A	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0	-	-	0	-	-	0.8	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	68	3	31	12	6	67	61	538	15	12	1447	176
Future Volume (vph)	68	3	31	12	6	67	61	538	15	12	1447	176
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	225		0	400		0	425		0	375		300
Storage Lanes	2		0	1		0	1		1	1		1
Taper Length (ft)	185			100			100			100		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.863			0.862				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	1608	0	1770	1606	0	1770	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	1608	0	1770	1606	0	1770	3539	1583	1770	3539	1583
Link Speed (mph)		35			35			50			50	
Link Distance (ft)		494			468			509			6009	
Travel Time (s)		9.6			9.1			6.9			81.9	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	69	3	32	12	6	68	62	549	15	12	1477	180
Shared Lane Traffic (%)												
Lane Group Flow (vph)	69	35	0	12	74	0	62	549	15	12	1477	180
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 62.0%	ICU Level of Service B
Analysis Period (min) 15	

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	128	14	32	122	0	20	0	46	0	0	0
Future Vol, veh/h	0	128	14	32	122	0	20	0	46	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	75	-	-	75	-	-	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	0	139	15	35	133	0	22	0	50	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	133	0	0	154	0	0	350	350	147	375	357	133
Stage 1	-	-	-	-	-	-	147	147	-	203	203	-
Stage 2	-	-	-	-	-	-	203	203	-	172	154	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1452	-	-	1426	-	-	605	574	900	582	569	916
Stage 1	-	-	-	-	-	-	856	775	-	799	733	-
Stage 2	-	-	-	-	-	-	799	733	-	830	770	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1452	-	-	1426	-	-	594	560	900	540	555	916
Mov Cap-2 Maneuver	-	-	-	-	-	-	594	560	-	540	555	-
Stage 1	-	-	-	-	-	-	856	775	-	799	715	-
Stage 2	-	-	-	-	-	-	779	715	-	784	770	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	1.6	9.8	0
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	594	900	1452	-	-	1426	-	-	-
HCM Lane V/C Ratio	0.037	0.056	-	-	-	0.024	-	-	-
HCM Control Delay (s)	11.3	9.2	0	-	-	7.6	-	-	0
HCM Lane LOS	B	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.1	0.2	0	-	-	0.1	-	-	-

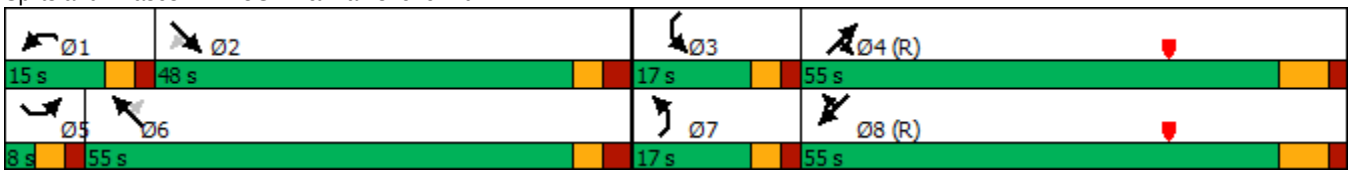
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	6	701	787	3	280	47	284	301	0	224	1092	33
Future Volume (vph)	6	701	787	3	280	47	284	301	0	224	1092	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	500		0	300		300	1000		700	1000		750
Storage Lanes	1		1	1		0	2		1	1		1
Taper Length (ft)	100			300			300			100		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.91	1.00	1.00	0.91	1.00
Frt			0.850			0.850						0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	3574	1599	1787	3574	1599	3467	5136	1881	1787	5136	1599
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1787	3574	1599	1787	3574	1599	3467	5136	1881	1787	5136	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			295			113						145
Link Speed (mph)		30			30			55			55	
Link Distance (ft)		1121			885			1842			2739	
Travel Time (s)		25.5			20.1			22.8			34.0	
Peak Hour Factor	0.92	0.99	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.99	0.92
Adj. Flow (vph)	7	708	855	3	304	51	309	327	0	243	1103	36
Shared Lane Traffic (%)												
Lane Group Flow (vph)	7	708	855	3	304	51	309	327	0	243	1103	36
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		18			18			52			52	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	Prot	NA	Prot
Protected Phases	5	2		1	6		7	4	4	3	8	8
Permitted Phases			2			6						

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Detector Phase	5	2	2	1	6	6	7		4	3		8
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	28.0	28.0	6.0	28.0	28.0
Minimum Split (s)	15.0	16.0	16.0	15.0	16.0	16.0	15.0	35.0	35.0	15.0	35.0	35.0
Total Split (s)	8.0	48.0	48.0	15.0	55.0	55.0	17.0	55.0	55.0	17.0	55.0	55.0
Total Split (%)	5.9%	35.6%	35.6%	11.1%	40.7%	40.7%	12.6%	40.7%	40.7%	12.6%	40.7%	40.7%
Maximum Green (s)	3.0	42.0	42.0	10.0	49.0	49.0	12.0	48.0	48.0	12.0	48.0	48.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	2.0	3.0	3.0	2.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	-1.0	1.0	0.0	-1.0	1.0	0.0	-2.0	-2.0	0.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	7.0	5.0	5.0	7.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Max	Max	None	Max	Max	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	3.0	55.7	53.7	6.1	56.4	54.4	12.0	50.0		12.0	50.0	50.0
Actuated g/C Ratio	0.02	0.41	0.40	0.05	0.42	0.40	0.09	0.37		0.09	0.37	0.37
v/c Ratio	0.18	0.48	1.05	0.04	0.20	0.07	1.00	0.17		1.54	0.58	0.05
Control Delay	99.7	22.8	62.8	62.7	25.9	0.2	112.8	28.9		310.7	35.6	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
Total Delay	99.7	22.8	62.8	62.7	25.9	0.2	112.8	28.9		310.7	35.6	0.2
LOS	F	C	E	E	C	A	F	C		F	D	A
Approach Delay		45.0			22.6			69.7			83.0	
Approach LOS		D			C			E			F	

Intersection Summary

Area Type: Other
Cycle Length: 135
Actuated Cycle Length: 135
Offset: 30 (22%), Referenced to phase 4:NET and 8:SWT, Start of FDW or yellow
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.54
Intersection Signal Delay: 60.2 — Intersection LOS: E
Intersection Capacity Utilization 91.2% — ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 1: US 24 & Marksheffel Rd

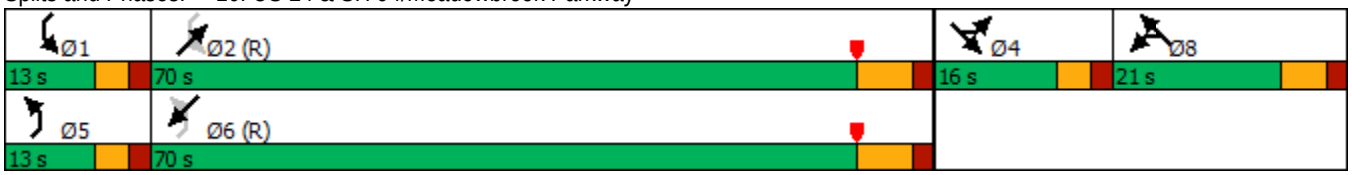


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	28	16	162	308	25	2	122	523	408	34	1957	47
Future Volume (vph)	28	16	162	308	25	2	122	523	408	34	1957	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	500		500	1000		1000	800		800
Storage Lanes	1		1	2		0	1		1	1		1
Taper Length (ft)	100			300			100			100		
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	3574	1599	3467	3574	1599	1787	5136	1599	1787	5136	1599
Flt Permitted	0.950			0.950			0.060			0.441		
Satd. Flow (perm)	1787	3574	1599	3467	3574	1599	113	5136	1599	830	5136	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			182			182			421			182
Link Speed (mph)		40			40			55			55	
Link Distance (ft)		575			1072			1668			1125	
Travel Time (s)		9.8			18.3			20.7			13.9	
Peak Hour Factor	0.94	0.94	0.94	0.93	0.93	0.93	0.97	0.97	0.97	0.82	0.82	0.82
Adj. Flow (vph)	30	17	172	331	27	2	126	539	421	41	2387	57
Shared Lane Traffic (%)												
Lane Group Flow (vph)	30	17	172	331	27	2	126	539	421	41	2387	57
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			52			52	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split	NA	Free	Split	NA	Free	D.P+P	NA	Free	D.P+P	NA	Free
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			Free			Free	6		Free	2		Free

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		6.0	28.0		6.0	28.0	
Minimum Split (s)	16.0	16.0		16.0	16.0		13.0	35.0		11.0	35.0	
Total Split (s)	16.0	16.0		21.0	21.0		13.0	70.0		13.0	70.0	
Total Split (%)	13.3%	13.3%		17.5%	17.5%		10.8%	58.3%		10.8%	58.3%	
Maximum Green (s)	11.0	11.0		15.0	15.0		8.0	63.0		8.0	63.0	
Yellow Time (s)	3.0	3.0		4.0	4.0		3.0	5.0		3.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0		6.0	6.0		5.0	7.0		5.0	7.0	
Lead/Lag	Lead	Lead		Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.8	3.8		6.0	6.0		3.0	6.0		3.0	6.0	
Minimum Gap (s)	3.8	3.8		3.8	3.8		3.0	6.0		3.0	6.0	
Time Before Reduce (s)	0.0	0.0		8.0	8.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0		12.0	12.0		0.0	0.0		0.0	0.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effct Green (s)	8.3	8.3	120.0	16.6	16.6	120.0	78.8	72.4	120.0	79.8	69.1	120.0
Actuated g/C Ratio	0.07	0.07	1.00	0.14	0.14	1.00	0.66	0.60	1.00	0.66	0.58	1.00
v/c Ratio	0.24	0.07	0.11	0.69	0.05	0.00	0.70	0.17	0.26	0.07	0.81	0.04
Control Delay	57.9	53.0	0.1	57.6	45.5	0.0	41.4	12.2	0.4	7.5	24.3	0.0
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	57.9	53.0	0.1	57.6	45.5	0.0	41.4	12.2	0.4	7.5	24.3	0.0
LOS	E	D	A	E	D	A	D	B	A	A	C	A
Approach Delay		12.2			56.4			11.0			23.5	
Approach LOS		B			E			B			C	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 4 (3%), Referenced to phase 2:NESW and 6:NESW, Start of Yellow	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.81	
Intersection Signal Delay: 22.5	Intersection LOS: C
Intersection Capacity Utilization 75.0%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 10: US 24 & SH 94/Meadowbrook Parkway

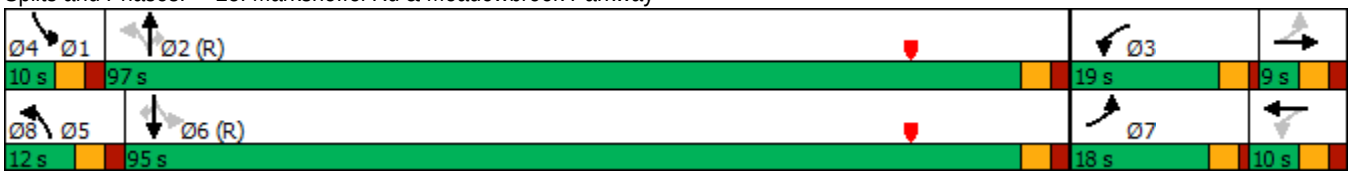


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	68	3	31	12	6	67	61	538	15	12	1447	176
Future Volume (vph)	68	3	31	12	6	67	61	538	15	12	1447	176
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	210		0	400		0	500		0	375		375
Storage Lanes	2		0	1		0	1		1	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	0.51	0.51		0.87								
Frt		0.863			0.862				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3467	820	0	1787	1622	0	1787	3574	1599	1787	3574	1599
Flt Permitted	0.439			0.734			0.129			0.447		
Satd. Flow (perm)	821	820	0	1199	1622	0	243	3574	1599	841	3574	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		32			68				89			180
Link Speed (mph)		35			35			50			50	
Link Distance (ft)		466			924			1121			582	
Travel Time (s)		9.1			18.0			15.3			7.9	
Confl. Peds. (#/hr)	1159		1928	70								
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	69	3	32	12	6	68	62	549	15	12	1477	180
Shared Lane Traffic (%)												
Lane Group Flow (vph)	69	35	0	12	74	0	62	549	15	12	1477	180
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	L NA	Right	Left	L NA	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	7	4		3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	9.0		10.0	9.0		10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	18.0	9.0		19.0	10.0		12.0	97.0	97.0	10.0	95.0	95.0
Total Split (%)	13.3%	6.7%		14.1%	7.4%		8.9%	71.9%	71.9%	7.4%	70.4%	70.4%
Maximum Green (s)	14.0	4.0		15.0	5.0		7.0	92.0	92.0	5.0	90.0	90.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	2.0		1.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
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)	4.0	5.0		4.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	16.8	12.5		13.0	6.9		108.9	107.1	107.1	105.4	102.0	102.0
Actuated g/C Ratio	0.12	0.09		0.10	0.05		0.81	0.79	0.79	0.78	0.76	0.76
v/c Ratio	0.27	0.34		0.08	0.50		0.23	0.19	0.01	0.02	0.55	0.14
Control Delay	52.1	29.7		49.1	27.8		13.1	13.2	2.7	3.8	10.4	1.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.1	29.7		49.1	27.8		13.1	13.2	2.7	3.8	10.4	1.3
LOS	D	C		D	C		B	B	A	A	B	A
Approach Delay		44.6			30.8			12.9			9.3	
Approach LOS		D			C			B			A	

Intersection Summary	
Area Type:	Other
Cycle Length: 135	
Actuated Cycle Length: 135	
Offset: 111 (82%), Referenced to phase 2:NBTL and 6:SBTL, Start of FDW or yellow	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.55	
Intersection Signal Delay: 12.5	Intersection LOS: B
Intersection Capacity Utilization 72.0%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 25: Marksheffel Rd & Meadowbrook Parkway



Intersection	
Int Delay, s/veh	4.3

Movement	SEL	SET	SER	NWU	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations													
Traffic Vol, veh/h	9	46	0	23	0	15	100	0	0	0	138	0	3
Future Vol, veh/h	9	46	0	23	0	15	100	0	0	0	138	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	-	150	-	0	-	-	-	100	-	-
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	92
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	10	50	0	25	0	16	109	0	0	0	150	0	3

Major/Minor	Major1			Major2				Minor1			Minor2		
Conflicting Flow All	125	0	0	-	50	0	0	-	245	-	86	136	16
Stage 1	-	-	-	-	-	-	-	-	70	-	16	66	-
Stage 2	-	-	-	-	-	-	-	-	175	-	70	70	-
Critical Hdwy	4.11	-	-	-	4.11	-	-	-	6.51	-	7.11	6.51	6.21
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	5.51	-	6.11	5.51	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	5.51	-	6.11	5.51	-
Follow-up Hdwy	2.209	-	-	-	2.209	-	-	-	4.009	-	3.509	4.009	3.309
Pot Cap-1 Maneuver	1468	-	-	-	1563	-	-	0	659	0	902	757	1066
Stage 1	-	-	-	-	-	-	-	0	839	0	1006	842	-
Stage 2	-	-	-	-	-	-	-	0	756	0	942	839	-
Platoon blocked, %		-	-			-	-						
Mov Cap-1 Maneuver	1468	-	-	-	1563	-	-	-	654	-	897	752	1066
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	654	-	897	752	-
Stage 1	-	-	-	-	-	-	-	-	833	-	999	842	-
Stage 2	-	-	-	-	-	-	-	-	756	-	936	833	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	1.2		0	9.8
HCM LOS			A	A

Minor Lane/Major Mvmt	NELn1	NWU	NWL	NWT	NWR	SEL	SET	SER	SWLn1	SWLn2
Capacity (veh/h)	-	-	1563	-	-	1468	-	-	897	1066
HCM Lane V/C Ratio	-	-	-	-	-	0.007	-	-	0.167	0.003
HCM Control Delay (s)	0	-	0	-	-	7.5	-	-	9.8	8.4
HCM Lane LOS	A	-	A	-	-	A	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0	-	-	0	-	-	0.6	0

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	2	0	8	0	65	8	24	150	0
Future Vol, veh/h	0	0	0	2	0	8	0	65	8	24	150	0
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	-	-	75	75	-	-
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, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	0	0	0	2	0	9	0	71	9	26	163	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	295	295	163	286	-	71	-	0	0	80	0	0
Stage 1	215	215	-	71	-	-	-	-	-	-	-	-
Stage 2	80	80	-	215	-	-	-	-	-	-	-	-
Critical Hdwy	7.11	6.51	6.21	7.11	-	6.21	-	-	-	4.11	-	-
Critical Hdwy Stg 1	6.11	5.51	-	6.11	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.11	5.51	-	6.11	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.309	3.509	-	3.309	-	-	-	2.209	-	-
Pot Cap-1 Maneuver	659	618	884	668	0	994	0	-	-	1524	-	0
Stage 1	790	727	-	941	0	-	0	-	-	-	-	0
Stage 2	931	830	-	790	0	-	0	-	-	-	-	0
Platoon blocked, %								-	-		-	
Mov Cap-1 Maneuver	645	607	884	659	-	994	-	-	-	1524	-	-
Mov Cap-2 Maneuver	645	607	-	659	-	-	-	-	-	-	-	-
Stage 1	790	715	-	941	-	-	-	-	-	-	-	-
Stage 2	923	830	-	777	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	9.1	0	1
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	-	659	994	1524	-
HCM Lane V/C Ratio	-	-	-	0.003	0.009	0.017	-
HCM Control Delay (s)	-	-	0	10.5	8.7	7.4	-
HCM Lane LOS	-	-	A	B	A	A	-
HCM 95th %tile Q(veh)	-	-	-	0	0	0.1	-

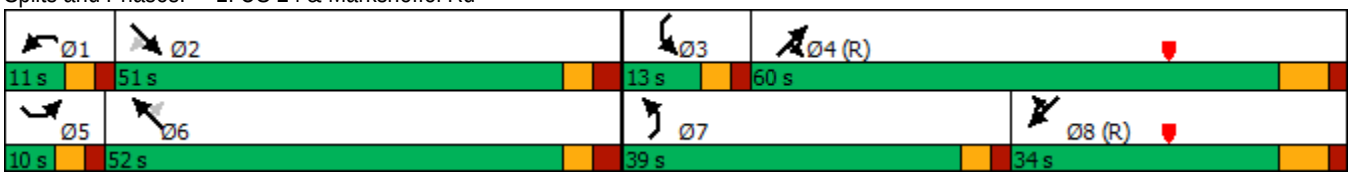
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	43	229	255	10	751	109	698	951	0	30	321	25
Future Volume (vph)	43	229	255	10	751	109	698	951	0	30	321	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	500		0	300		300	1000		700	1000		750
Storage Lanes	1		1	1		0	2		1	1		1
Taper Length (ft)	100			300			300			100		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.91	1.00	1.00	0.91	1.00
Frt			0.850			0.850						0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	3574	1599	1787	3574	1599	3467	5136	1881	1787	5136	1599
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1787	3574	1599	1787	3574	1599	3467	5136	1881	1787	5136	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			277			154						145
Link Speed (mph)		30			30			55			55	
Link Distance (ft)		1126			885			1842			11941	
Travel Time (s)		25.6			20.1			22.8			148.0	
Peak Hour Factor	0.99	0.99	0.92	0.92	0.99	0.95	0.99	0.99	0.92	0.92	0.95	0.92
Adj. Flow (vph)	43	231	277	11	759	115	705	961	0	33	338	27
Shared Lane Traffic (%)												
Lane Group Flow (vph)	43	231	277	11	759	115	705	961	0	33	338	27
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		18			18			52			52	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	Prot	NA	Prot
Protected Phases	5	2		1	6		7	4	4	3	8	8
Permitted Phases			2			6						

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Detector Phase	5	2	2	1	6	6	7		4	3		8
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	28.0	28.0	6.0	28.0	28.0
Minimum Split (s)	15.0	16.0	16.0	15.0	16.0	16.0	15.0	35.0	35.0	15.0	35.0	35.0
Total Split (s)	10.0	51.0	51.0	11.0	52.0	52.0	39.0	60.0	60.0	13.0	34.0	34.0
Total Split (%)	7.4%	37.8%	37.8%	8.1%	38.5%	38.5%	28.9%	44.4%	44.4%	9.6%	25.2%	25.2%
Maximum Green (s)	5.0	45.0	45.0	6.0	46.0	46.0	34.0	53.0	53.0	8.0	27.0	27.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	2.0	3.0	3.0	2.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	-1.0	-1.0	0.0	-1.0	-1.0	0.0	-2.0	-2.0	0.0	-2.0	-2.0
Total Lost Time (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
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	Max	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	5.0	41.1	41.1	6.0	37.5	37.5	45.5	71.2		7.8	29.0	29.0
Actuated g/C Ratio	0.04	0.30	0.30	0.04	0.28	0.28	0.34	0.53		0.06	0.21	0.21
v/c Ratio	0.65	0.21	0.41	0.14	0.76	0.21	0.60	0.35		0.32	0.31	0.06
Control Delay	110.1	31.9	4.0	66.1	49.7	2.5	41.8	21.5		69.0	45.4	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
Total Delay	110.1	31.9	4.0	66.1	49.7	2.5	41.8	21.5		69.0	45.4	0.2
LOS	F	C	A	E	D	A	D	C		E	D	A
Approach Delay		24.0			43.8			30.1			44.3	
Approach LOS		C			D			C			D	
Queue Length 50th (ft)	40	63	0	9	322	0	271	194		28	91	0
Queue Length 95th (ft)	m#97	85	37	30	362	18	371	264		64	123	0
Internal Link Dist (ft)		1046			805			1762			11861	
Turn Bay Length (ft)	500			300		300	1000			1000		750
Base Capacity (vph)	66	1226	730	79	1244	657	1167	2709		111	1103	457
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.65	0.19	0.38	0.14	0.61	0.18	0.60	0.35		0.30	0.31	0.06

Intersection Summary

Area Type: Other
Cycle Length: 135
Actuated Cycle Length: 135
Offset: 0 (0%), Referenced to phase 4:NET and 8:SWT, Start of FDW or yellow
Natural Cycle: 95
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.76
Intersection Signal Delay: 34.2 Intersection LOS: C
Intersection Capacity Utilization 85.7% ICU Level of Service E
Analysis Period (min) 15
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.

Splits and Phases: 1: US 24 & Marksheffel Rd



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	56	15	173	594	34	120	219	1720	259	2	798	32
Future Volume (vph)	56	15	173	594	34	120	219	1720	259	2	798	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	500		500	1000		1000	800		800
Storage Lanes	1		1	2		0	1		1	1		1
Taper Length (ft)	100			300			100			100		
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	3574	1599	3467	3574	1599	1787	5136	1599	1787	5136	1599
Flt Permitted	0.950			0.950			0.249			0.083		
Satd. Flow (perm)	1787	3574	1599	3467	3574	1599	468	5136	1599	156	5136	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			184			182			267			182
Link Speed (mph)		40			40			55			55	
Link Distance (ft)		575			9509			11173			1125	
Travel Time (s)		9.8			162.1			138.5			13.9	
Peak Hour Factor	0.94	0.94	0.94	0.93	0.93	0.93	0.97	0.97	0.97	0.82	0.82	0.82
Adj. Flow (vph)	60	16	184	639	37	129	226	1773	267	2	973	39
Shared Lane Traffic (%)												
Lane Group Flow (vph)	60	16	184	639	37	129	226	1773	267	2	973	39
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			52			52	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split	NA	Free	Split	NA	Free	D.P+P	NA	Free	D.P+P	NA	Free
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			Free			Free	6		Free	2		Free

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		6.0	28.0		6.0	28.0	
Minimum Split (s)	16.0	16.0		16.0	16.0		13.0	35.0		11.0	35.0	
Total Split (s)	16.0	16.0		21.0	21.0		13.0	70.0		13.0	70.0	
Total Split (%)	13.3%	13.3%		17.5%	17.5%		10.8%	58.3%		10.8%	58.3%	
Maximum Green (s)	11.0	11.0		15.0	15.0		8.0	63.0		8.0	63.0	
Yellow Time (s)	3.0	3.0		4.0	4.0		3.0	5.0		3.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0		6.0	6.0		5.0	7.0		5.0	7.0	
Lead/Lag	Lead	Lead		Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.8	3.8		6.0	6.0		3.0	6.0		3.0	6.0	
Minimum Gap (s)	3.8	3.8		3.8	3.8		3.0	6.0		3.0	6.0	
Time Before Reduce (s)	0.0	0.0		8.0	8.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0		12.0	12.0		0.0	0.0		0.0	0.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effct Green (s)	9.5	9.5	120.0	18.8	18.8	120.0	73.0	73.8	120.0	77.0	63.0	120.0
Actuated g/C Ratio	0.08	0.08	1.00	0.16	0.16	1.00	0.61	0.62	1.00	0.64	0.52	1.00
v/c Ratio	0.43	0.06	0.12	1.18	0.07	0.08	0.61	0.56	0.17	0.01	0.36	0.02
Control Delay	61.5	51.3	0.1	141.8	46.6	0.1	16.4	14.9	0.2	7.5	17.2	0.0
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	61.5	51.3	0.1	141.8	46.6	0.1	16.4	14.9	0.2	7.5	17.2	0.0
LOS	E	D	A	F	D	A	B	B	A	A	B	A
Approach Delay		17.5			114.7			13.4			16.5	
Approach LOS		B			F			B			B	
Queue Length 50th (ft)	45	5	0	~341	13	0	65	261	0	1	155	0
Queue Length 95th (ft)	m87	m17	0	#468	30	0	99	387	0	3	166	0
Internal Link Dist (ft)		495			9429			11093			1045	
Turn Bay Length (ft)	200			500		500	1000		1000	800		800
Base Capacity (vph)	163	327	1599	543	560	1599	372	3158	1599	209	2696	1599
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	0.37	0.05	0.12	1.18	0.07	0.08	0.61	0.56	0.17	0.01	0.36	0.02

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 4 (3%), Referenced to phase 2:NESW and 6:NESW, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.18
Intersection Signal Delay: 33.1 Intersection LOS: C
Intersection Capacity Utilization 76.8% ICU Level of Service D
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

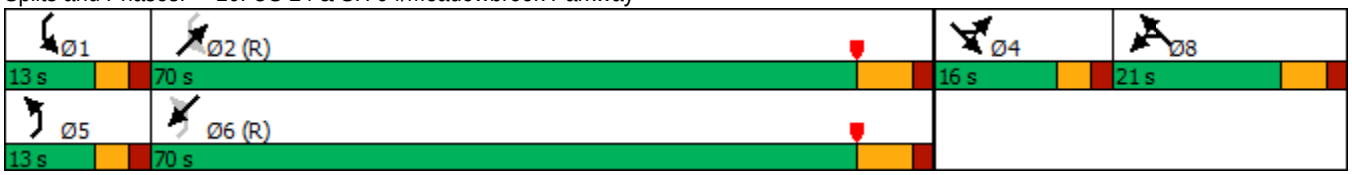
Queue shown is maximum after two cycles.

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.

Splits and Phases: 10: US 24 & SH 94/Meadowbrook Parkway



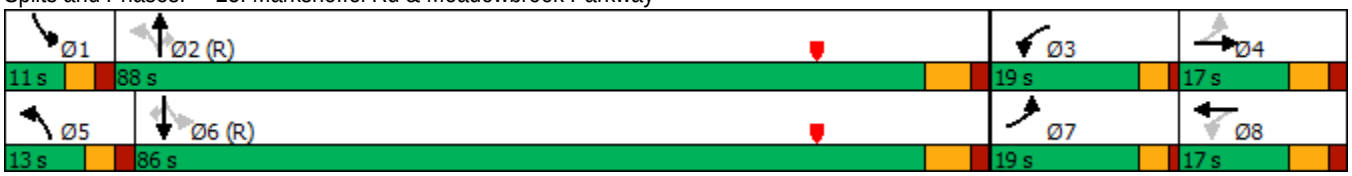
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	158	16	112	22	10	32	74	1444	93	28	586	149
Future Volume (vph)	158	16	112	22	10	32	74	1444	93	28	586	149
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		300	400		0	150		0	0		0
Storage Lanes	2		0	1		0	1		1	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	0.49	0.53		0.92								
Frt		0.869			0.887				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3467	861	0	1787	1669	0	1787	3574	1599	1787	3574	1599
Flt Permitted	0.475			0.671			0.385			0.134		
Satd. Flow (perm)	854	861	0	1157	1669	0	724	3574	1599	252	3574	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		118			34				97			157
Link Speed (mph)		35			35			50			50	
Link Distance (ft)		466			572			1126			555	
Travel Time (s)		9.1			11.1			15.4			7.6	
Confl. Peds. (#/hr)	1159		1928	70								
Peak Hour Factor	0.98	0.95	0.95	0.95	0.95	0.95	0.95	0.99	0.95	0.95	0.95	0.95
Adj. Flow (vph)	161	17	118	23	11	34	78	1459	98	29	617	157
Shared Lane Traffic (%)												
Lane Group Flow (vph)	161	135	0	23	45	0	78	1459	98	29	617	157
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	7	4		3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	10.0		10.0	10.0		10.0	11.5	11.5	10.0	11.5	11.5
Total Split (s)	19.0	17.0		19.0	17.0		13.0	88.0	88.0	11.0	86.0	86.0
Total Split (%)	14.1%	12.6%		14.1%	12.6%		9.6%	65.2%	65.2%	8.1%	63.7%	63.7%
Maximum Green (s)	15.0	11.0		15.0	11.0		8.0	81.5	81.5	6.0	79.5	79.5
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.5	4.5	3.0	4.5	4.5
All-Red Time (s)	1.0	2.0		1.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
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)	4.0	6.0		4.0	6.0		5.0	6.5	6.5	5.0	6.5	6.5
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	23.0	13.9		15.7	8.3		100.9	94.8	94.8	97.0	89.6	89.6
Actuated g/C Ratio	0.17	0.10		0.12	0.06		0.75	0.70	0.70	0.72	0.66	0.66
v/c Ratio	0.45	0.70		0.14	0.34		0.13	0.58	0.09	0.12	0.26	0.14
Control Delay	50.8	32.3		44.8	31.2		4.0	6.0	1.4	6.6	10.7	2.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.8	32.3		44.8	31.2		4.0	6.0	1.4	6.6	10.7	2.0
LOS	D	C		D	C		A	A	A	A	B	A
Approach Delay		42.4			35.8			5.6			8.8	
Approach LOS		D			D			A			A	
Queue Length 50th (ft)	63	14		17	9		5	61	0	5	107	0
Queue Length 95th (ft)	90	89		40	49		m24	186	m13	17	170	29
Internal Link Dist (ft)		386			492			1046			475	
Turn Bay Length (ft)	250			400			150					
Base Capacity (vph)	443	200		271	172		605	2510	1152	250	2370	1113
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.68		0.08	0.26		0.13	0.58	0.09	0.12	0.26	0.14

Intersection Summary

Area Type: Other
Cycle Length: 135
Actuated Cycle Length: 135
Offset: 102.5 (76%), Referenced to phase 2:NBTL and 6:SBTL, Start of FDW or yellow
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.70
Intersection Signal Delay: 11.2 Intersection LOS: B
Intersection Capacity Utilization 79.1% ICU Level of Service D
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 25: Marksheffel Rd & Meadowbrook Parkway



Intersection	
Int Delay, s/veh	5

Movement	SEL	SET	SER	NWU	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations													
Traffic Vol, veh/h	6	30	0	26	0	52	123	0	0	0	200	0	10
Future Vol, veh/h	6	30	0	26	0	52	123	0	0	0	200	0	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	-	150	-	0	-	-	-	100	-	-
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	92
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	7	33	0	28	0	57	134	0	0	0	217	0	11

Major/Minor	Major1			Major2				Minor1			Minor2		
Conflicting Flow All	191	0	0	-	33	0	0	-	294	-	104	160	57
Stage 1	-	-	-	-	-	-	-	-	47	-	57	113	-
Stage 2	-	-	-	-	-	-	-	-	247	-	47	47	-
Critical Hdwy	4.11	-	-	-	4.11	-	-	-	6.51	-	7.11	6.51	6.21
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	5.51	-	6.11	5.51	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	5.51	-	6.11	5.51	-
Follow-up Hdwy	2.209	-	-	-	2.209	-	-	-	4.009	-	3.509	4.009	3.309
Pot Cap-1 Maneuver	1389	-	-	-	1585	-	-	0	619	0	878	734	1012
Stage 1	-	-	-	-	-	-	-	0	858	0	957	804	-
Stage 2	-	-	-	-	-	-	-	0	704	0	969	858	-
Platoon blocked, %		-	-			-	-						
Mov Cap-1 Maneuver	1389	-	-	-	1585	-	-	-	616	-	874	730	1012
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	616	-	874	730	-
Stage 1	-	-	-	-	-	-	-	-	854	-	952	804	-
Stage 2	-	-	-	-	-	-	-	-	704	-	964	854	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	1.3		0	10.4
HCM LOS			A	B

Minor Lane/Major Mvmt	NELn1	NWU	NWL	NWT	NWR	SEL	SET	SER	SWLn1	SWLn2
Capacity (veh/h)	-	-	1585	-	-	1389	-	-	874	1012
HCM Lane V/C Ratio	-	-	-	-	-	0.005	-	-	0.249	0.011
HCM Control Delay (s)	0	-	0	-	-	7.6	-	-	10.5	8.6
HCM Lane LOS	A	-	A	-	-	A	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0	-	-	0	-	-	1	0

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	20	0	46	0	128	14	32	122	0
Future Vol, veh/h	0	0	0	20	0	46	0	128	14	32	122	0
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	-	-	-	-	75	75	-	-
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, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	0	0	0	22	0	50	0	139	15	35	133	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	375	357	133	342	342	139	-	0	0	154	0	0
Stage 1	203	203	-	139	139	-	-	-	-	-	-	-
Stage 2	172	154	-	203	203	-	-	-	-	-	-	-
Critical Hdwy	7.11	6.51	6.21	7.11	6.51	6.21	-	-	-	4.11	-	-
Critical Hdwy Stg 1	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.309	3.509	4.009	3.309	-	-	-	2.209	-	-
Pot Cap-1 Maneuver	584	571	919	614	582	912	0	-	-	1433	-	0
Stage 1	801	735	-	866	784	-	0	-	-	-	-	0
Stage 2	832	772	-	801	735	-	0	-	-	-	-	0
Platoon blocked, %								-	-		-	
Mov Cap-1 Maneuver	542	557	919	602	568	912	-	-	-	1433	-	-
Mov Cap-2 Maneuver	542	557	-	602	568	-	-	-	-	-	-	-
Stage 1	801	717	-	866	784	-	-	-	-	-	-	-
Stage 2	786	772	-	781	717	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	9.8	0	1.6
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	-	602	912	1433	-
HCM Lane V/C Ratio	-	-	-	0.036	0.055	0.024	-
HCM Control Delay (s)	-	-	0	11.2	9.2	7.6	-
HCM Lane LOS	-	-	A	B	A	A	-
HCM 95th %tile Q(veh)	-	-	-	0.1	0.2	0.1	-

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	31	1198	930	5	652	54	387	802	25	487	1790	37
Future Volume (vph)	31	1198	930	5	652	54	387	802	25	487	1790	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	500		0	300		300	1000		700	1000		750
Storage Lanes	1		1	1		0	2		1	1		1
Taper Length (ft)	100			300			300			100		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.91	1.00	1.00	0.91	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	3574	1599	1787	3574	1599	3467	5136	1599	1787	5136	1599
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1787	3574	1599	1787	3574	1599	3467	5136	1599	1787	5136	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			279			113			145			145
Link Speed (mph)		30			30			55			55	
Link Distance (ft)		1121			885			1842			2739	
Travel Time (s)		25.5			20.1			22.8			34.0	
Peak Hour Factor	0.92	0.99	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.99	0.92
Adj. Flow (vph)	34	1210	1011	5	709	59	421	872	27	529	1808	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	34	1210	1011	5	709	59	421	872	27	529	1808	40
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		18			18			52			52	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	Prot	NA	Prot
Protected Phases	5	2		1	6		7	4	4	3	8	8
Permitted Phases			2			6						

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Detector Phase	5	2	2	1	6	6	7		4	3		8
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	28.0	28.0	6.0	28.0	28.0
Minimum Split (s)	15.0	16.0	16.0	15.0	16.0	16.0	15.0	35.0	35.0	15.0	35.0	35.0
Total Split (s)	8.0	48.0	48.0	15.0	55.0	55.0	17.0	55.0	55.0	17.0	55.0	55.0
Total Split (%)	5.9%	35.6%	35.6%	11.1%	40.7%	40.7%	12.6%	40.7%	40.7%	12.6%	40.7%	40.7%
Maximum Green (s)	3.0	42.0	42.0	10.0	49.0	49.0	12.0	48.0	48.0	12.0	48.0	48.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	2.0	3.0	3.0	2.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	-1.0	1.0	0.0	-1.0	1.0	0.0	-2.0	-2.0	0.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	7.0	5.0	5.0	7.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Max	Max	None	Max	Max	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	3.0	55.6	53.6	6.2	50.0	48.0	12.0	50.0	50.0	12.0	50.0	50.0
Actuated g/C Ratio	0.02	0.41	0.40	0.05	0.37	0.36	0.09	0.37	0.37	0.09	0.37	0.37
v/c Ratio	0.87	0.82	1.26	0.06	0.54	0.09	1.37	0.46	0.04	3.35	0.95	0.06
Control Delay	177.8	30.6	145.3	63.0	35.2	0.3	229.2	33.2	0.1	1090.7	53.3	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	177.8	30.6	145.3	63.0	35.2	0.3	229.2	33.2	0.1	1090.7	53.3	0.2
LOS	F	C	F	E	D	A	F	C	A	F	D	A
Approach Delay		84.2			32.7			95.0			283.3	
Approach LOS		F			C			F			F	
Queue Length 50th (ft)	32	240	~502	4	255	0	~250	210	0	~818	560	0
Queue Length 95th (ft)	m#71	#715	#1382	19	317	0	#358	253	0	#1042	#667	0
Internal Link Dist (ft)		1041			805			1762			2659	
Turn Bay Length (ft)	500			300		300	1000		700	1000		750
Base Capacity (vph)	39	1472	803	132	1323	641	308	1902	683	158	1902	683
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	0.87	0.82	1.26	0.04	0.54	0.09	1.37	0.46	0.04	3.35	0.95	0.06

Intersection Summary

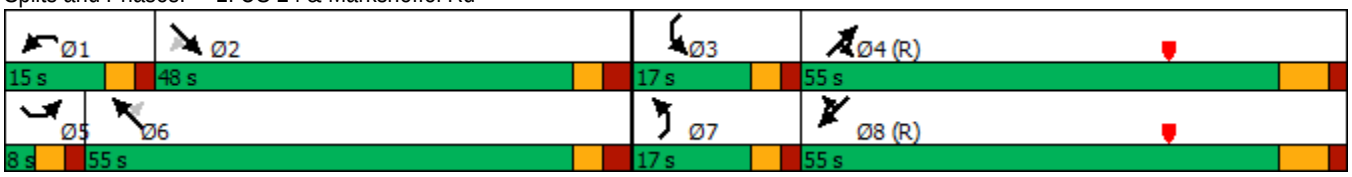
Area Type: Other
Cycle Length: 135
Actuated Cycle Length: 135
Offset: 30 (22%), Referenced to phase 4:NET and 8:SWT, Start of FDW or yellow
Natural Cycle: 145
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 3.35
Intersection Signal Delay: 150.8 Intersection LOS: F
Intersection Capacity Utilization 111.3% ICU Level of Service H
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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.

Splits and Phases: 1: US 24 & Marksheffel Rd



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	41	47	208	900	114	10	161	960	933	50	2791	90
Future Volume (vph)	41	47	208	900	114	10	161	960	933	50	2791	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	500		500	1000		1000	800		800
Storage Lanes	1		1	2		0	1		1	1		1
Taper Length (ft)	100			300			100			100		
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	3574	1599	3467	3574	1599	1787	5136	1599	1787	5136	1599
Flt Permitted	0.950			0.950			0.065			0.247		
Satd. Flow (perm)	1787	3574	1599	3467	3574	1599	122	5136	1599	465	5136	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			214			182			935			182
Link Speed (mph)		40			40			55			55	
Link Distance (ft)		575			1072			1668			1125	
Travel Time (s)		9.8			18.3			20.7			13.9	
Peak Hour Factor	0.94	0.94	0.94	0.93	0.93	0.93	0.97	0.97	0.97	0.82	0.82	0.82
Adj. Flow (vph)	44	50	221	968	123	11	166	990	962	61	3404	110
Shared Lane Traffic (%)												
Lane Group Flow (vph)	44	50	221	968	123	11	166	990	962	61	3404	110
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			52			52	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split	NA	Free	Split	NA	Free	D.P+P	NA	Free	D.P+P	NA	Free
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			Free			Free	6		Free	2		Free

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		6.0	28.0		6.0	28.0	
Minimum Split (s)	16.0	16.0		16.0	16.0		13.0	35.0		11.0	35.0	
Total Split (s)	16.0	16.0		21.0	21.0		13.0	70.0		13.0	70.0	
Total Split (%)	13.3%	13.3%		17.5%	17.5%		10.8%	58.3%		10.8%	58.3%	
Maximum Green (s)	11.0	11.0		15.0	15.0		8.0	63.0		8.0	63.0	
Yellow Time (s)	3.0	3.0		4.0	4.0		3.0	5.0		3.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0		6.0	6.0		5.0	7.0		5.0	7.0	
Lead/Lag	Lead	Lead		Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.8	3.8		6.0	6.0		3.0	6.0		3.0	6.0	
Minimum Gap (s)	3.8	3.8		3.8	3.8		3.0	6.0		3.0	6.0	
Time Before Reduce (s)	0.0	0.0		8.0	8.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0		12.0	12.0		0.0	0.0		0.0	0.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effct Green (s)	8.9	8.9	120.0	19.3	19.3	120.0	73.0	66.2	120.0	74.0	63.0	120.0
Actuated g/C Ratio	0.07	0.07	1.00	0.16	0.16	1.00	0.61	0.55	1.00	0.62	0.52	1.00
v/c Ratio	0.33	0.19	0.14	1.73	0.21	0.01	0.90	0.35	0.60	0.17	1.26	0.07
Control Delay	60.1	53.9	0.2	369.7	46.9	0.0	70.5	15.9	1.7	8.8	149.0	0.1
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	60.1	53.9	0.2	369.7	46.9	0.0	70.5	15.9	1.7	8.8	149.0	0.1
LOS	E	D	A	F	D	A	E	B	A	A	F	A
Approach Delay		17.1			330.0			13.7			142.1	
Approach LOS		B			F			B			F	
Queue Length 50th (ft)	33	19	0	~601	45	0	74	155	0	16	~1213	0
Queue Length 95th (ft)	m71	m39	m0	#753	77	0	#207	191	0	28	#1106	0
Internal Link Dist (ft)		495			992			1588			1045	
Turn Bay Length (ft)	200			500		500	1000		1000	800		800
Base Capacity (vph)	163	327	1599	558	575	1599	185	2834	1599	377	2696	1599
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	0.27	0.15	0.14	1.73	0.21	0.01	0.90	0.35	0.60	0.16	1.26	0.07

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 4 (3%), Referenced to phase 2:NESW and 6:NESW, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.73
Intersection Signal Delay: 127.4 Intersection LOS: F
Intersection Capacity Utilization 110.2% ICU Level of Service H
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

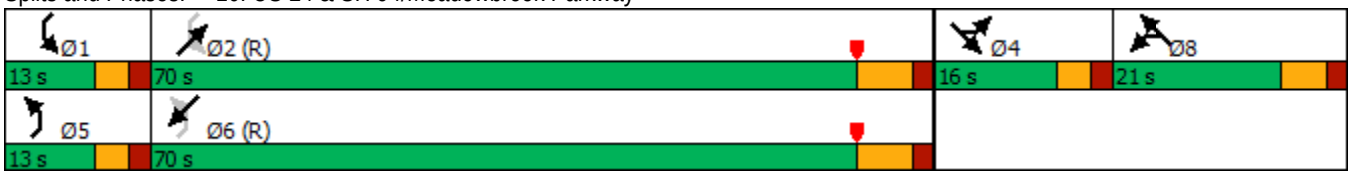
Queue shown is maximum after two cycles.

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.

Splits and Phases: 10: US 24 & SH 94/Meadowbrook Parkway



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	4	49	95	13	75	94	923	58	41	2023	202
Future Volume (vph)	130	4	49	95	13	75	94	923	58	41	2023	202
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	210		0	400		400	500		0	375		375
Storage Lanes	2		0	1		1	1		1	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.91	1.00
Ped Bike Factor	0.47	0.50		0.87								
Frt		0.861				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3467	808	0	1787	1881	1599	1787	3574	1599	1787	5136	1599
Flt Permitted	0.833			0.471			0.060			0.276		
Satd. Flow (perm)	1428	808	0	772	1881	1599	113	3574	1599	519	5136	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		50				89			89			206
Link Speed (mph)		35			35			50			50	
Link Distance (ft)		466			924			1121			582	
Travel Time (s)		9.1			18.0			15.3			7.9	
Confl. Peds. (#/hr)	1159		1928	70								
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	133	4	50	97	13	77	96	942	59	42	2064	206
Shared Lane Traffic (%)												
Lane Group Flow (vph)	133	54	0	97	13	77	96	942	59	42	2064	206
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	L NA	Right	Left	L NA	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm

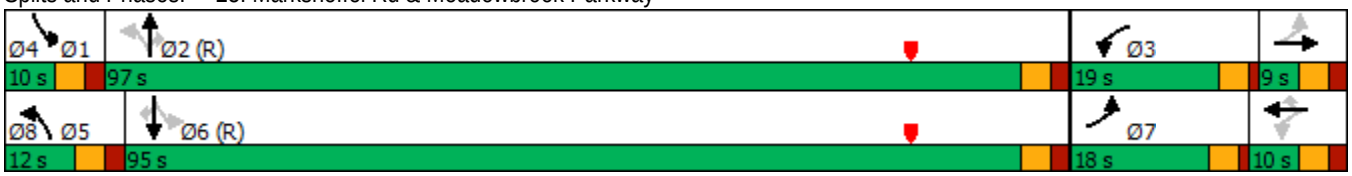
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2		2	6		6
Detector Phase	7	4		3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	9.0		10.0	9.0	9.0	10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	18.0	9.0		19.0	10.0	10.0	12.0	97.0	97.0	10.0	95.0	95.0
Total Split (%)	13.3%	6.7%		14.1%	7.4%	7.4%	8.9%	71.9%	71.9%	7.4%	70.4%	70.4%
Maximum Green (s)	14.0	4.0		15.0	5.0	5.0	7.0	92.0	92.0	5.0	90.0	90.0
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	2.0		1.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
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)	4.0	5.0		4.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	15.6	6.2		20.9	7.5	7.5	100.9	95.3	95.3	97.1	91.8	91.8
Actuated g/C Ratio	0.12	0.05		0.15	0.06	0.06	0.75	0.71	0.71	0.72	0.68	0.68
v/c Ratio	0.42	0.64		0.44	0.12	0.45	0.57	0.37	0.05	0.10	0.59	0.18
Control Delay	53.5	50.5		55.5	63.6	17.6	36.7	13.8	5.5	4.8	12.7	1.4
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.5	50.5		55.5	63.6	17.6	36.7	13.8	5.5	4.8	12.7	1.4
LOS	D	D		E	E	B	D	B	A	A	B	A
Approach Delay		52.6			40.5			15.4			11.5	
Approach LOS		D			D			B			B	
Queue Length 50th (ft)	52	3		75	11	0	49	173	7	8	342	0
Queue Length 95th (ft)	82	#79		131	35	42	m79	m173	m13	17	383	26
Internal Link Dist (ft)		386			844			1041			502	
Turn Bay Length (ft)	210			400		400	500			375		375
Base Capacity (vph)	418	84		244	104	172	171	2523	1155	422	3492	1152
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.32	0.64		0.40	0.13	0.45	0.56	0.37	0.05	0.10	0.59	0.18

Intersection Summary

Area Type: Other
Cycle Length: 135
Actuated Cycle Length: 135
Offset: 111 (82%), Referenced to phase 2:NBTL and 6:SBTL, Start of FDW or yellow
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.64
Intersection Signal Delay: 16.1 Intersection LOS: B
Intersection Capacity Utilization 74.3% ICU Level of Service D
Analysis Period (min) 15
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.

Splits and Phases: 25: Marksheffel Rd & Meadowbrook Parkway



Intersection	
Int Delay, s/veh	9.9

Movement	SEL	SET	SER	NWU	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations													
Traffic Vol, veh/h	9	30	16	20	102	10	193	5	131	71	176	77	3
Future Vol, veh/h	9	30	16	20	102	10	193	5	131	71	176	77	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	-	150	-	0	-	-	-	100	-	-
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	92
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	10	33	17	22	111	11	210	5	142	77	191	84	3

Major/Minor	Major1			Major2				Minor1			Minor2		
Conflicting Flow All	221	0	0	-	50	0	0	444	549	42	404	347	11
Stage 1	-	-	-	-	-	-	-	62	62	-	233	277	-
Stage 2	-	-	-	-	-	-	-	382	487	-	171	70	-
Critical Hdwy	4.11	-	-	-	4.11	-	-	7.11	6.51	6.21	7.11	6.51	6.21
Critical Hdwy Stg 1	-	-	-	-	-	-	-	6.11	5.51	-	6.11	5.51	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	6.11	5.51	-	6.11	5.51	-
Follow-up Hdwy	2.209	-	-	-	2.209	-	-	3.509	4.009	3.309	3.509	4.009	3.309
Pot Cap-1 Maneuver	1354	-	-	-	1563	-	-	526	445	1032	559	578	1073
Stage 1	-	-	-	-	-	-	-	952	845	-	772	683	-
Stage 2	-	-	-	-	-	-	-	643	552	-	833	839	-
Platoon blocked, %		-	-			-	-						
Mov Cap-1 Maneuver	1354	-	-	-	1563	-	-	463	442	1032	386	574	1073
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	463	442	-	386	574	-
Stage 1	-	-	-	-	-	-	-	945	839	-	767	683	-
Stage 2	-	-	-	-	-	-	-	562	552	-	635	833	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	1.3		15.7	19.7
HCM LOS			C	C

Minor Lane/Major Mvmt	NELn1	NWU	NWL	NWT	NWR	SEL	SET	SER	SWLn1	SWLn2
Capacity (veh/h)	553	-	1563	-	-	1354	-	-	386	584
HCM Lane V/C Ratio	0.397	-	0.071	-	-	0.007	-	-	0.496	0.149
HCM Control Delay (s)	15.7	-	7.5	-	-	7.7	-	-	23.1	12.2
HCM Lane LOS	C	-	A	-	-	A	-	-	C	B
HCM 95th %tile Q(veh)	1.9	-	0.2	-	-	0	-	-	2.7	0.5

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	47	590	417	10	1193	300	1159	1909	10	100	656	86
Future Volume (vph)	47	590	417	10	1193	300	1159	1909	10	100	656	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	500		0	300		300	1000		700	1000		750
Storage Lanes	1		1	1		0	2		1	1		1
Taper Length (ft)	100			300			300			100		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.91	1.00	1.00	0.91	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	3574	1599	1787	3574	1599	3467	5136	1599	1787	5136	1599
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1787	3574	1599	1787	3574	1599	3467	5136	1599	1787	5136	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			453			161			105			145
Link Speed (mph)		30			30			55			55	
Link Distance (ft)		1126			885			1842			11941	
Travel Time (s)		25.6			20.1			22.8			148.0	
Peak Hour Factor	0.99	0.99	0.92	0.92	0.99	0.95	0.99	0.99	0.92	0.92	0.95	0.92
Adj. Flow (vph)	47	596	453	11	1205	316	1171	1928	11	109	691	93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	47	596	453	11	1205	316	1171	1928	11	109	691	93
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		18			18			52			52	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	Prot	NA	Prot
Protected Phases	5	2		1	6		7	4	4	3	8	8
Permitted Phases			2			6						

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Detector Phase	5	2	2	1	6	6	7		4	3		8
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	28.0	28.0	6.0	28.0	28.0
Minimum Split (s)	15.0	16.0	16.0	15.0	16.0	16.0	15.0	35.0	35.0	15.0	35.0	35.0
Total Split (s)	10.0	51.0	51.0	11.0	52.0	52.0	39.0	60.0	60.0	13.0	34.0	34.0
Total Split (%)	7.4%	37.8%	37.8%	8.1%	38.5%	38.5%	28.9%	44.4%	44.4%	9.6%	25.2%	25.2%
Maximum Green (s)	5.0	45.0	45.0	6.0	46.0	46.0	34.0	53.0	53.0	8.0	27.0	27.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	2.0	3.0	3.0	2.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	-1.0	-1.0	0.0	-1.0	-1.0	0.0	-2.0	-2.0	0.0	-2.0	-2.0
Total Lost Time (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
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	Max	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	5.0	51.4	51.4	6.0	47.8	47.8	35.2	55.0	55.0	9.2	29.0	29.0
Actuated g/C Ratio	0.04	0.38	0.38	0.04	0.35	0.35	0.26	0.41	0.41	0.07	0.21	0.21
v/c Ratio	0.71	0.44	0.51	0.14	0.95	0.47	1.29	0.92	0.02	0.90	0.63	0.20
Control Delay	112.0	26.4	6.2	66.1	59.1	18.7	180.8	46.4	0.0	119.8	51.0	2.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
Total Delay	112.0	26.4	6.2	66.1	59.1	18.7	181.1	46.4	0.0	119.8	51.0	2.1
LOS	F	C	A	E	E	B	F	D	A	F	D	A
Approach Delay		21.7			50.8			97.0			54.3	
Approach LOS		C			D			F			D	
Queue Length 50th (ft)	42	156	26	9	545	102	~689	580	0	~102	202	0
Queue Length 95th (ft)	m#104	204	54	30	#697	191	#825	653	0	#228	249	9
Internal Link Dist (ft)		1046			805			1762			11861	
Turn Bay Length (ft)	500			300		300	1000		700	1000		750
Base Capacity (vph)	66	1359	888	79	1264	669	905	2092	713	121	1103	457
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	53	0	0	0	0	2
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.71	0.44	0.51	0.14	0.95	0.47	1.37	0.92	0.02	0.90	0.63	0.20

Intersection Summary

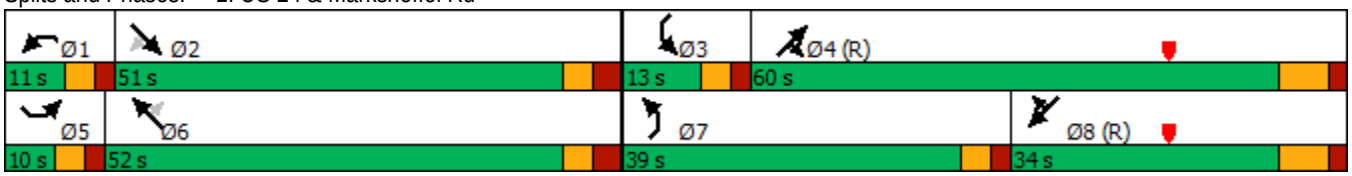
Area Type: Other
Cycle Length: 135
Actuated Cycle Length: 135
Offset: 0 (0%), Referenced to phase 4:NET and 8:SWT, Start of FDW or yellow
Natural Cycle: 145
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.29
Intersection Signal Delay: 68.1 Intersection LOS: E
Intersection Capacity Utilization 108.0% ICU Level of Service G
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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.

Splits and Phases: 1: US 24 & Marksheffel Rd



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	218	160	315	743	174	275	341	2734	1054	10	1122	123
Future Volume (vph)	218	160	315	743	174	275	341	2734	1054	10	1122	123
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	500		500	1000		1000	800		800
Storage Lanes	1		1	2		0	1		1	1		1
Taper Length (ft)	100			300			100			100		
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	3574	1599	3467	3574	1599	1787	5136	1599	1787	5136	1599
Flt Permitted	0.950			0.950			0.142			0.058		
Satd. Flow (perm)	1787	3574	1599	3467	3574	1599	267	5136	1599	109	5136	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			235			263			959			182
Link Speed (mph)		40			40			55			55	
Link Distance (ft)		575			9509			11173			1125	
Travel Time (s)		9.8			162.1			138.5			13.9	
Peak Hour Factor	0.94	0.94	0.94	0.93	0.93	0.93	0.97	0.97	0.97	0.82	0.82	0.82
Adj. Flow (vph)	232	170	335	799	187	296	352	2819	1087	12	1368	150
Shared Lane Traffic (%)												
Lane Group Flow (vph)	232	170	335	799	187	296	352	2819	1087	12	1368	150
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			52			52	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split	NA	Free	Split	NA	Free	D.P+P	NA	Free	D.P+P	NA	Free
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			Free			Free	6		Free	2		Free

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		6.0	28.0		6.0	28.0	
Minimum Split (s)	16.0	16.0		16.0	16.0		13.0	35.0		11.0	35.0	
Total Split (s)	16.0	16.0		21.0	21.0		13.0	70.0		13.0	70.0	
Total Split (%)	13.3%	13.3%		17.5%	17.5%		10.8%	58.3%		10.8%	58.3%	
Maximum Green (s)	11.0	11.0		15.0	15.0		8.0	63.0		8.0	63.0	
Yellow Time (s)	3.0	3.0		4.0	4.0		3.0	5.0		3.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0		6.0	6.0		5.0	7.0		5.0	7.0	
Lead/Lag	Lead	Lead		Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.8	3.8		6.0	6.0		3.0	6.0		3.0	6.0	
Minimum Gap (s)	3.8	3.8		3.8	3.8		3.0	6.0		3.0	6.0	
Time Before Reduce (s)	0.0	0.0		8.0	8.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0		12.0	12.0		0.0	0.0		0.0	0.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effct Green (s)	11.0	11.0	120.0	15.0	15.0	120.0	73.0	71.5	120.0	76.0	63.0	120.0
Actuated g/C Ratio	0.09	0.09	1.00	0.12	0.12	1.00	0.61	0.60	1.00	0.63	0.52	1.00
v/c Ratio	1.42	0.52	0.21	1.85	0.42	0.19	1.34	0.92	0.68	0.08	0.51	0.09
Control Delay	261.8	58.2	0.3	419.5	51.7	0.3	194.7	28.8	2.4	8.6	19.3	0.1
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	261.8	58.2	0.3	419.5	51.7	0.3	194.7	28.8	2.4	8.6	19.3	0.1
LOS	F	E	A	F	D	A	F	C	A	A	B	A
Approach Delay		96.0			269.1			35.7			17.3	
Approach LOS		F			F			D			B	
Queue Length 50th (ft)	~244	67	0	~484	71	0	~188	604	0	3	242	0
Queue Length 95th (ft)	m#402	m103	m0	#608	109	0	#358	#934	0	9	248	0
Internal Link Dist (ft)		495			9429			11093			1045	
Turn Bay Length (ft)	200			500		500	1000		1000	800		800
Base Capacity (vph)	163	327	1599	433	446	1599	263	3061	1599	181	2696	1599
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	1.42	0.52	0.21	1.85	0.42	0.19	1.34	0.92	0.68	0.07	0.51	0.09

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 4 (3%), Referenced to phase 2:NESW and 6:NESW, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.85
Intersection Signal Delay: 76.1 Intersection LOS: E
Intersection Capacity Utilization 103.2% ICU Level of Service G
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

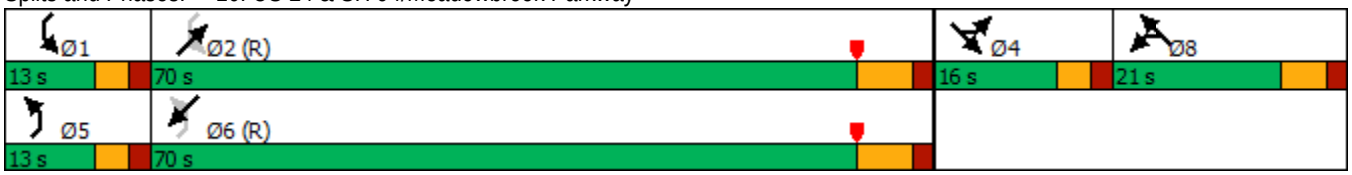
Queue shown is maximum after two cycles.

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.

Splits and Phases: 10: US 24 & SH 94/Meadowbrook Parkway



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	358	26	100	150	22	115	67	2110	260	90	815	295
Future Volume (vph)	358	26	100	150	22	115	67	2110	260	90	815	295
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		300	400		400	150		0	0		0
Storage Lanes	2		0	1		1	1		1	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.91	1.00
Ped Bike Factor	0.48	0.57		0.92								
Frt		0.881				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3467	944	0	1787	1881	1599	1787	3574	1599	1787	5136	1599
Flt Permitted	0.675			0.448			0.304			0.048		
Satd. Flow (perm)	1175	944	0	772	1881	1599	572	3574	1599	90	5136	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		105				101			181			311
Link Speed (mph)		35			35			50			50	
Link Distance (ft)		466			572			1126			555	
Travel Time (s)		9.1			11.1			15.4			7.6	
Confl. Peds. (#/hr)	1159		1928	70								
Peak Hour Factor	0.98	0.95	0.95	0.95	0.95	0.95	0.95	0.99	0.95	0.95	0.95	0.95
Adj. Flow (vph)	365	27	105	158	23	121	71	2131	274	95	858	311
Shared Lane Traffic (%)												
Lane Group Flow (vph)	365	132	0	158	23	121	71	2131	274	95	858	311
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm

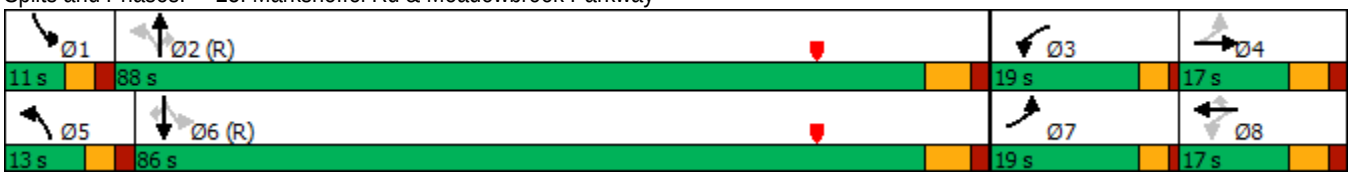
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2		2	6		6
Detector Phase	7	4		3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	10.0		10.0	10.0	10.0	10.0	11.5	11.5	10.0	11.5	11.5
Total Split (s)	19.0	17.0		19.0	17.0	17.0	13.0	88.0	88.0	11.0	86.0	86.0
Total Split (%)	14.1%	12.6%		14.1%	12.6%	12.6%	9.6%	65.2%	65.2%	8.1%	63.7%	63.7%
Maximum Green (s)	15.0	11.0		15.0	11.0	11.0	8.0	81.5	81.5	6.0	79.5	79.5
Yellow Time (s)	3.0	4.0		3.0	4.0	4.0	3.0	4.5	4.5	3.0	4.5	4.5
All-Red Time (s)	1.0	2.0		1.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
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)	4.0	6.0		4.0	6.0	6.0	5.0	6.5	6.5	5.0	6.5	6.5
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	26.7	9.9		24.7	8.9	8.9	91.9	83.4	83.4	91.6	85.0	85.0
Actuated g/C Ratio	0.20	0.07		0.18	0.07	0.07	0.68	0.62	0.62	0.68	0.63	0.63
v/c Ratio	0.76	0.80		0.65	0.19	0.60	0.16	0.97	0.26	0.67	0.27	0.28
Control Delay	56.6	48.6		57.6	61.8	29.0	7.0	20.3	3.9	45.5	12.1	1.9
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	56.6	48.6		57.6	61.8	29.0	7.0	20.3	3.9	45.5	12.1	1.9
LOS	E	D		E	E	C	A	C	A	D	B	A
Approach Delay		54.5			46.5			18.1			12.1	
Approach LOS		D			D			B			B	
Queue Length 50th (ft)	141	23		117	19	17	14	757	30	32	127	0
Queue Length 95th (ft)	190	#130		186	49	81	m13	m315	m26	#120	155	38
Internal Link Dist (ft)		386			492			1046			475	
Turn Bay Length (ft)	250			400		400	150					
Base Capacity (vph)	487	173		260	153	223	465	2208	1057	141	3232	1121
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.75	0.76		0.61	0.15	0.54	0.15	0.97	0.26	0.67	0.27	0.28

Intersection Summary

Area Type: Other
Cycle Length: 135
Actuated Cycle Length: 135
Offset: 102.5 (76%), Referenced to phase 2:NBTL and 6:SBTL, Start of FDW or yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.97
Intersection Signal Delay: 22.3 Intersection LOS: C
Intersection Capacity Utilization 109.3% ICU Level of Service H
Analysis Period (min) 15
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.

Splits and Phases: 25: Marksheffel Rd & Meadowbrook Parkway



Intersection	
Int Delay, s/veh	91.1

Movement	SEL	SET	SER	NWU	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations													
Traffic Vol, veh/h	6	19	11	23	349	34	190	18	232	344	307	266	10
Future Vol, veh/h	6	19	11	23	349	34	190	18	232	344	307	266	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	-	150	-	0	-	-	-	100	-	-
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	92
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	7	21	12	25	379	37	207	20	252	374	334	289	11

Major/Minor	Major1			Major2				Minor1			Minor2		
Conflicting Flow All	244	0	0	-	33	0	0	1090	1093	27	1149	892	37
Stage 1	-	-	-	-	-	-	-	41	41	-	795	845	-
Stage 2	-	-	-	-	-	-	-	1049	1052	-	354	47	-
Critical Hdwy	4.11	-	-	-	4.11	-	-	7.11	6.51	6.21	7.11	6.51	6.21
Critical Hdwy Stg 1	-	-	-	-	-	-	-	6.11	5.51	-	6.11	5.51	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	6.11	5.51	-	6.11	5.51	-
Follow-up Hdwy	2.209	-	-	-	2.209	-	-	3.509	4.009	3.309	3.509	4.009	3.309
Pot Cap-1 Maneuver	1328	-	-	-	1585	-	-	193	~ 215	1051	~ 176	~ 282	1038
Stage 1	-	-	-	-	-	-	-	976	863	-	382	380	-
Stage 2	-	-	-	-	-	-	-	276	305	-	665	858	-
Platoon blocked, %		-	-			-	-						
Mov Cap-1 Maneuver	1328	-	-	-	1585	-	-	-	~ 214	1051	-	~ 281	1038
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	~ 214	-	-	~ 281	-
Stage 1	-	-	-	-	-	-	-	971	859	-	380	380	-
Stage 2	-	-	-	-	-	-	-	65	305	-	~ 301	854	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	1.3		277.5	
HCM LOS			F	-

Minor Lane/Major Mvmt	NELn1	NWU	NWL	NWT	NWR	SEL	SET	SER	SWLn1	SWLn2
Capacity (veh/h)	408	-	1585	-	-	1328	-	-	-	289
HCM Lane V/C Ratio	1.535	-	0.239	-	-	0.005	-	-	-	1.038
HCM Control Delay (s)	277.5	-	8	-	-	7.7	-	-	-	102.8
HCM Lane LOS	F	-	A	-	-	A	-	-	-	F
HCM 95th %tile Q(veh)	34.1	-	0.9	-	-	0	-	-	-	11.3

Notes

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

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	33	1199	936	5	657	54	401	800	25	487	1785	50
Future Volume (vph)	33	1199	936	5	657	54	401	800	25	487	1785	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	500		0	300		300	1000		700	1000		750
Storage Lanes	1		1	1		0	2		1	1		1
Taper Length (ft)	100			300			300			100		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.91	1.00	1.00	0.91	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	3574	1599	1787	3574	1599	3467	5136	1599	1787	5136	1599
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1787	3574	1599	1787	3574	1599	3467	5136	1599	1787	5136	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			279			113			145			145
Link Speed (mph)		30			30			55			55	
Link Distance (ft)		1121			885			1842			2739	
Travel Time (s)		25.5			20.1			22.8			34.0	
Peak Hour Factor	0.92	0.99	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.99	0.92
Adj. Flow (vph)	36	1211	1017	5	714	59	436	870	27	529	1803	54
Shared Lane Traffic (%)												
Lane Group Flow (vph)	36	1211	1017	5	714	59	436	870	27	529	1803	54
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		18			18			52			52	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	Prot	NA	Prot
Protected Phases	5	2		1	6		7	4	4	3	8	8
Permitted Phases			2			6						

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Detector Phase	5	2	2	1	6	6	7		4	3		8
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	28.0	28.0	6.0	28.0	28.0
Minimum Split (s)	15.0	16.0	16.0	15.0	16.0	16.0	15.0	35.0	35.0	15.0	35.0	35.0
Total Split (s)	8.0	48.0	48.0	15.0	55.0	55.0	17.0	55.0	55.0	17.0	55.0	55.0
Total Split (%)	5.9%	35.6%	35.6%	11.1%	40.7%	40.7%	12.6%	40.7%	40.7%	12.6%	40.7%	40.7%
Maximum Green (s)	3.0	42.0	42.0	10.0	49.0	49.0	12.0	48.0	48.0	12.0	48.0	48.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	2.0	3.0	3.0	2.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	-1.0	1.0	0.0	-1.0	1.0	0.0	-2.0	-2.0	0.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	7.0	5.0	5.0	7.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Max	Max	None	Max	Max	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	3.0	55.6	53.6	6.2	50.0	48.0	12.0	50.0	50.0	12.0	50.0	50.0
Actuated g/C Ratio	0.02	0.41	0.40	0.05	0.37	0.36	0.09	0.37	0.37	0.09	0.37	0.37
v/c Ratio	0.92	0.82	1.27	0.06	0.54	0.09	1.42	0.46	0.04	3.35	0.95	0.08
Control Delay	190.2	30.3	148.2	63.0	35.3	0.3	248.2	33.2	0.1	1090.7	52.9	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	190.2	30.3	148.2	63.0	35.3	0.3	248.2	33.2	0.1	1090.7	52.9	0.2
LOS	F	C	F	E	D	A	F	C	A	F	D	A
Approach Delay		85.8			32.8			102.9			281.8	
Approach LOS		F			C			F			F	
Queue Length 50th (ft)	34	247	~516	4	257	0	~264	210	0	~818	558	0
Queue Length 95th (ft)	m#78	#717	#1394	19	321	0	#373	252	0	#1042	#664	0
Internal Link Dist (ft)		1041			805			1762			2659	
Turn Bay Length (ft)	500			300		300	1000		700	1000		750
Base Capacity (vph)	39	1472	803	132	1323	641	308	1902	683	158	1902	683
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	0.92	0.82	1.27	0.04	0.54	0.09	1.42	0.46	0.04	3.35	0.95	0.08

Intersection Summary

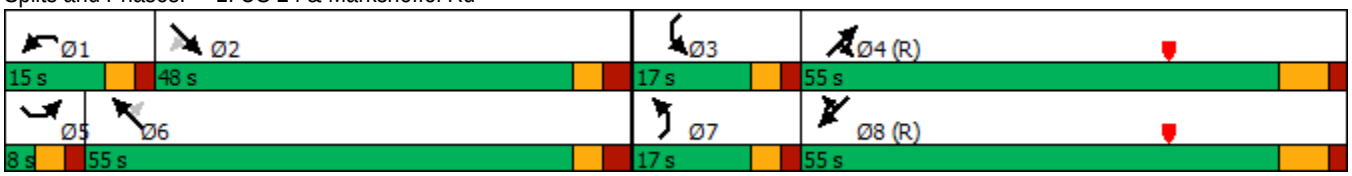
Area Type: Other
Cycle Length: 135
Actuated Cycle Length: 135
Offset: 30 (22%), Referenced to phase 4:NET and 8:SWT, Start of FDW or yellow
Natural Cycle: 145
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 3.35
Intersection Signal Delay: 152.2 Intersection LOS: F
Intersection Capacity Utilization 111.6% ICU Level of Service H
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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.

Splits and Phases: 1: US 24 & Marksheffel Rd



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	41	47	213	900	114	10	174	959	933	50	2798	90
Future Volume (vph)	41	47	213	900	114	10	174	959	933	50	2798	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	500		500	1000		1000	800		800
Storage Lanes	1		1	2		0	1		1	1		1
Taper Length (ft)	100			300			100			100		
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	3574	1599	3467	3574	1599	1787	5136	1599	1787	5136	1599
Flt Permitted	0.950			0.950			0.065			0.247		
Satd. Flow (perm)	1787	3574	1599	3467	3574	1599	122	5136	1599	465	5136	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			214			182			935			182
Link Speed (mph)		40			40			55			55	
Link Distance (ft)		575			1072			1668			1125	
Travel Time (s)		9.8			18.3			20.7			13.9	
Peak Hour Factor	0.94	0.94	0.94	0.93	0.93	0.93	0.97	0.97	0.97	0.82	0.82	0.82
Adj. Flow (vph)	44	50	227	968	123	11	179	989	962	61	3412	110
Shared Lane Traffic (%)												
Lane Group Flow (vph)	44	50	227	968	123	11	179	989	962	61	3412	110
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			52			52	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split	NA	Free	Split	NA	Free	D.P+P	NA	Free	D.P+P	NA	Free
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			Free			Free	6		Free	2		Free

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		6.0	28.0		6.0	28.0	
Minimum Split (s)	16.0	16.0		16.0	16.0		13.0	35.0		11.0	35.0	
Total Split (s)	16.0	16.0		21.0	21.0		13.0	70.0		13.0	70.0	
Total Split (%)	13.3%	13.3%		17.5%	17.5%		10.8%	58.3%		10.8%	58.3%	
Maximum Green (s)	11.0	11.0		15.0	15.0		8.0	63.0		8.0	63.0	
Yellow Time (s)	3.0	3.0		4.0	4.0		3.0	5.0		3.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0		6.0	6.0		5.0	7.0		5.0	7.0	
Lead/Lag	Lead	Lead		Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.8	3.8		6.0	6.0		3.0	6.0		3.0	6.0	
Minimum Gap (s)	3.8	3.8		3.8	3.8		3.0	6.0		3.0	6.0	
Time Before Reduce (s)	0.0	0.0		8.0	8.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0		12.0	12.0		0.0	0.0		0.0	0.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effct Green (s)	8.9	8.9	120.0	19.3	19.3	120.0	73.0	66.2	120.0	74.0	63.0	120.0
Actuated g/C Ratio	0.07	0.07	1.00	0.16	0.16	1.00	0.61	0.55	1.00	0.62	0.52	1.00
v/c Ratio	0.33	0.19	0.14	1.73	0.21	0.01	0.97	0.35	0.60	0.17	1.27	0.07
Control Delay	60.1	54.1	0.2	369.7	46.9	0.0	86.8	15.9	1.7	8.8	150.3	0.1
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	60.1	54.1	0.2	369.7	46.9	0.0	86.8	15.9	1.7	8.8	150.3	0.1
LOS	E	D	A	F	D	A	F	B	A	A	F	A
Approach Delay		16.8			330.0			15.4			143.3	
Approach LOS		B			F			B			F	
Queue Length 50th (ft)	33	19	0	~601	45	0	85	155	0	16	~1218	0
Queue Length 95th (ft)	m71	m39	m0	#753	77	0	#233	191	0	28	#1110	0
Internal Link Dist (ft)		495			992			1588			1045	
Turn Bay Length (ft)	200			500		500	1000		1000	800		800
Base Capacity (vph)	163	327	1599	558	575	1599	185	2834	1599	377	2696	1599
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	0.27	0.15	0.14	1.73	0.21	0.01	0.97	0.35	0.60	0.16	1.27	0.07

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 4 (3%), Referenced to phase 2:NESW and 6:NESW, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.73
Intersection Signal Delay: 128.3 Intersection LOS: F
Intersection Capacity Utilization 111.0% ICU Level of Service H
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

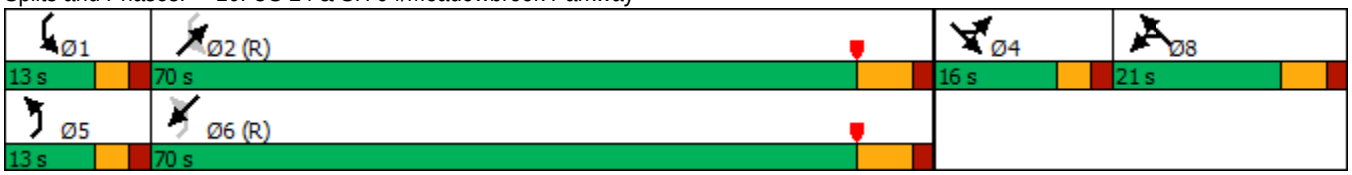
Queue shown is maximum after two cycles.

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.

Splits and Phases: 10: US 24 & SH 94/Meadowbrook Parkway



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	140	5	65	95	16	75	130	919	58	41	2016	235
Future Volume (vph)	140	5	65	95	16	75	130	919	58	41	2016	235
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	210		0	400		400	500		0	375		375
Storage Lanes	2		0	1		1	1		1	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.91	1.00
Ped Bike Factor	0.47	0.50		0.88								
Frt		0.861				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3467	805	0	1787	1881	1599	1787	3574	1599	1787	5136	1599
Flt Permitted	0.619			0.711			0.060			0.278		
Satd. Flow (perm)	1066	805	0	1172	1881	1599	113	3574	1599	523	5136	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		66				89			89			240
Link Speed (mph)		35			35			50			50	
Link Distance (ft)		466			924			1121			582	
Travel Time (s)		9.1			18.0			15.3			7.9	
Confl. Peds. (#/hr)	1159		1928	70								
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	143	5	66	97	16	77	133	938	59	42	2057	240
Shared Lane Traffic (%)												
Lane Group Flow (vph)	143	71	0	97	16	77	133	938	59	42	2057	240
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	L NA	Right	Left	L NA	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm

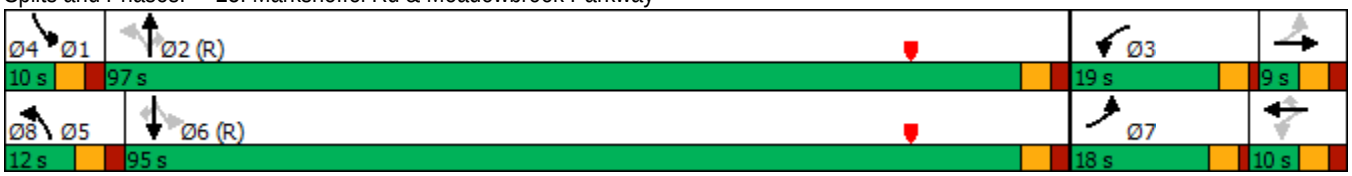
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2		2	6		6
Detector Phase	7	4		3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	9.0		10.0	9.0	9.0	10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	18.0	9.0		19.0	10.0	10.0	12.0	97.0	97.0	10.0	95.0	95.0
Total Split (%)	13.3%	6.7%		14.1%	7.4%	7.4%	8.9%	71.9%	71.9%	7.4%	70.4%	70.4%
Maximum Green (s)	14.0	4.0		15.0	5.0	5.0	7.0	92.0	92.0	5.0	90.0	90.0
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	2.0		1.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
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)	4.0	5.0		4.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	18.6	6.6		18.7	7.4	7.4	100.4	94.7	94.7	95.9	90.6	90.6
Actuated g/C Ratio	0.14	0.05		0.14	0.05	0.05	0.74	0.70	0.70	0.71	0.67	0.67
v/c Ratio	0.38	0.70		0.45	0.16	0.45	0.77	0.37	0.05	0.10	0.60	0.21
Control Delay	51.3	49.9		56.6	64.8	17.8	51.6	14.2	5.6	4.8	13.1	1.4
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.3	49.9		56.6	64.8	17.8	51.6	14.2	5.6	4.8	13.1	1.4
LOS	D	D		E	E	B	D	B	A	A	B	A
Approach Delay		50.8			41.6			18.2			11.8	
Approach LOS		D			D			B			B	
Queue Length 50th (ft)	56	4		75	14	0	83	175	7	8	340	0
Queue Length 95th (ft)	88	#96		131	39	42	m113	m173	m13	17	381	27
Internal Link Dist (ft)		386			844			1041			502	
Turn Bay Length (ft)	210			400		400	500			375		375
Base Capacity (vph)	439	101		255	102	171	173	2506	1148	420	3448	1152
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.70		0.38	0.16	0.45	0.77	0.37	0.05	0.10	0.60	0.21

Intersection Summary

Area Type: Other
Cycle Length: 135
Actuated Cycle Length: 135
Offset: 111 (82%), Referenced to phase 2:NBTL and 6:SBTL, Start of FDW or yellow
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.77
Intersection Signal Delay: 17.3 Intersection LOS: B
Intersection Capacity Utilization 77.3% ICU Level of Service D
Analysis Period (min) 15
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.

Splits and Phases: 25: Marksheffel Rd & Meadowbrook Parkway



Intersection	
Int Delay, s/veh	10.1

Movement	SEL	SET	SER	NWU	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations													
Traffic Vol, veh/h	9	30	16	20	102	10	206	5	131	71	181	77	3
Future Vol, veh/h	9	30	16	20	102	10	206	5	131	71	181	77	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	-	150	-	0	-	-	-	100	-	-
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	92
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	10	33	17	22	111	11	224	5	142	77	197	84	3

Major/Minor	Major1			Major2				Minor1			Minor2		
Conflicting Flow All	235	0	0	-	50	0	0	451	563	42	404	347	11
Stage 1	-	-	-	-	-	-	-	62	62	-	233	277	-
Stage 2	-	-	-	-	-	-	-	389	501	-	171	70	-
Critical Hdwy	4.11	-	-	-	4.11	-	-	7.11	6.51	6.21	7.11	6.51	6.21
Critical Hdwy Stg 1	-	-	-	-	-	-	-	6.11	5.51	-	6.11	5.51	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	6.11	5.51	-	6.11	5.51	-
Follow-up Hdwy	2.209	-	-	-	2.209	-	-	3.509	4.009	3.309	3.509	4.009	3.309
Pot Cap-1 Maneuver	1338	-	-	-	1563	-	-	520	437	1032	559	578	1073
Stage 1	-	-	-	-	-	-	-	952	845	-	772	683	-
Stage 2	-	-	-	-	-	-	-	637	544	-	833	839	-
Platoon blocked, %		-	-			-	-						
Mov Cap-1 Maneuver	1338	-	-	-	1563	-	-	458	434	1032	383	574	1073
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	458	434	-	383	574	-
Stage 1	-	-	-	-	-	-	-	945	839	-	767	683	-
Stage 2	-	-	-	-	-	-	-	557	544	-	635	833	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	1.3		16	20.3
HCM LOS			C	C

Minor Lane/Major Mvmt	NELn1	NWU	NWL	NWT	NWR	SEL	SET	SER	SWLn1	SWLn2
Capacity (veh/h)	545	-	1563	-	-	1338	-	-	383	584
HCM Lane V/C Ratio	0.403	-	0.071	-	-	0.007	-	-	0.514	0.149
HCM Control Delay (s)	16	-	7.5	-	-	7.7	-	-	23.9	12.2
HCM Lane LOS	C	-	A	-	-	A	-	-	C	B
HCM 95th %tile Q(veh)	1.9	-	0.2	-	-	0	-	-	2.8	0.5

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	0	16	2	0	8	4	159	8	24	288	3
Future Vol, veh/h	10	0	16	2	0	8	4	159	8	24	288	3
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	-	-	75	75	-	-
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, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	11	0	17	2	0	9	4	173	9	26	313	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	557	557	315	556	-	173	316	0	0	182	0	0
Stage 1	367	367	-	181	-	-	-	-	-	-	-	-
Stage 2	190	190	-	375	-	-	-	-	-	-	-	-
Critical Hdwy	7.11	6.51	6.21	7.11	-	6.21	4.11	-	-	4.11	-	-
Critical Hdwy Stg 1	6.11	5.51	-	6.11	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.11	5.51	-	6.11	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.309	3.509	-	3.309	2.209	-	-	2.209	-	-
Pot Cap-1 Maneuver	443	440	728	443	0	873	1250	-	-	1399	-	-
Stage 1	655	624	-	823	0	-	-	-	-	-	-	-
Stage 2	814	745	-	648	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	431	430	728	425	-	873	1250	-	-	1399	-	-
Mov Cap-2 Maneuver	431	430	-	425	-	-	-	-	-	-	-	-
Stage 1	652	612	-	820	-	-	-	-	-	-	-	-
Stage 2	803	742	-	621	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.6	10.1	0.2	0.6
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1250	-	-	575	425	873	1399	-	-
HCM Lane V/C Ratio	0.003	-	-	0.049	0.005	0.01	0.019	-	-
HCM Control Delay (s)	7.9	-	-	11.6	13.5	9.2	7.6	-	-
HCM Lane LOS	A	-	-	B	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0	0	0.1	-	-

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	71	598	445	10	1200	300	1176	1899	10	100	650	101
Future Volume (vph)	71	598	445	10	1200	300	1176	1899	10	100	650	101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	500		0	300		300	1000		700	1000		750
Storage Lanes	1		1	1		0	2		1	1		1
Taper Length (ft)	100			300			300			100		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.91	1.00	1.00	0.91	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	3574	1599	1787	3574	1599	3467	5136	1599	1787	5136	1599
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1787	3574	1599	1787	3574	1599	3467	5136	1599	1787	5136	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			484			154			105			145
Link Speed (mph)		30			30			55			55	
Link Distance (ft)		1126			885			1842			11941	
Travel Time (s)		25.6			20.1			22.8			148.0	
Peak Hour Factor	0.99	0.99	0.92	0.92	0.99	0.95	0.99	0.99	0.92	0.92	0.95	0.92
Adj. Flow (vph)	72	604	484	11	1212	316	1188	1918	11	109	684	110
Shared Lane Traffic (%)												
Lane Group Flow (vph)	72	604	484	11	1212	316	1188	1918	11	109	684	110
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		18			18			52			52	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	Prot	NA	Prot
Protected Phases	5	2		1	6		7	4	4	3	8	8
Permitted Phases			2			6						

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Detector Phase	5	2	2	1	6	6	7		4	3		8
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	28.0	28.0	6.0	28.0	28.0
Minimum Split (s)	15.0	16.0	16.0	15.0	16.0	16.0	15.0	35.0	35.0	15.0	35.0	35.0
Total Split (s)	10.0	51.0	51.0	11.0	52.0	52.0	39.0	60.0	60.0	13.0	34.0	34.0
Total Split (%)	7.4%	37.8%	37.8%	8.1%	38.5%	38.5%	28.9%	44.4%	44.4%	9.6%	25.2%	25.2%
Maximum Green (s)	5.0	45.0	45.0	6.0	46.0	46.0	34.0	53.0	53.0	8.0	27.0	27.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	2.0	3.0	3.0	2.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	-1.0	-1.0	0.0	-1.0	-1.0	0.0	-2.0	-2.0	0.0	-2.0	-2.0
Total Lost Time (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
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	Max	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	5.0	52.6	52.6	6.0	47.0	47.0	34.0	55.0	55.0	8.0	29.0	29.0
Actuated g/C Ratio	0.04	0.39	0.39	0.04	0.35	0.35	0.25	0.41	0.41	0.06	0.21	0.21
v/c Ratio	1.09	0.43	0.53	0.14	0.97	0.48	1.36	0.92	0.02	1.04	0.62	0.24
Control Delay	192.2	25.9	6.2	66.1	63.5	19.6	208.7	45.9	0.0	158.6	50.9	3.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
Total Delay	192.2	25.9	6.2	66.1	63.5	19.6	209.1	45.9	0.0	158.6	50.9	3.9
LOS	F	C	A	E	E	B	F	D	A	F	D	A
Approach Delay		28.0			54.5			107.9			58.2	
Approach LOS		C			D			F			E	
Queue Length 50th (ft)	~72	156	30	9	550	107	~705	576	0	~102	200	0
Queue Length 95th (ft)	m#161	m207	m48	30	#704	197	#841	648	0	#228	246	24
Internal Link Dist (ft)		1046			805			1762			11861	
Turn Bay Length (ft)	500			300		300	1000		700	1000		750
Base Capacity (vph)	66	1392	918	79	1244	657	873	2092	713	105	1103	457
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	50	0	0	0	0	2
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.09	0.43	0.53	0.14	0.97	0.48	1.44	0.92	0.02	1.04	0.62	0.24

Intersection Summary

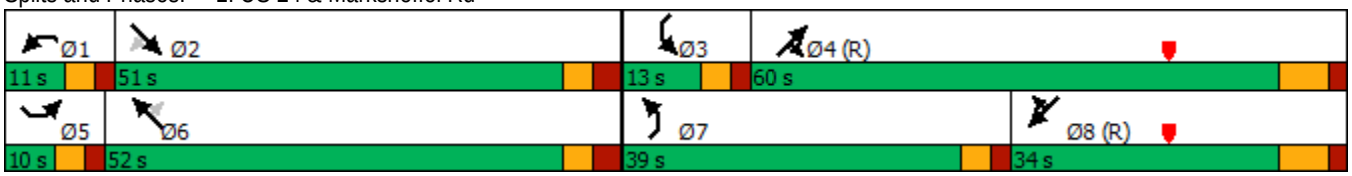
Area Type: Other
Cycle Length: 135
Actuated Cycle Length: 135
Offset: 0 (0%), Referenced to phase 4:NET and 8:SWT, Start of FDW or yellow
Natural Cycle: 145
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.36
Intersection Signal Delay: 75.2 Intersection LOS: E
Intersection Capacity Utilization 111.7% ICU Level of Service H
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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.

Splits and Phases: 1: US 24 & Marksheffel Rd



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	218	160	349	743	174	275	376	2720	1054	10	1143	123
Future Volume (vph)	218	160	349	743	174	275	376	2720	1054	10	1143	123
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	500		500	1000		1000	800		800
Storage Lanes	1		1	2		0	1		1	1		1
Taper Length (ft)	100			300			100			100		
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	3574	1599	3467	3574	1599	1787	5136	1599	1787	5136	1599
Flt Permitted	0.950			0.950			0.137			0.058		
Satd. Flow (perm)	1787	3574	1599	3467	3574	1599	258	5136	1599	109	5136	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			233			263			959			182
Link Speed (mph)		40			40			55			55	
Link Distance (ft)		575			9509			11173			1125	
Travel Time (s)		9.8			162.1			138.5			13.9	
Peak Hour Factor	0.94	0.94	0.94	0.93	0.93	0.93	0.97	0.97	0.97	0.82	0.82	0.82
Adj. Flow (vph)	232	170	371	799	187	296	388	2804	1087	12	1394	150
Shared Lane Traffic (%)												
Lane Group Flow (vph)	232	170	371	799	187	296	388	2804	1087	12	1394	150
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			52			52	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split	NA	Free	Split	NA	Free	D.P+P	NA	Free	D.P+P	NA	Free
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			Free			Free	6		Free	2		Free

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		6.0	28.0		6.0	28.0	
Minimum Split (s)	16.0	16.0		16.0	16.0		13.0	35.0		11.0	35.0	
Total Split (s)	16.0	16.0		21.0	21.0		13.0	70.0		13.0	70.0	
Total Split (%)	13.3%	13.3%		17.5%	17.5%		10.8%	58.3%		10.8%	58.3%	
Maximum Green (s)	11.0	11.0		15.0	15.0		8.0	63.0		8.0	63.0	
Yellow Time (s)	3.0	3.0		4.0	4.0		3.0	5.0		3.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0		6.0	6.0		5.0	7.0		5.0	7.0	
Lead/Lag	Lead	Lead		Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.8	3.8		6.0	6.0		3.0	6.0		3.0	6.0	
Minimum Gap (s)	3.8	3.8		3.8	3.8		3.0	6.0		3.0	6.0	
Time Before Reduce (s)	0.0	0.0		8.0	8.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0		12.0	12.0		0.0	0.0		0.0	0.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effct Green (s)	11.0	11.0	120.0	15.0	15.0	120.0	73.0	71.5	120.0	76.0	63.0	120.0
Actuated g/C Ratio	0.09	0.09	1.00	0.12	0.12	1.00	0.61	0.60	1.00	0.63	0.52	1.00
v/c Ratio	1.42	0.52	0.23	1.85	0.42	0.19	1.50	0.92	0.68	0.08	0.52	0.09
Control Delay	261.8	58.1	0.3	419.5	51.7	0.3	265.3	28.3	2.4	8.6	19.4	0.1
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	261.8	58.1	0.3	419.5	51.7	0.3	265.3	28.3	2.4	8.6	19.4	0.1
LOS	F	E	A	F	D	A	F	C	A	A	B	A
Approach Delay		91.5			269.1			43.2			17.5	
Approach LOS		F			F			D			B	
Queue Length 50th (ft)	~244	67	0	~484	71	0	~242	598	0	3	248	0
Queue Length 95th (ft)	m#403	m103	m0	#608	109	0	#428	#926	0	9	254	0
Internal Link Dist (ft)		495			9429			11093			1045	
Turn Bay Length (ft)	200			500		500	1000		1000	800		800
Base Capacity (vph)	163	327	1599	433	446	1599	258	3061	1599	181	2696	1599
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	1.42	0.52	0.23	1.85	0.42	0.19	1.50	0.92	0.68	0.07	0.52	0.09

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 4 (3%), Referenced to phase 2:NESW and 6:NESW, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.85
Intersection Signal Delay: 79.6 Intersection LOS: E
Intersection Capacity Utilization 102.9% ICU Level of Service G
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

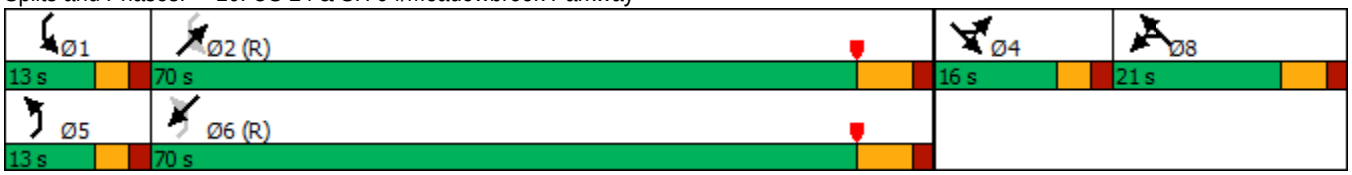
Queue shown is maximum after two cycles.

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.

Splits and Phases: 10: US 24 & SH 94/Meadowbrook Parkway



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	417	31	171	150	25	115	120	2096	260	90	804	333
Future Volume (vph)	417	31	171	150	25	115	120	2096	260	90	804	333
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		300	400		400	150		0	0		0
Storage Lanes	2		0	1		1	1		1	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.91	1.00
Ped Bike Factor	0.48	0.54		0.94								
Frt		0.873				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3467	891	0	1787	1881	1599	1787	3574	1599	1787	5136	1599
Flt Permitted	0.657			0.364			0.295			0.050		
Satd. Flow (perm)	1149	891	0	641	1881	1599	555	3574	1599	94	5136	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		158				101			182			351
Link Speed (mph)		35			35			50			50	
Link Distance (ft)		466			572			1126			555	
Travel Time (s)		9.1			11.1			15.4			7.6	
Confl. Peds. (#/hr)	1159		1928	70								
Peak Hour Factor	0.98	0.95	0.95	0.95	0.95	0.95	0.95	0.99	0.95	0.95	0.95	0.95
Adj. Flow (vph)	426	33	180	158	26	121	126	2117	274	95	846	351
Shared Lane Traffic (%)												
Lane Group Flow (vph)	426	213	0	158	26	121	126	2117	274	95	846	351
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm

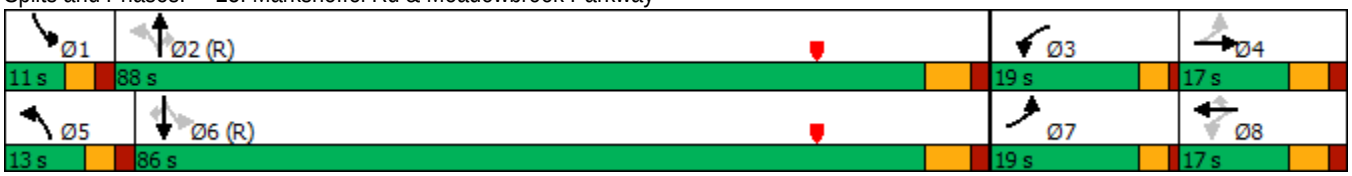
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2		2	6		6
Detector Phase	7	4		3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	10.0		10.0	10.0	10.0	10.0	11.5	11.5	10.0	11.5	11.5
Total Split (s)	19.0	17.0		19.0	17.0	17.0	13.0	88.0	88.0	11.0	86.0	86.0
Total Split (%)	14.1%	12.6%		14.1%	12.6%	12.6%	9.6%	65.2%	65.2%	8.1%	63.7%	63.7%
Maximum Green (s)	15.0	11.0		15.0	11.0	11.0	8.0	81.5	81.5	6.0	79.5	79.5
Yellow Time (s)	3.0	4.0		3.0	4.0	4.0	3.0	4.5	4.5	3.0	4.5	4.5
All-Red Time (s)	1.0	2.0		1.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
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)	4.0	6.0		4.0	6.0	6.0	5.0	6.5	6.5	5.0	6.5	6.5
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	29.2	12.4		26.6	11.0	11.0	90.7	81.5	81.5	87.3	79.8	79.8
Actuated g/C Ratio	0.22	0.09		0.20	0.08	0.08	0.67	0.60	0.60	0.65	0.59	0.59
v/c Ratio	0.84	0.95		0.65	0.17	0.54	0.28	0.98	0.26	0.70	0.28	0.32
Control Delay	61.5	66.1		56.9	60.7	25.3	7.5	22.6	4.0	48.3	13.8	2.0
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.5	66.1		56.9	60.7	25.3	7.5	22.6	4.0	48.3	13.8	2.0
LOS	E	E		E	E	C	A	C	A	D	B	A
Approach Delay		63.0			44.7			19.8			13.2	
Approach LOS		E			D			B			B	
Queue Length 50th (ft)	168	51		117	22	17	25	685	30	30	127	0
Queue Length 95th (ft)	#222	#220		186	53	81	m24	m250	m24	#115	153	40
Internal Link Dist (ft)		386			492			1046			475	
Turn Bay Length (ft)	250			400		400	150					
Base Capacity (vph)	505	225		260	153	223	447	2157	1037	135	3035	1088
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.84	0.95		0.61	0.17	0.54	0.28	0.98	0.26	0.70	0.28	0.32

Intersection Summary

Area Type: Other
Cycle Length: 135
Actuated Cycle Length: 135
Offset: 102.5 (76%), Referenced to phase 2:NBTL and 6:SBTL, Start of FDW or yellow
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.98
Intersection Signal Delay: 25.4 Intersection LOS: C
Intersection Capacity Utilization 114.4% ICU Level of Service H
Analysis Period (min) 15
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.

Splits and Phases: 25: Marksheffel Rd & Meadowbrook Parkway



Intersection	
Int Delay, s/veh	96.7

Movement	SEL	SET	SER	NWU	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations													
Traffic Vol, veh/h	6	19	11	23	349	34	225	18	232	344	341	266	10
Future Vol, veh/h	6	19	11	23	349	34	225	18	232	344	341	266	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	-	150	-	0	-	-	-	100	-	-
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	92
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	7	21	12	25	379	37	245	20	252	374	371	289	11

Major/Minor	Major1			Major2				Minor1			Minor2		
Conflicting Flow All	282	0	0	-	33	0	0	1109	1131	27	1149	892	37
Stage 1	-	-	-	-	-	-	-	41	41	-	795	845	-
Stage 2	-	-	-	-	-	-	-	1068	1090	-	354	47	-
Critical Hdwy	4.11	-	-	-	4.11	-	-	7.11	6.51	6.21	7.11	6.51	6.21
Critical Hdwy Stg 1	-	-	-	-	-	-	-	6.11	5.51	-	6.11	5.51	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	6.11	5.51	-	6.11	5.51	-
Follow-up Hdwy	2.209	-	-	-	2.209	-	-	3.509	4.009	3.309	3.509	4.009	3.309
Pot Cap-1 Maneuver	1286	-	-	-	1585	-	-	188	~ 204	1051	~ 176	~ 282	1038
Stage 1	-	-	-	-	-	-	-	976	863	-	382	380	-
Stage 2	-	-	-	-	-	-	-	269	292	-	665	858	-
Platoon blocked, %		-	-			-	-						
Mov Cap-1 Maneuver	1286	-	-	-	1585	-	-	-	~ 203	1051	-	~ 281	1038
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	~ 203	-	-	~ 281	-
Stage 1	-	-	-	-	-	-	-	971	859	-	380	380	-
Stage 2	-	-	-	-	-	-	-	64	292	-	~ 301	854	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	1.3		$ 305.6	
HCM LOS			F	-

Minor Lane/Major Mvmt	NELn1	NWU	NWL	NWT	NWR	SEL	SET	SER	SWLn1	SWLn2
Capacity (veh/h)	392	-	1585	-	-	1286	-	-	-	289
HCM Lane V/C Ratio	1.597	-	0.239	-	-	0.005	-	-	-	1.038
HCM Control Delay (s)	$ 305.6	-	8	-	-	7.8	-	-	-	102.8
HCM Lane LOS	F	-	A	-	-	A	-	-	-	F
HCM 95th %tile Q(veh)	35.8	-	0.9	-	-	0	-	-	-	11.3

Notes

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

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	16	0	10	20	0	46	3	442	14	32	346	4
Future Vol, veh/h	16	0	10	20	0	46	3	442	14	32	346	4
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	-	-	-	-	75	75	-	-
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, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	17	0	11	22	0	50	3	480	15	35	376	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	967	949	378	940	936	480	380	0	0	495	0	0
Stage 1	448	448	-	486	486	-	-	-	-	-	-	-
Stage 2	519	501	-	454	450	-	-	-	-	-	-	-
Critical Hdwy	7.11	6.51	6.21	7.11	6.51	6.21	4.11	-	-	4.11	-	-
Critical Hdwy Stg 1	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.309	3.509	4.009	3.309	2.209	-	-	2.209	-	-
Pot Cap-1 Maneuver	235	261	671	245	266	588	1184	-	-	1074	-	-
Stage 1	592	575	-	565	553	-	-	-	-	-	-	-
Stage 2	542	544	-	588	573	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	209	251	671	234	256	588	1184	-	-	1074	-	-
Mov Cap-2 Maneuver	209	251	-	234	256	-	-	-	-	-	-	-
Stage 1	590	556	-	563	551	-	-	-	-	-	-	-
Stage 2	494	542	-	560	554	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	19.1	14.8	0.1	0.7
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1184	-	-	284	234	588	1074	-	-
HCM Lane V/C Ratio	0.003	-	-	0.1	0.093	0.085	0.032	-	-
HCM Control Delay (s)	8	-	-	19.1	22	11.7	8.5	-	-
HCM Lane LOS	A	-	-	C	C	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.3	0.3	0.3	0.1	-	-

Intersection: 2: N Site Access & Meadowbrook Pkwy, Interval #1

Movement	WB	NB	SB	SB
Directions Served	L	TR	L	TR
Maximum Queue (ft)	30	31	31	31
Average Queue (ft)	4	13	4	9
95th Queue (ft)	21	38	22	31
Link Distance (ft)		279		184
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	250		30	
Storage Blk Time (%)			0	1
Queuing Penalty (veh)			0	0

Intersection: 2: N Site Access & Meadowbrook Pkwy, Interval #2

Movement	NB	SB
Directions Served	TR	L
Maximum Queue (ft)	31	31
Average Queue (ft)	4	26
95th Queue (ft)	22	44
Link Distance (ft)	279	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		30
Storage Blk Time (%)		2
Queuing Penalty (veh)		0

Intersection: 2: N Site Access & Meadowbrook Pkwy, Interval #3

Movement	WB	NB	SB
Directions Served	L	TR	L
Maximum Queue (ft)	30	31	31
Average Queue (ft)	4	9	4
95th Queue (ft)	22	31	22
Link Distance (ft)		279	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	250		30
Storage Blk Time (%)			0
Queuing Penalty (veh)			0

Intersection: 2: N Site Access & Meadowbrook Pkwy, Interval #4

Movement	WB	NB	SB	SB
Directions Served	L	TR	L	TR
Maximum Queue (ft)	30	31	31	31
Average Queue (ft)	4	22	9	9
95th Queue (ft)	22	45	32	32
Link Distance (ft)		279		184
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	250		30	
Storage Blk Time (%)			3	1
Queuing Penalty (veh)			0	0

Intersection: 2: N Site Access & Meadowbrook Pkwy, All Intervals

Movement	WB	NB	SB	SB
Directions Served	L	TR	L	TR
Maximum Queue (ft)	30	31	31	31
Average Queue (ft)	3	12	11	4
95th Queue (ft)	19	36	35	22
Link Distance (ft)		279		184
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	250		30	
Storage Blk Time (%)			2	0
Queuing Penalty (veh)			0	0

Intersection: 11: Marksheffel Rd & Meadowbrook Pkwy, Interval #1

Movement	EB	EB	EB	WB	WB	NB	SB
Directions Served	L	L	TR	L	TR	L	R
Maximum Queue (ft)	119	132	41	134	44	130	31
Average Queue (ft)	65	91	14	68	27	49	4
95th Queue (ft)	119	133	28	145	44	119	22
Link Distance (ft)			389		376		
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	225	225		400		425	300
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 11: Marksheffel Rd & Meadowbrook Pkwy, Interval #2

Movement	EB	EB	EB	WB	WB	NB	SB
Directions Served	L	L	TR	L	TR	L	L
Maximum Queue (ft)	154	172	20	25	86	94	26
Average Queue (ft)	74	101	17	14	29	40	7
95th Queue (ft)	174	189	28	30	71	102	26
Link Distance (ft)			389		376		
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	225	225		400		425	375
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 11: Marksheffel Rd & Meadowbrook Pkwy, Interval #3

Movement	EB	EB	EB	WB	WB	NB	SB	SB
Directions Served	L	L	TR	L	TR	L	L	R
Maximum Queue (ft)	77	90	64	66	65	72	23	22
Average Queue (ft)	32	47	16	27	21	46	3	3
95th Queue (ft)	82	96	51	61	54	69	16	16
Link Distance (ft)			389		376			
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	225	225		400		425	375	300
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 11: Marksheffel Rd & Meadowbrook Pkwy, Interval #4

Movement	EB	EB	EB	WB	WB	NB	SB	SB
Directions Served	L	L	TR	L	TR	L	L	T
Maximum Queue (ft)	98	112	21	43	193	117	27	22
Average Queue (ft)	56	80	17	13	66	59	7	3
95th Queue (ft)	117	127	28	36	150	107	25	15
Link Distance (ft)			389		376			5969
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	225	225		400		425	375	
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 11: Marksheffel Rd & Meadowbrook Pkwy, All Intervals

Movement	EB	EB	EB	WB	WB	NB	SB	SB	SB
Directions Served	L	L	TR	L	TR	L	L	T	R
Maximum Queue (ft)	154	172	64	134	193	130	27	22	31
Average Queue (ft)	57	80	16	30	36	49	4	1	2
95th Queue (ft)	130	148	36	88	94	104	20	7	13
Link Distance (ft)			389		376			5969	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	225	225		400		425	375		300
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 2: Mobil/N Site Access & Meadowbrook Pkwy, Interval #1

Movement	WB	NB	NB	SB	SB
Directions Served	L	L	TR	L	TR
Maximum Queue (ft)	31	30	57	50	30
Average Queue (ft)	13	9	40	29	9
95th Queue (ft)	37	31	59	52	31
Link Distance (ft)			279		184
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	250	100		30	
Storage Blk Time (%)				4	1
Queuing Penalty (veh)				0	0

Intersection: 2: Mobil/N Site Access & Meadowbrook Pkwy, Interval #2

Movement	WB	NB	NB	SB	SB
Directions Served	L	L	TR	L	TR
Maximum Queue (ft)	30	28	31	31	31
Average Queue (ft)	4	4	26	22	4
95th Queue (ft)	22	20	43	46	22
Link Distance (ft)			279		184
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	250	100		30	
Storage Blk Time (%)				5	1
Queuing Penalty (veh)				0	0

Intersection: 2: Mobil/N Site Access & Meadowbrook Pkwy, Interval #3

Movement	WB	NB	NB	SB	SB
Directions Served	L	L	TR	L	TR
Maximum Queue (ft)	31	31	55	31	31
Average Queue (ft)	4	13	40	20	13
95th Queue (ft)	22	38	59	42	39
Link Distance (ft)			279		184
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	250	100		30	
Storage Blk Time (%)				4	1
Queuing Penalty (veh)				0	1

Intersection: 2: Mobil/N Site Access & Meadowbrook Pkwy, Interval #4

Movement	WB	NB	NB	SB	SB
Directions Served	L	L	TR	L	TR
Maximum Queue (ft)	30	30	56	31	30
Average Queue (ft)	4	9	36	18	9
95th Queue (ft)	22	31	67	43	31
Link Distance (ft)			279		184
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	250	100		30	
Storage Blk Time (%)				2	1
Queuing Penalty (veh)				0	0

Intersection: 2: Mobil/N Site Access & Meadowbrook Pkwy, All Intervals

Movement	WB	NB	NB	SB	SB
Directions Served	L	L	TR	L	TR
Maximum Queue (ft)	31	31	57	50	31
Average Queue (ft)	6	9	35	22	9
95th Queue (ft)	27	31	60	47	32
Link Distance (ft)			279		184
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	250	100		30	
Storage Blk Time (%)				4	1
Queuing Penalty (veh)				0	0

Intersection: 11: Marksheffel Rd & Meadowbrook Pkwy, Interval #1

Movement	EB	EB	EB	WB	WB	NB	NB	SB
Directions Served	L	L	TR	L	TR	L	R	L
Maximum Queue (ft)	105	140	119	23	65	29	19	52
Average Queue (ft)	67	96	67	6	29	27	3	7
95th Queue (ft)	113	119	117	23	66	29	13	38
Link Distance (ft)			400		380		439	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	225	225		400		425		375
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 11: Marksheffel Rd & Meadowbrook Pkwy, Interval #2

Movement	EB	EB	EB	WB	WB	NB	SB
Directions Served	L	L	TR	L	TR	L	L
Maximum Queue (ft)	124	126	116	24	41	51	26
Average Queue (ft)	48	67	45	14	19	15	11
95th Queue (ft)	107	119	94	31	39	46	33
Link Distance (ft)			400		380		
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	225	225		400		425	375
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 11: Marksheffel Rd & Meadowbrook Pkwy, Interval #3

Movement	EB	EB	EB	WB	WB	NB	SB	SB
Directions Served	L	L	TR	L	TR	L	L	R
Maximum Queue (ft)	123	158	97	44	63	51	53	22
Average Queue (ft)	90	110	51	13	31	27	31	3
95th Queue (ft)	135	172	94	40	60	50	59	16
Link Distance (ft)			400		380			
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	225	225		400		425	375	300
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 11: Marksheffel Rd & Meadowbrook Pkwy, Interval #4

Movement	EB	EB	EB	WB	WB	NB	SB	SB
Directions Served	L	L	TR	L	TR	L	L	R
Maximum Queue (ft)	181	199	72	22	128	29	31	22
Average Queue (ft)	84	107	39	7	44	16	22	3
95th Queue (ft)	186	206	58	23	109	39	37	16
Link Distance (ft)			400		380			
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	225	225		400		425	375	300
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 11: Marksheffel Rd & Meadowbrook Pkwy, All Intervals

Movement	EB	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	L	TR	L	TR	L	R	L	R
Maximum Queue (ft)	181	199	119	44	128	51	19	53	22
Average Queue (ft)	72	95	50	10	31	21	1	18	2
95th Queue (ft)	145	166	96	31	75	45	6	47	11
Link Distance (ft)			400		380		439		
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	225	225		400		425		375	300
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 2: N Site Access & Meadowbrook Pkwy, Interval #1

Movement	EB	NB	SB	SB
Directions Served	L	TR	L	TR
Maximum Queue (ft)	28	31	31	31
Average Queue (ft)	7	13	13	4
95th Queue (ft)	24	39	38	22
Link Distance (ft)		279		184
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	80		30	
Storage Blk Time (%)			2	0
Queuing Penalty (veh)			0	0

Intersection: 2: N Site Access & Meadowbrook Pkwy, Interval #2

Movement	NB	SB	SB
Directions Served	TR	L	TR
Maximum Queue (ft)	31	31	31
Average Queue (ft)	18	18	4
95th Queue (ft)	43	43	22
Link Distance (ft)	279		184
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		30	
Storage Blk Time (%)		2	0
Queuing Penalty (veh)		0	0

Intersection: 2: N Site Access & Meadowbrook Pkwy, Interval #3

Movement	NB	SB	SB
Directions Served	TR	L	TR
Maximum Queue (ft)	31	31	31
Average Queue (ft)	22	9	4
95th Queue (ft)	45	32	22
Link Distance (ft)	279		184
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		30	
Storage Blk Time (%)		1	0
Queuing Penalty (veh)		0	0

Intersection: 2: N Site Access & Meadowbrook Pkwy, Interval #4

Movement	EB	WB	NB	SB	SB
Directions Served	L	L	TR	L	TR
Maximum Queue (ft)	30	30	31	31	31
Average Queue (ft)	4	4	9	7	4
95th Queue (ft)	22	22	31	25	22
Link Distance (ft)			279		184
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	80	250		30	
Storage Blk Time (%)				1	0
Queuing Penalty (veh)				0	0

Intersection: 2: N Site Access & Meadowbrook Pkwy, All Intervals

Movement	EB	WB	NB	SB	SB
Directions Served	L	L	TR	L	TR
Maximum Queue (ft)	30	30	31	31	31
Average Queue (ft)	3	1	15	12	4
95th Queue (ft)	16	10	41	36	22
Link Distance (ft)			279		184
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	80	250		30	
Storage Blk Time (%)				1	0
Queuing Penalty (veh)				0	0

Intersection: 11: Marksheffel Rd & Meadowbrook Pkwy, Interval #1

Movement	EB	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	L	TR	L	TR	L	T	T	L	T	T	T
Maximum Queue (ft)	71	86	70	25	42	26	135	141	28	122	140	169
Average Queue (ft)	32	53	32	3	24	24	41	38	0	55	66	88
95th Queue (ft)	82	94	70	16	36	26	121	117	0	113	135	187
Link Distance (ft)			389		376		439	439		5969	5969	5969
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	225	225		400		425			375			
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 11: Marksheffel Rd & Meadowbrook Pkwy, Interval #1

Movement	SB
Directions Served	R
Maximum Queue (ft)	31
Average Queue (ft)	24
95th Queue (ft)	41
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	300
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 11: Marksheffel Rd & Meadowbrook Pkwy, Interval #2

Movement	EB	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	L	TR	L	TR	L	T	T	T	T	T	R
Maximum Queue (ft)	27	66	20	25	44	26	188	186	54	128	141	31
Average Queue (ft)	9	36	8	10	25	20	66	72	26	53	63	13
95th Queue (ft)	29	62	24	27	48	35	170	169	65	126	153	37
Link Distance (ft)			389		376		439	439	5969	5969	5969	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	225	225		400		425						300
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 11: Marksheffel Rd & Meadowbrook Pkwy, Interval #3

Movement	EB	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	L	TR	L	TR	L	T	T	L	T	T	T
Maximum Queue (ft)	27	46	102	24	43	50	73	47	29	53	95	159
Average Queue (ft)	11	37	33	3	22	29	36	23	8	31	42	67
95th Queue (ft)	33	54	93	18	37	55	75	58	29	67	92	162
Link Distance (ft)			389		376		439	439		5969	5969	5969
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	225	225		400		425			375			
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 11: Marksheffel Rd & Meadowbrook Pkwy, Interval #3

Movement	SB
Directions Served	R
Maximum Queue (ft)	74
Average Queue (ft)	15
95th Queue (ft)	58
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	300
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 11: Marksheffel Rd & Meadowbrook Pkwy, Interval #4

Movement	EB	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	L	TR	L	TR	L	T	T	T	T	T	R
Maximum Queue (ft)	92	106	21	24	44	51	141	117	53	176	186	52
Average Queue (ft)	32	51	8	12	27	23	65	47	20	65	107	29
95th Queue (ft)	87	106	23	30	44	47	141	113	59	177	218	46
Link Distance (ft)			389		376		439	439	5969	5969	5969	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	225	225		400		425						300
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 11: Marksheffel Rd & Meadowbrook Pkwy, All Intervals

Movement	EB	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	L	TR	L	TR	L	T	T	L	T	T	T
Maximum Queue (ft)	92	106	102	25	44	51	188	186	29	122	176	186
Average Queue (ft)	21	44	20	7	24	24	52	45	2	33	57	81
95th Queue (ft)	65	84	63	24	42	44	134	123	14	82	137	185
Link Distance (ft)			389		376		439	439		5969	5969	5969
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	225	225		400		425			375			
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 11: Marksheffel Rd & Meadowbrook Pkwy, All Intervals

Movement	SB
Directions Served	R
Maximum Queue (ft)	74
Average Queue (ft)	20
95th Queue (ft)	50
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	300
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 2: Mobil/N Site Access & Meadowbrook Pkwy, Interval #1

Movement	WB	NB	NB	SB	SB
Directions Served	L	L	TR	L	TR
Maximum Queue (ft)	49	31	55	53	30
Average Queue (ft)	11	17	43	26	9
95th Queue (ft)	41	42	63	55	31
Link Distance (ft)			279		184
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	250	100		30	
Storage Blk Time (%)				6	1
Queuing Penalty (veh)				0	0

Intersection: 2: Mobil/N Site Access & Meadowbrook Pkwy, Interval #2

Movement	WB	NB	NB	SB	SB
Directions Served	L	L	TR	L	TR
Maximum Queue (ft)	30	49	78	31	31
Average Queue (ft)	13	16	46	18	4
95th Queue (ft)	38	47	77	43	23
Link Distance (ft)			279		184
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	250	100		30	
Storage Blk Time (%)				3	1
Queuing Penalty (veh)				0	0

Intersection: 2: Mobil/N Site Access & Meadowbrook Pkwy, Interval #3

Movement	WB	NB	NB	SB	SB
Directions Served	L	L	TR	L	TR
Maximum Queue (ft)	29	30	55	31	31
Average Queue (ft)	4	12	30	13	17
95th Queue (ft)	21	36	54	39	42
Link Distance (ft)			279		184
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	250	100		30	
Storage Blk Time (%)				5	1
Queuing Penalty (veh)				0	0

Intersection: 2: Mobil/N Site Access & Meadowbrook Pkwy, Interval #4

Movement	EB	WB	NB	NB	SB	SB
Directions Served	L	L	L	TR	L	TR
Maximum Queue (ft)	31	30	31	100	53	30
Average Queue (ft)	4	17	25	44	32	9
95th Queue (ft)	22	40	43	84	59	31
Link Distance (ft)				279		184
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	80	250	100		30	
Storage Blk Time (%)				0	7	1
Queuing Penalty (veh)				0	0	0

Intersection: 2: Mobil/N Site Access & Meadowbrook Pkwy, All Intervals

Movement	EB	WB	NB	NB	SB	SB
Directions Served	L	L	L	TR	L	TR
Maximum Queue (ft)	31	49	49	100	53	31
Average Queue (ft)	1	11	18	41	22	10
95th Queue (ft)	10	37	44	72	52	33
Link Distance (ft)				279		184
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	80	250	100		30	
Storage Blk Time (%)				0	5	1
Queuing Penalty (veh)				0	0	0

Intersection: 11: Marksheffel Rd & Meadowbrook Pkwy, Interval #1

Movement	EB	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	L	TR	L	TR	L	T	T	R	L	T	T
Maximum Queue (ft)	120	158	134	68	44	51	246	288	27	51	94	118
Average Queue (ft)	90	113	59	31	23	30	139	147	14	26	49	74
95th Queue (ft)	135	154	118	69	47	56	284	321	35	58	96	131
Link Distance (ft)			400		380		439	439	439		4385	4385
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	225	225		400		425				375		
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 11: Marksheffel Rd & Meadowbrook Pkwy, Interval #1

Movement	SB
Directions Served	R
Maximum Queue (ft)	54
Average Queue (ft)	27
95th Queue (ft)	51
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	300
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 11: Marksheffel Rd & Meadowbrook Pkwy, Interval #2

Movement	EB	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	L	TR	L	TR	L	T	T	R	L	T	T
Maximum Queue (ft)	80	98	69	42	65	53	219	241	53	27	94	96
Average Queue (ft)	53	85	43	18	34	26	154	152	19	17	47	48
95th Queue (ft)	103	107	66	47	61	58	291	305	50	35	89	107
Link Distance (ft)			400		380		439	439	439		4385	4385
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	225	225		400		425				375		
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 11: Marksheffel Rd & Meadowbrook Pkwy, Interval #2

Movement	SB
Directions Served	R
Maximum Queue (ft)	52
Average Queue (ft)	27
95th Queue (ft)	51
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	300
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 11: Marksheffel Rd & Meadowbrook Pkwy, Interval #3

Movement	EB	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	L	TR	L	TR	L	T	T	R	L	T	T
Maximum Queue (ft)	94	115	76	25	63	30	292	291	22	53	51	138
Average Queue (ft)	51	81	39	12	31	20	162	162	8	33	25	75
95th Queue (ft)	85	117	67	30	62	42	344	344	25	57	56	140
Link Distance (ft)			400		380		439	439	439		4385	4385
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	225	225		400		425				375		
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 11: Marksheffel Rd & Meadowbrook Pkwy, Interval #3

Movement	SB
Directions Served	R
Maximum Queue (ft)	51
Average Queue (ft)	28
95th Queue (ft)	51
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	300
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 11: Marksheffel Rd & Meadowbrook Pkwy, Interval #4

Movement	EB	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	L	TR	L	TR	L	T	T	R	L	T	T
Maximum Queue (ft)	123	136	79	24	43	72	270	281	27	31	93	114
Average Queue (ft)	80	92	43	8	19	30	172	160	13	15	47	60
95th Queue (ft)	129	139	73	24	39	70	313	337	32	36	95	107
Link Distance (ft)			400		380		439	439	439		4385	4385
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	225	225		400		425				375		
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 11: Marksheffel Rd & Meadowbrook Pkwy, Interval #4

Movement	SB
Directions Served	R
Maximum Queue (ft)	74
Average Queue (ft)	27
95th Queue (ft)	32
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	300
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 11: Marksheffel Rd & Meadowbrook Pkwy, All Intervals

Movement	EB	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	L	TR	L	TR	L	T	T	R	L	T	T
Maximum Queue (ft)	123	158	134	68	65	72	292	291	53	53	94	138
Average Queue (ft)	68	93	46	17	27	26	157	155	14	22	42	64
95th Queue (ft)	122	136	86	48	54	58	310	327	37	50	87	124
Link Distance (ft)			400		380		439	439	439		4385	4385
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	225	225		400		425				375		
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 11: Marksheffel Rd & Meadowbrook Pkwy, All Intervals

Movement	SB
Directions Served	R
Maximum Queue (ft)	74
Average Queue (ft)	27
95th Queue (ft)	48
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	300
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 2: N Site Access & Meadowbrook Pkwy, Interval #1

Movement	WB	NB	NB	SB	SB
Directions Served	L	L	TR	L	TR
Maximum Queue (ft)	31	30	31	31	31
Average Queue (ft)	17	9	22	22	25
95th Queue (ft)	41	31	44	44	43
Link Distance (ft)			279		184
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	250	100		30	
Storage Blk Time (%)				4	3
Queuing Penalty (veh)				1	1

Intersection: 2: N Site Access & Meadowbrook Pkwy, Interval #2

Movement	WB	NB	NB	SB	SB
Directions Served	L	L	TR	L	TR
Maximum Queue (ft)	31	31	31	31	54
Average Queue (ft)	17	4	26	22	17
95th Queue (ft)	42	22	44	45	50
Link Distance (ft)			279		184
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	250	100		30	
Storage Blk Time (%)				5	2
Queuing Penalty (veh)				1	0

Intersection: 2: N Site Access & Meadowbrook Pkwy, Interval #3

Movement	WB	NB	SB	SB
Directions Served	L	TR	L	TR
Maximum Queue (ft)	53	50	31	31
Average Queue (ft)	32	33	26	17
95th Queue (ft)	48	45	44	42
Link Distance (ft)		279		184
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	250		30	
Storage Blk Time (%)			8	2
Queuing Penalty (veh)			2	0

Intersection: 2: N Site Access & Meadowbrook Pkwy, Interval #4

Movement	WB	NB	NB	SB	SB
Directions Served	L	L	TR	L	TR
Maximum Queue (ft)	31	29	31	31	50
Average Queue (ft)	13	8	9	17	20
95th Queue (ft)	38	29	32	42	51
Link Distance (ft)			279		184
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	250	100		30	
Storage Blk Time (%)				4	2
Queuing Penalty (veh)				1	1

Intersection: 2: N Site Access & Meadowbrook Pkwy, All Intervals

Movement	WB	NB	NB	SB	SB
Directions Served	L	L	TR	L	TR
Maximum Queue (ft)	53	31	50	31	54
Average Queue (ft)	20	5	23	22	20
95th Queue (ft)	45	24	47	45	48
Link Distance (ft)			279		184
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	250	100		30	
Storage Blk Time (%)				5	2
Queuing Penalty (veh)				1	1

Intersection: 11: Marksheffel Rd & Meadowbrook Pkwy, Interval #1

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	L	TR	L	T	R	L	T	T	R	L	T
Maximum Queue (ft)	95	128	85	129	24	91	184	227	218	27	24	1251
Average Queue (ft)	38	67	46	103	3	43	95	106	106	11	3	480
95th Queue (ft)	89	115	88	146	17	79	205	250	258	32	17	1094
Link Distance (ft)			389		377			439	439	439		5957
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	225	225		175		175	425				375	
Storage Blk Time (%)												35
Queuing Penalty (veh)												14

Intersection: 11: Marksheffel Rd & Meadowbrook Pkwy, Interval #1

Movement	SB	SB	SB
Directions Served	T	T	R
Maximum Queue (ft)	1266	1306	400
Average Queue (ft)	485	520	239
95th Queue (ft)	1090	1143	545
Link Distance (ft)	5957	5957	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			300
Storage Blk Time (%)		45	
Queuing Penalty (veh)		150	

Intersection: 11: Marksheffel Rd & Meadowbrook Pkwy, Interval #2

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	L	TR	L	T	R	L	T	T	R	L	T
Maximum Queue (ft)	107	130	170	190	212	44	114	249	245	51	474	3836
Average Queue (ft)	53	68	128	131	53	18	48	78	74	10	202	2402
95th Queue (ft)	106	131	170	228	164	30	118	224	225	40	587	3661
Link Distance (ft)			389		377			439	439	439		5957
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	225	225		175		175	425				375	
Storage Blk Time (%)				23								85
Queuing Penalty (veh)				21								35

Intersection: 11: Marksheffel Rd & Meadowbrook Pkwy, Interval #2

Movement	SB	SB	SB
Directions Served	T	T	R
Maximum Queue (ft)	3887	3872	400
Average Queue (ft)	2479	2494	286
95th Queue (ft)	3635	3645	583
Link Distance (ft)	5957	5957	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			300
Storage Blk Time (%)		87	
Queuing Penalty (veh)		289	

Intersection: 11: Marksheffel Rd & Meadowbrook Pkwy, Interval #3

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	L	TR	L	T	R	L	T	T	R	L	T
Maximum Queue (ft)	96	110	87	109	44	41	180	214	245	49	474	4138
Average Queue (ft)	45	78	44	41	16	23	102	145	162	16	85	4097
95th Queue (ft)	99	125	86	78	42	36	181	231	263	44	348	4140
Link Distance (ft)			389		377			439	439	439		5957
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	225	225		175		175	425				375	
Storage Blk Time (%)												33
Queuing Penalty (veh)												13

Intersection: 11: Marksheffel Rd & Meadowbrook Pkwy, Interval #3

Movement	SB	SB	SB
Directions Served	T	T	R
Maximum Queue (ft)	4132	4173	400
Average Queue (ft)	4089	4095	400
95th Queue (ft)	4142	4166	400
Link Distance (ft)	5957	5957	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			300
Storage Blk Time (%)		75	
Queuing Penalty (veh)		250	

Intersection: 11: Marksheffel Rd & Meadowbrook Pkwy, Interval #4

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	L	TR	L	T	R	L	T	T	R	L	T
Maximum Queue (ft)	92	90	69	229	234	41	177	248	267	27	473	3825
Average Queue (ft)	29	63	25	123	45	21	82	102	99	9	78	3154
95th Queue (ft)	78	93	62	259	175	39	192	231	220	26	346	3547
Link Distance (ft)			389		377			439	439	439		5957
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	225	225		175		175	425				375	
Storage Blk Time (%)				22								65
Queuing Penalty (veh)				20								27

Intersection: 11: Marksheffel Rd & Meadowbrook Pkwy, Interval #4

Movement	SB	SB	SB
Directions Served	T	T	R
Maximum Queue (ft)	3852	3816	400
Average Queue (ft)	3171	3160	400
95th Queue (ft)	3544	3538	400
Link Distance (ft)	5957	5957	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			300
Storage Blk Time (%)		86	
Queuing Penalty (veh)		286	

Intersection: 11: Marksheffel Rd & Meadowbrook Pkwy, All Intervals

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	L	TR	L	T	R	L	T	T	R	L	T
Maximum Queue (ft)	107	130	170	229	234	91	184	249	267	51	474	4138
Average Queue (ft)	41	69	61	99	29	26	82	108	110	12	92	2533
95th Queue (ft)	95	118	138	205	122	53	182	242	254	36	386	4844
Link Distance (ft)			389		377			439	439	439		5957
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	225	225		175		175	425				375	
Storage Blk Time (%)				11								54
Queuing Penalty (veh)				10								22

Intersection: 11: Marksheffel Rd & Meadowbrook Pkwy, All Intervals

Movement	SB	SB	SB
Directions Served	T	T	R
Maximum Queue (ft)	4132	4173	400
Average Queue (ft)	2556	2567	331
95th Queue (ft)	4845	4837	574
Link Distance (ft)	5957	5957	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			300
Storage Blk Time (%)		73	
Queuing Penalty (veh)		244	

Intersection: 2: Mobil/N Site Access & Meadowbrook Pkwy, Interval #1

Movement	EB	EB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	L	TR	L	TR
Maximum Queue (ft)	31	53	30	36	74	55	78
Average Queue (ft)	9	8	21	18	47	27	27
95th Queue (ft)	31	38	43	44	77	46	72
Link Distance (ft)		705			279		184
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	80		250	100		30	
Storage Blk Time (%)						15	6
Queuing Penalty (veh)						4	4

Intersection: 2: Mobil/N Site Access & Meadowbrook Pkwy, Interval #2

Movement	EB	EB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	L	TR	L	TR
Maximum Queue (ft)	31	22	53	48	55	81	31
Average Queue (ft)	8	3	36	23	33	36	13
95th Queue (ft)	31	16	52	57	49	74	38
Link Distance (ft)		705			279		184
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	80		250	100		30	
Storage Blk Time (%)						24	1
Queuing Penalty (veh)						7	1

Intersection: 2: Mobil/N Site Access & Meadowbrook Pkwy, Interval #3

Movement	EB	WB	NB	NB	SB	SB
Directions Served	L	L	L	TR	L	TR
Maximum Queue (ft)	30	31	31	74	88	30
Average Queue (ft)	17	17	8	58	45	17
95th Queue (ft)	40	42	31	80	78	41
Link Distance (ft)				279		184
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	80	250	100		30	
Storage Blk Time (%)					26	2
Queuing Penalty (veh)					7	1

Intersection: 2: Mobil/N Site Access & Meadowbrook Pkwy, Interval #4

Movement	EB	WB	NB	NB	SB	SB
Directions Served	L	L	L	TR	L	TR
Maximum Queue (ft)	31	67	31	116	112	51
Average Queue (ft)	9	26	17	70	47	25
95th Queue (ft)	32	61	42	121	96	53
Link Distance (ft)				279		184
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	80	250	100		30	
Storage Blk Time (%)				4	35	5
Queuing Penalty (veh)				1	10	4

Intersection: 2: Mobil/N Site Access & Meadowbrook Pkwy, All Intervals

Movement	EB	EB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	L	TR	L	TR
Maximum Queue (ft)	31	53	67	48	116	112	78
Average Queue (ft)	11	3	25	17	52	39	20
95th Queue (ft)	34	20	53	45	92	77	54
Link Distance (ft)		705			279		184
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	80		250	100		30	
Storage Blk Time (%)					1	25	3
Queuing Penalty (veh)					0	7	2

Intersection: 11: Marksheffel Rd & Meadowbrook Pkwy, Interval #1

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	L	TR	L	T	R	L	T	T	R	L	T
Maximum Queue (ft)	208	389	405	136	136	131	72	264	268	71	64	158
Average Queue (ft)	162	230	235	116	43	62	41	167	167	25	43	76
95th Queue (ft)	212	358	401	148	119	119	91	328	328	61	56	133
Link Distance (ft)			389		380			439	439	439		4373
Upstream Blk Time (%)		0	2									
Queuing Penalty (veh)		0	12									
Storage Bay Dist (ft)	225	225		200		200	425				375	
Storage Blk Time (%)	0	2	25									
Queuing Penalty (veh)	0	4	104									

Intersection: 11: Marksheffel Rd & Meadowbrook Pkwy, Interval #1

Movement	SB	SB	SB
Directions Served	T	T	R
Maximum Queue (ft)	150	105	63
Average Queue (ft)	94	61	35
95th Queue (ft)	146	103	52
Link Distance (ft)	4373	4373	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			300
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 11: Marksheffel Rd & Meadowbrook Pkwy, Interval #2

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	L	TR	L	T	R	L	T	T	R	L	T
Maximum Queue (ft)	214	234	153	151	66	106	68	280	288	25	133	90
Average Queue (ft)	148	168	93	102	28	76	32	172	173	10	68	42
95th Queue (ft)	230	243	146	163	62	114	72	320	329	29	141	93
Link Distance (ft)			389		380			439	439	439		4373
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	225	225		200		200	425				375	
Storage Blk Time (%)	0	1										
Queuing Penalty (veh)	0	3										

Intersection: 11: Marksheffel Rd & Meadowbrook Pkwy, Interval #2

Movement	SB	SB	SB
Directions Served	T	T	R
Maximum Queue (ft)	88	131	127
Average Queue (ft)	62	80	35
95th Queue (ft)	97	142	99
Link Distance (ft)	4373	4373	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			300
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 11: Marksheffel Rd & Meadowbrook Pkwy, Interval #3

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	L	TR	L	T	R	L	T	T	R	L	T
Maximum Queue (ft)	308	365	346	217	67	86	134	269	263	50	107	86
Average Queue (ft)	207	235	111	105	21	52	59	162	172	14	58	51
95th Queue (ft)	342	370	283	210	61	85	129	337	318	44	107	82
Link Distance (ft)			389		380			439	439	439		4373
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	225	225		200		200	425				375	
Storage Blk Time (%)	10	19	0	2								
Queuing Penalty (veh)	21	39	0	3								

Intersection: 11: Marksheffel Rd & Meadowbrook Pkwy, Interval #3

Movement	SB	SB	SB
Directions Served	T	T	R
Maximum Queue (ft)	119	108	87
Average Queue (ft)	58	70	48
95th Queue (ft)	119	119	95
Link Distance (ft)	4373	4373	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			300
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 11: Marksheffel Rd & Meadowbrook Pkwy, Interval #4

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	L	TR	L	T	R	L	T	T	R	L	T
Maximum Queue (ft)	317	376	320	173	46	107	49	270	235	61	110	90
Average Queue (ft)	255	301	143	115	25	68	23	165	168	30	51	55
95th Queue (ft)	370	418	333	170	51	123	49	340	315	66	95	98
Link Distance (ft)			389		380			439	439	439		4373
Upstream Blk Time (%)		0										
Queuing Penalty (veh)		0										
Storage Bay Dist (ft)	225	225		200		200	425				375	
Storage Blk Time (%)	31	48	10									
Queuing Penalty (veh)	62	96	40									

Intersection: 11: Marksheffel Rd & Meadowbrook Pkwy, Interval #4

Movement	SB	SB	SB
Directions Served	T	T	R
Maximum Queue (ft)	108	151	44
Average Queue (ft)	52	77	28
95th Queue (ft)	116	146	48
Link Distance (ft)	4373	4373	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			300
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 11: Marksheffel Rd & Meadowbrook Pkwy, All Intervals

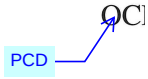
Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	L	TR	L	T	R	L	T	T	R	L	T
Maximum Queue (ft)	317	389	405	217	136	131	134	280	288	71	133	158
Average Queue (ft)	193	234	145	110	29	64	39	167	170	20	55	56
95th Queue (ft)	315	373	325	179	79	113	93	332	323	54	107	107
Link Distance (ft)			389		380			439	439	439		4373
Upstream Blk Time (%)		0	0									
Queuing Penalty (veh)		0	3									
Storage Bay Dist (ft)	225	225		200		200	425				375	
Storage Blk Time (%)	10	18	9	0								
Queuing Penalty (veh)	21	36	36	1								

Intersection: 11: Marksheffel Rd & Meadowbrook Pkwy, All Intervals

Movement	SB	SB	SB
Directions Served	T	T	R
Maximum Queue (ft)	150	151	127
Average Queue (ft)	67	72	36
95th Queue (ft)	127	130	80
Link Distance (ft)	4373	4373	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			300
Storage Blk Time (%)			
Queuing Penalty (veh)			

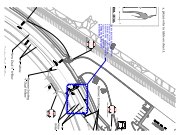
Markup Summary

dsdlaforce (2)



Subject: Callout
Page Label: 1
Lock: Locked
Author: dsdlaforce

PCD



Subject: Cloud+
Page Label: 33
Lock: Locked
Author: dsdlaforce

The lane length and taper does not meet criteria in ECM Table 2-26.
A deviation request is required for the proposed striping. Include the deviation request with the next submittal.
Pending County Engineer's determination.