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Villas at Claremont Ranch
Traffic Impact Analysis
PCD File No. SF2228
(LSC #204130)
October 24, 2022

Traffic Engineer's Statement

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

Developer's Statement

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

10/26/2022
Date

Villas at Claremont Ranch
Traffic Impact Analysis

Prepared for:
Phi Real Estate Services, LLC
200 W. City Center Dr. Ste 200
Pueblo, CO 81003

Contact: Mr. Paul Broussard

OCTOBER 24, 2022

LSC Transportation Consultants
Project Manager: Jeffrey C. Hodsdon, P.E.

PCD File No. SF2228
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CONTENTS

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October 24, 2022

Mr. Paul Broussard
Phi Real Estate Services, LLC
200 W. City Center Dr. Ste 200
Pueblo, CO 81003

RE: Villas at Claremont Ranch
El Paso County, Colorado
Traffic Impact Analysis
PCD File No. SF2228
LSC #204130

Figure 2 in appendix shows distances of 495' and 790' to proposed accesses.

Dear Mr. Broussard,

In response to your request, we have prepared this traffic impact analysis for the proposed Villas at Claremont Ranch. The proposed 83-dwelling unit townhome development is located northeast of the intersection of Marksheffel Road/Meadowbrook Parkway in El Paso County, Colorado. Two site access points to Meadowbrook Parkway are proposed at approximately 600 and 895 feet east of the intersection of Marksheffel Road/Meadowbrook Parkway (centerline distance between proposed accesses and Marksheffel Road). The proposed location and vicinity are 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 Hwy 24
  - Meadowbrook Parkway/Greengate View
  - Meadowbrook Parkway/Fieldside View
- Description of the proposed land use and access points
- 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 to the study area intersections, including the site access point intersections

- Projected total daily and peak-hour traffic volumes at the study-area intersections
- Intersection level of service analysis at the study-area intersections
- Queuing analysis at study intersections as necessary
- Evaluation of short- and long-term projected intersection volumes to determine potential requirements for any auxiliary right-/left-turn lanes at the proposed site access points based on the criteria in El Paso County's *Engineering Criteria Manual* (*ECM*). Also included are potential long-term lane requirements.
- Findings and recommendations for submittal to El Paso County

RECENT TRAFFIC STUDIES

The following traffic studies have been completed in the past few years in the vicinity of the site:

- Mountain View Academy, April 16, 2020
- Claremont Business Park, Filing 2, April 15, 2020
- The Sand Industrial, LSC, November 5, 2019
- Claremont Commercial Filing No. 2, LSC, April 15, 2020
- Meadowbrook Parkway, LSC, June 8, 2017
- Meadowbrook Crossing, LSC, May 5, 2017
- The Sands, LSC, May 17, 2016

All of these studies were considered when developing background traffic projections.

LAND USE AND ACCESS

The Villas at Claremont Ranch is a proposed residential townhome development. Figure 2 shows the site plan for the development. Full-movement access is proposed at two proposed private street intersections with Meadowbrook Parkway, located approximately 600 and 895 feet east of the intersection of Marksheffel Road/Meadowbrook Parkway (between the centerline of proposed accesses and Marksheffel Road). Street names will be Greengate View and Fieldside View, respectively.

Adjacent and Nearby Future Development Parcels

Anticipated future land uses for adjacent and nearby development parcels have been identified and projected trip generation/future traffic volumes have been included in this report for these parcels. Claremont Commercial Subdivision Filing No. 2 is a resubmission of Tract C, Claremont Business Park Filing No. 2. This proposed 8-lot commercial/industrial development is located southwest of the intersection of Meadowbrook Parkway and Marksheffel Road. Also included in the short-term analysis are trips to be generated by Meadowbrook Crossing and Circle K development to the southwest. Long-term analysis also assumes commercial development southeast of Meadowbrook/Marksheffel, buildout of Claremont Business Park to the west of Marksheffel, and the Mountain View Academy charter school located to the east.

INTERSECTION SIGHT DISTANCE

The required access sight distance for the two site access points on Meadowbrook Parkway is calculated per Tables 2-33 and 2-35. The line-of-sight triangles need to allow for 250 feet of entering sight distance and 150 feet of sight distance along the roadway. The access points will meet the minimum sight distance provided landscaping, site improvements, etc. are kept out of the line-of-sight "triangles."

CURRENT ROADWAY AND TRAFFIC CONDITIONS

Study Area Roadway System

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

US Highway 24 (US Hwy 24) is a state highway extending locally from the City of Colorado Springs to Peyton in a northeasterly direction and then continuing east. US Hwy 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)*. At this location, US Hwy 24 is a four-lane urban highway with a depressed median and a speed limit of 65 mph. The 2040 MTCP shows US Hwy 24 to be upgraded to a 6-lane Expressway in the long term. The intersection with Marksheffel Road is signalized.

Marksheffel Road is a Principal Arterial that extends north from the City of Fountain to Woodmen Road. It is currently a four-lane roadway with a posted speed limit of 50 mph adjacent to the study area. The intersection with Meadowbrook Parkway was recently signalized. Marksheffel Road is shown as a six-lane expressway in the *2016 Major Transportation Corridors Plan Update* (MTCP) for 2060 corridor preservation.

Meadowbrook Parkway is a paved, Urban Non-Residential Collector that extends through the Claremont Business Park from the US Hwy 24/SH 94 intersection to Marksheffel Road (generally parallel to US Hwy 24). Meadowbrook Parkway continues east from Marksheffel Road into Claremont Ranch. Adjacent to the site, the posted speed limit is 25 mph.

Access Management Plans

The 2006 US Highway 24 Access Control Plan indicates that the RI/RO at US Highway 24/Brookings Drive may be closed when Constitution/Banning Lewis Parkway/US Highway 24 interchange is constructed. The recent *US Highway 24 PEL study* recommended revisions indicate the access "*may be closed with highway and/or Constitution or Marksheffel intersection improvements."*

The date of a possible future closure of this access is not known, but a future closure would have an effect on the local jurisdiction intersections - most notably, the intersection of Marksheffel/Meadowbrook. The analysis scenario in this report representing potential long-term

future closure indicates the possible need for an additional westbound-to-southbound left-turn lane. The intersection of Marksheffel/Meadowbrook was recently widened and improved by El Paso County. Notable improvements included widening for dual lefts, one through, and one right-turn lane eastbound. The westbound approach was also upgraded to improve lane alignment across the intersection with the new eastbound laneage. The westbound laneage includes a left-turn lane, a lane separator (aligning with the No. 1 left-turn lane on the west side of the intersection), one through lane, and a right-turn lane. The intersection was also signalized.

Planned CDOT and County Projects

Based on the US Hwy 24 PEL study, US Hwy 24 is planned to be widened to a six-lane roadway in the future. The timings of these improvements are not known. Both improvements have been included in the long-term analysis.

Existing Traffic Volumes

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

- Tuesday, February 11, 2020 – 6:30 to 8:30 a.m.
- Tuesday, February 11, 2020 – 4:00 to 6:00 p.m.

Existing morning (7:00 a.m. - 8:00 a.m.) and evening (4:30 p.m. - 5:30 p.m.) weekday peak-hour traffic volumes at this intersection are shown in Figure 3. Raw count data are attached.

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 Average Control Delay (seconds per vehicle)	Unsignalized Intersections Average Control Delay (seconds per vehicle)[(1)]
A	10.0 sec or less	10.0 sec or less
B	10.1-20.0 sec	10.1-15.0 sec
C	20.1-35.0 sec	15.1-25.0 sec
D	35.1-55.0 sec	25.1-35.0 sec
E	55.1-80.0 sec	35.1-50.0 sec
F	80.1 sec or more	50.1 sec or more
(1) For unsignalized intersections, if V/C ratio is greater than 1.0 the level of service is LOS F, regardless of the projected average control delay per vehicle.		

The following existing intersections have been analyzed to determine existing, short-term, and long-term levels of service:

- Marksheffel/Meadowbrook
- US Highway 24/Marksheffel
- Meadowbrook/Greengate View (south access)
- Meadowbrook/Fieldside View (north access)

As shown in Figure 3, both existing signalized intersections currently operate at LOS D or better during the peak hours. Several movements at each intersection operate at LOS E, although all movements are still under capacity.

Crash History

Three years of crash data were collected at the study intersections. The intersection of Meadowbrook Parkway/Marksheffel Road experienced nine crashes with two resulting in injuries. Of the nine crashes, 5 were broadside-type crashes between an eastbound left-turning vehicle and a southbound through vehicle. All of these crashes occurred prior to the signal installation. With the signal, the number of broadside crashes at this intersection should be reduced.

The intersection of US Hwy 24/Marksheffel Road had 43 crashes recorded during the study period with 13 crashes resulting in injuries. Of the 43 crashes, 12 were approach turn crashes between a westbound left-turning vehicle and an eastbound through vehicle. Six of these crashes resulted in injuries. All but one of the westbound left-approach turn crashes occurred in the afternoon evening period when there is a high volume of westbound left-turning vehicles against a high volume of eastbound through vehicles. Due to the projected increase in traffic volumes at this intersection, it is anticipated that these crashes will continue to occur if no countermeasures are taken. It is recommended that the westbound left-turn be converted to protected-only to reduce the approach turn crashes. The intersection of US Hwy 24/Marksheffel Road also had eight broadside crashes with no patterns and 13 rear-end crashes with no crash patterns.

PEDESTRIAN AND BICYCLE FACILITIES

Meadowbrook Parkway has sidewalks and the street width is sufficient to accommodate bicycles. There is a 12-foot paved concrete trail along the west side of Marksheffel Road extending north from just south of the bridge just north of Meadowbrook.

TRIP GENERATION

Estimates of the vehicle-trips projected to be generated by the 83-dwelling unit Villas at Claremont Ranch have been made using the nationally published trip generation rates from *Trip Generation, 10th Edition, 2017* by the Institute of Transportation Engineers (ITE). Land use code ”210 – Multifamily Housing” was categorized using the *Trip Generation Manual, 10th Edition, 2017* by the Institute of Transportation Engineers (ITE) and has been used to estimate the trip generation estimate for the site.

Villas at Claremont Ranch is expected to generate about 608 vehicle-trips on the average weekday (one-half entering and one-half exiting in a 24-hour period). During the morning peak hour, 9 vehicles are projected to enter the site while 29 are projected to exit. Approximately 29 vehicles would enter and 17 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. Table 2 shows a summary of the results of the trip generation estimate.

Table 2: Estimated Vehicle-Trip Generation

Analysis Period	In	Out	Total
Morning Peak Hour (vehicle trips/hour)	9	29	38
Evening Peak Hour (vehicle trips/hour)	29	17	46
Weekday (vehicle trips/day)	304	304	608
* Please refer to Table 5 (attached) for detailed trip generation table			

TRIP DISTRIBUTION AND ASSIGNMENT

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. Estimates have been based on the following factors: the proposed new land use, the area roadway system serving the site, and the site's geographic location relative to the overall greater El Paso County/Colorado Springs area.

When the directional distribution percentages (from Figure 4) were applied to the trip generation estimates (from Table 2), 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

Background traffic is the traffic estimated to be on the adjacent roadways and at adjacent intersections without the proposed development's trip generation of site-generated traffic volumes. Background traffic includes the through traffic and the traffic generated by nearby developments but assumes zero traffic generated by the site.

Short-Term Traffic Volumes

Figure 6 shows the short-term background traffic volumes. The background volumes are estimates by LSC, based on the existing traffic volumes shown in Figure 3, with a yearly growth rate of two percent per year. In addition, planned developments that are anticipated to be constructed in the near future have been included in the background traffic, including the Claremont Business Park and Mountain View Academy.

Long-Term Traffic Volumes

Figure 8 shows the projected 2040 background traffic volumes. The 2040 background traffic volumes are estimates by LSC, based on the Colorado Department of Transportation (CDOT) twenty-year growth factor (about one and a half percent per year) on US Hwy 24 adjacent to the site. The Pikes Peak Area Council of Governments (PPACCG) travel demand model was also used in projecting traffic volumes. Additionally, traffic generated by planned adjacent developments has been included.

The 2040 background traffic volumes assume that the right-in/right-out intersection of US Hwy 24/Brookings Drive has been closed. The traffic turning at the intersection was rerouted through the Claremont development.

US Hwy 24/Marksheffel

It is anticipated that US Hwy 24 will be widened from four through lanes to six through lanes in the long term. Additionally, once funding becomes available, the intersection of US Hwy 24/Marksheffel may be upgraded to a grade-separated interchange.

PROJECTED BASELINE PLUS SITE-GENERATED (TOTAL) TRAFFIC VOLUMES

Short-Term Background Plus Site-Generated Traffic Volumes

Figure 7 shows the existing plus site traffic volumes, which are the sum of the site-generated traffic volumes (from Figure 5) and the short-term background weekday traffic volumes (from Figure 6).

2040 Background Plus Site-Generated Traffic Volumes

Figure 9 shows the year 2040 total weekday traffic volumes, which are the sum of the site-generated traffic volumes (from Figure 5) and the 2040 background traffic volumes (from Figure 8).

INTERSECTION LEVELS OF SERVICE

The following intersections and access points were analyzed in Synchro and SimTraffic using procedures from the *Highway Capacity Manual, 2010 Edition*:

- Marksheffel Road/US Hwy 24
- Marksheffel Road/Meadowbrook Parkway
- Meadowbrook Parkway/Greengate View (south site access)
- Meadowbrook Parkway/Fieldside View (north site access)

Study area intersections have been analyzed to determine the projected levels of service and control delay for the key turning movements. As the site access intersections will be stop sign-controlled, volumes on the southbound (as well as northbound in the future) approaches will incur delay given the stop sign control. The eastbound (and westbound in the future) left turns also incur delay as motorists must yield to opposing through and right-turning traffic.

Marksheffel Road/Meadowbrook Parkway

Short-Term

Overall, the intersection of Marksheffel Road/Meadowbrook Parkway currently operates at and is projected to remain at LOS B during both peak hours, based on short-term and short-term background plus site-generated traffic conditions. All major and minor street left-turning movements are projected to operate at LOS E or better through the 20-year horizon, once all adjacent development projects have been completed.

Long-Term

Overall, this intersection is projected to operate at LOS C or better during the 2040 morning peak hour and evening peak hours, both before and after considering site-generated traffic. As in the short-term scenario, several movements are expected to operate at LOS E. In both the background and total traffic scenario, dual westbound left turn lanes are required along with three southbound through lanes. The dual westbound left-turn lanes are required due to the planned closure of the Brookings Drive/US Hwy 24 intersection. It is anticipated that much of the traffic that uses this intersection would reroute through the Claremont development and make a westbound left-turn at the intersection of Marksheffel Road/Meadowbrook Parkway.

Meadowbrook Parkway/Greengate View (South Site Access Point)

All major and minor street approaches and turn lanes are projected to operate at LOS C or better during both the short- and long-term scenarios.

Meadowbrook Parkway/Fieldside View (North Site Access Point)

All major and minor street approaches and turn lanes are projected to operate at LOS B or better during both the short- and long-term scenarios.

Marksheffel Road/US Hwy 24

Short-Term

Both with and without the site-generated traffic, the intersection of Marksheffel Road/US Hwy 24 is projected to operate at LOS E and LOS D overall during the morning and evening short-term

peak hours, respectively. Multiple turn movements are anticipated to operate at LOS E or LOS F with some volumes exceeding the capacity for the movement. It should be noted that these issues are forecast to exist even without the site-generated traffic. Note: **CDOT has indicated "No CDOT Access Permit will be required as the development is off system and has no impacts to State Highway facilities**." In response to the El Paso County comment ***Address mitigation options in general***, for short-term mitigation for level of service, the following are ideas/possibilities for consideration for a future public project: a westbound dual left-turn lane as shown in the US Highway 24 PEL study. Also, there may be right-turn "treatments" that could be considered to potentially reduce southbound right-turn delay. Slopes on the north side of US Highway 24 appear difficult, but perhaps an eastbound partial Continuous Flow Intersection (CFI) or indirect left-turn design could be investigated or widening of US Highway 24 to provide triple eastbound left-turn lanes.

Long-Term

The intersection of Marksheffel Road/US Hwy 24 is projected to operate at LOS F overall during the 2040 morning peak hour and evening peak hours, with and without considering site-generated traffic. This is expected to occur even with US Hwy 24 widened to 6-lanes. The volume of traffic at the intersections is very close to the available capacity in existing conditions. Traffic volume growth on US Hwy 24 and Marksheffel Road will cause the volumes to exceed capacity in the near future. These poor levels of service are expected to occur with or without the site-generated traffic. The long- term plan for mitigation in the US Highway 24 PEL study is for upgrade to six through lanes on US Highway 24 (at-grade intersection) then ultimately conversion to a grade-separated interchange.

VEHICLE QUEUING ANALYSIS Queuing Analysis missing from appendix, please add back.

change to street name

A queuing analysis was performed for the westbound approach at the intersection of Meadowbrook Road/Marksheffel Road and for the eastbound left turn at the west site access. Table 3 and Table 4 present the results of the analysis. These analyses have been run utilizing the projected existing plus site-generated and 2040 background plus site-generated traffic volumes. Queuing reports are attached.

Short-Term Background Plus Site-Generated

Table 3 summarizes queuing analysis results, assuming short-term total traffic volumes.

Table 3: Queuing Analysis Results (Short-Term Total Traffic Volumes)

Table will be rechecked at next submittal when queuing worksheets are added back into appendix.

Intersection	Lane	Storage Length (ft)	95th Percentile Queue (ft) AM	95th Percentile Queue (ft) PM
Marksheffel/ Meadowbrook	EBL (duals)	220'	39’	128’
	EBT	---	14’	55’
	EBR	200'	0’	54’
	WBL	295'	156’	60’
	WBT	---	38’	27’
	WBR	190 '	58’	0’
	SBT	---	476*	193’
	SBL	340’	22’	24’
	NBL	405’	24’	30’
Meadowbrook/ Greengate View	EBL	85’	3’	0’
* The SBL queue in the Synchro report reflects through traffic blockage of the entry to the SBL turn lane and not left-turn traffic overflowing into the adjacent through lane				

The southbound left-turn queue on Marksheffel Road approaching Meadowbrook Parkway is projected to be 24 feet long during the short-term evening peak hour, based on the projected short-term total traffic volumes. During the morning peak hour, the southbound through lane queue is longer than the left-turn auxiliary lane. As a result, the southbound through lane will occasionally block left-turning vehicles from getting into the left-turn lane. This is not a significant problem as the southbound left-turning traffic is relatively light and safety is not affected. The southbound left-turn auxiliary lane cannot be lengthened due to the existing bridge structure. In the future, El Paso County may decide to utilize the southbound Marksheffel width to implement three southbound through lanes at the Marksheffel/Meadowbrook intersection and potentially at intersections to the north as well.

The proposed westbound left-turn queue at Marksheffel/Meadowbrook is projected to be less than 190 feet. This available stacking distance would provide adequate storage capacity for projected volumes for the westbound approach, while the eastbound right-turn at Fieldside View (the west site access) is expected to have a queue of less than one vehicle.

2040 Background Plus Site-Generated Condition

The table below shows the anticipated available left-turn stacking lengths and the available stacking distance between the two intersections for the westbound through lane. The latter distance is a function of the intersection spacing. These left-turn stacking lengths have been determined based on this queuing analysis and access spacing.

The long-term analysis assumes dual westbound left-turn lanes on the Meadowbrook Parkway westbound approach to Marksheffel Road and the addition of a third southbound through lane.

Table 4: Queuing Analysis Results (2040 Background Plus Site-generated Traffic)

Table will be rechecked at next submittal when queuing worksheets are added back into appendix.

Intersection	Lane	Storage Length (ft)	95th Percentile Queue (ft) AM	95th Percentile Queue (ft) PM
Marksheffel/ Meadowbrook	EBL (duals)	220'	99’	259’
	EBT	---	19’	67’
	EBR	200'	0’	69’
	WBL (duals)*	300'	228’	130’
	WBT	---	39’	57’
	WBR	190 '	61’	22’
	SBT	---	471’	245’
	SBL	340’	50’	138’
	NBL	405’	47’	12’
Meadowbrook/ Greengate View	EBL	100’	3’	0’

* Assuming dual left turn lanes
** The SBL queue in the Synchro report reflects through traffic blockage of the entry to the SBL turn lane and not left-turn traffic overflowing into the adjacent through lane

The queuing analysis indicates the projected 95th percentile queue for the westbound left-turn movement on Meadowbrook at Marksheffel would reach a maximum length of 228 feet. The projected 95th percentile queue for the eastbound left-turn lane onto Fieldside View (the west site access on Meadowbrook Parkway) is projected to reach a length of less than one vehicle.

The projected southbound left-turn queue on Marksheffel Road approaching Meadowbrook Parkway is projected to be about 138 feet long during the 2040 evening peak hour. During the morning peak hour, the southbound through queue length is anticipated to be 471 feet, which would block the left-turning vehicles from getting into the turn lane. The full-width lane length not including taper is about 340 feet for the southbound left movement.

ECM ACCESS CRITERIA

The two site access points, Greengate View and Fieldside View, are planned to be private streets and as such, criteria in *ECM* section 2.4.1 applies. Corner clearance to intersections would be satisfied and the access points would be separated by a distance exceeding the sight distance requirement. The access points would have adequate intersection sight distance (provided landscaping, site improvements, etc. are kept out of the line of sight “triangles”).

PEDESTRIAN AND BICYCLE ACCOMMODATION

There are currently sidewalks along Marksheffel Road adjacent to the site. Additionally, sidewalks will be constructed on Meadowbrook Parkway adjacent to the site, which will connect to the existing sidewalk to the east. There is a 12-foot-wide paved concrete trail along the west side of Marksheffel Road extending north from just south of the bridge just north of Meadowbrook.

There is connectivity to the future Rock Island Regional Trail through the neighborhood to the north. The US Highway 24 PEL Study shows a proposed multi-use path along the north side of the highway. Mountain Metro Transit does not currently provide service adjacent to this site. However, the nearest route runs along Peterson Road (north of Galley). This is reasonably accessible via bicycle and the transit busses are furnished with bicycle racks. Transit service may expand to the east as growth continues to the east.

COUNTY ROAD IMPROVEMENT FEE PROGRAM

Transportation Impact Fees

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

The applicant intends to join the 10 mil PID and pay the associated upfront fee amount at a rate of $1,458 per dwelling unit. The total upfront fee under this option would be $121,014 based on a planned 83 dwelling units.

CONCLUSIONS AND RECOMMENDATIONS

Trip Generation

The site is projected to generate about 608 vehicle-trips on the average weekday, with about half entering and half exiting the site. Projected morning **peak-hour** trip generation for the site is 9 entering and 29 exiting trips. Projected evening **peak-hour** trip generation for the site is 29 entering and 17 exiting trips.

Level of Service Analysis

Please refer to the “Level of Service” section above for detailed intersection LOS analysis results:

- Marksheffel/Meadowbrook – With dual westbound left-turn lanes in the long-term, this intersection is projected to operate at LOS C or better during both peak hours. Some movements are anticipated to operate at LOS E.
- Marksheffel/US Hwy 24 – This intersection currently operates at LOS D during the peak hours, with many movements operating at LOS E. The intersection of Marksheffel Road/US Hwy 24 is projected to operate at LOS F overall during both the 2040 morning and afternoon peak hours, with and without considering site-generated traffic. High through volumes on US Hwy 24 and a high northeast-bound to north-bound left-turn volume (background traffic) are projected to result in LOS F overall operational performance during the 2040 evening peak hour.
- Meadowbrook/site accesses – all approaches and individual turning movements are projected to operate at satisfactory levels of service through 2040 at the site access points.

Traffic-Control Recommendations – Site-Access Points

Both site access points (Greengate View and Fieldside View) should be stop-sign-controlled for the southeast-bound (exiting the site) approaches. It is recommended that future access to the parcel south of Meadowbrook Parkway be aligned with Greengate View.

Queuing Analysis

A queuing analysis was performed for the Meadowbrook/Marksheffel intersection. Short-term and long-term scenario simulations indicate the queue would not exceed the stacking lengths between Marksheffel and the west site access, during the morning or evening peak hours.

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

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. Neither site access is anticipated to exceed this amount. However, LSC recommends restriping/new striping to define the laneage in the vicinity of the access points, especially at the west access due to the proximity of the start of the westbound left-turn lane on the approach to Marksheffel. Figure 10 shows the proposed lane and restriping concept for Meadowbrook Parkway, which includes eastbound left-turn storage bays at both access points.

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

Lane Configurations/Striping Recommendations

- LSC recommends restriping Meadowbrook adjacent to the site for a 75- to 100-foot-long eastbound left-turn bay for left turns onto Greengate View (the west access point). A 75- to 100-foot-long reverse curve bay taper would precede this turn bay and this bay taper would be shared with the existing westbound left-turn bay extending back from the Meadowbrook/Marksheffel intersection (resulting in back-to-back turn bays). This left-turn bay would accommodate the projected queuing for left turns onto Greengate View. Please refer to Figure 10.
- The section between the access points should be striped for a 120-foot-long left-turn bay preceded by an approximately 70-foot-long bay taper. Redirect taper stripes would be needed east of Fieldside View (the east site access) to transition the new striping to the existing striping. The taper ratio would need to be at least 20:1. Figure 10 shows the redirect taper striping extending to the west side of the existing intersection to the east.

Potential Future Dual Left-Turn Lanes at the Marksheffel/Meadowbrook Intersection

- A second westbound left-turn lane on Meadowbrook Parkway (to create dual westbound left-turn lanes) may need to be added with future development and the closure of US Hwy 24/Brookings Drive.
- LSC has prepared a preliminary concept for potential future dual left-turn lanes, if needed in the future. Please refer to Exhibit 1 in the report appendix. Based on this concept, the existing north curb line of Meadowbrook would not need to be relocated.

* * * * *

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

Sincerely,

LSC TRANSPORTATION CONSULTANTS, INC.

By Jeffrey C. Hodsdon, P.E.
Principal

JCH/JAB:jas

Enclosures: Table 5
Figures 1-10
Exhibit 1
Traffic Count Reports
Level of Service and Queuing Reports
Final Plat

Table 5

TRANSPORTATION
CONSULTANTS, INC.

Table 5: Detailed Trip Generation Estimate

ITE		Value	Units [2]	Trip Generation Rates [1]					Total Trips Generated				
				Average	A.M.		P.M.		Average	A.M.		P.M.	
Code	Description			Weekday	In	Out	In	Out	Weekday	In	Out	In	Out
210	Multi-Family Housing	83	DU	7.32	0.11	0.35	0.35	0.21	608	9	29	29	17

[1] Source: "Trip Generation, 10th Edition, 2017" by the Institute of Transportation Engineers (ITE)

[2] DU = dwelling unit

Figures 1-10

TRANSPORTATION
CONSULTANTS, INC.

Figure 1

Vicinity Map

Villas at Claremont Ranch (LSC #204130)

LSC TRANSPORTATION CONSULTANTS, INC.

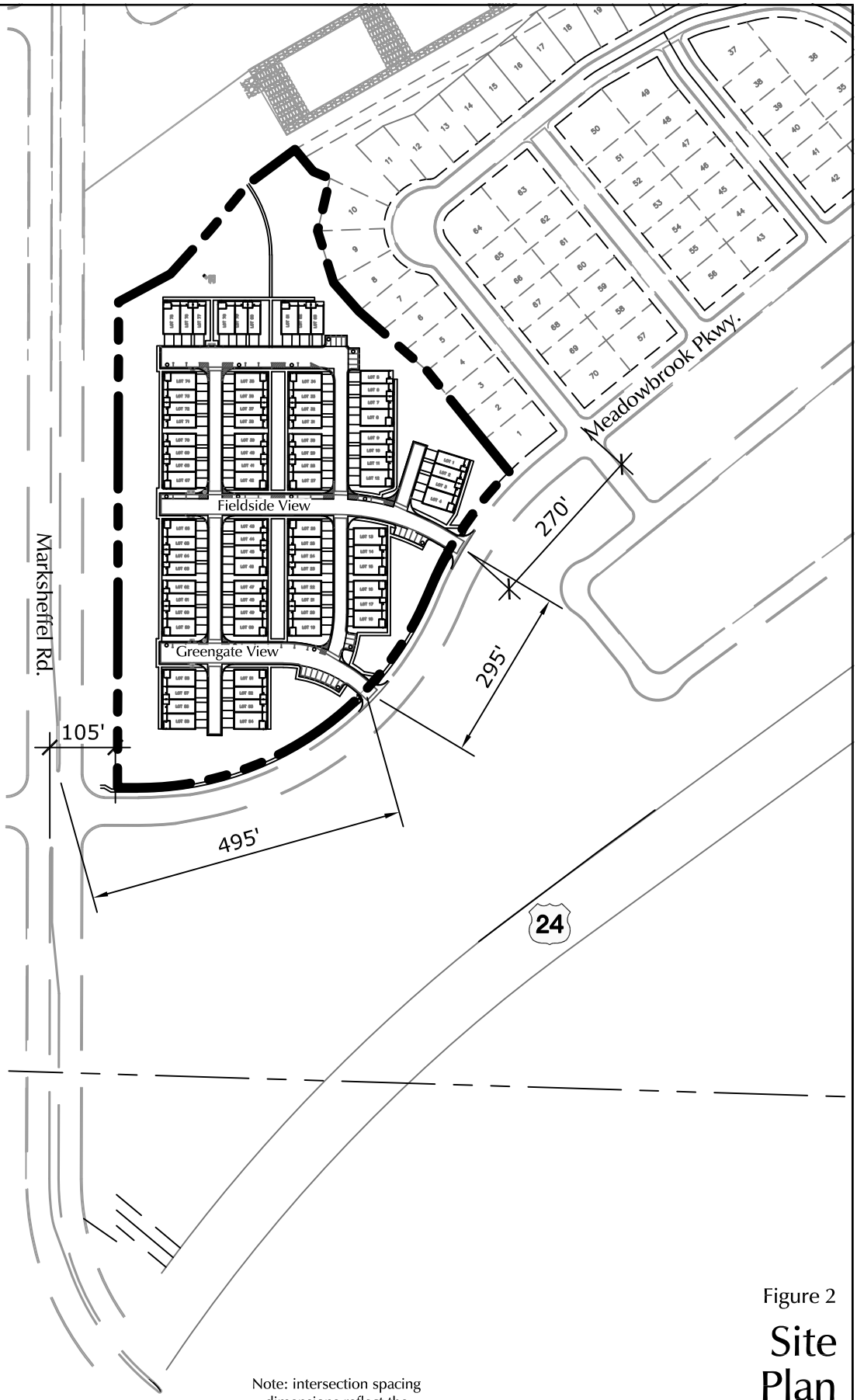


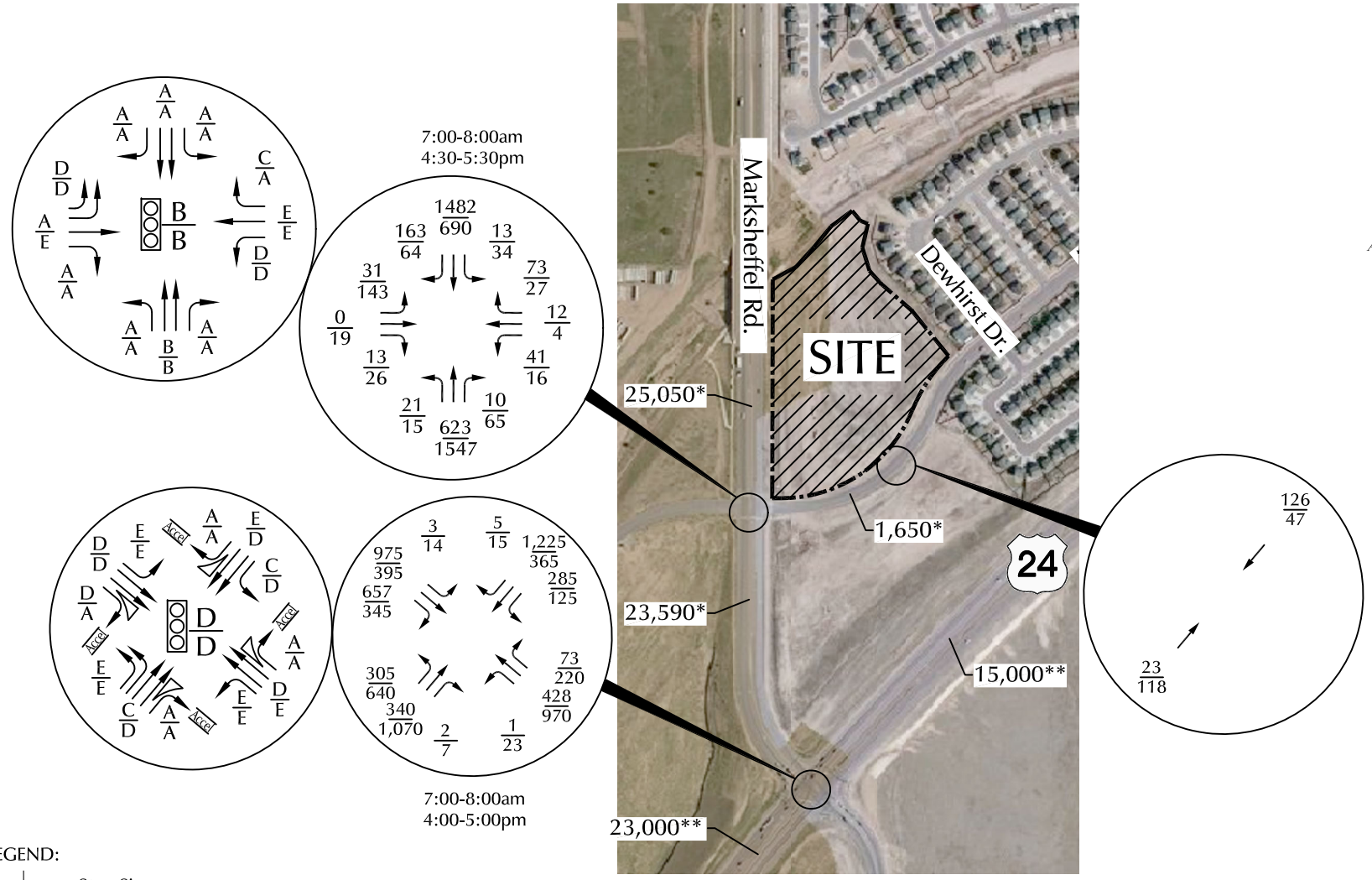
Figure 2

Site Plan

Villas at Claremont Ranch (LSC #204130)

Note: intersection spacing dimensions reflect the centerline spacing.

LSC TRANSPORTATION CONSULTANTS, INC.



LEGEND:

= Stop Sign

XX/XX = AM Weekday Peak-Hour Traffic (vehicles per hour) / PM Weekday Peak-Hour Traffic (vehicles per hour) Counts by LSC February 2020

XX,XXX Average Weekday Traffic (vehicles per day)

= Traffic Signal

A/B = AM Individual Movement Peak-Hour Level of Service / PM Individual Movement Peak-Hour Level of Service

C/D = AM Entire Intersection Peak-Hour Level of Service / PM Entire Intersection Peak-Hour Level of Service

*Estimated by LSC
**CDOT 2018

TRANSPORTATION CONSULTANTS, INC.

Figure 3

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

Villas at Claremont Ranch (LSC #204130)

Approximate Scale
Scale: 1"= 600'

LEGEND:

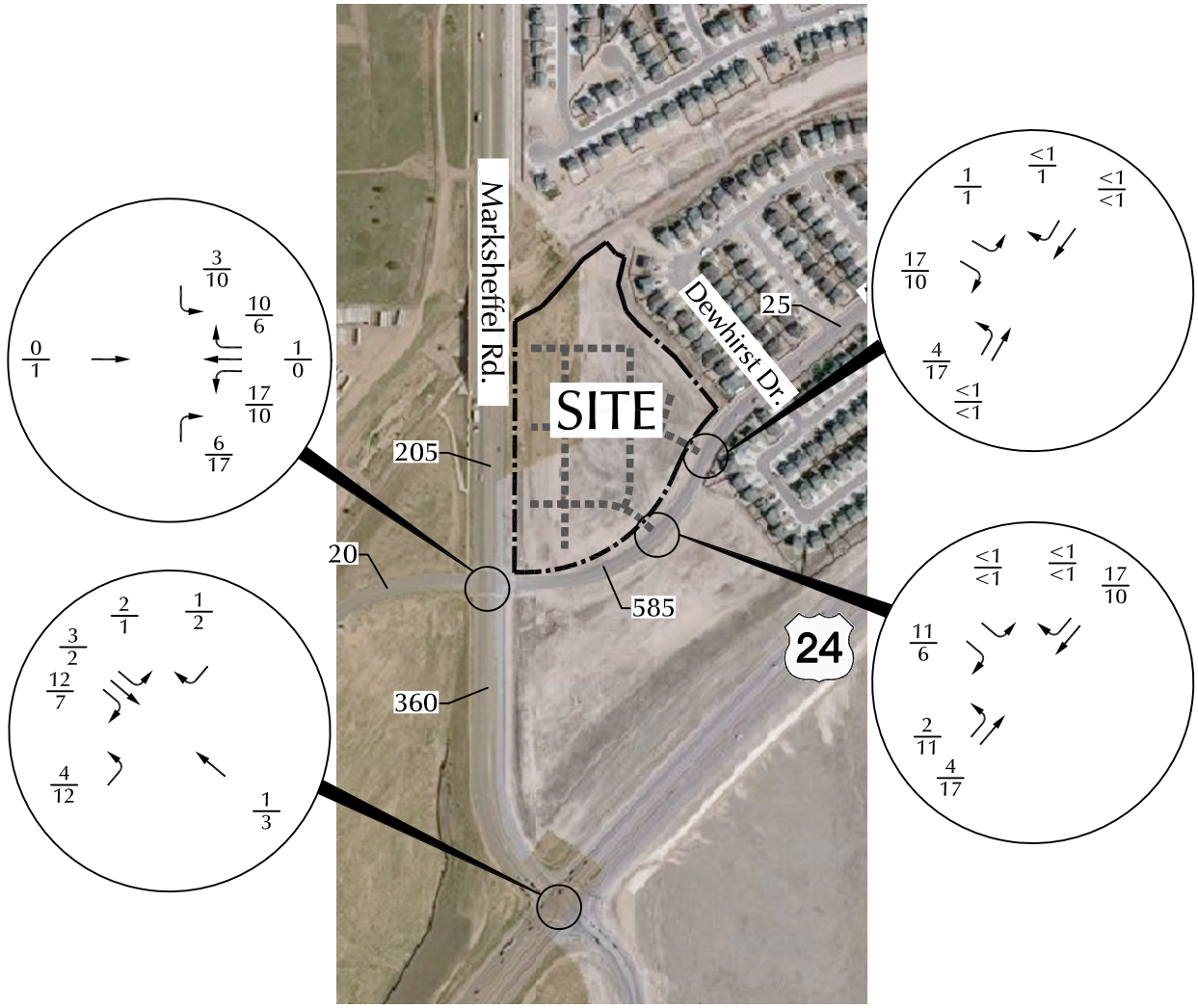
XX% = Percent Directional Distribution

TRANSPORTATION CONSULTANTS, INC.

Figure 4

Directional Distribution of Site-Generated Trips

Villas at Claremont Ranch (LSC #204130)



Approximate Scale
Scale: 1"= 600'

LEGEND:

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

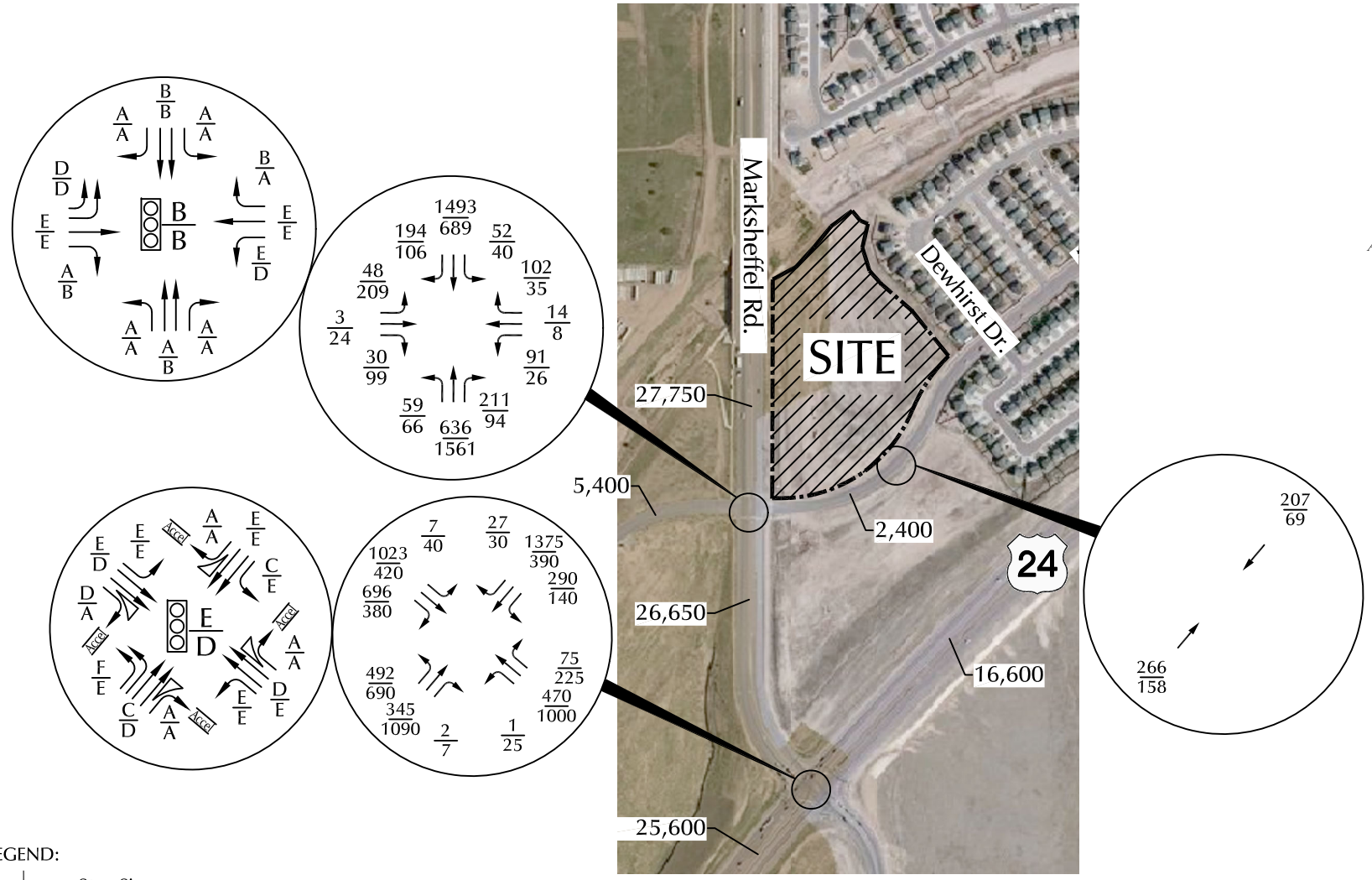
XX,XXX = Average Weekday Traffic (vehicles per day)

TRANSPORTATION CONSULTANTS, INC.

Figure 5

Assignment of Site-Generated Trips

Villas at Claremont Ranch (LSC #204130)



LEGEND:

= Stop Sign

XX/XX = AM Weekday Peak-Hour Traffic (vehicles per hour) / PM Weekday Peak-Hour Traffic (vehicles per hour)

XX,XXX = Average Weekday Traffic (vehicles per day)

A/B = AM Individual Movement Peak-Hour Level of Service / PM Individual Movement Peak-Hour Level of Service

C/D = AM Entire Intersection Peak-Hour Level of Service / PM Entire Intersection Peak-Hour Level of Service

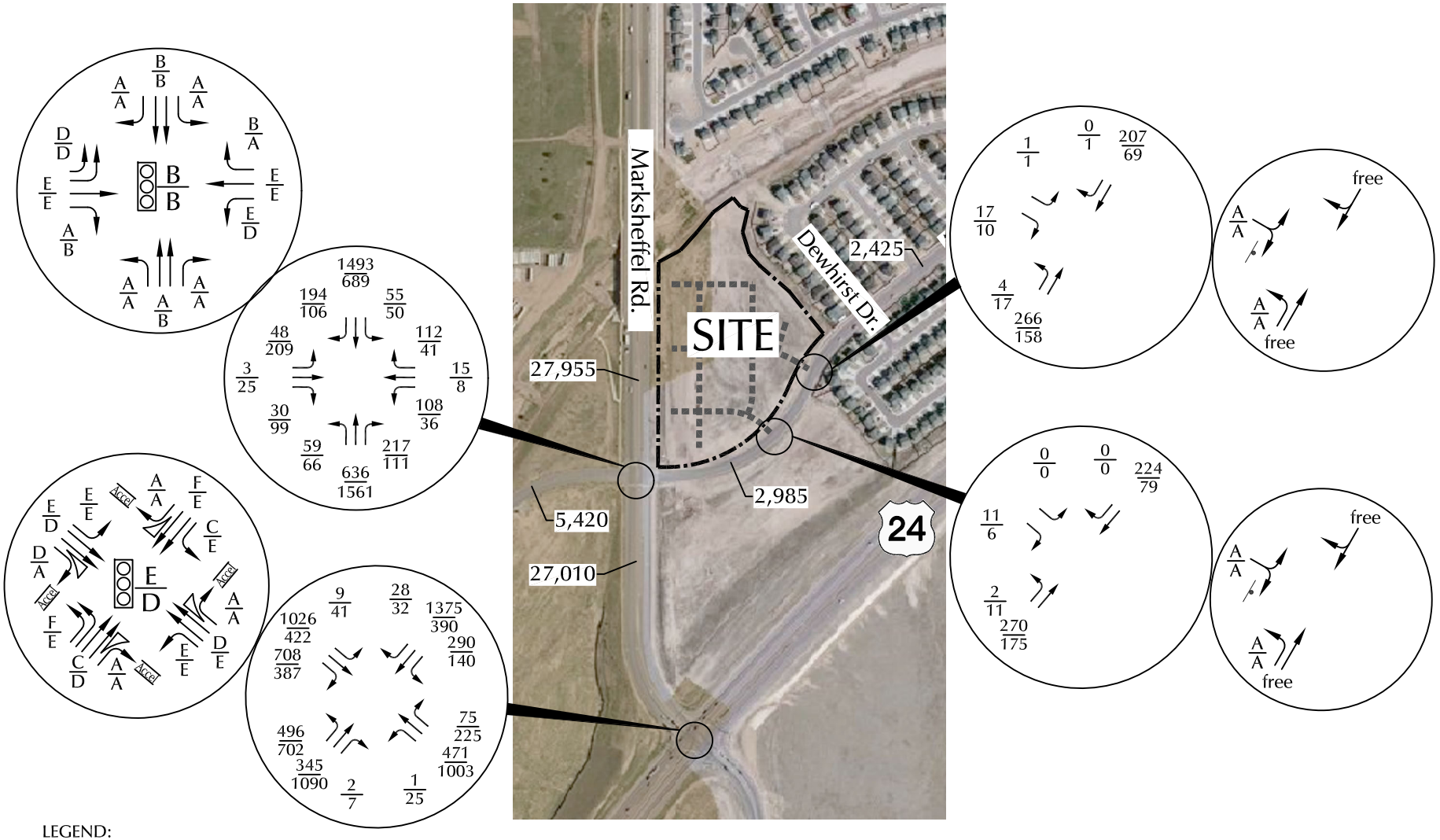
= Traffic Signal

TRANSPORTATION CONSULTANTS, INC.

Figure 6

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

Villas at Claremont Ranch (LSC #204130)



LEGEND:

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

= Stop Sign = Traffic Signal

XX,XXX = Average Weekday Traffic (vehicles per day)

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

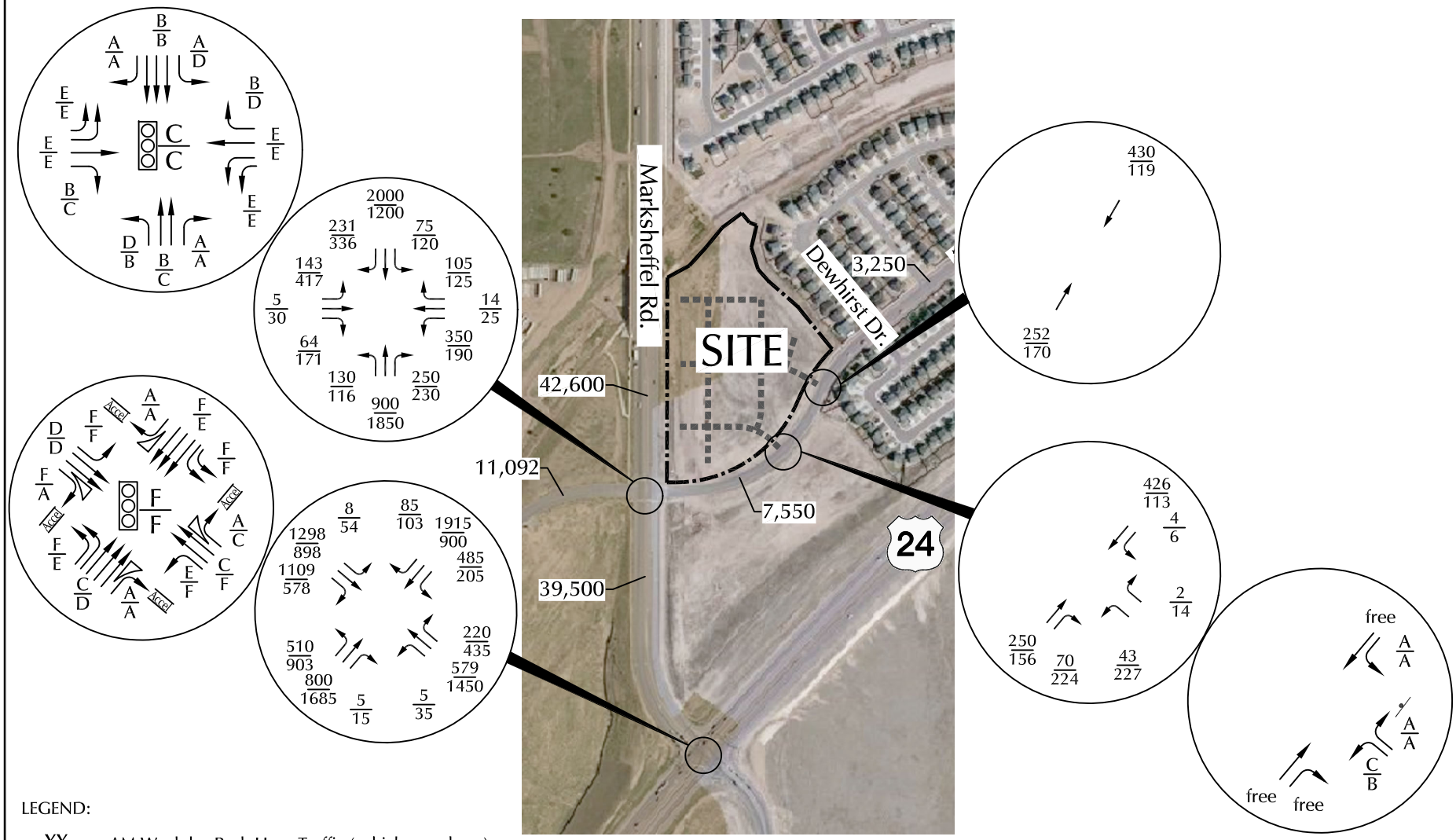
$\frac{C}{D}$ = $\frac{\text{AM Entire Intersection Peak-Hour Level of Service}}{\text{PM Entire Intersection Peak-Hour Level of Service}}$

TRANSPORTATION CONSULTANTS, INC.

Figure 7

Short-Term Total Traffic, Lane Geometry and Traffic Control

Villas at Claremont Ranch (LSC #204130)



LEGEND:

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

XX,XXX = Average Weekday Traffic (vehicles per day)

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

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

= Traffic Signal

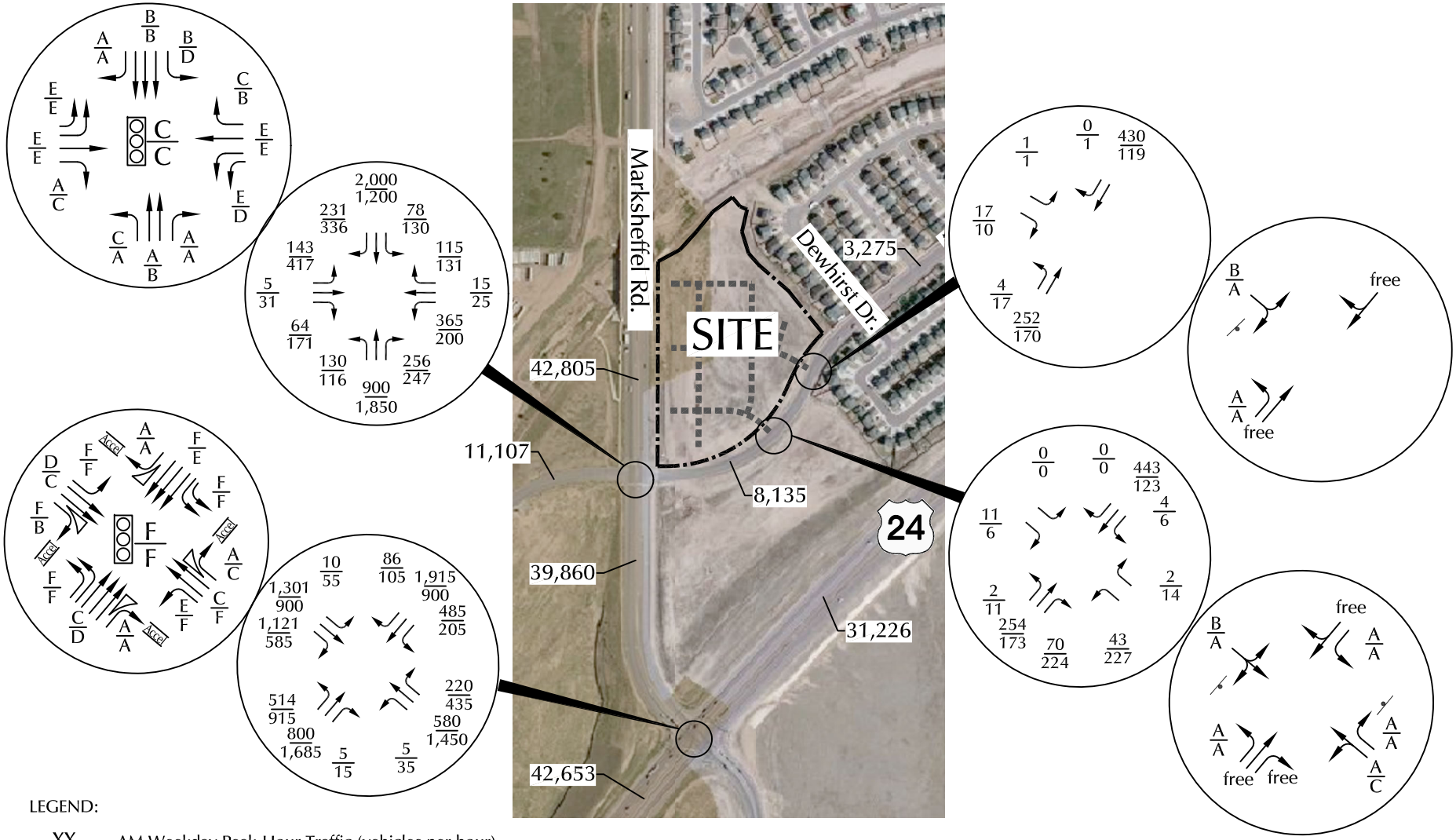
= Stop Sign

TRANSPORTATION CONSULTANTS, INC.

Figure 8

Year 2040 Background Traffic, Lane Geometry and Traffic Control

Villas at Claremont Ranch (LSC #204130)



LEGEND:

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

XX,XXX = Average Weekday Traffic (vehicles per day)

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

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

= Traffic Signal

= Stop Sign

TRANSPORTATION CONSULTANTS, INC.

Figure 9

Year 2040 Total Traffic, Lane Geometry and Traffic Control

Villas at Claremont Ranch (LSC #204130)

Approximate Scale
Scale: 1"= 100'

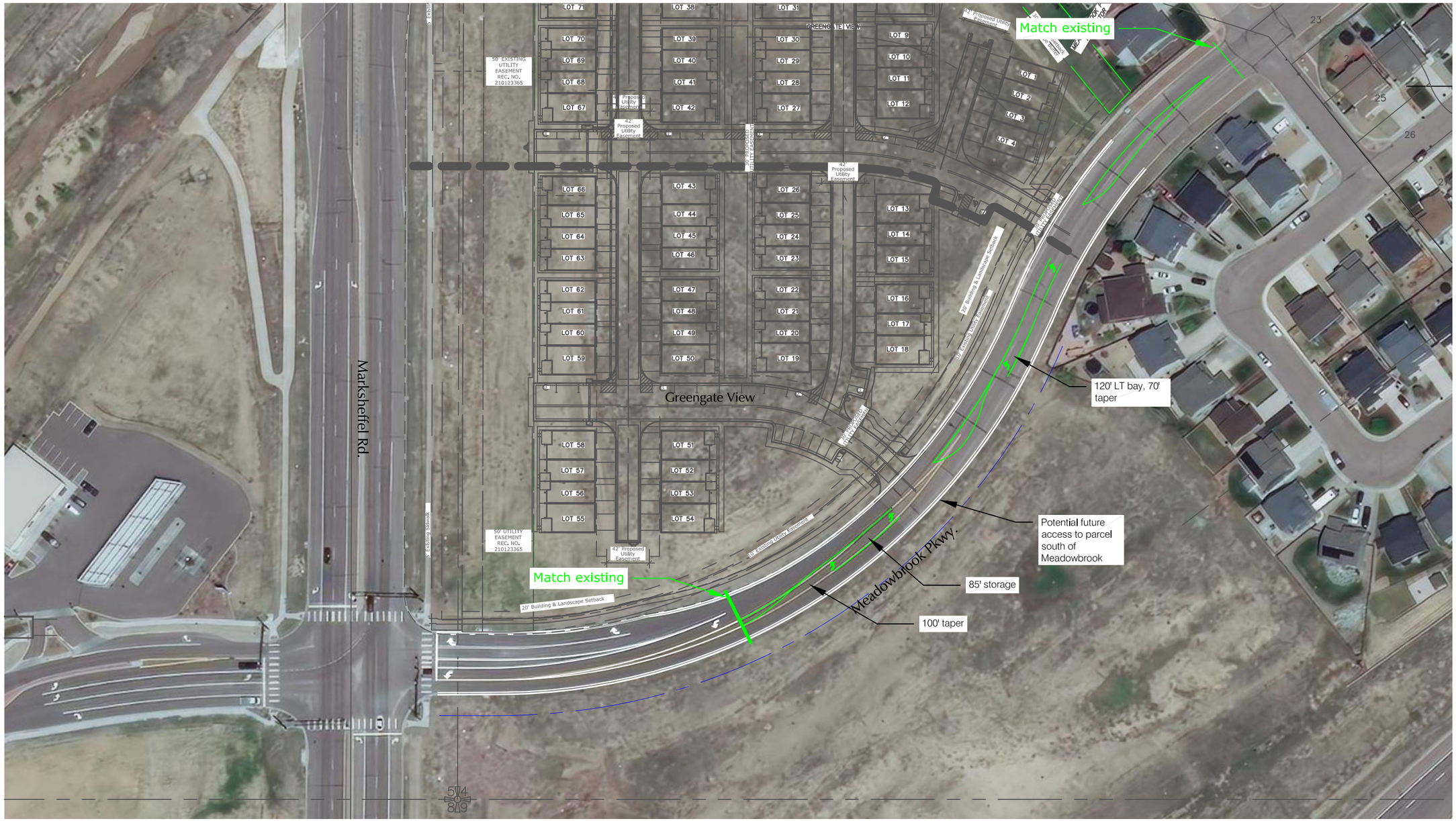


Figure 10
Conceptual Restriping Plan
Meadowbrook Parkway
Villas at Claremont Ranch (LSC #204130)

TRANSPORTATION CONSULTANTS, INC.

Exhibit 1

TRANSPORTATION
CONSULTANTS, INC.

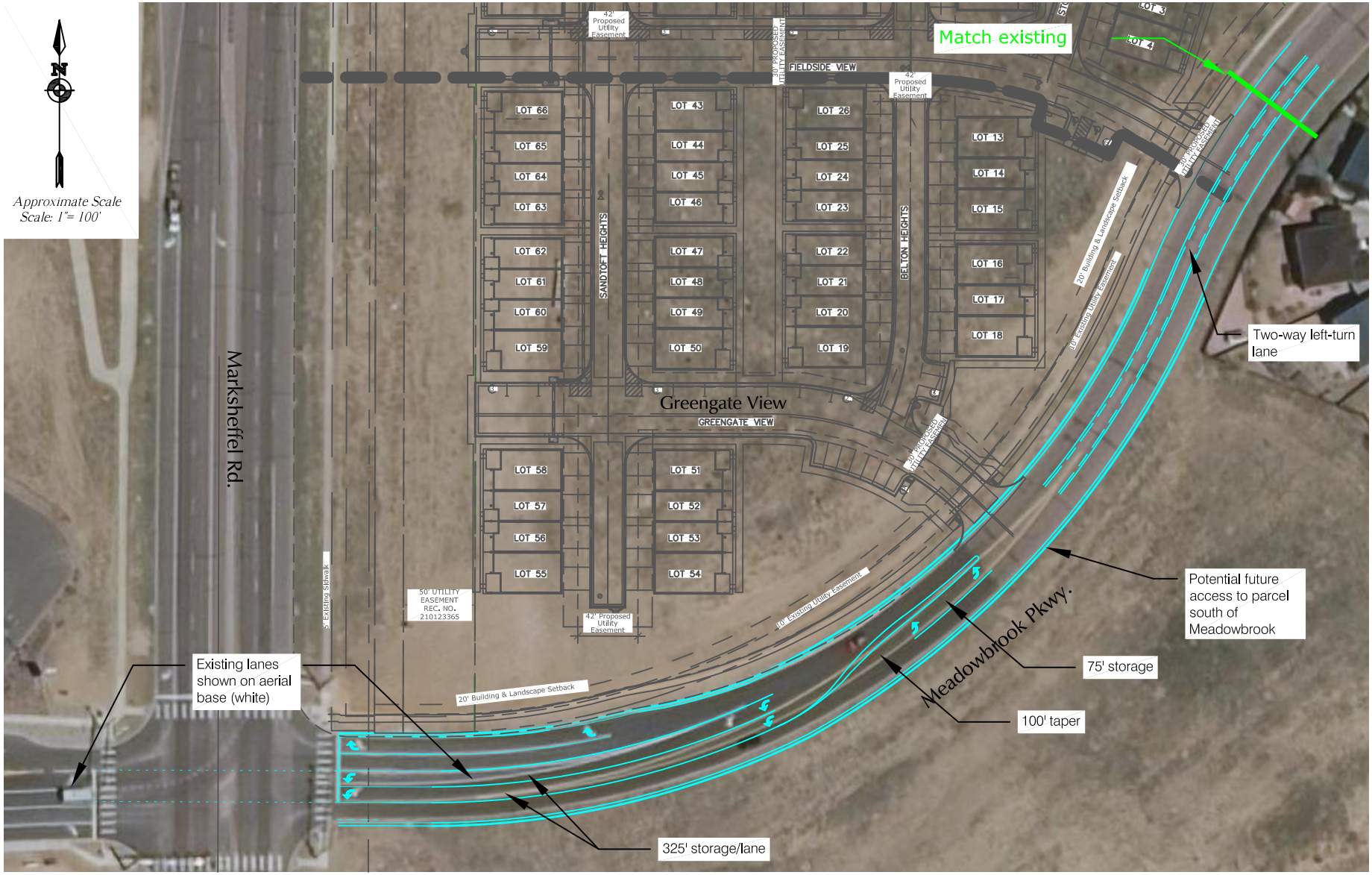


Exhibit 1 - w/Aerial Base

Preliminary Lane Concept
Meadowbrook Parkway

Villas at Claremont Ranch (LSC #204130)

This exhibit depicts a preliminary Meadowbrook Parkway lane concept with potential future westbound dual left turn lanes at Marksheffel Road (if dual lefts become necessary in the future).

LSC TRANSPORTATION CONSULTANTS, INC.

Traffic Counts

TRANSPORTATION
CONSULTANTS, INC.

LSC Transportation Consultants, Inc.

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

File Name : Marksheffel Rd - Meadowbrook Pkwy AM
Site Code : 174080
Start Date : 2/11/2020
Page No : 1

Groups Printed- Unshifted

	Marksheffel Rd Southbound					Meadow Brook Pkwy Westbound					Marksheffel Rd Northbound					Meadow Brook Pkwy Eastbound					
Start Time	**Left**	**Through**	**Right**	**Peds**	**App. Total**	**Left**	**Through**	**Right**	**Peds**	**App. Total**	**Left**	**Through**	**Right**	**Peds**	**App. Total**	**Left**	**Through**	**Right**	**Peds**	**App. Total**	**Int. Total**
06:30 AM	1	345	24	0	370	14	3	5	0	22	3	93	2	0	98	7	0	3	0	10	500
06:45 AM	5	379	29	0	413	7	1	11	0	19	4	115	0	0	119	8	0	5	0	13	564
Total	6	724	53	0	783	21	4	16	0	41	7	208	2	0	217	15	0	8	0	23	1064
07:00 AM	2	432	34	0	468	21	4	18	0	43	5	149	1	0	155	5	0	4	0	9	675
07:15 AM	3	402	43	0	448	5	1	18	0	24	2	161	2	0	165	3	0	3	0	6	643
07:30 AM	3	304	41	0	348	13	7	22	0	42	7	153	3	0	163	10	0	2	0	12	565
07:45 AM	5	344	45	0	394	2	0	15	0	17	7	160	4	0	171	13	0	4	0	17	599
Total	13	1482	163	0	1658	41	12	73	0	126	21	623	10	0	654	31	0	13	0	44	2482
08:00 AM	8	327	35	0	370	7	0	7	0	14	4	141	2	1	148	13	0	9	0	22	554
08:15 AM	4	280	32	0	316	3	0	4	0	7	3	111	4	1	119	15	0	5	0	20	462
Grand Total	31	2813	283	0	3127	72	16	100	0	188	35	1083	18	2	1138	74	0	35	0	109	4562
Apprch %	1	90	9.1	0		38.3	8.5	53.2	0		3.1	95.2	1.6	0.2		67.9	0	32.1	0		
Total %	0.7	61.7	6.2	0	68.5	1.6	0.4	2.2	0	4.1	0.8	23.7	0.4	0	24.9	1.6	0	0.8	0	2.4	

LSC Transportation Consultants, Inc.
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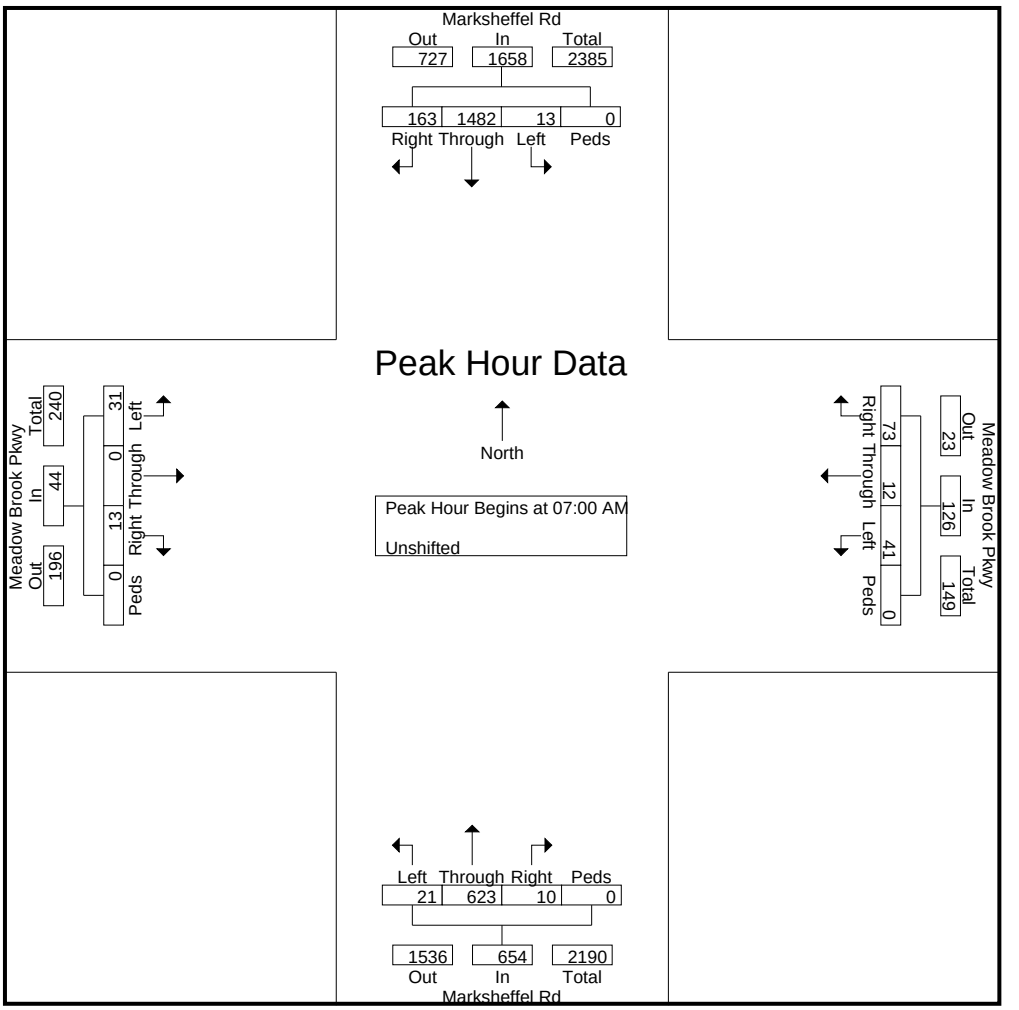
Colorado Springs, CO 80905
719-633-2868

File Name : Marksheffel Rd - Meadowbrook Pkwy AM
Site Code : 174080
Start Date : 2/11/2020
Page No : 2

	Marksheffel Rd Southbound					Meadow Brook Pkwy Westbound					Marksheffel Rd Northbound					Meadow Brook Pkwy Eastbound					
Start Time	**Left**	Through	**Right**	**Peds**	App. Total	**Left**	Through	**Right**	**Peds**	App. Total	**Left**	Through	**Right**	**Peds**	App. Total	**Left**	Through	**Right**	**Peds**	App. Total	**Int. Total**
Peak Hour Analysis From 6:30:00 AM to 8:15:00 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 7:00:00 AM																					
7:00:00 AM	2	**432**	34	0	**468**	**21**	4	18	0	**43**	5	149	1	0	155	5	0	**4**	0	9	**675**
7:15:00 AM	3	402	43	0	448	5	1	18	0	24	2	**161**	2	0	165	3	0	3	0	6	643
7:30:00 AM	3	304	41	0	348	13	**7**	**22**	0	42	**7**	153	3	0	163	10	0	2	0	12	565
7:45:00 AM	**5**	344	**45**	0	394	2	0	15	0	17	7	160	**4**	0	**171**	**13**	0	4	0	**17**	599
Total Volume	13	1482	163	0	1658	41	12	73	0	126	21	623	10	0	654	31	0	13	0	44	2482
% App. Total	0.8	89.4	9.8	0		32.5	9.5	57.9	0		3.2	95.3	1.5	0		70.5	0	29.5	0		
PHF	.650	.858	.906	.000	.886	.488	.429	.830	.000	.733	.750	.967	.625	.000	.956	.596	.000	.813	.000	.647	.919



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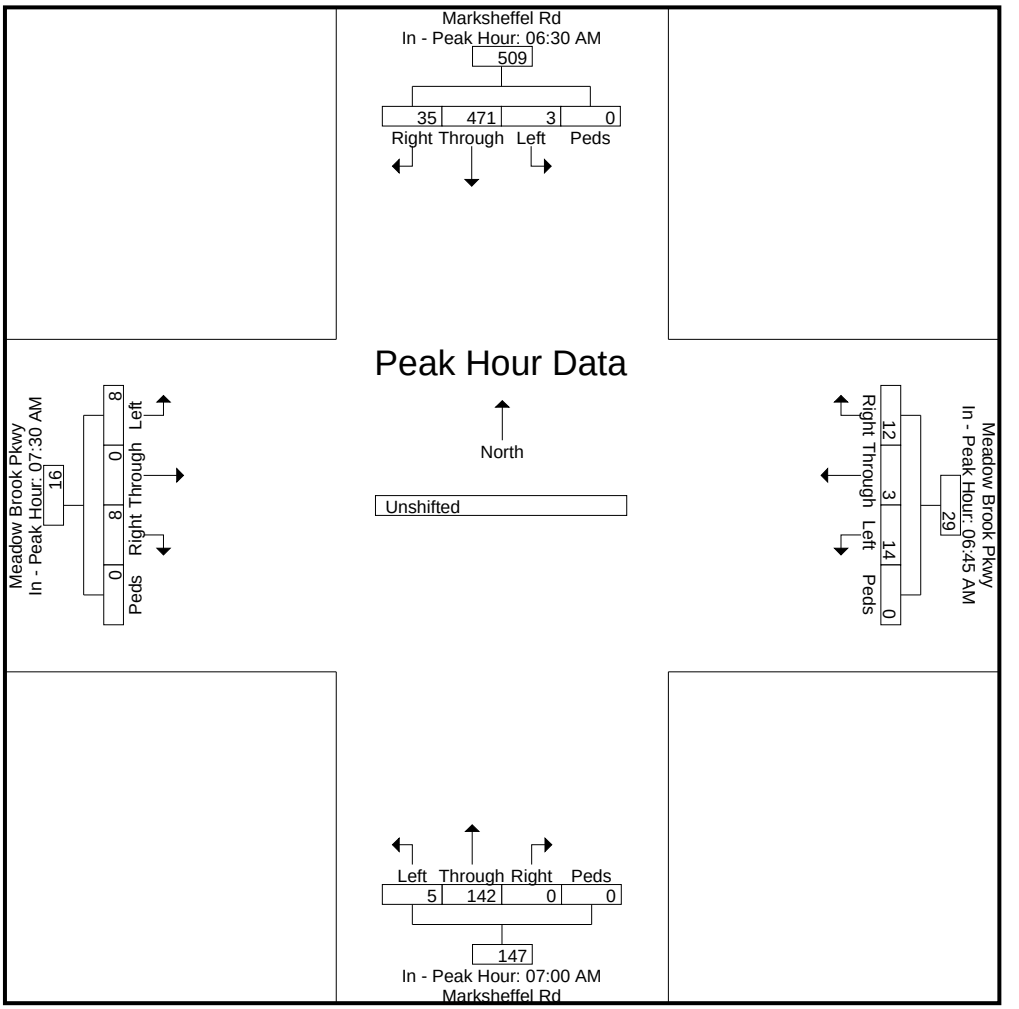
File Name : Marksheffel Rd - Meadowbrook Pkwy AM
Site Code : 174080
Start Date : 2/11/2020
Page No : 3

	Marksheffel Rd Southbound					Meadow Brook Pkwy Westbound					Marksheffel Rd Northbound					Meadow Brook Pkwy Eastbound					
Start Time	**Left**	**Through**	**Right**	**Peds**	**App. Total**	**Left**	**Through**	**Right**	**Peds**	**App. Total**	**Left**	**Through**	**Right**	**Peds**	**App. Total**	**Left**	**Through**	**Right**	**Peds**	**App. Total**	**Int. Total**
Peak Hour Analysis From 6:30:00 AM to 8:15:00 AM - Peak 1 of 1																					
Peak Hour for Each Approach Begins at:																					
	6:30:00 AM					6:45:00 AM					7:00:00 AM					7:30:00 AM					
+0 mins.	1	345	24	0	370	7	1	11	0	19	5	149	1	0	155	10	0	2	0	12	
+5 mins.	**5**	379	29	0	413	**21**	4	18	0	**43**	2	**161**	2	0	165	13	0	4	0	17	
+10 mins.	2	**432**	34	0	**468**	5	1	18	0	24	**7**	153	3	0	163	13	0	**9**	0	**22**	
+15 mins.	3	402	**43**	0	448	13	**7**	**22**	0	42	7	160	**4**	0	**171**	**15**	0	5	0	20	
Total Volume	11	1558	130	0	1699	46	13	69	0	128	21	623	10	0	654	51	0	20	0	71	
% App. Total	0.6	91.7	7.7	0		35.9	10.2	53.9	0		3.2	95.3	1.5	0		71.8	0	28.2	0		
PHF	.550	.902	.756	.000	.908	.548	.464	.784	.000	.744	.750	.967	.625	.000	.956	.850	.000	.556	.000	.807	



LSC Transportation Consultants, Inc.

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

File Name : Marksheffel Rd - Meadowbrook Pkwy PM
Site Code : 174080
Start Date : 2/11/2020
Page No : 1

Groups Printed- Unshifted

	Marksheffel Rd Southbound					Meadow Brook Pkwy Westbound					Marksheffel Rd Northbound					Meadow Brook Pkwy Eastbound					
Start Time	**Left**	**Through**	**Right**	**Peds**	**App. Total**	**Left**	**Through**	**Right**	**Peds**	**App. Total**	**Left**	**Through**	**Right**	**Peds**	**App. Total**	**Left**	**Through**	**Right**	**Peds**	**App. Total**	**Int. Total**
04:00 PM	7	154	17	0	178	2	1	13	0	16	4	364	22	0	390	34	2	11	0	47	631
04:15 PM	15	157	16	1	189	6	3	6	0	15	4	381	16	0	401	19	1	5	0	25	630
04:30 PM	8	157	14	0	179	2	1	9	0	12	4	381	22	1	408	34	5	6	0	45	644
04:45 PM	9	172	19	0	200	4	2	6	0	12	1	380	14	0	395	35	4	1	0	40	647
Total	39	640	66	1	746	14	7	34	0	55	13	1506	74	1	1594	122	12	23	0	157	2552
05:00 PM	9	196	10	0	215	8	0	4	0	12	2	411	15	0	428	42	2	12	0	56	711
05:15 PM	8	165	21	0	194	2	1	8	0	11	8	375	14	0	397	32	8	7	0	47	649
05:30 PM	9	166	15	0	190	4	2	6	0	12	2	359	17	0	378	28	1	5	0	34	614
05:45 PM	14	148	13	0	175	1	2	8	0	11	6	255	14	0	275	16	4	7	0	27	488
Total	40	675	59	0	774	15	5	26	0	46	18	1400	60	0	1478	118	15	31	0	164	2462
Grand Total	79	1315	125	1	1520	29	12	60	0	101	31	2906	134	1	3072	240	27	54	0	321	5014
Apprch %	5.2	86.5	8.2	0.1		28.7	11.9	59.4	0		1	94.6	4.4	0		74.8	8.4	16.8	0		
Total %	1.6	26.2	2.5	0	30.3	0.6	0.2	1.2	0	2	0.6	58	2.7	0	61.3	4.8	0.5	1.1	0	6.4	

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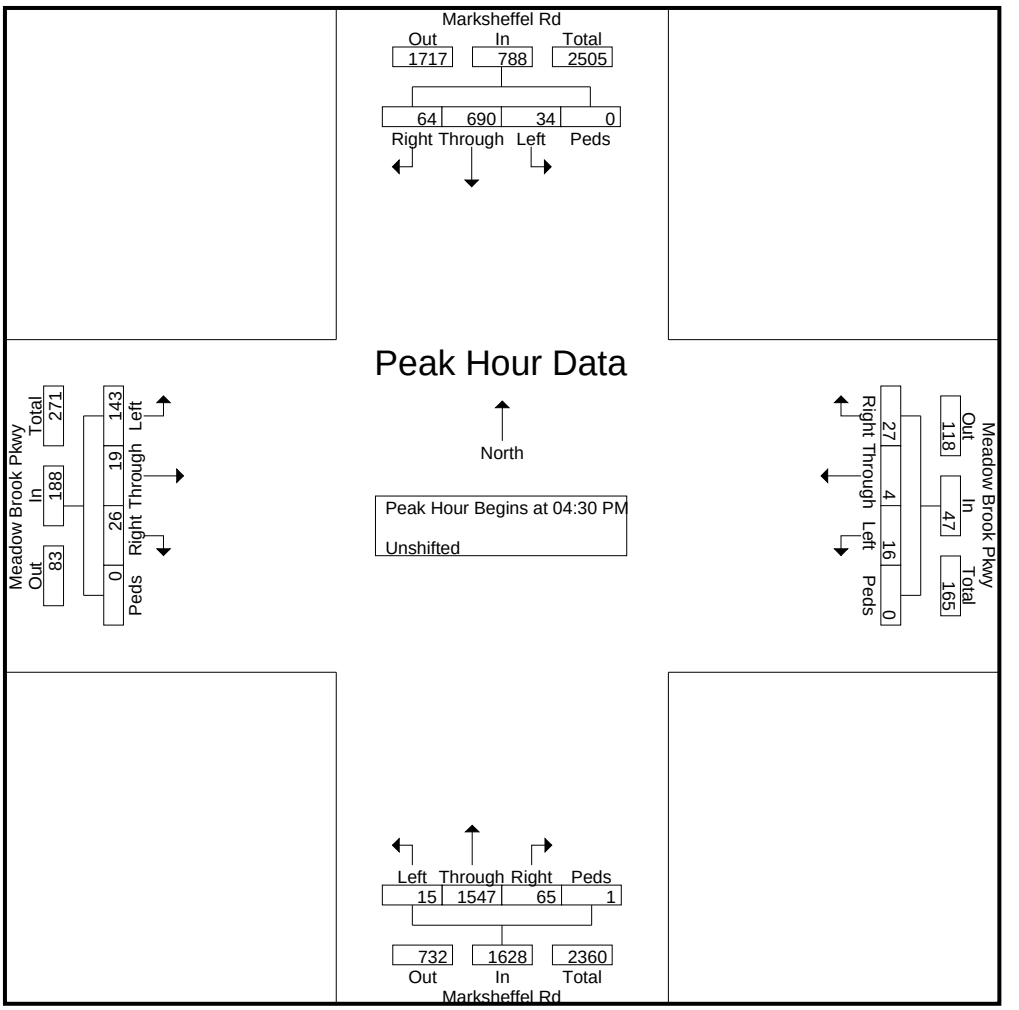
	Marksheffel Rd Southbound					Meadow Brook Pkwy Westbound					Marksheffel Rd Northbound					Meadow Brook Pkwy Eastbound					
Start Time	**Left**	Through	**Right**	**Peds**	App. Total	**Left**	Through	**Right**	**Peds**	App. Total	**Left**	Through	**Right**	**Peds**	App. Total	**Left**	Through	**Right**	**Peds**	App. Total	Int. Total
Peak Hour Analysis From 4:00:00 PM to 5:45:00 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 4:30:00 PM																					
4:30:00 PM	8	157	14	0	179	2	1	**9**	0	**12**	4	381	**22**	**1**	408	34	5	6	0	45	644
4:45:00 PM	**9**	172	19	0	200	4	**2**	6	0	12	1	380	14	0	395	35	4	1	0	40	647
5:00:00 PM	9	**196**	10	0	**215**	**8**	0	4	0	12	2	**411**	15	0	**428**	**42**	2	**12**	0	**56**	**711**
5:15:00 PM	8	165	**21**	0	194	2	1	8	0	11	**8**	375	14	0	397	32	**8**	7	0	47	649
Total Volume	34	690	64	0	788	16	4	27	0	47	15	1547	65	1	1628	143	19	26	0	188	2651
% App. Total	4.3	87.6	8.1	0		34	8.5	57.4	0		0.9	95	4	0.1		76.1	10.1	13.8	0		
PHF	.944	.880	.762	.000	.916	.500	.500	.750	.000	.979	.469	.941	.739	.250	.951	.851	.594	.542	.000	.839	.932



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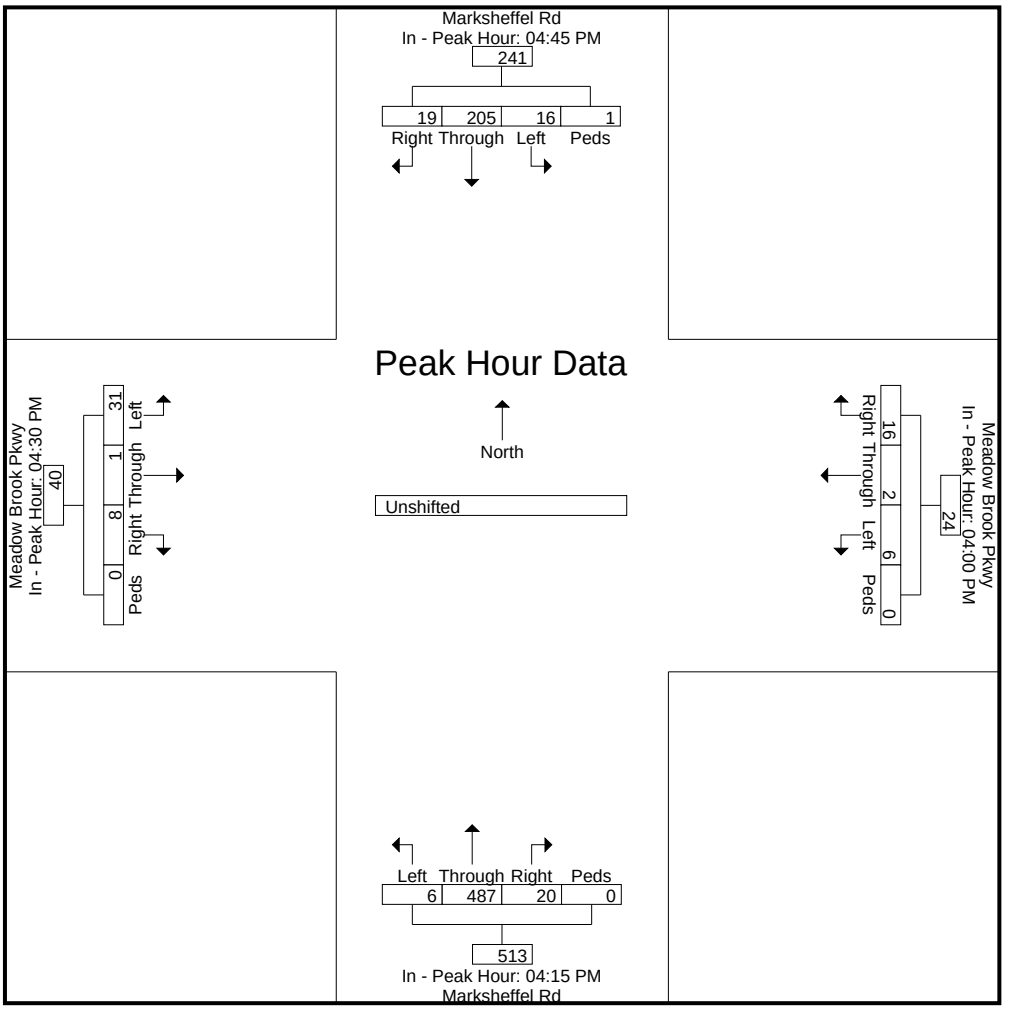
File Name : Marksheffel Rd - Meadowbrook Pkwy PM
Site Code : 174080
Start Date : 2/11/2020
Page No : 3

	Marksheffel Rd Southbound					Meadow Brook Pkwy Westbound					Marksheffel Rd Northbound					Meadow Brook Pkwy Eastbound					
Start Time	**Left**	Through	**Right**	**Peds**	App. Total	**Left**	Through	**Right**	**Peds**	App. Total	**Left**	Through	**Right**	**Peds**	App. Total	**Left**	Through	**Right**	**Peds**	App. Total	Int. Total
Peak Hour Analysis From 4:00:00 PM to 5:45:00 PM - Peak 1 of 1																					
Peak Hour for Each Approach Begins at:																					
	4:45:00 PM					4:00:00 PM					4:15:00 PM					4:30:00 PM					
+0 mins.	**9**	172	19	0	200	2	1	**13**	0	**16**	**4**	381	16	0	401	34	5	6	0	45	
+5 mins.	9	**196**	10	0	**215**	**6**	**3**	6	0	15	4	381	**22**	**1**	408	35	4	1	0	40	
+10 mins.	8	165	**21**	0	194	2	1	9	0	12	1	380	14	0	395	**42**	2	**12**	0	**56**	
+15 mins.	9	166	15	0	190	4	2	6	0	12	2	**411**	15	0	**428**	32	**8**	7	0	47	
Total Volume	35	699	65	0	799	14	7	34	0	55	11	1553	67	1	1632	143	19	26	0	188	
% App. Total	4.4	87.5	8.1	0		25.5	12.7	61.8	0		0.7	95.2	4.1	0.1		76.1	10.1	13.8	0		
PHF	.972	.892	.774	.000	.929	.583	.583	.654	.000	.859	.688	.945	.761	.250	.953	.851	.594	.542	.000	.839	



QUALITY COUNTS REPORT
====================

Intersectio	Marksheffel Rc Hwy 24	
City/State:	Colorado Sprin CO	
QCJobNo:	15171515	
ClientID:		
Date:	1/28/2020	
Comments:		
Latitude/Lc	38.85214378	-104.682
PEAK HOUI	7:00 AM	
PEAK HOUI	8:00 AM	
PEAK 15-M	7:15 AM	
PEAK 15-M	7:30 AM	
PHF	0.91	

Lane Configuration:

	SIGNAL	SBLane1	SBLane2	SBLane3	SBLane4	SBLane5	SBLane6	SBLane7		
		R	T	T	L					SIGNAL
EBLane7									R	WBLane1
EBLane6									T	WBLane2
EBLane5	L								T	WBLane3
EBLane4	L								L	WBLane4
EBLane3	T									WBLane5
EBLane2	T									WBLane6
EBLane1	R									WBLane7
SIGNAL					L	T	T	R		
		NBLane7	NBLane6	NBLane5	NBLane4	NBLane3	NBLane2	NBLane1	SIGNAL	

PEAK-HOUR VOLUMES

NBLeft	NBThru	NBRight	SBLeft	SBThru	SBRight	EBLeft	EBThru	EBRight	WBLeft	WBThru	WBRight	NBEntering	SBEntering	EBEntering	WBEnterin	NBLeaving	SBLeaving	EBLeaving	WBLeaving
1	428	73	3	975	657	305	340	2	285	1225	15	502	1635	647	1525	748	1262	416	1883

PERCENT HEAVY VEHICLES

	NBLeft	NBThru	NBRight	SBLeft	SBThru	SBRight	EBLeft	EBThru	EBRight	WBLeft	WBThru	WBRight	NBEntering	SBEntering	EBEntering	WBEnterin	NBLeaving	SBLeaving	EBLeaving	WBLeaving
HEAVY VEH	0	2.8	4.1	66.7	2.3	3.8	8.9	11.8	0	1.1	3	13.3	3	3	10.4	2.8	5.5	2	10.8	3.3
BUSES																				

PEAK-HOUR VOLUMES - PEDESTRIANS

Leg/Crossw	South	North	West	East
	0	0	0	0

PEAK-HOUR VOLUMES - MICROMOBILITY

	NBLeft	NBThru	NBRight	SBLeft	SBThru	SBRight	EBLeft	EBThru	EBRight	WBLeft	WBThru	WBRight
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0
Scooters												

PEAK 15-MIN FLOWRATES

VehicleTyp	NBLeft	NBThru	NBRight	NBU-Turn	NBRTOR	SBLeft	SBThru	SBRight	SBU-Turn	SBRTOR	EBLeft	EBThru	EBRight	EBU-Turn	EBRTOR	WBLeft	WBThru	WBRight	WBU-Turn	WBRTOR	Total
All Vehicles	0	444	92	0	0	0	1020	748	0	0	324	360	4	0	0	292	1420	8	0	0	4712
Heavy Truc	0	8	0			0	24	36			20	40	0			8	24	0			160
Buses																					
Pedestrians		0					0					0					0				0
Bicycles	0	0	0			0	0	0			0	0	0			0	0	0			0
Scooters																					

ALL-VEHICLE VOLUMES

Time Perio	NB Left	NB Thru	NB Right	NB U-Turn	NB RTOR	SB Left	SB Thru	SB Right	SB U-Turn	SB RTOR	EB Left	EB Thru	EB Right	EB U-Turn	EB RTOR	WB Left	WB Thru	WB Right	WB U-Turn	WB RTOR	Total	Hourly Tota
7:00 AM	1	103	19	0		1	286	190	0		75	96	0	0		87	312	4	0		1174	
7:15 AM	0	111	23	0		0	255	187	0		81	90	1	0		73	355	2	0		1178	
7:30 AM	0	111	14	0		1	240	151	0		78	77	0	0		58	281	5	0		1016	
7:45 AM	0	103	17	0		1	194	129	0		71	77	1	0		67	277	4	0		941	4309
8:00 AM	0	70	6	0		0	162	165	0		57	94	1	0		57	222	3	1		838	3973
8:15 AM	2	75	12	0		2	135	130	0		43	75	0	0		32	193	2	1		702	3497
8:30 AM	0	80	11	0		0	100	130	0		51	83	1	0		30	191	4	0		681	3162
8:45 AM	3	47	7	0		1	104	91	0		50	64	2	0		17	144	4	0		534	2755

QUALITY COUNTS REPORT
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Intersection Marksheffe Hwy 24
City/State: Colorado S CO
QCJobNo: 15171516
ClientID:
Date: 1/28/2020
Comments:
Latitude/Lo 38.85214 -104.682
PEAK HOUR 3:00 PM
PEAK HOUR 4:00 PM
PEAK 15-M 3:45 PM
PEAK 15-M 4:00 PM
PHF 0.85

Lane Configuration:

	SIGNAL	SBLane1	SBLane2	SBLane3	SBLane4	SBLane5	SBLane6	SBLane7		
		R	T	T	L					SIGNAL
EBLane7									R	WBLane1
EBLane6									T	WBLane2
EBLane5	L								T	WBLane3
EBLane4	L								L	WBLane4
EBLane3	T									WBLane5
EBLane2	T									WBLane6
EBLane1	R									WBLane7
SIGNAL					L	T	T	R		
		NBLane7	NBLane6	NBLane5	NBLane4	NBLane3	NBLane2	NBLane1	SIGNAL	

PEAK-HOUR VOLUMES

	NBLeft	NBThru	NBRight	SBLeft	SBThru	SBRight	EBLeft	EBThru	EBRight	WBLeft	WBThru	WBRight	NBEntering	SBEntering	EBEntering	WBEnterin	NBLeaving	SBLeaving	EBLeaving	WBLeaving
	13	736	156	8	343	312	487	707	4	78	361	8	905	663	1198	447	1228	425	871	689

PERCENT HEAVY VEHICLES

	NBLeft	NBThru	NBRight	SBLeft	SBThru	SBRight	EBLeft	EBThru	EBRight	WBLeft	WBThru	WBRight	NBEntering	SBEntering	EBEntering	WBEnterin	NBLeaving	SBLeaving	EBLeaving	WBLeaving
HEAVY VEH	0	1.4	5.8	0	3.5	16	7	6.5	0	3.8	8.9	25	2.1	9.4	6.7	8.3	3.7	3.5	6.3	11.9
BUSES																				

PEAK-HOUR VOLUMES - PEDESTRIANS

Leg/Crossw	South	North	West	East
	1	1	1	1

PEAK-HOUR VOLUMES - MICROMOBILITY

	NBLeft	NBThru	NBRight	SBLeft	SBThru	SBRight	EBLeft	EBThru	EBRight	WBLeft	WBThru	WBRight
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0
Scooters												

PEAK 15-MIN FLOWRATES

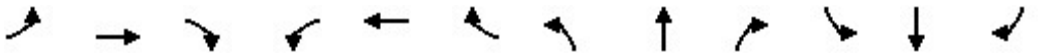
VehicleTyp	NBLeft	NBThru	NBRight	NBU-Turn	NBRTOR	SBLeft	SBThru	SBRight	SBU-Turn	SBRTOR	EBLeft	EBThru	EBRight	EBU-Turn	EBRTOR	WBLeft	WBThru	WBRight	WBU-Turn	WBRTOR	Total
All Vehicle	20	864	176	0	0	8	396	392	0	0	592	824	4	0	0	84	424	4	0	0	3788
Heavy Truc	0	12	12			0	20	68			32	32	0			0	52	0			228
Buses																					
Pedestrians		4					4					4					4				16
Bicycles	0	0	0			0	0	0			0	0	0			0	0	0			0
Scooters																					

ALL-VEHICLE VOLUMES

Time Perio	NB Left	NB Thru	NB Right	NB U-Turn	NB RTOR	SB Left	SB Thru	SB Right	SB U-Turn	SB RTOR	EB Left	EB Thru	EB Right	EB U-Turn	EB RTOR	WB Left	WB Thru	WB Right	WB U-Turn	WB RTOR	Total	Hourly Tota
2:00 PM	1	59	18	0		1	54	45	0		53	117	0	0		18	77	4	0		447	
2:15 PM	1	118	22	0		3	66	73	0		76	111	0	0		25	87	3	0		585	
2:30 PM	1	98	25	0		1	65	68	0		65	124	0	0		15	83	1	0		546	
2:45 PM	1	119	18	0		0	74	76	0		92	147	2	0		19	89	2	0		639	2217
3:00 PM	1	128	31	0		1	71	73	0		111	155	1	3		18	77	2	0		672	2442
3:15 PM	2	177	38	0		3	81	73	0		120	160	1	0		17	97	2	0		771	2628
3:30 PM	5	215	43	0		2	92	68	0		105	186	1	0		22	81	3	0		823	2905
3:45 PM	5	216	44	0		2	99	98	0		148	206	1	0		21	106	1	0		947	3213

Level of Service and Queuing Reports

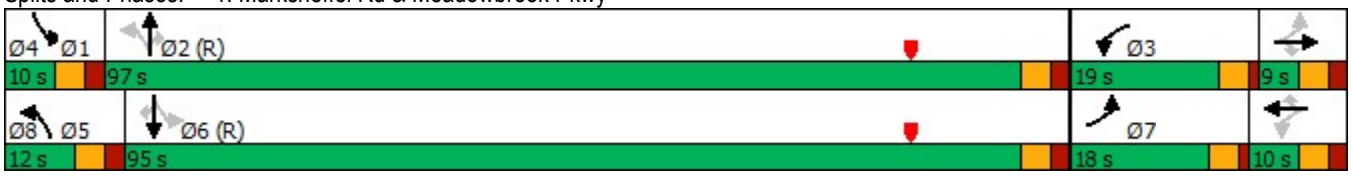
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	0	13	41	12	73	21	623	10	13	1482	163
Future Volume (vph)	31	0	13	41	12	73	21	623	10	13	1482	163
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	220		200	300		190	405		0	340		335
Storage Lanes	2		1	1		1	1		1	1		1
Taper Length (ft)	55			155			130			110		
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			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted				0.526			0.117			0.387		
Satd. Flow (perm)	3614	1863	1583	980	1863	1583	218	3539	1583	721	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			179			89			89			172
Link Speed (mph)		35			25			50			50	
Link Distance (ft)		495			926			1105			736	
Travel Time (s)		9.6			25.3			15.1			10.0	
Peak Hour Factor	0.78	0.78	0.78	0.87	0.87	0.87	0.93	0.93	0.93	0.95	0.95	0.95
Adj. Flow (vph)	40	0	17	47	14	84	23	670	11	14	1560	172
Shared Lane Traffic (%)												
Lane Group Flow (vph)	40	0	17	47	14	84	23	670	11	14	1560	172
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	L NA	Left	R NA	L NA	Left	R NA	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	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	pm+pt		Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	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	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	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%	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	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	3.0
All-Red Time (s)	1.0	2.0	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	0.0
Total Lost Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	10.0		5.8	16.7	7.2	7.2	107.1	104.6	104.6	105.5	102.1	102.1
Actuated g/C Ratio	0.07		0.04	0.12	0.05	0.05	0.79	0.77	0.77	0.78	0.76	0.76
v/c Ratio	0.15		0.07	0.24	0.14	0.50	0.10	0.24	0.01	0.02	0.58	0.14
Control Delay	53.6		0.5	53.2	62.9	21.1	4.3	5.5	0.0	3.7	9.8	1.3
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	53.6		0.5	53.2	62.9	21.1	4.3	5.5	0.0	3.7	9.8	1.3
LOS	D		A	D	E	C	A	A	A	A	A	A
Approach Delay		37.8			35.5			5.4			8.9	
Approach LOS		D			D			A			A	
Queue Length 50th (ft)	17		0	37	12	0	4	64	0	2	328	0
Queue Length 95th (ft)	28		0	70	34	44	11	140	0	8	459	23
Internal Link Dist (ft)		415			846			1025			656	
Turn Bay Length (ft)	220		200	300		190	405			340		335
Base Capacity (vph)	435		239	231	99	168	253	2740	1246	607	2677	1239
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	0.09		0.07	0.20	0.14	0.50	0.09	0.24	0.01	0.02	0.58	0.14

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: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.58			
Intersection Signal Delay: 10.1		Intersection LOS: B	
Intersection Capacity Utilization 59.3%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 1: Marksheffel Rd & Meadowbrook Pkwy



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	3	975	657	1	428	73	305	340	2	285	1225	15
Future Volume (vph)	3	975	657	1	428	73	305	340	2	285	1225	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	375		0	300		315	1000		890	1000		670
Storage Lanes	1		1	1		1	2		1	1		1
Taper Length (ft)	75			95			300			300		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	3433	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.950			0.488		
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	3433	3539	1583	909	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			397			102			95			95
Link Speed (mph)		50			50			55			55	
Link Distance (ft)		1105			906			2038			1487	
Travel Time (s)		15.1			12.4			25.3			18.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	3	1060	714	1	465	79	332	370	2	310	1332	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	3	1060	714	1	465	79	332	370	2	310	1332	16
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)		12			12			44			44	
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	pm+pt	NA	Prot
Protected Phases	1	6		5	2		7	4	4	3	8	8
Permitted Phases			6			2				8		

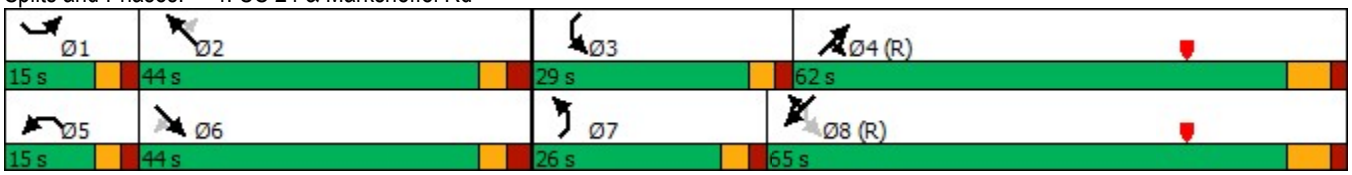
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Detector Phase	1	6	6	5	2	2	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	28.0	28.0	6.0	28.0	28.0
Minimum Split (s)	15.0	16.0	16.0	15.0	16.0	16.0	15.0	35.0	35.0	15.0	35.0	35.0
Total Split (s)	15.0	44.0	44.0	15.0	44.0	44.0	26.0	62.0	62.0	29.0	65.0	65.0
Total Split (%)	10.0%	29.3%	29.3%	10.0%	29.3%	29.3%	17.3%	41.3%	41.3%	19.3%	43.3%	43.3%
Maximum Green (s)	10.0	38.0	38.0	10.0	38.0	38.0	21.0	55.0	55.0	24.0	58.0	58.0
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	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	7.0	5.0	5.0	7.0	5.0	7.0	7.0	5.0	7.0	7.0
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	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	6.1	51.8	49.8	6.0	51.7	49.7	18.8	60.0	60.0	81.1	60.2	60.2
Actuated g/C Ratio	0.04	0.35	0.33	0.04	0.34	0.33	0.13	0.40	0.40	0.54	0.40	0.40
v/c Ratio	0.04	0.87	0.90	0.01	0.38	0.13	0.77	0.26	0.00	0.52	0.94	0.02
Control Delay	70.3	54.4	36.6	70.0	38.9	3.9	75.9	31.4	0.0	20.1	56.5	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	0.0
Total Delay	70.3	54.4	36.6	70.0	38.9	3.9	75.9	31.4	0.0	20.1	56.5	0.1
LOS	E	D	D	E	D	A	E	C	A	C	E	A
Approach Delay		47.3			33.9			52.3			49.1	
Approach LOS		D			C			D			D	
Queue Length 50th (ft)	3	497	339	1	176	0	163	126	0	151	661	0
Queue Length 95th (ft)	15	#728	#667	8	254	25	217	177	0	213	#831	0
Internal Link Dist (ft)		1025			826			1958			1407	
Turn Bay Length (ft)	375			300		315	1000		890	1000		670
Base Capacity (vph)	118	1222	791	118	1219	592	480	1416	690	652	1419	691
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	0.03	0.87	0.90	0.01	0.38	0.13	0.69	0.26	0.00	0.48	0.94	0.02

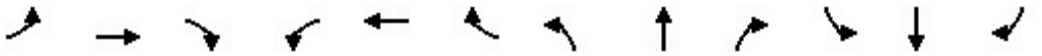
Intersection Summary			
Area Type:	Other		
Cycle Length: 150			
Actuated Cycle Length: 150			
Offset: 0 (0%), Referenced to phase 4:NET and 8:SWTL, Start of FDW or yellow			
Natural Cycle: 135			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.94			
Intersection Signal Delay: 47.1		Intersection LOS: D	
Intersection Capacity Utilization 95.4%		ICU Level of Service F	
Analysis Period (min) 15			

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

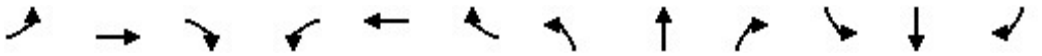
Queue shown is maximum after two cycles.

Splits and Phases: 4: US 24 & Marksheffel Rd





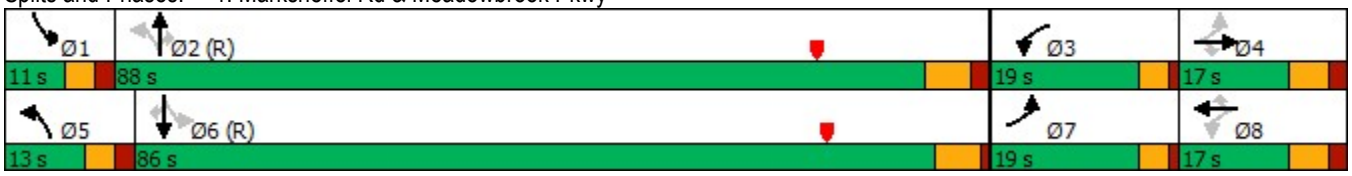
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	143	19	26	16	4	27	15	1547	65	34	690	64
Future Volume (vph)	143	19	26	16	4	27	15	1547	65	34	690	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	220		200	300		190	405		0	340		335
Storage Lanes	2		1	1		1	1		1	1		1
Taper Length (ft)	50			155			130			110		
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			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.513						0.360			0.098		
Satd. Flow (perm)	1854	1863	1583	1863	1863	1583	671	3539	1583	183	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			101			101			97			97
Link Speed (mph)		35			25			50			50	
Link Distance (ft)		495			926			1105			726	
Travel Time (s)		9.6			25.3			15.1			9.9	
Peak Hour Factor	0.87	0.87	0.87	0.83	0.83	0.83	0.95	0.95	0.95	0.93	0.93	0.93
Adj. Flow (vph)	164	22	30	19	5	33	16	1628	68	37	742	69
Shared Lane Traffic (%)												
Lane Group Flow (vph)	164	22	30	19	5	33	16	1628	68	37	742	69
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	L NA	Left	R NA	L NA	Left	R NA	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)		30			30			30			30	
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	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	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	10.0	11.5	11.5	10.0	11.5	11.5
Total Split (s)	19.0	17.0	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%	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	11.0	15.0	11.0	11.0	8.0	81.5	81.5	6.0	80.5	80.5
Yellow Time (s)	3.0	4.0	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	2.0	1.0	2.0	2.0	2.0	2.0	2.0	2.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	5.0	6.5	6.5	5.0	5.5	5.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	18.8	12.1	12.1	11.8	6.0	6.0	102.8	96.6	96.6	105.4	102.2	102.2
Actuated g/C Ratio	0.14	0.09	0.09	0.09	0.04	0.04	0.76	0.72	0.72	0.78	0.76	0.76
v/c Ratio	0.42	0.13	0.13	0.12	0.06	0.20	0.03	0.64	0.06	0.17	0.28	0.06
Control Delay	53.9	57.5	1.2	48.2	63.0	2.7	4.6	13.6	0.8	6.0	6.8	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.9	57.5	1.2	48.2	63.0	2.7	4.6	13.6	0.8	6.0	6.8	0.8
LOS	D	E	A	D	E	A	A	B	A	A	A	A
Approach Delay		46.9			23.1			13.0			6.3	
Approach LOS		D			C			B			A	
Queue Length 50th (ft)	64	17	0	14	4	0	3	433	0	7	92	0
Queue Length 95th (ft)	93	45	0	33	17	0	10	568	8	18	178	9
Internal Link Dist (ft)		415			846			1025			646	
Turn Bay Length (ft)	220		200	300		190	405			340		335
Base Capacity (vph)	464	185	248	265	151	221	584	2531	1160	217	2679	1221
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	0.35	0.12	0.12	0.07	0.03	0.15	0.03	0.64	0.06	0.17	0.28	0.06

Intersection Summary			
Area Type:	Other		
Cycle Length: 135			
Actuated Cycle Length: 135			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of FDW or yellow			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.64			
Intersection Signal Delay: 13.8		Intersection LOS: B	
Intersection Capacity Utilization 63.9%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 1: Marksheffel Rd & Meadowbrook Pkwy



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	14	395	345	23	970	220	640	1070	7	125	365	15
Future Volume (vph)	14	395	345	23	970	220	640	1070	7	125	365	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	375		0	300		315	1000		890	1000		670
Storage Lanes	1		1	1		1	2		1	1		1
Taper Length (ft)	75			95			300			300		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	3433	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.950			0.153		
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	3433	3539	1583	285	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			375			211			95			131
Link Speed (mph)		50			50			55			55	
Link Distance (ft)		1105			906			2038			1487	
Travel Time (s)		15.1			12.4			25.3			18.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	15	429	375	25	1054	239	696	1163	8	136	397	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	15	429	375	25	1054	239	696	1163	8	136	397	16
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)		12			12			44			44	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		30			30			30			30	
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	Perm	pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases			6			2			4	8		8

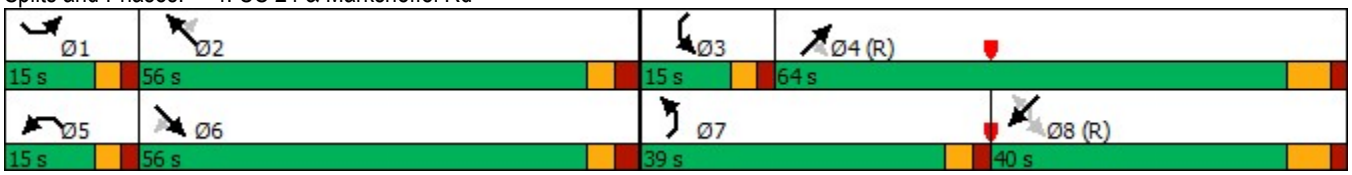
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Detector Phase	1	6	6	5	2	2	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	28.0	28.0	6.0	28.0	28.0
Minimum Split (s)	15.0	16.0	16.0	15.0	16.0	16.0	15.0	35.0	35.0	15.0	35.0	35.0
Total Split (s)	15.0	56.0	56.0	15.0	56.0	56.0	39.0	64.0	64.0	15.0	40.0	40.0
Total Split (%)	10.0%	37.3%	37.3%	10.0%	37.3%	37.3%	26.0%	42.7%	42.7%	10.0%	26.7%	26.7%
Maximum Green (s)	10.0	50.0	50.0	10.0	50.0	50.0	34.0	57.0	57.0	10.0	33.0	33.0
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	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)	5.0	6.0	6.0	5.0	6.0	6.0	5.0	7.0	7.0	5.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	7.0	47.2	47.2	7.7	50.2	50.2	33.4	66.1	66.1	55.7	43.2	43.2
Actuated g/C Ratio	0.05	0.31	0.31	0.05	0.33	0.33	0.22	0.44	0.44	0.37	0.29	0.29
v/c Ratio	0.18	0.39	0.50	0.28	0.89	0.36	0.91	0.75	0.01	0.65	0.39	0.03
Control Delay	73.4	41.1	5.6	75.5	57.5	7.9	73.7	40.2	0.0	41.2	46.3	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	73.4	41.1	5.6	75.5	57.5	7.9	73.7	40.2	0.0	41.2	46.3	0.1
LOS	E	D	A	E	E	A	E	D	A	D	D	A
Approach Delay		25.4			48.9			52.5			43.7	
Approach LOS		C			D			D			D	
Queue Length 50th (ft)	14	184	0	24	499	18	337	495	0	59	165	0
Queue Length 95th (ft)	40	216	74	57	603	84	#448	648	0	#162	237	0
Internal Link Dist (ft)		1025			826			1958			1407	
Turn Bay Length (ft)	375			300		315	1000		890	1000		670
Base Capacity (vph)	118	1186	779	118	1211	680	788	1558	750	213	1019	549
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	0.13	0.36	0.48	0.21	0.87	0.35	0.88	0.75	0.01	0.64	0.39	0.03

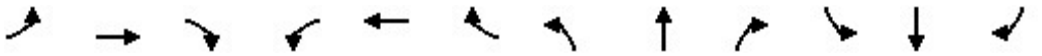
Intersection Summary			
Area Type:	Other		
Cycle Length: 150			
Actuated Cycle Length: 150			
Offset: 0 (0%), Referenced to phase 4:NET and 8:SWTL, Start of Green			
Natural Cycle: 115			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.91			
Intersection Signal Delay: 45.5		Intersection LOS: D	
Intersection Capacity Utilization 83.4%		ICU Level of Service E	
Analysis Period (min) 15			

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

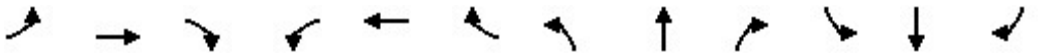
Queue shown is maximum after two cycles.

Splits and Phases: 4: US 24 & Marksheffel Rd





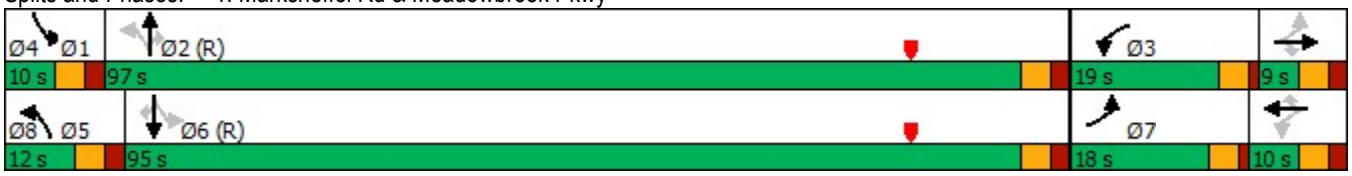
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	48	3	30	91	14	102	59	636	211	52	1493	194
Future Volume (vph)	48	3	30	91	14	102	59	636	211	52	1493	194
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	220		200	300		190	405		0	340		335
Storage Lanes	2		1	1		1	1		1	1		1
Taper Length (ft)	50			155			130			110		
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			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted				0.506			0.110			0.376		
Satd. Flow (perm)	3614	1863	1583	943	1863	1583	205	3539	1583	700	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			89			117			227			204
Link Speed (mph)		35			25			50			50	
Link Distance (ft)		495			926			1105			745	
Travel Time (s)		9.6			25.3			15.1			10.2	
Peak Hour Factor	0.78	0.78	0.78	0.87	0.87	0.87	0.93	0.93	0.93	0.95	0.95	0.95
Adj. Flow (vph)	62	4	38	105	16	117	63	684	227	55	1572	204
Shared Lane Traffic (%)												
Lane Group Flow (vph)	62	4	38	105	16	117	63	684	227	55	1572	204
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	L NA	Left	R NA	L NA	Left	R NA	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	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	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	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	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	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%	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	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	3.0
All-Red Time (s)	1.0	2.0	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	0.0
Total Lost Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	12.3	5.0	5.0	20.1	9.5	9.5	102.9	97.5	97.5	100.9	96.5	96.5
Actuated g/C Ratio	0.09	0.04	0.04	0.15	0.07	0.07	0.76	0.72	0.72	0.75	0.71	0.71
v/c Ratio	0.19	0.06	0.26	0.49	0.12	0.53	0.27	0.27	0.19	0.10	0.62	0.17
Control Delay	49.4	65.3	4.4	58.5	60.6	19.3	7.0	7.7	1.3	4.5	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	0.0
Total Delay	49.4	65.3	4.4	58.5	60.6	19.3	7.0	7.7	1.3	4.5	12.7	1.4
LOS	D	E	A	E	E	B	A	A	A	A	B	A
Approach Delay		33.6			39.4			6.1			11.2	
Approach LOS		C			D			A			B	
Queue Length 50th (ft)	23	3	0	82	13	0	12	114	0	10	391	0
Queue Length 95th (ft)	39	14	0	134	37	56	24	143	25	21	476	26
Internal Link Dist (ft)		415			846			1025			665	
Turn Bay Length (ft)	220		200	300		190	405			340		335
Base Capacity (vph)	483	69	144	241	131	220	237	2556	1206	566	2530	1190
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	0.13	0.06	0.26	0.44	0.12	0.53	0.27	0.27	0.19	0.10	0.62	0.17

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: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.62			
Intersection Signal Delay: 12.5		Intersection LOS: B	
Intersection Capacity Utilization 68.8%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 1: Marksheffel Rd & Meadowbrook Pkwy



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	7	1023	696	1	490	75	492	345	2	290	1375	25
Future Volume (vph)	7	1023	696	1	490	75	492	345	2	290	1375	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	375		0	300		315	1000		890	1000		670
Storage Lanes	1		1	1		1	2		1	1		1
Taper Length (ft)	75			95			300			300		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	3433	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.950			0.508		
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	3433	3539	1583	946	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			385			102			95			95
Link Speed (mph)		50			50			55			55	
Link Distance (ft)		1105			906			2038			1487	
Travel Time (s)		15.1			12.4			25.3			18.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	8	1112	757	1	533	82	535	375	2	315	1495	27
Shared Lane Traffic (%)												
Lane Group Flow (vph)	8	1112	757	1	533	82	535	375	2	315	1495	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)		12			12			44			44	
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	pm+pt	NA	Prot
Protected Phases	1	6		5	2		7	4	4	3	8	8
Permitted Phases			6			2				8		

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Detector Phase	1	6	6	5	2	2	7	4	4	3	8	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)	15.0	45.0	45.0	15.0	45.0	45.0	26.0	64.0	64.0	26.0	64.0	64.0
Total Split (%)	10.0%	30.0%	30.0%	10.0%	30.0%	30.0%	17.3%	42.7%	42.7%	17.3%	42.7%	42.7%
Maximum Green (s)	10.0	39.0	39.0	10.0	39.0	39.0	21.0	57.0	57.0	21.0	57.0	57.0
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	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	7.0	5.0	5.0	7.0	5.0	7.0	7.0	5.0	7.0	7.0
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	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	6.5	52.8	50.8	6.0	52.5	50.5	21.0	59.5	59.5	77.5	57.0	57.0
Actuated g/C Ratio	0.04	0.35	0.34	0.04	0.35	0.34	0.14	0.40	0.40	0.52	0.38	0.38
v/c Ratio	0.11	0.89	0.96	0.01	0.43	0.14	1.11	0.27	0.00	0.53	1.11	0.04
Control Delay	71.6	55.9	46.8	70.0	39.4	4.4	133.3	31.6	0.0	21.1	104.3	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	71.6	55.9	46.8	70.0	39.4	4.4	133.3	31.6	0.0	21.1	104.3	0.1
LOS	E	E	D	E	D	A	F	C	A	C	F	A
Approach Delay		52.3			34.8			91.2			88.5	
Approach LOS		D			C			F			F	
Queue Length 50th (ft)	8	527	420	1	204	0	~308	131	0	157	~878	0
Queue Length 95th (ft)	27	#773	#772	8	294	28	#427	175	0	220	#1017	0
Internal Link Dist (ft)		1025			826			1958			1407	
Turn Bay Length (ft)	375			300		315	1000		890	1000		670
Base Capacity (vph)	118	1245	790	118	1238	600	480	1403	685	619	1344	660
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	0.07	0.89	0.96	0.01	0.43	0.14	1.11	0.27	0.00	0.51	1.11	0.04

Intersection Summary			
Area Type:	Other		
Cycle Length: 150			
Actuated Cycle Length: 150			
Offset: 0 (0%), Referenced to phase 4:NET and 8:SWTL, Start of FDW or yellow			
Natural Cycle: 145			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.11			
Intersection Signal Delay: 69.7		Intersection LOS: E	
Intersection Capacity Utilization 101.9%		ICU Level of Service G	
Analysis Period (min) 15			

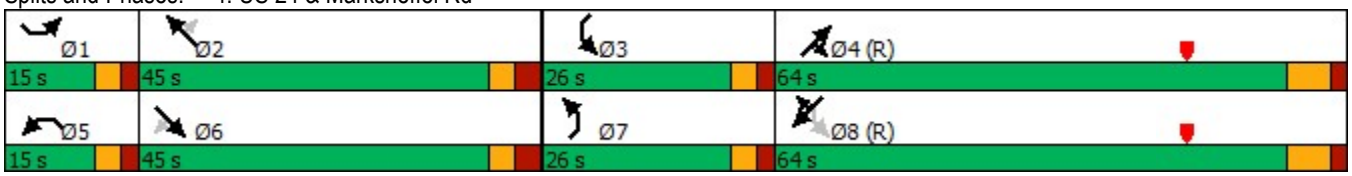
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

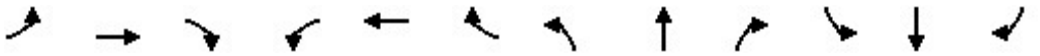
95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 4: US 24 & Marksheffel Rd



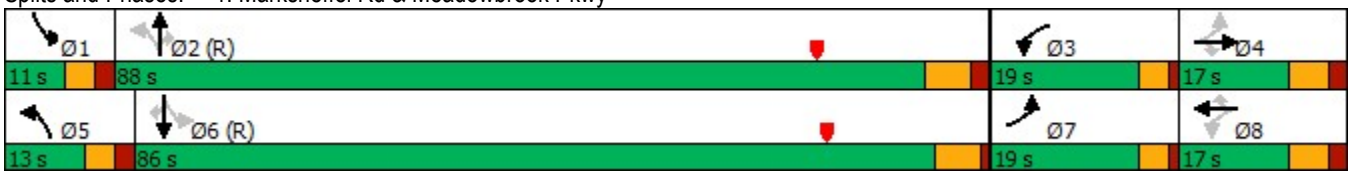
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	209	24	99	26	8	35	66	1561	94	40	689	106
Future Volume (vph)	209	24	99	26	8	35	66	1561	94	40	689	106
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	220		200	300		490	405		0	340		335
Storage Lanes	2		1	1		1	1		1	1		1
Taper Length (ft)	50			155			130			110		
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			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.438			0.739			0.339			0.090		
Satd. Flow (perm)	1583	1863	1583	1377	1863	1583	631	3539	1583	168	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			114			101			97			114
Link Speed (mph)		35			25			50			50	
Link Distance (ft)		495			926			1105			965	
Travel Time (s)		9.6			25.3			15.1			13.2	
Peak Hour Factor	0.87	0.87	0.87	0.83	0.83	0.83	0.95	0.95	0.95	0.93	0.93	0.93
Adj. Flow (vph)	240	28	114	31	10	42	69	1643	99	43	741	114
Shared Lane Traffic (%)												
Lane Group Flow (vph)	240	28	114	31	10	42	69	1643	99	43	741	114
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	L NA	Left	R NA	L NA	Left	R NA	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)		30			30			30			30	
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	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	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	10.0	11.5	11.5	10.0	11.5	11.5
Total Split (s)	19.0	17.0	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%	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	11.0	15.0	11.0	11.0	8.0	81.5	81.5	6.0	80.5	80.5
Yellow Time (s)	3.0	4.0	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	2.0	1.0	2.0	2.0	2.0	2.0	2.0	2.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	5.0	6.5	6.5	5.0	5.5	5.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	23.6	14.1	14.1	14.3	6.3	6.3	98.9	91.6	91.6	97.9	92.1	92.1
Actuated g/C Ratio	0.17	0.10	0.10	0.11	0.05	0.05	0.73	0.68	0.68	0.73	0.68	0.68
v/c Ratio	0.52	0.14	0.43	0.19	0.12	0.25	0.13	0.68	0.09	0.22	0.31	0.10
Control Delay	52.5	57.2	15.0	46.8	64.0	3.4	5.6	16.7	2.2	7.8	10.3	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	0.0
Total Delay	52.5	57.2	15.0	46.8	64.0	3.4	5.6	16.7	2.2	7.8	10.3	1.9
LOS	D	E	B	D	E	A	A	B	A	A	B	A
Approach Delay		41.6			26.9			15.5			9.1	
Approach LOS		D			C			B			A	
Queue Length 50th (ft)	94	23	0	23	9	0	15	471	1	9	142	0
Queue Length 95th (ft)	128	53	54	47	27	0	30	601	23	21	193	23
Internal Link Dist (ft)		415			846			1025			885	
Turn Bay Length (ft)	220		200	300		490	405			340		335
Base Capacity (vph)	492	200	272	266	151	221	533	2402	1105	198	2414	1116
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	0.49	0.14	0.42	0.12	0.07	0.19	0.13	0.68	0.09	0.22	0.31	0.10

Intersection Summary			
Area Type:	Other		
Cycle Length: 135			
Actuated Cycle Length: 135			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of FDW or yellow			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.68			
Intersection Signal Delay: 17.1		Intersection LOS: B	
Intersection Capacity Utilization 73.7%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 1: Marksheffel Rd & Meadowbrook Pkwy



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	40	420	380	25	1000	225	690	1090	7	140	390	30
Future Volume (vph)	40	420	380	25	1000	225	690	1090	7	140	390	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	375		0	300		315	1000		890	1000		670
Storage Lanes	1		1	1		1	2		1	1		1
Taper Length (ft)	75			95			300			300		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	3433	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.950			0.125		
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	3433	3539	1583	233	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			413			206			95			131
Link Speed (mph)		50			50			55			55	
Link Distance (ft)		1105			906			2038			1487	
Travel Time (s)		15.1			12.4			25.3			18.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	43	457	413	27	1087	245	750	1185	8	152	424	33
Shared Lane Traffic (%)												
Lane Group Flow (vph)	43	457	413	27	1087	245	750	1185	8	152	424	33
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)		12			12			44			44	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		30			30			30			30	
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	Perm	pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases			6			2			4	8		8

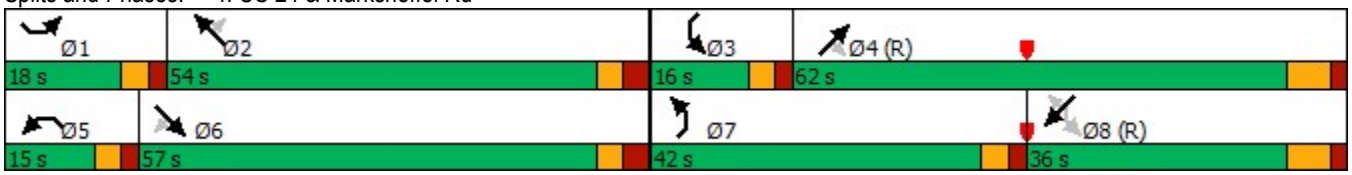
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Detector Phase	1	6	6	5	2	2	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	28.0	28.0	6.0	28.0	28.0
Minimum Split (s)	15.0	16.0	16.0	15.0	16.0	16.0	15.0	35.0	35.0	15.0	35.0	35.0
Total Split (s)	18.0	57.0	57.0	15.0	54.0	54.0	42.0	62.0	62.0	16.0	36.0	36.0
Total Split (%)	12.0%	38.0%	38.0%	10.0%	36.0%	36.0%	28.0%	41.3%	41.3%	10.7%	24.0%	24.0%
Maximum Green (s)	13.0	51.0	51.0	10.0	48.0	48.0	37.0	55.0	55.0	11.0	29.0	29.0
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	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)	5.0	6.0	6.0	5.0	6.0	6.0	5.0	7.0	7.0	5.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	9.1	54.0	54.0	7.8	50.4	50.4	35.6	59.0	59.0	46.9	34.2	34.2
Actuated g/C Ratio	0.06	0.36	0.36	0.05	0.34	0.34	0.24	0.39	0.39	0.31	0.23	0.23
v/c Ratio	0.40	0.36	0.50	0.29	0.91	0.37	0.92	0.85	0.01	0.84	0.53	0.07
Control Delay	78.1	36.6	5.2	76.0	60.0	9.1	73.1	49.6	0.0	72.2	55.3	0.3
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	78.1	36.6	5.2	76.0	60.0	9.1	73.1	49.6	0.0	72.2	55.3	0.3
LOS	E	D	A	E	E	A	E	D	A	E	E	A
Approach Delay		24.3			51.2			58.5			56.6	
Approach LOS		C			D			E			E	
Queue Length 50th (ft)	41	174	0	26	527	26	367	580	0	97	202	0
Queue Length 95th (ft)	83	228	76	60	#688	97	#471	#712	0	#225	262	0
Internal Link Dist (ft)		1025			826			1958			1407	
Turn Bay Length (ft)	375			300		315	1000		890	1000		670
Base Capacity (vph)	153	1289	839	118	1190	669	846	1391	680	186	806	461
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	0.28	0.35	0.49	0.23	0.91	0.37	0.89	0.85	0.01	0.82	0.53	0.07

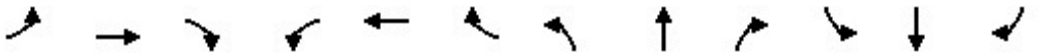
Intersection Summary			
Area Type:	Other		
Cycle Length: 150			
Actuated Cycle Length: 150			
Offset: 0 (0%), Referenced to phase 4:NET and 8:SWTL, Start of Green			
Natural Cycle: 125			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.92			
Intersection Signal Delay: 49.7		Intersection LOS: D	
Intersection Capacity Utilization 91.3%		ICU Level of Service F	
Analysis Period (min) 15			

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

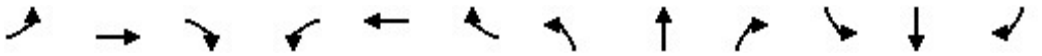
Queue shown is maximum after two cycles.

Splits and Phases: 4: US 24 & Marksheffel Rd





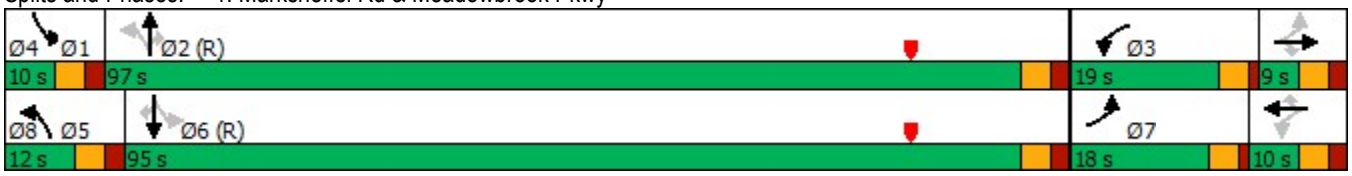
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	48	3	30	108	15	112	59	636	217	55	1493	194
Future Volume (vph)	48	3	30	108	15	112	59	636	217	55	1493	194
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	220		200	300		190	405		0	340		335
Storage Lanes	2		1	1		1	1		1	1		1
Taper Length (ft)	50			155			130			110		
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			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted				0.519			0.109			0.376		
Satd. Flow (perm)	3614	1863	1583	967	1863	1583	203	3539	1583	700	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			89			129			233			204
Link Speed (mph)		35			25			50			50	
Link Distance (ft)		495			650			1105			616	
Travel Time (s)		9.6			17.7			15.1			8.4	
Peak Hour Factor	0.78	0.78	0.78	0.87	0.87	0.87	0.93	0.93	0.93	0.95	0.95	0.95
Adj. Flow (vph)	62	4	38	124	17	129	63	684	233	58	1572	204
Shared Lane Traffic (%)												
Lane Group Flow (vph)	62	4	38	124	17	129	63	684	233	58	1572	204
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	L NA	Left	R NA	L NA	Left	R NA	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)		30			30			30			30	
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	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	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	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	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%	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	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	3.0
All-Red Time (s)	1.0	2.0	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	0.0
Total Lost Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	12.1	4.8	4.8	20.7	10.1	10.1	102.5	97.1	97.1	100.2	95.9	95.9
Actuated g/C Ratio	0.09	0.04	0.04	0.15	0.07	0.07	0.76	0.72	0.72	0.74	0.71	0.71
v/c Ratio	0.20	0.06	0.27	0.55	0.12	0.54	0.28	0.27	0.19	0.10	0.63	0.17
Control Delay	49.2	65.7	4.6	60.5	60.3	18.6	7.1	7.8	1.2	4.6	13.0	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	0.0
Total Delay	49.2	65.7	4.6	60.5	60.3	18.6	7.1	7.8	1.2	4.6	13.0	1.4
LOS	D	E	A	E	E	B	A	A	A	A	B	A
Approach Delay		33.6			40.4			6.2			11.4	
Approach LOS		C			D			A			B	
Queue Length 50th (ft)	23	3	0	97	14	0	12	114	0	11	400	0
Queue Length 95th (ft)	39	14	0	156	38	58	24	143	26	22	476	26
Internal Link Dist (ft)		415			570			1025			536	
Turn Bay Length (ft)	220		200	300		190	405			340		335
Base Capacity (vph)	477	66	142	245	139	238	236	2545	1204	561	2515	1184
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	0.13	0.06	0.27	0.51	0.12	0.54	0.27	0.27	0.19	0.10	0.63	0.17

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: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.63			
Intersection Signal Delay: 13.0		Intersection LOS: B	
Intersection Capacity Utilization 69.8%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 1: Marksheffel Rd & Meadowbrook Pkwy



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	9	1026	708	1	471	75	492	345	2	290	1375	28
Future Volume (vph)	9	1026	708	1	471	75	492	345	2	290	1375	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	375		0	300		315	1000		890	1000		670
Storage Lanes	1		1	1		1	2		1	1		1
Taper Length (ft)	75			95			300			300		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	3433	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.950			0.508		
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	3433	3539	1583	946	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			385			102			95			95
Link Speed (mph)		50			50			55			55	
Link Distance (ft)		1105			906			2038			1487	
Travel Time (s)		15.1			12.4			25.3			18.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	10	1115	770	1	512	82	535	375	2	315	1495	30
Shared Lane Traffic (%)												
Lane Group Flow (vph)	10	1115	770	1	512	82	535	375	2	315	1495	30
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)		12			12			44			44	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		30			30			30			30	
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	pm+pt	NA	Prot
Protected Phases	1	6		5	2		7	4	4	3	8	8
Permitted Phases			6			2				8		

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Detector Phase	1	6	6	5	2	2	7	4	4	3	8	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)	15.0	45.0	45.0	15.0	45.0	45.0	26.0	64.0	64.0	26.0	64.0	64.0
Total Split (%)	10.0%	30.0%	30.0%	10.0%	30.0%	30.0%	17.3%	42.7%	42.7%	17.3%	42.7%	42.7%
Maximum Green (s)	10.0	39.0	39.0	10.0	39.0	39.0	21.0	57.0	57.0	21.0	57.0	57.0
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	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	7.0	5.0	5.0	7.0	5.0	7.0	7.0	5.0	7.0	7.0
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	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	6.6	52.8	50.8	6.0	50.0	48.0	21.0	59.5	59.5	77.5	57.0	57.0
Actuated g/C Ratio	0.04	0.35	0.34	0.04	0.33	0.32	0.14	0.40	0.40	0.52	0.38	0.38
v/c Ratio	0.13	0.90	0.97	0.01	0.43	0.14	1.11	0.27	0.00	0.53	1.11	0.05
Control Delay	72.1	56.1	50.5	70.0	41.4	4.5	133.3	31.6	0.0	21.1	104.3	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	72.1	56.1	50.5	70.0	41.4	4.5	133.3	31.6	0.0	21.1	104.3	0.1
LOS	E	E	D	E	D	A	F	C	A	C	F	A
Approach Delay		53.9			36.4			91.2			88.4	
Approach LOS		D			D			F			F	
Queue Length 50th (ft)	10	529	443	1	194	0	~308	131	0	157	~878	0
Queue Length 95th (ft)	31	#776	#801	8	282	28	#427	175	0	220	#1017	0
Internal Link Dist (ft)		1025			826			1958			1407	
Turn Bay Length (ft)	375			300		315	1000		890	1000		670
Base Capacity (vph)	118	1245	790	118	1180	576	480	1403	685	619	1344	660
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	0.08	0.90	0.97	0.01	0.43	0.14	1.11	0.27	0.00	0.51	1.11	0.05

Intersection Summary			
Area Type:	Other		
Cycle Length: 150			
Actuated Cycle Length: 150			
Offset: 0 (0%), Referenced to phase 4:NET and 8:SWTL, Start of FDW or yellow			
Natural Cycle: 145			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.11			
Intersection Signal Delay: 70.5		Intersection LOS: E	
Intersection Capacity Utilization 102.7%		ICU Level of Service G	
Analysis Period (min) 15			

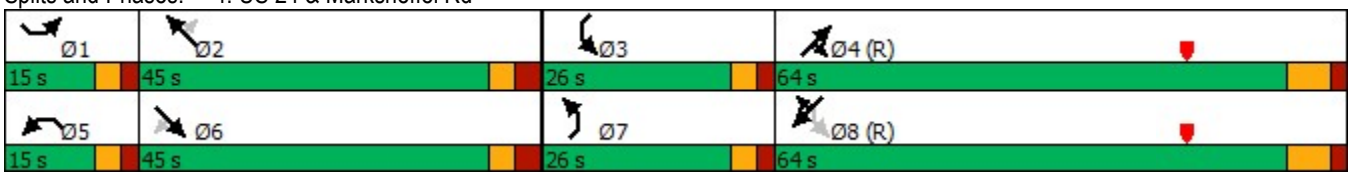
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 4: US 24 & Marksheffel Rd



Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	11	2	270	224	0
Future Vol, veh/h	0	11	2	270	224	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	85	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	12	2	293	243	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	540	243	243	0	-	0
Stage 1	243	-	-	-	-	-
Stage 2	297	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	503	796	1323	-	-	-
Stage 1	797	-	-	-	-	-
Stage 2	754	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	502	796	1323	-	-	-
Mov Cap-2 Maneuver	502	-	-	-	-	-
Stage 1	795	-	-	-	-	-
Stage 2	754	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.6	0.1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1323	-	796	-	-
HCM Lane V/C Ratio	0.002	-	0.015	-	-
HCM Control Delay (s)	7.7	-	9.6	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	0.4

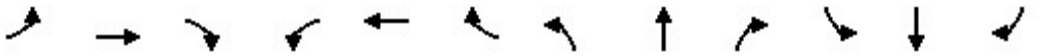
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	17	4	266	207	0
Future Vol, veh/h	1	17	4	266	207	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	120	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	18	4	289	225	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	522	225	225	0	-	0
Stage 1	225	-	-	-	-	-
Stage 2	297	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	515	814	1344	-	-	-
Stage 1	812	-	-	-	-	-
Stage 2	754	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	513	814	1344	-	-	-
Mov Cap-2 Maneuver	513	-	-	-	-	-
Stage 1	810	-	-	-	-	-
Stage 2	754	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.7	0.1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1344	-	788	-	-
HCM Lane V/C Ratio	0.003	-	0.025	-	-
HCM Control Delay (s)	7.7	-	9.7	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

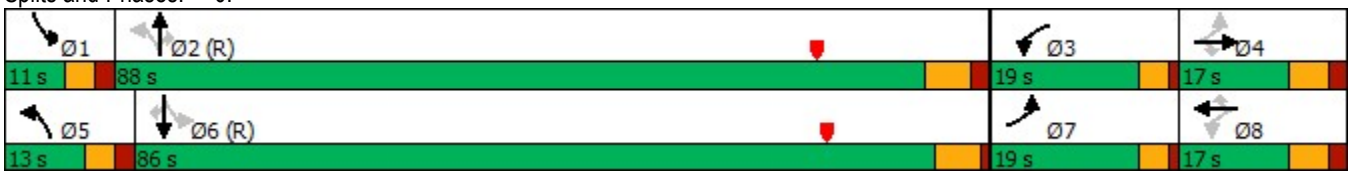
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	209	25	99	36	8	41	66	1561	111	50	689	106
Future Volume (vph)	209	25	99	36	8	41	66	1561	111	50	689	106
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	220		200	300		190	405		0	340		335
Storage Lanes	2		1	1		1	1		1	1		1
Taper Length (ft)	50			155			130			110		
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			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.435			0.769			0.340			0.091		
Satd. Flow (perm)	1572	1863	1583	1432	1863	1583	633	3539	1583	170	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			114			101			100			114
Link Speed (mph)		35			25			50			50	
Link Distance (ft)		495			571			1105			676	
Travel Time (s)		9.6			15.6			15.1			9.2	
Peak Hour Factor	0.87	0.87	0.87	0.83	0.83	0.83	0.95	0.95	0.95	0.93	0.93	0.93
Adj. Flow (vph)	240	29	114	43	10	49	69	1643	117	54	741	114
Shared Lane Traffic (%)												
Lane Group Flow (vph)	240	29	114	43	10	49	69	1643	117	54	741	114
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	L NA	Left	R NA	L NA	Left	R NA	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)		30			30			30			30	
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	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	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	10.0	11.5	11.5	10.0	11.5	11.5
Total Split (s)	19.0	17.0	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%	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	11.0	15.0	11.0	11.0	8.0	81.5	81.5	6.0	80.5	80.5
Yellow Time (s)	3.0	4.0	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	2.0	1.0	2.0	2.0	2.0	2.0	2.0	2.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	5.0	6.5	6.5	5.0	5.5	5.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	23.5	11.2	11.2	15.0	6.3	6.3	98.8	91.5	91.5	98.2	92.2	92.2
Actuated g/C Ratio	0.17	0.08	0.08	0.11	0.05	0.05	0.73	0.68	0.68	0.73	0.68	0.68
v/c Ratio	0.52	0.19	0.49	0.24	0.11	0.29	0.13	0.69	0.11	0.27	0.31	0.10
Control Delay	52.6	60.2	17.2	47.9	64.0	4.2	5.6	16.9	2.8	8.5	10.3	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	0.0
Total Delay	52.6	60.2	17.2	47.9	64.0	4.2	5.6	16.9	2.8	8.5	10.3	1.9
LOS	D	E	B	D	E	A	A	B	A	A	B	A
Approach Delay		42.7			28.5			15.5			9.1	
Approach LOS		D			C			B			A	
Queue Length 50th (ft)	94	24	0	31	9	0	15	474	5	11	142	0
Queue Length 95th (ft)	128	55	54	60	27	0	30	607	30	24	193	24
Internal Link Dist (ft)		415			491			1025			596	
Turn Bay Length (ft)	220		200	300		190	405			340		335
Base Capacity (vph)	490	160	240	269	151	221	534	2398	1105	203	2417	1117
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	0.49	0.18	0.47	0.16	0.07	0.22	0.13	0.69	0.11	0.27	0.31	0.10

Intersection Summary			
Area Type:	Other		
Cycle Length: 135			
Actuated Cycle Length: 135			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of FDW or yellow			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.69			
Intersection Signal Delay: 17.4		Intersection LOS: B	
Intersection Capacity Utilization 73.7%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 0:



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	9	1026	708	1	471	75	492	345	2	290	1375	28
Future Volume (vph)	9	1026	708	1	471	75	492	345	2	290	1375	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	375		0	300		315	1000		890	1000		670
Storage Lanes	1		1	1		1	2		1	1		1
Taper Length (ft)	75			95			300			300		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	3433	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.950			0.508		
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	3433	3539	1583	946	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			385			102			95			95
Link Speed (mph)		50			50			55			55	
Link Distance (ft)		1105			906			2038			1487	
Travel Time (s)		15.1			12.4			25.3			18.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	10	1115	770	1	512	82	535	375	2	315	1495	30
Shared Lane Traffic (%)												
Lane Group Flow (vph)	10	1115	770	1	512	82	535	375	2	315	1495	30
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)		12			12			44			44	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		30			30			30			30	
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	pm+pt	NA	Prot
Protected Phases	1	6		5	2		7	4	4	3	8	8
Permitted Phases			6			2				8		

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Detector Phase	1	6	6	5	2	2	7	4	4	3	8	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)	15.0	45.0	45.0	15.0	45.0	45.0	26.0	64.0	64.0	26.0	64.0	64.0
Total Split (%)	10.0%	30.0%	30.0%	10.0%	30.0%	30.0%	17.3%	42.7%	42.7%	17.3%	42.7%	42.7%
Maximum Green (s)	10.0	39.0	39.0	10.0	39.0	39.0	21.0	57.0	57.0	21.0	57.0	57.0
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	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	7.0	5.0	5.0	7.0	5.0	7.0	7.0	5.0	7.0	7.0
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	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	6.6	52.8	50.8	6.0	50.0	48.0	21.0	59.5	59.5	77.5	57.0	57.0
Actuated g/C Ratio	0.04	0.35	0.34	0.04	0.33	0.32	0.14	0.40	0.40	0.52	0.38	0.38
v/c Ratio	0.13	0.90	0.97	0.01	0.43	0.14	1.11	0.27	0.00	0.53	1.11	0.05
Control Delay	72.1	56.1	50.5	70.0	41.4	4.5	133.3	31.6	0.0	21.1	104.3	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	72.1	56.1	50.5	70.0	41.4	4.5	133.3	31.6	0.0	21.1	104.3	0.1
LOS	E	E	D	E	D	A	F	C	A	C	F	A
Approach Delay		53.9			36.4			91.2			88.4	
Approach LOS		D			D			F			F	
Queue Length 50th (ft)	10	529	443	1	194	0	~308	131	0	157	~878	0
Queue Length 95th (ft)	31	#776	#801	8	282	28	#427	175	0	220	#1017	0
Internal Link Dist (ft)		1025			826			1958			1407	
Turn Bay Length (ft)	375			300		315	1000		890	1000		670
Base Capacity (vph)	118	1245	790	118	1180	576	480	1403	685	619	1344	660
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	0.08	0.90	0.97	0.01	0.43	0.14	1.11	0.27	0.00	0.51	1.11	0.05

Intersection Summary			
Area Type:	Other		
Cycle Length: 150			
Actuated Cycle Length: 150			
Offset: 0 (0%), Referenced to phase 4:NET and 8:SWTL, Start of FDW or yellow			
Natural Cycle: 145			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.11			
Intersection Signal Delay: 70.5		Intersection LOS: E	
Intersection Capacity Utilization 102.7%		ICU Level of Service G	
Analysis Period (min) 15			

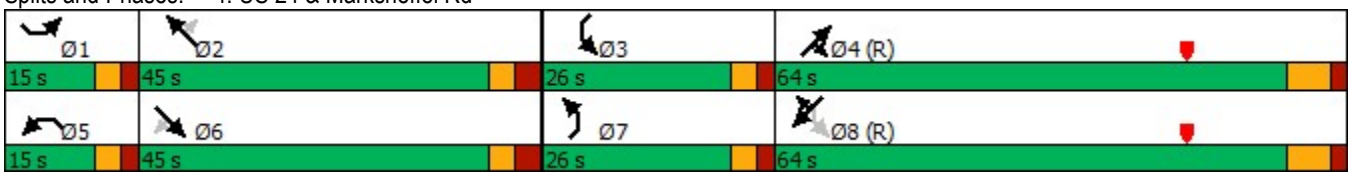
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 4: US 24 & Marksheffel Rd



Intersection	
Int Delay, s/veh	0.5

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Vol, veh/h	0	6	11	175	79	0
Future Vol, veh/h	0	6	11	175	79	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	85	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	7	12	190	86	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	300	86	86	0	-	0
Stage 1	86	-	-	-	-	-
Stage 2	214	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	691	973	1510	-	-	-
Stage 1	937	-	-	-	-	-
Stage 2	822	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	685	973	1510	-	-	-
Mov Cap-2 Maneuver	685	-	-	-	-	-
Stage 1	930	-	-	-	-	-
Stage 2	822	-	-	-	-	-

Approach	SE	NE	SW
HCM Control Delay, s	8.7	0.4	0
HCM LOS	A		

Minor Lane/Major Mvmt	NEL	NET	SELn1	SWT	SWR
Capacity (veh/h)	1510	-	973	-	-
HCM Lane V/C Ratio	0.008	-	0.007	-	-
HCM Control Delay (s)	7.4	-	8.7	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

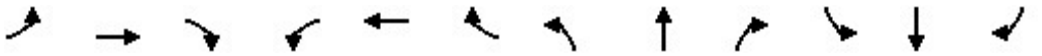
Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	10	17	158	69	1
Future Vol, veh/h	1	10	17	158	69	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	120	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	11	18	172	75	1

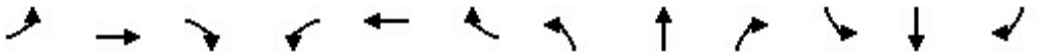
Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	284	76	76	0	-	0
Stage 1	76	-	-	-	-	-
Stage 2	208	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	706	985	1523	-	-	-
Stage 1	947	-	-	-	-	-
Stage 2	827	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	698	985	1523	-	-	-
Mov Cap-2 Maneuver	698	-	-	-	-	-
Stage 1	936	-	-	-	-	-
Stage 2	827	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.8	0.7	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1523	-	950	-	-
HCM Lane V/C Ratio	0.012	-	0.013	-	-
HCM Control Delay (s)	7.4	-	8.8	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	143	5	64	350	14	105	130	900	250	75	2000	231
Future Volume (vph)	143	5	64	350	14	105	130	900	250	75	2000	231
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	220		200	300		190	405		0	340		335
Storage Lanes	2		1	2		1	1		1	1		1
Taper Length (ft)	50			155			130			110		
Lane Util. Factor	0.97	1.00	1.00	0.97	1.00	1.00	1.00	0.95	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)	3433	1863	1583	3433	1863	1583	1770	3539	1583	1770	5085	1583
Flt Permitted	0.950			0.950			0.052			0.264		
Satd. Flow (perm)	3433	1863	1583	3433	1863	1583	97	3539	1583	492	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			89			114			263			243
Link Speed (mph)		35			25			50			50	
Link Distance (ft)		495			472			1105			786	
Travel Time (s)		9.6			12.9			15.1			10.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	155	5	70	380	15	114	137	947	263	79	2105	243
Shared Lane Traffic (%)												
Lane Group Flow (vph)	155	5	70	380	15	114	137	947	263	79	2105	243
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	L NA	Left	R NA	L NA	Left	R NA	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)		30			30			30			30	
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	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8	2		2	6		6



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	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	9.0	10.0	9.0	9.0	10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	23.0	10.0	10.0	23.0	10.0	10.0	12.0	92.0	92.0	10.0	90.0	90.0
Total Split (%)	17.0%	7.4%	7.4%	17.0%	7.4%	7.4%	8.9%	68.1%	68.1%	7.4%	66.7%	66.7%
Maximum Green (s)	19.0	5.0	5.0	19.0	5.0	5.0	7.0	87.0	87.0	5.0	85.0	85.0
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	3.0
All-Red Time (s)	1.0	2.0	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	0.0
Total Lost Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	11.4	5.2	5.2	18.9	10.6	10.6	96.2	88.8	88.8	91.8	86.6	86.6
Actuated g/C Ratio	0.08	0.04	0.04	0.14	0.08	0.08	0.71	0.66	0.66	0.68	0.64	0.64
v/c Ratio	0.53	0.07	0.48	0.79	0.10	0.50	0.86	0.41	0.23	0.21	0.65	0.22
Control Delay	65.8	65.0	18.2	69.0	59.5	18.2	51.9	19.7	9.8	7.0	16.2	1.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.8	65.0	18.2	69.0	59.5	18.2	51.9	19.7	9.8	7.0	16.2	1.6
LOS	E	E	B	E	E	B	D	B	A	A	B	A
Approach Delay		51.3			57.3			21.0			14.5	
Approach LOS		D			E			C			B	
Queue Length 50th (ft)	68	4	0	168	12	0	85	219	83	18	402	0
Queue Length 95th (ft)	103	19	34	#234	37	62	m#107	m201	m87	34	450	31
Internal Link Dist (ft)		415			392			1025			706	
Turn Bay Length (ft)	220		200	300		190	405			340		335
Base Capacity (vph)	483	71	146	483	145	229	160	2328	1131	383	3262	1102
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	0.32	0.07	0.48	0.79	0.10	0.50	0.86	0.41	0.23	0.21	0.65	0.22

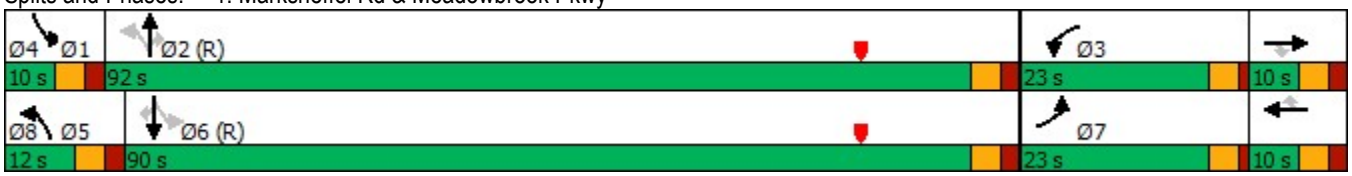
Intersection Summary			
Area Type:	Other		
Cycle Length: 135			
Actuated Cycle Length: 135			
Offset: 111 (82%), Referenced to phase 2:NBTL and 6:SBTL, Start of FDW or yellow			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.86			
Intersection Signal Delay: 23.1		Intersection LOS: C	
Intersection Capacity Utilization 75.0%		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: 1: Marksheffel Rd & Meadowbrook Pkwy



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	8	1298	1109	5	579	220	510	800	5	485	1915	85
Future Volume (vph)	8	1298	1109	5	579	220	510	800	5	485	1915	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	375		0	300		315	1000		890	1000		670
Storage Lanes	1		1	1		1	2		1	2		1
Taper Length (ft)	75			95			300			300		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.91	1.00	0.97	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)	1770	3539	1583	1770	3539	1583	3433	5085	1583	3433	5085	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	3433	5085	1583	3433	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			247			239			105			105
Link Speed (mph)		50			50			55			55	
Link Distance (ft)		1105			906			2038			1487	
Travel Time (s)		15.1			12.4			25.3			18.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	9	1411	1205	5	629	239	554	870	5	527	2082	92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	9	1411	1205	5	629	239	554	870	5	527	2082	92
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)		12			12			44			44	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		30			30			30			30	
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	1	6		5	2		7	4	4	3	8	8
Permitted Phases			6			2						

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Detector Phase	1	6	6	5	2	2	7	4	4	3	8	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	55.0	55.0	8.0	55.0	55.0	17.0	55.0	55.0	17.0	55.0	55.0
Total Split (%)	5.9%	40.7%	40.7%	5.9%	40.7%	40.7%	12.6%	40.7%	40.7%	12.6%	40.7%	40.7%
Maximum Green (s)	3.0	49.0	49.0	3.0	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	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	7.0	5.0	5.0	7.0	5.0	7.0	7.0	5.0	7.0	7.0
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	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	3.0	56.4	54.4	3.0	56.4	54.4	12.0	48.0	48.0	12.0	48.0	48.0
Actuated g/C Ratio	0.02	0.42	0.40	0.02	0.42	0.40	0.09	0.36	0.36	0.09	0.36	0.36
v/c Ratio	0.23	0.95	1.54	0.13	0.43	0.31	1.82	0.48	0.01	1.73	1.15	0.15
Control Delay	98.6	42.4	267.2	71.8	29.4	4.4	413.5	34.9	0.0	376.2	114.7	4.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	98.6	42.4	267.2	71.8	29.4	4.4	413.5	34.9	0.0	376.2	114.7	4.4
LOS	F	D	F	E	C	A	F	C	A	F	F	A
Approach Delay		145.8			22.8			181.6			162.0	
Approach LOS		F			C			F			F	
Queue Length 50th (ft)	8	628	~1427	4	198	0	~376	216	0	~351	~785	0
Queue Length 95th (ft)	m13	#873	#1772	20	278	56	#493	259	0	#466	#879	30
Internal Link Dist (ft)		1025			826			1958			1407	
Turn Bay Length (ft)	375			300		315	1000		890	1000		670
Base Capacity (vph)	39	1478	785	39	1478	780	305	1808	630	305	1808	630
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	0.23	0.95	1.54	0.13	0.43	0.31	1.82	0.48	0.01	1.73	1.15	0.15

Intersection Summary			
Area Type:	Other		
Cycle Length: 135			
Actuated Cycle Length: 135			
Offset: 32 (24%), Referenced to phase 4:NET and 8:SWT, Start of FDW or yellow			
Natural Cycle: 145			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.82			
Intersection Signal Delay: 144.2		Intersection LOS: F	
Intersection Capacity Utilization 126.5%		ICU Level of Service H	
Analysis Period (min) 15			

~ Volume exceeds capacity, queue is theoretically infinite.

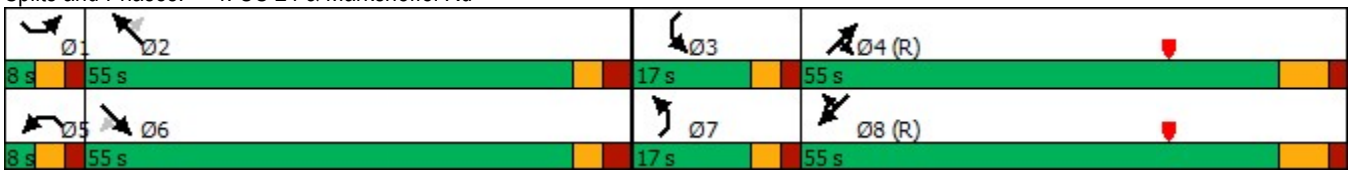
Queue shown is maximum after two cycles.

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: 4: US 24 & Marksheffel Rd



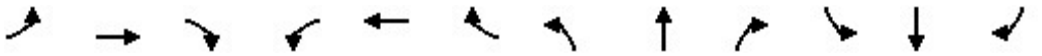
Intersection	
Int Delay, s/veh	0.9

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Vol, veh/h	43	2	250	70	4	426
Future Vol, veh/h	43	2	250	70	4	426
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	120	70	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	47	2	272	76	4	463

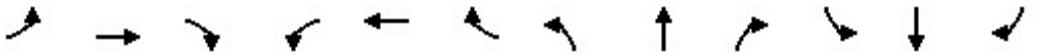
Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	743	272	0	0	348	0
Stage 1	272	-	-	-	-	-
Stage 2	471	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	383	767	-	-	1211	-
Stage 1	774	-	-	-	-	-
Stage 2	628	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	382	767	-	-	1211	-
Mov Cap-2 Maneuver	382	-	-	-	-	-
Stage 1	774	-	-	-	-	-
Stage 2	626	-	-	-	-	-

Approach	NW	NE	SW
HCM Control Delay, s	15.4	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NET	NER	NWLn1	NWLn2	SWL	SWT
Capacity (veh/h)	-	-	382	767	1211	-
HCM Lane V/C Ratio	-	-	0.122	0.003	0.004	-
HCM Control Delay (s)	-	-	15.7	9.7	8	-
HCM Lane LOS	-	-	C	A	A	-
HCM 95th %tile Q(veh)	-	-	0.4	0	0	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	417	30	171	190	25	125	116	1850	230	120	1200	336
Future Volume (vph)	417	30	171	190	25	125	116	1850	230	120	1200	336
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	220		200	300		190	405		0	340		335
Storage Lanes	2		1	2		1	1		1	1		1
Taper Length (ft)	50			155			130			110		
Lane Util. Factor	0.97	1.00	1.00	0.97	1.00	1.00	1.00	0.95	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)	3433	1863	1583	3433	1863	1583	1770	3539	1583	1770	5085	1583
Flt Permitted	0.950			0.950			0.178			0.050		
Satd. Flow (perm)	3433	1863	1583	3433	1863	1583	332	3539	1583	93	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			149			101			157			354
Link Speed (mph)		35			25			50			50	
Link Distance (ft)		495			482			1105			728	
Travel Time (s)		9.6			13.1			15.1			9.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	453	33	186	207	27	136	122	1947	242	126	1263	354
Shared Lane Traffic (%)												
Lane Group Flow (vph)	453	33	186	207	27	136	122	1947	242	126	1263	354
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	L NA	Left	R NA	L NA	Left	R NA	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)		30			30			30			30	
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	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8	2		2	6		6



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	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	10.0	11.5	11.5	10.0	11.5	11.5
Total Split (s)	26.0	14.0	14.0	25.0	13.0	13.0	11.0	82.0	82.0	14.0	85.0	85.0
Total Split (%)	19.3%	10.4%	10.4%	18.5%	9.6%	9.6%	8.1%	60.7%	60.7%	10.4%	63.0%	63.0%
Maximum Green (s)	22.0	8.0	8.0	21.0	7.0	7.0	6.0	75.5	75.5	9.0	79.5	79.5
Yellow Time (s)	3.0	4.0	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	2.0	1.0	2.0	2.0	2.0	2.0	2.0	2.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	5.0	6.5	6.5	5.0	5.5	5.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	21.0	14.3	14.3	13.4	6.7	6.7	85.1	77.2	77.2	89.5	80.4	80.4
Actuated g/C Ratio	0.16	0.11	0.11	0.10	0.05	0.05	0.63	0.57	0.57	0.66	0.60	0.60
v/c Ratio	0.85	0.17	0.62	0.61	0.29	0.78	0.44	0.96	0.25	0.75	0.42	0.33
Control Delay	71.1	58.0	24.4	65.6	70.0	48.5	10.8	25.3	7.3	52.7	15.3	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	0.0
Total Delay	71.1	58.0	24.4	65.6	70.0	48.5	10.8	25.3	7.3	52.7	15.3	2.0
LOS	E	E	C	E	E	D	B	C	A	D	B	A
Approach Delay		57.5			59.6			22.6			15.3	
Approach LOS		E			E			C			B	
Queue Length 50th (ft)	200	27	30	91	23	30	38	527	42	57	211	0
Queue Length 95th (ft)	#273	63	113	129	56	#135	m33	m286	m28	#154	245	40
Internal Link Dist (ft)		415			402			1025			648	
Turn Bay Length (ft)	220		200	300		190	405			340		335
Base Capacity (vph)	559	196	300	534	96	177	277	2023	972	174	3027	1085
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	0.81	0.17	0.62	0.39	0.28	0.77	0.44	0.96	0.25	0.72	0.42	0.33

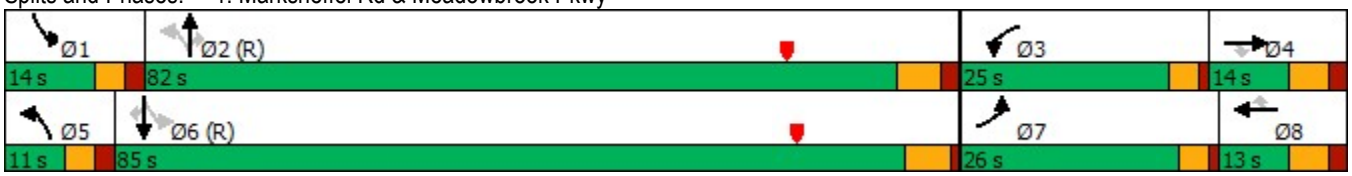
Intersection Summary			
Area Type:	Other		
Cycle Length: 135			
Actuated Cycle Length: 135			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of FDW or yellow			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.96			
Intersection Signal Delay: 27.4		Intersection LOS: C	
Intersection Capacity Utilization 90.9%		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: Marksheffel Rd & Meadowbrook Pkwy



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	54	898	578	35	1450	435	903	1685	15	205	900	103
Future Volume (vph)	54	898	578	35	1450	435	903	1685	15	205	900	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	375		0	300		315	1000		890	1000		670
Storage Lanes	1		1	1		1	2		1	1		1
Taper Length (ft)	75			95			300			300		
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)	1770	3539	1583	1770	3539	1583	3433	5085	1583	1770	5085	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	3433	5085	1583	1770	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			538			155			105			145
Link Speed (mph)		50			50			55			55	
Link Distance (ft)		1105			906			2038			1487	
Travel Time (s)		15.1			12.4			25.3			18.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	59	976	628	38	1576	473	982	1832	16	223	978	112
Shared Lane Traffic (%)												
Lane Group Flow (vph)	59	976	628	38	1576	473	982	1832	16	223	978	112
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)		12			12			44			44	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		30			30			30			30	
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	Perm	Prot	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases			6			2			4			8

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Detector Phase	1	6	6	5	2	2	7	4	4	3	8	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	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)	5.0	6.0	6.0	5.0	6.0	6.0	5.0	7.0	7.0	5.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	5.0	47.2	47.2	6.0	46.0	46.0	34.0	53.0	53.0	8.0	27.0	27.0
Actuated g/C Ratio	0.04	0.35	0.35	0.04	0.34	0.34	0.25	0.39	0.39	0.06	0.20	0.20
v/c Ratio	0.91	0.79	0.70	0.49	1.31	0.74	1.14	0.92	0.02	2.14	0.96	0.26
Control Delay	160.2	36.0	6.8	83.8	181.4	33.7	120.9	47.4	0.1	574.2	73.7	4.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	160.2	36.0	6.8	83.8	181.4	33.7	120.9	47.4	0.1	574.2	73.7	4.4
LOS	F	D	A	F	F	C	F	D	A	F	E	A
Approach Delay		29.4			146.2			72.6			152.8	
Approach LOS		C			F			E			F	
Queue Length 50th (ft)	55	427	46	33	~932	252	~515	553	0	~310	314	0
Queue Length 95th (ft)	m#145	513	69	#76	#1072	392	#647	624	0	#478	#407	27
Internal Link Dist (ft)		1025			826			1958			1407	
Turn Bay Length (ft)	375			300		315	1000		890	1000		670
Base Capacity (vph)	65	1237	903	78	1205	641	864	1996	685	104	1017	432
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	0.91	0.79	0.70	0.49	1.31	0.74	1.14	0.92	0.02	2.14	0.96	0.26

Intersection Summary	
Area Type:	Other
Cycle Length: 135	
Actuated Cycle Length: 135	
Offset: 32 (24%), Referenced to phase 4:NET and 8:SWT, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 2.14	
Intersection Signal Delay: 96.3	Intersection LOS: F
Intersection Capacity Utilization 109.0%	ICU Level of Service G
Analysis Period (min) 15	

~ Volume exceeds capacity, queue is theoretically infinite.

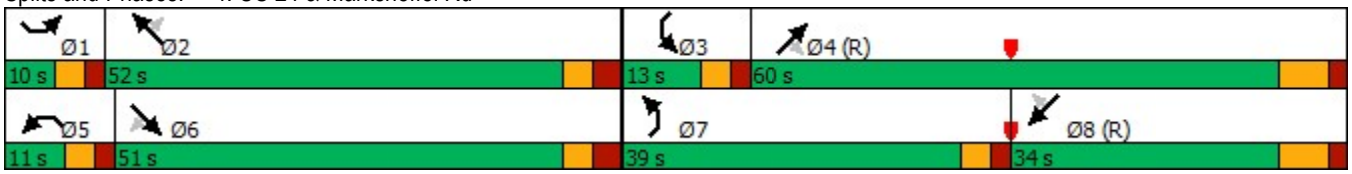
Queue shown is maximum after two cycles.

\# 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: 4: US 24 & Marksheffel Rd



Intersection	
Int Delay, s/veh	4.3

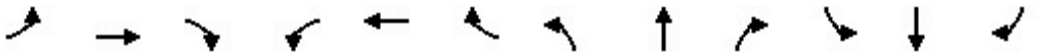
Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Traffic Vol, veh/h	156	224	6	113	227	14
Future Vol, veh/h	156	224	6	113	227	14
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	120	70	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	170	243	7	123	247	15

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	413	0	307	170
Stage 1	-	-	-	-	170	-
Stage 2	-	-	-	-	137	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1146	-	685	874
Stage 1	-	-	-	-	860	-
Stage 2	-	-	-	-	890	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1146	-	681	874
Mov Cap-2 Maneuver	-	-	-	-	681	-
Stage 1	-	-	-	-	860	-
Stage 2	-	-	-	-	885	-

Approach	EB	WB	NW
HCM Control Delay, s	0	0.4	13.1
HCM LOS			B

Minor Lane/Major Mvmt	NWLn1	NWLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	681	874	-	-	1146	-
HCM Lane V/C Ratio	0.362	0.017	-	-	0.006	-
HCM Control Delay (s)	13.3	9.2	-	-	8.2	-
HCM Lane LOS	B	A	-	-	A	-
HCM 95th %tile Q(veh)	1.7	0.1	-	-	0	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	143	5	64	365	15	115	130	900	256	78	2000	231
Future Volume (vph)	143	5	64	365	15	115	130	900	256	78	2000	231
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	220		200	300		190	405		0	340		335
Storage Lanes	2		1	2		1	1		1	1		1
Taper Length (ft)	50			155			130			110		
Lane Util. Factor	0.97	1.00	1.00	0.97	1.00	1.00	1.00	0.95	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)	3433	1863	1583	3433	1863	1583	1770	3539	1583	1770	5085	1583
Flt Permitted	0.950			0.950			0.062			0.232		
Satd. Flow (perm)	3433	1863	1583	3433	1863	1583	115	3539	1583	432	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			129			129			269			243
Link Speed (mph)		35			25			50			50	
Link Distance (ft)		495			582			1105			696	
Travel Time (s)		9.6			15.9			15.1			9.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	155	5	70	397	16	125	137	947	269	82	2105	243
Shared Lane Traffic (%)												
Lane Group Flow (vph)	155	5	70	397	16	125	137	947	269	82	2105	243
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	L NA	Left	R NA	L NA	Left	R NA	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)		30			30			30			30	
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	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8	2		2	6		6

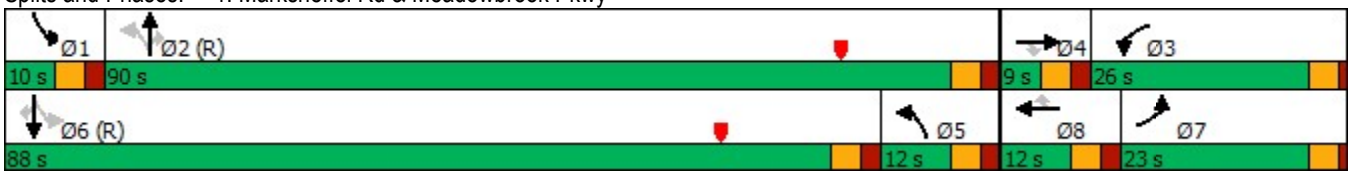


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	9.0	9.0	10.0	9.0	9.0	10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	23.0	9.0	9.0	26.0	12.0	12.0	12.0	90.0	90.0	10.0	88.0	88.0
Total Split (%)	17.0%	6.7%	6.7%	19.3%	8.9%	8.9%	8.9%	66.7%	66.7%	7.4%	65.2%	65.2%
Maximum Green (s)	19.0	4.0	4.0	22.0	7.0	7.0	7.0	85.0	85.0	5.0	83.0	83.0
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	3.0
All-Red Time (s)	1.0	2.0	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	0.0
Total Lost Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	16.3	4.0	4.0	20.4	6.4	6.4	87.5	87.5	87.5	86.4	86.4	86.4
Actuated g/C Ratio	0.12	0.03	0.03	0.15	0.05	0.05	0.65	0.65	0.65	0.64	0.64	0.64
v/c Ratio	0.38	0.09	0.41	0.76	0.18	0.63	0.86	0.41	0.24	0.25	0.65	0.22
Control Delay	56.5	67.4	7.0	65.3	66.3	24.2	34.5	4.0	0.2	11.9	16.6	1.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.5	67.4	7.0	65.3	66.3	24.2	34.5	4.0	0.2	11.9	16.6	1.7
LOS	E	E	A	E	E	C	C	A	A	B	B	A
Approach Delay		41.7			55.8			6.4			15.0	
Approach LOS		D			E			A			B	
Queue Length 50th (ft)	64	4	0	174	14	0	23	31	0	27	408	0
Queue Length 95th (ft)	99	19	0	228	39	61	m47	m23	m0	50	471	32
Internal Link Dist (ft)		415			502			1025			616	
Turn Bay Length (ft)	220		200	300		190	405			340		335
Base Capacity (vph)	483	55	172	559	96	204	160	2293	1120	334	3252	1099
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	0.32	0.09	0.41	0.71	0.17	0.61	0.86	0.41	0.24	0.25	0.65	0.22

Intersection Summary			
Area Type:	Other		
Cycle Length: 135			
Actuated Cycle Length: 135			
Offset: 120 (89%), Referenced to phase 2:NBTL and 6:SBTL, Start of FDW or yellow			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.86			
Intersection Signal Delay: 18.6		Intersection LOS: B	
Intersection Capacity Utilization 75.4%		ICU Level of Service D	
Analysis Period (min) 15			

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

Splits and Phases: 1: Marksheffel Rd & Meadowbrook Pkwy



Intersection	
Int Delay, s/veh	1.2

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	0	0	11	43	0	2	2	254	70	4	443	0
Future Vol, veh/h	0	0	11	43	0	2	2	254	70	4	443	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	85	-	120	70	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	12	47	0	2	2	276	76	4	482	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	809	846	482	776	770	276	482	0	0	352	0	0
Stage 1	490	490	-	280	280	-	-	-	-	-	-	-
Stage 2	319	356	-	496	490	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	299	299	584	315	331	763	1081	-	-	1207	-	-
Stage 1	560	549	-	727	679	-	-	-	-	-	-	-
Stage 2	693	629	-	556	549	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	297	298	584	307	329	763	1081	-	-	1207	-	-
Mov Cap-2 Maneuver	297	298	-	307	329	-	-	-	-	-	-	-
Stage 1	559	547	-	726	678	-	-	-	-	-	-	-
Stage 2	690	628	-	543	547	-	-	-	-	-	-	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	11.3	18.4	0.1	0.1
HCM LOS	B	C		

Minor Lane/Major Mvmt	NEL	NET	NER	NWLn1	NWLn2	SELn1	SWL	SWT	SWR
Capacity (veh/h)	1081	-	-	307	763	584	1207	-	-
HCM Lane V/C Ratio	0.002	-	-	0.152	0.003	0.02	0.004	-	-
HCM Control Delay (s)	8.3	-	-	18.8	9.7	11.3	8	-	-
HCM Lane LOS	A	-	-	C	A	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.5	0	0.1	0	-	-

Intersection	
Int Delay, s/veh	0.3

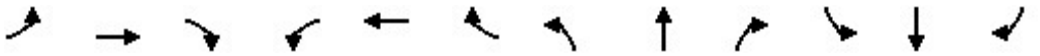
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	17	4	252	430	0
Future Vol, veh/h	1	17	4	252	430	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	120	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	18	4	274	467	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	749	467	467	0	-	0
Stage 1	467	-	-	-	-	-
Stage 2	282	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	379	596	1094	-	-	-
Stage 1	631	-	-	-	-	-
Stage 2	766	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	377	596	1094	-	-	-
Mov Cap-2 Maneuver	377	-	-	-	-	-
Stage 1	628	-	-	-	-	-
Stage 2	766	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.5	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1094	-	577	-	-
HCM Lane V/C Ratio	0.004	-	0.034	-	-
HCM Control Delay (s)	8.3	-	11.5	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	417	31	171	200	25	131	116	1850	247	130	1200	336
Future Volume (vph)	417	31	171	200	25	131	116	1850	247	130	1200	336
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	220		200	300		190	405		0	340		335
Storage Lanes	2		1	2		1	1		1	1		1
Taper Length (ft)	50			155			130			110		
Lane Util. Factor	0.97	1.00	1.00	0.97	1.00	1.00	1.00	0.95	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)	3433	1863	1583	3433	1863	1583	1770	3539	1583	1770	5085	1583
Flt Permitted	0.950			0.950			0.208			0.057		
Satd. Flow (perm)	3433	1863	1583	3433	1863	1583	387	3539	1583	106	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			194			194			158			354
Link Speed (mph)		35			25			50			50	
Link Distance (ft)		495			585			1105			756	
Travel Time (s)		9.6			16.0			15.1			10.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	453	34	186	217	27	142	122	1947	260	137	1263	354
Shared Lane Traffic (%)												
Lane Group Flow (vph)	453	34	186	217	27	142	122	1947	260	137	1263	354
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	L NA	Left	R NA	L NA	Left	R NA	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)		30			30			30			30	
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	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8	2		2	6		6



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	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	10.0	11.5	11.5	10.0	11.5	11.5
Total Split (s)	27.0	14.0	14.0	25.0	12.0	12.0	11.0	78.0	78.0	18.0	85.0	85.0
Total Split (%)	20.0%	10.4%	10.4%	18.5%	8.9%	8.9%	8.1%	57.8%	57.8%	13.3%	63.0%	63.0%
Maximum Green (s)	23.0	8.0	8.0	21.0	6.0	6.0	6.0	71.5	71.5	13.0	79.5	79.5
Yellow Time (s)	3.0	4.0	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	2.0	1.0	2.0	2.0	2.0	2.0	2.0	2.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	5.0	6.5	6.5	5.0	5.5	5.5
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	21.5	7.2	7.2	20.2	6.0	6.0	76.9	75.4	75.4	81.5	81.0	81.0
Actuated g/C Ratio	0.16	0.05	0.05	0.15	0.04	0.04	0.57	0.56	0.56	0.60	0.60	0.60
v/c Ratio	0.83	0.34	0.69	0.42	0.33	0.56	0.43	0.99	0.27	0.70	0.41	0.32
Control Delay	68.7	70.8	21.4	54.6	73.6	10.9	5.7	15.5	0.7	45.4	15.0	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	0.0
Total Delay	68.7	70.8	21.4	54.6	73.6	10.9	5.7	15.5	0.7	45.4	15.0	2.0
LOS	E	E	C	D	E	B	A	B	A	D	B	A
Approach Delay		55.7			39.9			13.3			14.8	
Approach LOS		E			D			B			B	
Queue Length 50th (ft)	197	29	0	89	23	0	10	~726	9	67	211	0
Queue Length 95th (ft)	259	67	69	130	57	22	m12	m470	m10	138	245	40
Internal Link Dist (ft)		415			505			1025			676	
Turn Bay Length (ft)	220		200	300		190	405			340		335
Base Capacity (vph)	584	110	276	534	83	256	281	1976	953	224	3052	1091
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	0.78	0.31	0.67	0.41	0.33	0.55	0.43	0.99	0.27	0.61	0.41	0.32

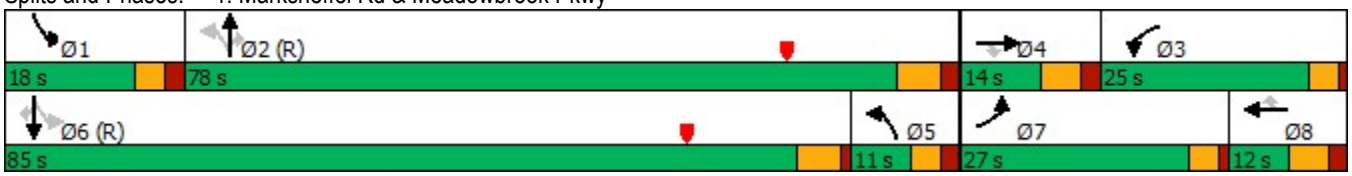
Intersection Summary			
Area Type:	Other		
Cycle Length: 135			
Actuated Cycle Length: 135			
Offset: 18 (13%), Referenced to phase 2:NBTL and 6:SBTL, Start of FDW or yellow			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.99			
Intersection Signal Delay: 21.4		Intersection LOS: C	
Intersection Capacity Utilization 91.5%		ICU Level of Service F	
Analysis Period (min) 15			

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Splits and Phases: 1: Marksheffel Rd & Meadowbrook Pkwy



Intersection	
Int Delay, s/veh	4.9

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	0	0	6	227	0	14	11	173	224	6	123	0
Future Vol, veh/h	0	0	6	227	0	14	11	173	224	6	123	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	85	-	120	70	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	7	247	0	15	12	188	243	7	134	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	489	603	134	364	360	188	134	0	0	431	0	0
Stage 1	148	148	-	212	212	-	-	-	-	-	-	-
Stage 2	341	455	-	152	148	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	489	413	915	592	567	854	1451	-	-	1129	-	-
Stage 1	855	775	-	790	727	-	-	-	-	-	-	-
Stage 2	674	569	-	850	775	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	475	407	915	581	559	854	1451	-	-	1129	-	-
Mov Cap-2 Maneuver	475	407	-	581	559	-	-	-	-	-	-	-
Stage 1	848	770	-	784	721	-	-	-	-	-	-	-
Stage 2	657	564	-	839	770	-	-	-	-	-	-	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	9	15.3	0.2	0.4
HCM LOS	A	C		

Minor Lane/Major Mvmt	NEL	NET	NER	NWLn1	NWLn2	SELn1	SWL	SWT	SWR
Capacity (veh/h)	1451	-	-	581	854	915	1129	-	-
HCM Lane V/C Ratio	0.008	-	-	0.425	0.018	0.007	0.006	-	-
HCM Control Delay (s)	7.5	-	-	15.7	9.3	9	8.2	-	-
HCM Lane LOS	A	-	-	C	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	2.1	0.1	0	0	-	-

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	10	17	170	119	1
Future Vol, veh/h	1	10	17	170	119	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	120	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	11	18	185	129	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	351	130	130	0	-	0
Stage 1	130	-	-	-	-	-
Stage 2	221	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	646	920	1455	-	-	-
Stage 1	896	-	-	-	-	-
Stage 2	816	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	638	920	1455	-	-	-
Mov Cap-2 Maneuver	638	-	-	-	-	-
Stage 1	885	-	-	-	-	-
Stage 2	816	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.1	0.7	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1455	-	884	-	-
HCM Lane V/C Ratio	0.013	-	0.014	-	-
HCM Control Delay (s)	7.5	-	9.1	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Final Plat

TRANSPORTATION
CONSULTANTS, INC.

VILLAS AT CLAREMONT RANCH

A REPLAT OF TRACTS A, AND G OF "CLAREMONT RANCH FILING NO. 7", BEING A PARCEL OF LAND IN A PORTION OF THE SOUTHWEST (SW 1/4) OF SECTION 4, TOWNSHIP 14 SOUTH, RANGE 65 WEST OF THE SIXTH PRINCIPAL MERIDIAN, EL PASO COUNTY, COLORADO

KNOW ALL BY THESE PRESENTS:

THAT CHEROKEE METROPOLITAN DISTRICT (PARCEL A), AND PHI REAL ESTATE SERVICES, LLC, A COLORADO LIMITED LIABILITY COMPANY, (PARCEL B), BEING ALL THE OWNERS OF THE FOLLOWING DESCRIBED TRACTS;

LEGAL DESCRIPTION:

PARCEL A
TRACT A, "CLAREMONT RANCH FILING NO. 7" AS RECORDED UNDER RECEPTION NO. 205071100 IN THE EL PASO COUNTY RECORDS.

PARCEL B
TRACT G, "CLAREMONT RANCH FILING NO. 7" AS RECORDED UNDER RECEPTION NO. 205071100 IN THE EL PASO COUNTY RECORDS.

SAID PARCELS CONTAINING A COMBINED CALCULATED AREA OF 442,943 SQARE FEET (10.169 ACRES, MORE OR LESS).

DEDICATION:

THE UNDERSIGNED, BEING ALL THE OWNERS, MORTGAGEES, BENEFICIARIES OF DEEDS OF TRUST AND HOLDERS OF OTHER INTERESTS IN THE LAND DESCRIBED HEREIN, HAVE LAID OUT, SUBDIVIDED, AND PLATTED SAID LANDS INTO LOTS, TRACTS, STREETS, AND EASEMENTS AS SHOWN HEREON UNDER THE NAME AND SUBDIVISION OF "VILLAS AT CLAREMONT RANCH". ALL PUBLIC IMPROVEMENTS SO PLATTED ARE HEREBY DEDICATED TO PUBLIC USE AND SAID OWNERS DO HEREBY COVENANT AND AGREE THAT THE PUBLIC IMPROVEMENTS WILL BE CONSTRUCTED TO EL PASO COUNTY STANDARDS AND THAT PROPER DRAINAGE AND EROSION CONTROL FOR SAME WILL BE PROVIDED AT SAID OWNERS' EXPENSE, ALL TO THE SATISFACTION OF THE BOARD OF COUNTY COMMISSIONERS OF EL PASO COUNTY, COLORADO. UPON ACCEPTANCE BY RESOLUTION, ALL PUBLIC IMPROVEMENTS SO DEDICATED WILL BECOME MATTERS OF MAINTENANCE BY EL PASO COUNTY, COLORADO. THE UTILITY EASEMENTS SHOWN HEREON ARE HEREBY DEDICATED FOR PUBLIC UTILITIES AND COMMUNICATION SYSTEMS AND OTHER PURPOSES AS SHOWN HEREON. THE ENTITIES RESPONSIBLE FOR PROVIDING THE SERVICES FOR WHICH THE EASEMENTS ARE ESTABLISHED ARE HEREBY GRANTED THE PERPETUAL RIGHT OF INGRESS AND EGRESS FROM AND TO ADJACENT PROPERTIES FOR INSTALLATION, MAINTENANCE, AND REPLACEMENT OF UTILITY LINES AND RELATED FACILITIES.

_____
BY: AMY LATHEM DATE
TITLE: GENERAL MANAGER, CHEROKEE METROPOLITAN DISTRICT

STATE OF COLORADO)
) SS
COUNTY OF _____)

ACKNOWLEDGED BEFORE ME THIS THIS ____ DAY OF _____, 2022, BY AMY LATHEN, GENERAL MANAGER OF CHEROKEE METROPOLITAN DISTRICT.

WITNESS MY HAND AND OFFICIAL SEAL:
MY COMMISSION EXPIRES: _____
NOTARY PUBLIC: _____

_____
BY: PAUL BROUSSARD DATE
TITLE: DIRECTOR OF OPERATIONS, PHI REAL ESTATE SERVICES, LLC
A COLORADO LIMITED LIABILITY COMPANY

STATE OF COLORADO)
) SS
COUNTY OF _____)

ACKNOWLEDGED BEFORE ME THIS THIS ____ DAY OF _____, 2022, BY PAUL BROUSSARD, DIRECTOR OF OPERATIONS, PHI REAL ESTATE SERVICES, LLC, A COLORADO LIMITED LIABILITY COMPANY.

WITNESS MY HAND AND OFFICIAL SEAL:
MY COMMISSION EXPIRES: _____
NOTARY PUBLIC: _____

EASEMENTS:

FORMER TRACT A, "CLAREMONT RANCH FILING NO. 7" IS DEDICATED AS A PUBLIC UTILITY EASEMENT AND DRAINAGE EASEMENT IN ITS ENTIRETY. ADDITIONAL PUBLIC UTILITY AND DRAINAGE EASEMENTS ARE AS SHOWN ON SHEET 5 OF 5.

TRACT TABLE

TRACT	SIZE (ACRES)	USE	OWNER	MAINT.
A	1.572	PRIVATE ROADS/PUBLIC UTILITY EASEMENTS/ DRAINAGE EASEMENTS	VCRHOA	VCRHOA
B	0.426	COMMON AREAS/OPEN SPACE/ EASEMENTS	VCRHOA	VCRHOA
C	0.441	COMMON AREAS/OPEN SPACE/ EASEMENTS	VCRHOA	VCRHOA
D	0.513	COMMON AREAS/OPEN SPACE/ EASEMENTS	VCRHOA	VCRHOA
E	3.930	OPEN SPACE/EASEMENTS	VCRHOA	VCRHOA
F	0.695	DETENTION POND/EASEMENTS	VCRHOA	VCRHOA
TOTAL	7.577	(TOTAL ACREAGE OF ALL TRACTS)		

*VCRHOA = VILLAS AT CLAREMONT RANCH HOMEOWNERS ASSOCIATION
ALL TRACTS ARE TO BE CONVEYED BY SEPARATE INSTRUMENT.

GENERAL NOTES:

1. THIS PLAT WAS PREPARED BASED ON A FIELD SURVEY OF THE PROPERTY SHOWN HEREON BY M&S CIVIL CONSULTANTS, INC. ON SEPTEMBER 29. 2017. THE BASIS OF BEARINGS IS THE EASTERLY LINE OF TRACT I, "CLAREMONT RANCH FILING NO. 7" AS RECORDED UNDER RECEPTION NO. 2005071100 IN THE EL PASO COUNTY, COLORADO RECORDS. SAID LINE WAS FOUND TO BE MONUMENTED AS SHOWN HEREON AND IS ASSUMED TO BEAR N00°07'48"E, 814.58 FEET. THE UNIT OF MEASUREMENT FOR ALL DISTANCES IS THE U.S. SURVEY FOOT.
2. THE CURRENT FLOOD INSURANCE RATE MAP (FIRM) FOR THE AREA SHOWN BY THIS PLAT HAS BEEN REVIEWED. A SMALL AREA IN THE NORTHWEST CORNER LIES WITHIN ZONE AE (FLOODWAY) AS SHOWN HEREON. THE REMAINDER OF THE PROPERTY LIES WITHIN ZONE X (AREA SUBJECT TO MINIMAL FLOOD RISK)
3. A TITLE REPORT ISSUED BY COMMONWEALTH LAND TITLE INSURANCE COMPANY, NUMBER H0670271-071-APL-SSC DATED JULY 30, 2022 AT 8:00 A.M. HAS BEEN EXAMINED . THE FOLLOWING EXCEPTIONS AS THEY RELATE TO THE PROPERTY BEING REPLATTED HEREON, AS NUMBERED THEREIN, ARE HEREBY NOTED.

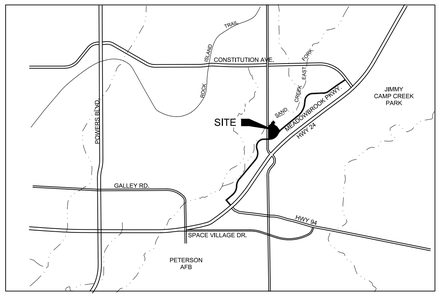
   1-7. NOT SURVEY RELATED, NOTHING TO SHOW

   8. THE RIGHT OF PROPRIETOR OF A VEIN OR LODE TO EXTRACT OR REMOVE HIS ORE SHOULD THE SAME BE FOUND TO PENETRATE OR INTERSECT THE PREMISES THEREBY GRANTED AS RESERVED IN UNITED STATES PATENT RECORDED NOVEMBER 16, 1886 IN BOOK 72 AT PAGE 90; AND ANY AND ALL ASSIGNMENTS THEREOF OR INTEREST THEREIN. (NOTHING TO SHOW)
   9. ANY ASSESSMENT OR LIEN OF CHEROKEE METROPOLITAN DISTRICT, AS DISCLOSED BY THE INSTRUMENT RECORDED AUGUST 11, 1986 IN BOOK 5216 AT PAGE 353 AND RECORDED MAY 27, 1992 IN BOOK 5983 AT PAGE 83. (NOT SURVEY RELATED, NOTHING TO SHOW)
   10. ANY ASSESSMENT OR LIEN OF CENTRAL MARKSHEFFEL METROPOLITAN DISTRICT, AS DISCLOSED BY THE INSTRUMENT RECORDED OCTOBER 3, 2002 AT RECEPTION NO. 202169647 AND RECORDED DECEMBER 12, 2002 AT RECEPTION NO. 202221165. (NOT SURVEY RELATED, NOTHING TO SHOW)
   11. TERMS, CONDITIONS, PROVISIONS, AGREEMENTS AND OBLIGATIONS CONTAINED IN THE RESOLUTION NO. 03-127 OF THE BOARD OF COUNTY COMMISSIONERS, EL PASO COUNTY RECORDED MAY 8, 2003 AT RECEPTION NO. 203099698. (NOT SURVEY RELATED, NOTHING TO SHOW)
   12. AN AVIGATION AND HAZARD EASEMENT GRANTED TO THE CITY OF COLORADO SPRINGS, BY THE INSTRUMENT RECORDED NOVEMBER 18, 2004 AT RECEPTION NO. 204190786 AND RECORDED NOVEMBER 18, 2004 AT RECEPTION NO. 204190787, UPON THE TERMS AND CONDITIONS SET FORTH IN THE INSTRUMENT, OVER SUBJECT PROPERTY. (AFFECTS ENTIRE SITE, NOTHING TO SHOW)
   13. TERMS, CONDITIONS, PROVISIONS, AGREEMENTS AND OBLIGATIONS CONTAINED IN THE CLAREMONT RANCH FILING NO. 7 DEVELOPMENT PLAN RECORDED JANUARY 18, 2005 AT RECEPTION NO. 205007124. (AFFECTS ENTIRE SITE, NOTHING TO SHOW)
   14. TERMS, CONDITIONS, PROVISIONS, AGREEMENTS AND OBLIGATIONS CONTAINED IN THE SUBDIVISION IMPROVEMENTS AGREEMENT, RECORDED MAY 17, 2005 AT RECEPTION NO. 205071099. (NOT SURVEY RELATED, NOTHING TO SHOW)
   15. TERMS, CONDITIONS, RESTRICTIONS, PROVISIONS, NOTES AND EASEMENTS BUT OMITTING ANY COVENANTS OR RESTRICTIONS, IF ANY, INCLUDING BUT NOT LIMITED TO THOSE BASED UPON RACE, COLOR, RELIGION, SEX, SEXUAL ORIENTATION, FAMILIAL STATUS, MARITAL STATUS, DISABILITY, HANDICAP, NATIONAL ORIGIN, ANCESTRY, SOURCE OF INCOME, GENDER, GENDER IDENTITY, GENDER EXPRESSION, MEDICAL CONDITION OR GENETIC INFORMATION, AS SET FORTH IN APPLICABLE STATE OR FEDERAL LAWS, EXCEPT TO THE EXTENT THAT SAID COVENANT OR RESTRICTION IS PERMITTED BY APPLICABLE LAW, AS SET FORTH ON THE PLAT(S) OF SAID SUBDIVISION SET FORTH BELOW:
   RECORDING DATE: MAY 17, 2005
   RECORDING NO: 205071100 (AS SHOWN)
   16. TERMS, CONDITIONS, PROVISIONS, AGREEMENTS AND OBLIGATIONS CONTAINED IN THE RESOLUTION NO. 04-496 AS SET FORTH BELOW:
   RECORDING DATE: JANUARY 31, 2005
   RECORDING NO.: 205015064 (NOT SURVEY RELATED, NOTHING TO SHOW)
   17. TERMS, CONDITIONS, PROVISIONS, AGREEMENTS, EASEMENTS AND OBLIGATIONS CONTAINED IN THE RIGHT OF ENTRY AS SET FORTH BELOW:
   RECORDING DATE: OCTOBER 14, 2008
   RECORDING NO.: 208112358 (NOT SURVEY RELATED, NOTHING TO SHOW)
   18. TERMS, CONDITIONS, PROVISIONS, AGREEMENTS, EASEMENTS AND OBLIGATIONS CONTAINED IN THE AMENDMENT TO RIGHT OF ENTRY AS SET FORTH BELOW:
   RECORDING DATE: MARCH 22, 2010
   RECORDING NO.: 210025995. (NOT SURVEY RELATED, NOTHING TO SHOW)
   19. TERMS, CONDITIONS, PROVISIONS, AGREEMENTS, EASEMENTS AND OBLIGATIONS CONTAINED IN THE RIGHT OF ENTRY EASEMENT AS SET FORTH BELOW:
   RECORDING DATE: NOVEMBER 9, 2010
   RECORDING NO.: 210113781 (NOT SURVEY RELATED, NOTHING TO SHOW)
   20. TERMS, CONDITIONS, PROVISIONS, AGREEMENTS, EASEMENTS AND OBLIGATIONS CONTAINED IN THE PERMANENT EASEMENT AGREEMENT AS SET FORTH BELOW:
   RECORDING DATE: DECEMBER 3, 2010
   RECORDING NO.: 210123365 (AS SHOWN)

GENERAL NOTES: (CONT.)

21. SOUTHERN DELIVERY SYSTEM LAND SURVEY DIAGRAM PHASE 2A RECORDED FEBRUARY 27, 2013 AT RECEPTION NO. 213025835. (NOTHING TO SHOW)
22. TERMS, CONDITIONS, PROVISIONS, AGREEMENTS AND OBLIGATIONS CONTAINED IN THE AMENDED AND RESTATED RESOLUTION OF THE BOARD OF DIRECTORS OF THE CENTRAL MARKSHEFFEL METROPOLITAN DISTRICT CONCERNING THE IMPOSITION OF CAPITAL FACILITIES FEE AS SET FORTH BELOW:
    RECORDING DATE: NOVEMBER 14, 2017
    RECORDING NO.: 217138355 (NOT SURVEY RELATED, NOTHING TO SHOW)
4. THE PROPERTY IS THE SUBJECT OF A SUBDIVISION IMPROVEMENTS AGREEMENT RECORDED UNDER RECEPTION NO. _____ IN THE RECORDS OF EL PASO COUNTY, COLORADO.
5. WATER AND WASTEWATER SERVICES FOR THIS SUBDIVISION ARE PROVIDED BY THE CHEROKEE METROPOLITAN DISTRICT SUBJECT TO THE DISTRICTS RULES REGULATIONS AND SPECIFICATIONS. (BOOK 5893, PAGE 83)
6. ALL STRUCTURAL FOUNDATIONS SHALL BE LOCATED AND DESIGNED BY A PROFESSIONAL ENGINEER CURRENTLY REGISTERED IN THE STATE OF COLORADO.
7. THE ADDRESSES EXHIBITED ON THIS PLAT ARE FOR INFORMATIONAL PURPOSES ONLY. THEY ARE NOT THE LEGAL DESCRIPTION AND ARE SUBJECT TO CHANGE.
8. MAILBOXES SHALL BE INSTALLED IN ACCORDANCE WITH ALL EL PASO COUNTY, COLORADO DEPARTMENT OF TRANSPORTATION AND UNITED STATES POSTAL SERVICE REGULATIONS.
9. NOTICE: THIS PROPERTY MAY BE IMPACTED BY NOISE CAUSED BY AIRCRAFT OPERATING INTO AND OUT OF THE COLORADO SPRINGS AIRPORT. THE BUYER SHOULD FAMILIARIZE HIMSELF/HERSELF WITH POTENTIALITY AND RAMIFICATIONS THEREOF. (REC. NOS. 97151716 AND 98009638)
10. ALL PROPERTY WITHIN THIS SUBDIVISION IS SUBJECT TO AVIGATION EASEMENTS AS RECORDED UNDER RECEPTION NO. 204190786 AND RECEPTION NO. 204190787 IN THE RECORDS OF EL PASO COUNTY, COLORADO. AS SUCH:
    A. NO MAN-MADE OR NON MAN-MADE OBSTRUCTIONS ARE ALLOWED TO PENETRATE THE 40:1 APPROACH SURFACE.
    B. ALL EXTERIOR LIGHTING PLANS ARE TO BE APPROVED BY THE DIRECTOR OF AVIATION TO PREVENT A HAZARD TO AIRCRAFT.
    C. NO ELECTROMAGNETIC, LIGHT, OR ANY PHYSICAL EMISSIONS WHICH MAY INTERFERE WITH AIRCRAFT, AVIGATION, COMMUNICATIONS OR NAVIGATIONAL AIDS ARE ALLOWED.
    D. IF A CRANE IS TO BE USED DURING THE CONSTRUCTION PERIOD, AN FAA FORM 7460-1 WILL NEED TO BE FILED THROUGH THE AIRPORT OPERATIONS OFFICE AND APPROVED BY THE FEDERAL AVIATION ADMINISTRATION BEFORE ANY BUILDING PERMIT IS ISSUED BY THE COUNTY. NORMAL TIME REQUIRED FOR APPROVAL IS 30 - 60 WORKING DAYS.
11. THE APPROVAL OF THIS PLAT VACATES ALL PRIOR PLATS FOR THE AREA PLATTED AS SHOWN HEREON.
12. THERE SHALL BE NO DIRECT VEHICULAR ACCESS TO MEADOWBROOK PARKWAY FROM ANY LOT PLATTED HEREIN. THERE SHALL BE NO DIRECT VEHICULAR ACCESS TO MARKSHEFFEL ROAD FROM ANY LOT PLATTED HEREIN.
13. THE FOLLOWING REPORTS HAVE BEEN FILED AT THE COUNTY PLANNING DEPARTMENT; SOILS AND GEOLOGICAL STUDY, WATER AVAILABILITY STUDY, DRAINAGE REPORT, WILDFIRE HAZARD REPORT, NATURAL FEATURES REPORT EROSION CONTROL REPORT. (FILE SP-22-028).
14. A "GEOLOGY AND SOILS STUDY" FOR VILLAS AT CLAREMONT RANCH, EL PASO COUNTY, COLORADO WAS COMPLETED BY ENTECH ENGINEERING, INC. ON SEPTEMBER 22, 2017 (REVISED APRIL 16, 2020).
    THE FOLLOWING LOTS HAVE BEEN FOUND TO BE IMPACTED BY GEOLOGIC HAZARDS, LOTS: 3,4,5,6,19,20,21,42,59,60,61. MITIGATION MEASURES AND A MAP OF THE HAZARD AREA CAN BE FOUND IN THE SOIL, GEOLOGY, AND GEOLOGIC HAZARD STUDY BY ENTECH ENGINEERING INC. ON SEPTEMPER 22, 2017 (REVISED APRIL 16, 2020) IN FILE PUDSP211 AVAILABLE AT THE EL PASO COUNTY PLANNING AND COMMUNITY DEVELOPMENT DEPARTMENT::
    - ARTIFICIAL FILL: ACROSS THE SITE
    - COLLAPSIBLE SOILS: POTENTIALLY ACROSS THE SITE
    - AREAS OF EROSION: ACROSS THE SITE
    - POTENTIALLY SEASONALLY HIGH GROUNDWATER:(NORTHWESTERN PORTION OF THE SITE)

    THE PROPERTY IS LOCATED ON FIRM PANEL NO. 08041C0756G, DATED 12.07.2018, SAID PROPERTY, AS SHOWN HERON, IS THE SUBJECT OF LETTER OF MAP REVISION (LOMR), CASE NO. 08-08-0630P WITH AN EFFECTIVE DATE OF SEPTEMBER, 24, 2008. THE PROPOSED DEVELOPMENT WILL AVOID THIS AREA.
    GROUNDWATER & FLOODPLAIN AREAS:
    THE NORTHERN PORTION OF THE SITE IS MAPPED WITHIN FLOODPLAIN ZONES ACCORDING TO FEMA MAP NO. 08041C0756G, FIGURE 8 (REFERENCE 7). THE FLOODPLAIN IS ALONG THE EAST FORK OF SAND CREEK, AND THE PROPOSED DEVELOPMENT WILL AVOID THIS AREA. ENTECH ENGINEERING INC. CONCLUDES IN THEIR REPORT THAT DEVELOPMENT OF THE SITE CAN BE ACHIEVED IF THE ITEMS MENTIONED ABOVE ARE MITIGATED. THESE ITEMS CAN BE MITIGATED THROUGH PROPER DESIGN AND CONSTRUCTION OR THROUGH AVOIDANCE. INVESTIGATION ON EACH LOT IS RECOMMENDED PRIOR TO CONSTRUCTION.
15. NO DRIVEWAY SHALL BE ESTABLISHED UNLESS AN ACCESS PERMIT HAS BEEN GRANTED BY EL PASO COUNTY.
16. INDIVIDUAL LOT PURCHASERS ARE RESPONSIBLE FOR CONSTRUCTING DRIVEWAYS, INCLUDING NECESSARY DRAINAGE CULVERTS PER LAND DEVELOPMENT CODE SECTION 6.3.3.C.2 AND 6.3.3.C.3.



VICINITY MAP
NOT TO SCALE

GENERAL NOTES: (CONT.)

17. THE SUBDIVIDER/DEVELOPER HAS FAMILIARIZED ITSELF WITH CURRENT AMERICANS WITH DISABILITIES ACT (ADA) LAWS AND ACCESSIBILITY STANDARDS AND HAS LAID OUT THE PLAT AND ASSOCIATED GRADING AND CONSTRUCTION PLANS SO THAT ALL SITE ELEMENTS MEET THE APPLICABLE ADA DESIGN STANDARDS AS PUBLISHED BY THE UNITED STATES DEPARTMENT OF JUSTICE. APPROVAL OF THIS PLAT AND ASSOCIATED CONSTRUCTION DOCUMENTS BY EL PASO COUNTY DOES NOT ASSURE COMPLIANCE WITH THE ADA OR ANY REGULATIONS OR GUIDELINES ENACTED OR PROMULGATED UNDER OR WITH RESPECT TO SUCH LAWS.
    IT IS THE RESPONSIBILITY OF THE DEVELOPER/HOME BUILDER TO ENSURE ADA ACCESSIBILITY DURING CONSTRUCTION OF THE PRIVATE SIDEWALKS.
18. ANY PERSON WHO KNOWINGLY REMOVES, ALTERS OR DEFACES ANY PUBLIC LAND SURVEY MONUMENT OR LAND BOUNDARY MONUMENT OR ACCESSORY COMMITS A CLASS TWO (2) MISDEMEANOR PURSUANT TO C.R.S. § 18-4-508.
19. DEVELOPER SHALL COMPLY WITH FEDERAL AND STATE LAWS, REGULATIONS, ORDINANCES, REVIEW AND PERMIT REQUIREMENTS, AND OTHER AGENCY REQUIREMENTS, IF ANY, OF APPLICABLE AGENCIES INCLUDING, BUT NOT LIMITED TO, THE COLORADO DIVISION OF WILDLIFE, COLORADO DEPARTMENT OF TRANSPORTATION, U.S. ARMY CORPS OF ENGINEERS AND THE U.S. FISH AND WILDLIFE SERVICE REGARDING THE ENDANGERED SPECIES ACT.
20. THE INDIVIDUAL LOT PURCHASER(S) SHALL BE RESPONSIBLE FOR FINAL DESIGN, CONSTRUCTION, AND MAINTENANCE OF PRIVATE DETENTION POND/WATER QUALITY BMP(S) AS DESCRIBED IN THE APPROVED PRELIMINARY/FINAL DRAINAGE REPORT FOR THIS SUBDIVISION. FINAL DESIGN, CONSTRUCTION DRAWINGS AND DRAINAGE REPORT UPDATES FOR THE DETENTION POND/WATER QUALITY BMP(S) SERVING EACH LOT SHALL BE PROVIDED WITH SITE DEVELOPMENT PLAN SUBMITTALS. THE DETENTION POND/WATER QUALITY BMP(S) SHALL BE CONSTRUCTED AND COMPLETED PRIOR TO THE ISSUANCE OF ANY BUILDING PERMITS FOR THE SUBJECT LOTS. THE SUBDIVISION DEVELOPER IS RESPONSIBLE FOR PROVIDING FINANCIAL ASSURANCES AS INDICATED IN THE SUBDIVISION IMPROVEMENTS AGREEMENT AND ESTIMATE OF GUARANTEED FUNDS FOR ALL DETENTION PONDS/WATER QUALITY BMPS. ALL DETENTION PONDS/WATER QUALITY BMPS SHALL BE CONSTRUCTED PRIOR TO THE RELEASE OF SAID FINANCIAL ASSURANCES.
    INDIVIDUAL LOT PURCHASERS SHALL ENTER INTO A PRIVATE DETENTION BASIN / STORMWATER QUALITY BMP MAINTENANCE AGREEMENT AND EASEMENT ("AGREEMENT") PRIOR TO THE ISSUANCE OF ANY BUILDING PERMITS FOR THE SUBJECT LOTS. IN THE CASE THAT THE DEVELOPER CONSTRUCTS THE DETENTION POND(S), THE DEVELOPER SHALL ENTER INTO AN AGREEMENT FOR EACH POND CONSTRUCTED.
21. ALL PROPERTY OWNERS ARE RESPONSIBLE FOR MAINTAINING PROPER STORM WATER DRAINAGE IN AND THROUGH THEIR PROPERTY. PUBLIC DRAINAGE EASEMENTS AS SPECIFICALLY NOTED ON THE PLAT SHALL BE MAINTAINED BY THE INDIVIDUAL LOT OWNERS UNLESS OTHERWISE INDICATED. STRUCTURES, FENCES, MATERIALS OR LANDSCAPING THAT COULD IMPEDE THE FLOW OF RUNOFF SHALL NOT BE PLACED IN DRAINAGE EASEMENTS.
22. THE PRIVATE ROADS AS SHOWN ON THIS PLAT WILL NOT BE MAINTAINED BY EL PASO COUNTY UNTIL AND UNLESS THE STREETS ARE CONSTRUCTED IN CONFORMANCE WITH EL PASO COUNTY STANDARDS IN EFFECT AT THE DATE OF THE REQUEST FOR DEDICATION AND MAINTENANCE.
23. ALL PROPERTY WITHIN THIS SUBDIVISION IS SUBJECT TO A DECLARATION OF COVENANTS AS RECORDED AT RECEPTION NO. _____ OF THE RECORDS OF THE EL PASO COUNTY CLERK AND RECORDER.
24. THE PROPERTY IS WITHIN THE SERVICE AREA OF THE CENTRAL MARKSHEFFEL METROPOLITAN DISTRICT AND, AS SUCH, IS SUBJECT TO AN ASSESSMENT FOR THE CONSTRUCTION OF MARKSHEFFEL ROAD.
25. THE SUBDIVIDER(S) AGREES ON BEHALF OF HIM/HERSELF AND ANY DEVELOPER OR BUILDER SUCCESSORS AND ASSIGNEES THAT SUBDIVIDER AND/OR SAID SUCCESSORS AND ASSIGNS SHALL BE REQUIRED TO PAY TRAFFIC IMPACT FEES IN ACCORDANCE WITH THE EL PASO COUNTY ROAD IMPACT FEE PROGRAM RESOLUTION (RESOLUTION NO. 19-471), OR ANY AMENDMENTS THERETO, AT OR PRIOR TO THE TIME OF BUILDING PERMIT SUBMITTALS. THE FEE OBLIGATION, IF NOT PAID AT FINAL PLAT RECORDING, SHALL BE DOCUMENTED ON ALL SALES DOCUMENTS AND ON PLAT NOTES TO ENSURE THAT A TITLE SEARCH WOULD FIND THE FEE OBLIGATION BEFORE SALE OF THE PROPERTY.

PLANNING AND COMMUNITY DEVELOPMENT DEPARTMENT DIRECTOR CERTIFICATE:

THIS PLAT FOR "VILLAS AT CLAREMONT RANCH" WAS APPROVED FOR FILING BY THE EL PASO COUNTY, COLORADO PLANNING AND COMMUNITY DEVELOPMENT DIRECTOR ON THE ____ DAY OF _____, 2022, SUBJECT TO ANY NOTES SPECIFIED HEREON AND ANY CONDITIONS SPECIFIED HEREON.

_____ _____
PLANNING AND COMMUNITY DEVELOPMENT DIRECTOR DATE

CLERK AND RECORDER:

STATE OF COLORADO)
) SS
COUNTY OF _____)

I HEREBY CERTIFY THAT THIS INSTRUMENT WAS FILED FOR RECORD IN MY OFFICE AT _____ O'CLOCK _____, THIS _____ DAY OF _____, 2022, A.D., AND DULY RECORDED UNDER RECEPTION NO. _____ OF THE RECORDS OF EL PASO COUNTY, COLORADO.

FEE: _____ CHUCK BROERMAN, RECORDER

SURCHARGE: _____ BY: _____
DEPUTY

SURVEYORS CERTIFICATE

I VERNON P. TAYLOR, A DULY REGISTERED PROFESSIONAL LAND SURVEYOR IN THE STATE OF COLORADO, DO HEREBY CERTIFY THAT THIS PLAT TRULY AND CORRECTLY REPRESENTS THE RESULTS OF A SURVEY MADE ON DATE OF SURVEY, BY ME OR UNDER MY DIRECT SUPERVISION AND THAT ALL MONUMENTS EXIST AS SHOWN HEREON; THAT MATHEMATICAL CLOSURE ERRORS ARE LESS THAN 1:10,000 ; AND THAT SAID PLAT HAS BEEN PREPARED IN FULL COMPLIANCE WITH ALL APPLICABLE LAWS OF THE STATE OF COLORADO DEALING WITH MONUMENTS, SUBDIVISION, OR SURVEYING OF LAND AND ALL APPLICABLE PROVISIONS OF THE EL PASO COUNTY LAND DEVELOPMENT CODE.

I ATTEST THE ABOVE ON THIS ____ DAY OF _____, 2022.

_____
VERNON P. TAYLOR
COLORADO PLS NO. 25966, FOR AND
ON BEHALF OF M&S CIVIL CONSULTANTS, INC

NOTICE:

ACCORDING TO COLORADO LAW, YOU **MUST** COMMENCE ANY LEGAL ACTION BASED UPON ANY DEFECT IN THIS SURVEY WITHIN **THREE** YEARS AFTER YOU FIRST DISCOVER SUCH DEFECT. IN NO EVENT, MAY ANY ACTION BASED UPON ANY DEFECT IN THIS SURVEY BE COMMENCED MORE THAN **TEN** YEARS FROM THE DATE OF THE CERTIFICATION SHOWN HEREON.

FEES:

DRAINAGE FEE:	
BRIDGE FEE:	
SCHOOL FEE:	
REGIONAL PARK FEE:	$ 38,180.00
URBAN PARK FEE:	$ 24,070.00

SUMMARY:

83 LOTS	2.507 ACRES	24.65%
6 TRACTS	7.577 ACRES	74.51%
RIGHTS-OF-WAY	0.085 ACRES	0.84%
TOTAL	10.169 ACRES	100.00%

CHEROKEE METROPOLITAN DISTRICT
6250 PALMER PARK BOULEVARD
COLORADO SPRINGS, CO 80915
PHONE: 719-597-5080

PHI REAL ESTATE SERVICES, LLC
200 W CITY CENTER DRIVE #200
PUEBLO, CO 81003
PHONE: 719-XXX-XXXX

PREPARED BY:
ERIC L. YOKOM
FOR AND ON
BEHALF OF
212 N. WAHSATCH AVE., STE 305
COLORADO SPRINGS, CO 80903
PHONE: 719.955.5485

FINAL PLAT
VILLAS AT CLAREMONT RANCH
JOB NO. 70-107
DATE PREPARED: 09/15/2017
DATE REVISED: 02/18/2020
DATE REVISED: 07/29/2022
DATE REVISED: 10/17/2022

FILE NO.: SF-22-028

CIVIL CONSULTANTS, INC.

File: Q:\70107A-Villas at Claremont\Premier Homes\Survey\Plat\70107 plat.dwg Plotstamp: 10/18/2022 10:58 AM

VILLAS AT CLAREMONT RANCH

A REPLAT OF TRACTS A, AND G OF "CLAREMONT RANCH FILING NO. 7",
BEING A PARCEL OF LAND IN A PORTION OF THE SOUTHWEST (SW 1/4) OF SECTION 4,
TOWNSHIP 14 SOUTH, RANGE 65 WEST OF THE SIXTH PRINCIPAL MERIDIAN, EL PASO COUNTY, COLORADO

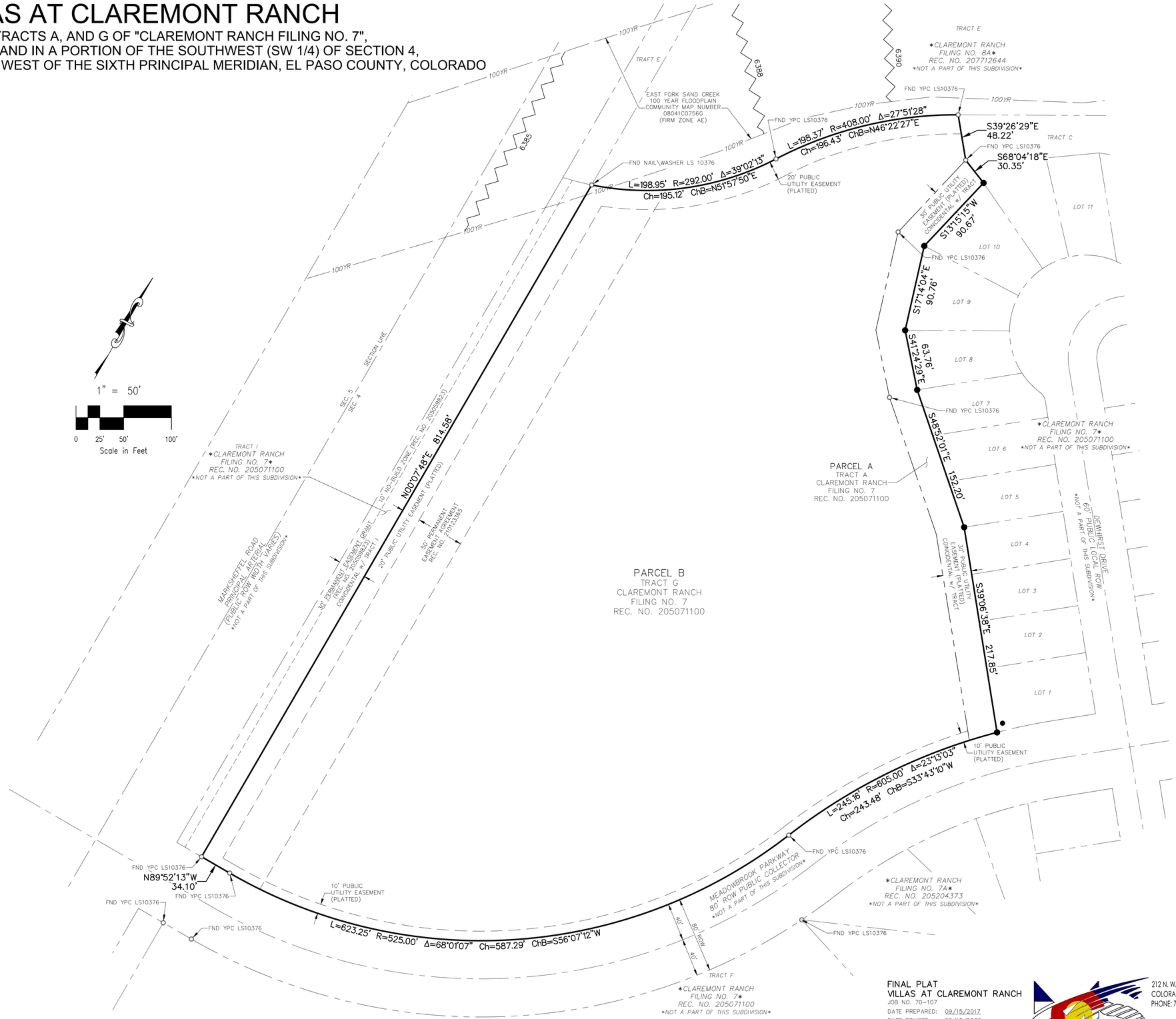
LEGEND:

SF	SQUARE FEET
(xxxx)	ADDRESS
Ch	CHORD
ChB	CHORD BEARING
●	SET No 5 REBAR AND 1.25" ORANGE CAP STAMPED "M&S CIVIL PLS 25966" FLUSH W/ EXISTING GRADE UNLESS NOTED OTHERWISE
○	FOUND MONUMENT AS LABELED, FLUSH W/ EXISTING GRADE UNLESS NOTED OTHERWISE
———	BOUNDARY LINE
———	PROPERTY LINE
– – – –	EASEMENT LINE
——— – – ———	ADJACENT SUBDIVISION, PROPERTY, AND RIGHTS-OF-WAY LINES
——— – ———	EXISTING CENTERLINES
— — — —	EXISTING EASEMENT LINES

1" = 50'

0 25' 50' 100'

Scale in Feet



AS PLATTED

FINAL PLAT
VILLAS AT CLAREMONT RANCH
JOB NO. 70-107
DATE PREPARED: 09/15/2017
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File: O:\70107A-Villas at Claremont\Premier Homes\Survey\Plat\70107 plat.dwg Plotstamp: 10/18/2022 11:01 AM

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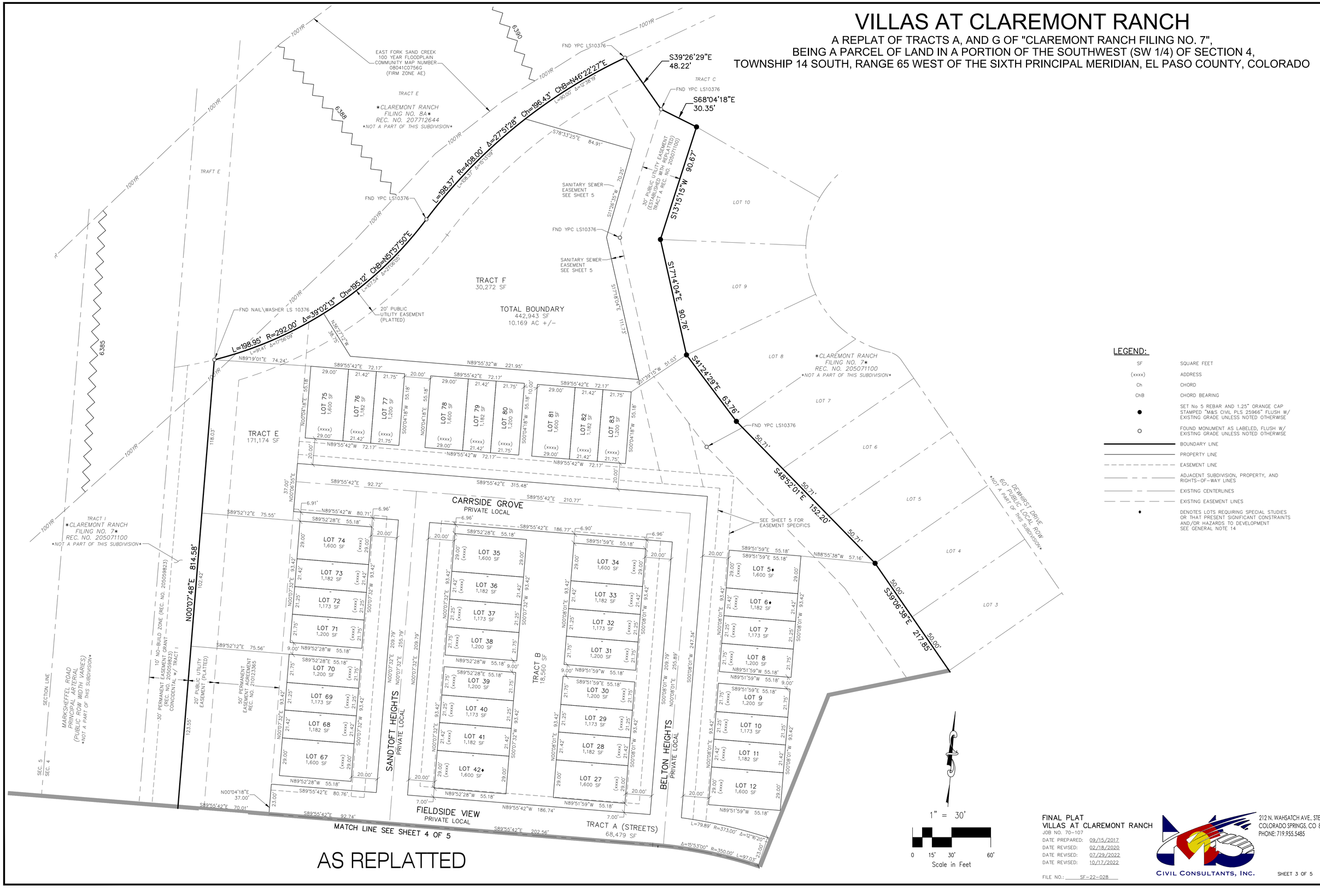

AS REPLATTED

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— — — — —	EXISTING EASEMENT LINES
♦	DENOTES LOTS REQUIRING SPECIAL STUDIES OR THAT PRESENT SIGNIFICANT CONSTRAINTS AND/OR HAZARDS TO DEVELOPMENT SEE GENERAL NOTE 14

1" = 30'

0 15' 30' 60'

Scale in Feet

FINAL PLAT
VILLAS AT CLAREMONT RANCH
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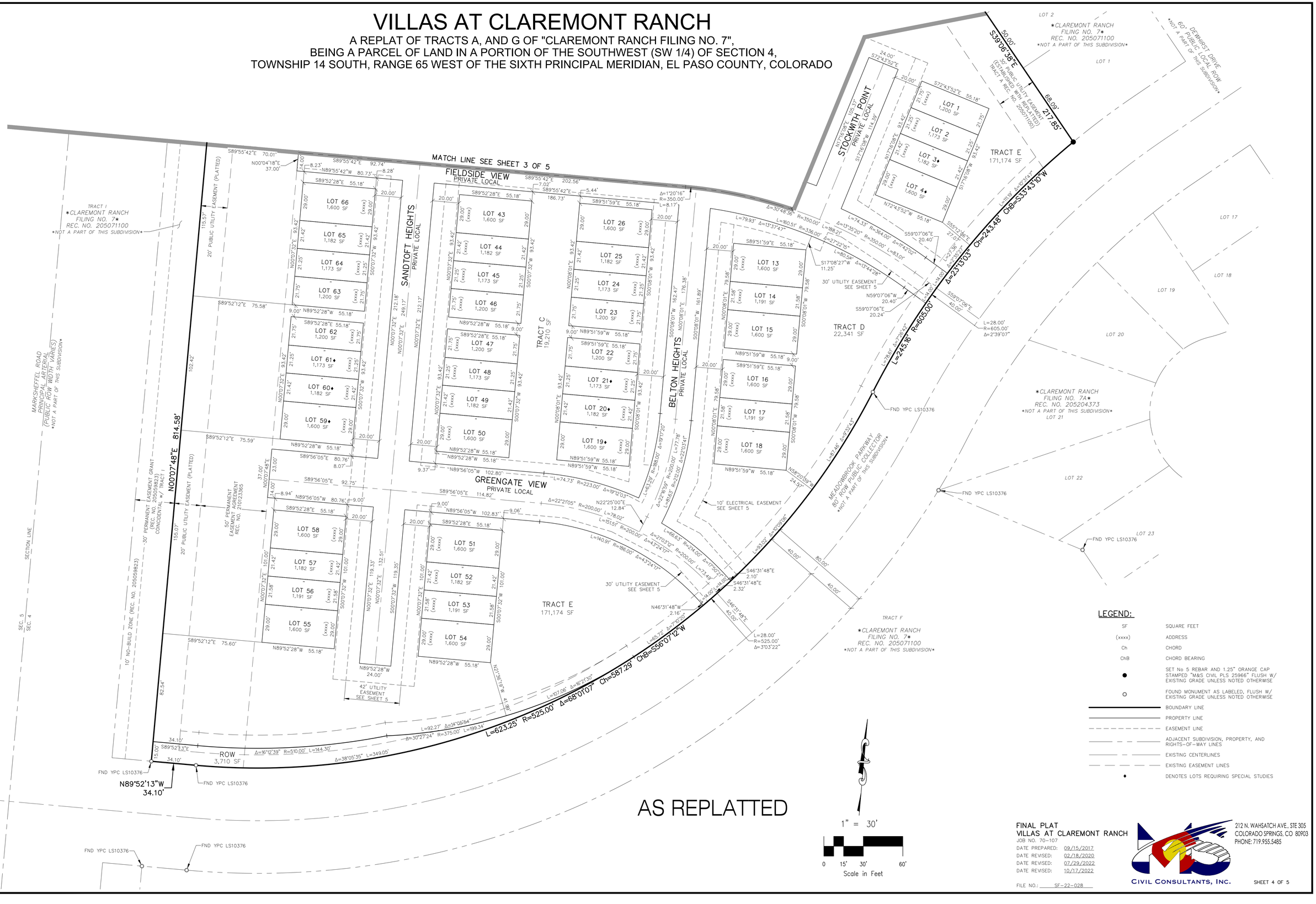

AS REPLATTED

1" = 30'
0 15' 30' 60'
Scale in Feet

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(xxxx)	ADDRESS
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ChB	CHORD BEARING
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——— · ———	EXISTING CENTERLINES
— — — — —	EXISTING EASEMENT LINES
♦	DENOTES LOTS REQUIRING SPECIAL STUDIES

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VILLAS AT CLAREMONT RANCH

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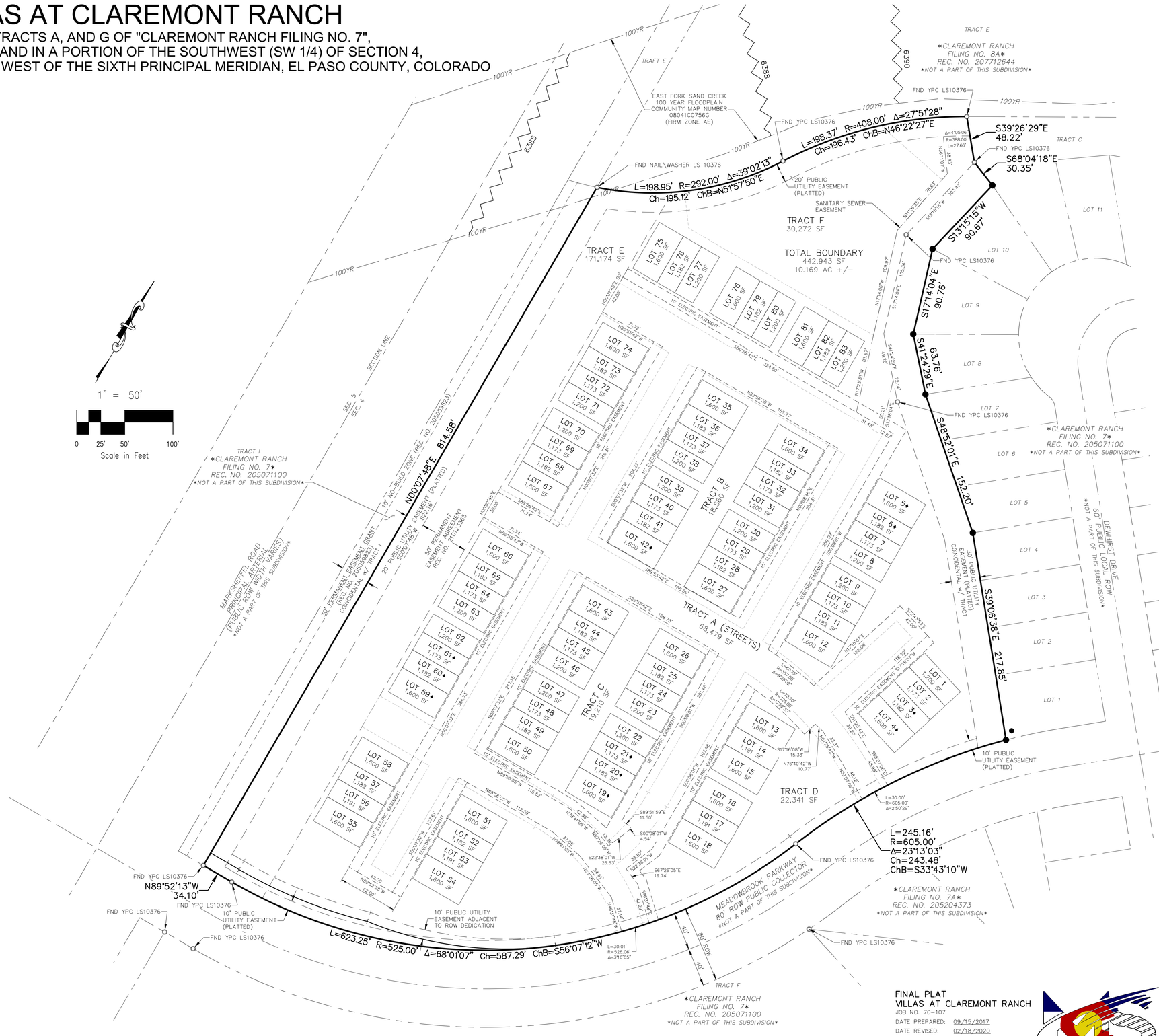
♦	DENOTES LOTS REQUIRING SPECIAL STUDIES OR THAT PRESENT SIGNIFICANT CONSTRAINTS AND/OR HAZARDS TO DEVELOPMENT SEE GENERAL NOTE 14



EASEMENT EXHIBIT

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