

Crossroads Mixed Use Filing #2 Traffic Study

El Paso County, Colorado

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Traffic Engineer's Statement

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



Jeffrey R. Planck, P.E., PE #53006

December 14, 2022
Date

Developer's Statement

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

Ms. Kelly Nelson
Pikes Peak Investments LLC
c/o The Equity Group
90 South Cascade Avenue
Suite 1500
Colorado Springs, Colorado 80903

Date

December 14, 2022

Ms. Kelly Nelson
Pikes Peak Investments LLC
c/o The Equity Group
90 South Cascade Avenue
Suite 1500
Colorado Springs, Colorado 80903

Re: Crossroads Mixed Use Filing #2 Traffic Study Letter
SWC of Meadowbrook Parkway and Newt Drive
El Paso County, Colorado

Dear Ms. Nelson:

This traffic study letter has been prepared for the proposed Crossroads Mixed Use development to be located on the southwest corner of the Meadowbrook Parkway and Newt Drive intersection in El Paso County, Colorado. The *Crossroads Mixed Use Traffic Study Letter* completed in April 2022 included an evaluation for the development areas of both Filing #1 and Filing #2 and was submitted for approval of Filing #1. The traffic study letter completed in April 2022 was an addendum to the *Crossroads-Meadowbrook-Reagan Ranch Master Traffic Impact Study* (MTIS) to provide a site-specific analysis for the Crossroads Mixed Use development. For the purposes of this analysis, this letter is provided for approval of Filing #2 and will identify the appropriate off-site improvements associated separately with Filing #1 and Filing #2. For the purposes of this analysis, full buildout of Crossroads Mixed Use Filing #2 will include 10,000 square feet of retail, a 14,000 square foot pharmacy, 8,000 square feet of sit-down restaurant, 11,000 square feet of fast-food restaurant, and a 2,500 square foot coffee shop while Filing #1 was also included for evaluation which consists of 306 multifamily housing units. The retail Filing #2 portion of the project is located on the east side of the site while the Filing #1 residential portion is located on the west side of the site. A conceptual site plan of the project is attached. Consistent with the original MTIS, an initial phase of development was evaluated in a 2026 horizon while full buildout was evaluated in the long-term 2040 horizon.

A vicinity map illustrating the location of the property is attached as **Figure 1**. The surrounding area primarily consists of vacant land, industrial uses, and residential use. The existing site is comprised of undeveloped land while residential and industrial uses are located north and northeast of the project site, respectively. The site area is shown in the aerial of attached **Figure 2**.

The purpose of this study is to identify project traffic generation characteristics and potential project traffic related impacts on the local street system, as well as to develop mitigation measures required for identified impacts. The intersection of Meadowbrook Parkway and Newt Drive was incorporated into this traffic study in accordance with El Paso County standards and requirements. In addition, one private driveway access (west access) and two private street accesses (middle and east accesses) located on the south side of the future Meadowbrook Parkway extension were also evaluated.

Existing Roadway Network and Traffic Counts

Regional access to the project is provided by Interstate 25 (I-25) and US-24 while primary access to the project will be provided by Meadowbrook Parkway, State Highway 94 (SH-94), and Newt Drive. Direct access will be provided by three accesses located along the south side of Meadowbrook Parkway. The east private street access along Meadowbrook Parkway will be restricted to right-in/right-out movements while the west and middle accesses will provide full turning movements.

Meadowbrook Parkway is an El Paso County Urban Non-Residential Collector roadway that provides one lane of travel in each direction, with a 35 mile per hour speed limit through the study area. Newt Drive extends northwest and southeast with one through lane of travel in each direction.

The Meadowbrook Parkway and Newt Drive intersection is a T-intersection with stop control on the northwestbound and southeastbound approaches of Newt Drive. The northwestbound approach of Newt Drive consists of one through lane and a right turn lane while the southeastbound approach includes a left turn lane and one through lane. The southwestbound approach of Meadowbrook Parkway includes a two-way left turn lane and a right turn lane. With the construction of the Crossroads Mixed Use project, a southwest leg will be constructed at this intersection as an extension of Meadowbrook Parkway adjacent to the development area. Existing intersection lane configurations and control for the key study area intersection are shown in attached **Figure 3**.

Existing peak hour turning movement counts were conducted and at the intersection of Meadowbrook Parkway and Newt Drive on Tuesday, June 2, 2020. The turning movement counts were grown based on data obtained from hourly counts from the Colorado Department of Transportation (CDOT) Online Transportation Information System (OTIS) and additional historical CDOT traffic information provided to Kimley-Horn to account for a COVID-19 adjustment for this area. Based on this information and through coordination with CDOT, the morning and afternoon peak hour counts were increased by 35 percent to account for normal traffic conditions prior to the COVID-19 pandemic. Existing turning movement counts are shown in attached **Figure 4** while the adjusted turning movement counts are shown in **Figure 5** with count sheets and COVID-19 count adjustment data attached.

Trip Generation

Site-generated traffic estimates are determined through a process known as trip generation. Rates and equations are applied to the proposed land use to estimate traffic generated by the development during a specific time interval. The acknowledged source for trip generation rates is the *Trip Generation Manual*¹ published by the Institute of Transportation Engineers (ITE). ITE has established trip rates in nationwide studies of similar land uses. Project generated traffic volumes are identified on a weekday daily as well as on a morning peak hour and afternoon peak hour basis. The morning peak hour is the highest one-hour time period of adjacent street traffic during four consecutive 15-minute intervals during the morning peak hour, between 7:00 am and 9:00 am. The afternoon peak hour is the highest one-hour time period of four consecutive 15-minute intervals between the hours of 4:00 pm and 6:00 pm representing the afternoon peak hour.

As mentioned previously, the projects were evaluated with a Phase 1 2026 horizon and a full buildout 2040 horizon. For this study, Kimley-Horn used the ITE Trip Generation Manual average rates and fitted curve equations that apply to Shopping Center (ITE 820), Pharmacy (ITE 881), Sit-Down Restaurant (ITE 932), Fast-Food Restaurant with Drive Through (ITE 934), and Coffee/Donut Shop with Drive Through (ITE 937) for the Filing #2 development area while Mid-Rise Multifamily Housing (ITE 221) was used for Filing #1.

Since the project is proposed to contain a mix of uses, internal capture trips are expected to occur on site as well. These internal capture trips are shared trips from vehicles already within the internal street network. These shared trips reduce the number of total external trips and were calculated directly per the ITE procedure but were capped based on thresholds set forth by CDOT. Based on the CDOT access code, internal trip reductions cannot not exceed two percent for the AM peak or eight percent for PM peaks unless clearly justified and documented by actual studies. As such, an internal capture rate of two (2) percent was used during the morning peak hour and a rate of eight (8) percent during

¹ Institute of Transportation Engineers, *Trip Generation Manual*, Tenth Edition, Washington DC, 2017.

the afternoon peak for areas that apply. Phase 1 development of Crossroads Mixed Use in 2026 is expected to generate approximately 9,756 daily weekday external vehicle trips with 944 of these trips occurring during the morning peak hour and 678 trips occurring during the afternoon peak hour. The Phase 1 retail development area of Filing #2 is expected to generate approximately 8,938 total daily vehicle trips with 861 of these trips occurring during the morning peak hour and 607 trips occurring during the afternoon peak hour. Calculations were based on the procedure and information provided in the ITE Trip Generation Manual, 10th Edition – Volume 1: User’s Guide and Handbook, 2017. **Table 1** provides the estimated trip generation for Phase 1 of the project. The trip generation calculations are attached.

Table 1 – Crossroads Mixed Use Phase 1 Traffic Generation

Filing	Use	Quantity	Daily	Weekday Vehicle Trips					
				AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Crossroads Mixed Use									
#1	Mid-Rise Multifamily Housing (ITE 221)	306 Units	1,666	27	75	102	79	51	130
#2	Shopping Center (ITE 820)	10,000 SF	1,256	97	60	157	48	51	99
	Sit Down Restaurant (ITE 932)	8,000 SF	1,528	29	25	54	72	72	144
	Fast Food Restaurant (ITE 934)	11,000 SF	5,182	225	217	442	187	172	359
	Coffee Shop (ITE 937)	2,500 SF	2,050	113	109	222	55	55	110
Total Crossroads Mix Use Trips			12,580	535	522	1,057	489	431	920
Crossroads Mix Use Trips after Internal Capture			11,574	524	512	1,036	450	397	846

Update tables. Only two lots are proposed with Filing 2. The two corresponding uses for these two lots should be within the Filing #2 land use. Provide a third category that notes "Future Filing" and place the remaining uses in this group.

Update the Road Impact Fee for the two lots only in Table 7.

With full project buildout of Crossroads Mixed Use, the project is expected to generate approximately 11,574 daily weekday external vehicle trips with 1,036 of these trips occurring during the morning peak hour and 846 trips occurring during the afternoon peak hour. The full buildout retail development area of Filing #2 is expected to generate approximately 10,914 total daily vehicle trips with 955 of these trips occurring during the morning peak hour and 790 trips occurring during the afternoon peak hour. **Table 2** provides the estimated trip generation for full buildout of the project.

Table 2 – Crossroads Mixed Use Buildout Traffic Generation

Filing	Use	Quantity	Daily	Weekday Vehicle Trips					
				AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Crossroads Mixed Use									
#1	Mid-Rise Multifamily Housing (ITE 221)	306 Units	1,666	27	75	102	79	51	130
#2	Shopping Center (ITE 820)	10,000 SF	1,256	97	60	157	48	51	99
	Pharmacy (ITE 881)	14,000 SF	1,528	29	25	54	72	72	144
	Sit Down Restaurant (ITE 932)	8,000 SF	1,528	29	25	54	72	72	144
	Fast Food Restaurant (ITE 934)	11,000 SF	5,182	225	217	442	187	172	359
	Coffee Shop (ITE 937)	2,500 SF	2,050	113	109	222	55	55	110
Total Crossroads Mix Use Trips			12,580	535	522	1,057	489	431	920
Crossroads Mix Use Trips after Internal Capture			11,574	524	512	1,036	450	397	846

El Paso County has requested a trip generation comparison for the Crossroads Mixed Use project to identify traffic compliance with the original *Crossroads-Meadowbrook-Reagan Ranch MTIS* completed by Kimley-Horn in February 2022. The original traffic study included the same land uses and sizes for both phase 1 and buildout except the Mid-Rise Multifamily Housing use was evaluated with 300 dwelling units in the original traffic study and is now being evaluated with 306 dwelling units in the current proposal. This increase of six (6) additional dwelling units is anticipated to generate 30 more daily trips, two (2) more morning peak hour trips, and two (2) more afternoon peak hours trips than previously evaluated in the master traffic study. All of these increases equate to less than a tenth of one percent compared to the overall trips from master traffic study. Therefore, the project is believed to be in

Revise trip generation tables to show traffic amounts per filing and land use for existing and proposed conditions. Staff recommends the table is broken up into columns for each filing.

compliance with the original master traffic impact study. Applicable trip generation information from the original master traffic study is attached. Further, the exact intensity of uses was evaluated in the *Crossroads Mixed Use Traffic Study Letter* completed in April 2022; therefore, the project is in traffic compliance with the original site-specific traffic study.

Distribution, Assignment, and Total Traffic

Distribution of site traffic was based on the area street system characteristics, existing traffic patterns and volumes, and the proposed access system for the project. Separate distributions were prepared for the retail and residential portions of the site. Further, separate distributions were prepared for the short-term horizon and long-term horizons to account for the future connection of Meadowbrook Parkway to Peterson Road expected to occur by the 2040 horizon. The directional distribution of traffic is a means to quantify the percentage of site-generated traffic that approaches the site from a given direction and departs the site back to the original source. The residential project trip distribution is illustrated in **Figure 6** for both the short term and long-term horizons. Likewise, the retail project trip distribution is illustrated in **Figure 7** for both the short term and long-term horizons.

Traffic assignment was obtained by applying the project trip distribution to the estimated project traffic generation of the development shown in the trip generation tables. The traffic assignment is shown in **Figure 8** for 2026 and **Figure 9** for 2040.

Total traffic volumes from the Crossroads-Meadowbrook-Reagan Ranch MTIS for years 2026 and 2040 with Crossroads Mixed Use project traffic volumes subtracted were used as a baseline for traffic volumes in this study. However, a portion of traffic volumes in 2040 were rerouted and added to Meadowbrook Parkway adjacent to the project site to account for the future connection of Meadowbrook Parkway to Peterson Road. Site traffic volumes were added to the 2026 and 2040 baseline traffic volumes to represent estimated short-term and long-term traffic conditions. These total traffic volumes for 2026 and 2040 are illustrated in **Figure 10** and **Figure 11**, respectively. Traffic volume information from original MTIS is attached.

Traffic Operations Analysis

Kimley-Horn's analysis of traffic operations in the site vicinity was conducted to determine potential capacity deficiencies at the project key intersections for the 2026 short term and 2040 long term horizons. The acknowledged source for determining overall capacity is the *Highway Capacity Manual*².

Capacity analysis results are listed in terms of Level of Service (LOS). LOS is a qualitative term describing operating conditions a driver will experience while traveling on a particular street or highway during a specific time interval. It ranges from A (very little delay) to F (long delays and congestion). El Paso County has an overall intersection, approach and movement LOS D as the minimum threshold for acceptable operations. The following **Table 3** shows the definition of level of service for signalized and unsignalized intersections.

2 Transportation Research Board, *Highway Capacity Manual*, Sixth Edition, Washington DC, 2016.

Table 3 – Level of Service Definitions

Level of Service	Signalized Intersection Average Total Delay (sec/veh)	Unsignalized Intersection Average Total Delay (sec/veh)
A	≤ 10	≤ 10
B	> 10 and ≤ 20	> 10 and ≤ 15
C	> 20 and ≤ 35	> 15 and ≤ 25
D	> 35 and ≤ 55	> 25 and ≤ 35
E	> 55 and ≤ 80	> 35 and ≤ 50
F	> 80	> 50

Study area intersections were analyzed based on average total control delay analysis for signalized and unsignalized intersections. Under the unsignalized analysis, the level of service (LOS) for a two-way stop-controlled intersection is determined by the computed or measured control delay and is defined for each minor movement. Level of service for a two-way stop-controlled intersection is not defined for the intersection as a whole. Level of service for a signalized, roundabout, and four-way stop controlled intersections are defined for the overall intersection.

Calculations for the level of service at the key intersection and project accesses for the study area are attached. Synchro traffic analysis software was used to analyze the study area access intersections while Arcady software was utilized with the future roundabout intersection of Meadowbrook Parkway and Newt Drive. The Synchro Highway Capacity Manual (HCM) methodology reports were used to analyze intersection delay and level of service.

Meadowbrook Parkway and Newt Drive

The existing intersection of Meadowbrook Parkway and Newt Drive is a three-leg stop-controlled intersection with the northwest and southeast legs along Newt Drive providing stop control. With the construction of the project, a southwest leg of Meadowbrook Parkway will be constructed and extended to the west limits of the Crossroads Mixed Use property. By 2040, it is anticipated that Meadowbrook Parkway will connect with Peterson Road to the west. A single lane roundabout is currently planned at the intersection of Meadowbrook Parkway and Newt Drive. It is anticipated that the intersection will operate acceptably with LOS A during the peak hours throughout the 2040 horizon as a single lane roundabout. **Table 4** provides the results of the level of service at this intersection.

Table 4 – Meadowbrook Parkway and Newt Drive LOS Results

Scenario	AM Peak Hour		PM Peak Hour	
	Control Delay (sec/veh)	LOS	Control Delay (sec/veh)	LOS
2026 Total Traffic Volumes (Roundabout Control)	6.9	A	5.9	A
2040 Total Traffic Volumes (Roundabout Control)	9.3	A	9.7	A

Project Access Spacing Requirements and Internal Roadway Classifications

With completion of the Crossroads Mixed Use project, one private driveway access and two private street accesses are proposed to be located on the south side of the future extension of Meadowbrook Parkway west of Newt Drive. The east access along Meadowbrook Parkway will be a private street providing access to the retail area and will be restricted to right-in/right out movements. The middle access along Meadowbrook Parkway will be a private street and will allow full turning movements. The

Include whether that deviation was approved or denied. If approved include what filing it was approved with as well. If proposing with this filing, include deviation in next submittal.

west access along Meadowbrook Parkway will allow full turning movements and provide private driveway access to the multifamily residential area.

The east access along Meadowbrook Parkway is proposed to be located approximately 435 feet west of Newt Drive and 360 feet east of the middle access (measured centerline to centerline). The west access along Meadowbrook Parkway is proposed to be located approximately 330 feet west of the middle access. These distances meet the El Paso County Urban Non-Residential Collector spacing standards of 660 feet to other collectors and 330 feet to intersections with a local street. The west and east accesses along Meadowbrook Parkway meet El Paso County average daily traffic threshold standard of 3,000 vehicles per day for an Urban Local street. The middle access along Meadowbrook Parkway meets the El Paso County average daily threshold standard of 10,000 and 20,000 vehicles per day for both Urban Residential and Urban Nonresidential Collectors, respectively. With the west side of the middle access street fronting the multifamily residential site, this roadway could meet the characteristics of an Urban Residential Collector. However, the project previously requested a deviation to allow for the middle access street to be constructed to a local street cross section. The middle access roadway will only extend approximately 850 feet south of Meadowbrook Parkway and will terminate prior to US-24. There is only one access (to the residential area) along the middle north-south street south of the east-west roadway on site; therefore, there will minimal conflicting movements at the east-west roadway intersection with the middle access roadway. Attached **Figure 12** illustrates the circulation plan and street classification map for roadways internal to Crossroads Mixed Use.

Project Accesses: Lane Configurations, Turn Lane Requirements, and Operational Analysis

All three project accesses along Meadowbrook Parkway are recommended to provide stop control and have R1-1 “STOP” signs installed for the exiting northbound approaches. Single northbound exiting lanes are expected to be sufficient at all three project accesses. To provide signage for restricting left turn movements at the proposed right-in/right-out east access, it is recommended that a R3-2 No Left Turn sign be placed underneath the STOP sign. Further, a R6-1(R) “ONE WAY” sign should also be installed within the raised center median of Meadowbrook Parkway.

The El Paso County ECM was used to determine if right turn lanes are warranted along Meadowbrook Parkway at the project accesses. El Paso County classifies Meadowbrook Parkway as an Urban Non-Residential Collector. According to El Paso County ECM guidelines for Minor Arterials and Lower Classifications, a right turn lane is required for any access with a projected peak hour right turning volume of 50 vehicles per hour or greater.

Based on 2040 traffic volume projections, right turn lane requirements at the project accesses along Meadowbrook Parkway are as follows:

- An eastbound right turn lane is not warranted for the Meadowbrook Parkway West Access based on projected 2040 total traffic volumes being 15 eastbound right turns during the peak hour and the threshold being 50 vehicles per hour.
- An eastbound right turn lane is not warranted for the Meadowbrook Parkway Middle Access based on projected 2040 total traffic volumes being 45 eastbound right turns during the peak hour and the threshold being 50 vehicles per hour.
- An eastbound right turn lane is not warranted for the Meadowbrook Parkway East Right-in/Right-out Access based on projected 2040 total traffic volumes being 30 eastbound right turns during the peak hour and the threshold being 50 vehicles per hour.

Likewise, the El Paso County ECM was used to determine if left turn lanes are warranted at the studied intersections along Meadowbrook Parkway. For minor arterials or lower classifications, a left turn lane is required for any access with a projected peak hour ingress turning volume of 25 vehicles per hour or greater. Therefore, a westbound left turn lane will be required at the west access along Meadowbrook

Parkway while a northbound and westbound left turn lane will be required at the middle access along Meadowbrook Parkway.

Based on El Paso County standards for a design speed of 40 miles per hour, the west access along Meadowbrook Parkway should provide a westbound left turn lane with a length of 205 feet (50 feet of storage plus 155 feet of deceleration lane length) plus a 160-foot taper. However, there is approximately 260 feet of available space for a westbound left turn lane at the west access due to the proposed location of the middle access. As such, a deviation was previously provided to allow for the westbound left turn lane at the west access along Meadowbrook Parkway to provide a maximum possible length of 100 feet (standard 50 feet of storage and substandard 50 feet of deceleration lane length) plus a 160-foot taper (standard) to accommodate the spacing restriction. It should be noted that there will not be an access on the north leg of the middle access along Meadowbrook Parkway due to the configuration of the single-family development to north. This prevents having to provide back-to-back left turn lanes in the future which allows additional space for the proposed left turn lane at the west access along Meadowbrook Parkway. The 95th percentile vehicle queues calculated within Synchro software demonstrate one (1) vehicle queue in the westbound left turn lane during the peak hour in 2026 and 2040. Further, CDOT guidelines for NR-C roadway (Non-Rural Arterial) and lower classifications identify left turn lane requirements as storage length plus taper length. Based on CDOT storage requirement of one foot per left turning vehicle during the peak hour and a speed limit of 40 miles per hour, the westbound left turn lane should provide 55 feet of length plus a 145-foot taper based on CDOT standards. However, a minimum storage length of 100 feet is typically recommended when less than 100 vehicles are reported; therefore, the turn lane would be 100 feet plus a 145-foot taper based on CDOT standards. Therefore, it is believed the 100-foot turn lane plus 160-taper recommended in the deviation is sufficient.

A westbound left turn lane with a length of 405 feet (250 feet of storage plus 155 feet of deceleration lane length) plus a 160-foot taper should be provided at the middle access along Meadowbrook Parkway. It should be noted the standards for left turn storage in El Paso County show a maximum of 250 feet or more and this length is generally one foot per turning movement during the peak hour. Based on this a storage length of 430 feet (430 vehicles during the peak hour) could be considered; however, with the 95th percentile vehicles queues reporting a length of 50 feet, the maximum length listed in the El Paso County standards of 250 feet is recommended.

It is anticipated that a separate left turn lane and right turn lane will be warranted at the middle access along Meadowbrook Parkway when Meadowbrook Parkway is extended to Peterson Road. Based on El Paso County standards for a design speed of 30 miles per hour, a northbound left turn lane with a length of 215 feet (100 feet of storage and 115 feet of deceleration lane length) plus a 160-foot taper should be provided at the middle access along Meadowbrook Parkway. This northbound left turn lane will not be triggered in the short-term; however, the project will include this left turn lane with the initial phase of construction to avoid restriping this intersection in the future. It should be noted that the storage length required at this northbound left turn lane in the short term is only 50 feet shorter than the storage length required for the long-term horizon; therefore, the long-term configuration is recommended for the short-term horizon. The northbound right turn lane at the middle access along Meadowbrook Parkway will be a continuous lane as the through lane will drop as a forced right turn movement.

With the recommended lane configurations and control of the three proposed accesses along Meadowbrook Parkway, the access intersections along Meadowbrook Parkway are expected to operate acceptably with LOS B or better during the peak hours in 2026. With the expected future connection of Meadowbrook Parkway to Peterson Road, the access intersections along Meadowbrook Parkway are expected to continue to operate acceptably with LOS C or better during the peak hours in 2040. **Table 5** provides the results of the level of service at the key study area access intersections.

Table 5 – Meadowbrook Parkway Project Accesses LOS Results

Scenario	2026 Total Traffic				2040 Total Traffic			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
Meadowbrook Parkway West Access (Residential)								
Northbound Approach	8.5	A	8.4	A	10.3	B	10.6	B
Westbound Left	7.2	A	7.3	A	7.7	A	8.0	A
Meadowbrook Parkway Middle Access								
Northbound Approach	9.3	A	8.9	A	21.2	C	15.8	C
Westbound Left	8.4	A	7.9	A	9.3	A	9.1	A
Meadowbrook Parkway East Access								
Northbound Right	11.8	B	10.2	B	13.5	B	13.0	B

Sight Distance Evaluation

It is recommended that appropriate sight distance triangles be provided at all site access points to give drivers exiting the development areas a clear view of oncoming traffic. Landscaping and objects within sight triangles must not obstruct drivers’ views of the adjacent travel lanes. Intersection sight distances for left turn from stop and right turn from stop were analyzed for the proposed project accesses along Meadowbrook Parkway.

With El Paso County standards and a design speed of 40 miles per hour along Meadowbrook Parkway, the intersection sight distance for a vehicle turning from stop is 445 feet. Therefore, all obstructions for turning vehicles from stop should be clear to the right and left within the triangle created with a vertex point located 13 feet (10 feet from local roads) from the edge of the major road traveled way (typical position of the minor road driver’s eye when stopped) and a line-of-sight distance of 445 feet located in the middle of the eastbound and westbound through lanes along Meadowbrook Parkway. It is believed that the accesses are appropriate at the current locations to provide the necessary sight distance needed but verification should be provided with sight distance triangles incorporated within the design plans.

Queuing Analysis

A queuing analysis was conducted for turn lanes at the access intersections. The queuing analysis was performed using the Synchro analysis software presenting the results of the 95th percentile queue length. Results are shown in the following **Table 6** with calculations provided in the attached level of service operational outputs. Results of the queuing analysis indicate that vehicle queues are expected to be managed and contained within the provided turn lanes of the studied intersections. In addition, the westbound left turn lanes for the west and middle accesses have been designed per El Paso County standards or the requested deviations.

Table 6 – Turn Lane Length Analysis Results

Intersection Approach / Turn Lane	Existing Turn Lane Length (feet)	2026 Calculated Queue Length (feet)	2026 Recommended Turn Lane Length (feet)	2040 Calculated Queue Length (feet)	2040 Recommended Turn Lane Length (feet)
Meadowbrook Parkway & Newt Drive					
Northbound Approach		75'	C	50'	C
Southbound Approach		25'	C	25'	C
Eastbound Approach		75'	C	100'	C
Westbound Approach		75'	C	100'	C
Meadowbrook Parkway West Access (Residential)					
Northbound Approach	DNE	25'	C	25'	C
Westbound Left	DNE	25'	\$ 100' + 160' T	25'	\$ 100' + 160' T
Meadowbrook Parkway Middle Access					
Northbound Left	DNE	25'	215' + 120' T	75'	215' + 120' T
Northbound Right	DNE	25'	C	25'	C
Westbound Left	DNE	50'	405' + 160'	50'	405' + 160'
Meadowbrook Parkway East Access					
Northbound Right	DNE	50'	C	50'	C

DNE = Does Not Exist; C = Continuous Lane; T= Taper; \$ = Length deviated from standards due to spacing constraints

Bicycle and Pedestrian Access

Sidewalks and bike lanes currently do not exist along the south side of Newt Drive adjacent to the property frontage. Bike lanes currently do not exist along any of the roadways within the study limits. Sidewalks exist adjacent to surrounding development along Newt Drive and Meadowbrook Parkway with exception of along Newt Drive at the intersection with US-24.

Sidewalks are proposed with the project adjacent to the property frontages along both sides of Meadowbrook Parkway. Sidewalks and bike lanes are not proposed along the south side of Newt Drive from Meadowbrook Parkway to US-24 due to right-of-way constraints with the widened Newt Drive. Sidewalks are also proposed along both sides of all of the internal local streets of the project site.

A bike ramp is proposed on the south and east corners of the roundabout intersection of Newt Drive and Meadowbrook Parkway to allow bicyclists traveling east on Meadowbrook Parkway to exit the roadway and navigate the roundabout as a pedestrian. Bicycles traveling eastbound along Meadowbrook Parkway can exit the roadway at the proposed ramp located on the east side of the right-in/right-out project access along Meadowbrook Parkway or the proposed ramp located on the south corner of the Newt Drive and Meadowbrook Parkway intersection. Bicycles traveling eastbound along Meadowbrook Parkway can reenter the roadway at the proposed ramp located on the east corner of the Newt Drive and Meadowbrook Parkway intersection or at the proposed ramp currently located on the west side of the existing Circle K private access along Meadowbrook Parkway. In general, inexperienced bicyclists, who are uncomfortable navigating the roundabout as vehicles will utilize the bike ramps. Bicyclists traveling southeastbound along Newt Drive towards the intersection with US 24, are likely to be comfortable navigating the roundabout as a vehicle, and not likely to use bike ramps, and/or sidewalks to navigate the roundabout. Due to limited anticipated use, and to reduce confusion between ADA and bike ramps, and reduce the number of conflict points between vehicles and bicyclists,

a bike ramp is not provided for bicyclists to re-enter the roadway on southeastbound Newt Drive towards the highway. A bike lane is not proposed along the segment of Newt Drive adjacent to the property frontage due to right-of-way constraints, limited anticipated bicycle usage in this area, and because US-24 and SH-94 do not provide bike lanes.

School Routes Pedestrian Analysis

As identified in the El Paso County ECM Appendix B.4.1.C, school routing plans per the MUTCD between the project and all schools within 2.0 miles of the project boundary should be evaluated. To establish a safer route to and from school for schoolchildren, the application of planning criterion for school walk routes might make it necessary for children to walk an indirect route to an established school crossing located where there is existing traffic control and to avoid the use of a direct crossing where there is no existing traffic control. Evans Elementary School, McAuliffe Elementary School, and Horizon Middle School are all located within 2.0 miles of the project boundary; therefore, pedestrian routes were evaluated from the project to all three of these schools.

Evans Elementary School is located in the northeast quadrant of the Omaha Boulevard and Peterson Road intersection. Trail paths are available in the vacant land west and northwest of the project site to connect pedestrians from the project site to the sidewalk connections located on the southeast corner of the Western Drive and Peterson Road intersection. From here, sidewalk connections are fully available on both sides of Peterson Road, Omaha Boulevard, and Winnebago Road in route to Evans Elementary School. It should be noted that there are curb ramps along Peterson Road but not any designated crosswalks for pedestrians traveling along Peterson Road to and from the school and the project. Likewise, there is not a crosswalk to along Omaha Boulevard for pedestrians to cross Omaha Boulevard.

McAuliffe Elementary is located in the southwest quadrant of the Galley Road and Hathaway intersection. Trail paths are available in the vacant land west of the project site to connect pedestrians from the project site to the sidewalk connections located on the southeast corner of the Peterson Road and Galley Road intersection. From the Peterson Road and Galley Road intersection, sidewalk connections are mostly available on both sides of Galley Road and fully available on both sides of Hathaway Drive in route to McAuliffe Elementary School. A dirt lot is located in a segment along the north side of Galley Road without sidewalk extending from Western Drive to Colorado Freedom Church. Sidewalk is not available along the south side of Galley Road and the west side of Peterson Road extending from Western Drive to the retail center located on the northwest corner of the US-24 and Peterson Road intersection. However, pedestrians can travel along the north side of Galley Road in this stretch. A crosswalk is located on the east and north sides of the signalized T-intersection of Peterson Road and Galley Road. Likewise, a designated crosswalk is located on the east and west sides of the Galley Road and Hathaway Drive signalized intersection.

Horizon Middle School is located in the northwest quadrant of the Piros Drive and Peterson Road intersection. Trail paths are available in the vacant land west and northwest of the project site to connect pedestrians from the project site to the sidewalk connections located on the southeast corner of the Western Drive and Peterson Road intersection. From here, sidewalks are fully available along both sides of Peterson Road and Piros Drive in route to Horizon Middle School. Crosswalks are not located at multiple intersections along Peterson Road from Galley Road to Palmer Park Boulevard. Designated crosswalks are available at the signalized intersections of Palmer Park Boulevard/Peterson Road and Piros Drive/Peterson Road.

Road Impact Fees

Road impact fees were evaluated based on the El Paso County Road Impact Fee Schedule. The road impact fee for the proposed Crossroads Mixed Use project is expected to be \$999,556.00 for the overall development and \$277,456.00 for the retail Filing #2 development area. Road impact fee calculations

are shown in **Table 7**. The road impact fees for Filing #2 will be paid upfront while the project will choose to pay the road impact fees of the future lots up front or be included in one of the available public improvement districts with reduced upfront costs. The project team will determine payment methods with the submission of future final plats. Of note, El Paso County has determined that the proposed roundabout qualifies for automatic inclusion for credit in the Road Impact Fee Program.

Table 7 – Crossroads Mixed Use Road Impact Fees (Overall Development)

Filing	Use	Units	Per 1,000 SF or DU	Fee / Unit	Per Use Fee
#1	Mid-Rise Multifamily Housing (ITE 221)	300	300	2,407.00	\$722,100.00
#2	Shopping Center (ITE 820)	10,000	10	4,958.00	\$49,580.00
	Pharmacy (ITE 881)	14,000	14	4,958.00	\$69,412.00
	Sit Down Restaurant (ITE 932)	8,000	8	4,958.00	\$39,664.00
	Fast Food Restaurant (ITE 934)	11,000	11	8,800.00	\$96,800.00
	Coffee Shop (ITE 937)	2,500	3	8,800.00	\$22,000.00
Filing #2 Total					\$277,456.00
Crossroads Mix Use Road Impact Fee					\$999,556.00

Improvement Summary

Based on the results of the intersection operational and vehicle queuing analysis, the recommended lane configurations and control at the key study area intersections are shown in **Figure 13** for both 2026 and 2040.

The following improvements (identified in Table 8) recommended in the Crossroads-Meadowbrook-Reagan Ranch MTIS Study are proposed in association with the overall Crossroads Mixed Use development. Of note, all of the identified improvements with Crossroads Mixed Use will be constructed with Filing #1 of the Crossroads Mixed Use project and are identified in **Table 8**. Therefore, the only improvements associated with Filing #2 are internal streets and accesses to the retail lots.

Table 8 – Crossroads Mixed Use Improvement Summary

Intersection / Roadway	Improvements	Crossroads Mixed Use Full Development Traffic Contribution	Associated Development Area
Meadowbrook Parkway	Extension of Meadowbrook Parkway from Newt Drive to the west property limits	100%	Crossroads Mixed Use Filing #1
Newt Drive and Meadowbrook Parkway	Construction of a single lane roundabout	AM Peak 942 ----- 1,405 67.0%	Crossroads Mixed Use Filing #1
Newt Drive/SH-94 and US-24	Extending the eastbound to southwestbound right-turn acceleration lane from 760 feet to 960 feet	AM Peak 257 ----- 495 51.9%	Crossroads Mixed Use Filing #1
	Provide additional signal head and designate northbound dual left turn lanes with 850 feet of length plus a 225-foot taper	AM Peak 260 ----- 425 61.2%	Crossroads Mixed Use Filing #1

Provide an update on improvements. Include estimated completion dates for each and include any additional requirements CDOT might have asked for for filing 2.

The recommended improvements are based on the global analysis provided for this area of Colorado Springs and El Paso County considering existing traffic volumes, background traffic volume growth from other development projects, and four project areas of Crossroads Mixed Use, Crossroads North, Meadowbrook Park, and Reagan Ranch. The improvements identified are not solely needed to accommodate Crossroads Mixed Use; however, these improvements will be constructed in association with Filing #1 of the Crossroads Mixed Use development. The west leg of Meadowbrook Parkway at Newt Drive is current under construction, and this will be followed by construction of the roundabout at the Meadowbrook Parkway and Newt Drive intersection and turn lane improvements at the Newt Drive and US-24 intersection.

The Colorado Department of Transportation (CDOT) has identified the potential need for an interchange at the US-24 and SH-94 intersection. It should be noted that Right-of-Way reservation is not believed to be needed on the west side of US-24 at this intersection of SH-94 and US-24. The need for grade separation at the SH-94 and US-24 intersection is primarily anticipated to be triggered by the westbound left turn movements from SH-94 to US-24. As such, it is believed that a westbound left turn flyover condition can be constructed without the need for ramp improvements on the west leg of the SH-94 and US-24 intersection. Detailed improvement exhibits at the SH-94 and US-24 intersection for the short-term 2026 and long-term 2040 with westbound triple left turn lanes is attached. It should be noted that these improvement exhibits do not provide the possible westbound left turn flyover ramp condition.

An access permit is being process with CDOT for the west leg of Newt Drive at the intersection with US-24. Roadway improvements will be detailed in the terms and conditions of the finalized access permit.

Conclusions and Recommendations

In summary, this traffic study provides project traffic generation estimates to identify potential project traffic related impacts on the local street system with the proposed Crossroads Mixed Use project. Based on the analysis presented in this study, Kimley-Horn believes the proposed Crossroads Mixed Use development will be successfully incorporated into the existing and future roadway network. Further, the project is believed to be in compliance with the *Crossroads-Meadowbrook-Reagan Ranch MTIS* completed by Kimley-Horn in February 2022.

With completion of the Crossroads Mixed Use project, one private driveway access and two private street accesses are proposed to be located on the south side of the future extension of Meadowbrook Parkway west of Newt Drive. The east access along Meadowbrook Parkway will be a private street providing access to the retail area and will be restricted to right-in/right out movements. The middle access along Meadowbrook Parkway will be a private street and will allow full turning movements. The west access along Meadowbrook Parkway will allow full turning movements and provide access to a private driveway to the multifamily residential area. All three project accesses along Meadowbrook Parkway are recommended to provide stop control and have R1-1 "STOP" signs installed for the exiting northbound approaches. To provide signage for restricting left turn movements at the proposed right-in/right-out east access, it is recommended that a R3-2 No Left Turn sign be placed underneath the STOP sign. A R6-1(R) "ONE WAY" sign should also be installed within the raised center median of Meadowbrook Parkway.

Based on El Paso County standards for a design speed of 40 miles per hour, a westbound left turn lane with a length of 205 feet (50 feet of storage plus 155 feet of deceleration lane length) plus a 160-foot taper should be provided at the middle access along Meadowbrook Parkway. However, there is approximately 260 feet of available space for a westbound left turn lane at the west access due to the proposed location of the middle access. As such, a deviation was previously provided to allow for the westbound left turn lane at the west access along Meadowbrook Parkway to provide a maximum

possible length of 100 feet (standard 50 feet of storage and substandard 50 feet of deceleration lane length) plus a 160-foot taper (standard) to accommodate the spacing restriction.

The middle access along Meadowbrook Parkway should provide a westbound left turn lane with a length of 405 feet (250 feet of storage plus 155 feet of deceleration lane length) plus a 160-foot taper. Further, the middle access along Meadowbrook Parkway should provide a northbound left turn lane with a length of 215 feet (100 feet of storage and 115 feet of deceleration lane length) plus a 160-foot taper. The northbound right turn lane at the middle access along Meadowbrook Parkway will be a continuous lane as the through lane will drop as a forced right turn movement.

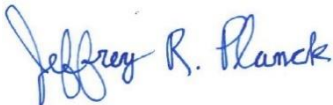
The west and east accesses along Meadowbrook Parkway meet El Paso County average daily traffic threshold standard of 3,000 vehicles per day for an Urban Local street. The middle access along meets the El Paso County average daily threshold standard of 10,000 and 20,000 vehicles per day for both Urban Residential and Urban Nonresidential Collectors, respectively. With the west side of the middle access street fronting the multifamily residential site, this roadway could meet the characteristics of an Urban Residential Collector. However, the project previously requested a deviation to allow for the middle access street to be constructed to a local street cross section and to allow for a single shared lane for the northbound approach of the intersection with Meadowbrook Parkway.

A single lane roundabout is currently planned at the intersection of Meadowbrook Parkway and Newt Drive. A design documentation package for the proposed roundabout was previously approved for construction of this roundabout.

If you have any questions or require anything further, please feel free to call me at (720) 943-9962.

Sincerely,

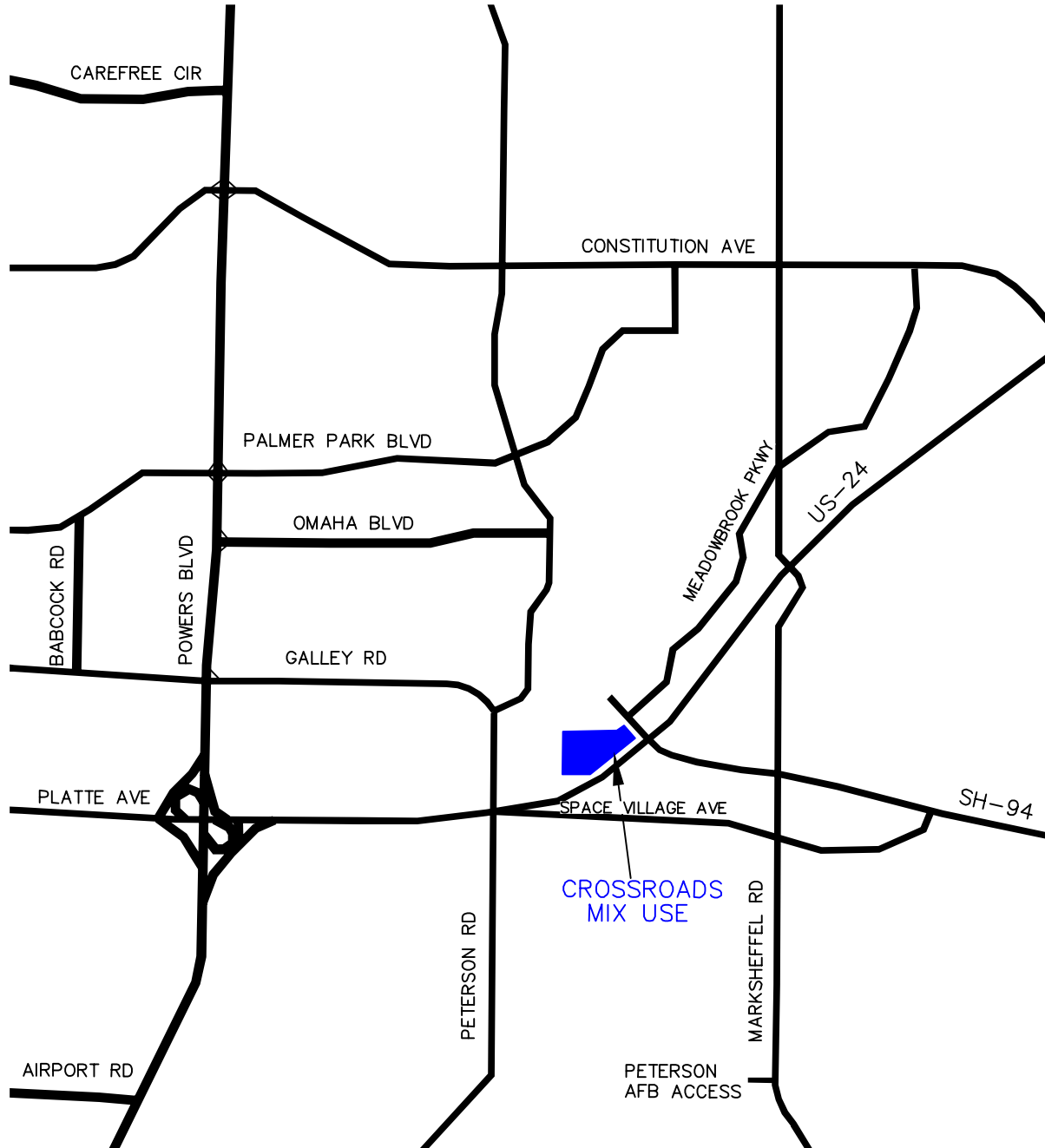
KIMLEY-HORN AND ASSOCIATES, INC.



Jeffrey R. Planck, P.E.
Project Manager

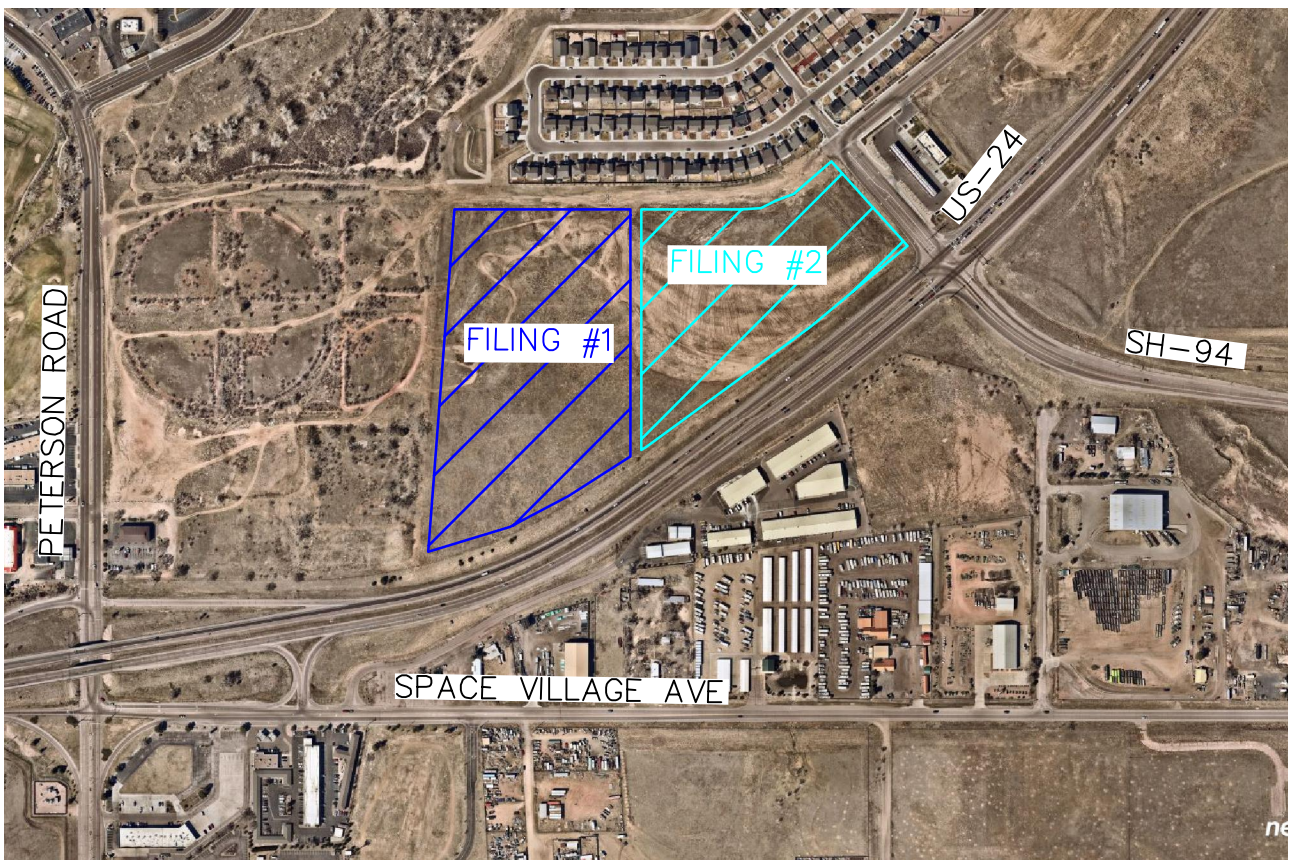


Figures



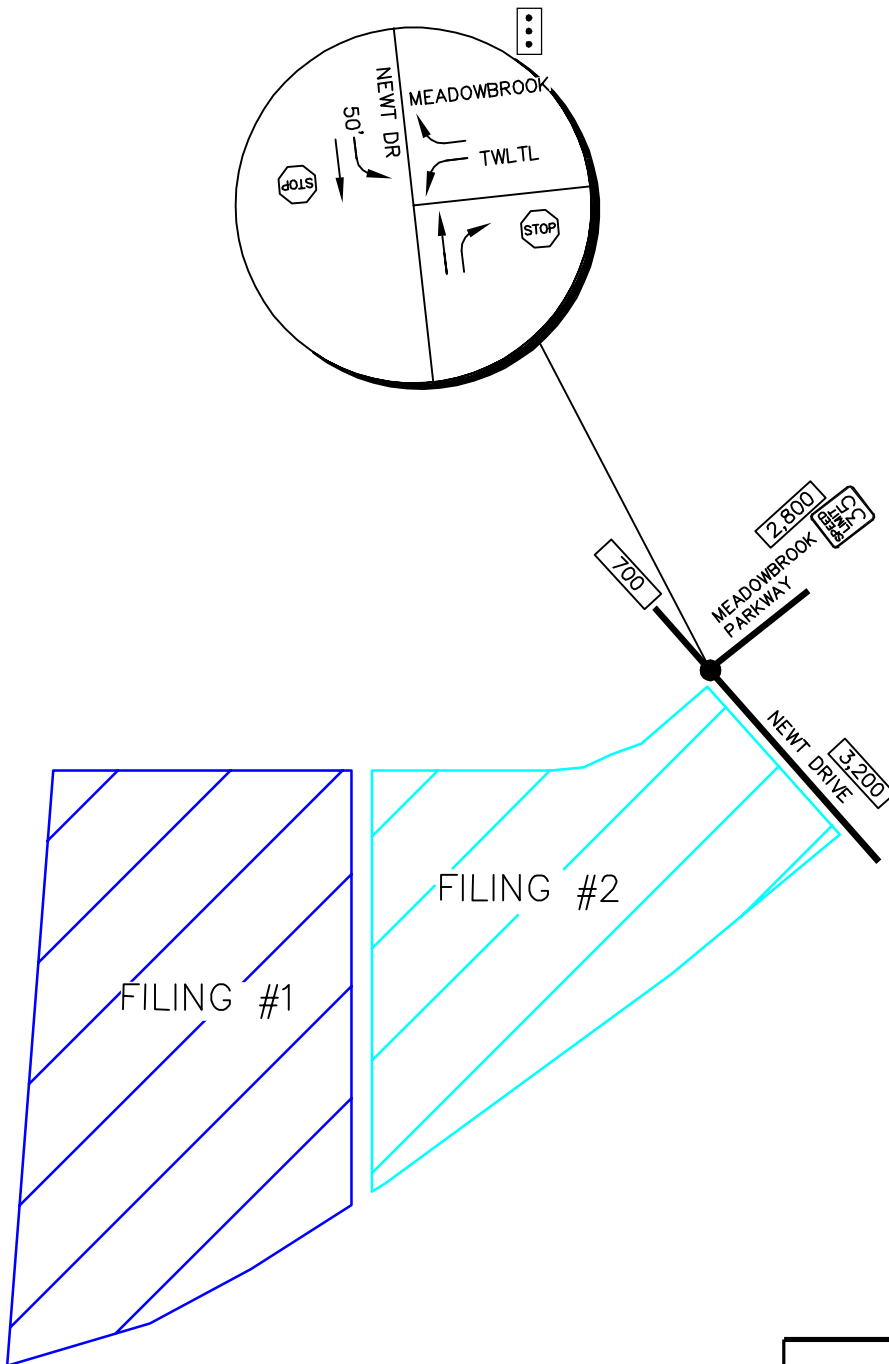
CROSSROADS MIX USE
VICINITY MAP

FIGURE 1



CROSSROADS MIX USE
SITE AREA

FIGURE 2

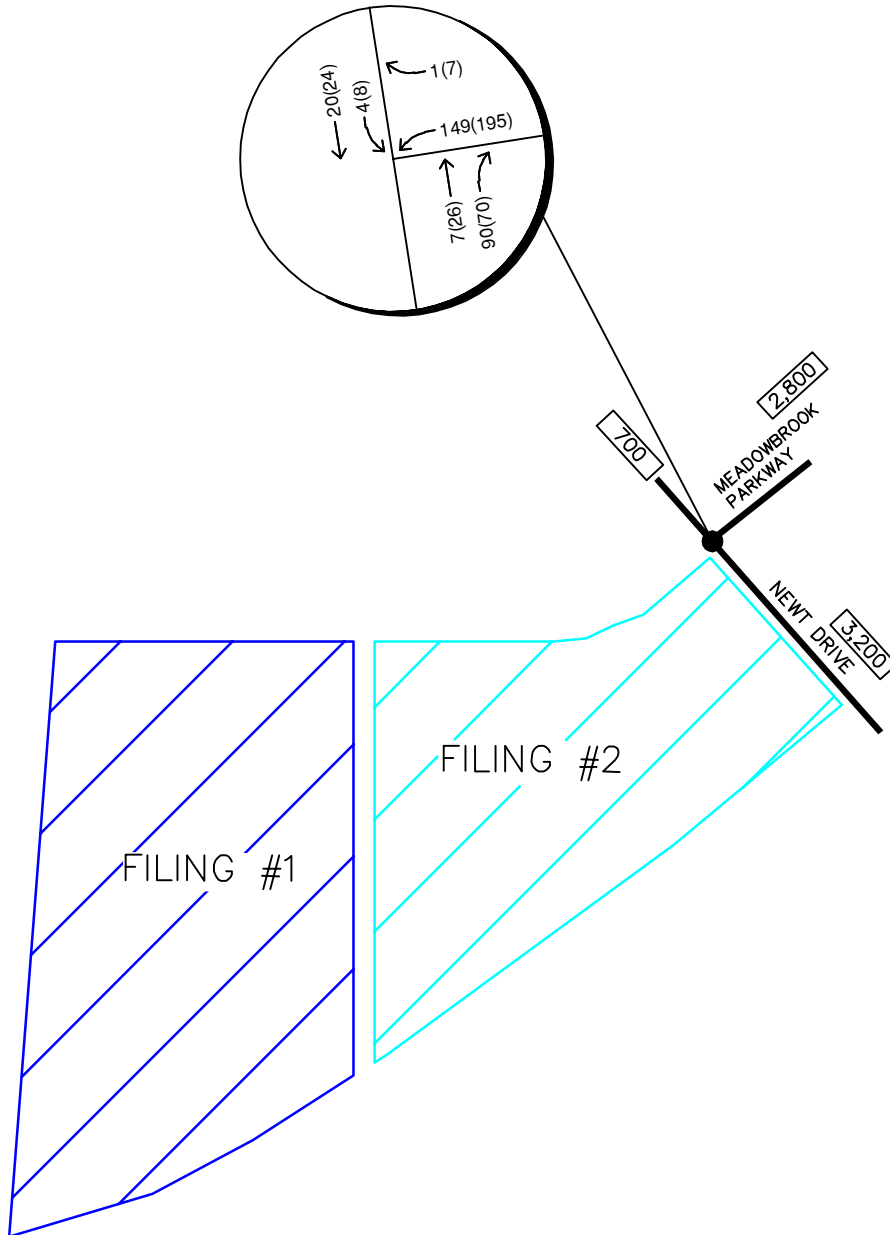


LEGEND	
●	Existing Key Intersection
STOP	Stop Controlled Approach
XX	Roadway Speed Limit
TWLTL	Two-Way Left Turn Lane
↩	100' Turn Lane Length (feet)

CROSSROADS MIX USE
 EXISTING LANE CONFIGURATIONS

FIGURE 3

Tuesday, June 2, 2020
 7:00 to 8:00 AM (4:30 to 5:30 PM)

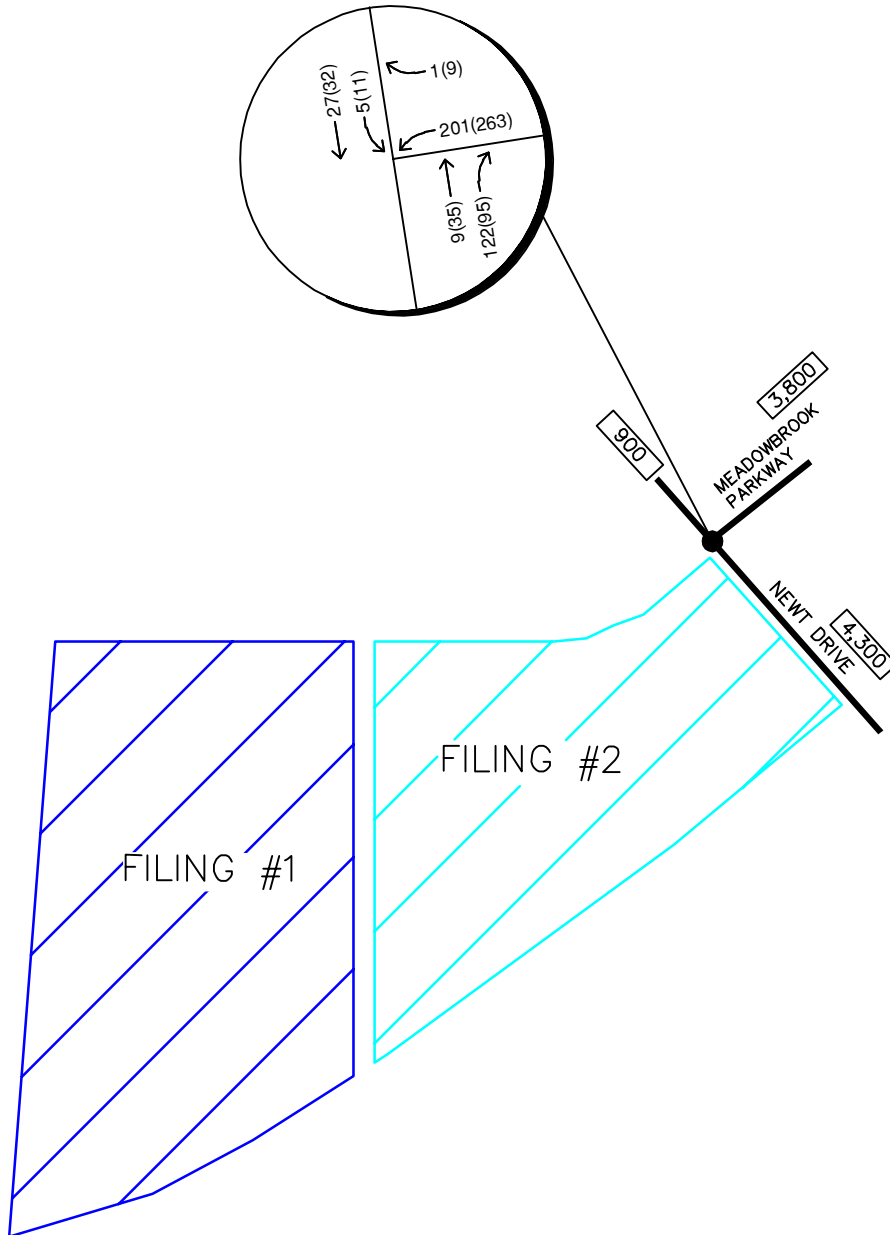


LEGEND

- Study Area Key Intersection
- XXX(XXX) Weekday AM(PM)
Peak Hour Traffic Volumes
- [XX,X00] Estimated Daily Traffic Volume

CROSSROADS MIX USE
 2020 EXISTING TRAFFIC VOLUMES

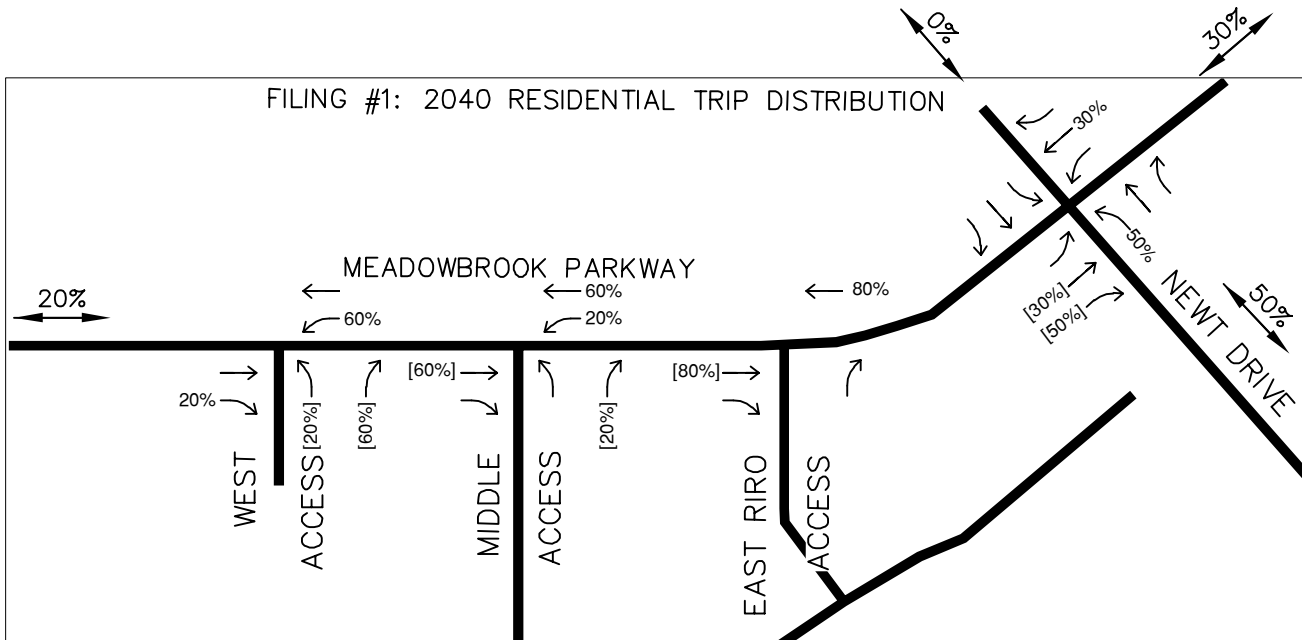
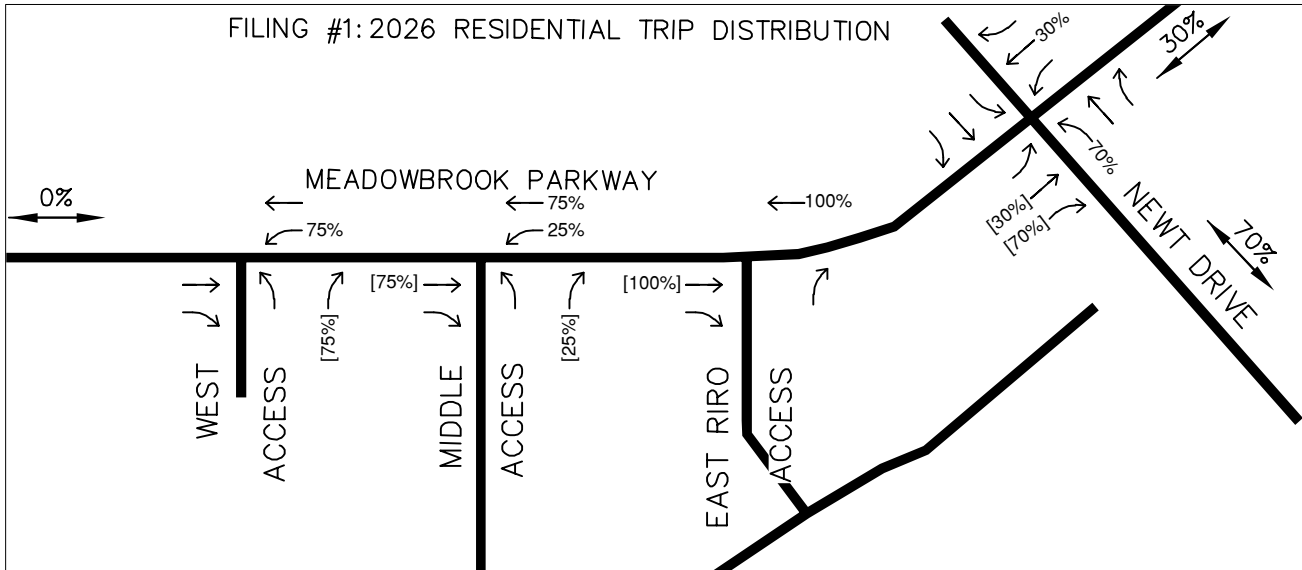
FIGURE 4



LEGEND	
●	Study Area Key Intersection
XXX(XXX)	Weekday AM(PM) Peak Hour Traffic Volumes
[XX,X00]	Estimated Daily Traffic Volume

CROSSROADS MIX USE
 ADJUSTED EXISTING TRAFFIC VOLUMES

FIGURE 5

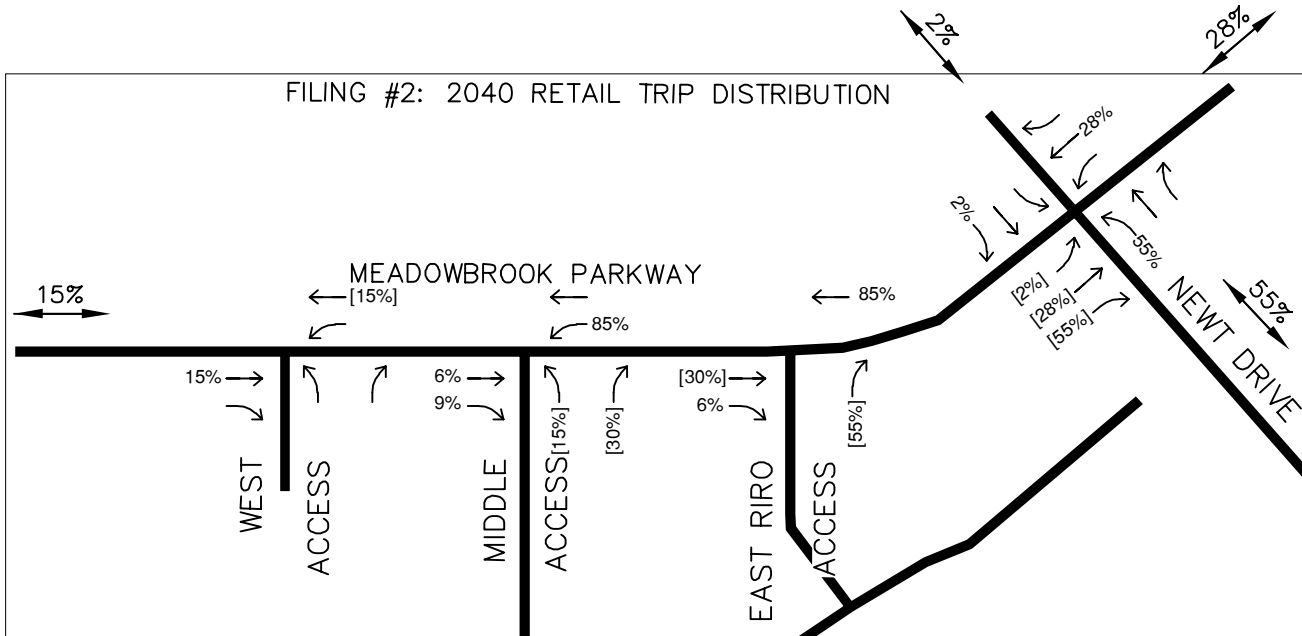
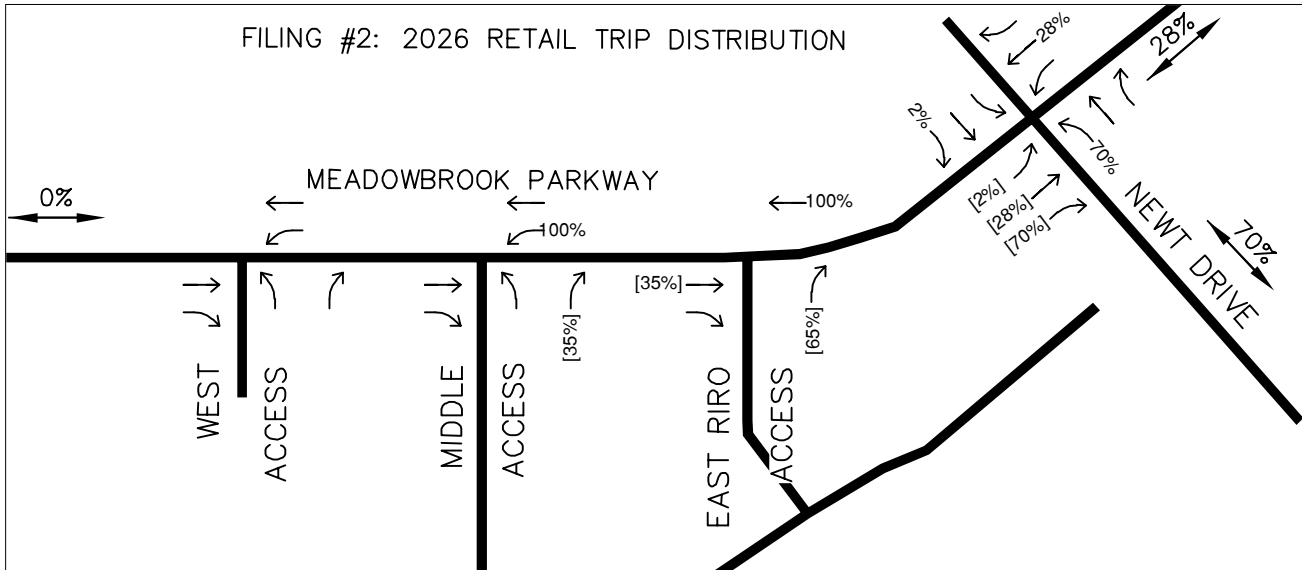


LEGEND

- Study Area Key Intersection
- XX% External Trip Distribution Percentage
- XX%[XX%] Entering[Exiting] Trip Distribution Percentage

CROSSROADS MIX USE
 RESIDENTIAL TRIP DISTRIBUTION

FIGURE 6

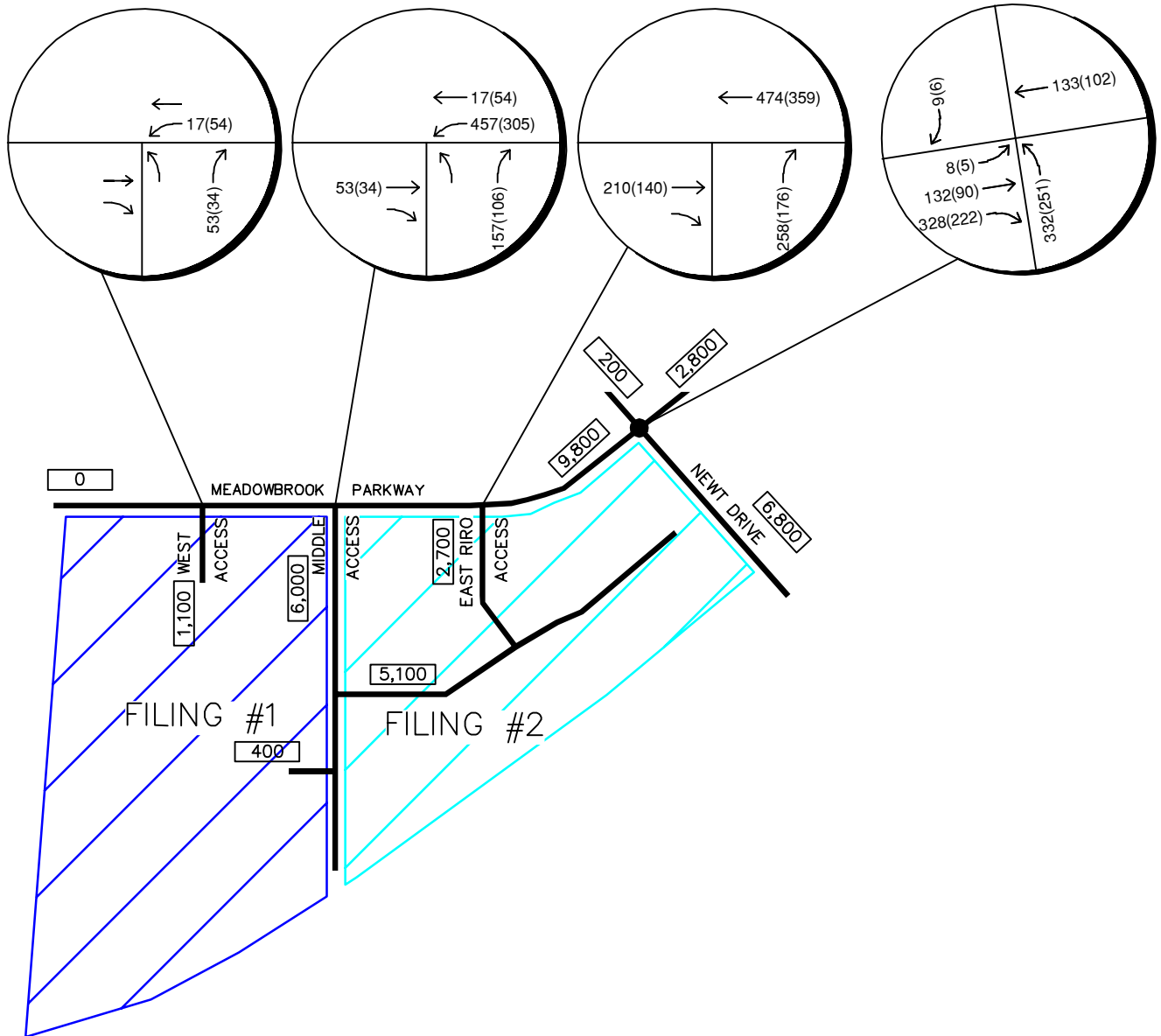


LEGEND

- Study Area Key Intersection
- XX% External Trip Distribution Percentage
- XX%[XX%] Entering[Exiting] Trip Distribution Percentage

CROSSROADS MIX USE
 RETAIL TRIP DISTRIBUTION

FIGURE 7

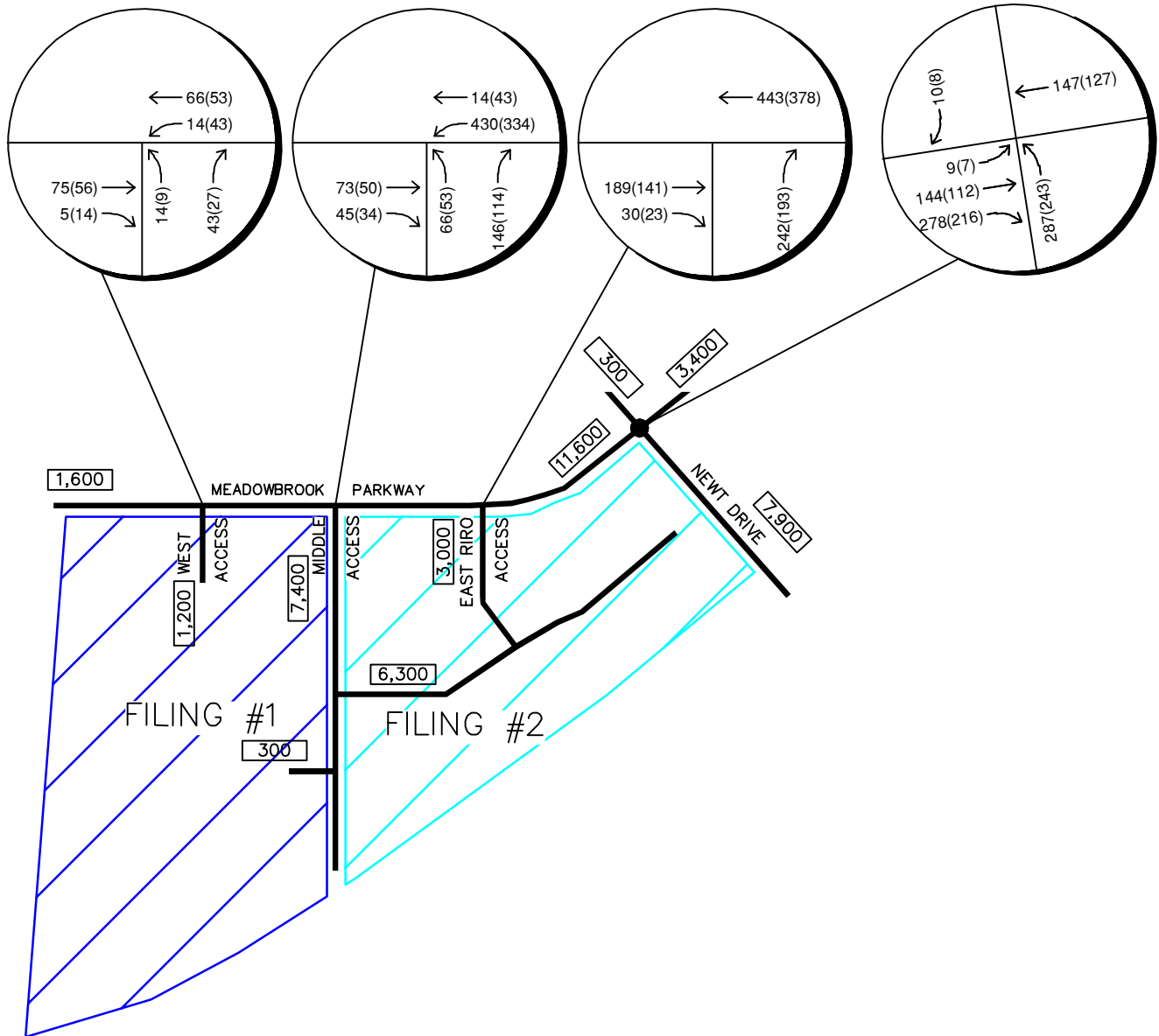


LEGEND

- Study Area Key Intersection
- XXX(XXX) Weekday AM(PM)
Peak Hour Traffic Volumes
- [XX,X00] Estimated Daily Traffic Volume

CROSSROADS MIX USE
 2026 PROJECT TRAFFIC ASSIGNMENT

FIGURE 8

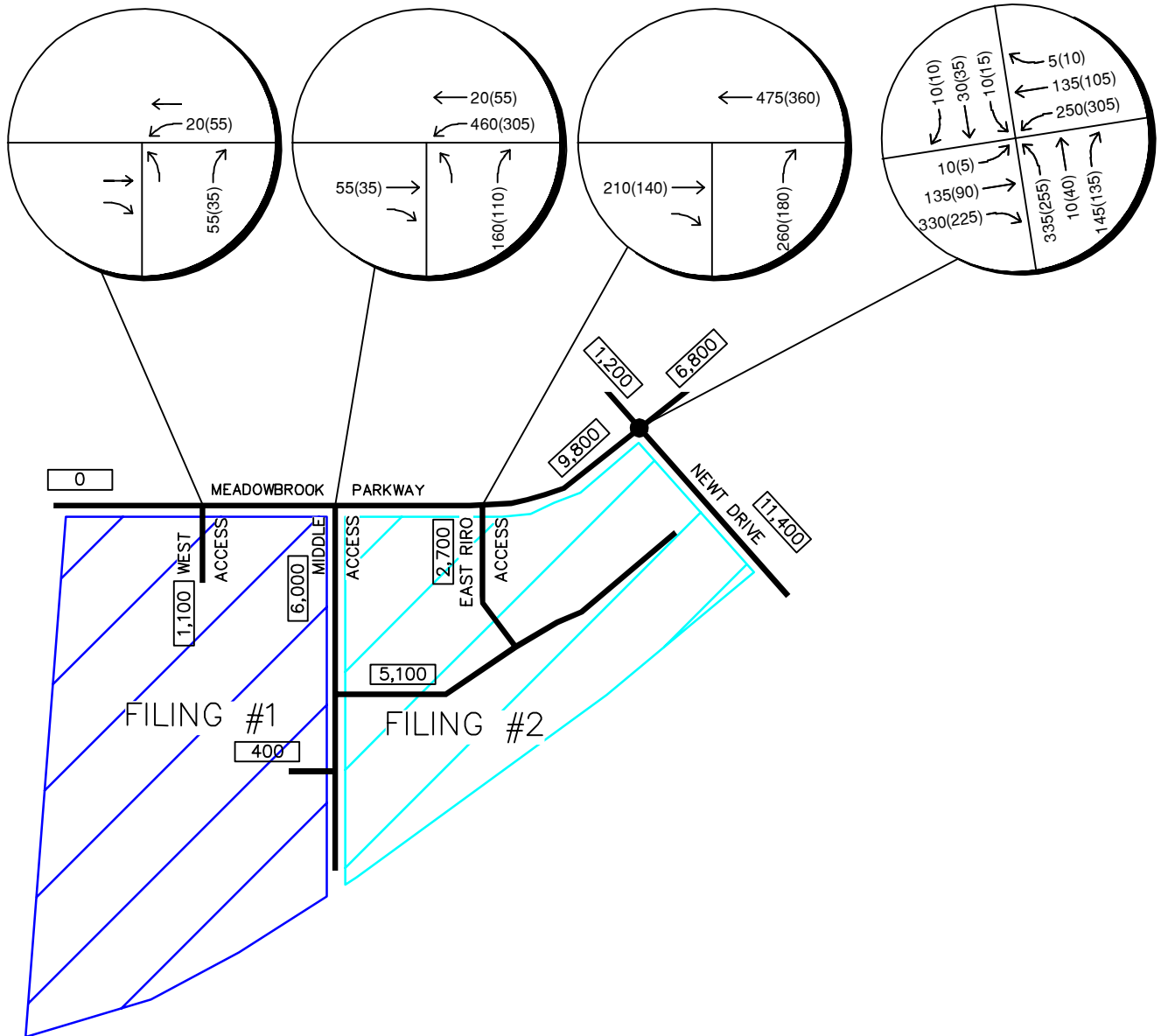


LEGEND

- Study Area Key Intersection
- XXX(XXX) Weekday AM(PM)
Peak Hour Traffic Volumes
- [XX,X00] Estimated Daily Traffic Volume

CROSSROADS MIX USE
 2040 PROJECT TRAFFIC ASSIGNMENT

FIGURE 9

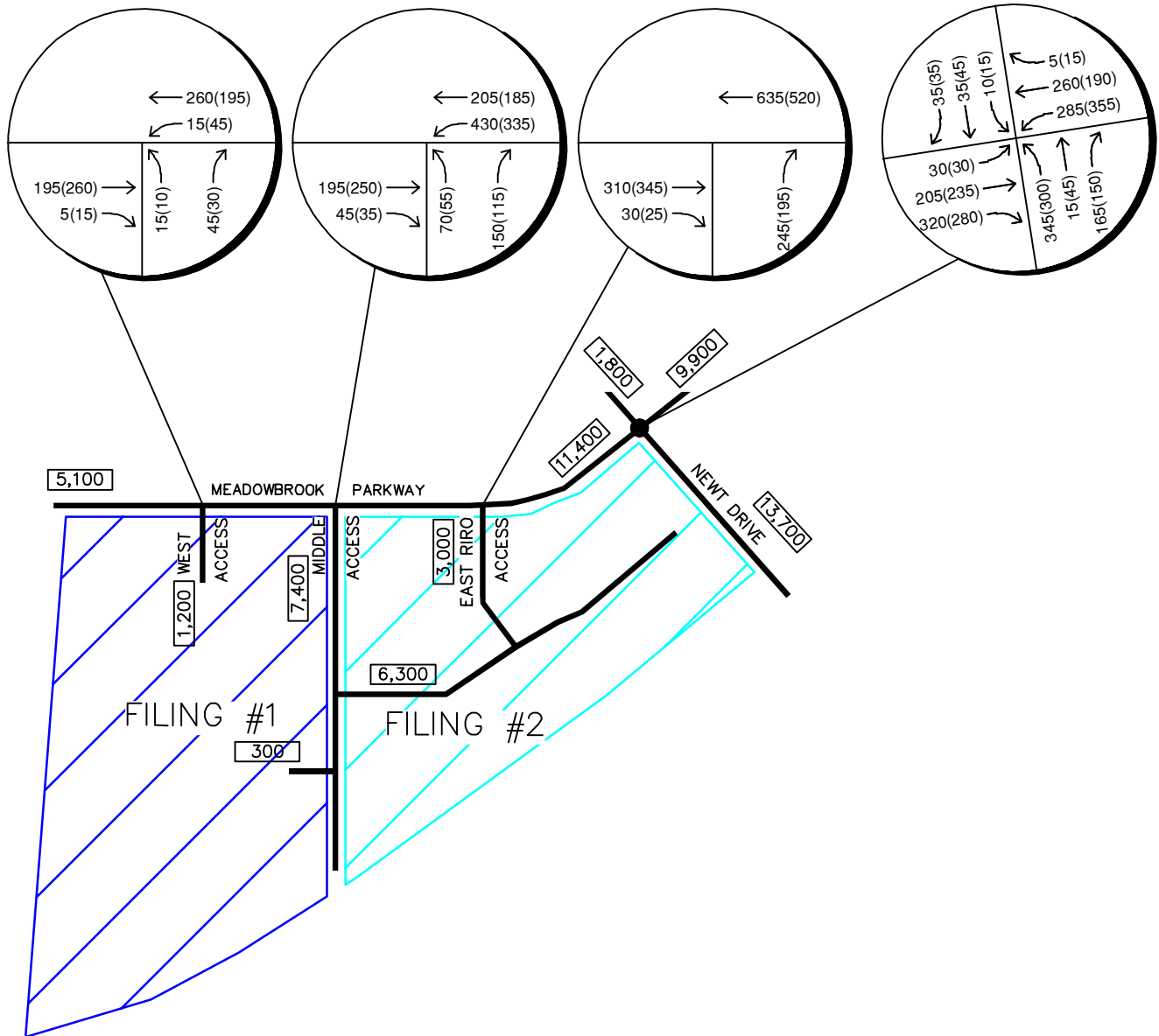


LEGEND

- Study Area Key Intersection
- XXX(XXX) Weekday AM(PM)
Peak Hour Traffic Volumes
- XX,X00 Estimated Daily Traffic Volume

CROSSROADS MIX USE
 2026 TOTAL TRAFFIC VOLUMES

FIGURE 10

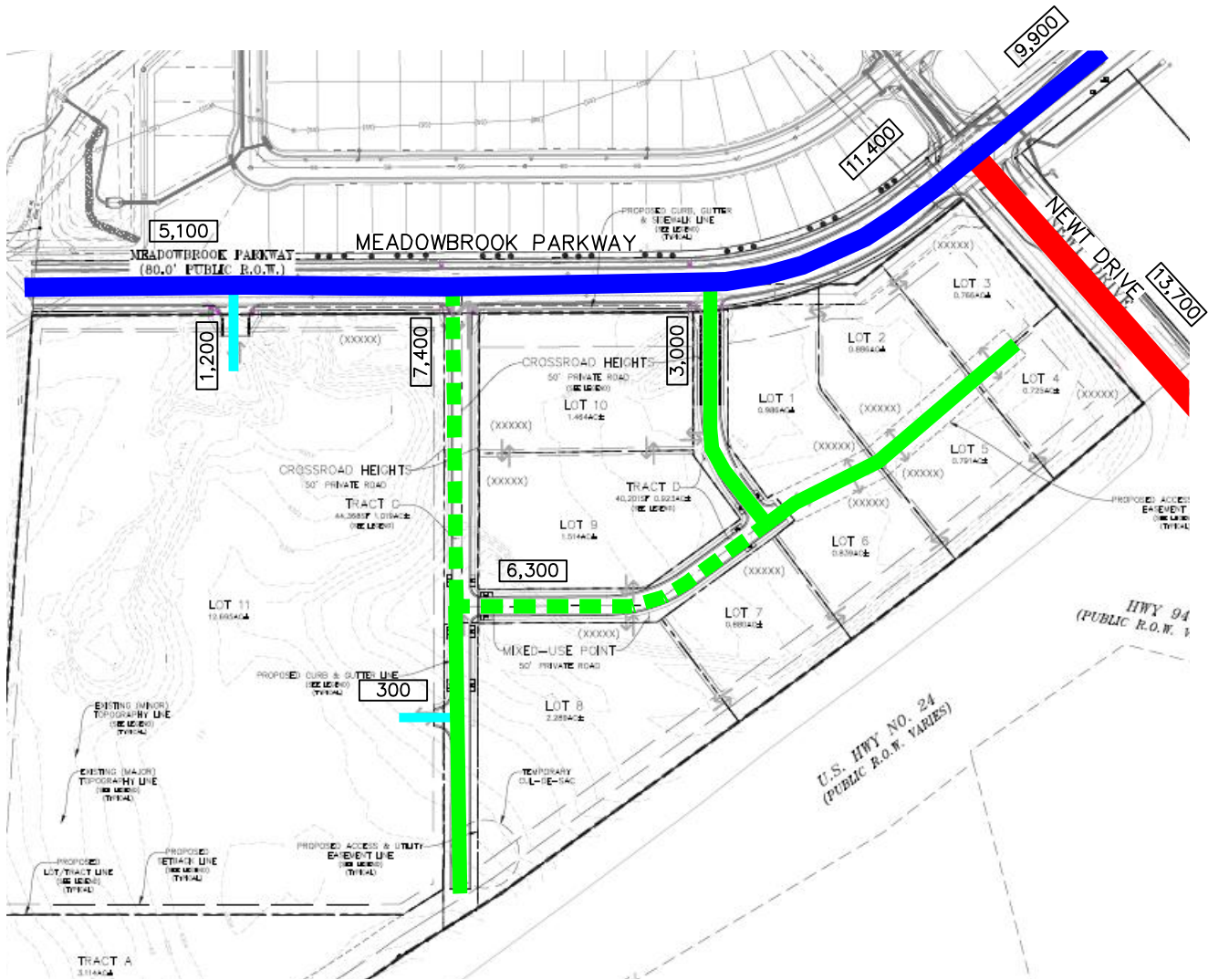


LEGEND

- Study Area Key Intersection
- XXX(XXX) Weekday AM(PM)
Peak Hour Traffic Volumes
- [XX,X00] Estimated Daily Traffic Volume

CROSSROADS MIX USE
 2040 TOTAL TRAFFIC VOLUMES

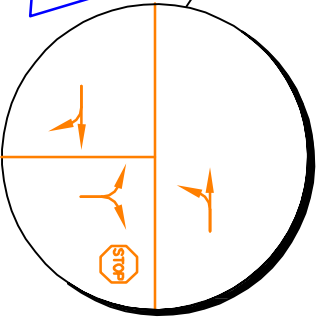
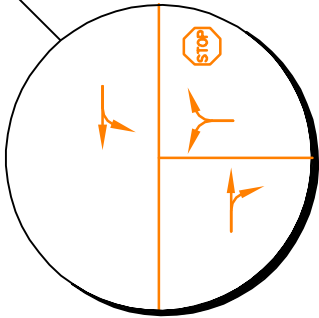
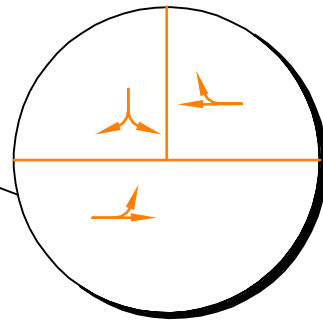
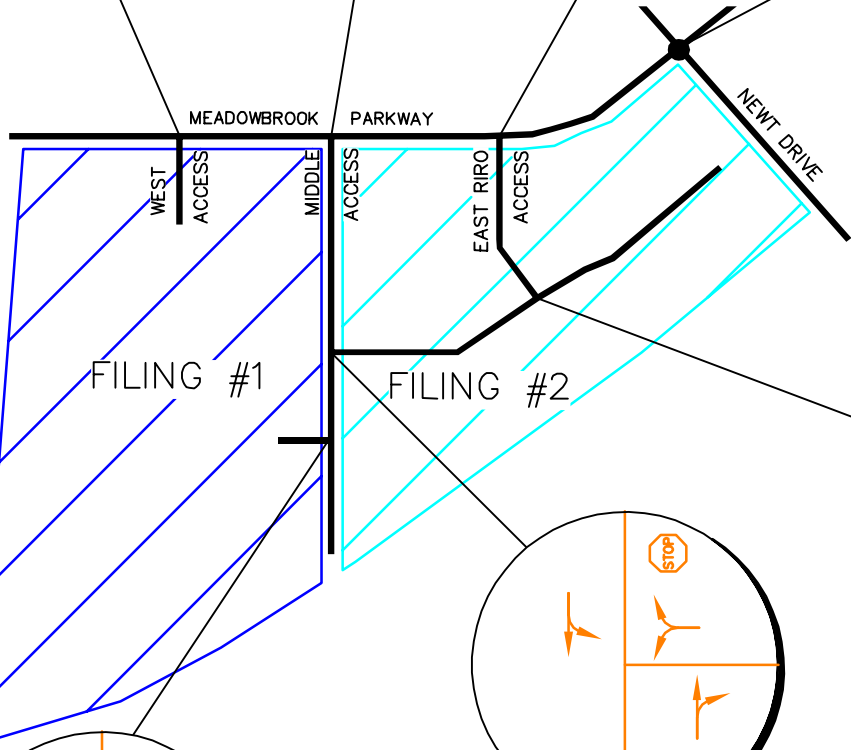
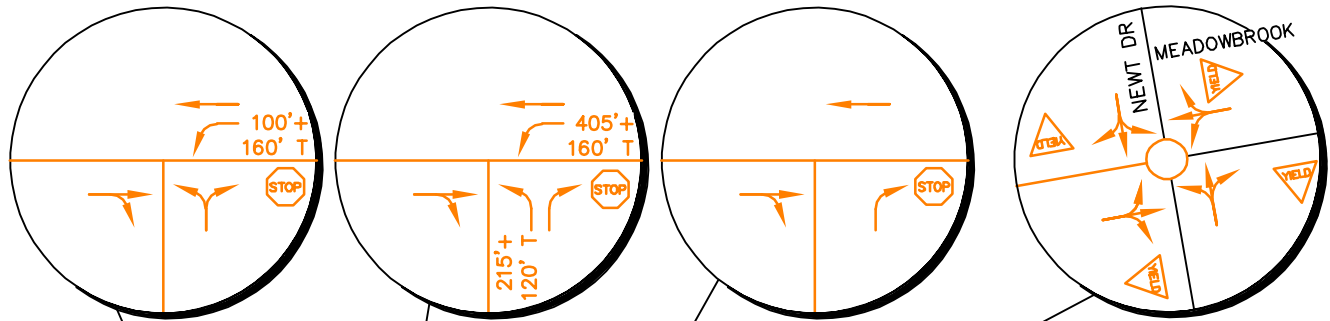
FIGURE 11



LEGEND	
█	URBAN MINOR ARTERIAL
█	URBAN NON-RESIDENTIAL COLLECTOR
█	URBAN LOCAL
- - -	DEVIATION REQUEST FROM URBAN NON R. COLLECTOR TO URBAN LOCAL
█	PRIVATE ACCESS
XX,X00	ESTIMATED 2040 DAILY TRAFFIC VOLUME

CROSSROADS MIX USE
 CIRCULATION PLAN

FIGURE 12



LEGEND

- Study Area Key Intersection
- Roundabout Control
- Stop Controlled Approach
- Yield Controlled Approach
- Improvement
- XXX' Turn Lane Length (feet)

CROSSROADS MIX USE
 2026 & 2040 RECOMMENDED
 LANE CONFIGURATIONS AND CONTROL

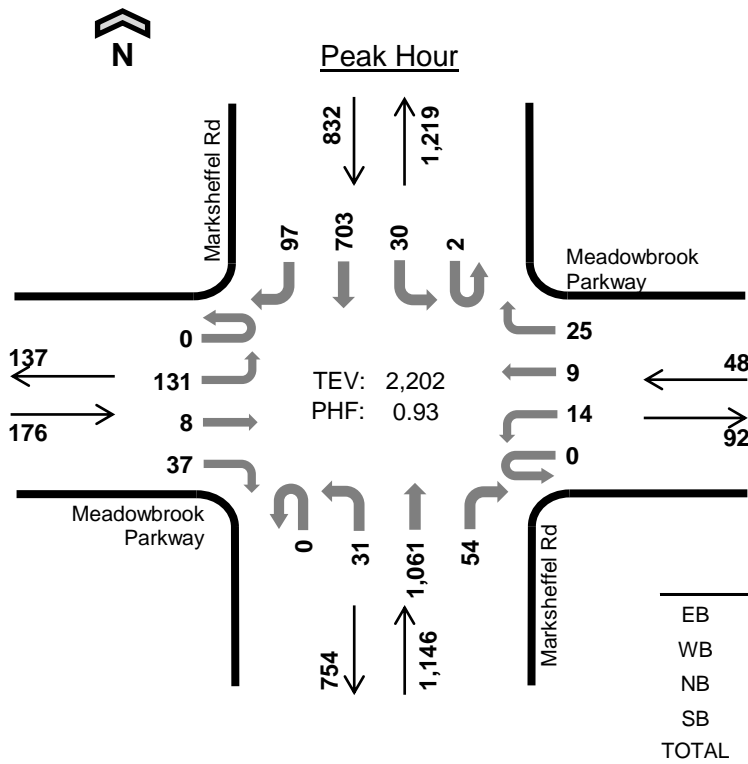
FIGURE 13

Traffic Counts

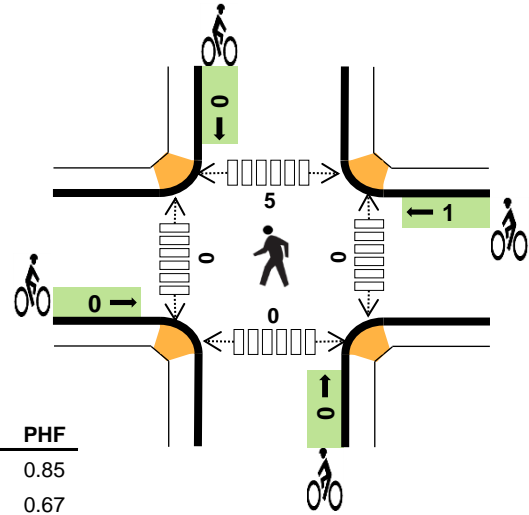
COVID-19 Adjustment Calculations



Marksheffel Rd Meadowbrook Parkway



Date: Thu, Jun 04, 2020
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:00 PM to 5:00 PM



Two-Hour Count Summaries

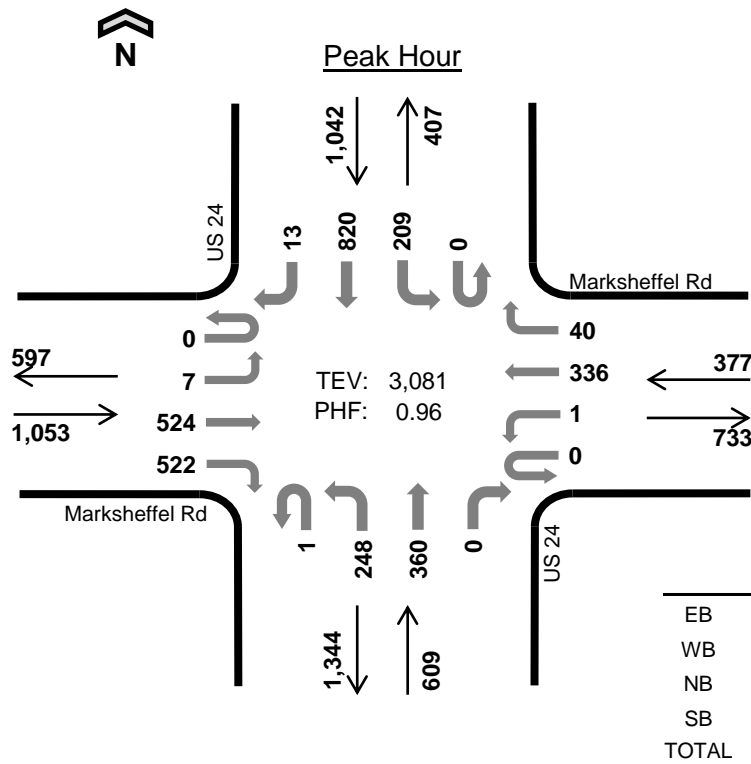
Interval Start	Meadowbrook Parkway				Meadowbrook Parkway				Marksheffel Rd				Marksheffel Rd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	43	0	5	0	5	3	10	0	12	227	7	0	5	183	21	521	0
4:15 PM	0	29	3	9	0	5	2	6	0	8	294	16	1	6	164	25	568	0
4:30 PM	0	39	2	11	0	1	1	5	0	5	260	11	1	10	150	27	523	0
4:45 PM	0	20	3	12	0	3	3	4	0	6	280	20	0	9	206	24	590	2,202
5:00 PM	0	42	5	10	0	6	0	5	0	5	226	12	0	10	173	13	507	2,188
5:15 PM	0	29	3	10	0	4	0	9	0	3	260	14	0	7	193	23	555	2,175
5:30 PM	0	18	3	9	0	4	1	5	0	3	214	13	0	12	200	29	511	2,163
5:45 PM	0	24	0	4	0	3	0	8	1	4	194	10	0	7	123	12	390	1,963
Count Total	0	244	19	70	0	31	10	52	1	46	1,955	103	2	66	1,392	174	4,165	0
Peak Hour	0	131	8	37	0	14	9	25	0	31	1,061	54	2	30	703	97	2,202	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	0	5	12	17	0	0	0	0	0	0	0	0	0	0
4:15 PM	2	0	3	6	11	0	1	0	0	1	0	0	2	0	2
4:30 PM	0	0	4	7	11	0	0	0	0	0	0	0	3	0	3
4:45 PM	1	0	5	7	13	0	0	0	0	0	0	0	0	0	0
5:00 PM	2	0	2	6	10	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	5	6	11	0	0	0	0	0	0	0	0	0	0
5:30 PM	2	0	2	8	12	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	2	5	7	0	0	0	0	0	0	0	0	0	0
Count Total	7	0	28	57	92	0	1	0	0	1	0	0	5	0	5
Peak Hour	3	0	17	32	52	0	1	0	0	1	0	0	5	0	5

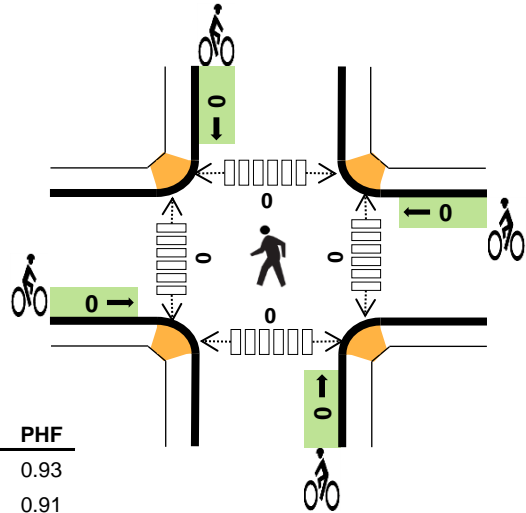


US 24 Marksheffel Rd



Date: Thu, Jun 04, 2020
 Count Period: 7:00 AM to 9:00 AM
 Peak Hour: 7:00 AM to 8:00 AM

	HV %:	PHF
EB	5.5%	0.93
WB	3.2%	0.91
NB	10.5%	0.93
SB	3.9%	0.94
TOTAL	5.7%	0.96



Two-Hour Count Summaries

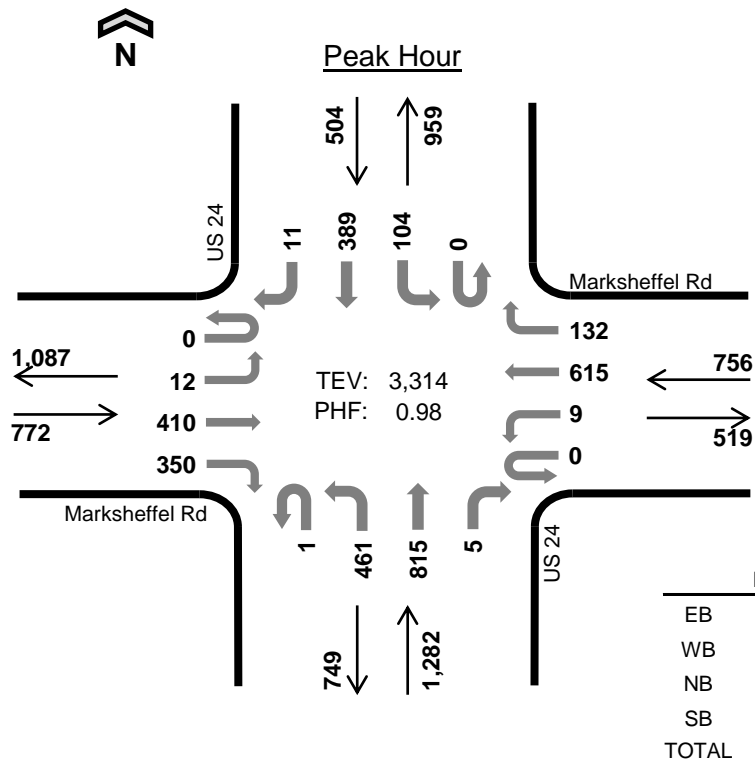
Interval Start	Marksheffel Rd				Marksheffel Rd				US 24				US 24				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	122	138	0	0	94	6	0	68	96	0	0	50	203	1	778	0
7:15 AM	0	0	155	127	0	0	96	8	1	59	96	0	0	43	213	3	801	0
7:30 AM	0	3	123	142	0	1	80	14	0	62	78	0	0	59	214	5	781	0
7:45 AM	0	4	124	115	0	0	66	12	0	59	90	0	0	57	190	4	721	3,081
8:00 AM	0	8	106	109	0	2	57	17	0	50	75	0	0	37	125	7	593	2,896
8:15 AM	0	1	87	90	0	0	48	16	0	50	73	1	0	42	138	1	547	2,642
8:30 AM	0	3	83	105	0	1	84	13	0	48	71	0	0	30	155	1	594	2,455
8:45 AM	0	0	92	85	0	2	58	8	0	52	91	0	0	39	162	5	594	2,328
Count Total	0	19	892	911	0	6	583	94	1	448	670	1	0	357	1,400	27	5,409	0
Peak Hour	0	7	524	522	0	1	336	40	1	248	360	0	0	209	820	13	3,081	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

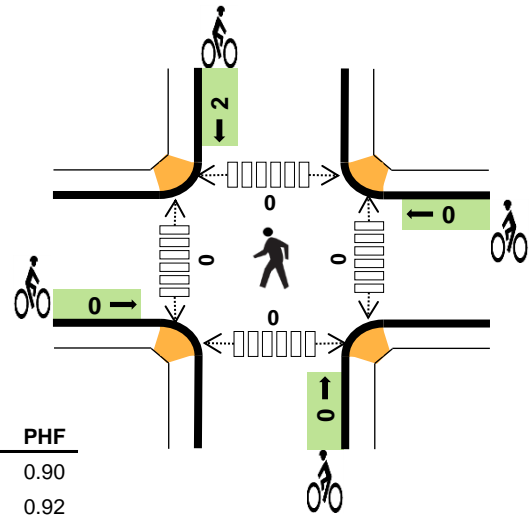
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	18	3	10	8	39	0	0	0	0	0	0	0	0	0	0
7:15 AM	12	3	17	10	42	0	0	0	0	0	0	0	0	0	0
7:30 AM	14	4	21	13	52	0	0	0	0	0	0	0	0	0	0
7:45 AM	14	2	16	10	42	0	0	0	0	0	0	0	0	0	0
8:00 AM	9	3	18	11	41	0	0	0	0	0	0	0	0	0	0
8:15 AM	9	1	12	7	29	0	0	0	0	0	0	0	0	0	0
8:30 AM	9	2	10	9	30	0	0	0	0	0	0	0	0	0	0
8:45 AM	11	4	22	21	58	0	0	0	0	0	0	0	0	0	0
Count Total	96	22	126	89	333	0	0	0	0	0	0	0	0	0	0
Peak Hour	58	12	64	41	175	0	0	0	0	0	0	0	0	0	0



US 24 Marksheffel Rd



Date: Thu, Jun 04, 2020
 Count Period: 4:00 PM to 6:00 PM
 Peak Hour: 4:30 PM to 5:30 PM



	HV %:	PHF
EB	2.8%	0.90
WB	1.3%	0.92
NB	1.7%	0.97
SB	2.8%	0.91
TOTAL	2.1%	0.98

Two-Hour Count Summaries

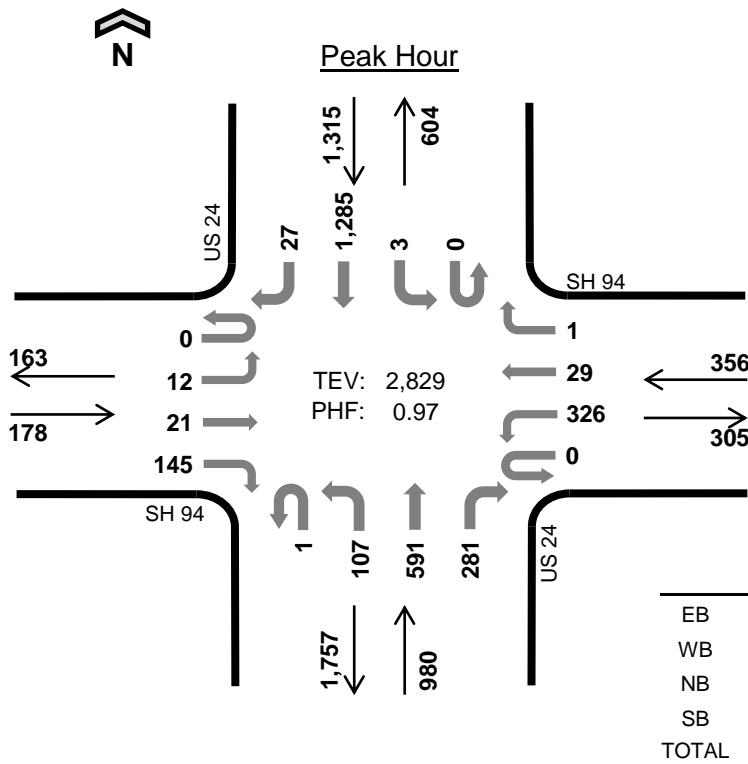
Interval Start	Marksheffel Rd Eastbound				Marksheffel Rd Westbound				US 24 Northbound				US 24 Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
	4:00 PM	0	2	102	84	0	3	163	33	0	78	159	0	1	21	132		
4:15 PM	0	7	82	73	0	1	172	39	2	131	166	1	0	32	121	4	831	0
4:30 PM	0	4	92	73	0	4	165	37	0	119	207	0	0	23	100	2	826	0
4:45 PM	0	5	117	92	0	1	162	34	0	128	185	4	0	17	90	5	840	3,275
5:00 PM	0	3	96	92	0	2	140	34	1	96	210	1	0	27	101	1	804	3,301
5:15 PM	0	0	105	93	0	2	148	27	0	118	213	0	0	37	98	3	844	3,314
5:30 PM	0	3	111	87	0	1	115	29	0	108	178	1	0	15	109	2	759	3,247
5:45 PM	0	3	78	62	0	6	110	20	0	96	122	0	0	24	91	1	613	3,020
Count Total	0	27	783	656	0	20	1,175	253	3	874	1,440	7	1	196	842	18	6,295	0
Peak Hour	0	12	410	350	0	9	615	132	1	461	815	5	0	104	389	11	3,314	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

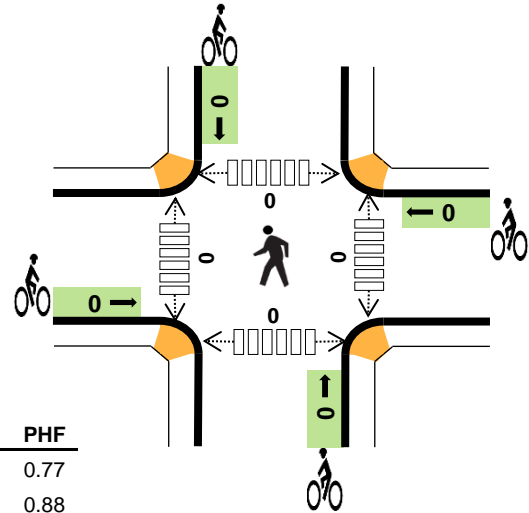
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	12	3	7	8	30	0	0	0	0	0	0	0	0	0	0
4:15 PM	6	2	10	5	23	0	0	0	0	0	0	0	0	0	0
4:30 PM	4	4	6	6	20	0	0	0	1	1	0	0	0	0	0
4:45 PM	6	2	6	1	15	0	0	0	0	0	0	0	0	0	0
5:00 PM	7	2	6	3	18	0	0	0	0	0	0	0	0	0	0
5:15 PM	5	2	4	4	15	0	0	0	1	1	0	0	0	0	0
5:30 PM	6	0	5	5	16	0	0	0	0	0	0	0	0	0	0
5:45 PM	2	2	3	2	9	0	0	0	1	1	0	0	0	0	0
Count Total	48	17	47	34	146	0	0	0	3	3	0	0	0	0	0
Peak Hour	22	10	22	14	68	0	0	0	2	2	0	0	0	0	0



**US 24
SH 94**



Date: Tue, Jun 02, 2020
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:00 AM to 8:00 AM



Two-Hour Count Summaries

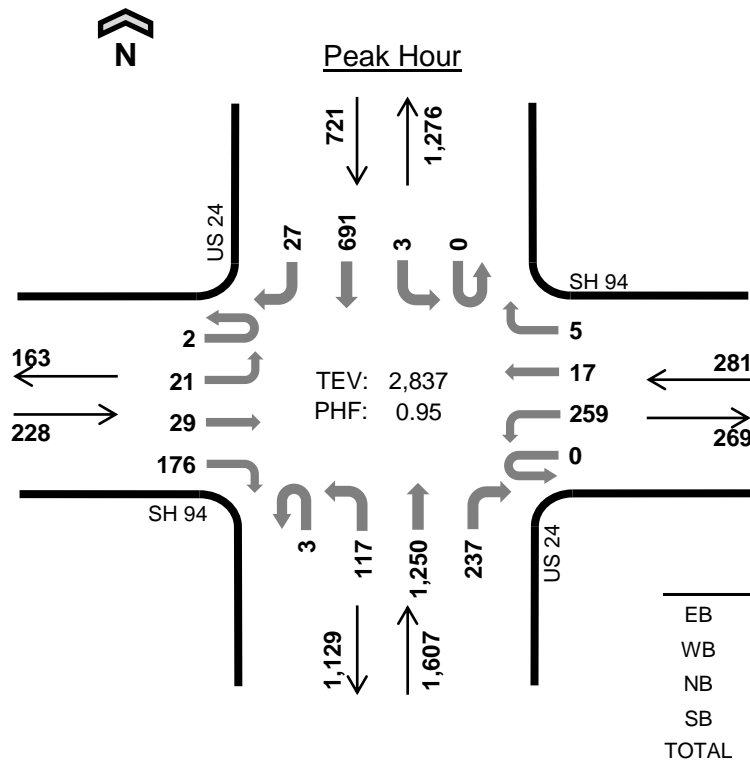
Interval Start	SH 94 Eastbound				SH 94 Westbound				US 24 Northbound				US 24 Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
	7:00 AM	0	1	6	45	0	81	10	0	0	27	147	65	0	1	319		
7:15 AM	0	6	7	21	0	90	10	1	0	25	145	79	0	0	336	8	728	0
7:30 AM	0	5	6	47	0	85	5	0	0	20	152	80	0	0	310	6	716	0
7:45 AM	0	0	2	32	0	70	4	0	1	35	147	57	0	2	320	6	676	2,829
8:00 AM	0	4	4	25	0	51	7	1	0	28	120	54	0	3	230	5	532	2,652
8:15 AM	0	4	4	34	0	51	6	0	1	17	107	64	0	1	207	10	506	2,430
8:30 AM	0	1	4	26	0	66	2	0	0	25	128	55	0	0	223	4	534	2,248
8:45 AM	0	3	7	29	0	48	6	1	1	23	131	44	0	1	197	9	500	2,072
Count Total	0	24	40	259	0	542	50	3	3	200	1,077	498	0	8	2,142	55	4,901	0
Peak Hour	0	12	21	145	0	326	29	1	1	107	591	281	0	3	1,285	27	2,829	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

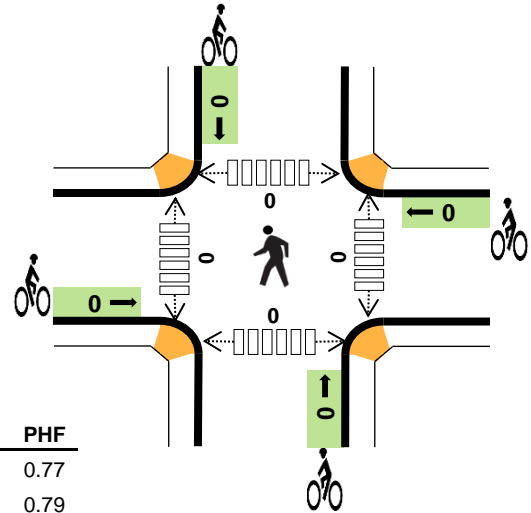
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	4	1	19	20	44	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	5	27	16	48	0	0	0	0	0	0	0	0	0	0
7:30 AM	4	3	31	15	53	0	0	0	0	0	0	0	0	0	0
7:45 AM	1	5	25	21	52	0	0	0	0	0	0	0	0	0	0
8:00 AM	1	8	20	15	44	0	0	0	0	0	0	0	0	0	0
8:15 AM	3	2	24	9	38	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	7	27	13	47	0	0	0	0	0	0	0	0	0	0
8:45 AM	2	5	15	18	40	0	0	0	0	0	0	0	0	0	0
Count Total	15	36	188	127	366	0	0	0	0	0	0	0	0	0	0
Peak Hour	9	14	102	72	197	0	0	0	0	0	0	0	0	0	0



**US 24
SH 94**



Date: Tue, Jun 02, 2020
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:15 PM to 5:15 PM



Two-Hour Count Summaries

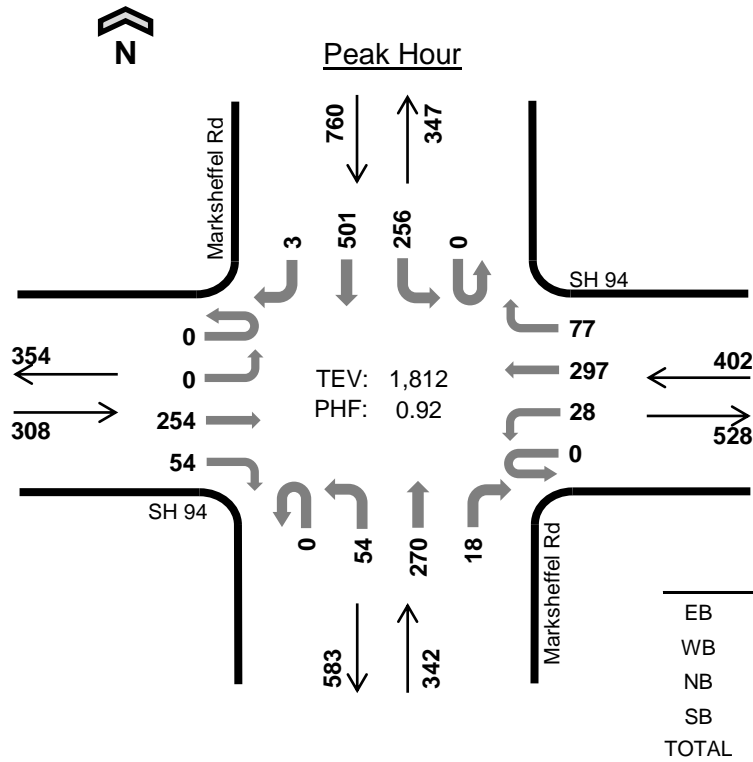
Interval Start	SH 94 Eastbound				SH 94 Westbound				US 24 Northbound				US 24 Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
	4:00 PM	0	5	4	32	0	73	7	0	1	31	284	80	1	2	177		
4:15 PM	0	5	4	45	0	51	2	2	1	30	327	62	0	3	153	7	692	0
4:30 PM	0	4	13	33	0	66	7	0	1	29	300	46	0	0	194	7	700	0
4:45 PM	0	9	1	40	0	83	5	1	0	31	307	53	0	0	158	7	695	2,791
5:00 PM	2	3	11	58	0	59	3	2	1	27	316	76	0	0	186	6	750	2,837
5:15 PM	0	8	7	36	0	49	8	0	0	19	299	80	0	0	170	8	684	2,829
5:30 PM	0	5	4	29	0	44	7	1	0	19	267	85	0	0	183	4	648	2,777
5:45 PM	0	3	8	24	0	38	4	1	0	12	252	62	0	0	142	10	556	2,638
Count Total	2	42	52	297	0	463	43	7	4	198	2,352	544	1	5	1,363	56	5,429	0
Peak Hour	2	21	29	176	0	259	17	5	3	117	1,250	237	0	3	691	27	2,837	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

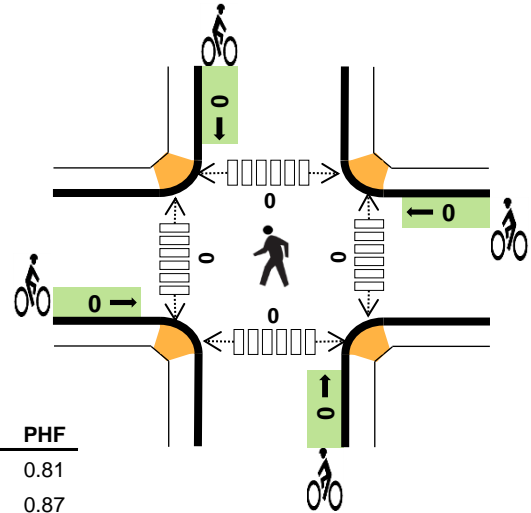
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	4	16	12	32	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	3	11	12	26	0	0	0	0	0	0	0	0	0	0
4:30 PM	1	1	20	12	34	0	0	0	0	0	0	0	0	0	0
4:45 PM	1	1	14	5	21	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	3	4	7	14	0	0	0	0	0	0	0	0	0	0
5:15 PM	1	2	10	6	19	0	0	0	0	0	0	0	0	0	0
5:30 PM	2	1	7	11	21	0	0	0	0	0	0	0	0	0	0
5:45 PM	1	2	3	7	13	0	0	0	0	0	0	0	0	0	0
Count Total	6	17	85	72	180	0	0	0	0	0	0	0	0	0	0
Peak Hour	2	8	49	36	95	0	0	0	0	0	0	0	0	0	0



Marksheffel Rd SH 94



Date: Tue, Jun 02, 2020
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:00 AM to 8:00 AM



	HV %:	PHF
EB	8.1%	0.81
WB	5.5%	0.87
NB	4.7%	0.82
SB	2.6%	0.87
TOTAL	4.6%	0.92

Two-Hour Count Summaries

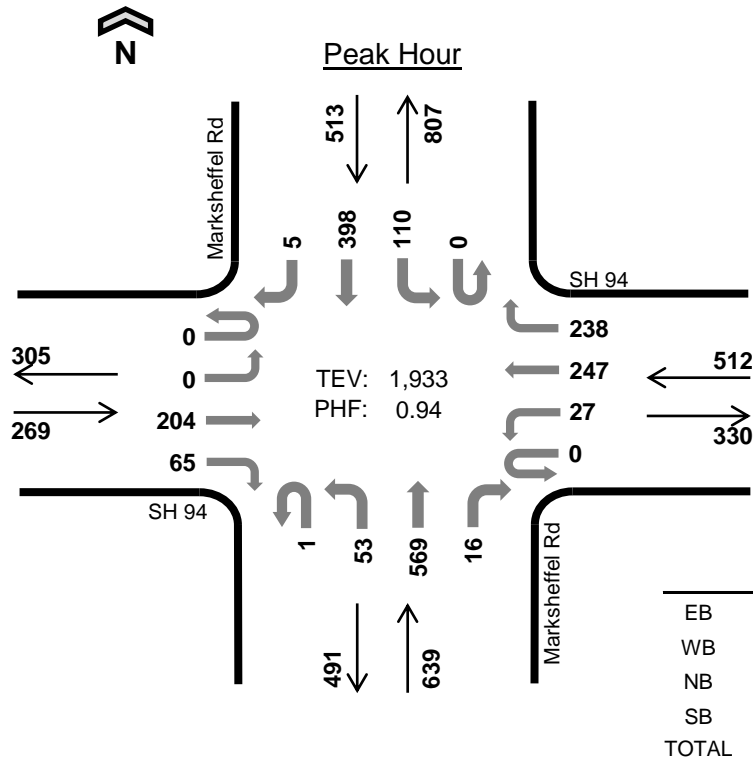
Interval Start	SH 94 Eastbound				SH 94 Westbound				Marksheffel Rd Northbound				Marksheffel Rd Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
	7:00 AM	0	0	57	8	0	2	73	22	0	11	71	7	0	79	110		
7:15 AM	0	0	79	16	0	7	87	21	0	10	51	3	0	74	143	1	492	0
7:30 AM	0	0	61	21	0	8	69	13	0	24	76	4	0	67	133	1	477	0
7:45 AM	0	0	57	9	0	11	68	21	0	9	72	4	0	36	115	1	403	1,812
8:00 AM	0	4	39	14	0	2	43	12	0	10	50	2	0	47	115	1	339	1,711
8:15 AM	0	0	61	11	0	2	49	21	0	8	59	2	0	32	89	0	334	1,553
8:30 AM	0	1	50	15	0	6	67	25	0	9	52	4	0	32	85	1	347	1,423
8:45 AM	0	0	36	14	0	4	44	17	0	14	49	1	0	21	85	2	287	1,307
Count Total	0	5	440	108	0	42	500	152	0	95	480	27	0	388	875	7	3,119	0
Peak Hour	0	0	254	54	0	28	297	77	0	54	270	18	0	256	501	3	1,812	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

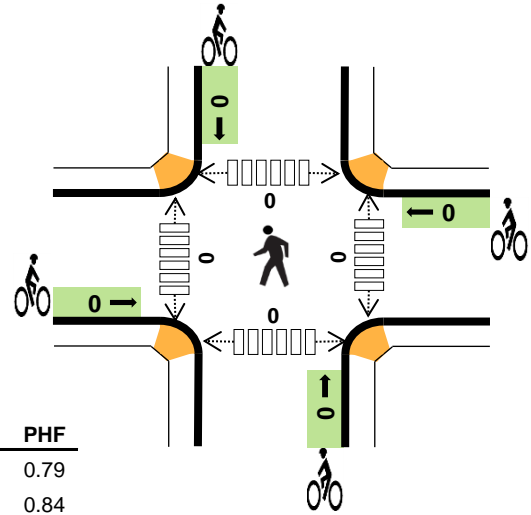
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	4	2	5	5	16	0	0	0	0	0	0	0	0	0	0
7:15 AM	6	4	4	4	18	0	0	0	0	0	0	0	0	0	0
7:30 AM	9	6	4	8	27	0	0	0	0	0	0	0	0	0	0
7:45 AM	6	10	3	3	22	0	0	0	0	0	0	0	0	0	0
8:00 AM	3	7	2	9	21	0	0	0	0	0	0	0	0	0	0
8:15 AM	10	5	2	4	21	0	0	0	0	0	0	0	0	0	0
8:30 AM	8	5	8	7	28	0	0	0	0	0	0	0	0	0	0
8:45 AM	8	6	1	5	20	0	0	0	0	0	0	0	0	0	0
Count Total	54	45	29	45	173	0	0	0	0	0	0	0	0	0	0
Peak Hour	25	22	16	20	83	0	0	0	0	0	0	0	0	0	0



Marksheffel Rd SH 94



Date: Tue, Jun 02, 2020
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:00 PM to 5:00 PM



	HV %:	PHF
EB	3.3%	0.79
WB	2.7%	0.84
NB	2.3%	0.92
SB	3.9%	0.97
TOTAL	3.0%	0.94

Two-Hour Count Summaries

Interval Start	SH 94 Eastbound				SH 94 Westbound				Marksheffel Rd Northbound				Marksheffel Rd Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
	4:00 PM	0	0	58	27	0	7	63	49	0	14	140	2	0	24	94		
4:15 PM	0	0	57	15	0	10	65	78	1	10	142	6	0	28	102	1	515	0
4:30 PM	0	0	42	13	0	6	47	62	0	12	159	2	0	25	105	1	474	0
4:45 PM	0	0	47	10	0	4	72	49	0	17	128	6	0	33	97	2	465	1,933
5:00 PM	1	1	72	14	0	5	52	48	0	8	107	2	0	20	84	2	416	1,870
5:15 PM	1	0	73	13	0	5	37	44	0	18	112	3	0	29	110	0	445	1,800
5:30 PM	0	0	69	19	0	1	40	31	0	12	75	3	0	28	115	0	393	1,719
5:45 PM	0	0	47	21	0	0	32	31	0	7	122	2	0	28	110	0	400	1,654
Count Total	2	1	465	132	0	38	408	392	1	98	985	26	0	215	817	7	3,587	0
Peak Hour	0	0	204	65	0	27	247	238	1	53	569	16	0	110	398	5	1,933	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	1	5	4	7	17	0	0	0	0	0	0	0	0	0	0
4:15 PM	2	3	4	4	13	0	0	0	0	0	0	0	0	0	0
4:30 PM	2	4	5	8	19	0	0	0	0	0	0	0	0	0	0
4:45 PM	4	2	2	1	9	0	0	0	0	0	0	0	0	0	0
5:00 PM	1	2	2	4	9	0	0	0	0	0	0	0	0	0	0
5:15 PM	2	1	3	2	8	0	0	1	0	1	0	0	0	0	0
5:30 PM	3	0	2	1	6	0	0	0	0	0	0	0	0	0	0
5:45 PM	1	1	3	4	9	0	0	0	0	0	0	0	0	0	0
Count Total	16	18	25	31	90	0	0	1	0	1	0	0	0	0	0
Peak Hour	9	14	15	20	58	0	0	0	0	0	0	0	0	0	0

Traffic Data Resources

Location: Marksheffel @ Space Village Village Name : MARKSHEFFEL @ SPACE VILLAGE-THUR-WSP-3-20
 Turning Movement Count Site Code : 00000000
 Weather: Clear Start Date : 3/12/2020
 Comments: Heavy truck traffic Page No : 1

Groups Printed- Unshifted

Start Time	MARKSHEFFEL From North				SPACE VILLAGE From East				MARKSHEFFEL From South				SPACE VILLAGE From West				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	
Factor	1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		
06:00 AM	1	84	0	85	0	0	7	7	0	47	20	67	23	5	1	29	188
06:15 AM	4	140	0	144	0	2	2	4	2	68	33	103	17	9	1	27	278
06:30 AM	4	157	0	161	0	2	0	2	1	92	40	133	19	13	2	34	330
06:45 AM	13	164	0	177	0	6	8	14	2	109	54	165	26	9	4	39	395
Total	22	545	0	567	0	10	17	27	5	316	147	468	85	36	8	129	1191
07:00 AM	18	196	6	220	1	1	3	5	6	121	51	178	35	19	2	56	459
07:15 AM	37	201	0	238	1	4	3	8	1	110	62	173	35	8	2	45	464
07:30 AM	33	235	1	269	0	3	1	4	4	124	83	211	23	9	2	34	518
07:45 AM	31	227	1	259	0	3	1	4	1	117	77	195	21	6	1	28	486
Total	119	859	8	986	2	11	8	21	12	472	273	757	114	42	7	163	1927
*** BREAK ***																	
04:00 PM	7	147	0	154	0	4	4	8	3	210	40	253	55	8	3	66	481
04:15 PM	8	149	0	157	0	3	7	10	5	263	46	314	46	8	2	56	537
04:30 PM	5	122	1	128	0	2	10	12	6	228	56	290	52	10	1	63	493
04:45 PM	3	132	0	135	1	3	9	13	1	213	46	260	62	6	4	72	480
Total	23	550	1	574	1	12	30	43	15	914	188	1117	215	32	10	257	1991
05:00 PM	7	127	0	134	0	2	4	6	5	213	55	273	65	7	1	73	486
05:15 PM	4	155	2	161	0	1	2	3	1	226	48	275	58	10	4	72	511
05:30 PM	5	119	0	124	1	2	6	9	0	153	38	191	53	12	1	66	390
05:45 PM	2	111	0	113	0	3	1	4	0	152	31	183	46	6	2	54	354
Total	18	512	2	532	1	8	13	22	6	744	172	922	222	35	8	265	1741
Grand Total	182	2466	11	2659	4	41	68	113	38	2446	780	3264	636	145	33	814	6850
Apprch %	6.8	92.7	0.4		3.5	36.3	60.2		1.2	74.9	23.9		78.1	17.8	4.1		
Total %	2.7	36	0.2	38.8	0.1	0.6	1	1.6	0.6	35.7	11.4	47.6	9.3	2.1	0.5	11.9	

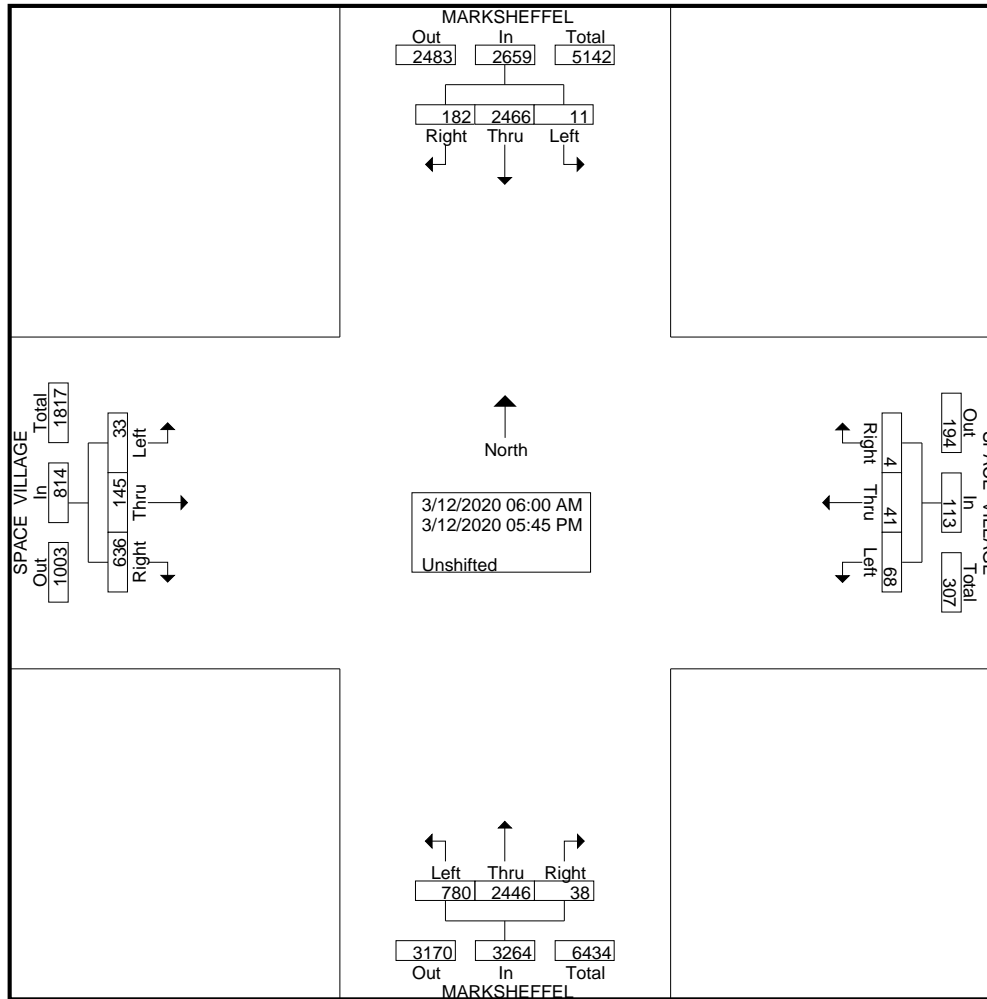
Traffic Data Resources

File Name : MARKSHEFFEL @ SPACE VILLAGE-THUR-WSP-3-20

Site Code : 00000000

Start Date : 3/12/2020

Page No : 2



Start Time	MARKSHEFFEL From North				SPACE VILLAGE From East				MARKSHEFFEL From South				SPACE VILLAGE From West				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	
Peak Hour Analysis From 06:00 AM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	8	149	0	157	0	3	7	10	5	263	46	314	46	8	2	56	537
04:30 PM	5	122	1	128	0	2	10	12	6	228	56	290	52	10	1	63	493
04:45 PM	3	132	0	135	1	3	9	13	1	213	46	260	62	6	4	72	480
05:00 PM	7	127	0	134	0	2	4	6	5	213	55	273	65	7	1	73	486
Total Volume	23	530	1	554	1	10	30	41	17	917	203	1137	225	31	8	264	1996
% App. Total	4.2	95.7	0.2		2.4	24.4	73.2		1.5	80.7	17.9		85.2	11.7	3		
PHF	.719	.889	.250	.882	.250	.833	.750	.788	.708	.872	.906	.905	.865	.775	.500	.904	.929

Station ID: 103943
 Date: 7/11/2019
 Route: 094A

Description: SH 94 E/O Marksheffel Rd, Colorado Springs

COUNTDIR	12:00 AM	1:00 AM	2:00 AM	3:00 AM	4:00 AM	5:00 AM	6:00 AM	7:00 AM	8:00 AM	9:00 AM	10:00 AM	11:00 AM	12:00 PM	1:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	7:00 PM	8:00 PM	9:00 PM	10:00 PM	11:00 PM			
P	21	16	9	23	82	299	705	500	366	246	211	243	253	246	252	271	391	383	282	193	178	120	99	54			
S	17	6	10	14	45	141	322	359	287	278	237	292	270	272	395	606	824	541	282	153	90	54	40	51			
				Marsheffel and SH 94				Peak Hour Counts		528		95%						Marsheffel and SH 94				Peak Hour Counts		330		118%	
								Percent Difference		402		89%										Percent Difference		512		161%	
												92%														144%	

Station ID: 100851
 Date: 2/20/2020
 Route: 024G

Description: SH 24 NE/O SH 94, Colorado Springs


COUNTDIR	12:00 AM	1:00 AM	2:00 AM	3:00 AM	4:00 AM	5:00 AM	6:00 AM	7:00 AM	8:00 AM	9:00 AM	10:00 AM	11:00 AM	12:00 PM	1:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	7:00 PM	8:00 PM	9:00 PM	10:00 PM	11:00 PM			
P	55	33	24	26	94	150	465	601	503	409	468	614	622	633	920	1088	1495	1289	704	712	452	268	159	82			
S	36	17	38	95	301	818	1863	1716	1023	715	636	665	609	577	613	655	693	685	369	224	183	124	79	53			
				US 24 and SH 94				Peak Hour Counts		604		100%						US 24 and SH 94				Peak Hour Counts		1276		117%	
								Percent Difference		1315		130%										Percent Difference		721		96%	
												121%														110%	
				US 24 and Marksheffel				Peak Hour Counts		609		99%						US 24 and Marksheffel				Peak Hour Counts		1282		117%	
								Percent Difference		1344		128%										Percent Difference		749		93%	
												119%														108%	

Original Traffic Study Documents

T R A F F I C I M P A C T S T U D Y

Traffic Engineer's Statement

The attached 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.



Curtis D. Rowe, P.E., PTOE, PE #36355

February 11, 2022

Date

Developer's Statement

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

Ms. Kelly Nelson
Pikes Peak Investments LLC
c/o The Equity Group
90 South Cascade Avenue, Suite 1500
Colorado Springs, Colorado 80903

Date

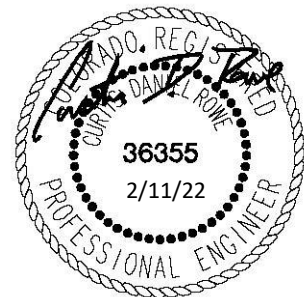
Crossroads-Meadowbrook-Reagan Ranch

PCD File No. CR201 & SP207

Colorado Springs, Colorado
El Paso County, Colorado

Prepared for
Pikes Peak Investments LLC
c/o The Equity Group
90 South Cascade Avenue
Suite 1500
Colorado Springs, Colorado 80903

Prepared by
Kimley-Horn and Associates, Inc.
Curtis D. Rowe, P.E., PTOE
4582 South Ulster Street
Suite 1500
Denver, Colorado 80237
(303) 228-2300



February 2022

This document, together with the concepts and designs presented herein, as an instrument of service, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.

information provided in the ITE *Trip Generation Manual, 10th Edition – Volume 1: User’s Guide and Handbook*, 2017. **Table 1** provides the estimated trip generation for Phase 1 of the project. The trip generation calculations are included in **Appendix C**.

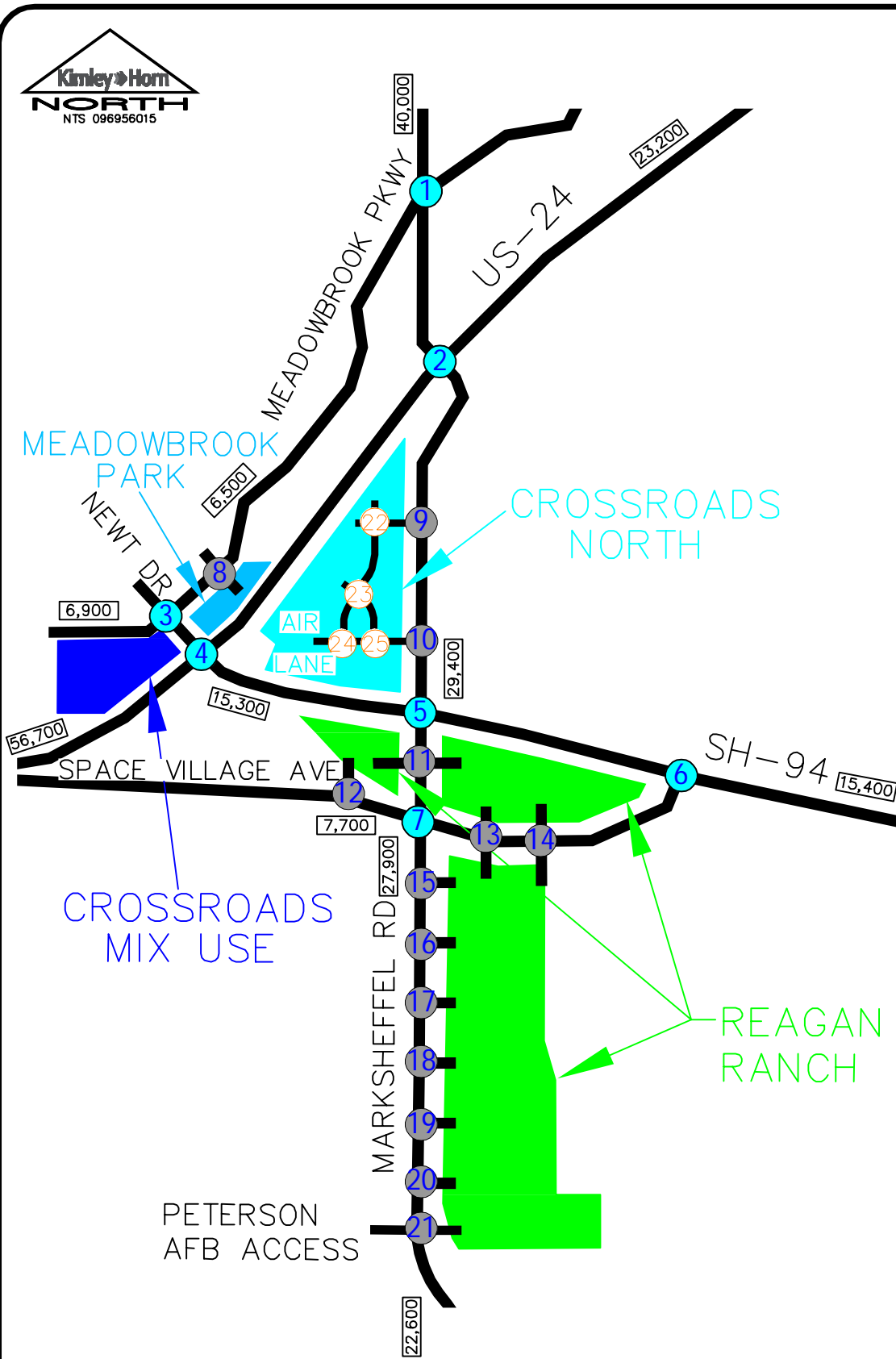
Table 1 – Phase 1 Project Traffic Generation

Use	Quantity	Daily	Weekday Vehicle Trips					
			AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Crossroads North								
Public Park (ITE 411)	20 Acres	16	0	0	0	1	1	2
Tire Superstore (ITE 849)	7,000 SF	144	6	3	9	7	8	15
Home Improvement Superstore (ITE 862)	127,000 SF	3,904	113	86	199	145	151	296
Furniture Store (ITE 890)	114,000 SF	720	21	9	30	28	31	59
Sit Down Restaurant (ITE 932)	11,000 SF	1,234	60	49	109	66	41	107
Fast-Food Restaurant (ITE 934)	2,500 SF	1,178	51	49	100	43	39	82
Gas Station Super Convenience (ITE 960)	6,000 SF	5,026	249	250	499	208	208	416
Total Crossroads North Trips		12,222	500	446	946	498	479	977
Crossroads North Trips after Internal Capture		11,246	490	437	927	458	441	899
Meadowbrook Park								
Single Family Housing (ITE 210)	67 Units	720	13	39	52	43	26	69
Meadowbrook Park Total Trips		720	13	39	52	43	26	69
Crossroads Mix Use								
Mid-Rise Multifamily Housing (ITE 221)	300 Units	1,634	26	74	100	77	50	127
Shopping Center (ITE 820)	10,000 SF	1,256	97	60	157	48	51	99
Sit Down Restaurant (ITE 932)	4,000 SF	450	22	18	40	24	15	39
Fast Food Restaurant (ITE 934)	11,000 SF	5,182	225	217	442	187	172	359
Coffee Shop (ITE 937)	2,500 SF	2,050	113	109	222	55	55	110
Total Crossroads Mix Use Trips		10,572	483	478	961	391	343	734
Crossroads Mix Use Trips after Internal Capture		9,726	474	468	942	359	316	675
Reagan Ranch Northwest Area								
Industrial Park (ITE 130)	220,000 SF	742	71	17	88	18	70	88
Reagan Ranch Northwest Area Total Trips		742	71	17	88	18	70	88
Reagan Ranch Northeast Area								
Single Family Housing (ITE 210)	125 Units	1,276	22	72	94	79	47	126
Shopping Center (ITE 820)	30,000 SF	2,652	104	63	167	107	116	223
Total Reagan Ranch Northeast Area Trips		3,928	126	135	261	186	163	349
Reagan Ranch NE Area Trips after Internal Capture		3,614	124	132	256	171	150	321
Reagan Ranch Southeast Area								
Single Family Housing (ITE 210)	255 Units	2,460	45	141	186	156	94	250
Mid-Rise Multifamily Housing (ITE 221)	360 Units	1,962	31	89	120	93	59	152
Shopping Center (ITE 820)	70,000 SF	4,718	116	71	187	200	217	417
Total Reagan Ranch Southeast Area Trips		9,140	192	301	493	449	370	819
Reagan Ranch SE Area Trips after Internal Capture		8,410	188	295	483	413	340	753
Total Site Generated Trips		37,324	1,385	1,416	2,801	1,585	1,451	3,036
Total Site External Trips after Internal Capture		34,458	1,360	1,389	2,748	1,462	1,343	2,806

With full project buildout by 2040, the three development areas are expected to generate approximately 58,582 daily weekday external vehicle trips with 3,481 of these trips occurring during the morning peak hour and 5,121 trips occurring during the afternoon peak hour. **Table 2** provides the estimated trip generation for full buildout of the project.

Table 2 – Full Buildout Project Traffic Generation

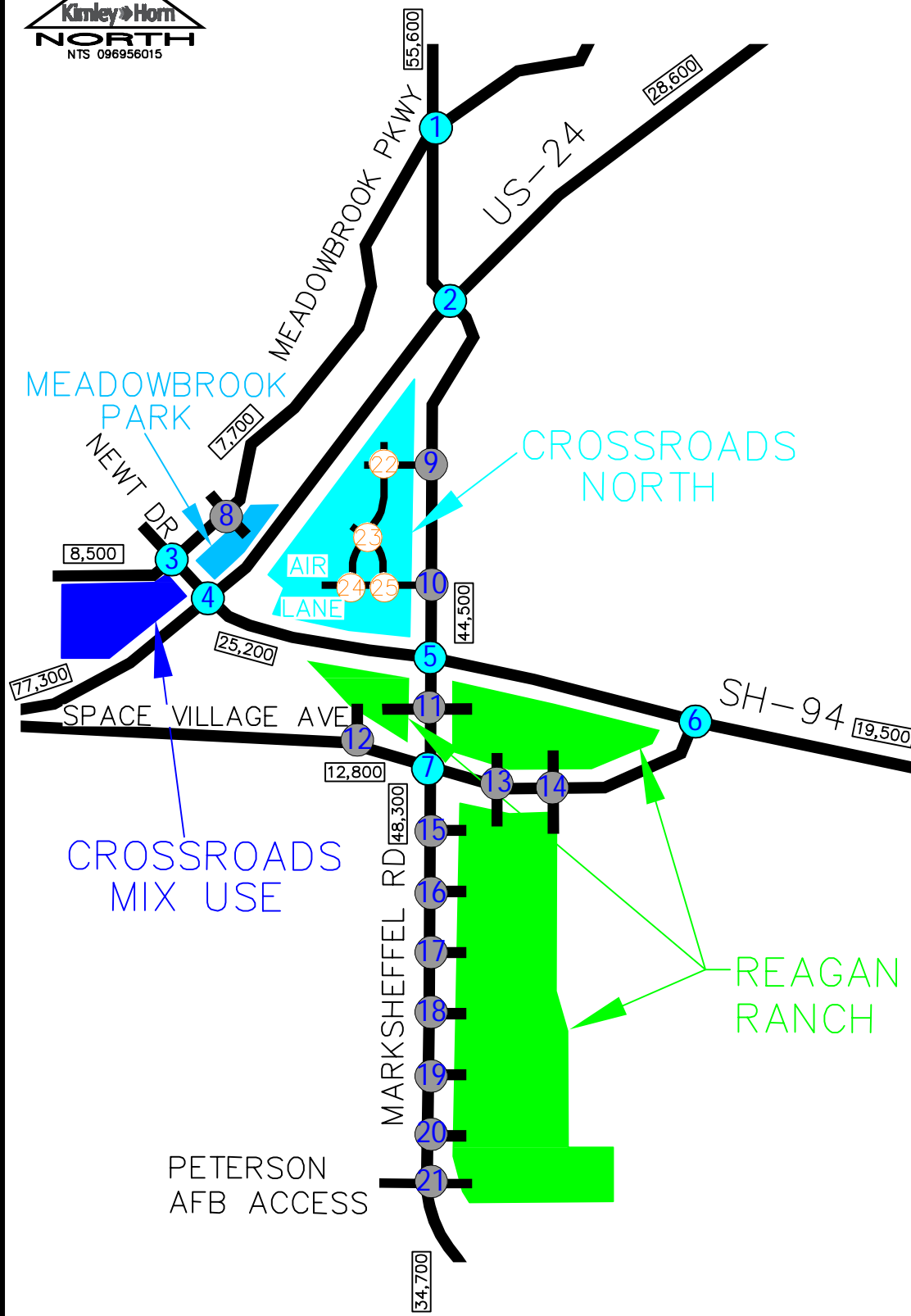
Use	Quantity	Daily	Weekday Vehicle Trips					
			AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Crossroads North								
Public Park (ITE 411)	20 Acres	16	0	0	0	1	1	2
Movie Theatre (ITE 444)	52,000 SF	4,062	5	6	11	302	19	321
Tire Superstore (ITE 849)	7,000 SF	144	6	3	9	7	8	15
Home Improvement Superstore (ITE 862)	127,000 SF	3,904	113	86	199	145	151	296
Furniture Store (ITE 890)	114,000 SF	720	21	9	30	28	31	59
Sit Down Restaurant (ITE 932)	11,000 SF	1,234	60	49	109	66	41	107
Fast-Food Restaurant (ITE 934)	5,000 SF	2,356	103	98	201	85	78	163
Gas Station Super Convenience (ITE 960)	6,000 SF	5,026	249	250	499	208	208	416
Total Crossroads North Trips		17,462	557	501	1,058	842	537	1,379
Crossroads North Trips after Internal Capture		16,066	546	491	1,037	775	494	1,269
Meadowbrook Park								
Single Family Housing (ITE 210)	67 Units	720	13	39	52	43	26	69
Meadowbrook Park Total Trips		720	13	39	52	43	26	69
Crossroads Mix Use								
Mid-Rise Multifamily Housing (ITE 221)	300 Units	1,634	26	74	100	77	50	127
Shopping Center (ITE 820)	10,000 SF	1,256	97	60	157	48	51	99
Pharmacy (ITE 881)	14,000 SF	1,528	29	25	54	72	72	144
Sit Down Restaurant (ITE 932)	8,000 SF	898	44	36	80	48	30	78
Fast Food Restaurant (ITE 934)	11,000 SF	5,182	225	217	442	187	172	359
Coffee Shop (ITE 937)	2,500 SF	2,050	113	109	222	55	55	110
Total Crossroads Mix Use Trips		12,548	534	521	1,055	487	430	917
Crossroads Mix Use Trips after Internal Capture		11,544	523	511	1,034	448	396	844
Reagan Ranch Northwest Area								
Industrial Park (ITE 130)	365,000 SF	1,232	118	28	146	31	115	146
Reagan Ranch Northwest Area Total Trips		1,232	118	28	146	31	115	146
Reagan Ranch Northeast Area								
Single Family Housing (ITE 210)	200 Units	1,968	37	110	147	125	73	198
Shopping Center (ITE 820)	175,000 SF	8,796	148	91	239	395	427	822
Total Reagan Ranch Northeast Area Trips		10,764	185	201	386	520	500	1,020
Reagan Ranch NE Area Trips after Internal Capture		9,904	181	197	378	478	460	938
Reagan Ranch Southeast Area								
Single Family Housing (ITE 210)	393 Units	3,662	71	213	284	238	140	378
Mid-Rise Multifamily Housing (ITE 221)	360 Units	1,962	31	89	120	93	59	152
Office (ITE 710)	100,000 SF	1,062	103	17	120	18	96	114
Shopping Center (ITE 820)	350,000 SF	14,092	203	124	327	659	714	1,373
Total Reagan Ranch Southeast Area Trips		20,778	408	443	851	1,008	1,009	2,017
Reagan Ranch SE Area Trips after Internal Capture		19,116	400	434	834	928	928	1,856
Total Site Generated Trips		63,504	1,815	1,733	3,548	2,931	2,617	5,548
Total Site External Trips after Internal Capture		58,582	1,781	1,700	3,481	2,703	2,419	5,121



1 335(270) → 1755(1340) → 10(45) → 30(40) ← 25(15) ← 40(25) ← 270(295) → 10(15) → 40(55) → 30(50) → 1090(1835) → 20(80) →	2 MARKSHEFFEL 760(510) → 1025(915) → 10(20) → 20(20) ← 1215(585) ← 350(210) ← 5(15) → 755(1190) → 105(245) → 360(670) → 550(1200) → 125(125) →	3 MEADOWBROOK 5(10) → 145(110) → 250(305) → 145(135) ← 10(40) ← 335(255) ← 10(15) → 30(35) → 140(95) → 330(225) →	4 US-24 65(60) → 1860(1000) → 5(5) → 5(10) ← 95(65) ← 820(740) ← 45(55) → 90(80) → 495(450) → 425(395) → 985(1925) → 635(625) →	5 SH-94 245(255) → 695(845) → 300(200) → 115(395) ← 345(405) ← 35(45) ← 150(140) → 300(340) → 160(265) → 190(225) → 470(1100) → 25(30) →	6 SH-94/SPACE VILLAGE AVENUE 635(790) ← 55(95) ← 815(525) → 5(5) → 5(5) → 115(100) →
7 130(25) → 1095(885) → 70(90) → 40(30) ← 75(80) ← 45(80) ← 40(55) → 80(90) → 135(270) → 325(245) → 770(1265) → 30(45) →	8 MEADOWBROOK 5(5) → 365(405) → 5(15) → 15(10) ← 30(20) ← 5(5) → 5(10) → 280(210) → 10(30) → 5(5) → 10(10) →	9 ACCESS 200(185) → 1300(1045) → 90(90) → 90(90) → 50(50) → 775(1365) →	10 100(95) → 1290(1040) → 70(70) → 200(200) → 150(140) → 755(1345) →	11 35(10) → 1285(980) → 35(55) ←	12 10(30) → 10(30) → 20(5) ← 505(335) ← 25(5) → 235(380) →
13 35(55) → 5(5) → 5(5) → 105(105) ← 5(5) ← 60(55) → 105(145) → 10(25) → 15(20) → 5(5) →	14 65(40) → 10(5) → 5(10) ← 45(70) ← 5(5) ← 20(65) → 85(75) → 5(10) → 10(10) → 5(5) →	15 1265(1225) → 20(20) ← 1100(1525) → 5(5) →	16 1235(1155) → 35(70) → 30(35) ← 1070(1495) → 10(10) →	17 1235(1155) → 40(45) ← 1035(1460) → 10(15) →	18 1200(1075) → 40(80) → 30(35) ← 30(35) ← 1015(1440) → 10(15) →
19 1225(1105) → 20(20) ← 1005(1430) → 10(15) →	20 1190(1025) → 40(80) → 35(45) ← 975(1405) → 5(10) →	21 680(565) → 490(400) → 30(70) → 45(55) ← 25(30) ← 10(10) ← 540(805) → 10(25) → 125(185) → 160(130) → 395(560) → 5(5) →	22 2(2) → 2(2) → 45(45) → 50(50) ← 50(50) ← 150(140) ← 2(2) → 2(2) → 90(90) → 45(45) → 2(2) →	23 50(50) → 70(70) → 25(25) → 25(25) → 5(5) → 45(45) → 25(25) → 50(45) → 2(2) →	24 110(110) → 100(95) ← 50(50) ← 2(2) → 45(45) →
25 5(5) → 110(110) → 100(95) ← 150(140) ← 5(5) → 155(155) →	LEGEND (X) Existing Key Intersection (X) Proposed Access Intersection (X) Proposed Internal Intersection XXX(XXX) Weekday AM(PM) Peak Hour Traffic Volumes [XX,X00] Estimated Daily Traffic Volume				

CROSSROADS-MEADOWBROOK & REAGAN RANCH
 COLORADO SPRINGS, CO
 2026 TOTAL TRAFFIC VOLUMES

FIGURE 11



CROSSROADS-MEADOWBROOK & REAGAN RANCH
 COLORADO SPRINGS, CO
 2040 TOTAL TRAFFIC VOLUMES

1 380(315) 2185(2060) 1.5(55) 35(45) 25(20) 50(25) 300(355) 10(15) 45(65) 35(55) 1495(2520) 25(95)	2 MARKSHEFFEL 890(600) 1330(1560) 1.5(25) 25(20) 1425(690) 435(325) 425(785) 645(1415) 140(205) 5(20) 1100(1765) 160(345)	3 MEADOWBROOK 5(15) 160(135) 285(355) 165(150) 15(45) 370(315) 10(15) 35(45) 155(120) 360(280)	4 US-24 80(75) 2190(1180) 6(6) 5(10) 105(80) 1155(1160) 55(65) 95(95) 555(535) 480(470) 1150(2325) 855(1165)	5 SH-94 275(285) 975(1480) 355(230) 135(480) 405(475) 40(50) 165(235) 350(400) 310(665) 430(565) 810(1735) 30(50)	6 740(940) 85(180) 960(635) 5(5) 5(5) 170(160)
MEADOWBROOK PKWY/MARKSHEFFEL RD	US-24/MARKSHEFFEL ROAD	NEWT DR/MEADOWBROOK PKWY	SH-94/US-24	SH-94/MARKSHEFFEL RD	SH-94/SPACE VILLAGE AVENUE
7 150(30) 1520(1735) 105(250) 70(50) 135(225) 75(180) 50(130) 115(195) 180(370) 425(330) 1335(2125) 55(85)	8 MEADOWBROOK 5(5) 420(480) 5(15) 15(10) 30(20) 5(5) 10(10) 5(10) 315(255) 10(30)	9 MEADOWBROOK 220(310) 1675(1760) 100(100) 100(100) 55(80) 1160(2025)	10 110(155) 1665(1705) 75(75) 225(225) 165(235) 1145(2030)	11 55(15) 1770(1985) 45(205) 10(25) 1390(2150) 60(150)	12 15(50) 15(50) 30(10) 675(575) 35(10) 325(640)
SPACE VILLAGE AVE/MARKSHEFFEL RD	MEADOWBROOK PARKWAY ACCESS	MARKSHEFFEL RD NORTH ACCESS	MARKSHEFFEL RD/AIR LANE ACCESS	MARKSHEFFEL ROAD RIRO ACCESS	SPACE VILLAGE AVE FULL ACCESS
13 45(205) 5(5) 10(20) 170(180) 10(20) 80(210) 160(240) 30(85) 55(70) 15(15)	14 100(50) 5(15) 65(140) 10(20) 35(95) 125(125) 15(35) 25(30) 15(15)	15 1765(2275) 70(85) 1745(2455) 10(20)	16 1660(2010) 105(275) 105(135) 1650(2335) 25(30)	17 1660(2010) 140(175) 1525(2200) 25(50)	18 1550(1710) 120(305) 95(120) 95(120) 1450(2130) 25(50)
SPACE VILLAGE AVE W FULL ACCESS	SPACE VILLAGE AVE E FULL ACCESS	MARKSHEFFEL ROAD RIRO ACCESS	MARKSHEFFEL ROAD 3/4 ACCESS	MARKSHEFFEL ROAD RIRO ACCESS	MARKSHEFFEL ROAD FULL ACCESS
19 1640(1825) 70(85) 1405(2095) 25(50)	20 1530(1825) 120(305) 130(165) 1300(1985) 15(35)	21 850(780) 585(500) 100(255) 155(200) 85(110) 35(45) 680(1095) 30(85) 145(220) 190(150) 475(730) 10(20)	22 2(2) 2(2) 50(50) 55(80) 55(80) 165(235) 2(2) 2(2) 100(100)	23 55(80) 80(90) 30(40) 25(25) 5(10) 2(2) 25(25) 5(5) 50(50) 30(40) 55(65) 2(2)	24 2(2) 125(125) 110(155) 55(80) 50(50)
MARKSHEFFEL ROAD RIRO ACCESS	MARKSHEFFEL ROAD 3/4 ACCESS	MARKSHEFFEL RD FULL ACCESS	CROSSROADS NORTH INT #22	CROSSROADS NORTH INT #23	AIR LANE WEST INTERSECTION
25 5(5) 125(125) 110(155) 165(235) 5(5) 175(175)	LEGEND (X) Existing Key Intersection (X) Proposed Access Intersection (X) Proposed Internal Intersection XXX(XXX) Weekday AM(PM) Peak Hour Traffic Volumes [XX,X00] Estimated Daily Traffic Volume				
AIR LANE EAST INTERSECTION					

FIGURE 12

Trip Generation Worksheets

Project Crossroads-Meadowbrook-Reagan Ranch (Crossroads Mixed Use)
 Subject Trip Generation for Multifamily Housing (Mid-Rise)
 Designed by JRP Date February 08, 2021 Job No. 096956015
 Checked by _____ Date _____ Sheet No. _____ of _____

TRIP GENERATION MANUAL TECHNIQUES

ITE Trip Generation Manual 10th Edition, Fitted Curve Equations

Land Use Code - Multifamily Housing (Mid-Rise) (221)

Independent Variable - Dwelling Units (X)

$$X = 306$$

T = Average Vehicle Trip Ends

Peak Hour of Adjacent Street Traffic, One Hour Between 7 and 9 a.m. (Series 200 Page 74)

$\ln(T) = 0.98 \ln(X) - 0.98$	Directional Distribution:	26% ent.	74% exit.
$\ln(T) = 0.98 * \ln(306.0) - 0.98$	T = 102	Average Vehicle Trip Ends	
	27 entering	75	exiting
	27	+ 75	= 102

Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 p.m. (Series 200 Page 75)

$\ln(T) = 0.96 \ln(X) - 0.63$	Directional Distribution:	61% ent.	39% exit.
$\ln(T) = 0.96 * \ln(306.0) - 0.63$	T = 130	Average Vehicle Trip Ends	
	79 entering	51	exiting
	79	+ 51	= 130

Weekday (Series 200 Page 73)

$(T) = 5.45*(X) - 1.75$	Directional Distribution:	50% ent.	50% exit.
$(T) = 5.45 * 306 - 1.75$	T = 1666	Average Vehicle Trip Ends	
	833 entering	833	exiting
	833	+ 833	= 1666

Peak Hour of Generator, Saturday (Series 200 Page 79)

$(T) = 0.42*(X) + 6.73$	Directional Distribution:	49% ent.	51% exit.
$(T) = 0.42 * 306 + 6.73$	T = 135	Average Vehicle Trip Ends	
	66 entering	69	exiting
	66	+ 69	= 135



Project Crossroads-Meadowbrook-Reagan Ranch (Crossroads Mix Use Phase 1)
 Subject Trip Generation for Shopping Center
 Designed by JRP Date February 08, 2021 Job No. 096956015
 Checked by _____ Date _____ Sheet No. _____ of _____

TRIP GENERATION MANUAL TECHNIQUES

ITE Trip Generation Manual 10th Edition, Fitted Curve Equations

Land Use Code - Shopping Center (820)

Independant Variable - 1000 Square Feet Gross Leasable Area (X)

Gross Leasable Area = **10,000** Square Feet

X = 10.000

T = Average Vehicle Trip Ends

Peak Hour of Adjacent Street Traffic, One Hour Between 7 and 9 a.m. (800 Series Page 139)

Directional Distribution: 62% ent. 38% exit.
 T = 0.50 * (X) + 151.78 T = 157 Average Vehicle Trip Ends
 T = 0.50 * 10 + 151.78 97 entering 60 exiting

Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 p.m. (800 Series Page 140)

Directional Distribution: 48% ent. 52% exit.
 Ln(T) = 0.74 Ln(X) + 2.89 T = 99 Average Vehicle Trip Ends
 Ln(T) = 0.74 * Ln(10) + 2.89 48 entering 51 exiting

Weekday (800 Series Page 138)

Daily Weekday Directional Distribution: 50% entering, 50% exiting
 Ln(T) = 0.68 Ln(X) + 5.57 T = 1256 Average Vehicle Trip Ends
 Ln(T) = 0.68 * Ln(10) + 5.57 628 entering 628 exiting

Saturday Peak Hour of Generator (Page 144)

Average Saturday Directional Distribution: 52% ent. 48% exit.
 Ln(T) = 0.79 Ln(X) + 2.79 T = 100 Average Vehicle Trip Ends
 Ln(T) = 0.79 * Ln(10) + 2.79 52 entering 48 exiting

Non Pass-By Trip Volumes (Per ITE Trip Generation Handbook, 3rd Edition September 2017-Page 190)

AM Peak Hour =	66%	Non-Pass By	PM Peak Hour =	66%	Non-Pass By
	IN	Out	Total		
AM Peak	64	39	103		
PM Peak	32	34	65		
Daily	414	414	828	PM Peak Hour Rate Applied to Daily	

Pass-By Trip Volumes (Per ITE Trip Generation Handbook, 3rd Edition September 2017 -Page 190)

AM Peak Hour =	34%	Pass By	PM Peak Hour =	34%	Pass By
	IN	Out	Total		
AM Peak	33	20	54		
PM Peak	16	17	34		
Daily	214	214	428	PM Peak Hour Rate Applied to Daily	

Project Crossroads-Meadowbrook-Reagan Ranch (Crossroads Mix Use Phase 1)
 Subject Trip Generation for High-Turnover (Sit-Down) Restaurant
 Designed by JRP Date February 08, 2021 Job No. 096956015
 Checked by _____ Date _____ Sheet No. _____ of _____

TRIP GENERATION MANUAL TECHNIQUES

ITE Trip Generation Manual 10th Edition, Average Rate Equations

Land Use Code - High Turnover Sit-Down Restaurant (932)

Independant Variable - 1000 Square Feet Gross Floor Area (X)

Gross Floor Area = **4,000** Square Feet

X = 4.000

T = Average Vehicle Trip Ends

Peak Hour of Adjacent Street Traffic, One Hour Between 7 and 9 a.m. (900 Series Page 97)

Average Weekday	Directional Distribution:	55% ent.	45% exit.
T = 9.94 (X)	T = 40	Average Vehicle Trip Ends	
T = 9.94 * 4.000	22 entering	18	exiting

Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 p.m. (900 Series Page 98)

Average Weekday	Directional Distribution:	62% ent.	38% exit.
T = 9.77 (X)	T = 39	Average Vehicle Trip Ends	
T = 9.77 * 4.000	24 entering	15	exiting

Weekday (900 Series Page 96)

Average Weekday	Directional Distribution:	50% entering, 50% exiting	
T = 112.18 (X)	T = 450	Average Vehicle Trip Ends	
T = 112.18 * 4.000	225 entering	225	exiting

P.M. Peak Hour of Generator (900 Series Page 100)

Average Weekday	Directional Distribution:	52% ent.	48% exit.
T = 17.41 (X)	T = 70	Average Vehicle Trip Ends	
T = 17.41 * 4.000	36 entering	34	exiting

Saturday Peak Hour of Generator (900 Series Page 105)

Average Saturday	Directional Distribution:	51% ent.	49% exit.
T = 11.19 (X)	T = 46	Average Vehicle Trip Ends	
T = 11.19 * 4.000	23 entering	23	exiting

Non Pass-By Trip Volumes (Per ITE Trip Generation Handbook, 3rd Edition September 2017-Page 207)

AM Peak Hour = 57% Non-Pass By	PM Peak Hour = 57% Non-Pass By
IN Out Total	
AM Peak 12 10 23	
PM Peak 14 8 22	
Daily 128 128 256	PM Peak Hour Rate Applied to Daily

Pass-By Trip Volumes (Per ITE Trip Generation Handbook, 3rd Edition September 2017 -Page 207)

AM Peak Hour = 43% Pass By	PM Peak Hour = 43% Pass By
IN Out Total	
AM Peak 9 8 18	
PM Peak 10 6 17	
Daily 97 97 194	PM Peak Hour Rate Applied to Daily

Project Crossroads-Meadowbrook-Reagan Ranch (Crossroads Mix Use Phase 1)
 Subject Trip Generation for Fast-Food Restaurant with Drive-Through Window
 Designed by JRP Date February 08, 2021 Job No. 096956015
 Checked by _____ Date _____ Sheet No. _____ of _____

TRIP GENERATION MANUAL TECHNIQUES

ITE Trip Generation Manual 10th Edition, Average Rate Equations

Land Use Code - Fast Food Restaurant With Drive-Through Window (934)

Independant Variable - 1000 Square Feet Gross Floor Area (X)

Gross Floor Area = **11,000** Square Feet

X = 11.000

T = Average Vehicle Trip Ends

Peak Hour of Adjacent Street Traffic, One Hour Between 7 and 9 a.m. (900 Series page 158)

Average Weekday		Directional Distribution:	51% ent.	49% exit.
T = 40.19 (X)		T = 442	Average Vehicle Trip Ends	
T = 40.19 *	11.000	225 entering	217	exiting
		225 + 217 =	442	

Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 p.m. (900 Series page 159)

Average Weekday		Directional Distribution:	52% ent.	48% exit.
T = 32.67 (X)		T = 359	Average Vehicle Trip Ends	
T = 32.67 *	11.000	187 entering	172	exiting
		187 + 172 =	359	

Weekday (900 Series page 157)

Average Weekday		Directional Distribution:	50% entering,	50% exiting
T = 470.95 (X)		T = 5182	Average Vehicle Trip Ends	
T = 470.95 *	11.000	2591 entering	2591	exiting
		2591 + 2591 =	5182	

Saturday Peak Hour of Generator (900 Series page 163)

		Directional Distribution:	51% ent.	49% exit.
T = 54.86 (X)		T = 603	Average Vehicle Trip Ends	
T = 54.86 *	11.000	308 entering	295	exiting
		308 (*) - 295 =	603	

Non Pass-By Trip Volumes (Per ITE Trip Generation Handbook, 3rd Edition September 2017)

AM Peak Hour =	51%	Non-Pass By	PM Peak Hour =	50%	Non-Pass By
	IN	Out	Total		
AM Peak	115	111	225		
PM Peak	94	86	180		
Daily	1296	1296	2592	PM Peak Hour Rate Applied to Daily	

Pass-By Trip Volumes (Per ITE Trip Generation Handbook, 3rd Edition September 2017)

AM Peak Hour =	49%	Pass By	PM Peak Hour =	50%	Pass By
	IN	Out	Total		
AM Peak	110	106	217		
PM Peak	94	86	180		
Daily	1295	1295	2590	PM Peak Hour Rate Applied to Daily	

Project Crossroads-Meadowbrook-Reagan Ranch (Crossroads Mix Use Phase 1)
 Subject Trip Generation for Coffee/Donut Shop with Drive Through
 Designed by JRP Date February 08, 2021 Job No. 096956015
 Checked by _____ Date _____ Sheet No. _____ of _____

TRIP GENERATION MANUAL TECHNIQUES

ITE Trip Generation Manual 10th Edition, Average Rate Equations

Land Use Code - Coffee/Donut Shop with Drive Through (937)

Independant Variable - 1000 Square Feet Gross Floor Feet (X)

Gross Floor Area = **2,500**

X = 2.5

T = Average Vehicle Trip Ends

Peak Hour of Adjacent Street Traffic, One Hour Between 7 and 9 a.m. (Series 900 Page 232)

		Directional Distribution:	51% ent.	49% exit.
T = 88.99 (X)		T =	222	Average Vehicle Trip Ends
T = 88.99 *	2.5	113	entering	109 exiting

Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 p.m. (Series 900 Page 233)

		Directional Distribution:	50% ent.	50% exit.
T = 43.38 (X)		T =	110	Average Vehicle Trip Ends
T = 43.38 *	2.5	55	entering	55 exiting

Weekday (Series 900 Page 231)

Average Weekday		Directional Distribution:	50% entering,	50% exiting
(T) = 820.38 (X)		T =	2050	Average Vehicle Trip Ends
(T) = 820.38 *	(2.5)	1025	entering	1025 exiting
		1025	+	1025 = 2050

Project Crossroads-Meadowbrook-Reagan Ranch (Crossroads Mix Use)
 Subject Trip Generation for Multifamily Housing (Mid-Rise)
 Designed by JRP Date February 08, 2021 Job No. 096956015
 Checked by _____ Date _____ Sheet No. _____ of _____

TRIP GENERATION MANUAL TECHNIQUES

ITE Trip Generation Manual 10th Edition, Fitted Curve Equations

Land Use Code - Multifamily Housing (Mid-Rise) (221)

Independent Variable - Dwelling Units (X)

$$X = 300$$

T = Average Vehicle Trip Ends

Peak Hour of Adjacent Street Traffic, One Hour Between 7 and 9 a.m. (Series 200 Page 74)

$\ln(T) = 0.98 \ln(X) - 0.98$	Directional Distribution:	26%	ent.	74%	exit.
$\ln(T) = 0.98 * \ln(300.0) - 0.98$	T =	100	Average Vehicle Trip Ends		
	26	entering	74	exiting	
	26	+	74	=	100

Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 p.m. (Series 200 Page 75)

$\ln(T) = 0.96 \ln(X) - 0.63$	Directional Distribution:	61%	ent.	39%	exit.
$\ln(T) = 0.96 * \ln(300.0) - 0.63$	T =	127	Average Vehicle Trip Ends		
	77	entering	50	exiting	
	77	+	50	=	127

Weekday (Series 200 Page 73)

$(T) = 5.45*(X) - 1.75$	Directional Distribution:	50%	ent.	50%	exit.
$(T) = 5.45 * 300 - 1.75$	T =	1634	Average Vehicle Trip Ends		
	817	entering	817	exiting	
	817	+	817	=	1634

Peak Hour of Generator, Saturday (Series 200 Page 79)

$(T) = 0.42*(X) + 6.73$	Directional Distribution:	49%	ent.	51%	exit.
$(T) = 0.42 * 300 + 6.73$	T =	133	Average Vehicle Trip Ends		
	65	entering	68	exiting	
	65	+	68	=	133



Project Crossroads-Meadowbrook-Reagan Ranch (Crossroads Mix Use)
 Subject Trip Generation for Shopping Center
 Designed by JRP Date February 08, 2021 Job No. 096956015
 Checked by _____ Date _____ Sheet No. _____ of _____

TRIP GENERATION MANUAL TECHNIQUES

ITE Trip Generation Manual 10th Edition, Fitted Curve Equations

Land Use Code - Shopping Center (820)

Independant Variable - 1000 Square Feet Gross Leasable Area (X)

Gross Leasable Area = **10,000** Square Feet

X = 10.000

T = Average Vehicle Trip Ends

Peak Hour of Adjacent Street Traffic, One Hour Between 7 and 9 a.m. (800 Series Page 139)

Directional Distribution: 62% ent. 38% exit.
 T = 0.50 * (X) + 151.78 T = 157 Average Vehicle Trip Ends
 T = 0.50 * 10 + 151.78 97 entering 60 exiting

Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 p.m. (800 Series Page 140)

Directional Distribution: 48% ent. 52% exit.
 Ln(T) = 0.74 Ln(X) + 2.89 T = 99 Average Vehicle Trip Ends
 Ln(T) = 0.74 * Ln(10) + 2.89 48 entering 51 exiting

Weekday (800 Series Page 138)

Daily Weekday Directional Distribution: 50% entering, 50% exiting
 Ln(T) = 0.68 Ln(X) + 5.57 T = 1256 Average Vehicle Trip Ends
 Ln(T) = 0.68 * Ln(10) + 5.57 628 entering 628 exiting

Saturday Peak Hour of Generator (Page 144)

Average Saturday Directional Distribution: 52% ent. 48% exit.
 Ln(T) = 0.79 Ln(X) + 2.79 T = 100 Average Vehicle Trip Ends
 Ln(T) = 0.79 * Ln(10) + 2.79 52 entering 48 exiting

Non Pass-By Trip Volumes (Per ITE Trip Generation Handbook, 3rd Edition September 2017-Page 190)

AM Peak Hour =	66%	Non-Pass By	PM Peak Hour =	66%	Non-Pass By
	IN	Out	Total		
AM Peak	64	39	103		
PM Peak	32	34	65		
Daily	414	414	828	PM Peak Hour Rate Applied to Daily	

Pass-By Trip Volumes (Per ITE Trip Generation Handbook, 3rd Edition September 2017 -Page 190)

AM Peak Hour =	34%	Pass By	PM Peak Hour =	34%	Pass By
	IN	Out	Total		
AM Peak	33	20	54		
PM Peak	16	17	34		
Daily	214	214	428	PM Peak Hour Rate Applied to Daily	

Project Crossroads-Meadowbrook-Reagan Ranch (Crossroads Mix Use)
 Subject Trip Generation for Pharmacy/Drugstore with Drive-Through Window
 Designed by JRP Date February 08, 2021 Job No. 096956015
 Checked by _____ Sheet No. _____ of _____

TRIP GENERATION MANUAL TECHNIQUES

ITE Trip Generation Manual 10th Edition, Average Rate Equations

Land Use Code - Pharmacy/Drugstore with Drive-Through Window (881)

Independant Variable - 1000 Sq. Feet Gross Floor Area (X)

SF= **14000**

X = 14.000

T = Average Vehicle Trip Ends

Peak Hour of Adjacent Street Traffic, One Hour Between 7 and 9 a.m. (page Series 800 Page 562)

Average Weekday
 T = 3.84 (X)
 (T) = 3.84* (14.0)

Directional Distribution: 53% ent. 47% exit.
 T = 54 Average Vehicle Trip Ends
 29 entering 25 exiting

29 + 25 = 54

Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 p.m. (Series 800 page 563)

Average Weekday
 T = 10.29 (X)
 (T) = 10.29 * (14.0)

Directional Distribution: 50% ent. 50% exit.
 T = 144 Average Vehicle Trip Ends
 72 entering 72 exiting

72 + 72 = 144

Weekday (Series 800 page 561)

Average Weekday
 T = 109.16 (X)
 (T) = 109.16 * (14.0)

Directional Distribution: 50% entering, 50% exiting
 T = 1528 Average Vehicle Trip Ends
 764 entering 764 exiting

764 + 764 = 1528

Saturday Peak Hour of Generator (page 1807)

T = 8.20 (X)
 (T) = 8.20 * (14.0)

Directional Distribution: 49% ent. 51% exit.
 T = 115 Average Vehicle Trip Ends
 56 entering 59 exiting

56 + 59 = 115

Non-Pass-by Trip Volumes (page 63, ITE Trip Generation Handbook, December 2012)

PM Average Pass By Percentage: 51% Pass By

	IN	Out	Total	
AM Peak	15	13	28	PM Rate Applied to AM Peak
PM Peak	37	37	73	
Daily	390	390	780	PM Rate Applied to Daily
Saturday	29	30	59	PM Rate Applied to Saturday

Pass-by Trip Volumes (page 63, ITE Trip Generation Handbook, December 2012)

PM Average Pass By Percentage: 49% Pass By

	IN	Out	Total	
AM Peak	14	12	26	PM Rate Applied to AM Peak
PM Peak	35	35	71	
Daily	374	374	750	PM Rate Applied to Daily
Saturday	27	29	56	PM Rate Applied to Saturday

Project Crossroads-Meadowbrook-Reagan Ranch (Crossroads Mix Use)
 Subject Trip Generation for High-Turnover (Sit-Down) Restaurant
 Designed by JRP Date February 08, 2021 Job No. 096956015
 Checked by _____ Date _____ Sheet No. _____ of _____

TRIP GENERATION MANUAL TECHNIQUES

ITE Trip Generation Manual 10th Edition, Average Rate Equations

Land Use Code - High Turnover Sit-Down Restaurant (932)

Independant Variable - 1000 Square Feet Gross Floor Area (X)

Gross Floor Area = **8,000** Square Feet

X = 8.000

T = Average Vehicle Trip Ends

Peak Hour of Adjacent Street Traffic, One Hour Between 7 and 9 a.m. (900 Series Page 97)

Average Weekday	Directional Distribution:	55% ent.	45% exit.
T = 9.94 (X)	T = 80	Average Vehicle Trip Ends	
T = 9.94 * 8.000	44 entering	36	exiting

Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 p.m. (900 Series Page 98)

Average Weekday	Directional Distribution:	62% ent.	38% exit.
T = 9.77 (X)	T = 78	Average Vehicle Trip Ends	
T = 9.77 * 8.000	48 entering	30	exiting

Weekday (900 Series Page 96)

Average Weekday	Directional Distribution:	50% entering, 50% exiting	
T = 112.18 (X)	T = 898	Average Vehicle Trip Ends	
T = 112.18 * 8.000	449 entering	449	exiting

P.M. Peak Hour of Generator (900 Series Page 100)

Average Weekday	Directional Distribution:	52% ent.	48% exit.
T = 17.41 (X)	T = 139	Average Vehicle Trip Ends	
T = 17.41 * 8.000	72 entering	67	exiting

Saturday Peak Hour of Generator (900 Series Page 105)

Average Saturday	Directional Distribution:	51% ent.	49% exit.
T = 11.19 (X)	T = 90	Average Vehicle Trip Ends	
T = 11.19 * 8.000	46 entering	44	exiting

Non Pass-By Trip Volumes (Per ITE Trip Generation Handbook, 3rd Edition September 2017-Page 207)

AM Peak Hour = 57% Non-Pass By	PM Peak Hour = 57% Non-Pass By
IN Out Total	
AM Peak 25 20 45	
PM Peak 28 17 45	
Daily 256 256 512	PM Peak Hour Rate Applied to Daily

Pass-By Trip Volumes (Per ITE Trip Generation Handbook, 3rd Edition September 2017 -Page 207)

AM Peak Hour = 43% Pass By	PM Peak Hour = 43% Pass By
IN Out Total	
AM Peak 19 15 35	
PM Peak 21 13 34	
Daily 193 193 386	PM Peak Hour Rate Applied to Daily

Project Crossroads-Meadowbrook-Reagan Ranch (Crossroads Mix Use)
 Subject Trip Generation for Fast-Food Restaurant with Drive-Through Window
 Designed by JRP Date February 08, 2021 Job No. 096956015
 Checked by _____ Date _____ Sheet No. _____ of _____

TRIP GENERATION MANUAL TECHNIQUES

ITE Trip Generation Manual 10th Edition, Average Rate Equations

Land Use Code - Fast Food Restaurant With Drive-Through Window (934)

Independant Variable - 1000 Square Feet Gross Floor Area (X)

Gross Floor Area = **11,000** Square Feet Fast

X = 11.000

T = Average Vehicle Trip Ends

Peak Hour of Adjacent Street Traffic, One Hour Between 7 and 9 a.m. (900 Series page 158)

Average Weekday Directional Distribution: 51% ent. 49% exit.
 T = 40.19 (X) T = 442 Average Vehicle Trip Ends
 T = 40.19 * 11.000 225 entering 217 exiting
225 + 217 = 442

Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 p.m. (900 Series page 159)

Average Weekday Directional Distribution: 52% ent. 48% exit.
 T = 32.67 (X) T = 359 Average Vehicle Trip Ends
 T = 32.67 * 11.000 187 entering 172 exiting
187 + 172 = 359

Weekday (900 Series page 157)

Average Weekday Directional Distribution: 50% entering, 50% exiting
 T = 470.95 (X) T = 5182 Average Vehicle Trip Ends
 T = 470.95 * 11.000 2591 entering 2591 exiting
2591 + 2591 = 5182

Saturday Peak Hour of Generator (900 Series page 163)

Directional Distribution: 51% ent. 49% exit.
 T = 54.86 (X) T = 603 Average Vehicle Trip Ends
 T = 54.86 * 11.000 308 entering 295 exiting
308 (*) - 295 = 603

Non Pass-By Trip Volumes (Per ITE Trip Generation Handbook, 3rd Edition September 2017)

AM Peak Hour =	51%	Non-Pass By	PM Peak Hour =	50%	Non-Pass By
	IN	Out	Total		
AM Peak	115	111	225		
PM Peak	94	86	180		
Daily	1296	1296	2592	PM Peak Hour Rate Applied to Daily	

Pass-By Trip Volumes (Per ITE Trip Generation Handbook, 3rd Edition September 2017)

AM Peak Hour =	49%	Pass By	PM Peak Hour =	50%	Pass By
	IN	Out	Total		
AM Peak	110	106	217		
PM Peak	94	86	180		
Daily	1295	1295	2590	PM Peak Hour Rate Applied to Daily	

Project Crossroads-Meadowbrook-Reagan Ranch (Crossroads Mix Use)
 Subject Trip Generation for Coffee/Donut Shop with Drive Through
 Designed by JRP Date February 08, 2021 Job No. 096956015
 Checked by _____ Date _____ Sheet No. _____ of _____

TRIP GENERATION MANUAL TECHNIQUES

ITE Trip Generation Manual 10th Edition, Average Rate Equations

Land Use Code - Coffee/Donut Shop with Drive Through (937)

Independant Variable - 1000 Square Feet Gross Floor Feet (X)

Gross Floor Area = **2,500**

X = 2.5

T = Average Vehicle Trip Ends

Peak Hour of Adjacent Street Traffic, One Hour Between 7 and 9 a.m. (Series 900 Page 232)

		Directional Distribution:	51% ent.	49% exit.
T = 88.99 (X)		T =	222	Average Vehicle Trip Ends
T = 88.99 *	2.5	113 entering	109 exiting	

Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 p.m. (Series 900 Page 233)

		Directional Distribution:	50% ent.	50% exit.
T = 43.38 (X)		T =	110	Average Vehicle Trip Ends
T = 43.38 *	2.5	55 entering	55 exiting	

Weekday (Series 900 Page 231)

Average Weekday		Directional Distribution:	50% entering,	50% exiting
(T) = 820.38 (X)		T =	2050	Average Vehicle Trip Ends
(T) = 820.38 *	(2.5)	1025 entering	1025 exiting	
		1025 + 1025 =	2050	

Intersection Operational Outputs

ARCADY OPERATIONAL ANALYSIS DOCUMENTATION
 STANDARD ROUNDABOUT CAPACITY MODEL
 MEADOWBROOK PARKWAY & NEWT DRIVE

Meadowbrook Parkway and Newt Drive

Overall 2026 & 2040 Operations Summary

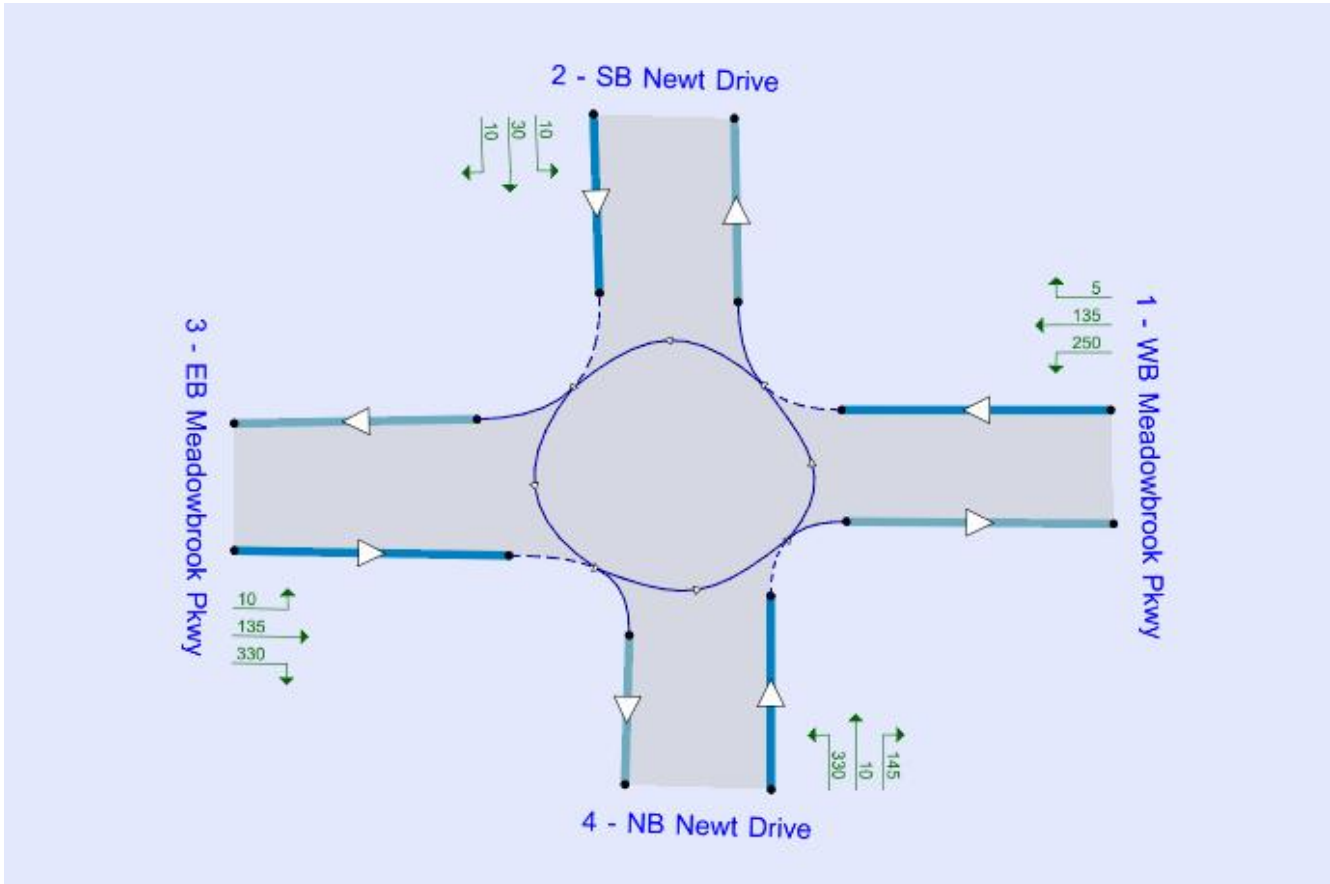
	AM								PM									
	Set ID	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity	Set ID	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity
Single Lane Roundabout - 2026																		
1 - WB Meadowbrook Pkwy	D1	0.8	2.8	6.74	0.44	A	6.86	A	56 % [3 - EB Meadowbrook Pkwy]	D2	0.8	2.7	6.52	0.45	A	5.89	A	74 % [1 - WB Meadowbrook Pkwy]
2 - SB Newt Drive		0.1	0.5	5.36	0.07	A					0.1	0.5	5.07	0.08	A			
3 - EB Meadowbrook Pkwy		1.1	2.1	7.49	0.51	A					0.6	2.7	5.94	0.36	A			
4 - NB Newt Drive		1.0	2.1	6.50	0.48	A					0.6	2.7	5.30	0.39	A			
Single Lane Roundabout - 2040																		
1 - WB Meadowbrook Pkwy	D3	1.8	3.4	10.62	0.63	B	9.31	A	29 % [1 - WB Meadowbrook Pkwy]	D4	1.8	3.6	10.67	0.64	B	9.66	A	28 % [3 - EB Meadowbrook Pkwy]
2 - SB Newt Drive		0.2	0.5	6.78	0.14	A					0.2	0.5	6.63	0.16	A			
3 - EB Meadowbrook Pkwy		1.6	2.3	9.71	0.62	A					1.8	3.7	10.89	0.64	B			
4 - NB Newt Drive		1.3	1.8	7.90	0.55	A					1.2	2.0	7.73	0.53	A			

ARCADY OPERATIONAL ANALYSIS DOCUMENTATION
 STANDARD ROUNDABOUT CAPACITY MODEL
 MEADOWBROOK PARKWAY & NEWT DRIVE

Meadowbrook Parkway and Newt Drive

2026 Total AM Peak Hour

Intersection Diagram



Volumes

From \ To	1 - WB Meadowbrook Pkwy	2 - SB Newt Drive	3 - EB Meadowbrook Pkwy	4 - NB Newt Drive	Total
1 - WB Meadowbrook Pkwy	0	5	135	250	390
2 - SB Newt Drive	10	0	10	30	50
3 - EB Meadowbrook Pkwy	135	10	0	330	475
4 - NB Newt Drive	145	10	330	0	485
Total	290	25	475	610	-

ARCADY OPERATIONAL ANALYSIS DOCUMENTATION
 STANDARD ROUNDABOUT CAPACITY MODEL
 MEADOWBROOK PARKWAY & NEWT DRIVE

Meadowbrook Parkway and Newt Drive

2026 Total AM Peak Hour

Truck Percentages

From \ To	1 - WB Meadowbrook Pkwy	2 - SB Newt Drive	3 - EB Meadowbrook Pkwy	4 - NB Newt Drive	Average
1 - WB Meadowbrook Pkwy	0	3	3	3	2
2 - SB Newt Drive	3	0	3	3	2
3 - EB Meadowbrook Pkwy	3	3	0	3	2
4 - NB Newt Drive	3	3	3	0	2
Average	2	2	2	2	-

Geometry and Analysis Results

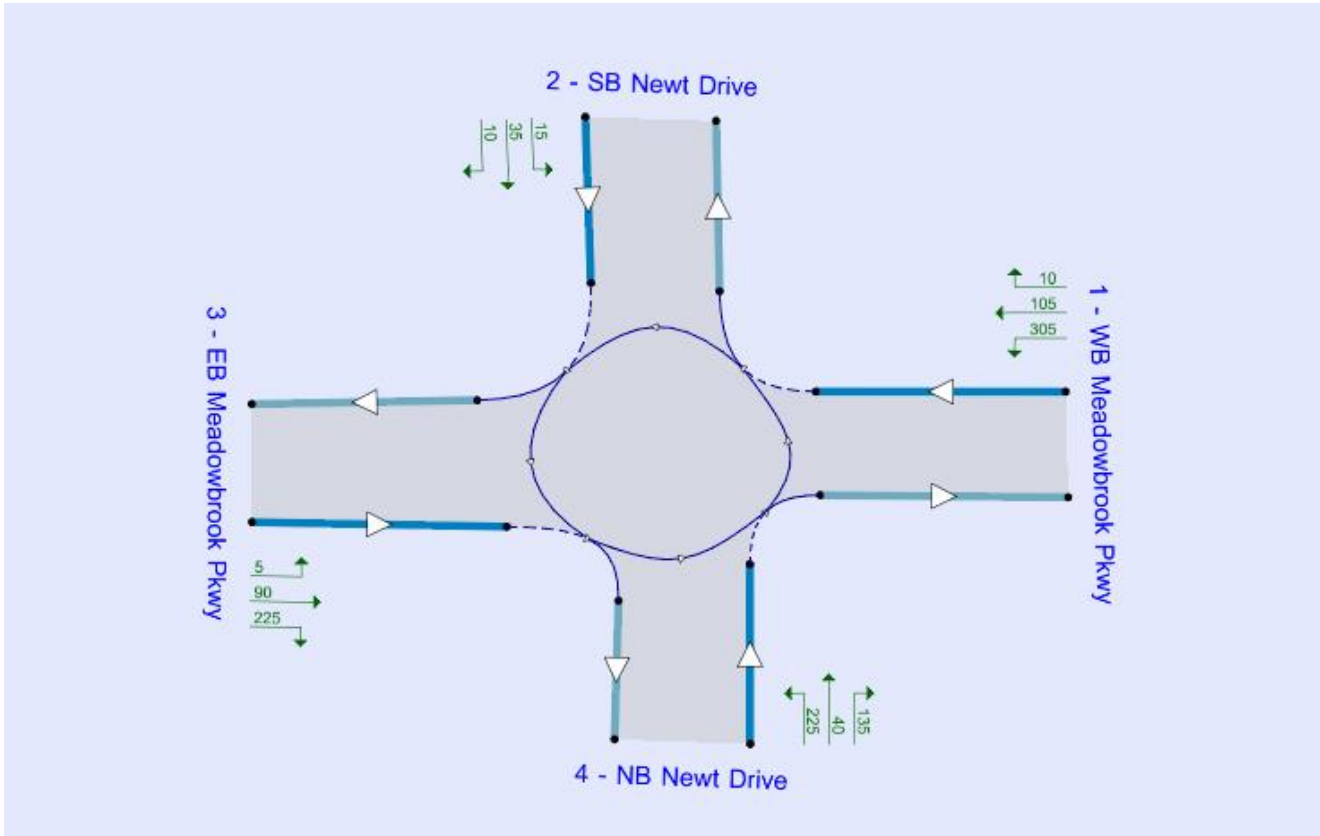
Leg	1 - WB Meadowbrook ...	2 - SB Newt Drive	3 - EB Meadowbrook ...	4 - NB Newt Drive
V - Approach road half-width (ft)	14.00	14.00	14.00	14.00
E - Entry width (ft)	14.00	14.00	14.00	14.00
I' - Effective flare length (ft)	0.0	0.0	0.0	0.0
R - Entry radius (ft)	65.0	65.0	65.0	65.0
D - Inscribed circle diameter (ft)	130.0	130.0	130.0	130.0
PHI - Conflict (entry) angle (deg)	20.0	20.0	20.0	20.0
Exit only	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Leg has bypass	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Percentage intercept adjustment (%)	90.00	90.00	90.00	90.00
Average Demand (PCE/hr)	390	50	475	485
Max Delay (s)	6.74	5.36	7.49	6.50
Max LOS	A	A	A	A
Max 95th percentile Queue (PCE)	2.8	0.5	2.1	2.1
Max V/C Ratio	0.44	0.07	0.51	0.48

ARCADY OPERATIONAL ANALYSIS DOCUMENTATION
 STANDARD ROUNDABOUT CAPACITY MODEL
 MEADOWBROOK PARKWAY & NEWT DRIVE

Meadowbrook Parkway and Newt Drive

2026 Total PM Peak Hour

Intersection Diagram



Volumes

From \ To	1 - WB Meadowbrook Pkwy	2 - SB Newt Drive	3 - EB Meadowbrook Pkwy	4 - NB Newt Drive	Total
1 - WB Meadowbrook Pkwy	0	10	105	305	420
2 - SB Newt Drive	15	0	10	35	60
3 - EB Meadowbrook Pkwy	90	5	0	225	320
4 - NB Newt Drive	135	40	225	0	400
Total	240	55	340	565	-

ARCADY OPERATIONAL ANALYSIS DOCUMENTATION
 STANDARD ROUNDABOUT CAPACITY MODEL
 MEADOWBROOK PARKWAY & NEWT DRIVE

Meadowbrook Parkway and Newt Drive

2026 Total PM Peak Hour

Truck Percentages

From \ To	1 - WB Meadowbrook Pkwy	2 - SB Newt Drive	3 - EB Meadowbrook Pkwy	4 - NB Newt Drive	Average
1 - WB Meadowbrook Pkwy	0	3	3	3	2
2 - SB Newt Drive	3	0	3	3	2
3 - EB Meadowbrook Pkwy	3	3	0	3	2
4 - NB Newt Drive	0	3	3	0	2
Average	2	2	2	2	-

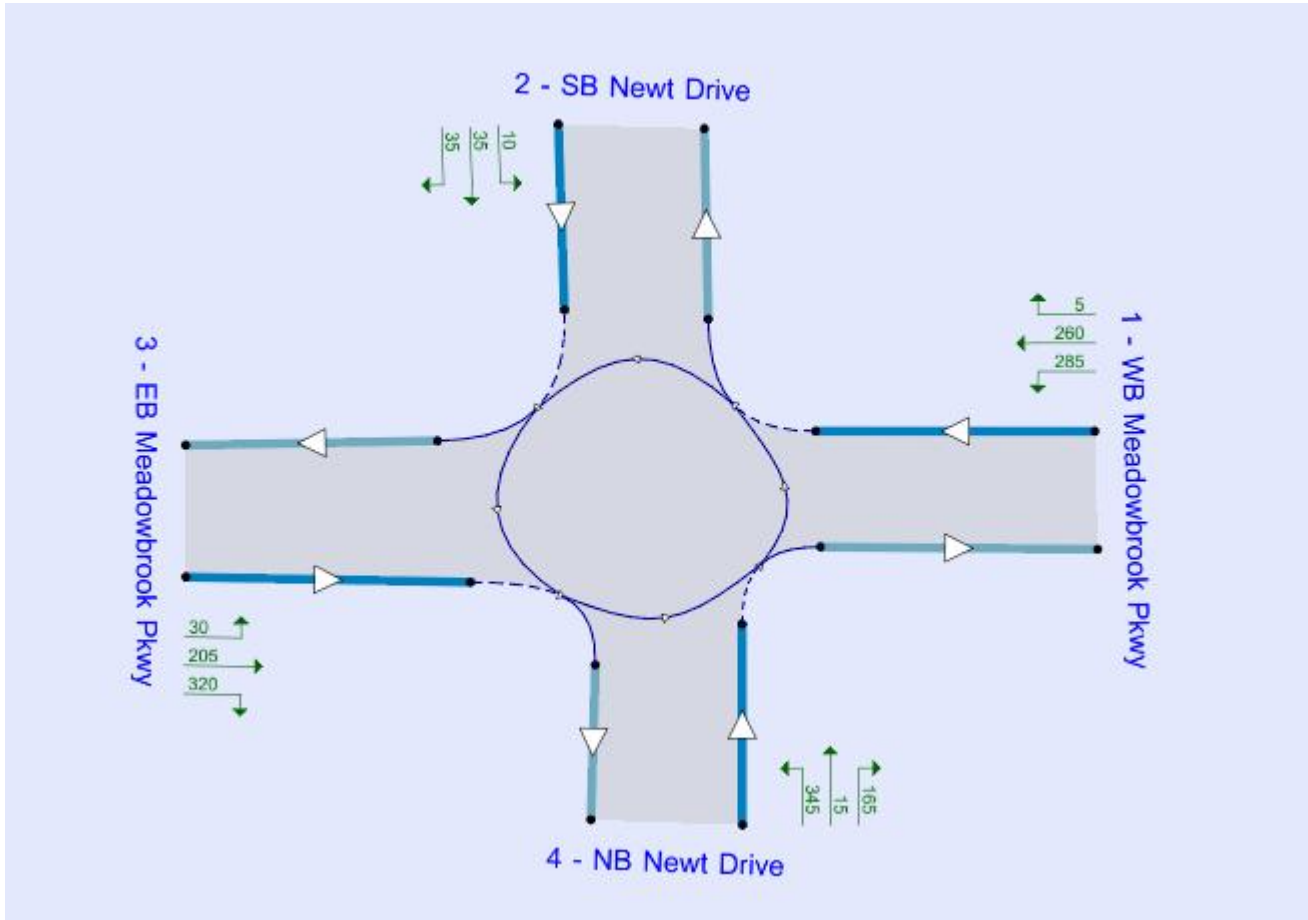
Geometry and Analysis Results

Leg	1 - WB Meadowbrook ...	2 - SB Newt Drive	3 - EB Meadowbrook ...	4 - NB Newt Drive
V - Approach road half-width (ft)	14.00	14.00	14.00	14.00
E - Entry width (ft)	14.00	14.00	14.00	14.00
I' - Effective flare length (ft)	0.0	0.0	0.0	0.0
R - Entry radius (ft)	65.0	65.0	65.0	65.0
D - Inscribed circle diameter (ft)	130.0	130.0	130.0	130.0
PHI - Conflict (entry) angle (deg)	20.0	20.0	20.0	20.0
Exit only	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Leg has bypass	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Percentage intercept adjustment (%)	90.00	90.00	90.00	90.00
Average Demand (PCE/hr)	420	60	320	400
Max Delay (s)	6.52	5.07	5.94	5.30
Max LOS	A	A	A	A
Max 95th percentile Queue (PCE)	2.7	0.5	2.7	2.7
Max V/C Ratio	0.45	0.08	0.36	0.39

Meadowbrook Parkway and Newt Drive

2040 Total AM Peak Hour

Intersection Diagram



Volumes

From \ To	1 - WB Meadowbrook Pkwy	2 - SB Newt Drive	3 - EB Meadowbrook Pkwy	4 - NB Newt Drive	Total
1 - WB Meadowbrook Pkwy	0	5	260	285	550
2 - SB Newt Drive	10	0	35	35	80
3 - EB Meadowbrook Pkwy	205	30	0	320	555
4 - NB Newt Drive	165	15	345	0	525
Total	380	50	640	640	

ARCADY OPERATIONAL ANALYSIS DOCUMENTATION
 STANDARD ROUNDABOUT CAPACITY MODEL
 MEADOWBROOK PARKWAY & NEWT DRIVE

Meadowbrook Parkway and Newt Drive

2040 Total AM Peak Hour

Truck Percentages

From \ To	1 - WB Meadowbrook Pkwy	2 - SB Newt Drive	3 - EB Meadowbrook Pkwy	4 - NB Newt Drive	Average
1 - WB Meadowbrook Pkwy	0	3	3	3	2
2 - SB Newt Drive	3	0	3	3	2
3 - EB Meadowbrook Pkwy	3	3	0	3	2
4 - NB Newt Drive	3	3	3	0	2
Average	2	2	2	2	-

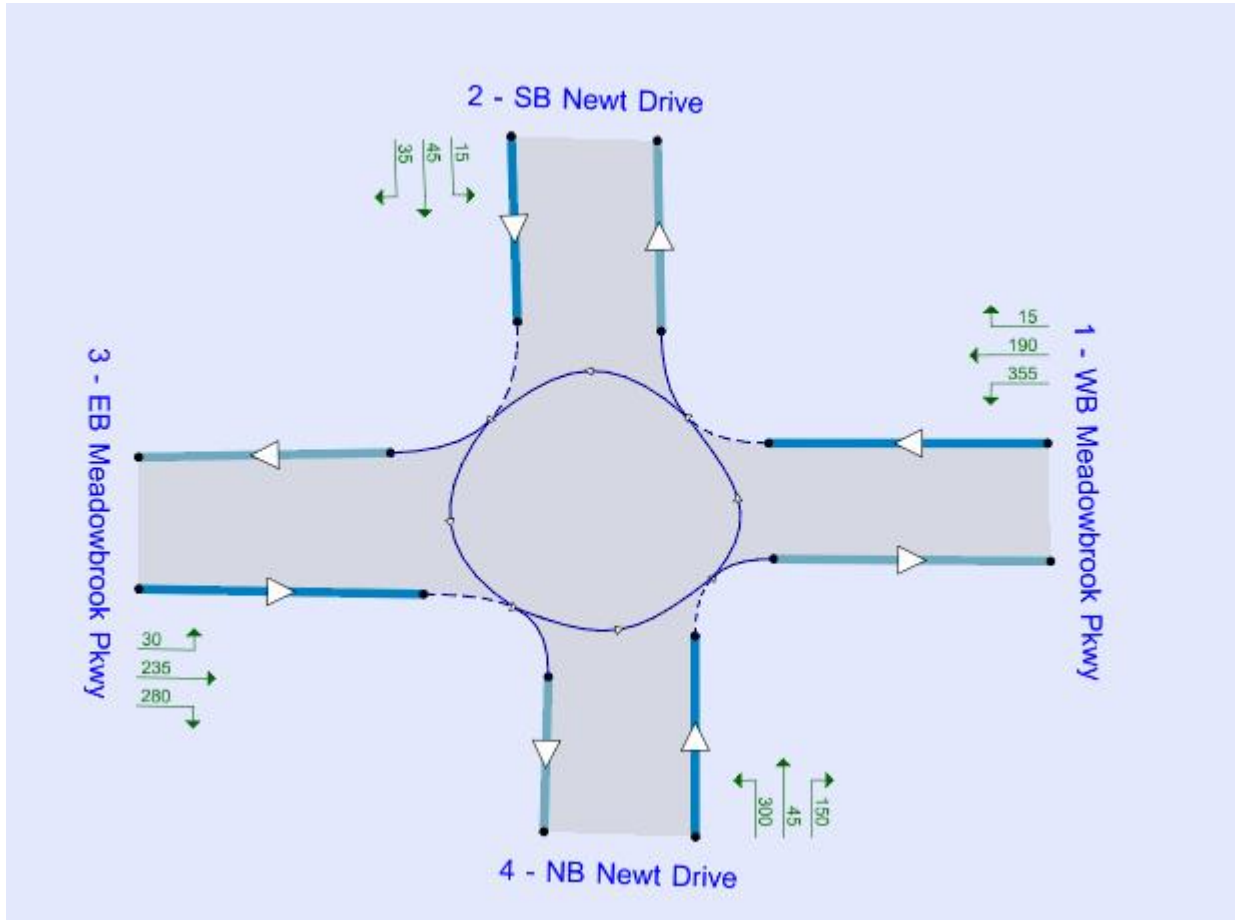
Geometry and Analysis Results

Leg	The screen is locked to the current TYPE of item. Click the padlock again to lock to the current PARTICULAR item or s			
V - Approach road half-width (ft)	14.00	14.00	14.00	14.00
E - Entry width (ft)	14.00	14.00	14.00	14.00
l' - Effective flare length (ft)	0.0	0.0	0.0	0.0
R - Entry radius (ft)	65.0	65.0	65.0	65.0
D - Inscribed circle diameter (ft)	130.0	130.0	130.0	130.0
PHI - Conflict (entry) angle (deg)	20.0	20.0	20.0	20.0
Exit only	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Leg has bypass	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Percentage intercept adjustment (%)	90.00	90.00	90.00	90.00
Average Demand (PCE/hr)	550	80	555	525
Max Delay (s)	10.62	6.78	9.71	7.90
Max LOS	B	A	A	A
Max 95th percentile Queue (PCE)	3.4	0.5	2.3	1.8
Max V/C Ratio	0.63	0.14	0.62	0.55

Meadowbrook Parkway and Newt Drive

2040 Total PM Peak Hour

Intersection Diagram



Volumes

From \ To	1 - WB Meadowbrook Pkwy	2 - SB Newt Drive	3 - EB Meadowbrook Pkwy	4 - NB Newt Drive	Total
1 - WB Meadowbrook Pkwy	0	15	190	355	560
2 - SB Newt Drive	15	0	35	45	95
3 - EB Meadowbrook Pkwy	235	30	0	280	545
4 - NB Newt Drive	150	45	300	0	495
Total	400	90	525	680	

ARCADY OPERATIONAL ANALYSIS DOCUMENTATION
 STANDARD ROUNDABOUT CAPACITY MODEL
 MEADOWBROOK PARKWAY & NEWT DRIVE

Meadowbrook Parkway and Newt Drive

2040 Total PM Peak Hour

Truck Percentages

From \ To	1 - WB Meadowbrook Pkwy	2 - SB Newt Drive	3 - EB Meadowbrook Pkwy	4 - NB Newt Drive	Average
1 - WB Meadowbrook Pkwy	0	3	3	3	2
2 - SB Newt Drive	3	0	3	3	2
3 - EB Meadowbrook Pkwy	3	3	0	2	2
4 - NB Newt Drive	3	3	3	0	2
Average	2	2	2	2	-

Geometry and Analysis Results

Leg	1 - WB Meadowbrook ...	2 - SB Newt Drive	3 - EB Meadowbrook ...	4 - NB Newt Drive
V - Approach road half-width (ft)	14.00	14.00	14.00	14.00
E - Entry width (ft)	14.00	14.00	14.00	14.00
l' - Effective flare length (ft)	0.0	0.0	0.0	0.0
R - Entry radius (ft)	65.0	65.0	65.0	65.0
D - Inscribed circle diameter (ft)	130.0	130.0	130.0	130.0
PHI - Conflict (entry) angle (deg)	20.0	20.0	20.0	20.0
Exit only	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Leg has bypass	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Percentage intercept adjustment (%)	90.00	90.00	90.00	90.00
Average Demand (PCE/hr)	560	95	545	495
Max Delay (s)	10.67	6.63	10.89	7.73
Max LOS	B	A	B	A
Max 95th percentile Queue (PCE)	3.6	0.5	3.7	2.0
Max V/C Ratio	0.64	0.16	0.64	0.53

Intersection						
Int Delay, s/veh	8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔		↔	↑	↔	
Traffic Vol, veh/h	0	0	20	0	0	55
Future Vol, veh/h	0	0	20	0	0	55
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	115	-	0	-
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	22	0	0	60

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	1	0	45
Stage 1	-	-	-	-	1
Stage 2	-	-	-	-	44
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	1622	-	965
Stage 1	-	-	-	-	1022
Stage 2	-	-	-	-	978
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1622	-	951
Mov Cap-2 Maneuver	-	-	-	-	878
Stage 1	-	-	-	-	1022
Stage 2	-	-	-	-	964

Approach	EB	WB	NB
HCM Control Delay, s	0	7.2	8.5
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1084	-	-	1622	-
HCM Lane V/C Ratio	0.055	-	-	0.013	-
HCM Control Delay (s)	8.5	-	-	7.2	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Intersection

Int Delay, s/veh 7.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔		↔	↑	↔	
Traffic Vol, veh/h	0	0	55	0	0	35
Future Vol, veh/h	0	0	55	0	0	35
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	115	-	0	-
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	60	0	0	38

Major/Minor

	Major1	Major2	Minor1		
Conflicting Flow All	0	0	1	0	121
Stage 1	-	-	-	-	1
Stage 2	-	-	-	-	120
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	1622	-	874
Stage 1	-	-	-	-	1022
Stage 2	-	-	-	-	905
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1622	-	842
Mov Cap-2 Maneuver	-	-	-	-	792
Stage 1	-	-	-	-	1022
Stage 2	-	-	-	-	872

Approach

	EB	WB	NB
HCM Control Delay, s	0	7.3	8.4
HCM LOS			A

Minor Lane/Major Mvmt

	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1084	-	-	1622	-
HCM Lane V/C Ratio	0.035	-	-	0.037	-
HCM Control Delay (s)	8.4	-	-	7.3	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-

Intersection

Int Delay, s/veh 1.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔		↔	↑	↔	
Traffic Vol, veh/h	195	5	15	260	15	45
Future Vol, veh/h	195	5	15	260	15	45
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	115	-	0	-
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	212	5	16	283	16	49

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	217	0	530
Stage 1	-	-	-	-	215
Stage 2	-	-	-	-	315
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	1353	-	510
Stage 1	-	-	-	-	821
Stage 2	-	-	-	-	740
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1353	-	504
Mov Cap-2 Maneuver	-	-	-	-	581
Stage 1	-	-	-	-	821
Stage 2	-	-	-	-	731

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	10.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	747	-	-	1353	-
HCM Lane V/C Ratio	0.087	-	-	0.012	-
HCM Control Delay (s)	10.3	-	-	7.7	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.3	-	-	0	-

Intersection

Int Delay, s/veh 1.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔		↔	↑	↔	
Traffic Vol, veh/h	260	15	45	195	10	30
Future Vol, veh/h	260	15	45	195	10	30
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	115	-	0	-
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	283	16	49	212	11	33

Major/Minor

	Major1	Major2	Minor1		
Conflicting Flow All	0	0	299	0	601
Stage 1	-	-	-	-	291
Stage 2	-	-	-	-	310
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	1262	-	463
Stage 1	-	-	-	-	759
Stage 2	-	-	-	-	744
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1262	-	445
Mov Cap-2 Maneuver	-	-	-	-	539
Stage 1	-	-	-	-	759
Stage 2	-	-	-	-	715

Approach

	EB	WB	NB
HCM Control Delay, s	0	1.5	10.6
HCM LOS			B

Minor Lane/Major Mvmt

	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	682	-	-	1262	-
HCM Lane V/C Ratio	0.064	-	-	0.039	-
HCM Control Delay (s)	10.6	-	-	8	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-

Intersection

Int Delay, s/veh 7.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔		↔	↑	↔	↔
Traffic Vol, veh/h	55	0	460	20	0	160
Future Vol, veh/h	55	0	460	20	0	160
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	115	-	215	0
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	60	0	500	22	0	174

Major/Minor

	Major1	Major2	Minor1		
Conflicting Flow All	0	0	60	0	1082 60
Stage 1	-	-	-	-	60 -
Stage 2	-	-	-	-	1022 -
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	-	-	1544	-	241 1005
Stage 1	-	-	-	-	963 -
Stage 2	-	-	-	-	347 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1544	-	163 1005
Mov Cap-2 Maneuver	-	-	-	-	209 -
Stage 1	-	-	-	-	963 -
Stage 2	-	-	-	-	235 -

Approach

	EB	WB	NB
HCM Control Delay, s	0	8.1	9.3
HCM LOS			A

Minor Lane/Major Mvmt

	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	1005	-	-	1544	-
HCM Lane V/C Ratio	-	0.173	-	-	0.324	-
HCM Control Delay (s)	0	9.3	-	-	8.4	-
HCM Lane LOS	A	A	-	-	A	-
HCM 95th %tile Q(veh)	-	0.6	-	-	1.4	-

Intersection

Int Delay, s/veh 6.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔		↔	↑	↔	↔
Traffic Vol, veh/h	35	0	305	55	0	110
Future Vol, veh/h	35	0	305	55	0	110
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	115	-	215	0
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	38	0	332	60	0	120

Major/Minor

	Major1	Major2	Minor1		
Conflicting Flow All	0	0	38	0	762 38
Stage 1	-	-	-	-	38 -
Stage 2	-	-	-	-	724 -
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	-	-	1572	-	373 1034
Stage 1	-	-	-	-	984 -
Stage 2	-	-	-	-	480 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1572	-	294 1034
Mov Cap-2 Maneuver	-	-	-	-	337 -
Stage 1	-	-	-	-	984 -
Stage 2	-	-	-	-	379 -

Approach

	EB	WB	NB
HCM Control Delay, s	0	6.7	8.9
HCM LOS			A

Minor Lane/Major Mvmt

	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	1034	-	-	1572	-
HCM Lane V/C Ratio	-	0.116	-	-	0.211	-
HCM Control Delay (s)	0	8.9	-	-	7.9	-
HCM Lane LOS	A	A	-	-	A	-
HCM 95th %tile Q(veh)	-	0.4	-	-	0.8	-

Intersection

Int Delay, s/veh 7.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔		↔	↑	↔	↔
Traffic Vol, veh/h	195	45	430	205	70	150
Future Vol, veh/h	195	45	430	205	70	150
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	115	-	215	0
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	212	49	467	223	76	163

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	261
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.12
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.218
Pot Cap-1 Maneuver	-	-	1303
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1303
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	6.3	21.2
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	166	802	-	-	1303	-
HCM Lane V/C Ratio	0.458	0.203	-	-	0.359	-
HCM Control Delay (s)	43.8	10.6	-	-	9.3	-
HCM Lane LOS	E	B	-	-	A	-
HCM 95th %tile Q(veh)	2.1	0.8	-	-	1.7	-

Intersection						
Int Delay, s/veh	5.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	250	35	335	185	55	115
Future Vol, veh/h	250	35	335	185	55	115
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	115	-	215	0
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	272	38	364	201	60	125

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	0	0	310	0
Stage 1	-	-	-	291
Stage 2	-	-	-	929
Critical Hdwy	-	-	4.12	-
Critical Hdwy Stg 1	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-
Pot Cap-1 Maneuver	-	-	1250	-
Stage 1	-	-	-	759
Stage 2	-	-	-	385
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	-	-	1250	-
Mov Cap-2 Maneuver	-	-	-	228
Stage 1	-	-	-	759
Stage 2	-	-	-	273

Approach	EB	WB	NB
HCM Control Delay, s	0	5.8	15.8
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	228	748	-	-	1250	-
HCM Lane V/C Ratio	0.262	0.167	-	-	0.291	-
HCM Control Delay (s)	26.3	10.8	-	-	9.1	-
HCM Lane LOS	D	B	-	-	A	-
HCM 95th %tile Q(veh)	1	0.6	-	-	1.2	-

Intersection						
Int Delay, s/veh	3.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↑		↗
Traffic Vol, veh/h	210	0	0	475	0	260
Future Vol, veh/h	210	0	0	475	0	260
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	228	0	0	516	0	283

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	-	-	228
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	3.318
Pot Cap-1 Maneuver	-	-	0	-	811
Stage 1	-	-	0	-	-
Stage 2	-	-	0	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	811
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	11.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	811	-	-	-
HCM Lane V/C Ratio	0.348	-	-	-
HCM Control Delay (s)	11.8	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	1.6	-	-	-

Intersection						
Int Delay, s/veh	2.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↑		↗
Traffic Vol, veh/h	140	0	0	360	0	180
Future Vol, veh/h	140	0	0	360	0	180
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	152	0	0	391	0	196

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	-	-	- 152
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	-	-	-	- 6.22
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	- 3.318
Pot Cap-1 Maneuver	-	-	0	-	0 894
Stage 1	-	-	0	-	0
Stage 2	-	-	0	-	0
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	- 894
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	10.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	894	-	-	-
HCM Lane V/C Ratio	0.219	-	-	-
HCM Control Delay (s)	10.2	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.8	-	-	-

Intersection						
Int Delay, s/veh	2.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↑		↗
Traffic Vol, veh/h	310	30	0	635	0	245
Future Vol, veh/h	310	30	0	635	0	245
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	337	33	0	690	0	266

Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	-	-	-	354
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	-	-	0	-	0	690
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	690
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	13.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	690	-	-	-
HCM Lane V/C Ratio	0.386	-	-	-
HCM Control Delay (s)	13.5	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	1.8	-	-	-

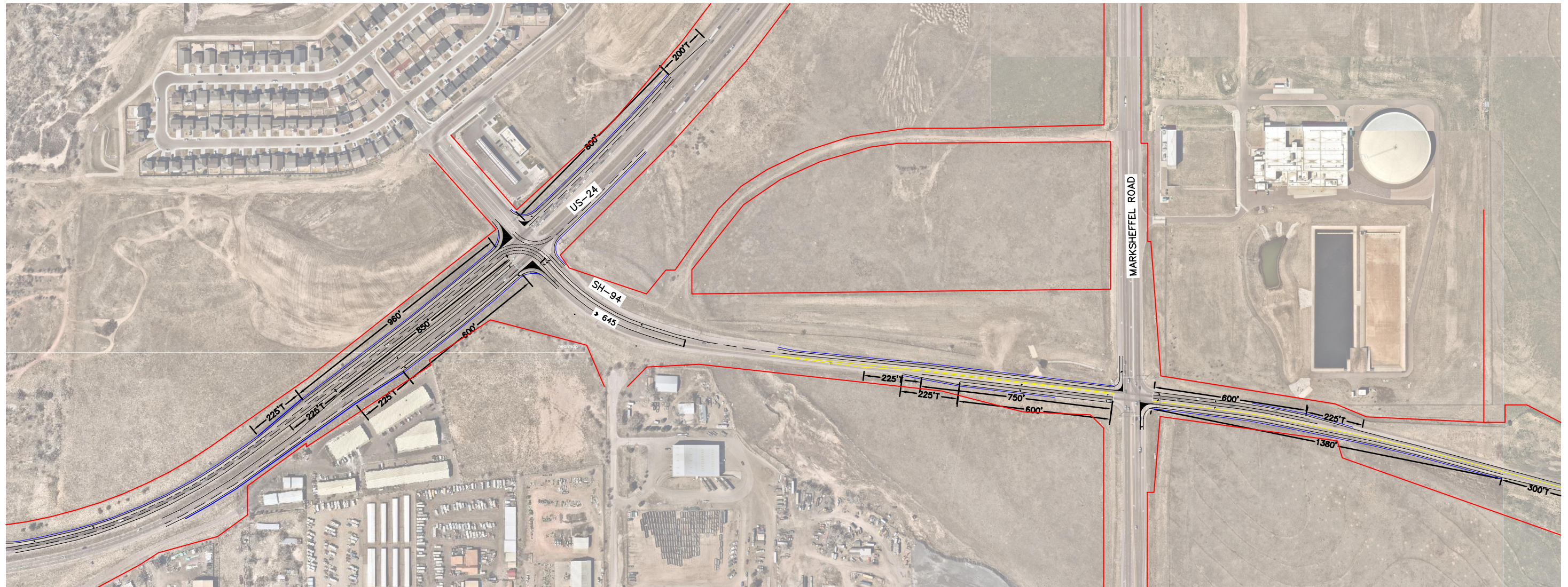
Intersection						
Int Delay, s/veh	2.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↑		↗
Traffic Vol, veh/h	345	25	0	520	0	195
Future Vol, veh/h	345	25	0	520	0	195
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	375	27	0	565	0	212

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	-	-	- 389
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	3.318
Pot Cap-1 Maneuver	-	-	0	-	0 659
Stage 1	-	-	0	-	0
Stage 2	-	-	0	-	0
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	659
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

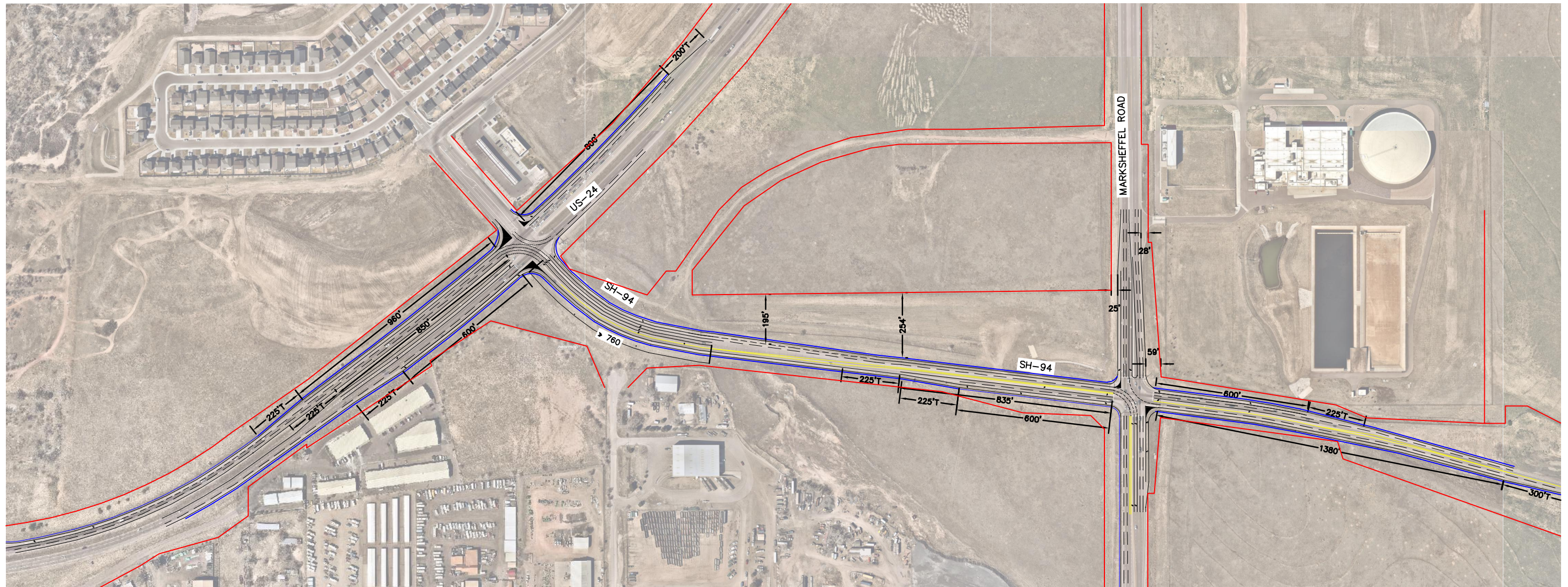
Approach	EB	WB	NB
HCM Control Delay, s	0	0	13
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	659	-	-	-
HCM Lane V/C Ratio	0.322	-	-	-
HCM Control Delay (s)	13	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	1.4	-	-	-

SH-94 and US-24 Improvement Exhibits



CROSSROAD—MEADOWBROOK & RAEGAN RANCH
COLORADO SPRINGS, CO
2026 INTERSECTION IMPROVEMENT

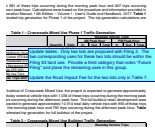


CROSSROAD—MEADOWBROOK & RAEGAN RANCH
COLORADO SPRINGS, CO
2040 SH-94 & MARKSHEFFEL ROAD INTERSECTION IMPROVEMENT

Proposed Site Plan

V1_Traffic Impact Study.pdf Markup Summary

dsdlaforce (1)



Subject: Text Box
Page Label: 4
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Author: dsdlaforce
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Update tables. Only two lots are proposed with Filing 2. The two corresponding uses for these two lots should be within the Filing #2 land use. Provide a third category that notes "Future Filing" and place the remaining uses in this group.

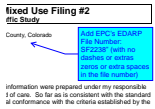
Update the Road Impact Fee for the two lots only in Table 7.

lpackman (4)



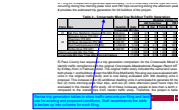
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Author: lpackman
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Include whether that deviation was approved or denied. If approved include what filing it was approved with as well. If proposing with this filing, include deviation in next submittal.



Subject: Callout
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Add EPC's EDARP File Number: SF2238" (with no dashes or extras zeros or extra spaces in the file number)



Subject: Callout
Page Label: 4
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Author: lpackman
Date: 2/2/2023 11:04:28 AM
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Revise trip generation tables to show traffic amounts per filing and land use for existing and proposed conditions. Staff recommends the table is broken up into columns for each filing.



Subject: Callout
Page Label: 13
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Author: lpackman
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Provide an update on improvements. Include estimated completion dates for each and include any additional requirements CDOT might have asked for for filing 2.