



May 24, 2021

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

Re: Crossroads Mix Use Traffic Study Letter (PCD File No. P208 and SP2011)
SWC of Meadowbrook Parkway and Newt Drive
El Paso County, Colorado

Dear Ms. Nelson:

This traffic study letter has been prepared for a proposed mixed-use development, Crossroads Mix Use, to be located on the southwest corner of the Meadowbrook Parkway and Newt Drive intersection in El Paso County, Colorado. This letter is an addendum to the *Crossroads-Meadowbrook-Reagan Ranch Master Traffic Impact Study* (MTIS) to provide a site-specific analysis for the Crossroads Mix Use development. For the purposes of this analysis, full buildout of Crossroads Mix Use is expected to include 300 multifamily housing units, 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. The retail portion of the project is located on the east side of the site while the 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 and two private street accesses located on the south side of the future Meadowbrook Parkway extension were also included for evaluation.

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.

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 Mix 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 Mid-Rise Multifamily Housing (ITE 221), 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 traffic associated the project.

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 the afternoon peak for areas that apply. Phase 1 development of Crossroads Mix Use in 2026 is expected to generate approximately 9,726 daily weekday external vehicle trips with 942 of these trips occurring during the morning peak hour and 675 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.

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

Table 1 – Crossroads Mix Use Phase 1 Traffic Generation

Use	Quantity	Daily	Weekday Vehicle Trips					
			AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
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

With full project buildout of Crossroads Mix Use, the project is expected to generate approximately 11,544 daily weekday external vehicle trips with 1,034 of these trips occurring during the morning peak hour and 844 trips occurring during the afternoon peak hour. **Table 2** provides the estimated trip generation for full buildout of the project.

Table 2 – Crossroads Mix Use Buildout Traffic Generation

Use	Quantity	Daily	Weekday Vehicle Trips					
			AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
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

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 Mix 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 are 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.

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 Rodel/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.

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

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 Mix 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

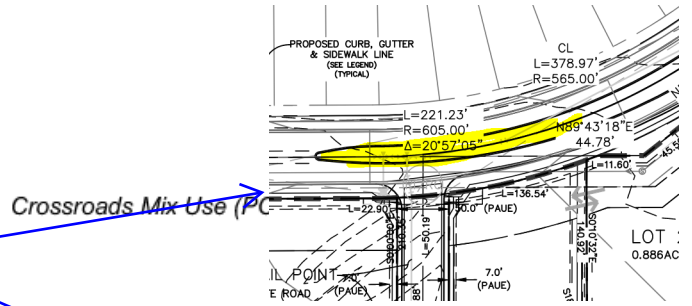
Scenario	AM Peak Hour		PM Peak Hour	
	Control Delay (sec/veh)	LOS	Control Delay (sec/veh)	LOS
2026 Total Traffic Volumes (Roundabout Control)	6.9	A	5.9	A
2040 Total Traffic Volumes (Roundabout Control)	9.3	A	9.7	A

Project Access Spacing Requirements and Internal Roadway Classifications

With completion of the Crossroads Mix 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 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 is requesting a deviation to allow for the middle access street 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 Mix Use.

Update statement. The preliminary plan shows a raised median in front of the east access as a barrier against left turn movements



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. El Paso County may require a raised median island in the driveway throat of the east access to restrict left turn movements due to the absence of a raised median along Meadowbrook Parkway. To further identify restriction of this access to right turn movements only, a R3-2 No Left Turn sign can be placed underneath the stop sign on the northbound exiting approach. Likewise, a No Left Turn sign could be placed on the southwest corner of the access intersection, visible to westbound drivers along Meadowbrook Parkway, to restrict left turn entrance movements as well.

The west and middle accesses along Meadowbrook Parkway should provide westbound left turn lanes with a length of 155 feet plus 160-foot tapers to meet El Paso County Engineering Criteria Manual (ECM) standards for a design speed of 40 miles per hour.

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

State/list ECM criteria for stacking, storage, and taper for every affected auxiliary lane and access and state whether this access can be met. If it can't be met, state the required modification so it can be met (a deviation request may be required if an alternative to the criteria is proposed)

Unresolved.

Update to identify the required required storage length. Per ECM 2.3.7.E.1 and Figure 2-25 the design elements for a left turn lane are the bay taper, lane length, and storage length. See ECM 2.3.7.E.3 for storage length criteria.

With the additional storage length double check that there is no conflict with the upstream intersection. Current intersection spacing does not have sufficient spacing to accommodate the required left turn lanes. Intersection spacings needs to be adjusted.

turns during the peak hour and the threshold being 50 vehicles per hour.

With the recommended lane configurations and control of the three proposed accesses along Meadowbrook Parkway, all movements at these accesses 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, all movements at the project accesses along Meadowbrook Parkway are expected to continue to operate acceptably with LOS D or better during the peak hours in 2040. It should be noted that allowing full turning movements at the east access along Meadowbrook Parkway improves operations of the middle access along Meadowbrook Parkway as it would distribute the high volume of expected westbound left turns during the peak hour (430 vehicles) to two access locations. El Paso County should consider allowing full turning movements at all the accesses along Meadowbrook Parkway to improve vehicle delays at the middle access and to evenly distribute entering left turn demands. Table 5 provides the results of the level of service at the key study area access intersections.

If the TIS is going to include this statement then provide a complete analysis of the feasibility of a full movement and the required WBLT lane length. Based on the layout there does not seem to be sufficient space for a WBLT that meets criteria. The middle access WBLT would be conflicting with this east access full movement and the roundabout splitter island

00, Denver, CO 80

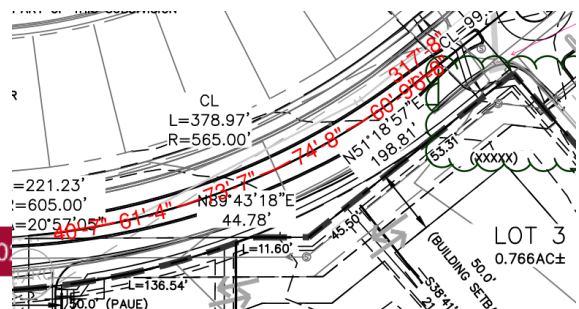


Table 5 – Meadowbrook Parkway Project Accesses LOS Results

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	32.5	D	19.5	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.

update per previous comments.

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'	155' + 160' T	25'	155' + 160' T
Meadowbrook Parkway Middle Access					
Northbound Approach	DNE	25'	C	125'	C
Westbound Left	DNE	50'	155' + 160'	50'	155' + 160'
Meadowbrook Parkway East Access					
Northbound Right	DNE	50'	C	50'	C

DNE = Does Not Exist; C = Continuous Lane; T= Taper

Update to include the required storage length. Per ECM 2.3.7.E.1 and Figure 2-25 the design elements for a left turn lane are the bay taper, lane length, and storage length. What's provided is only the lane length and storage length which makes up the deceleration.

See ECM 2.3.7.E.3 for storage length criteria.

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 Mix Use project. Based on the analysis presented in this study, Kimley-Horn believes the proposed Crossroads Mix Use development will be successfully incorporated into the existing and future roadway network.

3. Storage Lengths.

The basis for designing the length of required storage is to provide sufficient length for vehicles to queue within the lane without affecting other movements. Table 2-30 provides the required storage lengths for stop-controlled intersections. Figure 2-27 provides the required calculated storage lengths for signal-controlled intersections. Where the ECM Administrator determines that meeting the required storage length is impractical or results in an unsafe condition, the minimum storage length shall be based on the mean arrival rate, but in no case shall the minimum storage length be less than 50 feet.

sufficient at all three project accesses. The west and middle accesses along Meadowbrook Parkway should provide westbound left turn lanes with a length of 155 feet plus 160-foot tapers to meet El Paso County standards for a design speed of 40 miles per hour.

update recommendation. With a median island in place would it be more appropriate to place a one-way sign at the raised median directly in front of the RIRO access?

Crossroads Mix Use

Remove. This does not seem necessary with a raised median on Meadowbrook Pkwy.

1)
15

Page 9

A raised median island in the driveway throat of the east access is recommended to restrict left turn movements due to the absence of a raised median along Meadowbrook Parkway. To further identify restriction of this access to right turn movements only, a R3-2 No Left Turn sign can be placed underneath the stop sign on the northbound exiting approach. Likewise, a No Left Turn sign could be placed on the southwest corner of the access intersection, visible to westbound drivers along Meadowbrook Parkway, to restrict left turn entrance movements as well.

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 is requesting a deviation to allow for the middle access street be constructed to a local street cross section.

A single lane roundabout is currently planned at the intersection of Meadowbrook Parkway and Newt Drive. The roundabout with be included separately with

Identify any other offsite improvements to be constructed with Crossroads mixed use. Note the timing of these improvements (w/ phase 1 or phase 2).

The Master TIS showed the following offsite improvements highlighted in yellow that were associated with Crossroads Mixed Use.

Feel free to call me at (720) 943-9962.

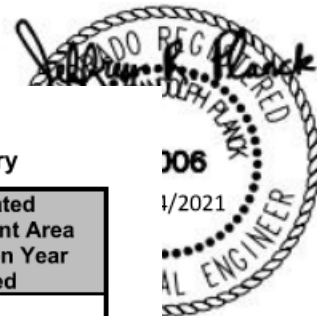


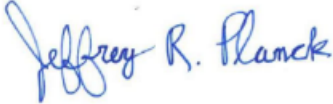
Table 16 – Crossroads-Meadowbrook-Reagan Ranch Improvement Summary

Intersection	Improvements	Associated Development Area and Horizon Year Needed
Meadowbrook Pkwy & Marksheffel Road (#1)	No Improvements	
US-24 & Marksheffel Road (#2)	Designate westbound dual left turn lanes	Crossroads North & Reagan Ranch 2026
	Three through lanes on all four approaches	All Four Development Areas 2040
Newt Drive & Meadowbrook Pkwy (#3)	Roundabout Control	Crossroads Mix Use 2026
SH-94 & US-24 (#4)	Designate northbound dual left turn lanes with 850-foot plus 225-foot taper	Crossroads Mix Use 2026
	Provide triple westbound left turn lanes with 760 feet plus 145-foot taper	Crossroads North 2026
	Extend eastbound to southwestbound right turn acceleration lane from 760 feet to 960 feet	Crossroads Mix Use 2026
	Three US-24 northbound and southbound through lanes	Crossroads North 2026
		Crossroads North

303 228 2300

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.



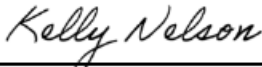
Jeffrey R. Planck, P.E., PE #53006

May 19, 2021

Date

Developer's Statement

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



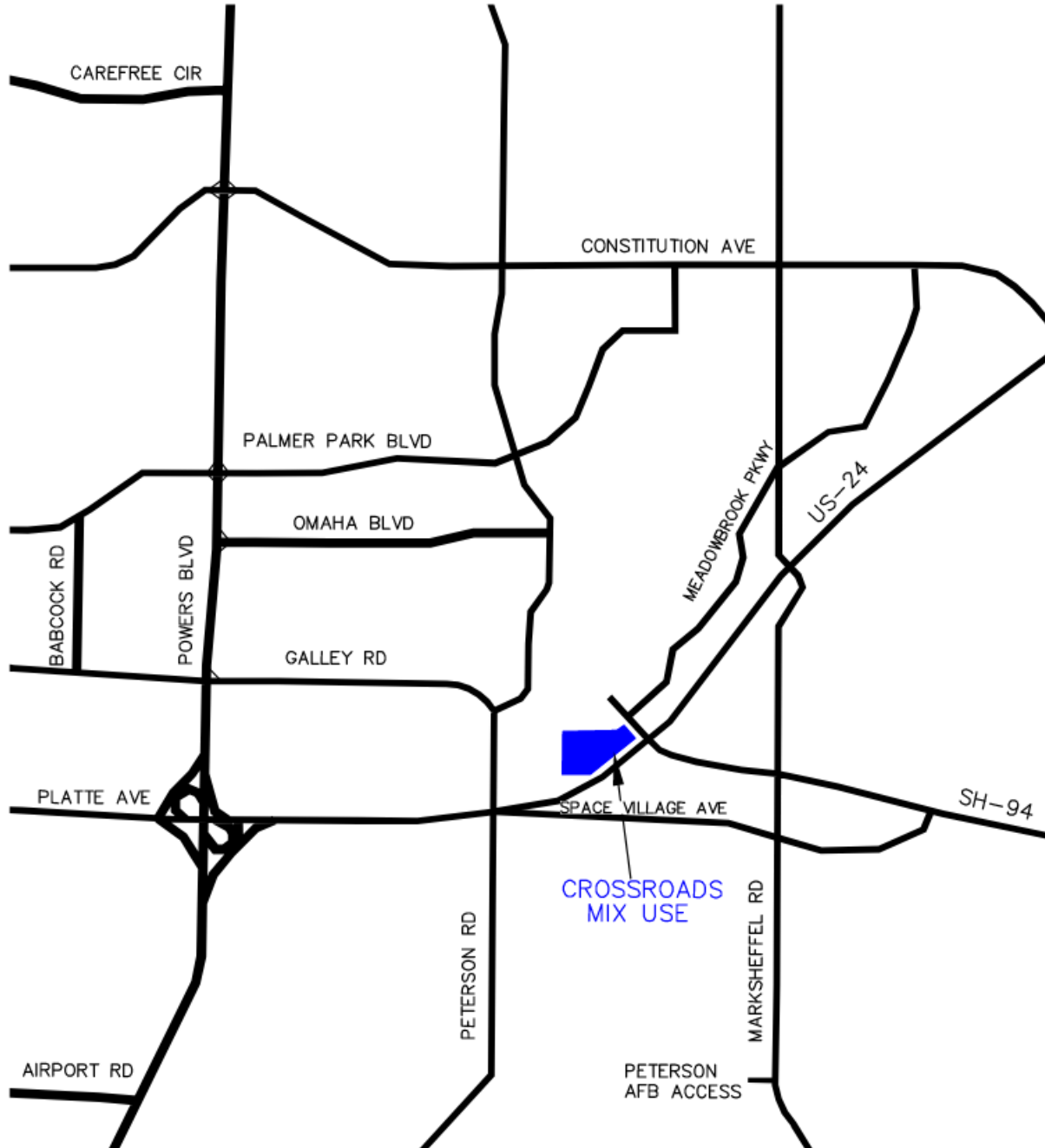
Ms. Kelly Nelson
Pikes Peak Investments LLC
c/o The Equity Group
90 South Cascade Avenue
Suite 1500
Colorado Springs, Colorado 80903

June 24, 2021

Date

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Figures



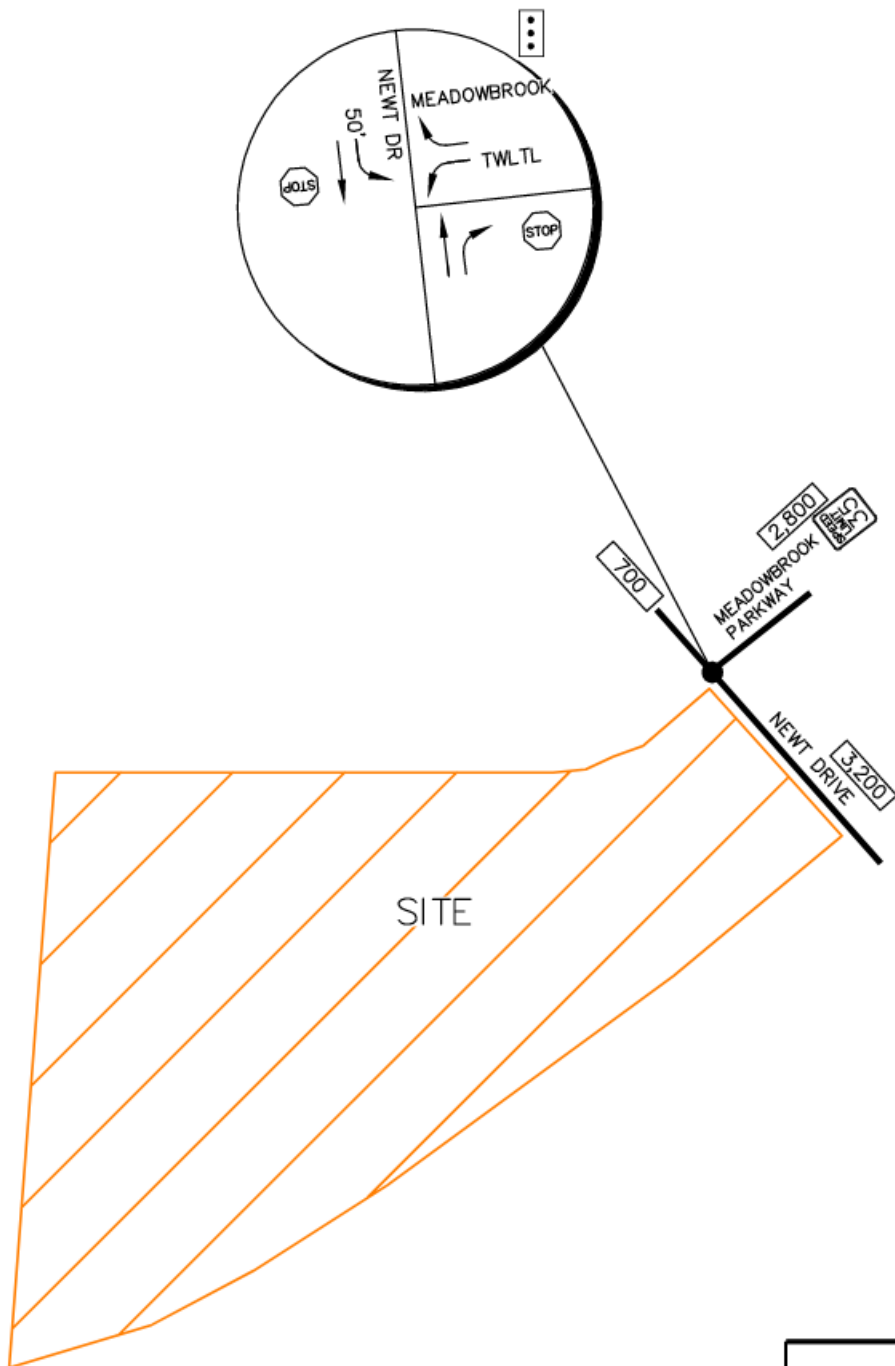
CROSSROADS MIX USE
VICINITY MAP

FIGURE 1



CROSSROADS MIX USE
SITE AREA

FIGURE 2

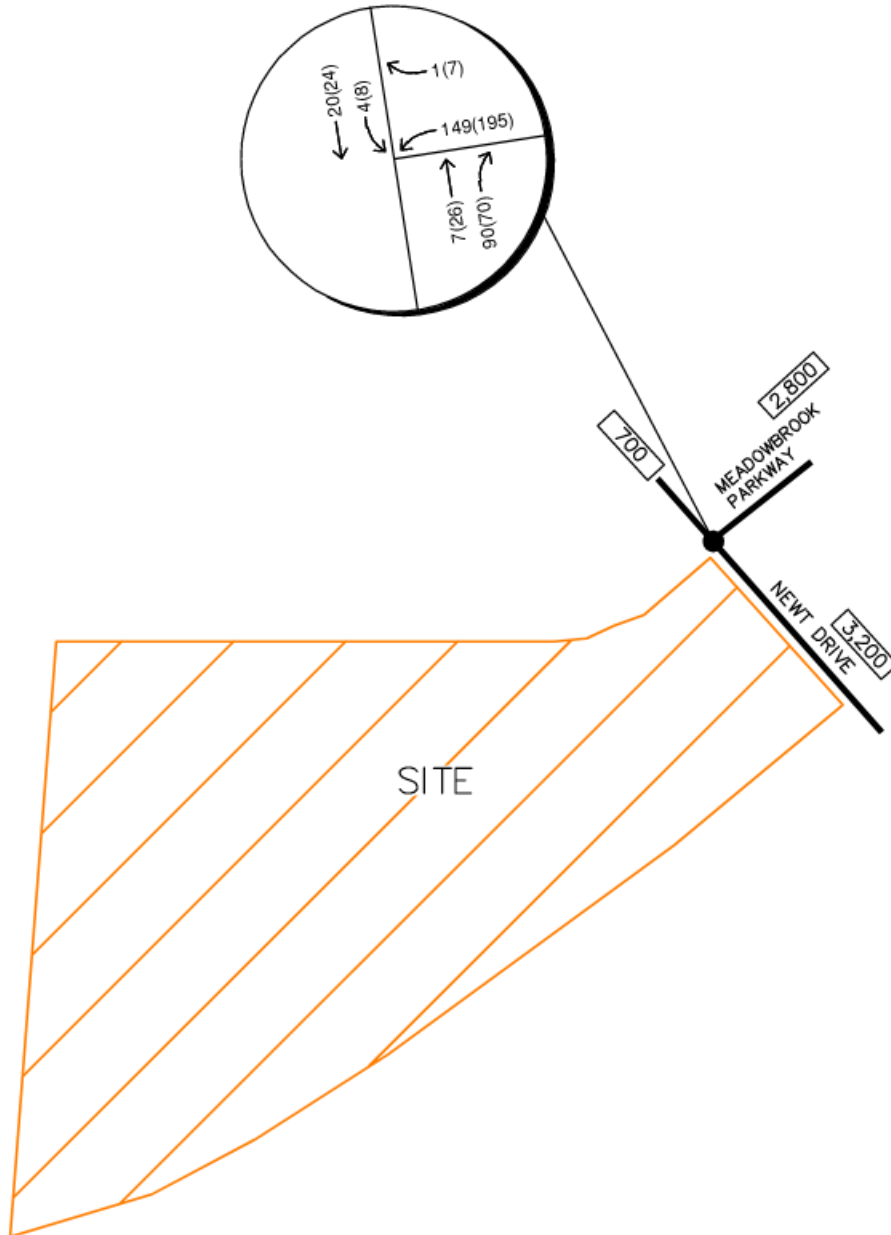


LEGEND	
●	Existing Key Intersection
STOP	Stop Controlled Approach
ⓧ	Roadway Speed Limit
TWTL	Two-Way Left Turn Lane
↩	100' Turn Lane Length (feet)

CROSSROADS MIX USE
 EXISTING LANE CONFIGURATIONS

FIGURE 3

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

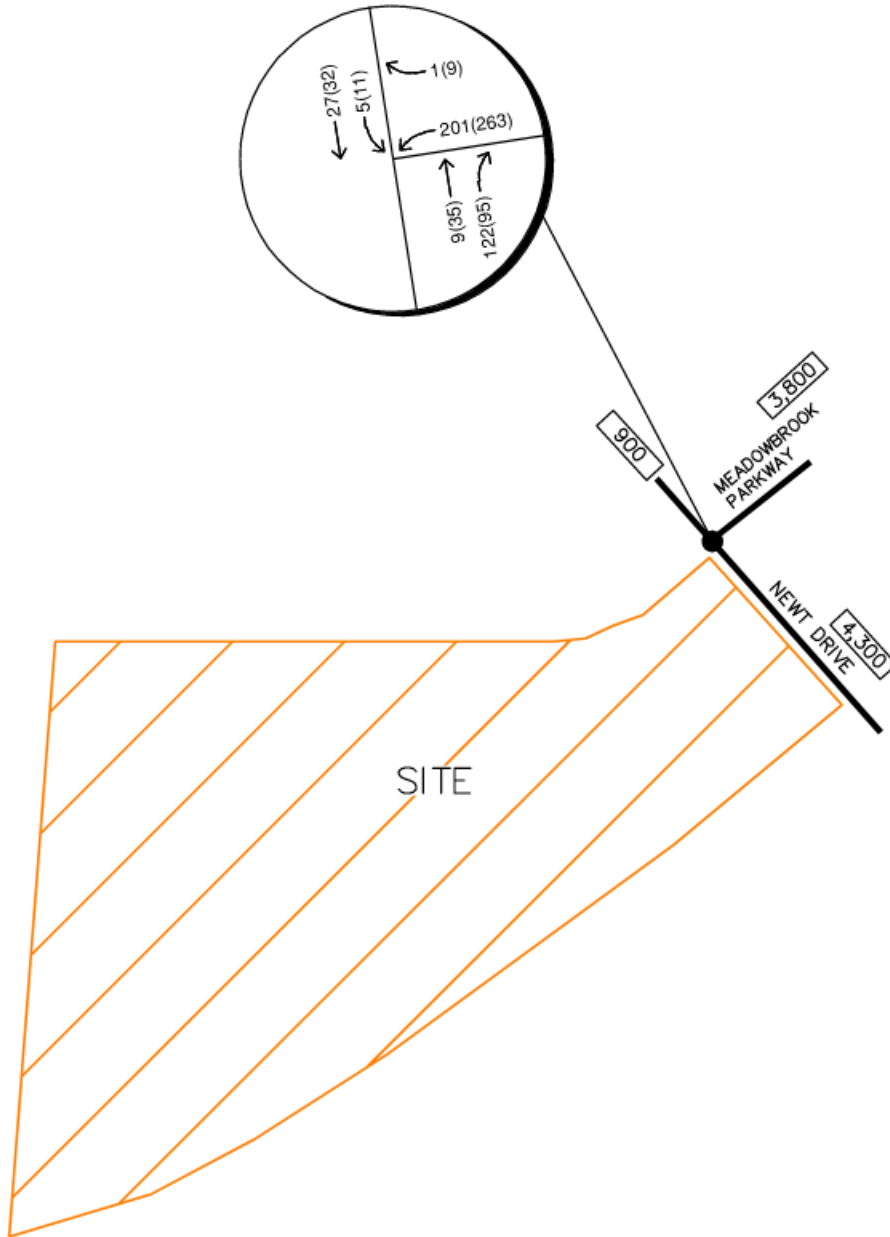


LEGEND

- 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

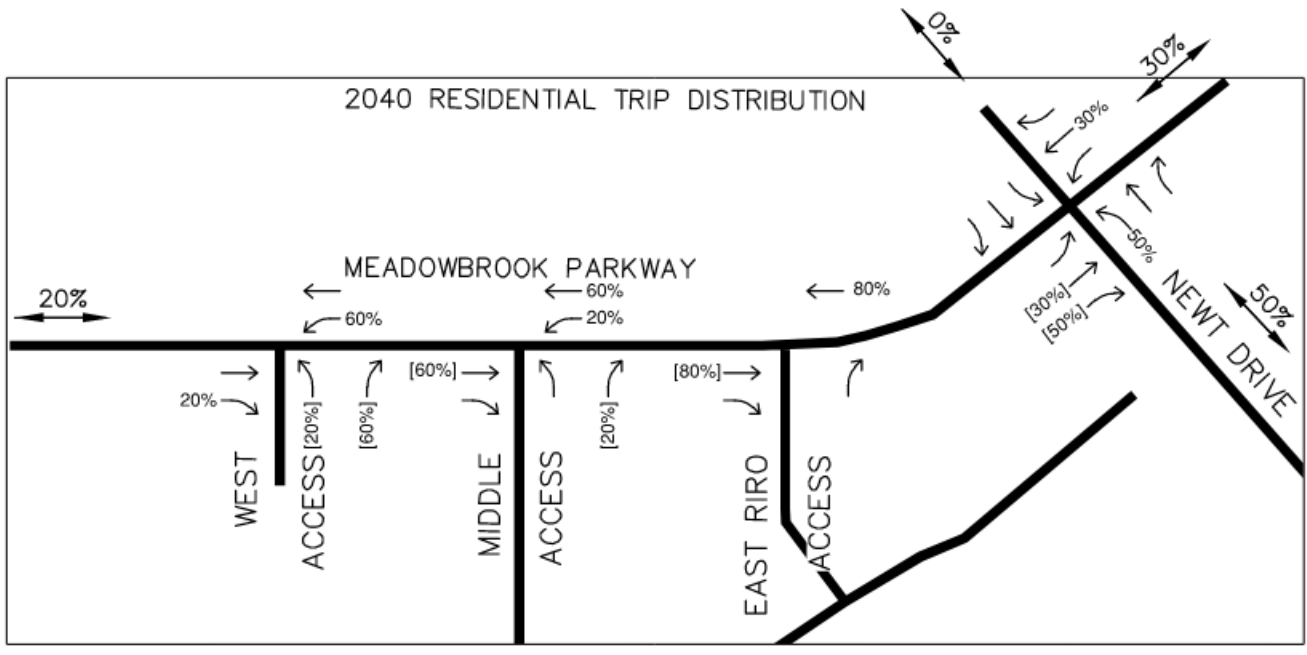
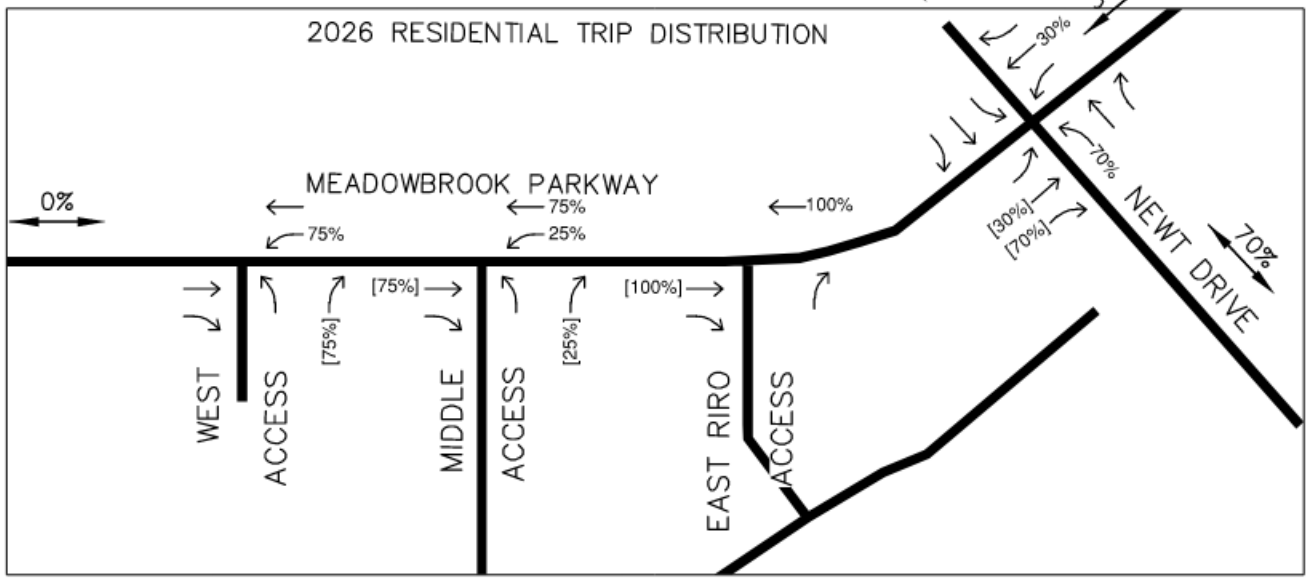


LEGEND

- 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

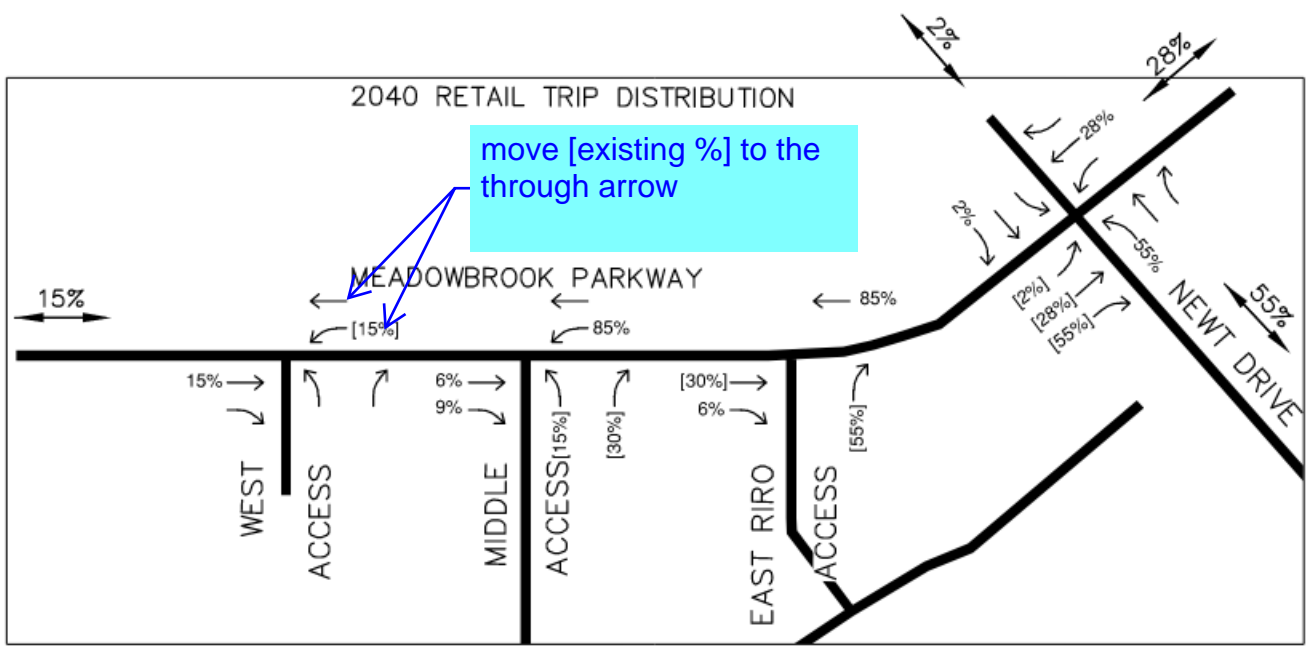
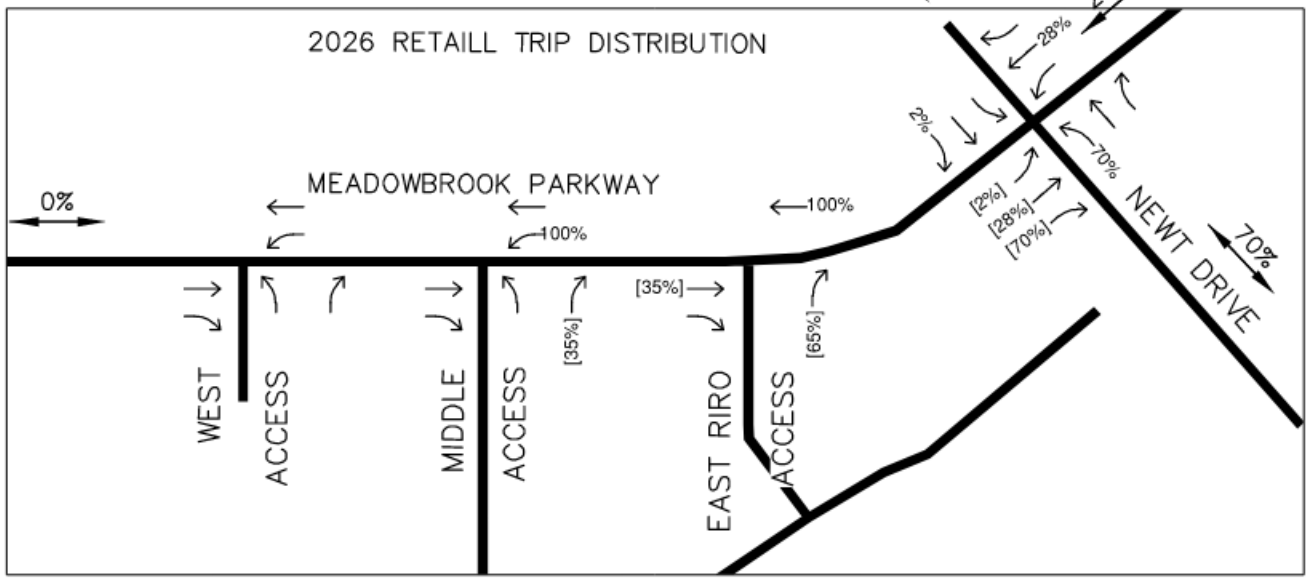


LEGEND

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

CROSSROADS MIX USE
 RESIDENTIAL TRIP DISTRIBUTION

FIGURE 6

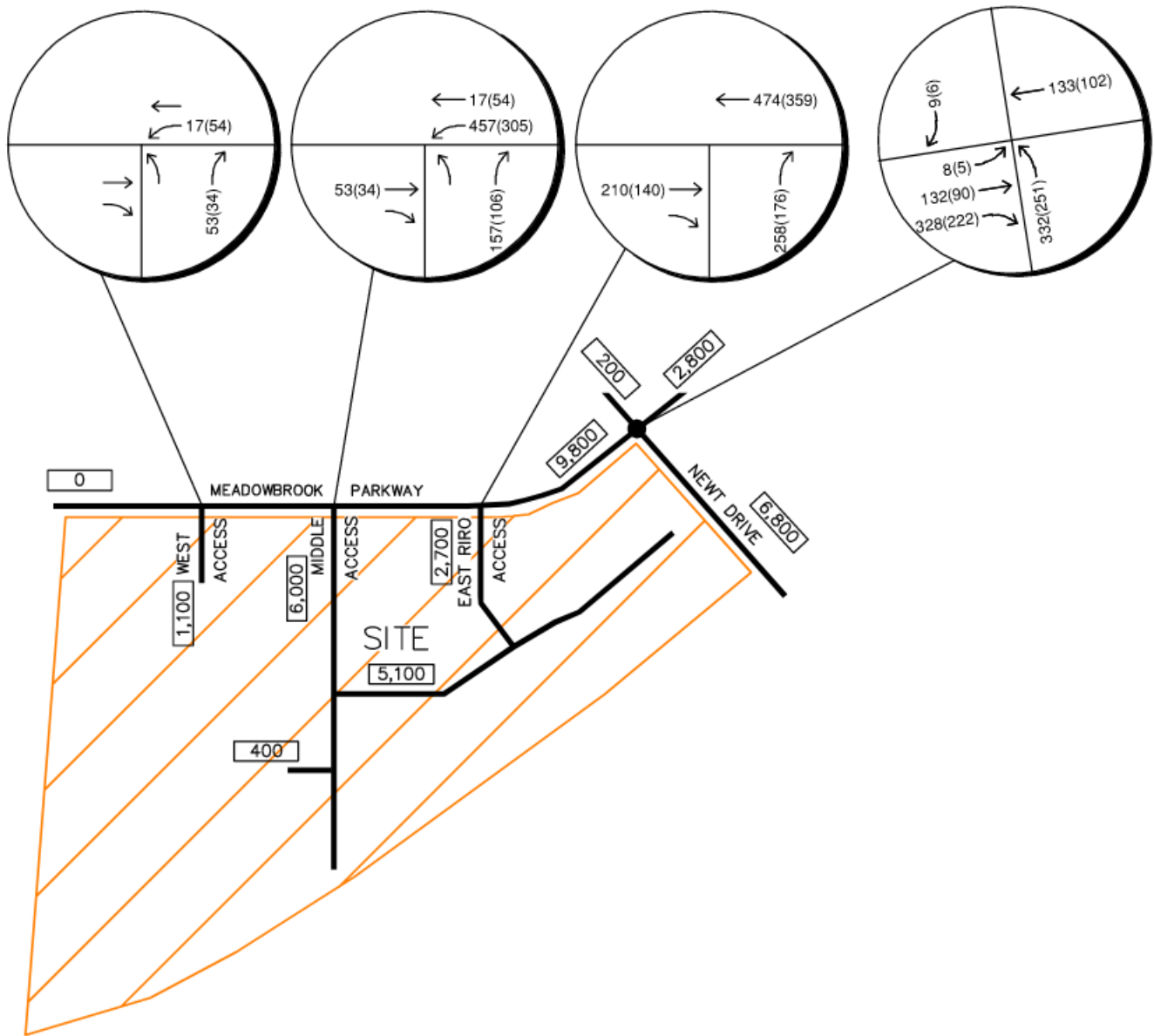


LEGEND

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

CROSSROADS MIX USE
 RETAIL TRIP DISTRIBUTION

FIGURE 7



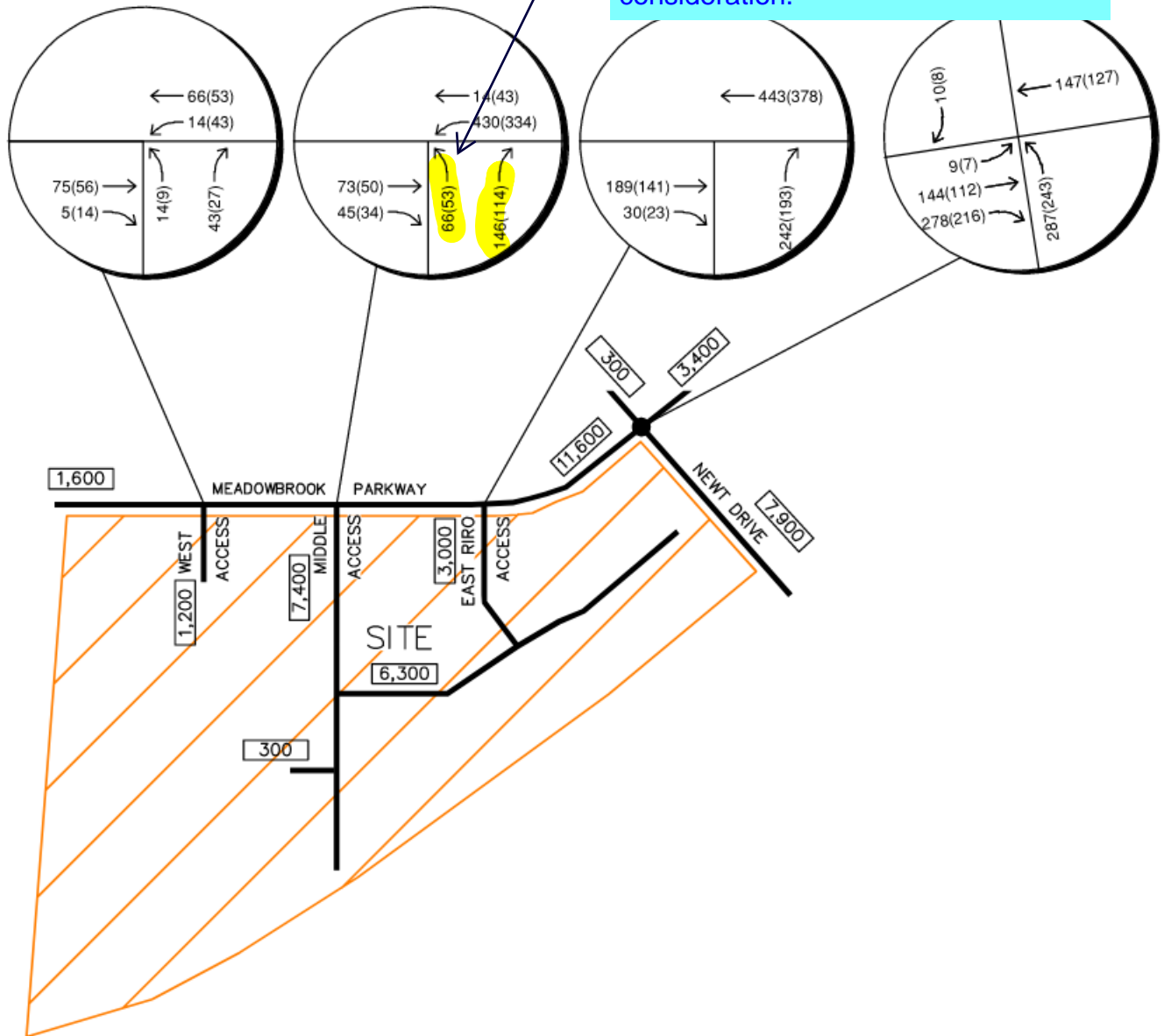
LEGEND

- 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

Per criteria this warrants exclusive left and right turn lanes. Revise the preliminary plan street layout to allow restriping for a second outgoing lane or submit deviation request for consideration.

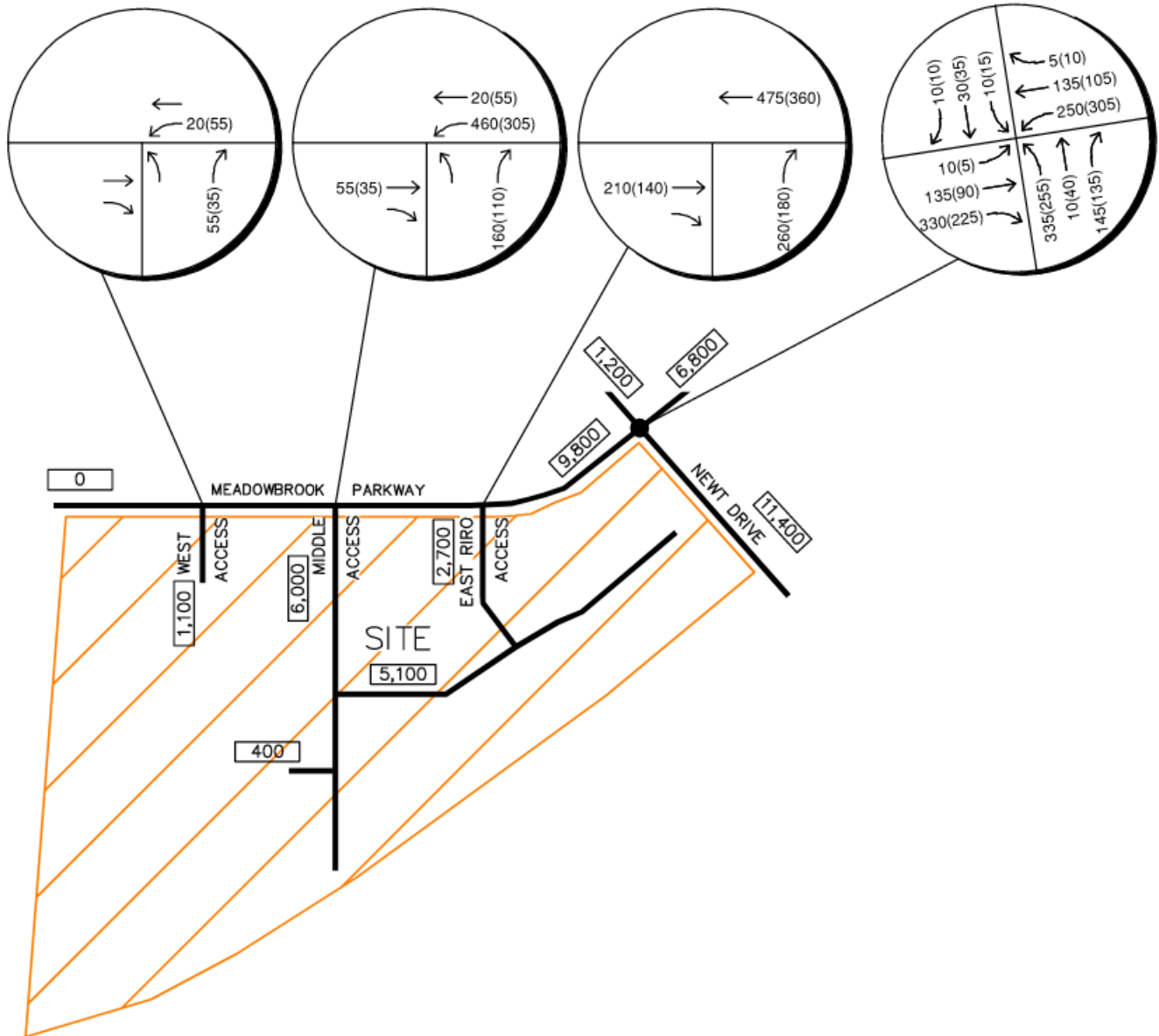


LEGEND

- 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

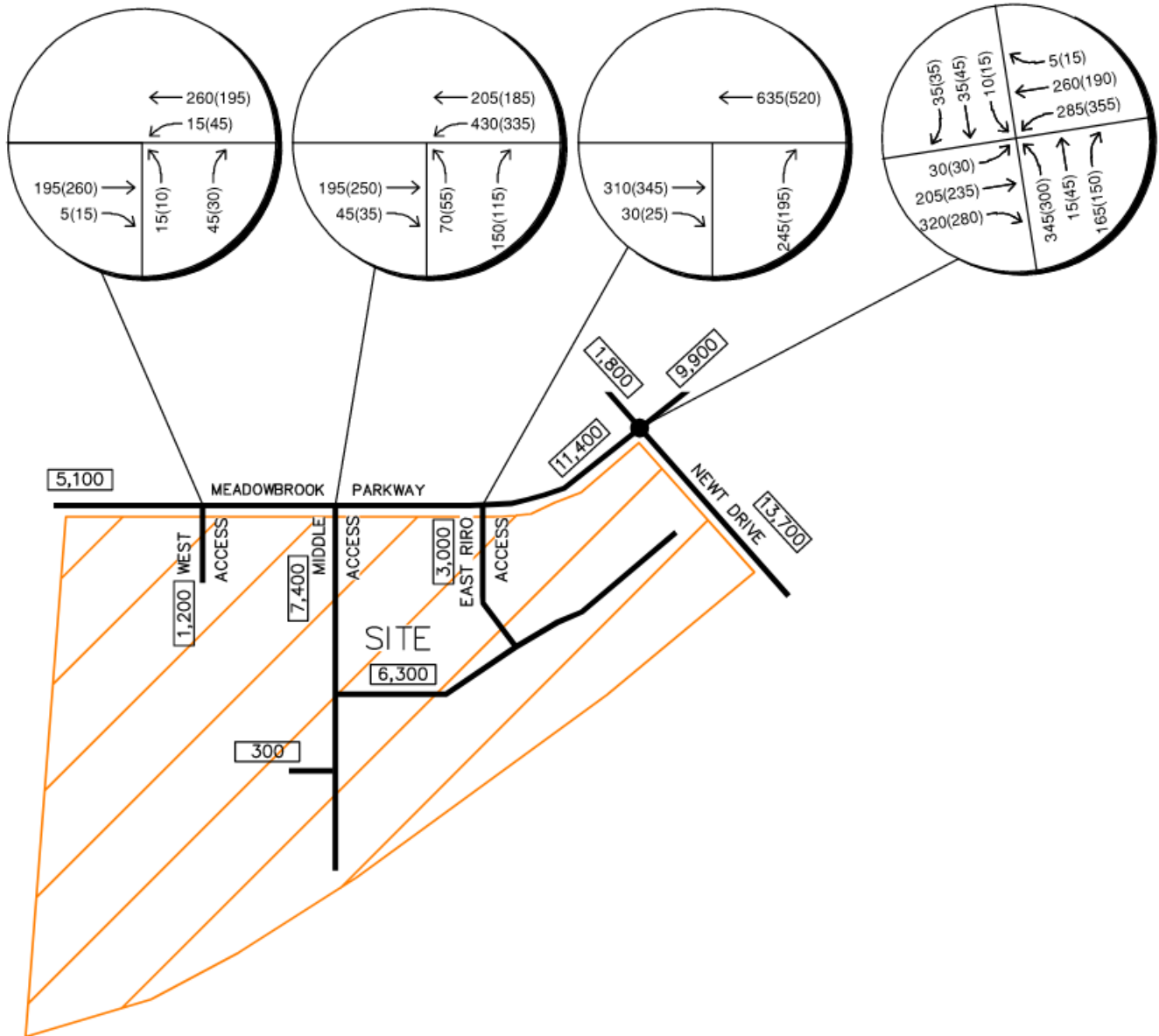


LEGEND

- 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

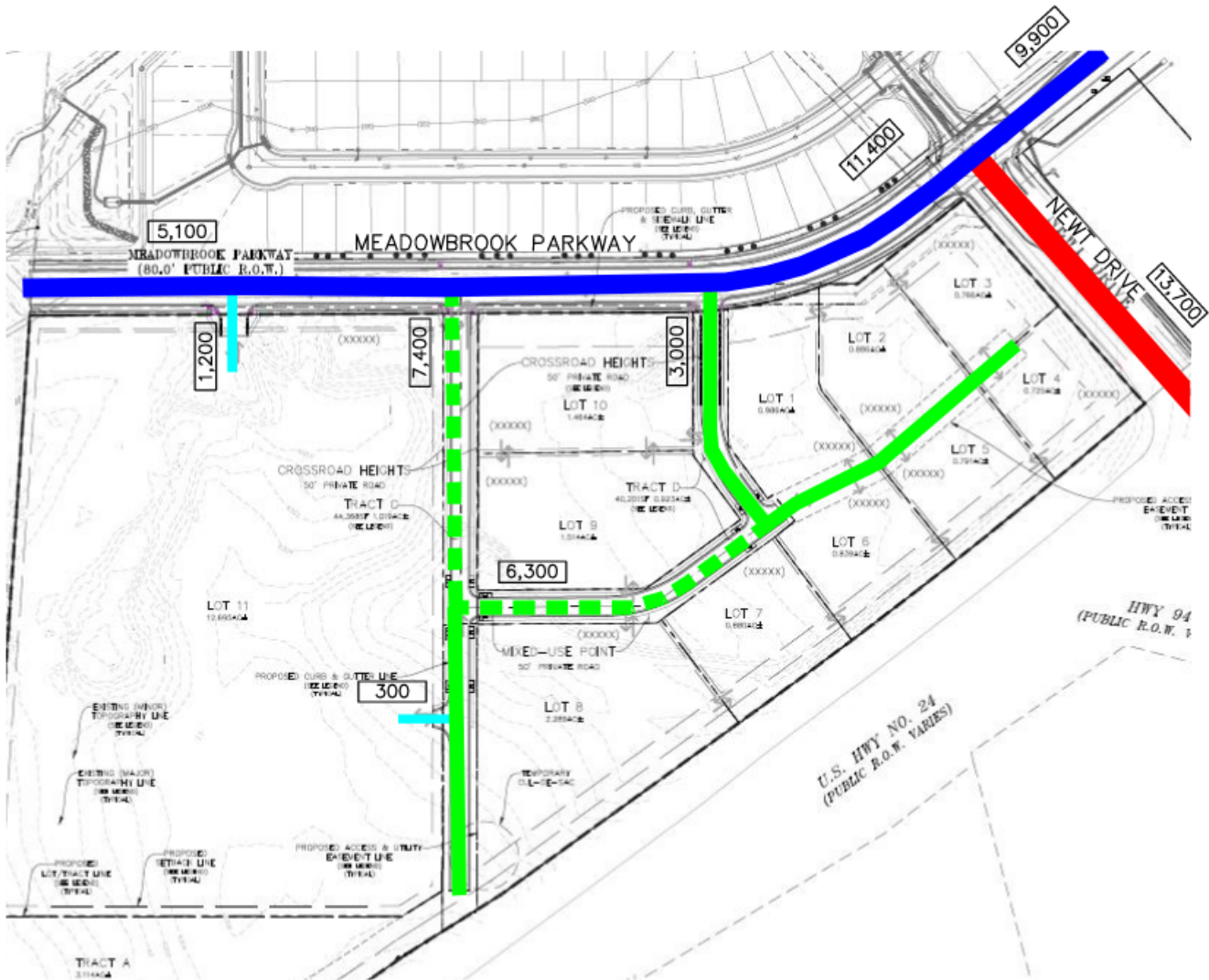


LEGEND

- 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

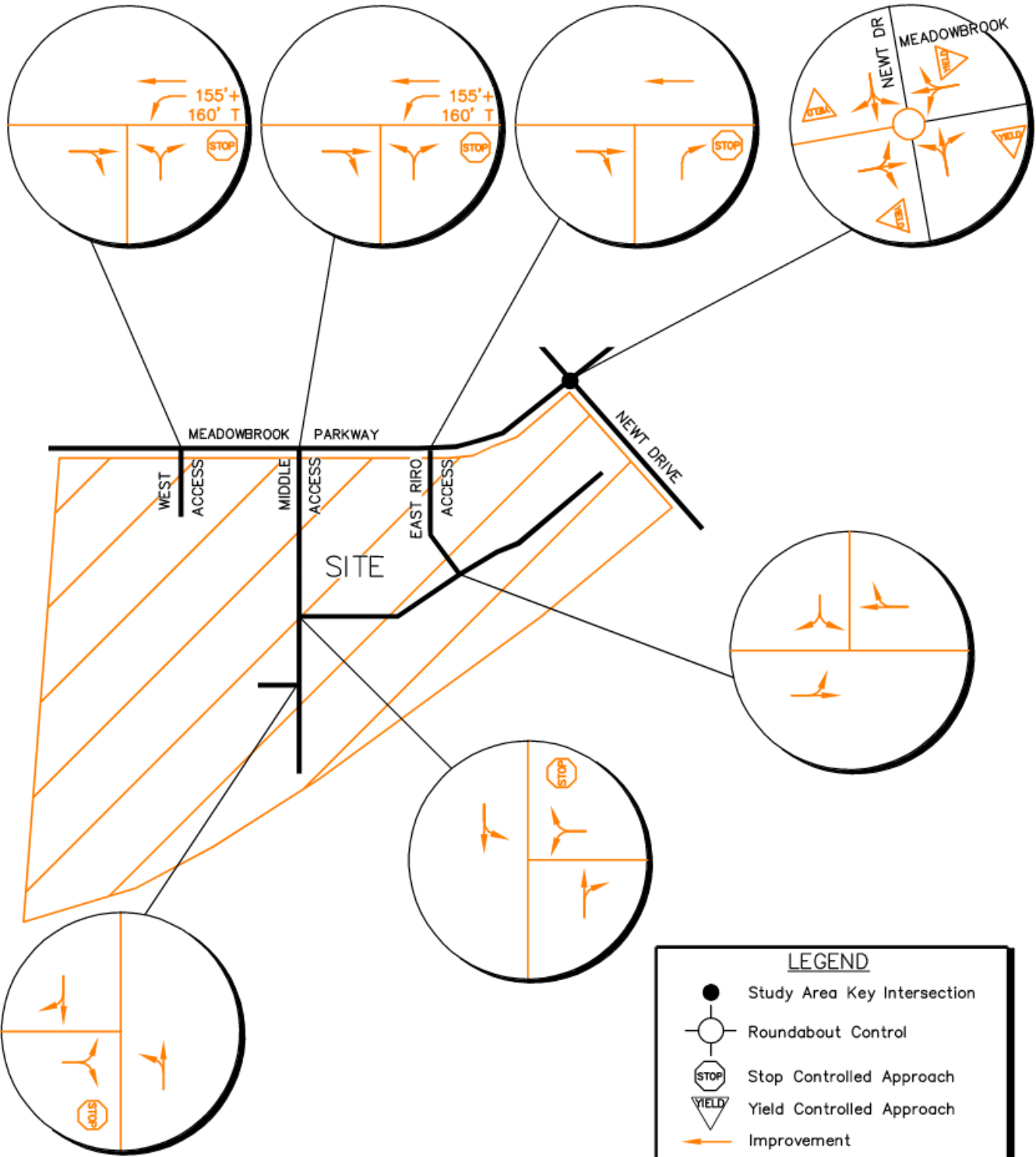


LEGEND

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

CROSSROADS MIX USE
 CIRCULATION PLAN

FIGURE 12



CROSSROADS MIX USE
 2026 & 2040 RECOMMENDED
 LANE CONFIGURATIONS AND CONTROL

LEGEND

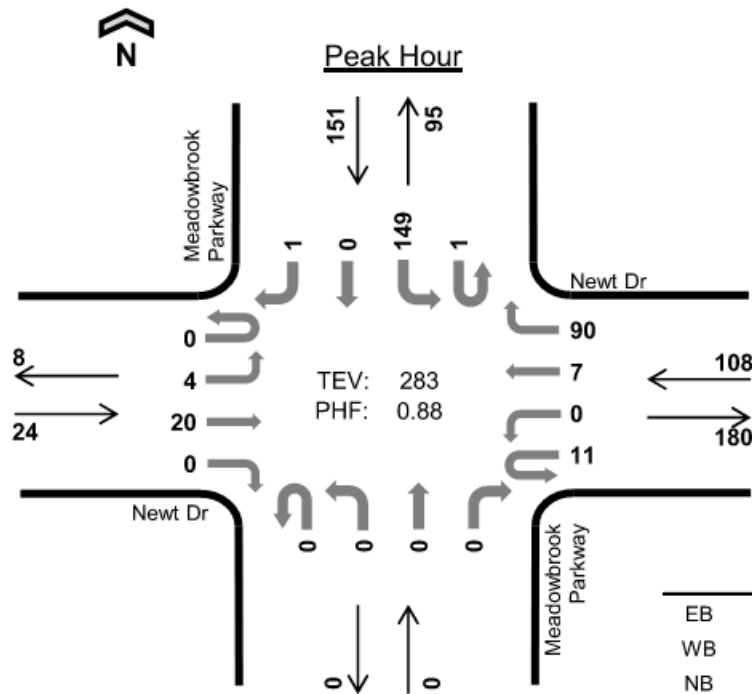
- Study Area Key Intersection
- Roundabout Control
- STOP Stop Controlled Approach
- YIELD Yield Controlled Approach
- Improvement
- XXX' Turn Lane Length (feet)

FIGURE 13

Traffic Counts

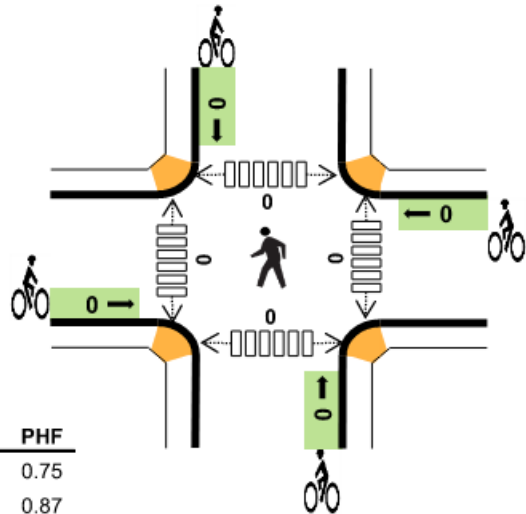
COVID-19 Adjustment Calculations

Meadowbrook Parkway Newt Dr



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	0.0%	0.75
WB	1.9%	0.87
NB	-	-
SB	6.0%	0.74
TOTAL	3.9%	0.88

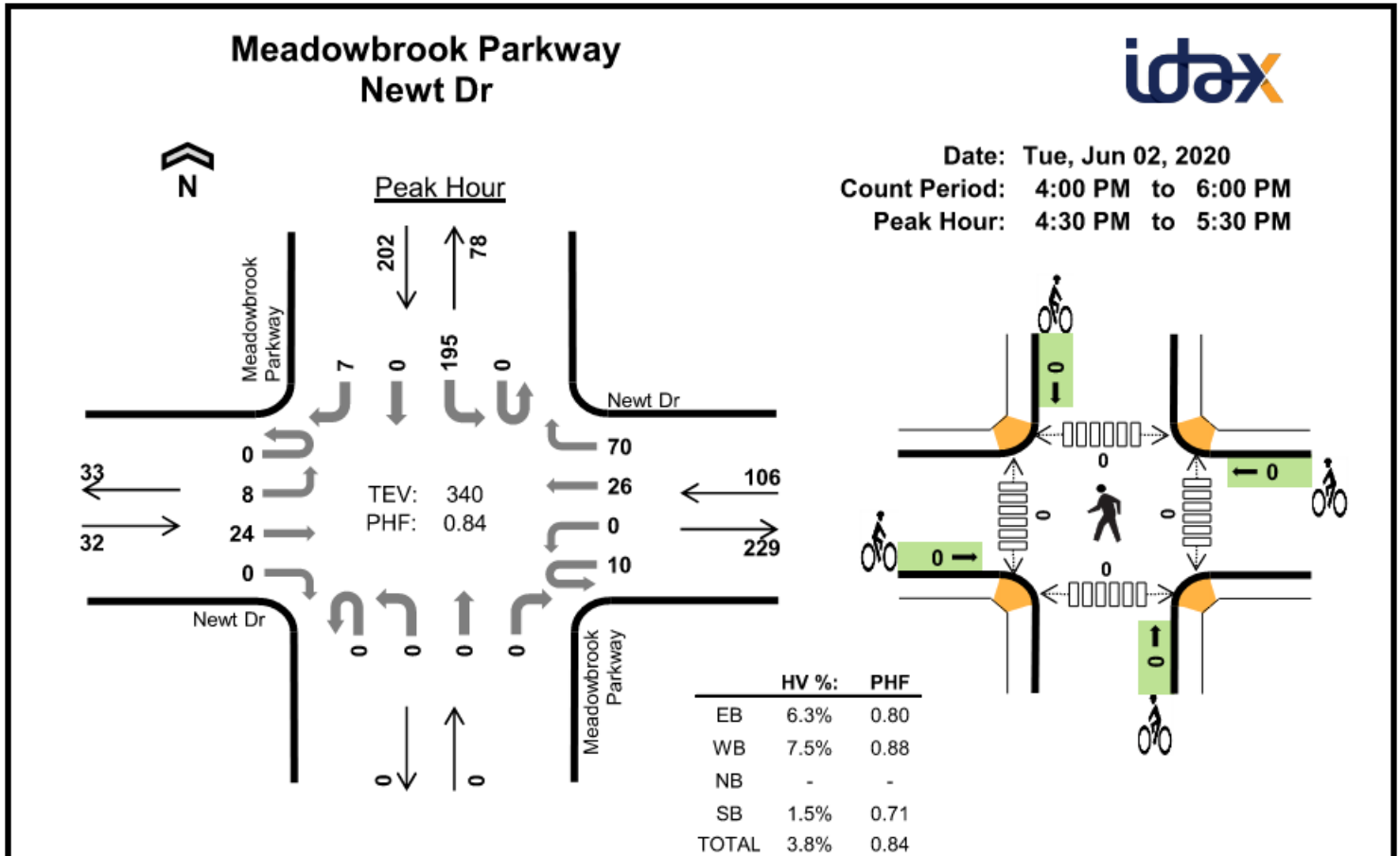


Two-Hour Count Summaries

Interval Start	Newt Dr Eastbound				Newt Dr Westbound				Meadowbrook Parkway Northbound				Meadowbrook Parkway 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	3	5	0	4	0	1	21	0	0	0	0	0	41	0		
7:15 AM	0	0	5	0	4	0	0	22	0	0	0	0	1	31	0	0	63	0
7:30 AM	0	1	3	0	2	0	4	19	0	0	0	0	0	51	0	0	80	0
7:45 AM	0	0	7	0	1	0	2	28	0	0	0	0	0	26	0	0	64	283
8:00 AM	0	4	2	0	4	0	3	24	0	0	0	0	0	32	0	0	69	276
8:15 AM	0	0	4	0	0	0	3	11	0	0	0	0	0	34	0	0	52	265
8:30 AM	0	0	4	0	4	0	2	18	0	0	0	0	0	25	0	0	53	238
8:45 AM	0	1	5	0	4	0	2	17	0	0	0	0	0	30	0	0	59	233
Count Total	0	9	35	0	23	0	17	160	0	0	0	0	1	270	0	1	516	0
Peak Hour	0	4	20	0	11	0	7	90	0	0	0	0	1	149	0	1	283	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	0	0	0	4	4	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	1	0	4	5	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	1	0	1	2	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	2	0	1	3	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	1	0	3	4	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	1	0	2	3	0	0	0	0	0	0	0	0	0	0
Count Total	0	6	0	15	21	0	0	0	0	0	0	0	0	0	0
Peak Hour	0	2	0	9	11	0	0	0	0	0	0	0	0	0	0

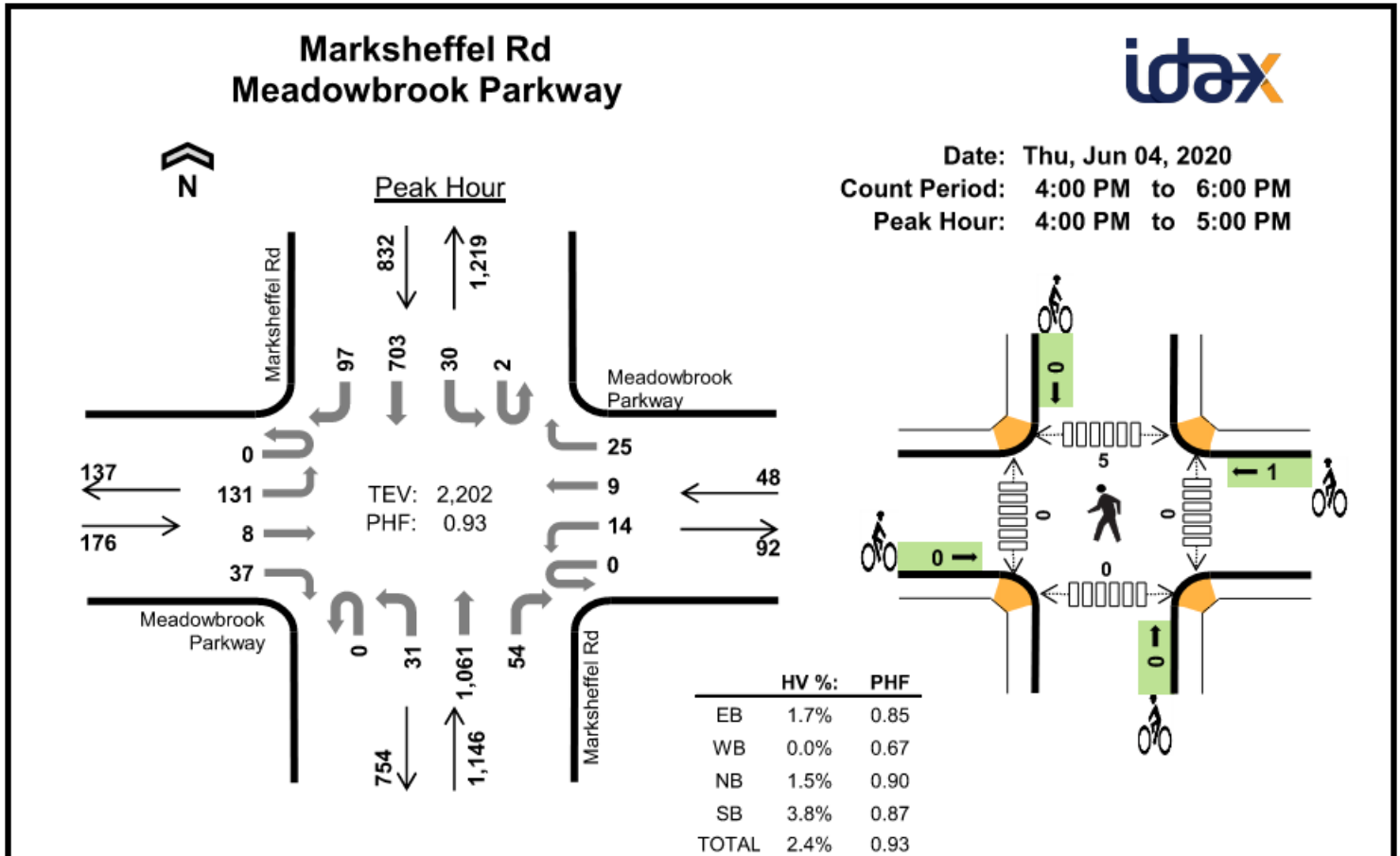


Two-Hour Count Summaries

Interval Start	Newt Dr Eastbound				Newt Dr Westbound				Meadowbrook Parkway Northbound				Meadowbrook Parkway 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	2	0	4	0	6	26	0	0	0	0	0	38	0		
4:15 PM	0	2	3	0	4	0	6	15	0	0	0	0	0	44	0	1	75	0
4:30 PM	0	2	6	0	2	0	3	23	0	0	0	0	0	42	0	4	82	0
4:45 PM	0	1	8	0	2	0	7	21	0	0	0	0	0	41	0	0	80	315
5:00 PM	0	2	3	0	4	0	12	9	0	0	0	0	0	70	0	1	101	338
5:15 PM	0	3	7	0	2	0	4	17	0	0	0	0	0	42	0	2	77	340
5:30 PM	0	0	4	0	6	0	4	8	0	0	0	0	0	27	0	0	49	307
5:45 PM	0	1	4	0	2	0	6	7	0	0	0	0	0	29	0	1	50	277
Count Total	0	13	37	0	26	0	48	126	0	0	0	0	0	333	0	9	592	0
Peak Hour	0	8	24	0	10	0	26	70	0	0	0	0	0	195	0	7	340	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	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	4	0	1	5	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	1	0	1	2	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0
5:15 PM	2	2	0	1	5	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	1	0	1	2	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	1	0	1	2	0	0	0	0	0	0	0	0	0	0
Count Total	2	10	0	5	17	0	0	0	0	0	0	0	0	0	0
Peak Hour	2	8	0	3	13	0	0	0	0	0	0	0	0	0	0

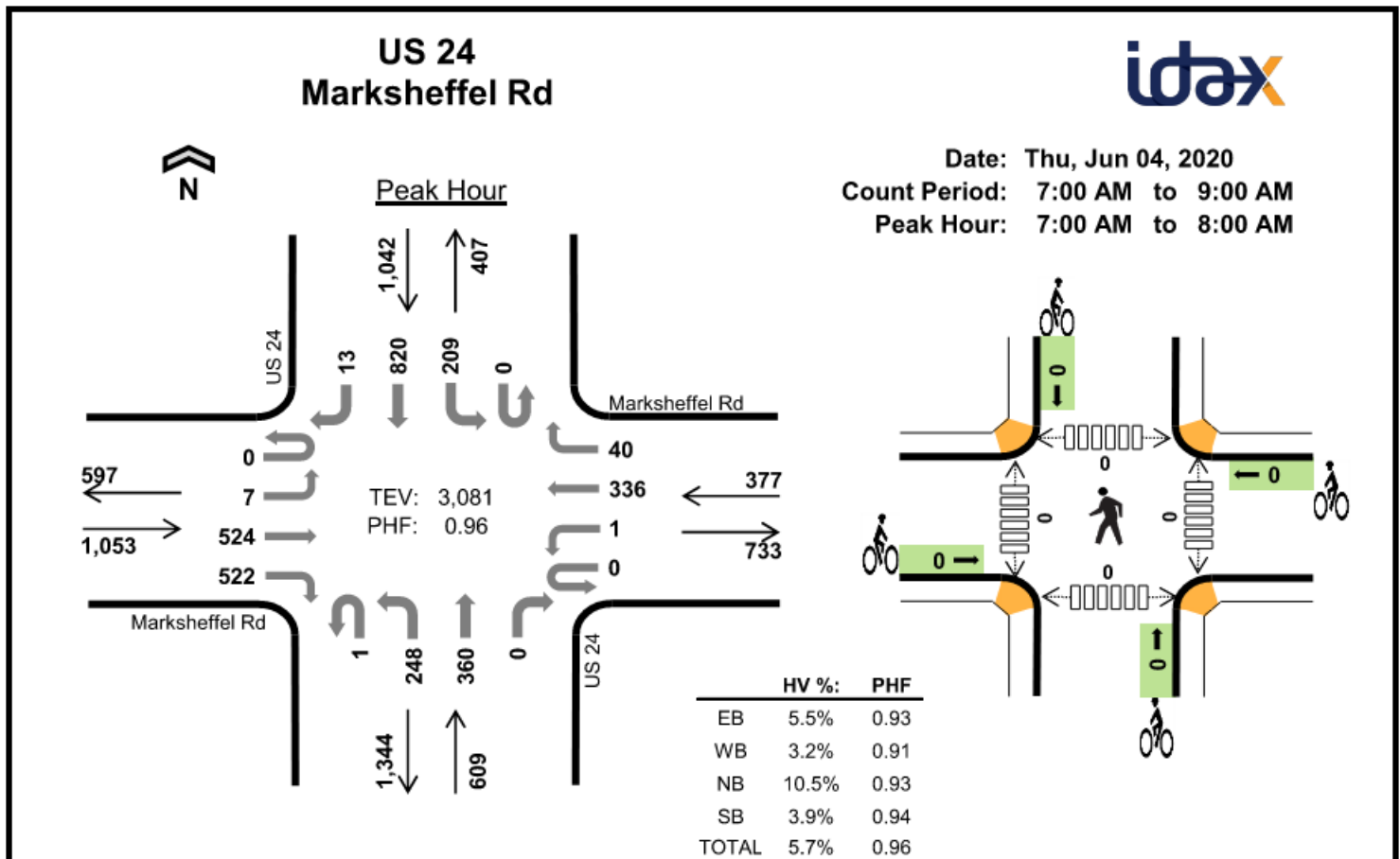


Two-Hour Count Summaries

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



Two-Hour Count Summaries

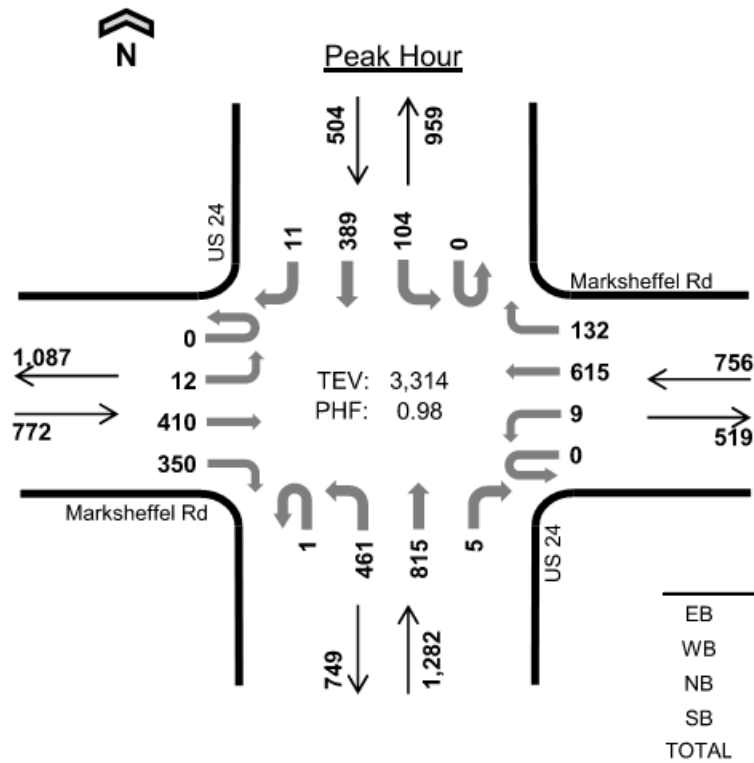
Interval Start	Marksheffel Rd				Marksheffel Rd				US 24				US 24				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	122	138	0	0	94	6	0	68	96	0	0	50	203	1	778	0
7:15 AM	0	0	155	127	0	0	96	8	1	59	96	0	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.

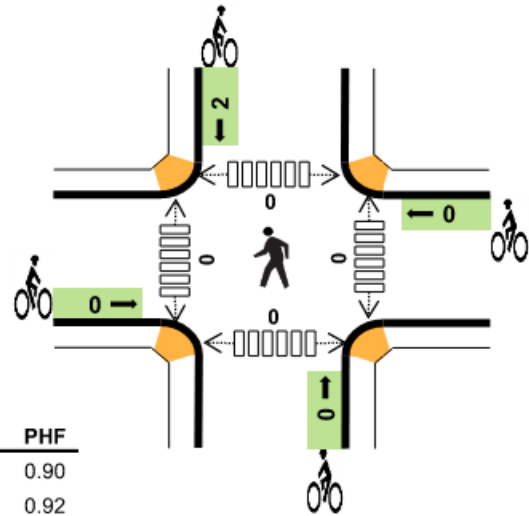
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	18	3	10	8	39	0	0	0	0	0	0	0	0	0	0
7:15 AM	12	3	17	10	42	0	0	0	0	0	0	0	0	0	0
7:30 AM	14	4	21	13	52	0	0	0	0	0	0	0	0	0	0
7:45 AM	14	2	16	10	42	0	0	0	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



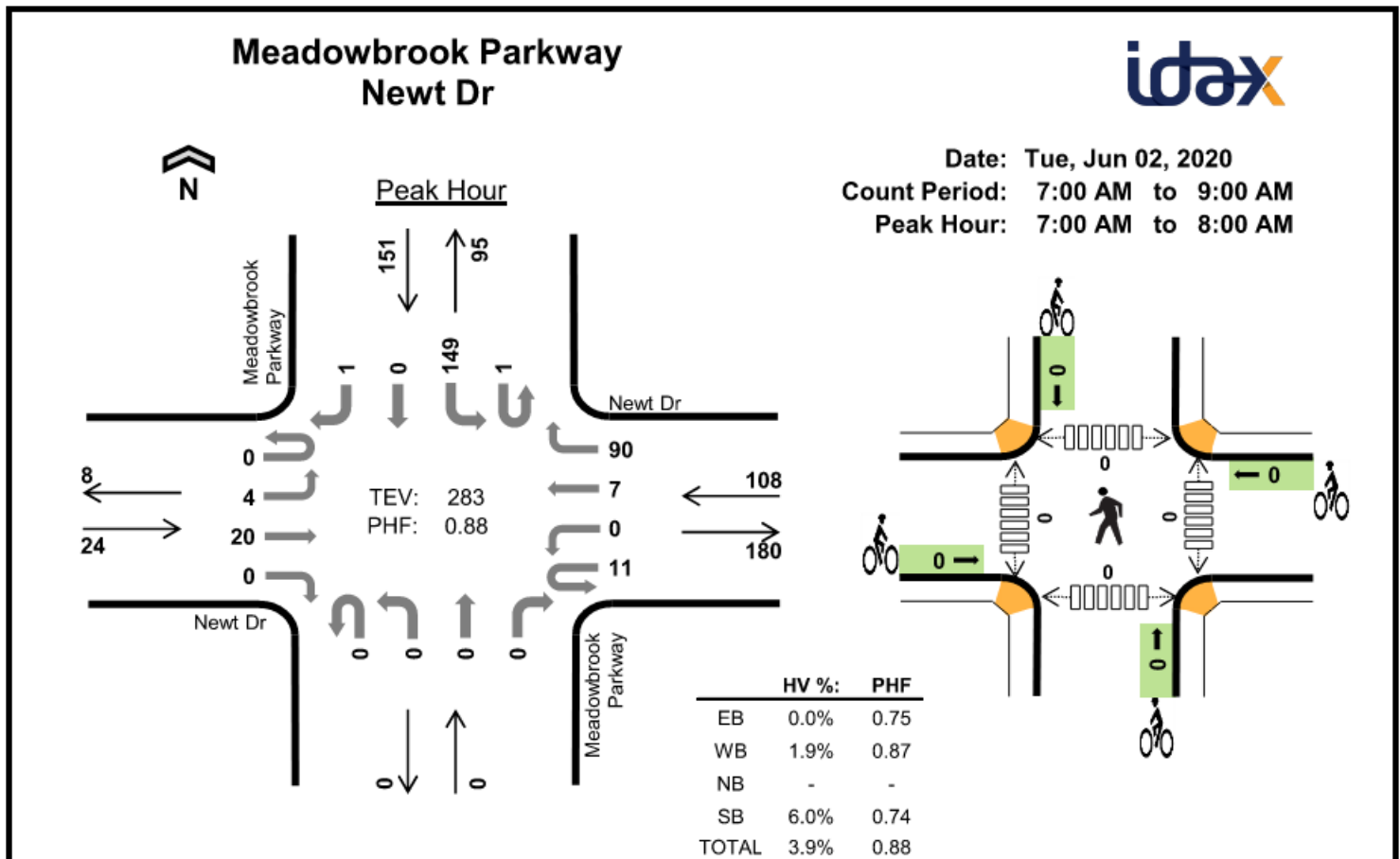
	HV %:	PHF
EB	2.8%	0.90
WB	1.3%	0.92
NB	1.7%	0.97
SB	2.8%	0.91
TOTAL	2.1%	0.98

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

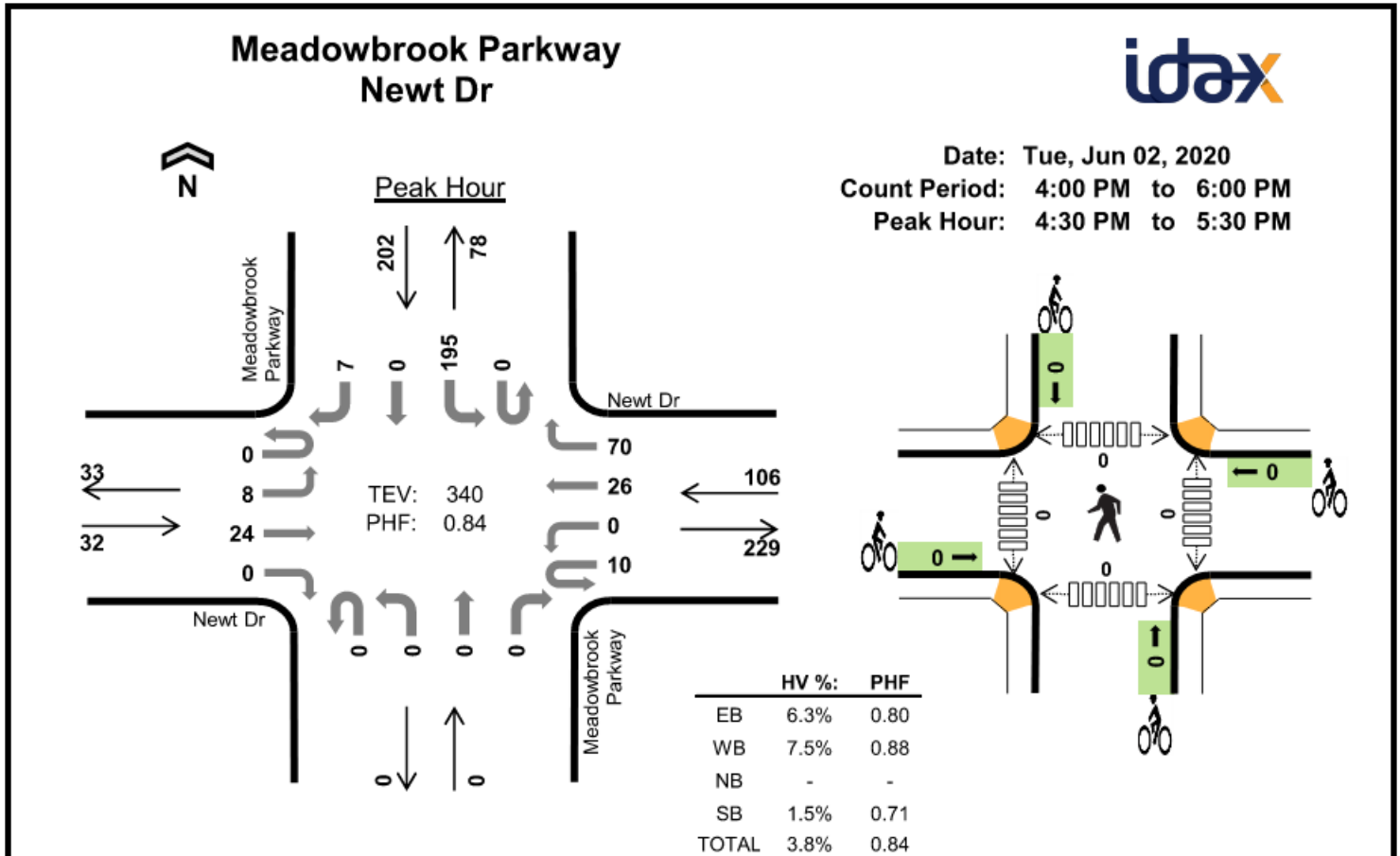


Two-Hour Count Summaries

Interval Start	Newt Dr Eastbound				Newt Dr Westbound				Meadowbrook Parkway Northbound				Meadowbrook Parkway 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	3	5	0	4	0	1	21	0	0	0	0	0	41	0		
7:15 AM	0	0	5	0	4	0	0	22	0	0	0	0	1	31	0	0	63	0
7:30 AM	0	1	3	0	2	0	4	19	0	0	0	0	0	51	0	0	80	0
7:45 AM	0	0	7	0	1	0	2	28	0	0	0	0	0	26	0	0	64	283
8:00 AM	0	4	2	0	4	0	3	24	0	0	0	0	0	32	0	0	69	276
8:15 AM	0	0	4	0	0	0	3	11	0	0	0	0	0	34	0	0	52	265
8:30 AM	0	0	4	0	4	0	2	18	0	0	0	0	0	25	0	0	53	238
8:45 AM	0	1	5	0	4	0	2	17	0	0	0	0	0	30	0	0	59	233
Count Total	0	9	35	0	23	0	17	160	0	0	0	0	1	270	0	1	516	0
Peak Hour	0	4	20	0	11	0	7	90	0	0	0	0	1	149	0	1	283	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	0	0	0	4	4	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	1	0	4	5	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	1	0	1	2	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	2	0	1	3	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	1	0	3	4	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	1	0	2	3	0	0	0	0	0	0	0	0	0	0
Count Total	0	6	0	15	21	0	0	0	0	0	0	0	0	0	0
Peak Hour	0	2	0	9	11	0	0	0	0	0	0	0	0	0	0



Two-Hour Count Summaries

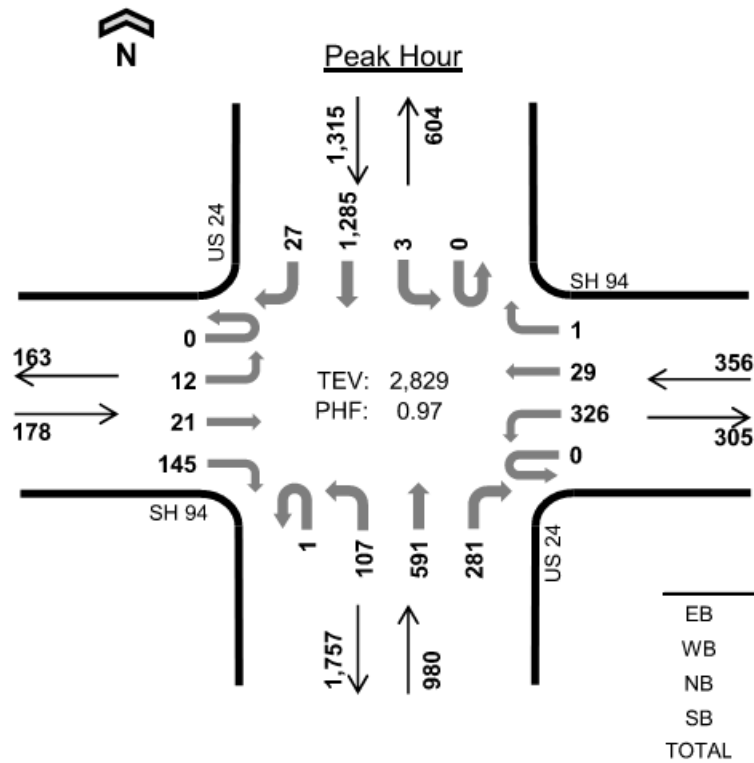
Interval Start	Newt Dr				Newt Dr				Meadowbrook Parkway				Meadowbrook Parkway				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	2	2	0	4	0	6	26	0	0	0	0	0	38	0	0	78	0
4:15 PM	0	2	3	0	4	0	6	15	0	0	0	0	0	44	0	1	75	0
4:30 PM	0	2	6	0	2	0	3	23	0	0	0	0	0	42	0	4	82	0
4:45 PM	0	1	8	0	2	0	7	21	0	0	0	0	0	41	0	0	80	315
5:00 PM	0	2	3	0	4	0	12	9	0	0	0	0	0	70	0	1	101	338
5:15 PM	0	3	7	0	2	0	4	17	0	0	0	0	0	42	0	2	77	340
5:30 PM	0	0	4	0	6	0	4	8	0	0	0	0	0	27	0	0	49	307
5:45 PM	0	1	4	0	2	0	6	7	0	0	0	0	0	29	0	1	50	277
Count Total	0	13	37	0	26	0	48	126	0	0	0	0	0	333	0	9	592	0
Peak Hour	0	8	24	0	10	0	26	70	0	0	0	0	0	195	0	7	340	0

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

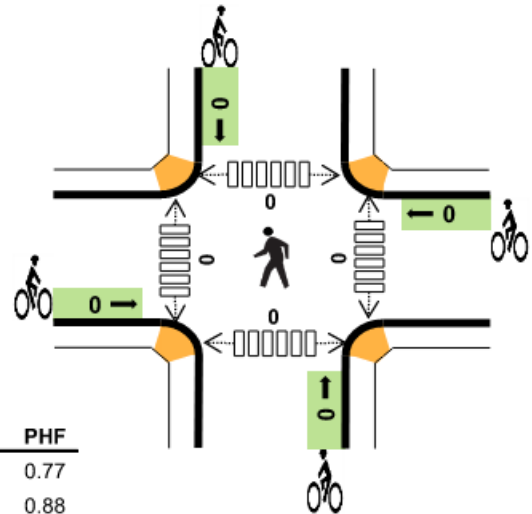
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	4	0	1	5	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	1	0	1	2	0	0	0	0	0	0	0	0	0	0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

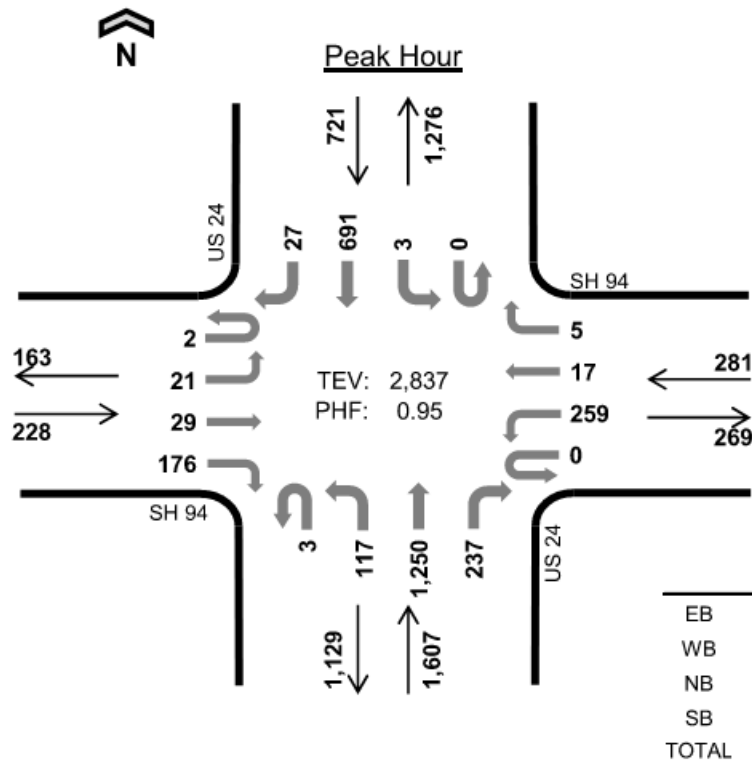
Interval Start	SH 94 Eastbound				SH 94 Westbound				US 24 Northbound				US 24 Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
	7:00 AM	0	1	6	45	0	81	10	0	0	27	147	65	0	1	319		
7:15 AM	0	6	7	21	0	90	10	1	0	25	145	79	0	0	336	8	728	0
7:30 AM	0	5	6	47	0	85	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.

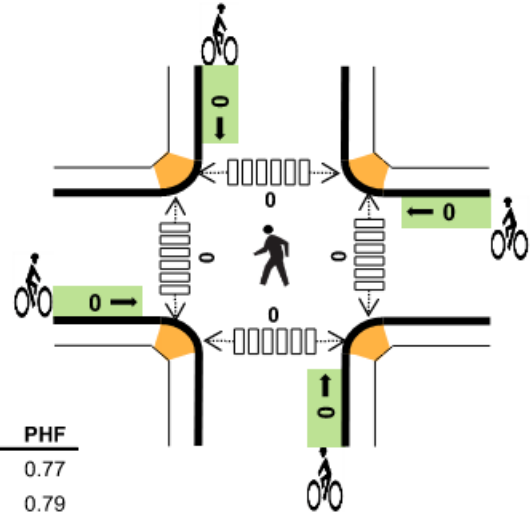
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	4	1	19	20	44	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	5	27	16	48	0	0	0	0	0	0	0	0	0	0
7:30 AM	4	3	31	15	53	0	0	0	0	0	0	0	0	0	0
7:45 AM	1	5	25	21	52	0	0	0	0	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

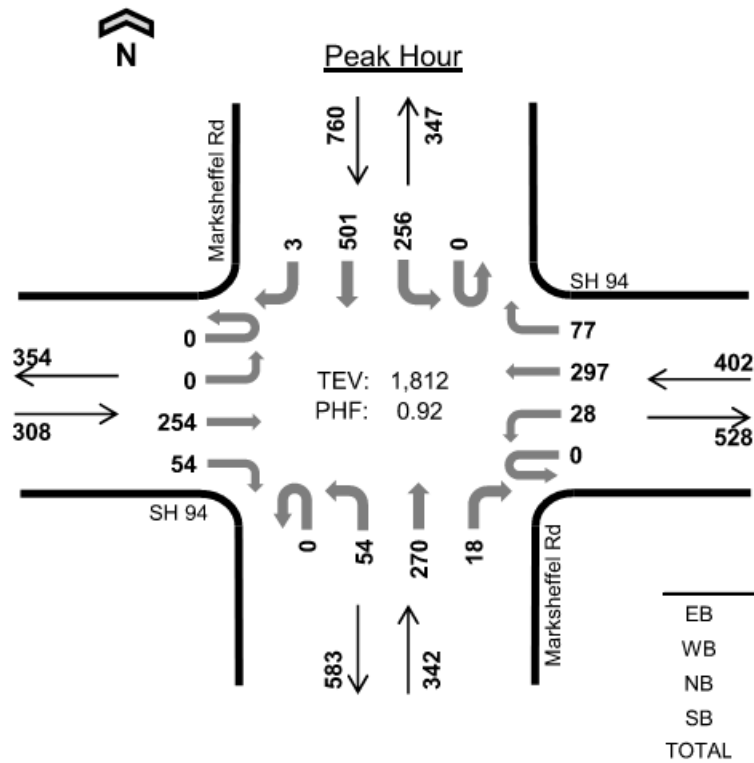
Interval Start	SH 94 Eastbound				SH 94 Westbound				US 24 Northbound				US 24 Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
	4:00 PM	0	5	4	32	0	73	7	0	1	31	284	80	1	2	177		
4:15 PM	0	5	4	45	0	51	2	2	1	30	327	62	0	3	153	7	692	0
4:30 PM	0	4	13	33	0	66	7	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.

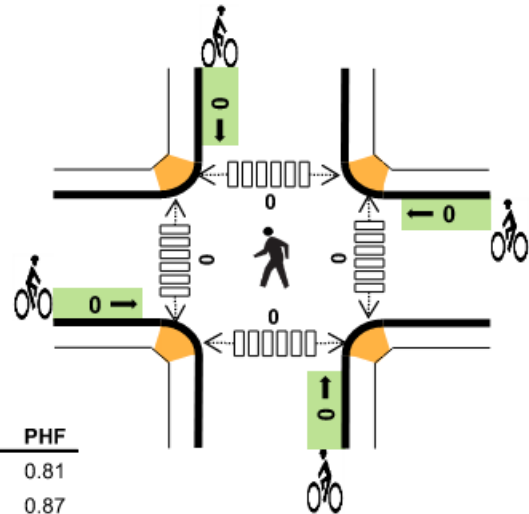
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	4	16	12	32	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	3	11	12	26	0	0	0	0	0	0	0	0	0	0
4:30 PM	1	1	20	12	34	0	0	0	0	0	0	0	0	0	0
4:45 PM	1	1	14	5	21	0	0	0	0	0	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

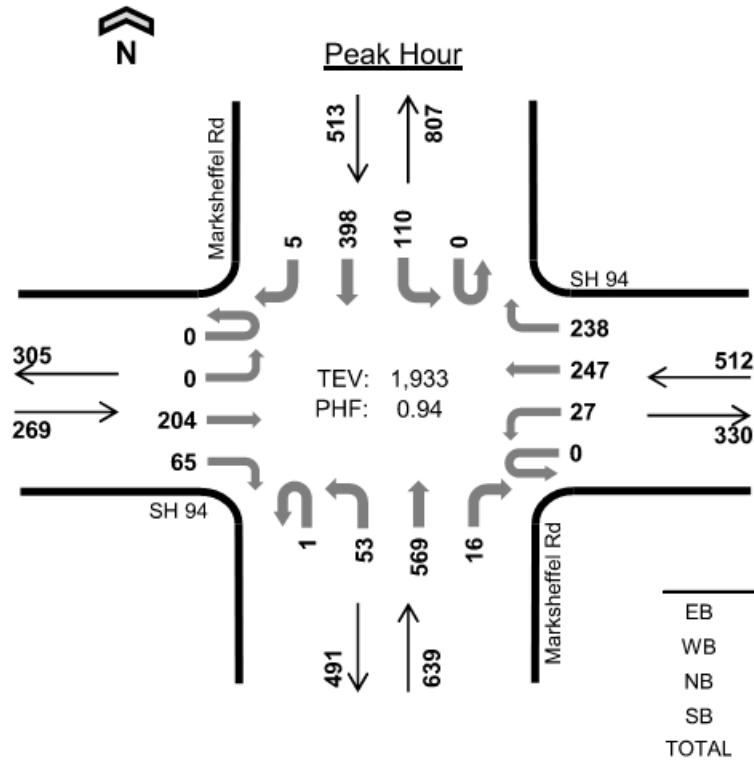
Interval Start	SH 94 Eastbound				SH 94 Westbound				Marksheffel Rd Northbound				Marksheffel Rd Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
	7:00 AM	0	0	57	8	0	2	73	22	0	11	71	7	0	79	110		
7:15 AM	0	0	79	16	0	7	87	21	0	10	51	3	0	74	143	1	492	0
7:30 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.

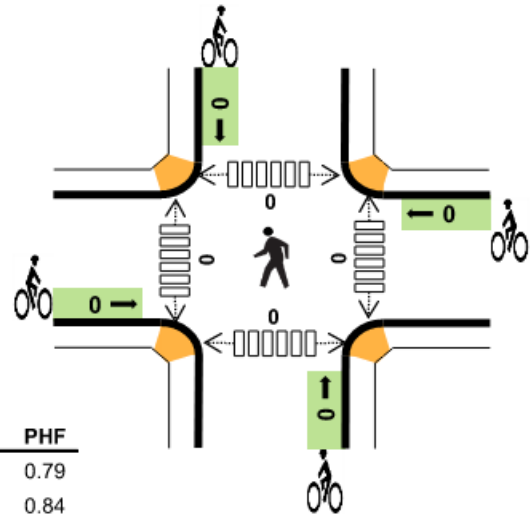
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	4	2	5	5	16	0	0	0	0	0	0	0	0	0	0
7:15 AM	6	4	4	4	18	0	0	0	0	0	0	0	0	0	0
7:30 AM	9	6	4	8	27	0	0	0	0	0	0	0	0	0	0
7:45 AM	6	10	3	3	22	0	0	0	0	0	0	0	0	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

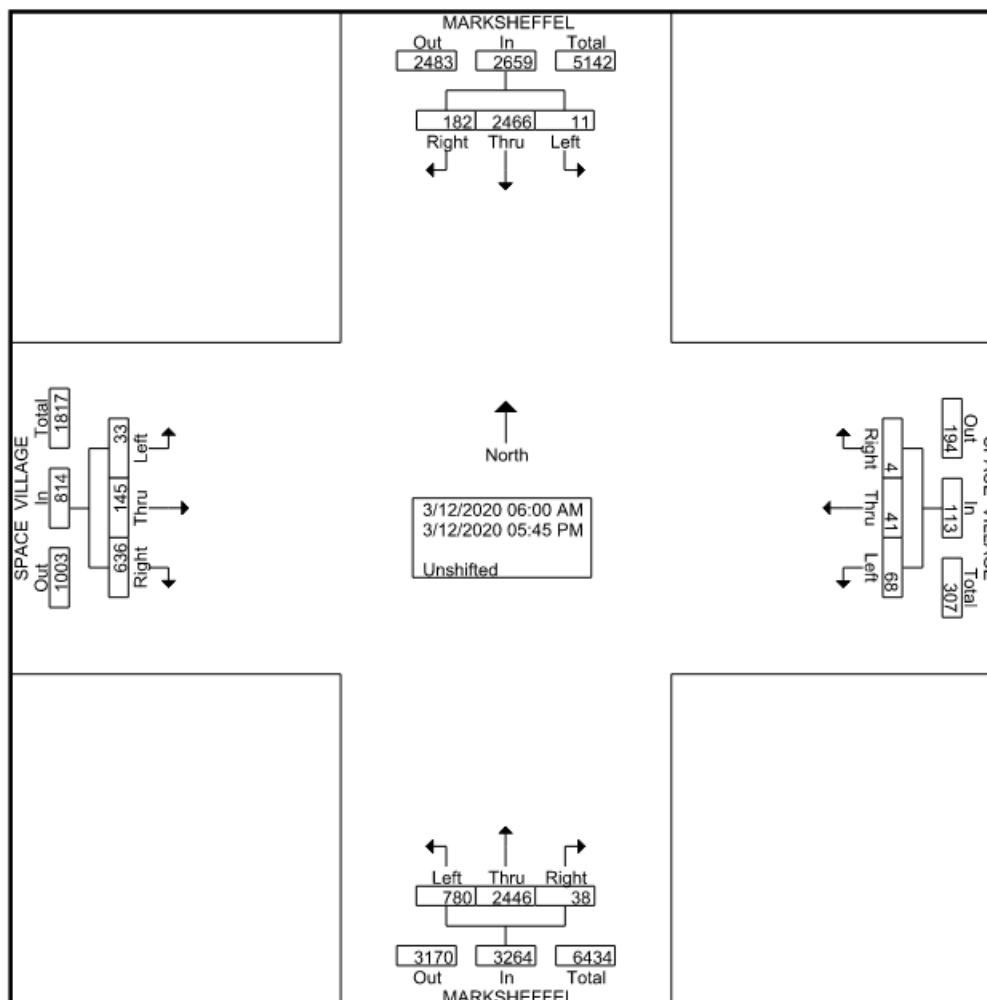
Location: Marksheffel @ Space Village File Name : MARKSHEFFEL @ SPACE VILLAGE-THUR-WSP-3-20
 Turning Movement Count Site Code : 00000000
 Weather: Clear Start Date : 3/12/2020
 Comments: Heavy truck traffic Page No : 1

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



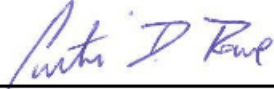
Start Time	MARKSHEFFEL From North				SPACE VILLAGE From East				MARKSHEFFEL From South				SPACE VILLAGE From West				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	
Peak Hour Analysis From 06:00 AM to 05:45 PM - Peak 1 of 1																	
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

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

April 2, 2021

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

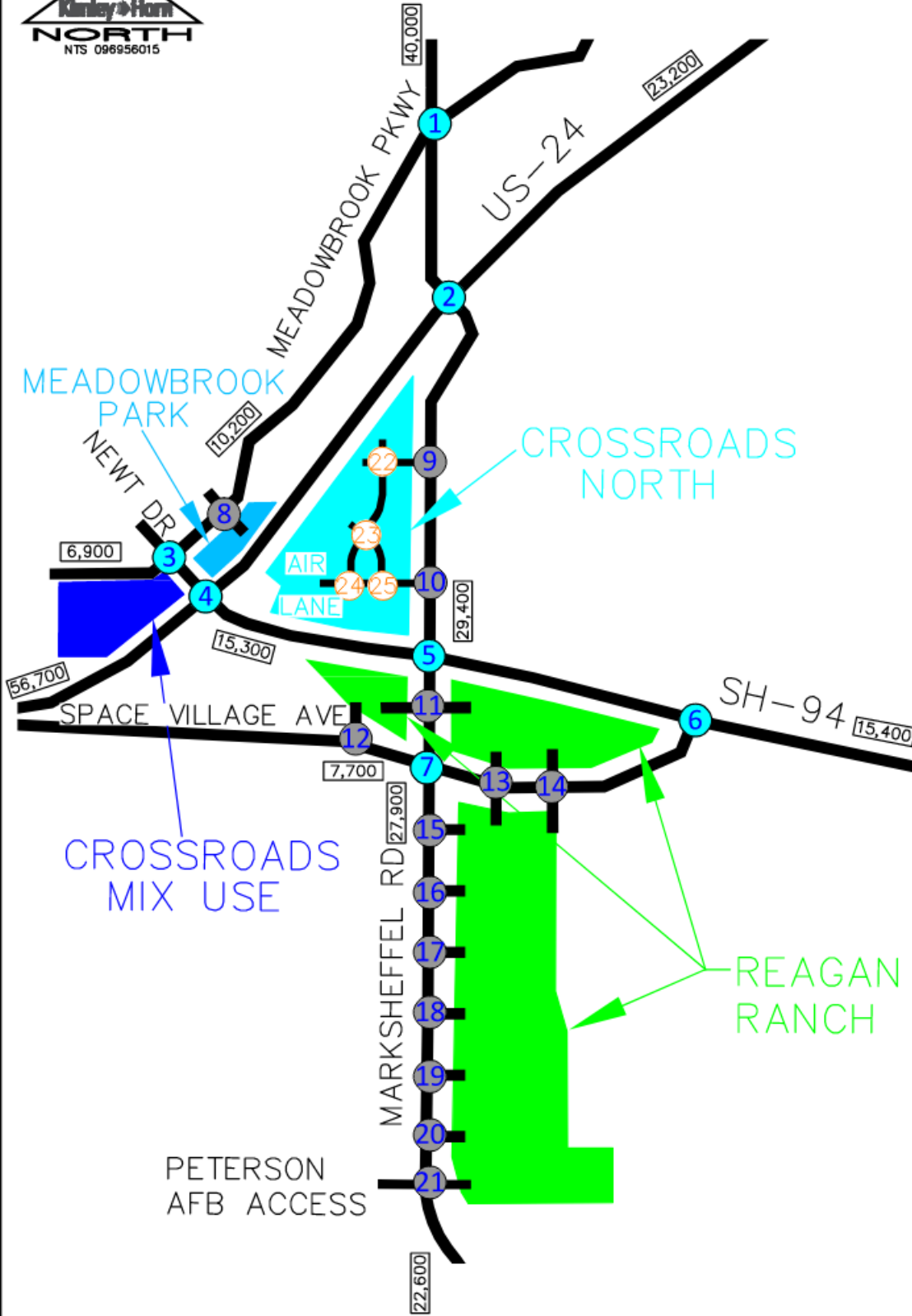
Prepared for
Pikes Peak Investments LLC
c/o The Equity Group
90 South Cascade Avenue
Suite 1500
Colorado Springs, Colorado 80903

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



April 2021

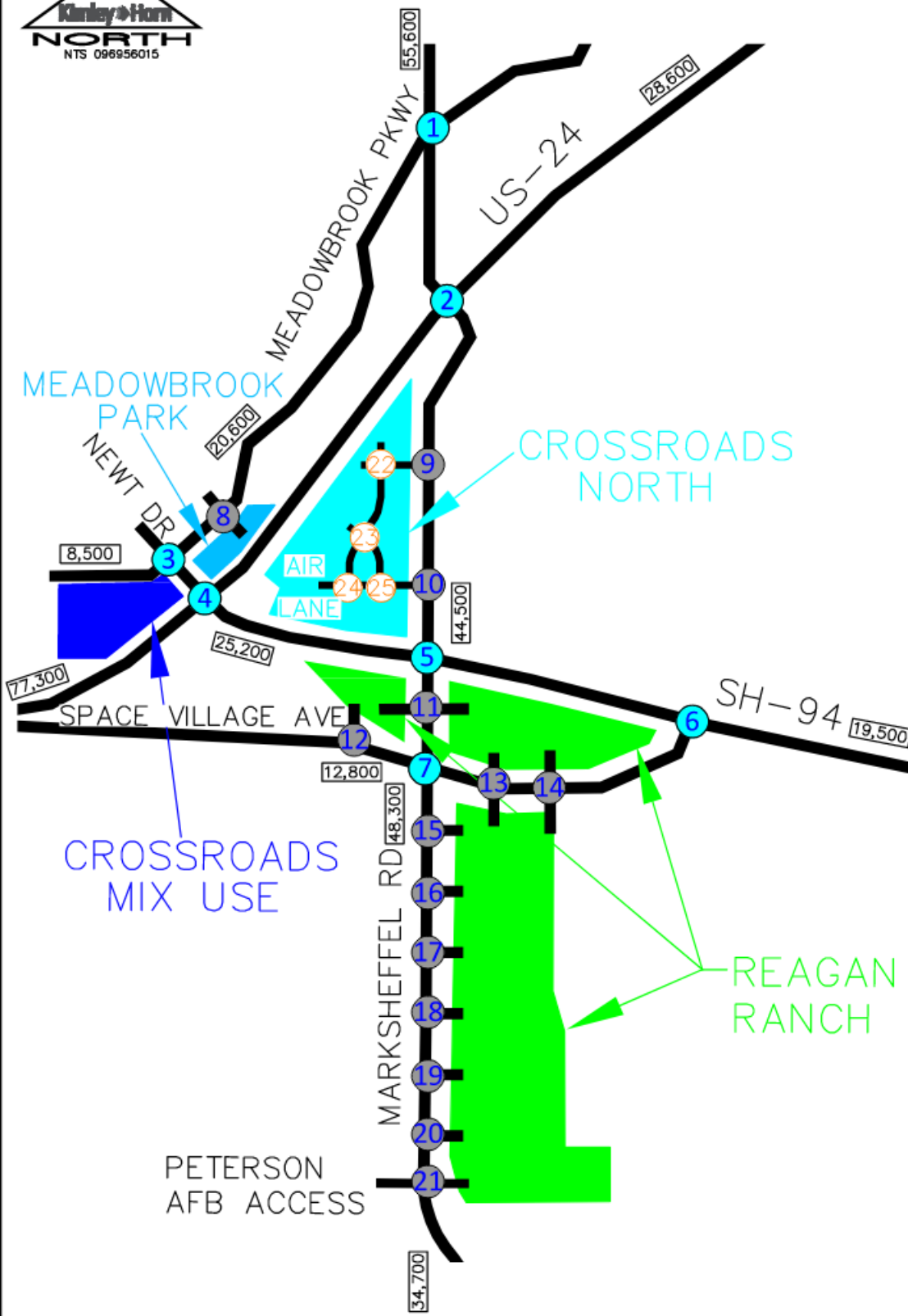
This document, together with the concepts and designs presented herein, as an instrument of service, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and adaptation by Kimley-Horn and Associates,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



1 <table border="1"> <tr><td>335(270)</td><td>30(40)</td></tr> <tr><td>1755(1340)</td><td>25(15)</td></tr> <tr><td>10(45)</td><td>40(25)</td></tr> <tr><td>270(295)</td><td>1090(1835)</td></tr> <tr><td>10(15)</td><td>20(80)</td></tr> <tr><td>40(55)</td><td>30(50)</td></tr> </table>	335(270)	30(40)	1755(1340)	25(15)	10(45)	40(25)	270(295)	1090(1835)	10(15)	20(80)	40(55)	30(50)	2 <table border="1"> <tr><td>760(510)</td><td>20(20)</td></tr> <tr><td>1025(915)</td><td>1215(585)</td></tr> <tr><td>10(20)</td><td>350(210)</td></tr> <tr><td>360(670)</td><td>5(15)</td></tr> <tr><td>550(1200)</td><td>755(1190)</td></tr> <tr><td>125(125)</td><td>105(245)</td></tr> </table>	760(510)	20(20)	1025(915)	1215(585)	10(20)	350(210)	360(670)	5(15)	550(1200)	755(1190)	125(125)	105(245)	3 <table border="1"> <tr><td>5(10)</td><td>145(135)</td></tr> <tr><td>145(110)</td><td>10(40)</td></tr> <tr><td>250(305)</td><td>335(255)</td></tr> <tr><td>10(15)</td><td>140(95)</td></tr> <tr><td>30(35)</td><td>330(225)</td></tr> </table>	5(10)	145(135)	145(110)	10(40)	250(305)	335(255)	10(15)	140(95)	30(35)	330(225)	4 <table border="1"> <tr><td>65(60)</td><td>5(10)</td></tr> <tr><td>1860(1000)</td><td>95(65)</td></tr> <tr><td>5(5)</td><td>820(740)</td></tr> <tr><td>45(55)</td><td>425(395)</td></tr> <tr><td>90(80)</td><td>985(1925)</td></tr> <tr><td>495(450)</td><td>635(625)</td></tr> </table>	65(60)	5(10)	1860(1000)	95(65)	5(5)	820(740)	45(55)	425(395)	90(80)	985(1925)	495(450)	635(625)	5 <table border="1"> <tr><td>245(255)</td><td>115(395)</td></tr> <tr><td>695(845)</td><td>345(405)</td></tr> <tr><td>300(200)</td><td>35(45)</td></tr> <tr><td>150(140)</td><td>190(225)</td></tr> <tr><td>300(340)</td><td>470(1100)</td></tr> <tr><td>160(265)</td><td>25(30)</td></tr> </table>	245(255)	115(395)	695(845)	345(405)	300(200)	35(45)	150(140)	190(225)	300(340)	470(1100)	160(265)	25(30)	6 <table border="1"> <tr><td>635(790)</td><td>5(5)</td></tr> <tr><td>55(95)</td><td>115(100)</td></tr> <tr><td>815(525)</td><td>5(5)</td></tr> </table>	635(790)	5(5)	55(95)	115(100)	815(525)	5(5)
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CROSSROADS-MEADOWBROOK & REAGAN RANCH
COLORADO SPRINGS, CO
2026 TOTAL TRAFFIC VOLUMES

FIGURE 11



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

FIGURE 12

Trip Generation Worksheets

Crossroads Mix Use Phase 1 Trip Generation Summary

Use	Quantity	Daily	Weekday Vehicle Trips					
			AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
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

Crossroads Mix Use Full Buildout Trip Generation Summary

Use	Quantity	Daily	Weekday Vehicle Trips					
			AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
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

Project Crossroads-Meadowbrook-Reagan Ranch (Crossroads Mix Use Phase 1)
 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)

$\ln(T) = 0.98 \ln(X) - 0.98$ $\ln(T) = 0.98 * \ln(300.0) - 0.98$	Directional Distribution: 26% ent. 74% exit. 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)

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

Weekday (Series 200 Page 73)

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

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

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

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)

Independent 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)

Independent 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)

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

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

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

$$\ln(T) = 0.98 \ln(X) - 0.98$$

$$\ln(T) = 0.98 * \ln(300.0) - 0.98$$

Directional Distribution: 26% ent. 74% exit.

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)

$$\ln(T) = 0.96 \ln(X) - 0.63$$

$$\ln(T) = 0.96 * \ln(300.0) - 0.63$$

Directional Distribution: 61% ent. 39% exit.

T = 127 Average Vehicle Trip Ends

77 entering 50 exiting

$$77 + 50 = 127$$

Weekday (Series 200 Page 73)

$$(T) = 5.45*(X) - 1.75$$

$$(T) = 5.45 * 300 - 1.75$$

Directional Distribution: 50% ent. 50% exit.

T = 1634 Average Vehicle Trip Ends

817 entering 817 exiting

$$817 + 817 = 1634$$

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

$$(T) = 0.42*(X) + 6.73$$

$$(T) = 0.42 * 300 + 6.73$$

Directional Distribution: 49% ent. 51% exit.

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)

Independent 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)

Independent 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)

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

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

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

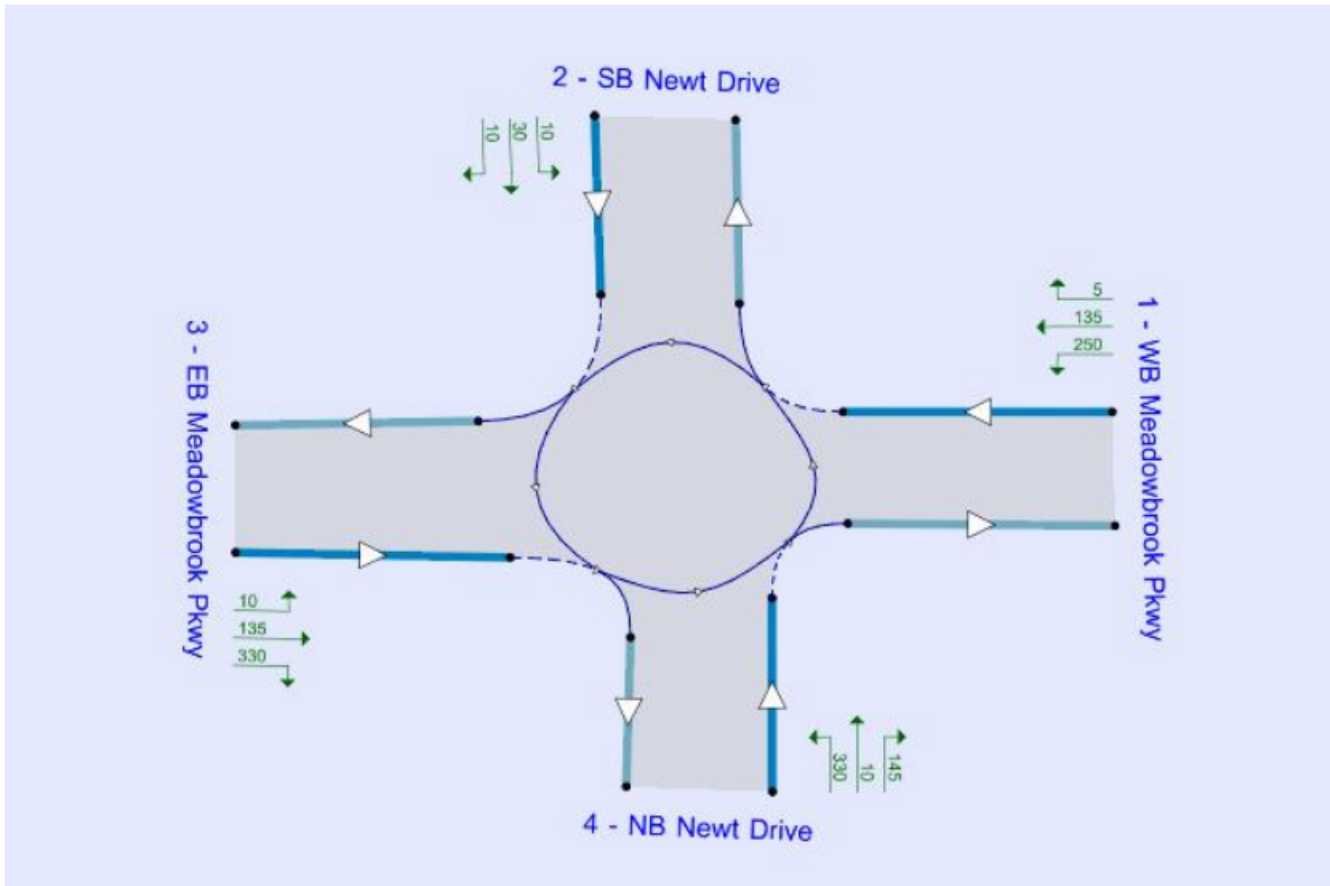
	AM								PM									
	Set ID	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity	Set ID	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity
Single Lane Roundabout - 2026																		
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

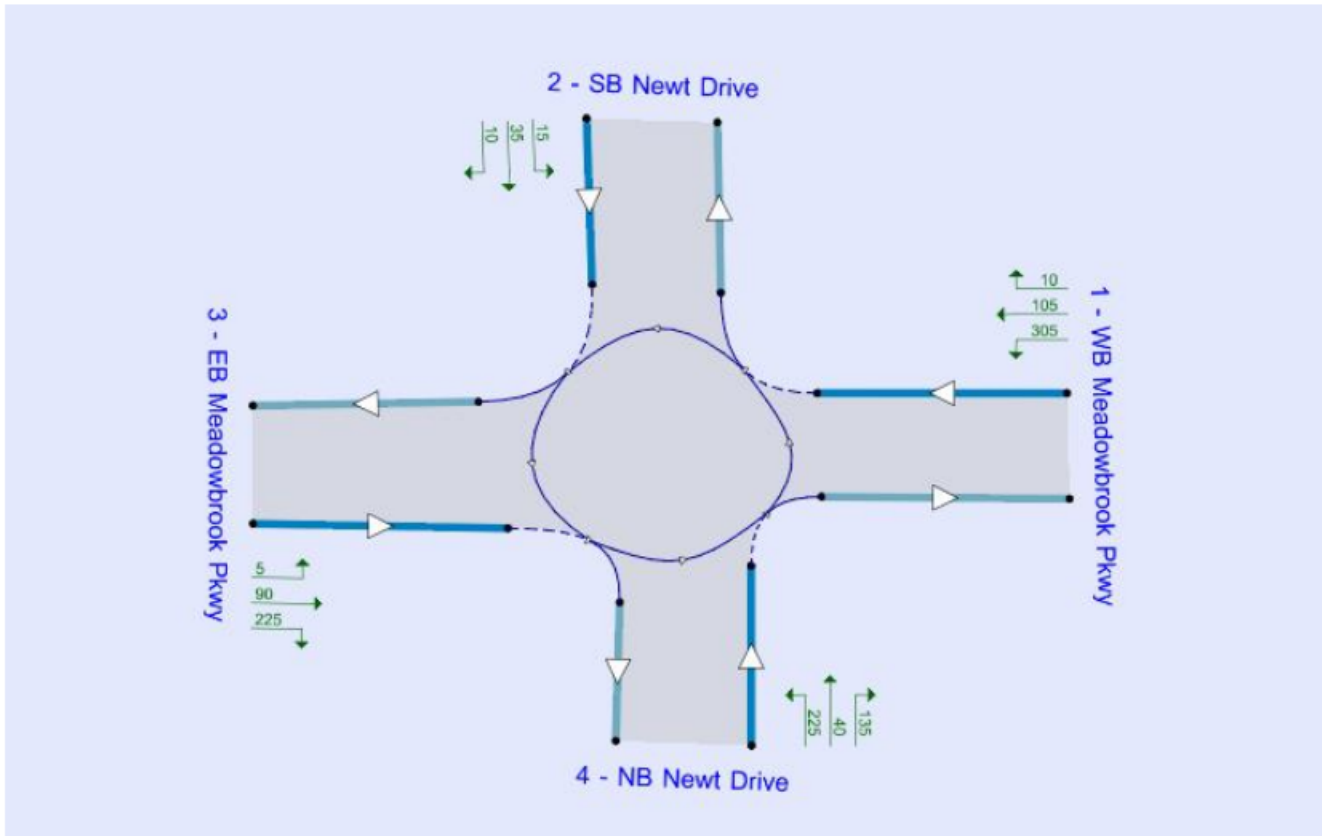
Leg	1 - WB Meadowbrook ...	2 - SB Newt Drive	3 - EB Meadowbrook ...	4 - NB Newt Drive
V - Approach road half-width (ft)	14.00	14.00	14.00	14.00
E - Entry width (ft)	14.00	14.00	14.00	14.00
F - Effective flare length (ft)	0.0	0.0	0.0	0.0
R - Entry radius (ft)	65.0	65.0	65.0	65.0
D - Inscribed circle diameter (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	-

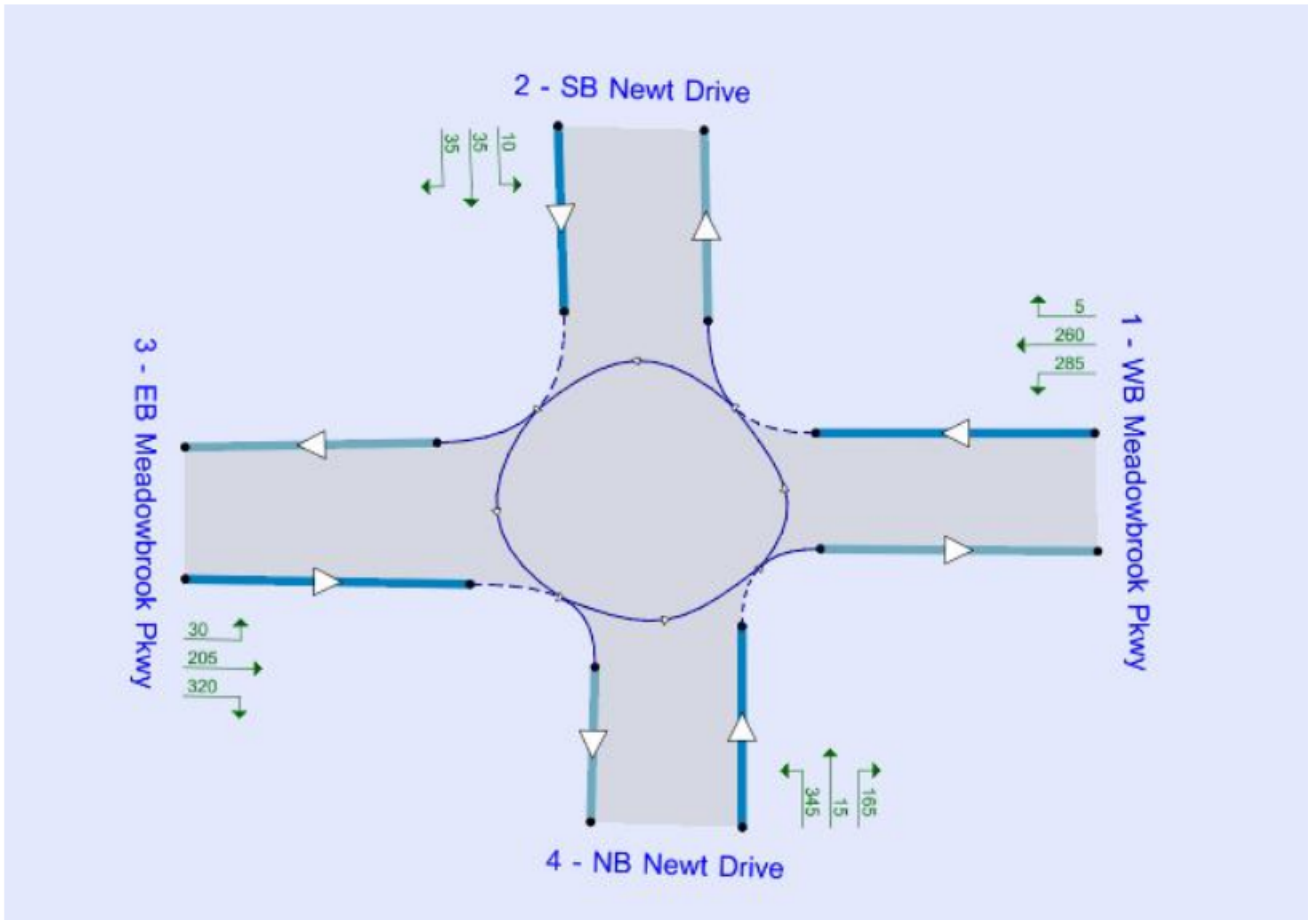
Geometry and Analysis Results

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	-

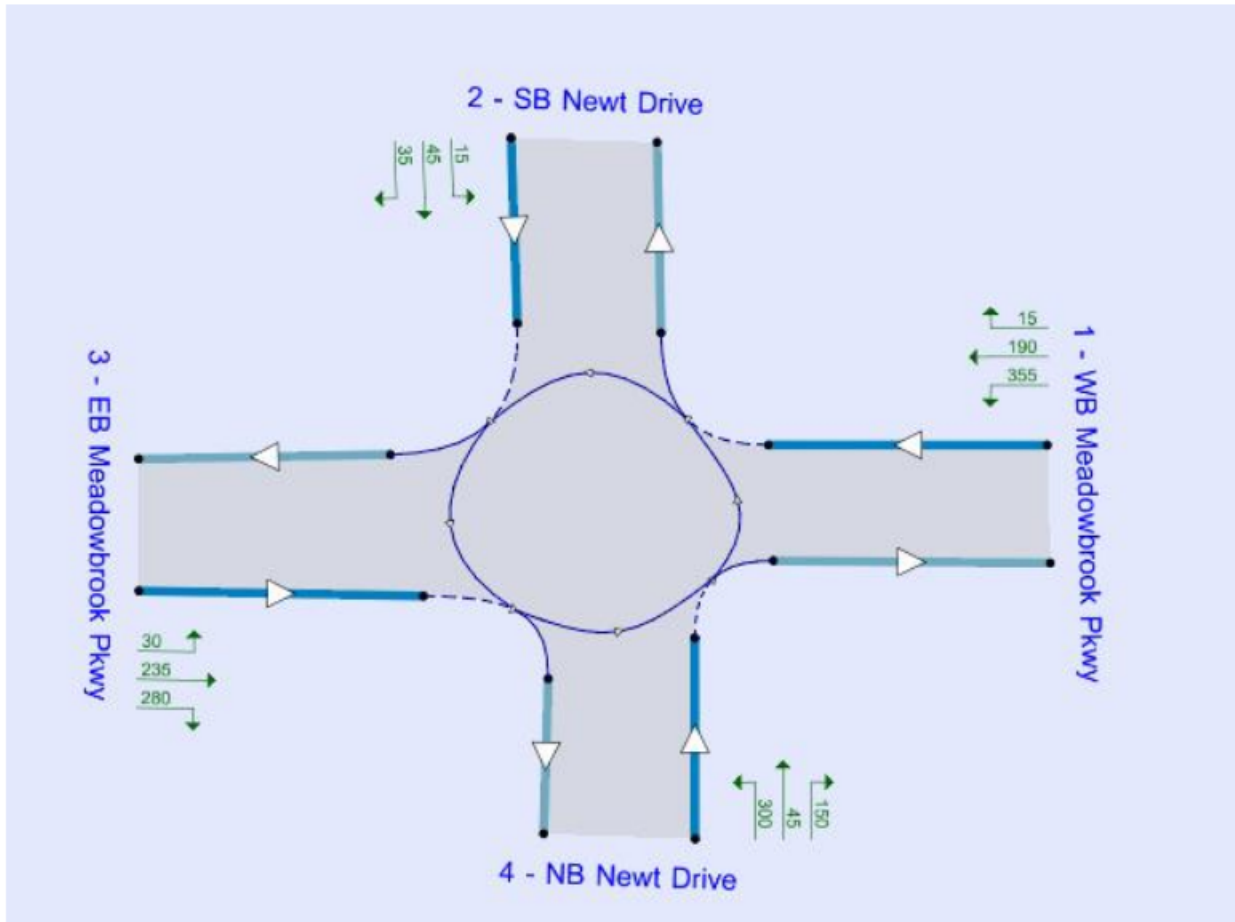
Geometry and Analysis Results

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	Minor2	Minor3
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	601 291
Stage 1	-	-	-	-	291 -
Stage 2	-	-	-	-	310 -
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	-	-	1262	-	463 748
Stage 1	-	-	-	-	759 -
Stage 2	-	-	-	-	744 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1262	-	445 748
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	-	-	-
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	EBT	EBR	WBL	WBT
Capacity (veh/h)	1005	-	-	1544	-
HCM Lane V/C Ratio	0.173	-	-	0.324	-
HCM Control Delay (s)	9.3	-	-	8.4	-
HCM Lane LOS	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	-	-	-
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	EBT	EBR	WBL	WBT
Capacity (veh/h)	1034	-	-	1572	-
HCM Lane V/C Ratio	0.116	-	-	0.211	-
HCM Control Delay (s)	8.9	-	-	7.9	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.4	-	-	0.8	-

Intersection						
Int Delay, s/veh	10.2					
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	-	-	-
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	0	1394 237
Stage 1	-	-	-	-	237 -
Stage 2	-	-	-	-	1157 -
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	-	-	1303	-	156 802
Stage 1	-	-	-	-	802 -
Stage 2	-	-	-	-	299 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1303	-	100 802
Mov Cap-2 Maneuver	-	-	-	-	166 -
Stage 1	-	-	-	-	802 -
Stage 2	-	-	-	-	192 -

Approach	EB	WB	NB
HCM Control Delay, s	0	6.3	32.5
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	361	-	-	1303	-
HCM Lane V/C Ratio	0.662	-	-	0.359	-
HCM Control Delay (s)	32.5	-	-	9.3	-
HCM Lane LOS	D	-	-	A	-
HCM 95th %tile Q(veh)	4.5	-	-	1.7	-

Intersection						
Int Delay, s/veh	6.5					
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	-	-	-
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		
Conflicting Flow All	0	0	310	0	1220 291
Stage 1	-	-	-	-	291 -
Stage 2	-	-	-	-	929 -
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	-	-	1250	-	199 748
Stage 1	-	-	-	-	759 -
Stage 2	-	-	-	-	385 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1250	-	141 748
Mov Cap-2 Maneuver	-	-	-	-	228 -
Stage 1	-	-	-	-	759 -
Stage 2	-	-	-	-	273 -

Approach	EB	WB	NB
HCM Control Delay, s	0	5.8	19.5
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	430	-	-	1250	-
HCM Lane V/C Ratio	0.43	-	-	0.291	-
HCM Control Delay (s)	19.5	-	-	9.1	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	2.1	-	-	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	-	0	811
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	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	Minor2	Minor3
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	-	690
Stage 1	-	-	0	-	-
Stage 2	-	-	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

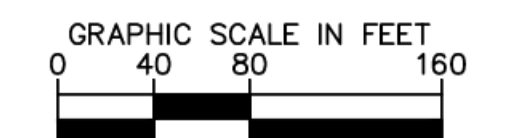
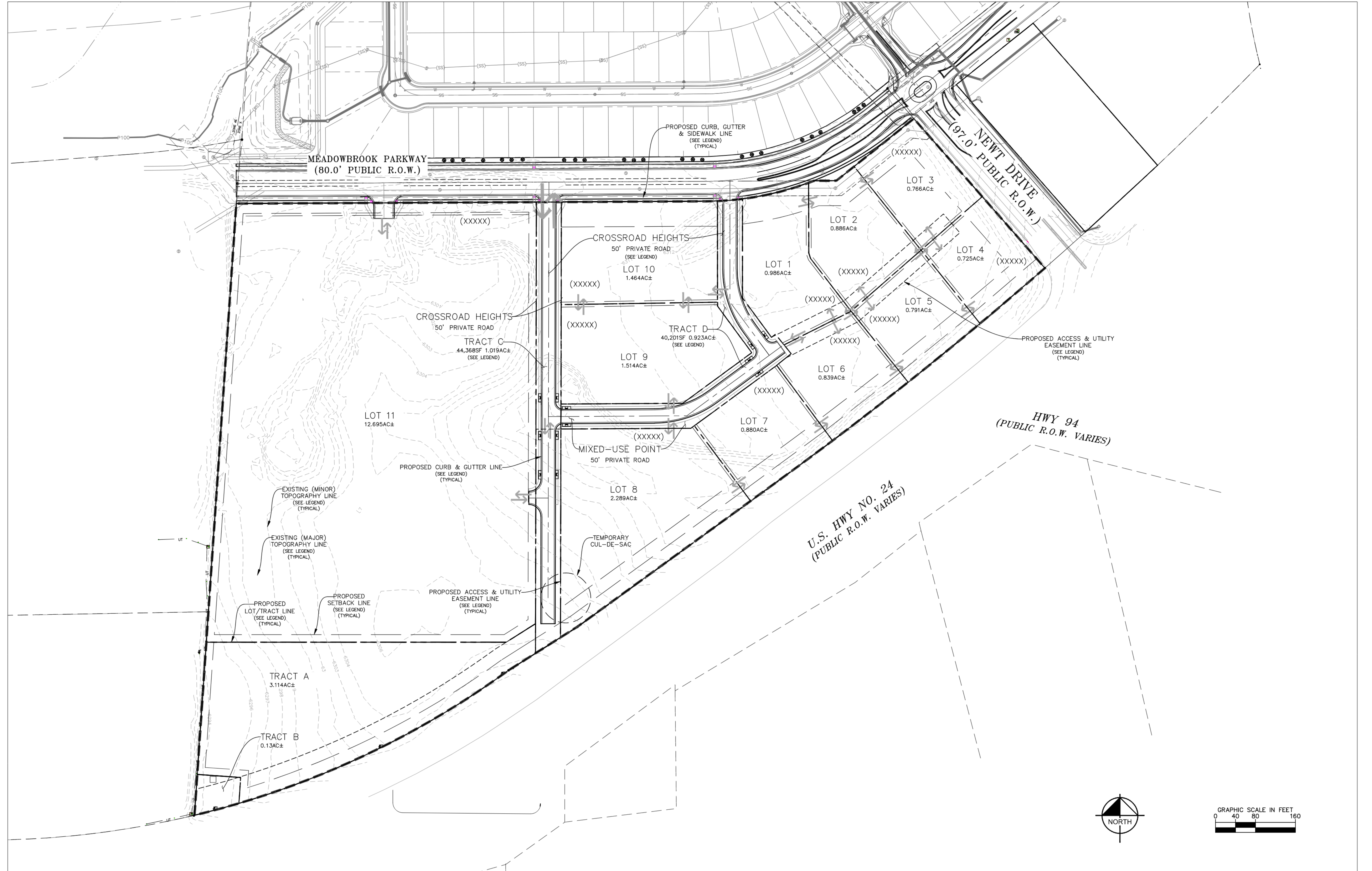
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↑		↗
Traffic Vol, veh/h	345	25	0	520	0	195
Future Vol, veh/h	345	25	0	520	0	195
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	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

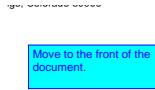
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	659	-	-	-
HCM Lane V/C Ratio	0.322	-	-	-
HCM Control Delay (s)	13	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	1.4	-	-	-

Proposed Site Plan



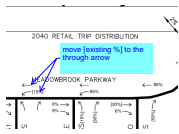
TIS V_3 engr comments.pdf Markup Summary

dsdlaforce (23)



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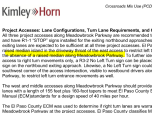
move [existing %] to the through arrow

ments, and Operational Analysis
recommended to provide stop control
proposals: Single northbound
uses. El Paso County may require a
restrict left turn movements due to
further identify restriction of this
to be placed underneath the stop
sign could be placed on the
drivers along Meadowbrook

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long Meadowbrook
 de westbound left turn
 y Engineering Criteria

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and have #1-1 "STOP" signs installed for the existing conditions.
 existing lanes are proposed to be sufficient at all times except a
 raised median placed in the driveway front of the east access
 the placement of a raised median along Meadowbrook Parkway
 within the right turn lane, and #1-2 on the left turn lane
 sign on the left turn lane approach. Likewise, a No Left
 Turn sign is proposed at the intersection of Meadowbrook Parkway
 Parkway to restrict left turn movements on west.
 The westbound left turn lane is proposed to be a single lane with
 a raised median on the east side of the lane to restrict left
 turn movements on west.
 The El Paso County ECM was used to determine if right turn
 lanes are required at the intersection of Meadowbrook Parkway
 and State Highway 163. According to El Paso Co
 and State Highway 163, a right turn lane is required for any
 turning volume of 20 vehicles per hour or greater.
 Based on 2046 traffic volume projections, right turn lanes are

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The middle access and to evenly distribute
 the level of service at the key study area

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State/list ECM criteria for stacking, storage, and taper for every affected auxiliary lane and access and state whether this access can be met. If it can't be met, state the required modification so it can be met (a deviation request may be required if an alternative to the criteria is proposed)

Unresolved.

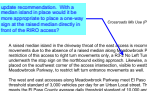
Update to identify the required required storage length. Per ECM 2.3.7.E.1 and Figure 2-25 the design elements for a left turn lane are the bay taper, lane length, and storage length. See ECM 2.3.7.E.3 for storage length criteria.

With the additional storage length double check that there is no conflict with the upstream intersection. Current intersection spacing does not have sufficient spacing to accommodate the required left turn lanes. Intersection spacings needs to be adjusted.



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update per previous comments.



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update recommendation. With a median island in place would it be more appropriate to place a one-way sign at the raised median directly in front of the RIRO access?

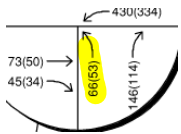


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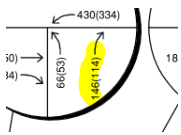


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Remove. This does not seem necessary with a raised median on Meadowbrook Pkwy.



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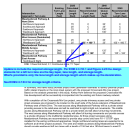
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Update statement. The preliminary plan shows a raised median in front of the east access as a barrier against left turn movements



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If the TIS is going to include this statement then provide a complete analysis of the feasibility of a full movement and the required WBLT lane length. Based on the layout there does not seem to be sufficient space for a WBLT that meets criteria. The middle access WBLT would be conflicting with this east access full movement and the roundabout splitter island



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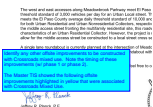
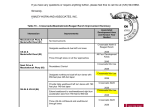
Update to include the required storage length. Per ECM 2.3.7.E.1 and Figure 2-25 the design elements for a left turn lane are the bay taper, lane length, and storage length. What's provided is only the lane length and storage length which makes up the deceleration.

See ECM 2.3.7.E.3 for storage length criteria.



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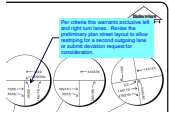
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Identify any other offsite improvements to be constructed with Crossroads mixed use. Note the timing of these improvements (w/ phase 1 or phase 2).

The Master TIS showed the following offsite improvements highlighted in yellow that were associated with Crossroads Mixed Use.



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Per criteria this warrants exclusive left and right turn lanes. Revise the preliminary plan street layout to allow restriping for a second outgoing lane or submit deviation request for consideration.