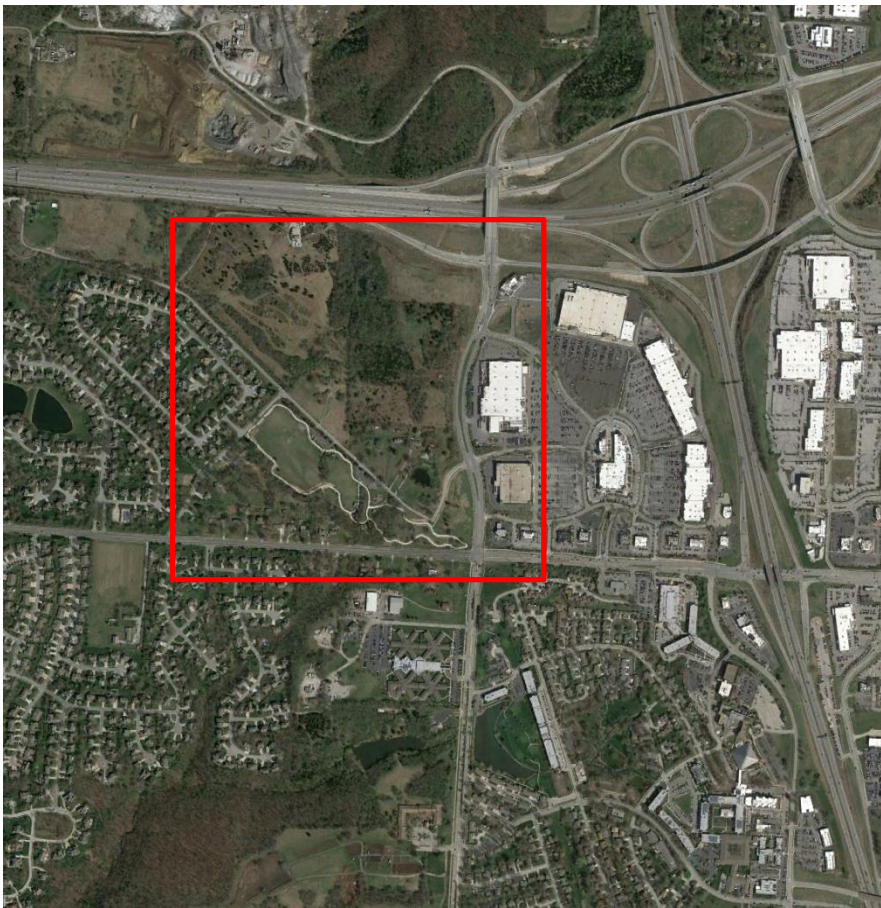




West Pryor Village Traffic Impact Study



General Location of Study Area

TRAFFIC IMPACT STUDY

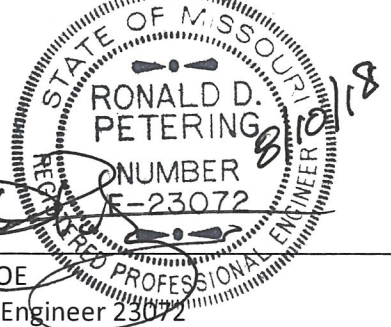
**August
2018**

West Pryor Village

Traffic Impact Study

August 2018

I HEREBY CERTIFY THAT THIS REPORT WAS
PREPARED BY ME OR UNDER MY DIRECT
SUPERVISION, AND THAT I AM A DULY
REGISTERED PROFESSIONAL ENGINEER EXISTING
UNDER THE LAWS OF THE STATE OF MISSOURI



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Section 1: Introduction

1.1 Purpose and Objectives

The purpose of this study is to assess the impacts of the phased multi-use development proposed on approximately 80 acres of land that is bordered by Lowenstein Drive to the south, Pryor Road to the east, and I-470 to the north, which is outlined in Figure 1 below. The specific impact of traffic generated and distributed from this proposed area will be examined in the highlighted intersections, also found in Figure 1. The development will occur in five phases, outlined in Figure 2, with phase one occurring along Lowenstein Drive and in the south corner of Lowenstein Drive and Pryor Road, including a grocery store and restaurants. The second phase will be on the northeast corner of the property along Pryor Road and I-470, with additional restaurants and two hotels. The third phase of development will be between phase one and two and includes apartments and restaurants. Phase four includes senior luxury apartments and ball courts. Phase five will be single family homes to be built to the west of Black Twig Lane.

Figure 1 - Location of Study

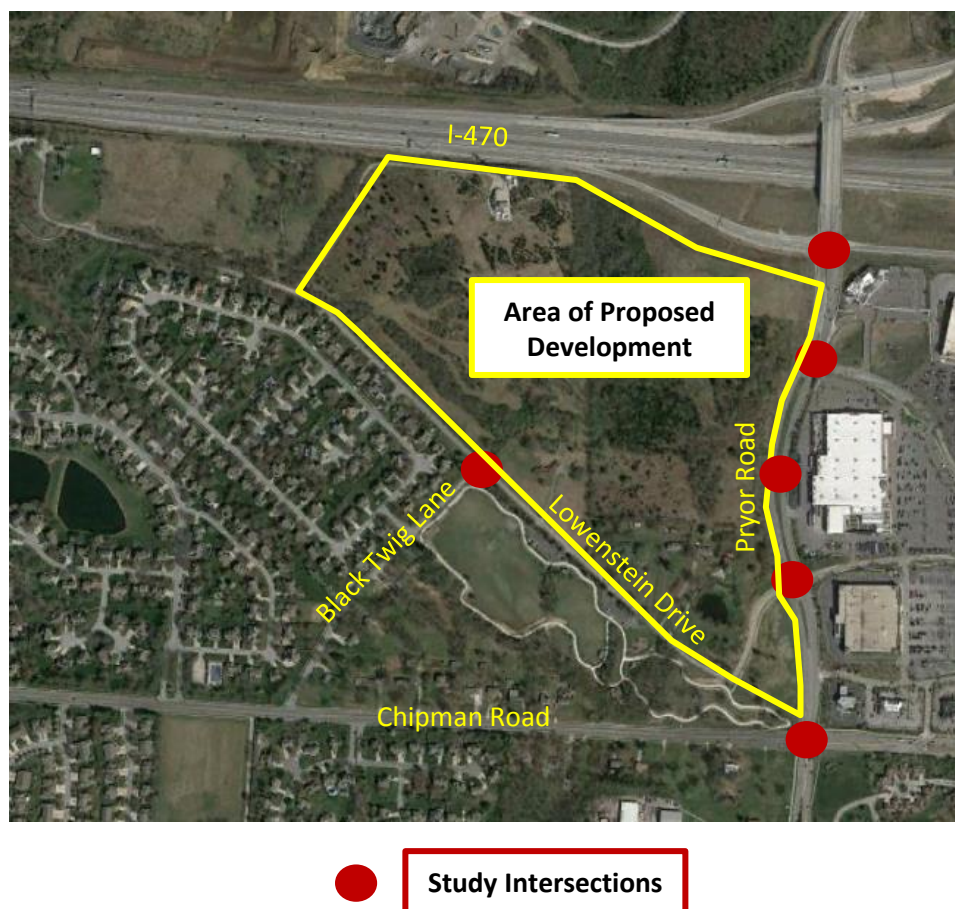
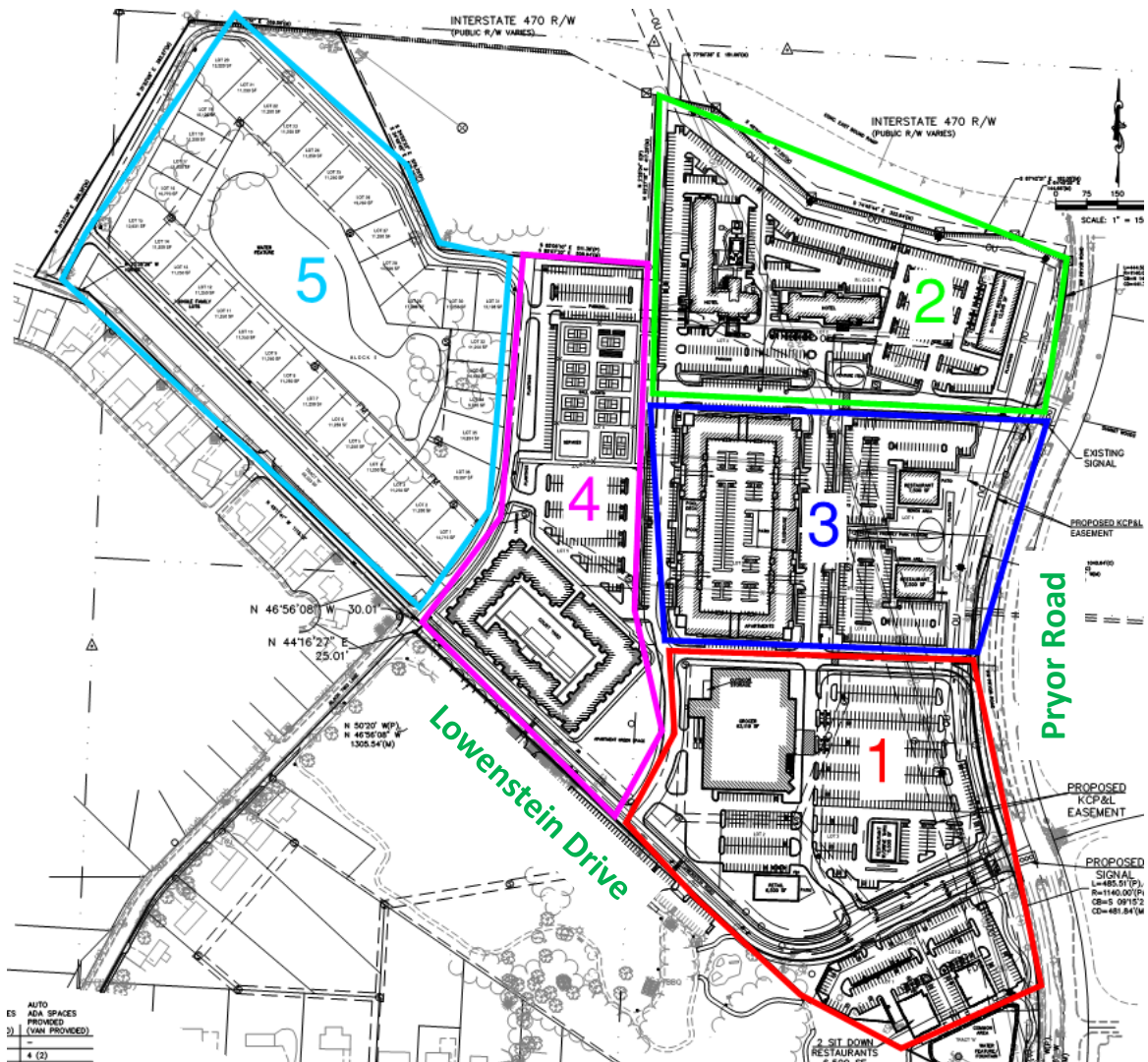


Figure 2 - Current Development Phasing



Section 2: Existing Conditions

2.1 Roadway Geometrics

Lowenstein Drive, west of Pryor Drive, currently has three 12-foot wide lanes at the intersection – a lane for eastbound and westbound traffic as well as a dedicated left turn lane for eastbound vehicles wanting to go north on Pryor Road. West of the intersection with Pryor Road, Lowenstein Drive goes south, southwest for 500 feet, and then makes a sharp turn to the northwest and narrows to a width of 20 feet. Lowenstein Drive currently has a speed limit of 25 miles per hour. This roadway has proposed improvements for both the sharp turn and narrow roadway to be constructed with the subject development.

The intersection of Lowenstein Drive and Pryor Road, seen in Figure 3, is currently unsignalized, with minor road stop control. The vehicles using the east leg come from the Summit Woods Crossing development. Those currently using the west leg come from Lowenstein Park or the single family homes with access to Lowenstein. Pryor Road itself is an arterial roadway, providing access to I-470 for motorists in the surrounding area. Pryor Road currently has a speed limit of 35 miles per hour.

Figure 3 - Existing Intersection of Lowenstein Drive and Pryor Road



The I-470 south ramp terminal at NW Pryor Road is currently signalized and has five 12-foot wide lanes at the intersection – two lanes for eastbound traffic that will continue onto Blue Parkway before acting as an on-ramp for I-470 eastbound, two dedicated right turn lanes for eastbound vehicles wanting to go south on Pryor Road, and a dedicated left turn lane for vehicles wanting to go north on Pryor Road.

Summit Woods Crossing is the first intersection south of the I-470 ramp terminal on Pryor Road. This intersection is signalized and currently has four 12-foot wide lanes at the east leg of the intersection – two dedicated left turn lanes for vehicles headed south, a dedicated right turn lane for vehicles wanting to go north on Pryor Road, and a lane for traffic entering the development, turning right or left off of Pryor Road. Currently, there is a dedicated left turn lane for southbound traffic and a dedicated right turn lane for northbound traffic wanting to enter the Summit Woods Crossing development.

The Chipman Road and Pryor Road intersection is the southernmost intersection in this study area along the Pryor Road corridor and is currently signalized. Westbound traffic on Chipman Road currently has four 12-foot wide lanes— two dedicated through lanes, a dedicated right turn lane for vehicles wanting to go north on Pryor Road, and dedicated left turn lane for vehicles wanting to go south on Pryor Road. The remaining three legs of the intersection each have three lanes – one lane for dedicated left turns and two through lanes that also accommodate any vehicles turning right. Chipman Road intersection currently has a speed limit of 35 miles per hour.

The next intersection included in this study is Black Twig Lane and Lowenstein Drive. This minor road stop-controlled intersection has two 12-foot wide lanes at each of the three legs of the intersection. All approaches have a speed limit of 25 miles per hour. This area is primarily residential with the proposed

development land to the north of Lowenstein Drive, a neighborhood to the west and Lowenstein Park to the South.

Figure 4 - Intersection of Black Twig Lane and Lowenstein Drive



The last intersection included in this study is Black Twig Lane and Chipman Road. This is a three-leg minor road stop-controlled intersection. Chipman Road has three 12-foot wide lanes, one each for eastbound and westbound as well as a two-way left-turn lane. There are also two six foot wide bike lanes. Black Twig Lane is approximately 26 feet wide where it meets Chipman Road. The west side of the street has full curb and gutter and storm sewer while the east side of the roadway has no curb and gutter and storm drainage is handled by an open ditch.

2.2 Current Developments in the Area

The area immediately surrounding the proposed development is well developed. There are several businesses to the east of Pryor Road in the Summit Woods Crossing development, an 87-acre site. This development contains several large businesses such as Lowe's, Dick's Sporting Goods, Target, Kohl's and more. There are also several restaurants such as Chipotle, Chili's, On the Border, Jack Stack and others.

Lowenstein Park is an 18 acre park south of Lowenstein Drive on the west side of Pryor Road. This park has three picnic shelters with picnic tables, one basketball goal, open space area, a playground area, a one mile concrete trail, and parking.

The land to the west of Lowenstein Park is residential with single family homes. The remaining developments to the south of the Chipman Road and Pryor Road intersection are residential uses and the John Knox Village retirement community.

Section 3: Description of Development and Proposed Access Points

3.1 Proposed Development

The proposed development encompasses 80 acres with a proposed mixture of uses including single family homes, senior apartments, restaurants, medical/retail, a grocery store, and two hotels. A general concept plan is provided in the Appendix.

There are five phases proposed for this development. This first phase contains a grocery store, medical/retail building, and three restaurants. The first phase of development is contained in the southern and western areas of the development property. The second phase is the northeastern part of the property and will include an extended stay hotel, hotel, and two restaurants. The third phase will be between the first two phases, filling out the eastern area of the property. This phase will include two restaurants and an apartment complex with clubhouse. The fourth phase is to the west of the first three phases and will include a senior luxury apartment complex and ball courts. The fifth and final phase uses the most western area of the development property and will be a small neighborhood of single family homes surrounding a water feature.

3.2 Proposed Development Access Points

The main access to Pryor Road for phase one of the development will be the existing intersection with Lowenstein, which is currently unsignalized. Lowenstein will have several access points to the restaurants, grocery, apartments and single family housing. These driveways have been reviewed and were found to meet Lee's Summit's Access Management Code's regulation of a minimum 300 foot separation between driveways on a collector road.

A right-in right-out access point is also proposed between the Summit Woods Crossing intersection and the Lowenstein Drive intersection, at approximately 450 ft to the north of the Lowenstein Drive and Pryor Road intersection. Lowenstein Drive is expected to service all patrons and residents from phase one of this development that desire to access I-470 to the north as well as giving access to most of those going to the restaurants or grocery store. The proposed right-in right-out intersection will be used by those accessing the retail and grocery store in the northern area of phase one as well as giving access to those in the apartments built in Phase 3 that need to head south on Pryor Road.

There will also be some new traffic introduced to Black Twig Lane. This would mainly be from those approaching the development from the west, are familiar with the local street network, and want to avoid the intersection at Pryor Road and Chipman Road. A sight distance analysis, summarized in Exhibit 1, was also performed for this intersection as it is stop-controlled.

An additional access point is proposed for phase two. This access would be opposite the existing signalized access at Summit Woods Crossing. This access is expected to primarily serve the proposed hotel and proposed restaurants developed during phase two. It is also anticipated to carry some of the traffic from the remaining phases.

Section 4: Existing and Projected Traffic Generation and Distribution

4.1 Existing Traffic Data

Traffic counts were collected at the six subject intersections on Wednesday, September 28th, 2016, Thursday, September 29th, 2016, and Tuesday, January 10th, 2017, as shown in Exhibit 2. Peak hour traffic counts were collected for all intersections, and 12 hours of traffic were recorded at the intersection of Lowenstein Drive and Pryor Road to allow for a traffic signal warrant analysis to be performed. The raw count data can be found in the Appendix. A summary of morning and evening peak hour is provided in Exhibit 3.

The City of Lee's Summit provided 24 hour counts, captured by their camera equipment along Pryor Road, from a random weekday and Saturday to determine if a Saturday peak hour count would be necessary. In analyzing the data, it was determined that the weekday peak hour counts were higher by 100 to 200 vehicles at a minimum in both the mornings and evenings. Saturdays do see a higher consistency in hourly volumes throughout the day, but as the peak hour impacts are the main concern, the weekday counts were judged to be sufficient for the purpose of this study. The counts provided by the City can be found in the Appendix.

4.2 Vehicular Trip Projection

To estimate these turning movements in and out of the subject access driveways, data compiled by the Institute of Transportation Engineers (ITE) in their report Trip Generation Manual, 9th Edition was initially utilized to estimate the number of trips generated by the development. Since the first iteration of this study completed in late 2016, ITE has since released the Trip Generation Manual, 10th Edition, which contains updated trip generation data.

The Trip Generation report documents historical vehicular trips counted at a variety of land uses. The trips are then plotted against independent variables, such as "number of employees" or "gross leasable square footage of buildings", to develop correlations between these independent variables and the vehicular trips generated by the various land uses. These correlations can then be used to estimate trips generated by future development of similar land uses.

Estimates of daily, AM peak hour, and PM peak hour vehicular trips were developed with both the 9th and 10th editions using the development plan contained in the Appendix. Trips were estimated using the most current plans the developer had available at the time of this report. A 10% buffer for all housing developments was added to allow for possible adjustments in final design. This included the apartments and single family housing. In comparing the difference in trips generated during the peak hours between the two ITE editions, it was found that the 9th edition yielded trips that are slightly higher than those estimated with the 10th edition. Due to this, it was determined to continue using the 9th edition to allow for additional buffer.

While a large number of trips will be generated by the proposed development, not all trips will impact the external road network a common trait of multi-use developments, such as this one, is to have some internal trips by people who stop to shop at the grocery store as well as a restaurant or then return home

or to a hotel. These internal trips were accounted for by using a conservative assumption that 15% of trips would be internal for phases one, two and three.

Pass by trips were not assessed during the trip generation analysis. Pass by trips are made by those passing adjacent to the development while on their way to a final destination, for example it may be between one driver's work and home. The exclusion of these gives a worst case scenario for the roadway. Table 1 shows how many trips each phase is estimated to generate using both the 9th and 10th editions during the evening peak hour as well as the estimate of internal trips based on the 9th edition.

Table 1 - Projected Trips Created By Phase – Evening Peak Hour

	Phase One	Phase Two	Phase Three	Phase Four	Phase Five
Total Trips – 9th Edition	958	256	317	165	46
Internal Trips – 9th Edition	136	38	47	0	0
Total Trips – 10th Edition	933	236	292	155	42

4.3 Trip Assignment

Existing traffic counts and observations of traffic patterns of motorists accessing and exiting the nearby Summit Woods Crossing development were used to estimate the distribution of new trips to/from the proposed development. Exhibit 4 shows the current distribution of trips for motorists going to the Summit Woods Crossing development. The current distributions were used to estimate the use of the access points for the proposed developments as well as taking into account the vision of the development. Also included in Exhibit 4 are the estimated trip distributions for phases one, two, three and four and five combined.

Distribution at the Black Twig Lane and Chipman Road assumed that all incoming vehicles to the development would be turning left from Chipman Road north onto Black Twig Road and all vehicles exiting the development would be turning right from Black Twig Lane west onto Chipman Road.

Distributions at both the Chipman Road and I-470 ramps used the existing distributions to assign the new development generated trips. At I-470, these trips were relatively evenly distributed, with a 45%/55% split NB/EB for vehicles leaving the area and vehicles entering the area SB/EB. At Chipman Road, the majority of trips come to and from the south, with roughly 30% coming from the east and west legs.

Section 5: Analysis

5.1 Operational Level of Service (LOS)

The existing and projected morning and evening peak hour traffic volumes were analyzed using methodology contained in the publication Highway Capacity Manual (HCM). The manual provides a methodology of calculating the expected average delay of vehicles subjected to stop and yield conditions. The expected average delay is further equated to a level of service (LOS) which is a letter designation

between A and F. A level of service designation “A” describes the best of operating conditions, a movement where delays are very short and there is significant remaining capacity to accommodate additional vehicle movements before traffic operations begin to degrade significantly. A level of service designation “F” describes a movement where more traffic demand is present than what can be adequately accommodated. Therefore, average delays that are long, over 50 seconds per vehicle at an unsignalized intersection, will cause a rapid decline in traffic operations. Table 2 demonstrates the delay with corresponding LOS for both signalized and unsignalized intersections.

Table 2 - Levels of Service Corresponding Delay Lengths

LOS	Delay (Signalized Intersection)	Delay (Unsignalized Intersection)
A	< 10 seconds	< 10 seconds
B	10 – 20 seconds	10 – 15 seconds
C	20 – 35 seconds	15 – 25 seconds
D	35 – 55 seconds	25 – 35 seconds
E	55 – 80 seconds	35 – 50 seconds
F	> 80 seconds	> 50 seconds

The Highway Capacity Software (HCS) is software that compliments the HCM, and it was used to calculate the existing and expected LOS for stop-controlled intersections. When calculating the LOS for stop-controlled intersections, the LOS is calculated for each leg, and the LOS for the stop-controlled legs are noted as they experience delay. The traffic simulation tools Synchro and SimTraffic were utilized to calculate expected delays and determine expected LOS designations for signalized and proposed signalized intersections. In each calculation, signalization was optimized with weighting provided in minimizing delay for the movements along Pryor Road. This will be most noticeably seen in the LOS movement exhibits, where Pryor Road has movement LOS of As and Bs while the intersecting roadways experience LOS of Cs, Ds, and Es. Overall, the intersection LOS will reflect a weighted average of these. All HCS, Synchro and SimTraffic reports mentioned in this section of the report can be found in the Appendix.

In determining if an intersection’s LOS is appropriate, the City of Lee’s Summit’s “Level of Service Policy” will be followed. This policy states that a “LOS C is the desired goal; however LOS D may be deemed acceptable where extraordinary circumstances, as determined by the City Council, exist or are projected” for a signalized intersection. For a stop-controlled intersection, the policy states that a “Level of Service C is the desired goal for traffic movements that must yield to other movements. LOS D and E may be allowed if deemed acceptable by the City Engineer (or designee) taking into account such factors as traffic volumes of subject movements, alternative travel routes available, and duration of activity resulting in such LOS.”

The traffic simulation modeling utilized the following geometric and traffic control assumptions for the following intersections surrounding the proposed development:

- **I-470 Eastbound Ramps** – Existing lane configurations and optimized traffic signal operation were used for all scenarios.
- **Summit Woods Crossing** – Existing lane configurations were used for phase one. For phase two, the west leg was added for the northern access point to the development.

- **Developer's Road** – This is a proposed right-in, right-out access point along Pryor Road that would be built with phase one.
- **Lowenstein Drive** – Existing lane configuration with minor road stop control was part of the existing LOS assessment. A signal was added for phase one and two development scenarios.
- **Chipman Road & Pryor Road**– Existing lane configuration was evaluated in all models.
- **Black Twig Lane & Chipman Road** – Existing lane configuration was evaluated in all models.

Each phase analysis includes all trips generated by previous phases. For example, phase three analysis includes existing vehicles counts as well as trips generated by phases one and two.

5.1.1 Existing Operations and LOS

Using the traffic counts collected, the existing LOS were calculated to get a baseline of the intersection operations for existing traffic conditions. Overall, traffic moves well throughout both the morning and evening peak hours, as Table 3 shows. Lowenstein Drive has the worst LOS due to the delay for left and right turning movements on the west leg of the intersection and left turning movements on the east leg of the intersection. Signal timings used in Synchro to help aid in evaluating the LOS were optimized using the most efficient cycle length between 100-140 seconds allowing the software to choose the cycle length and splits is intended to align with the adaptive signal system that that is in place along Pryor Road.

A signal warrant analysis was also completed using existing volumes for the Lowenstein Drive and Pryor Road and Chipman Road and Black Twig Lane intersections. There are three volume based warrants, or sets of conditions, where installation of traffic signals may be considered. The meeting of one of the warrants does not require the installation of a signal, however at least one warrant should be satisfied or projected to be satisfied before signalization is implemented. While the legs at Lowenstein Drive do have some delay, a traffic signal is not warranted for existing traffic patterns. A copy of the HCS Warrants report can be found in the Appendix. The Black Twig Lane intersection has little delay as it currently operates and no signal is warranted when looking at peak hours. None of the peak hours meet any of the hourly requirements necessary for a signal warrant.

Table 3 - Existing AM and PM Levels of Service

Intersection	Existing AM LOS	Existing PM LOS
I-470 South Terminal	B	B
Summit Woods Crossing	A	B
Right-In, Right-Out	N/A	N/A
Lowenstein Drive	B/C*	D/E*
Chipman Road & Pryor Road	C	C
Black Twig Lane & Lowenstein Drive	A*	A*
Black Twig Lane & Chipman Road	B*	C*

* Denotes stop-controlled leg LOS

5.1.2 Phase One Operations and LOS

The operations of the same six intersections and the new right-in, right-out intersection were next analyzed using the projected volumes for existing plus phase one conditions, which can be seen in Exhibit 3. Overall, little impact is seen to the LOS at all studied intersections.

Table 4 compares the existing LOS to the expected LOS after phase one of the development is completed. Despite the additional vehicles using Lowenstein Drive, the LOS improves due to the addition of a traffic signal. Overall, little impact is seen to the LOS at all studied intersections.

Table 4 - Expected Phase One Levels of Service

Intersection	Existing AM LOS	Existing PM LOS	Phase One AM LOS	Phase One PM LOS
I-470 South Terminal	B	B	B	B
Summit Woods Crossing	A	B	A	B
Right-In, Right-Out	N/A	N/A	A*	B*
Lowenstein Drive	B/C*	D/E*	B	C
Chipman Road & Pryor Road	C	C	C	C
Black Twig Lane & Lowenstein Drive	A*	A*	A*	A*
Black Twig Lane & Chipman Road	B*	C*	B*	C*

* Denotes stop-controlled leg LOS

A signal warrant analysis was completed for the Lowenstein Drive and Pryor Road intersection taking into account the additional traffic generated by phase one of the development. Warrants 1 (8 hour) and 2 (4 hour) were both evaluated by taking the peak hour projections for traffic exiting Lowenstein Drive and adjusting that projection by the same percentage difference as documented in the exiting traffic patterns for the 4th and 8th highest hours exiting the Summit Woods Crossing development. This was judged to be a reasonable means of approximating the 4th and 8th highest hours since many of the development types contained within Summit Woods Crossing and the newly proposed development along Lowenstein are similar in nature. A copy of the warrant evaluation is contained in the Appendix for reference. It was found that the intersection meets the following warrants: 1 – 8-Hour Vehicular Volume, 2 – 4-Hour Vehicular Volume and 3 – Peak Hour.

A signal warrant analysis was also completed for Black Twig Lane and Chipman Road with phase one volumes although it is projected to continue operating at a LOS B during the morning peak hour and LOS C during the evening peak hour. None of the peak hours with the additional traffic met any of the warrants, and therefore no signal is warranted for the traffic generated by phase one.

5.1.3 Phase Two Operations and LOS

The impact of the additional phase two of the development was next analyzed. Table 5 shows the changes in LOS with the additional vehicle trips added in. Summit Woods Crossing intersection on Pryor Road experiences a decline in LOS. Although a decline is experienced, the lowest LOS is B, which is still a very acceptable operational level during the peak morning hour.

Table 5 - Expected Phase Two Levels of Service

Intersection	Existing AM LOS	Existing PM LOS	Phase One AM LOS	Phase One PM LOS	Phase Two AM LOS	Phase Two PM LOS
I-470 South Terminal	B	B	B	B	B	C
Summit Woods Crossing	A	B	A	B	A	B
Right-In, Right-Out	N/A	N/A	A*	B*	A*	B*
Lowenstein Drive	B/C*	D/E*	B	C	B	B
Chipman Road & Pryor Road	C	C	C	C	C	C
Black Twig Lane & Lowenstein Drive	A*	A*	A*	A*	A*	A*
Black Twig Lane & Chipman Road	B*	C*	B*	C*	B*	C*

* Denotes stop-controlled leg LOS

5.1.4 Phase Three Operations and LOS

The impact of additional traffic generated by phase three of the development was then analyzed. Table 6 shows the changes in LOS with due to the increase in vehicle trips in comparison to the previous phases. The Summit Woods Crossing intersection on Pryor Road experiences another slight decline in LOS during the peak evening hour. The lowest intersection LOS experienced throughout the project is C at the unsignalized intersection of Black Twig Lane and Chipman Road, and at the Summit Woods Crossing, I-470 ramp, and Chipman Road intersections with Pryor Road.

Table 6 - Expected Phase Three Levels of Service

Intersection	Phase One AM LOS	Phase One PM LOS	Phase Two AM LOS	Phase Two PM LOS	Phase Three AM LOS	Phase Three PM LOS
I-470 South Terminal	B	B	B	C	B	C
Summit Woods Crossing	A	B	A	B	B	C
Right-In, Right-Out	A*	B*	A*	B*	B*	B*
Lowenstein Drive	B	C	B	B	B	B
Chipman Road & Pryor Road	C	C	C	C	C	C
Black Twig Lane & Lowenstein Drive	A*	A*	A*	A*	A*	A*
Black Twig Lane & Chipman Road	B*	C*	B*	C*	B*	C*

* Denotes stop-controlled leg LOS

5.1.5 Phases Four and Five Operations and LOS

The impact of the additional traffic generated by phases four and five of the development were the last to be analyzed. These phases were combined as the final phase (five) of the project is made up of single family homes, which do not create much traffic relative to the rest of the development. Table 7 shows

the changes in LOS due to the increase in vehicle trips in comparison to the other phases while Exhibit 5 compares existing and impact of all phases of development by LOS and queue length at each intersection. The lowest LOS experienced throughout the project is D at the unsignalized intersection of Black Twig Lane and Chipman Road. All other intersections meet the City's Level of Service Policy for adequate operations, by having intersection LOS of C or better. The 95% queue lengths for the left-turn movement during the morning peak hour get long with only one lane available, requiring a turn lane length of 300 ft. As an alternate, a second left lane can be added, decreasing the turn lane length to 150 ft. With one, long left-turn lane, the individual lane LOS is E, which is improved to LOS D if a second lane is added. A printout of the Synchro analysis of the alternative intersection is included in the Appendix.

Table 7 – Expected Phases 4 & 5 Levels of Service

Intersection	Phase Two AM LOS	Phase Two PM LOS	Phase Three AM LOS	Phase Three PM LOS	Phase Four&Five AM LOS	Phase Four&Five PM LOS
I-470 South Terminal	B	C	B	C	B	C
Summit Woods Crossing	A	B	B	C	B	C
Right-In, Right-Out	A*	B*	B*	B*	B*	B*
Lowenstein Drive	B	B	B	B	B	B
Chipman Road & Pryor Road	C	C	C	C	B	C
Black Twig Lane & Lowenstein Drive	A*	A*	A*	A*	A/B*	A/B*
Black Twig Lane & Chipman Road	B*	C*	B*	C*	B*	D*

* Denotes stop-controlled leg LOS

Also reviewed, as requested by the City of Lee's Summit, was the northbound right turn movement at the Chipman Road and Pryor Road intersection. In reviewing the LOS for this movement, it stayed consistently at an acceptable LOS of C during the evening peak hour and LOS of B during the morning peak hour. Therefore, it is not anticipated to be necessary to add a right turn lane due to the additional northbound through traffic created by this project, though the existing evening turning movement counts would require a right turn lane by City policy.

Although it is projected to continue operating at a LOS B in the morning and D in the evening with no signal, Black Twig Lane and Chipman Road was evaluated for signal warrants using the phase four and five traffic generation volumes. None of the peak hours met any of the hourly warrants and therefore no signal is warranted for this intersection due to the development.

5.1.6 Operations and Design within the Development

The right-in, right-out proposed entrance built with phase one of the development was analyzed to ensure queues did not back up into nearby intersections. When consulting the Lee's Summit Access Management Code, it states that "driveways serving over 400 vehicles per hour (two-way traffic volumes) adequate throat length shall be determined by a transportation impact study". This stipulation is met at the right-in, right-out intersection, and therefore, an analysis was completed. It was assumed in this analysis that the four-leg intersection between the right-in/right-out roadway and the cross road providing access to the grocery store to the south and restaurants/apartments to the north will be minor-road stop

controlled, so that the vehicles on the right-in/right-out leg of the inner-development intersection will move freely and not back up to Pryor Road due to stopping.

When examining the 95% queue lengths of vehicles exiting to Pryor Road, the queue lengths were found to be low, usually less than the length of one vehicle, as can be seen in Table 8. These were calculated using the Highway Capacity Manual's 2010 Two Way Stop Control (TWSC) software and the assumption of average vehicle length of 25 feet. The queue is not expected to back up into the interior intersection.

Table 8 - Queue Lengths for Eastbound Vehicles Exiting to Pryor Road

Phase	95% Queue Length AM TWSC (feet)	95% Queue Length PM TWSC (feet)
1	5	18
2	5	18
3	10	20
4&5	13	25

5.2 Lowenstein Drive Review of Lee's Summit Access Management Policy

The City of Lee's Summit's Access Management Policy was not only reviewed to ensure that the access points on Pryor Road would meet City policy, but it was also reviewed to ensure the driveways on Lowenstein Drive also meet the policy.

Both southbound right-turn lanes, at the right-in/right-out driveway and at Lowenstein Road meet the City policy of a minimum 150 ft lane length plus taper.

The connection spacing required on industrial/commercial collectors is 300 feet. This is met between all driveways on Lowenstein Drive, including the existing driveways to the park.

The turning movements into and out of the grocery area of the proposed development onto Lowenstein Drive were also analyzed using the volumes produced with phase one of the development, where the bulk of the traffic in this area is created. The turning movement directions were estimated using the overall estimated distributions – in which vehicles would go towards Black Twig Lane as well as Pryor Road.

The City's Access Management Policy requires right turn lanes when over 100 vehicles will be turning right in any hour. It does not specify any volume requirements for left turn lanes, only stating that they "should be provided on collector streets at the intersection with a connector serving non-residential development."

Using the estimated volumes, the right turning movement into the grocery store parking lot and the delivery entrance produces 180 right turns during the morning peak hour and 122 right turns during the evening peak hour. While some of these vehicles may turn right into the delivery entrance, it is unlikely that many customers or those going through to buildings further to the north would prefer that entrance. The estimated queues exiting the north access point are 60 ft during the morning peak hour and 88 ft during the evening peak hour, less than the 150 ft throat length provided. The Access Management Guide also recommends a 125 ft throat when 100-400 vehicles travel through the throat area during the peak hour. The proposed geometrics of this driveway satisfy this requirement.

5.3 Review of Lee's Summit Unimproved Road Policy

A review of Lee's Summit Unimproved Road Policy was completed for Black Twig Lane and Lowenstein Road, west of Black Twig Lane. The policy states that "no residential subdivision (preliminary plat or major plat), industrial or commercial developments will be permitted on unimproved roads." In discussion with city staff, as this roadway will be used by development-related traffic, it is understood the eastern portion of Black Twig Lane, which is currently open ditch, will need to be updated to curb and gutter that connects with existing storm water system. Lowenstein Drive will also need to be updated to current standards.

5.4 Recommendations by Phase

Each phase will impact the one existing and two proposed access points along the Pryor Road corridor in the study area due to the traffic increase caused by the development.

5.4.1 Phase One Recommendations

Phase one of the development uses the existing intersection at Lowenstein Drive and the proposed new right-in, right-out Developer's Road intersection to the north of it, approximately 450 ft north of the Lowenstein Drive and Pryor Road intersection.

It is recommended to convert Lowenstein Drive's current minor road stop control at the Pryor Road intersection to a signalized intersection. The increase in traffic from the restaurants, medical/retail and grocery development will cause the side road delay to greatly increase without signalization. The current northbound left turn lane is an adequate length for the estimated volumes due to phase one. However, it is recommended to add a right-turn lane at the Lowenstein Drive intersection. The spacing of the signal, at 760 feet north of another signalized intersection at Chipman and Pryor Roads, is less than ideal. A spacing of at least 1,320 feet is more desirable. However, this segment of the Pryor Road corridor, located adjacent to an I-470 interchange, is heavily developed for commercial use. The majority of trips exiting the proposed development will desire to turn left onto Pryor Road to access the interchange. Without signalized control, the intersection is shown to have a failed level of service, with extremely long delays on the side roads. All three of the volume based signal warrants are projected to be met with the additional traffic from the proposed development. For these reasons, signalization is of significant importance in providing safe and efficient access for this development. There are other signalized intersections in the vicinity that are spaced at similar, or even closer spacing. Coordinated signal operations, utilizing adaptive traffic control, will work to minimize delays for through traffic along Pryor Road.

5.4.2 Phase Two Recommendations

Phase two of the development adds an additional access point at the existing three-leg intersection at Pryor Road and Summit Woods Crossing, seen in Figure 5. A fourth leg with one left turn lane and one through/right turn lane for eastbound vehicles, and one eastbound through lane (removing one of the two left-turn lanes) would be added to this intersection, providing access to the northern area of the development property. A left turn lane of 300 ft in length or two left-turn lanes, each 150 ft in length will be needed on the new, west intersection leg. In addition to adding the fourth leg, signal upgrades would be needed as well as dedicated right and left turn lanes for southbound and northbound vehicles respectively wanting to access the development. These should at minimum meet the City of Lee's Summit

access management requirements of 150 feet for a right turn bay length and 200 feet for a left turn bay length plus taper length.

Figure 5 - Existing Intersection at Pryor Road and Summit Woods Crossing, Facing West



5.4.3 Phases Three, Four and Five Recommendations

The recommendations in the previous phases cover the majority of the improvements needed for the development. The remaining traffic added by the last three phases is minimal and spread out throughout the entrances. The biggest improvement will be the extension of Black Twig Lane to the north.

5.5 Summary of Recommendations

The following is a summary of recommendations for accommodating the traffic generated by the Lowenstein Drive development.

- For phase one of the development, install a traffic signal at the intersection of Lowenstein and Pryor Roads and improve the intersection as shown in the site plan with a continuous right turn lane for southbound vehicles. This will improve the function of the intersection with the expected increase in traffic. The developer's proposed length for two eastbound left turn lanes 150 feet long with a 100 foot long taper will be adequate. The existing northbound left turn lane onto Lowenstein Drive is also adequate.
- For phase one, construct the proposed 150 feet long right-turn only lane with a 100 feet long taper at the proposed right-in, right-out access point, as shown in the site plan.
- For phase one, add a 150 feet long right-turn lane with a 100 foot long taper on Lowenstein Drive at the eastern development access point to the grocery store, as shown in the site plan.
- For phase two, upgrade the existing signal at Summit Woods Crossing to accommodate a fourth leg for the intersection and the increase in traffic.
- For phase two, add a 150 ft long right-turn only lane with a 100 ft long taper on southbound Pryor Road and a 200 ft long left-turn only lane with a 100 ft long taper on northbound Pryor Road.

- For phase two, have a three lane section on the fourth (west) leg of the Summit Woods Crossing intersection, with one left turn lane with a minimum length of 300 ft long with a taper (or two left-turn lanes of 150'), one through/right turn lane and one through lane for westbound vehicles to enter.
- Improve Lowenstein Drive and Black Twig Lane to City standards.

Following these recommendations will help Pryor Road continue to operate at acceptable levels while appropriately meeting the City of Lee's Summit Access Management Code and Unimproved Road Policy.

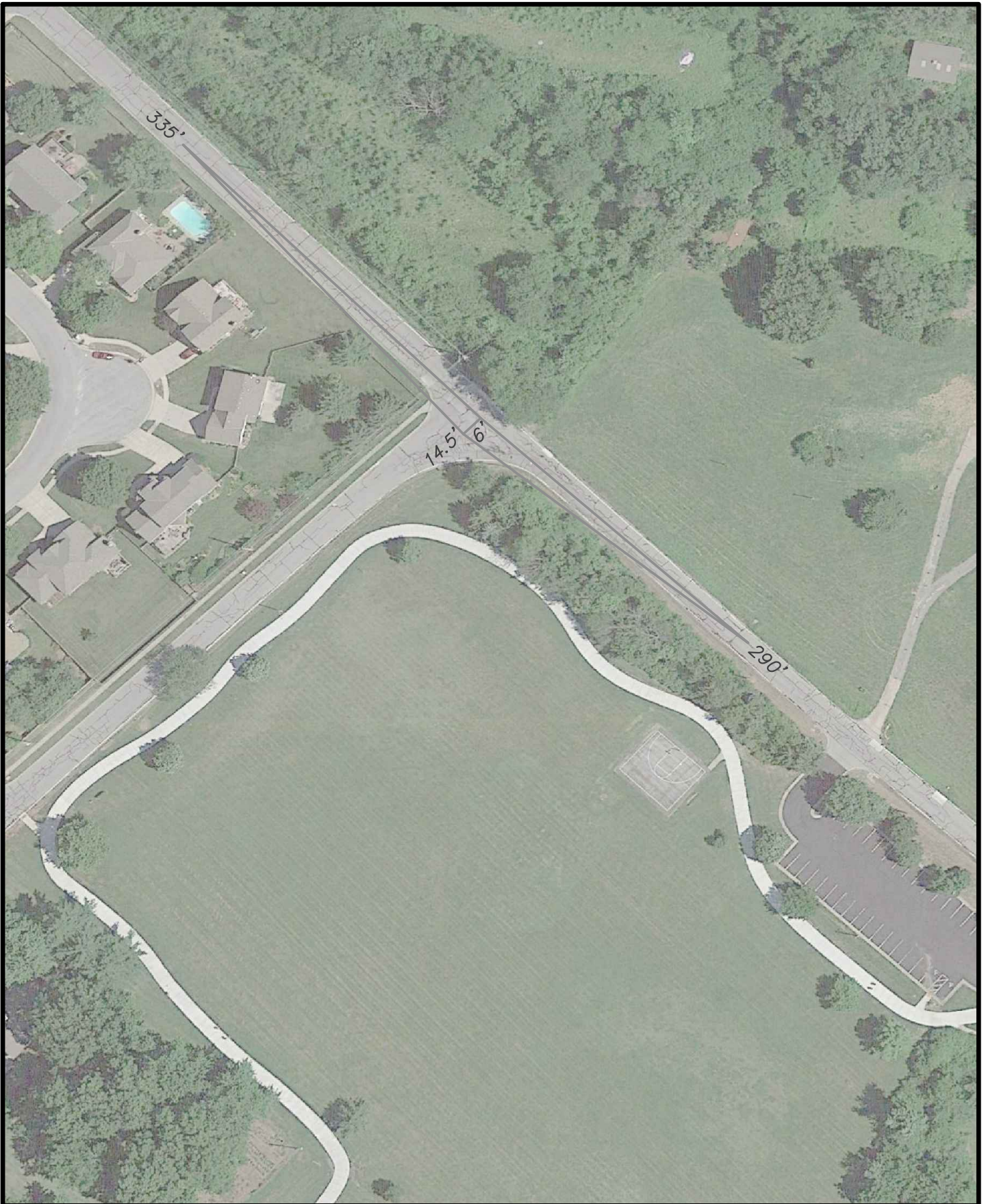
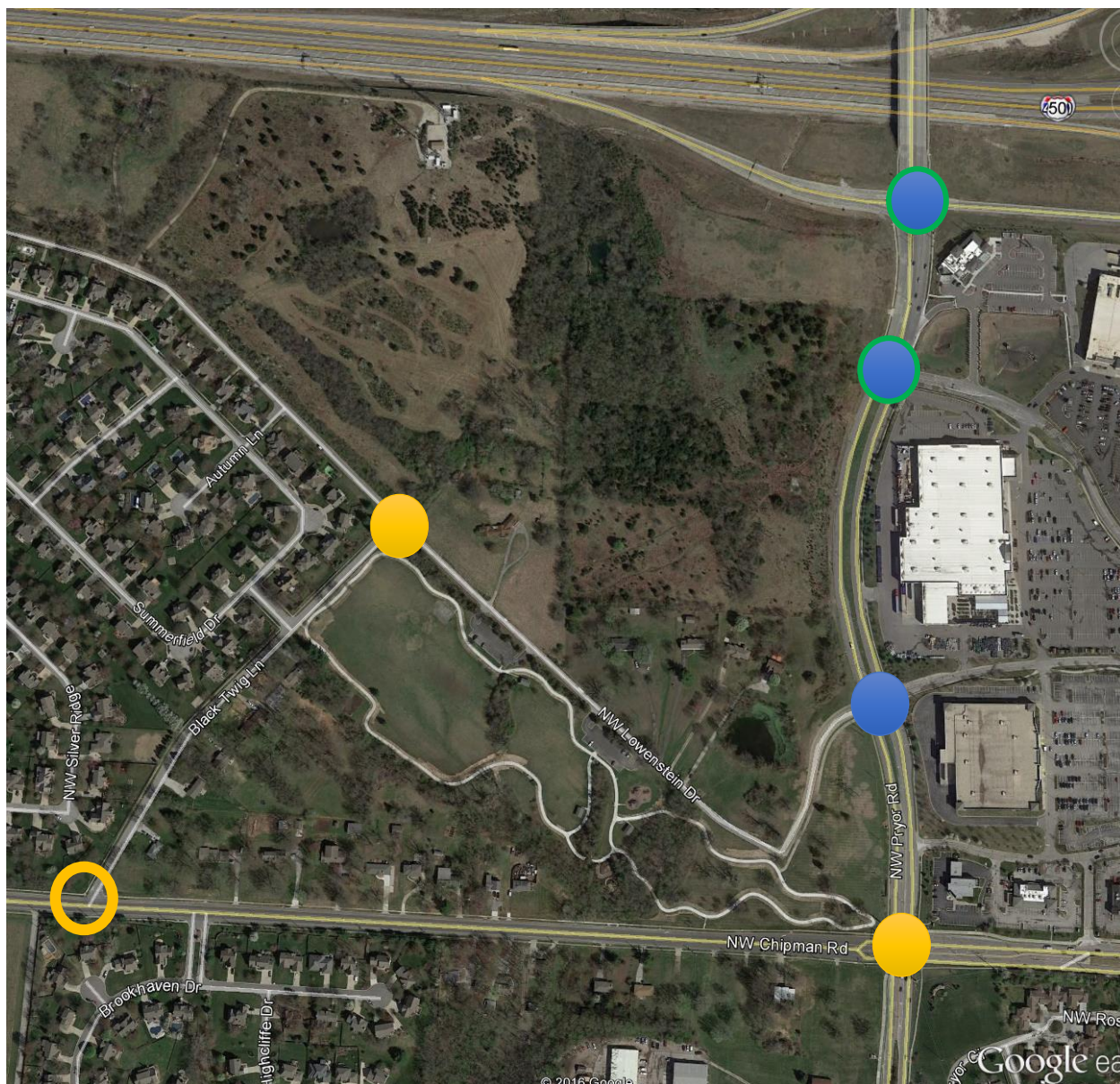


Exhibit 1 - Sight Distance at
Lowenstein Road and Black
Twig Lane Intersection



7 AM – 7 PM count



7 AM – 9 AM
4 PM – 6 PM
same day as 7AM – 7
PM count



7 AM – 9 AM
4 PM – 6 PM
Different Day



7 AM – 9 AM
4 PM – 6 PM
January Count

**Exhibit 2 - Traffic Count
Collection Map**

Exhibit A

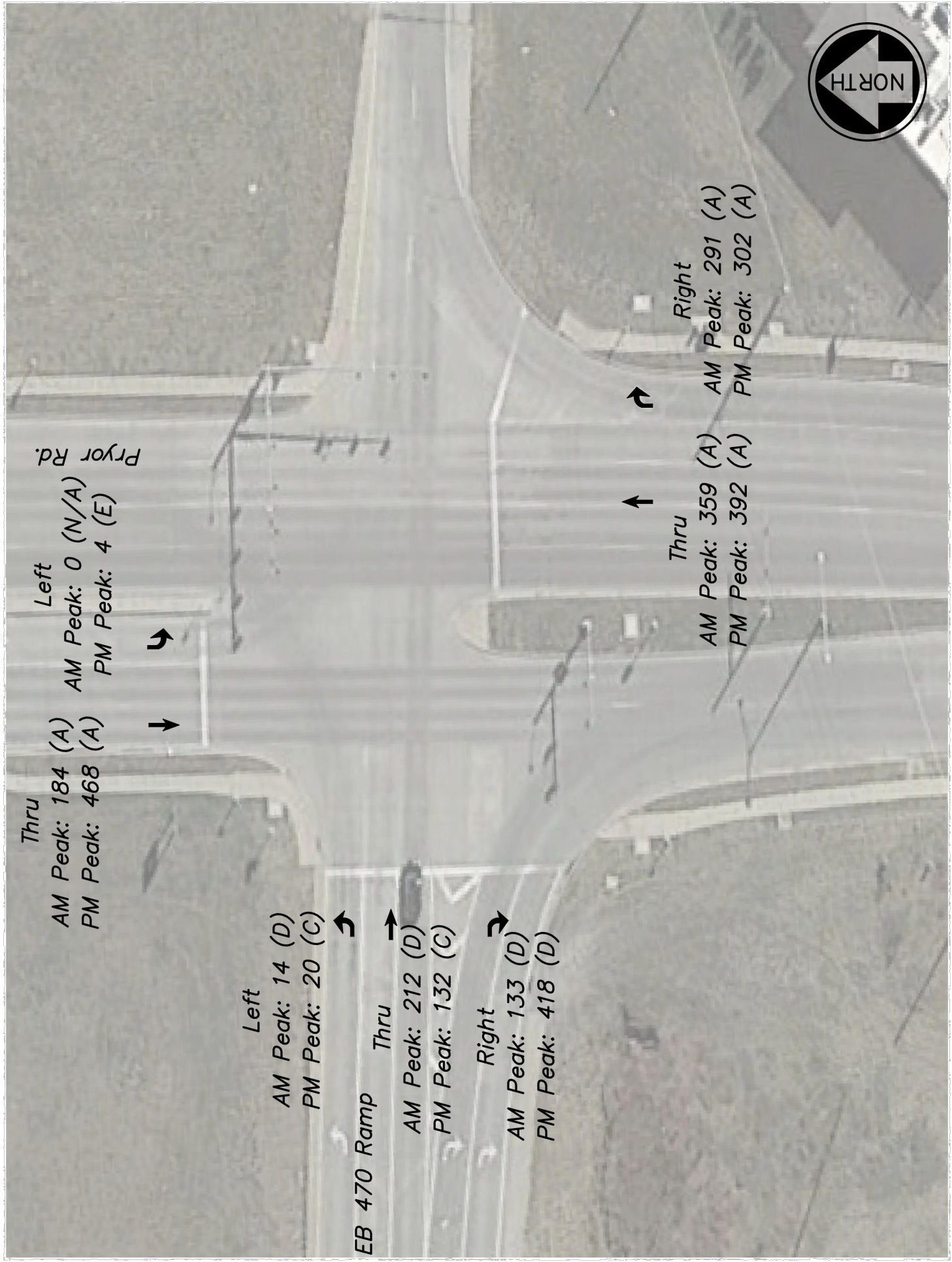


Exhibit E

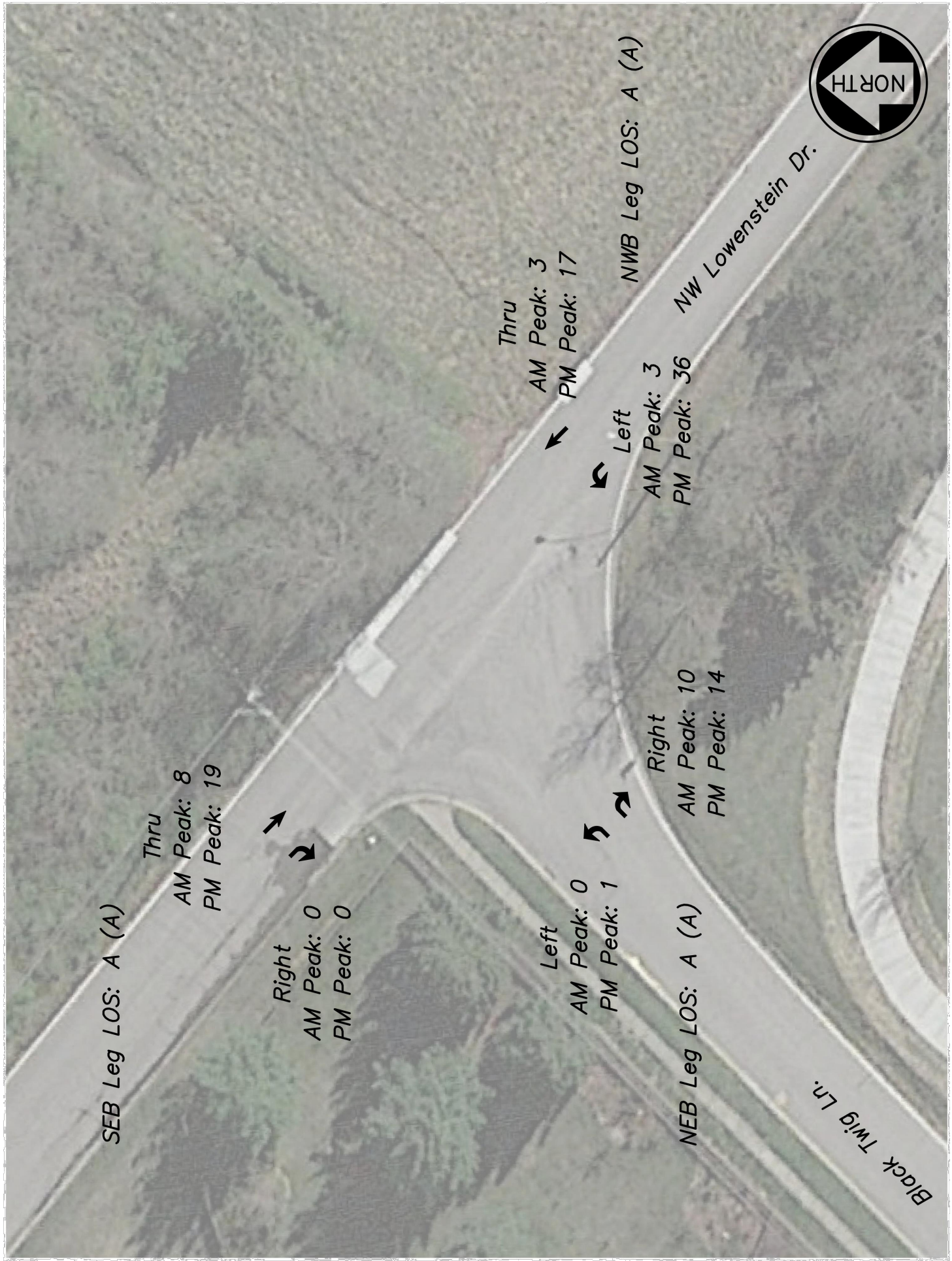


Exhibit B

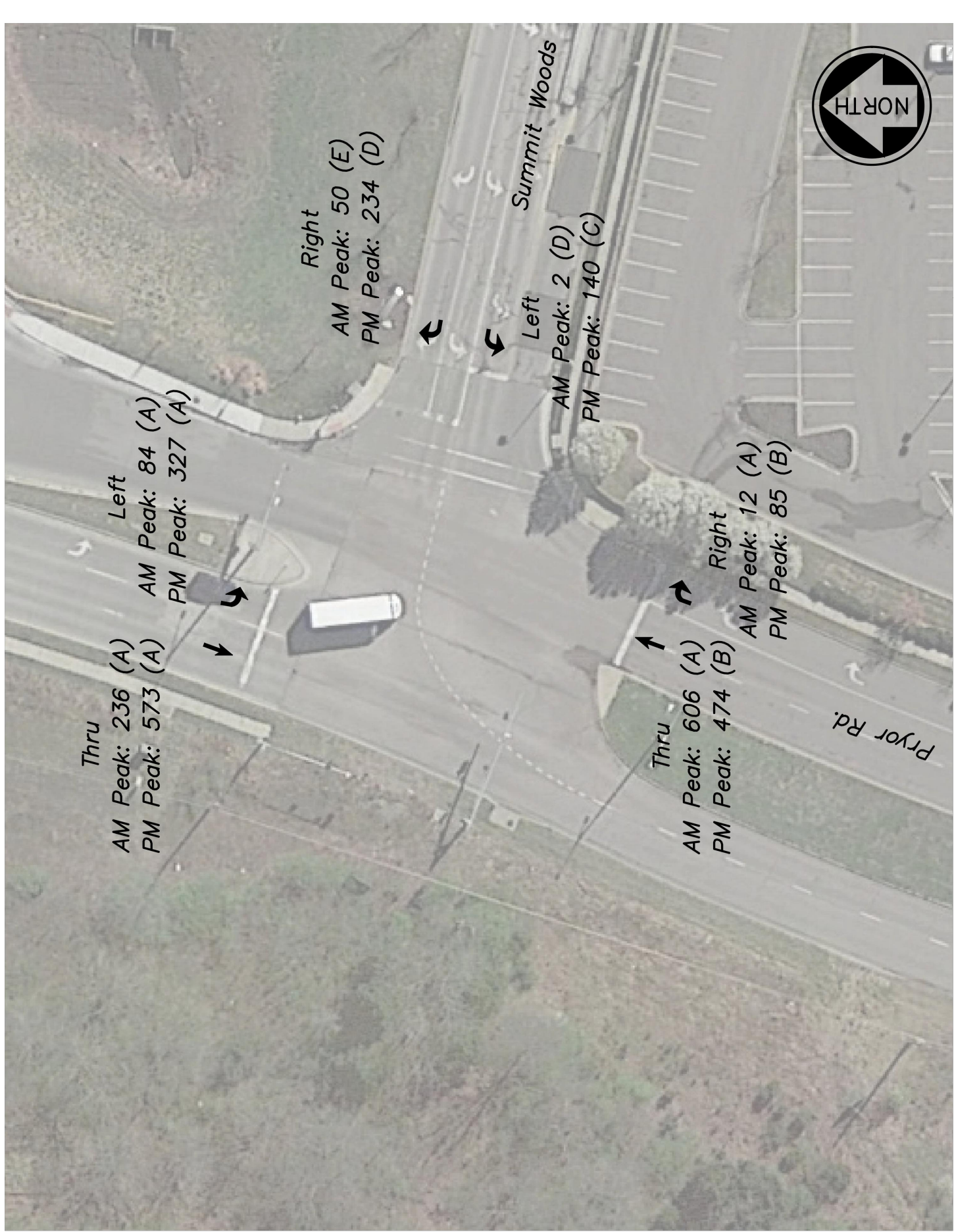


Exhibit F



Exhibit C

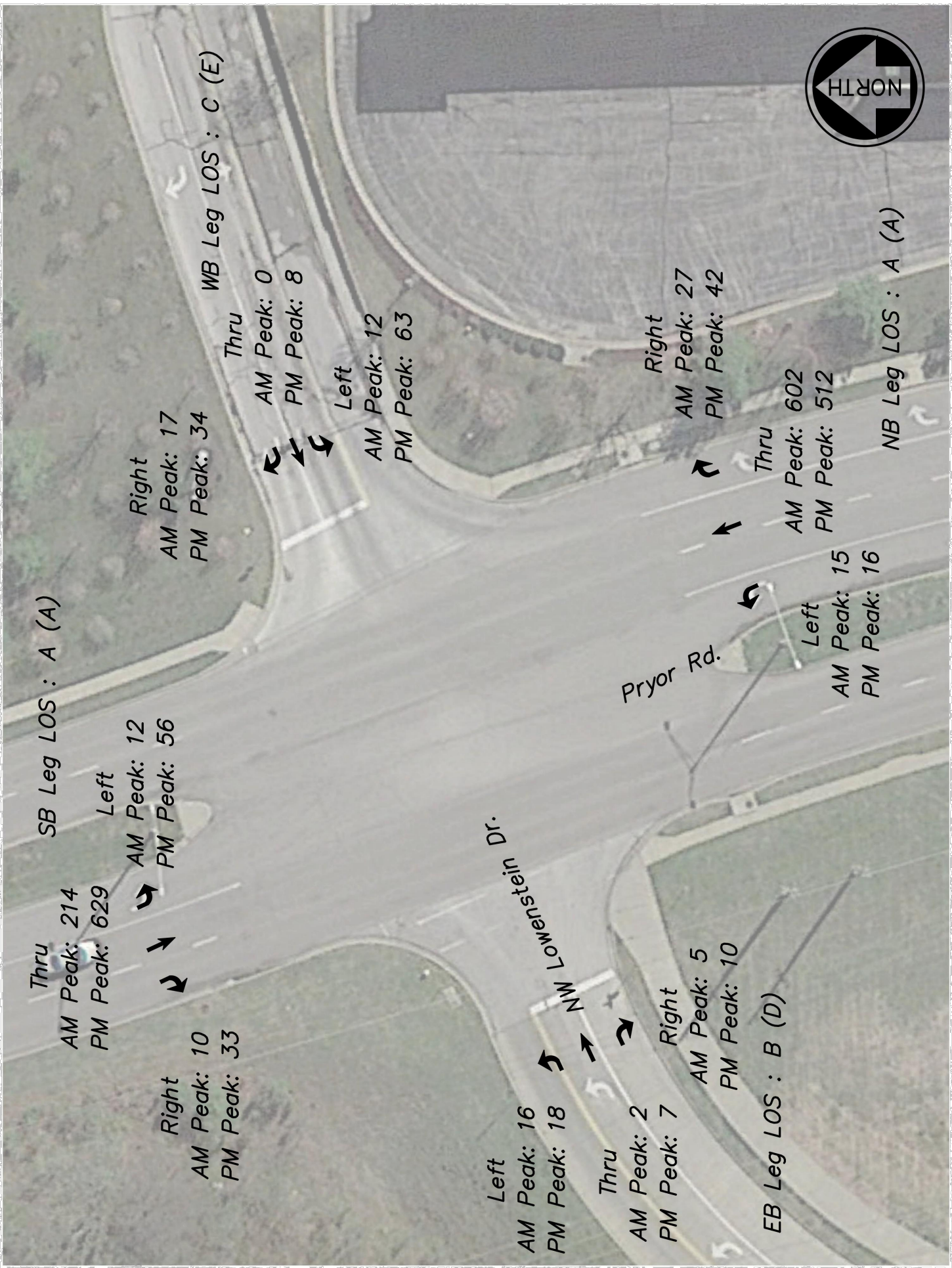
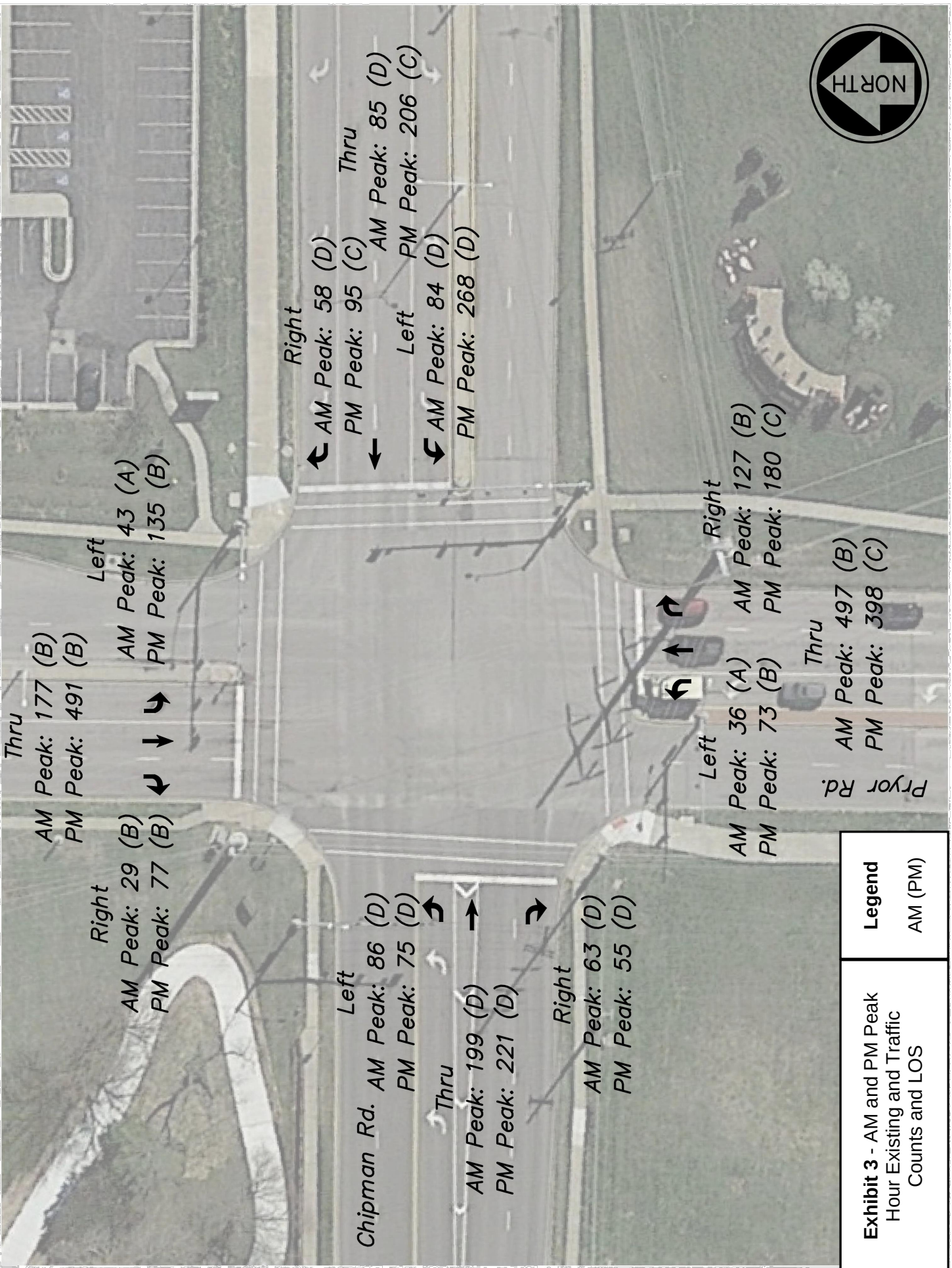


Exhibit D



Overall Layout

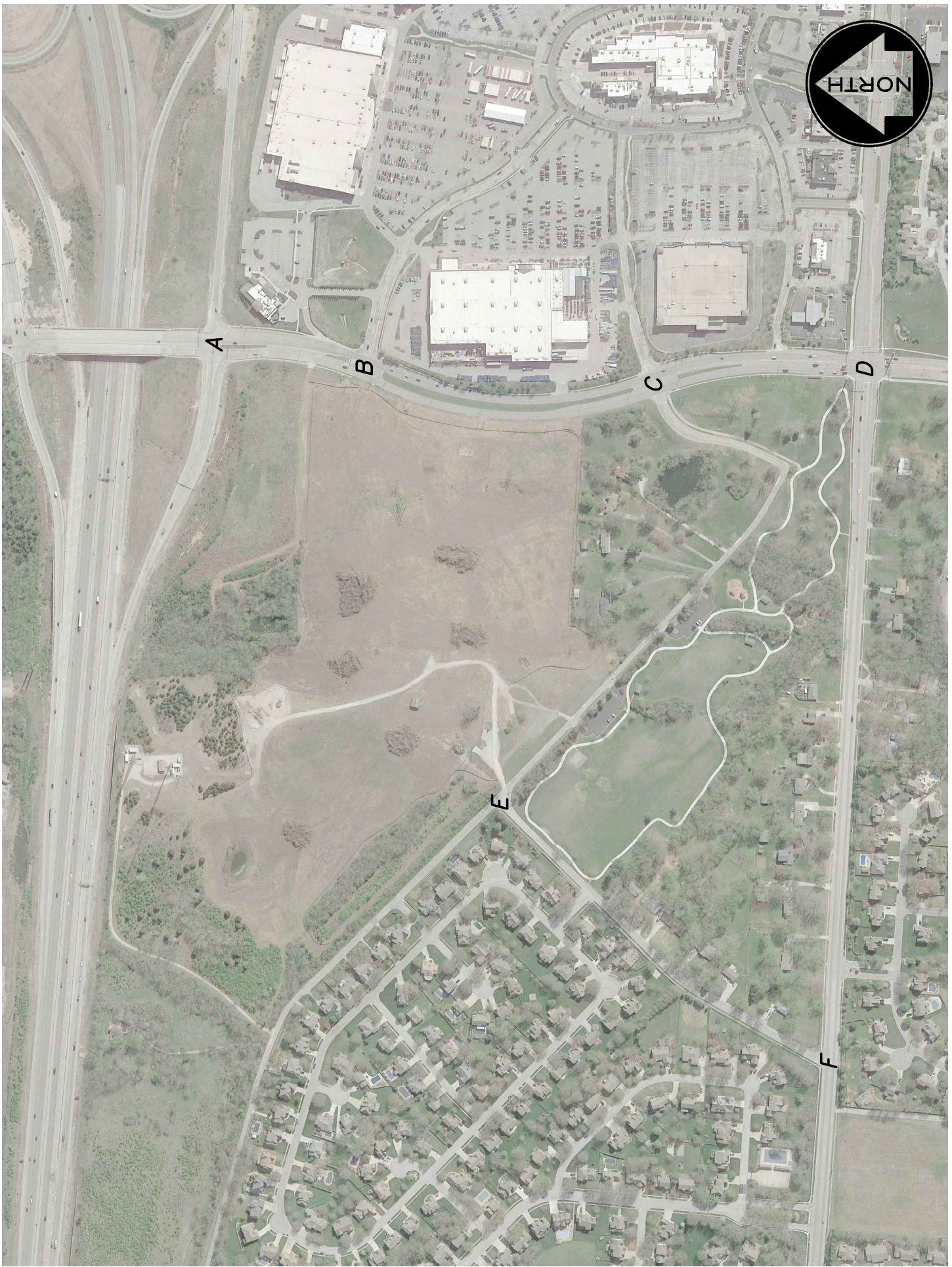


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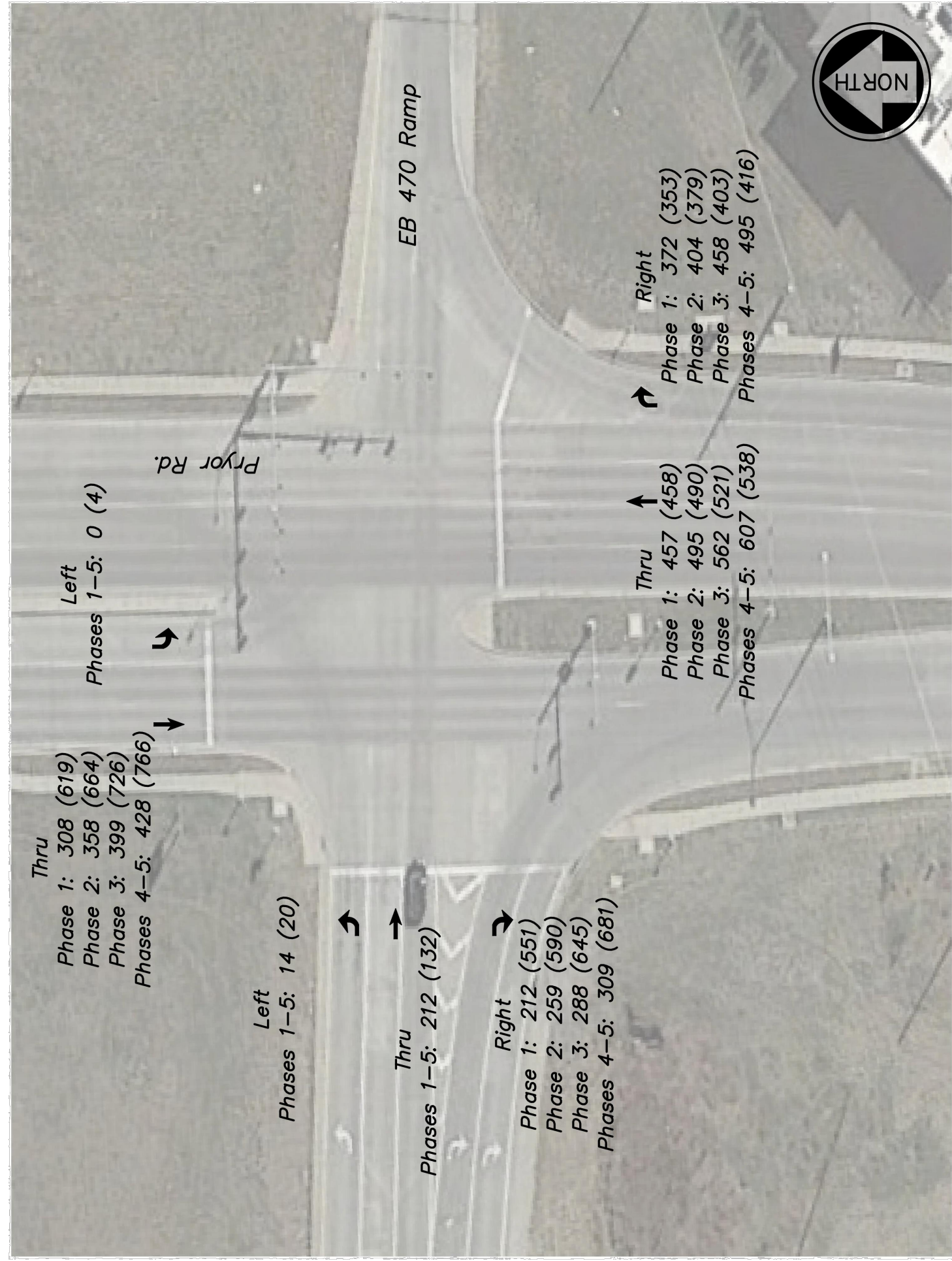


Exhibit E



Exhibit B



Exhibit F

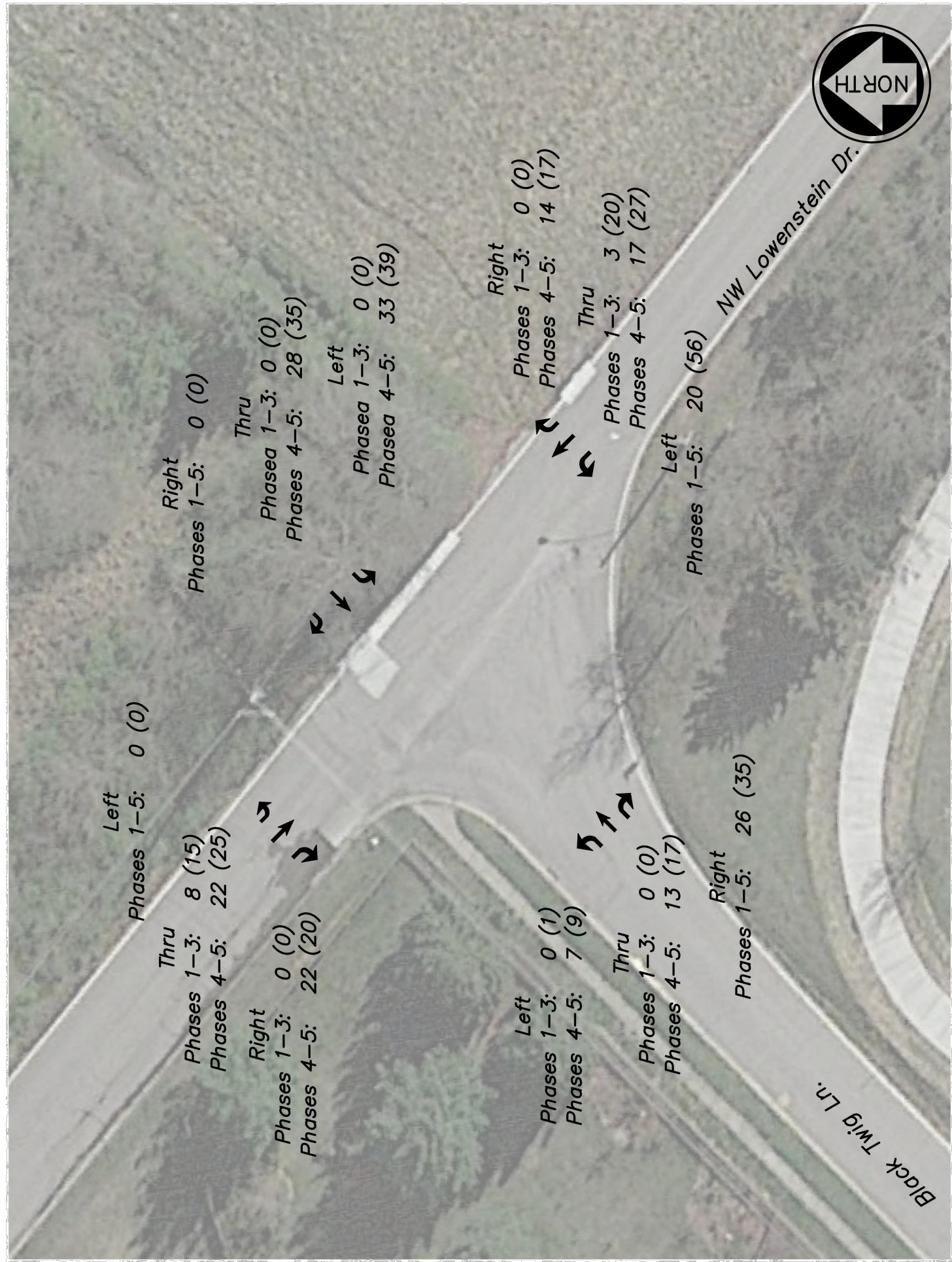


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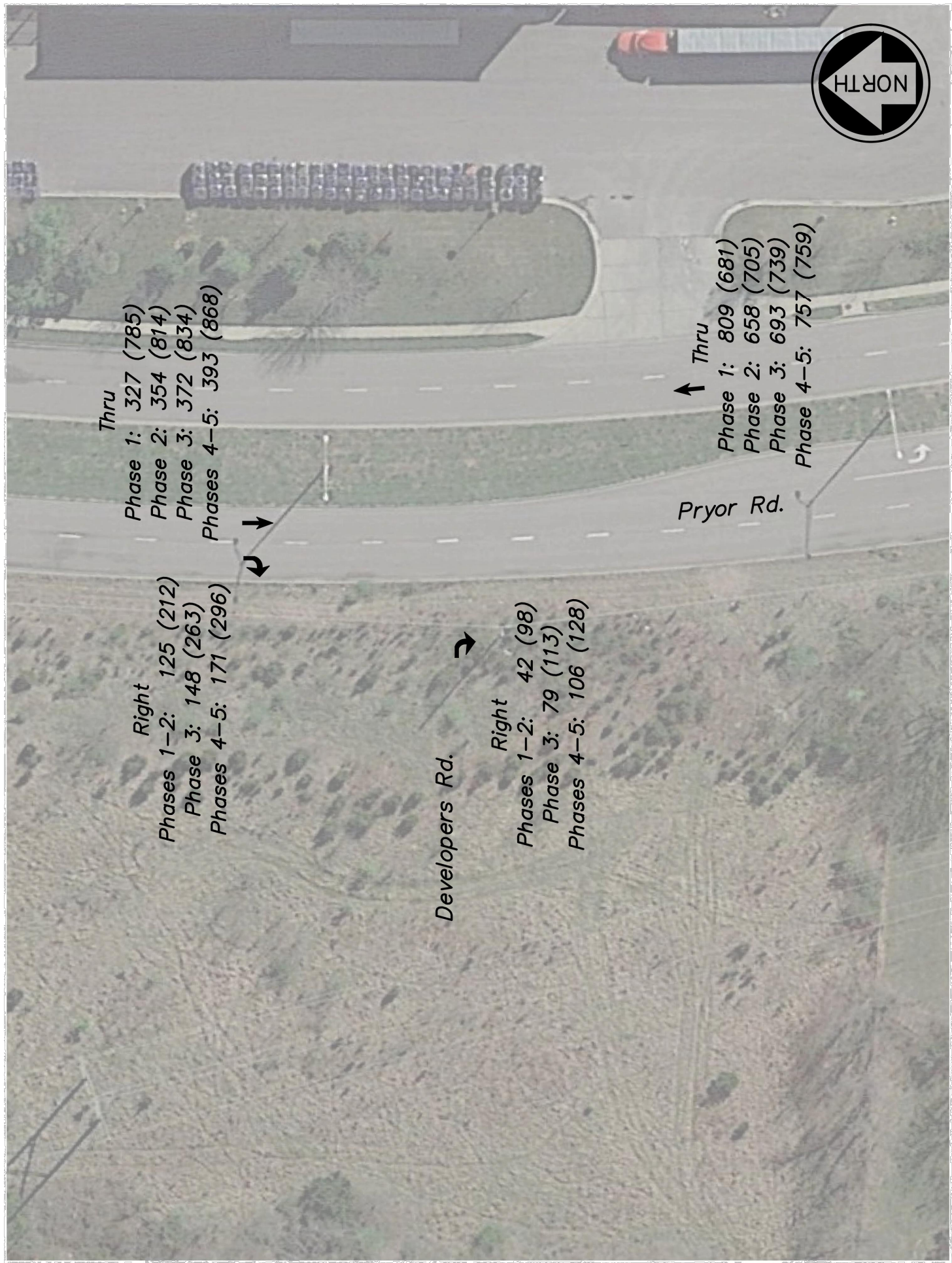
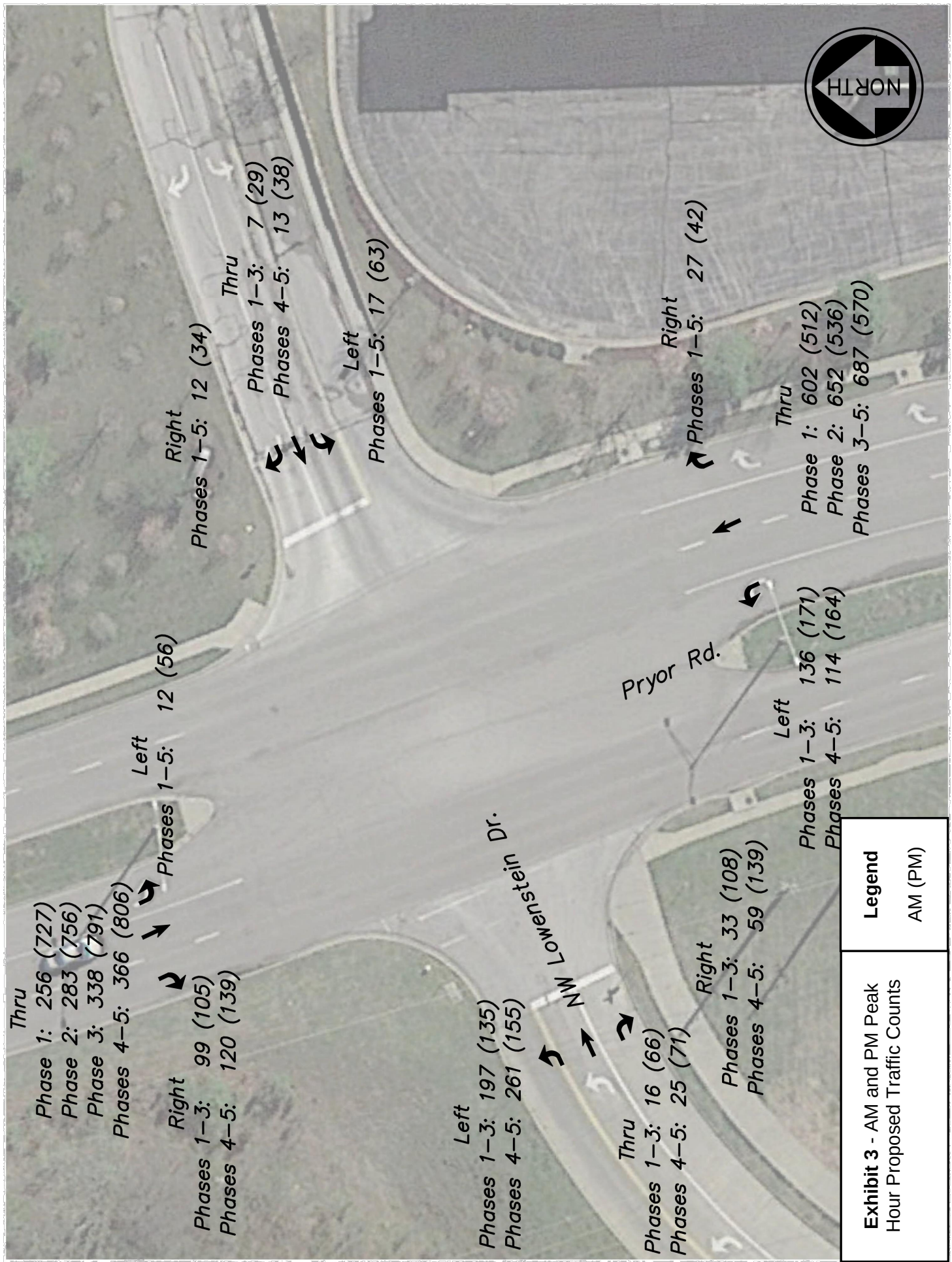


Exhibit G



Exhibit D



Overall Layout

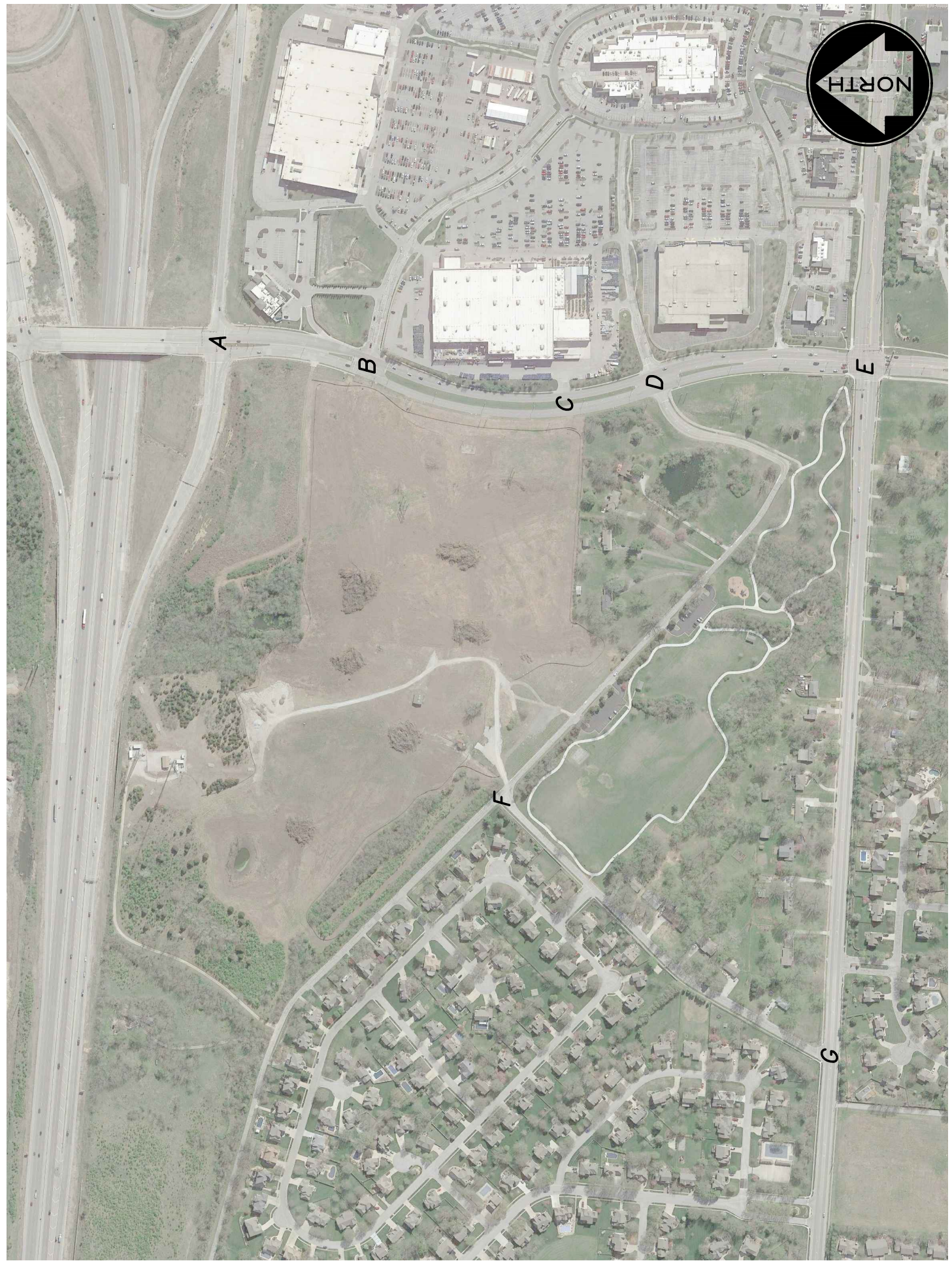


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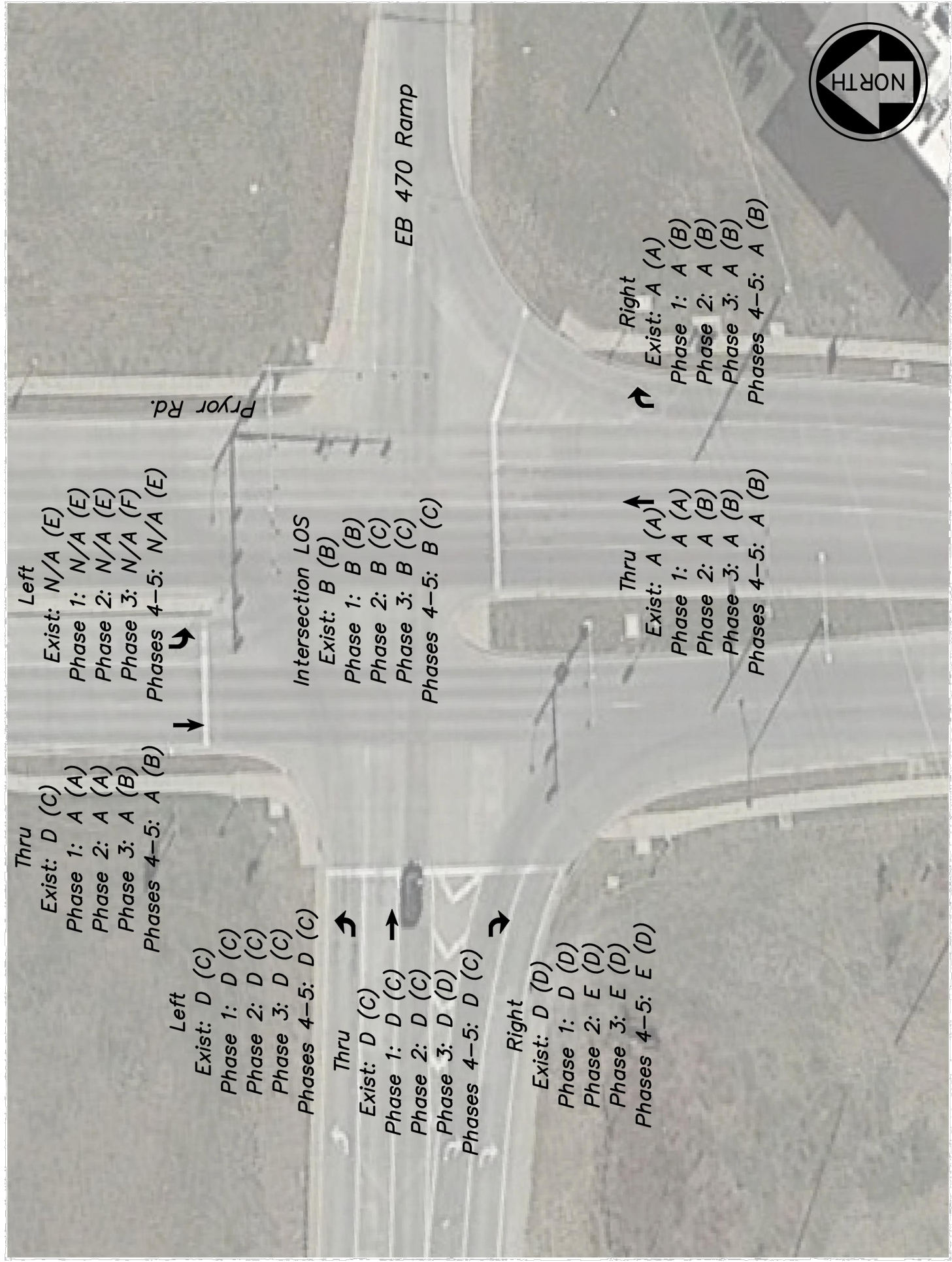


Exhibit E



Exhibit B



Exhibit F

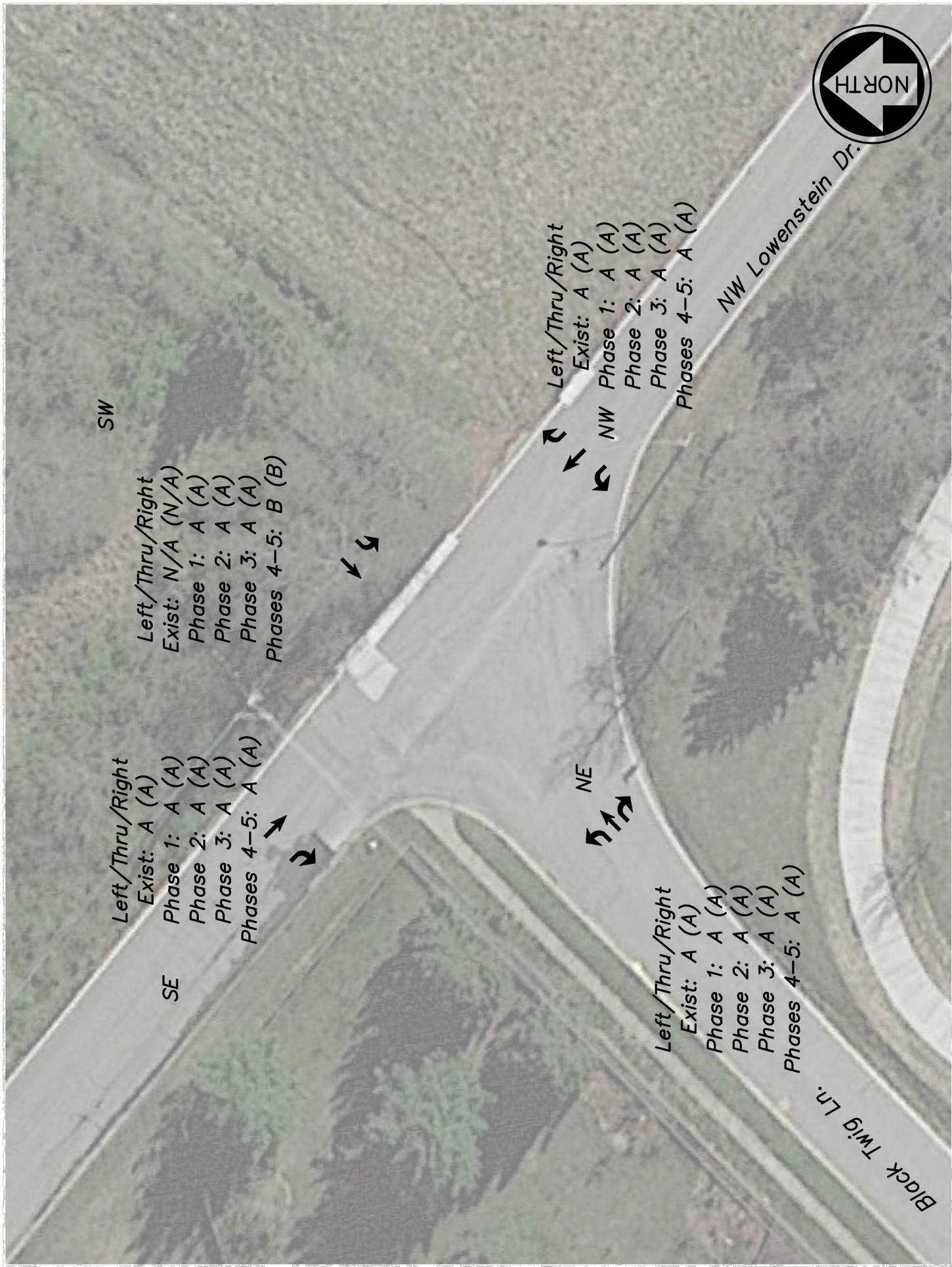


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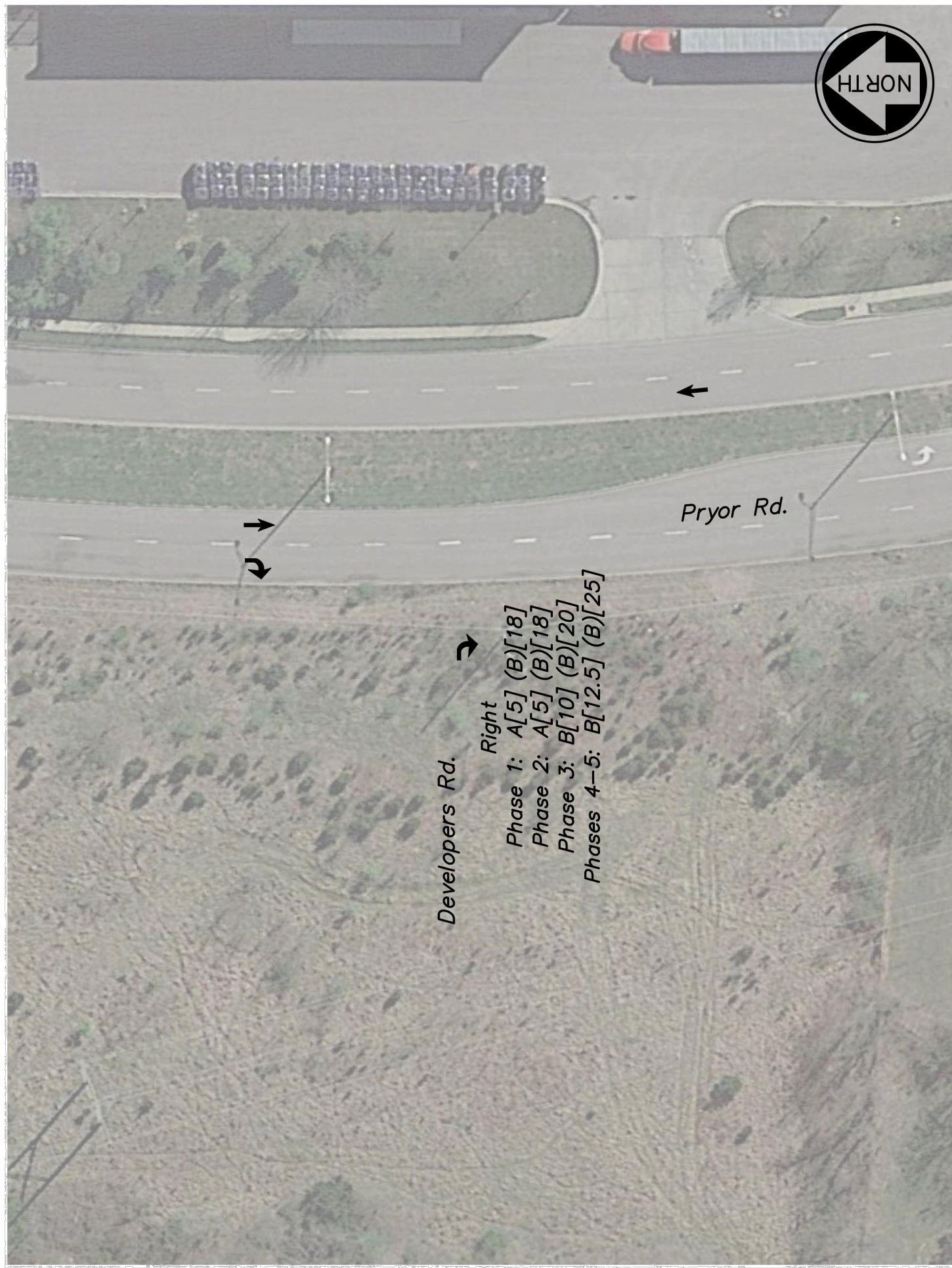
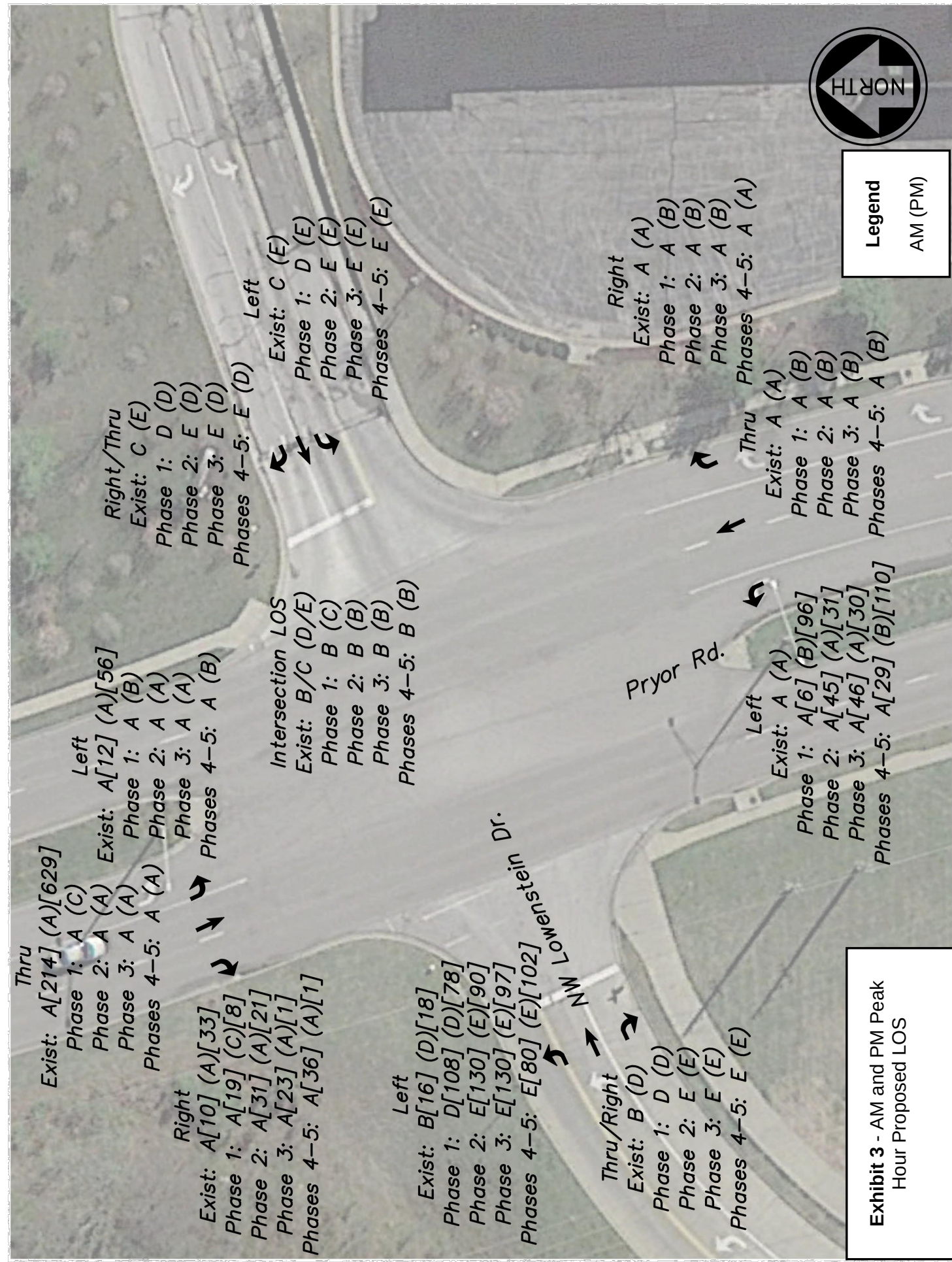


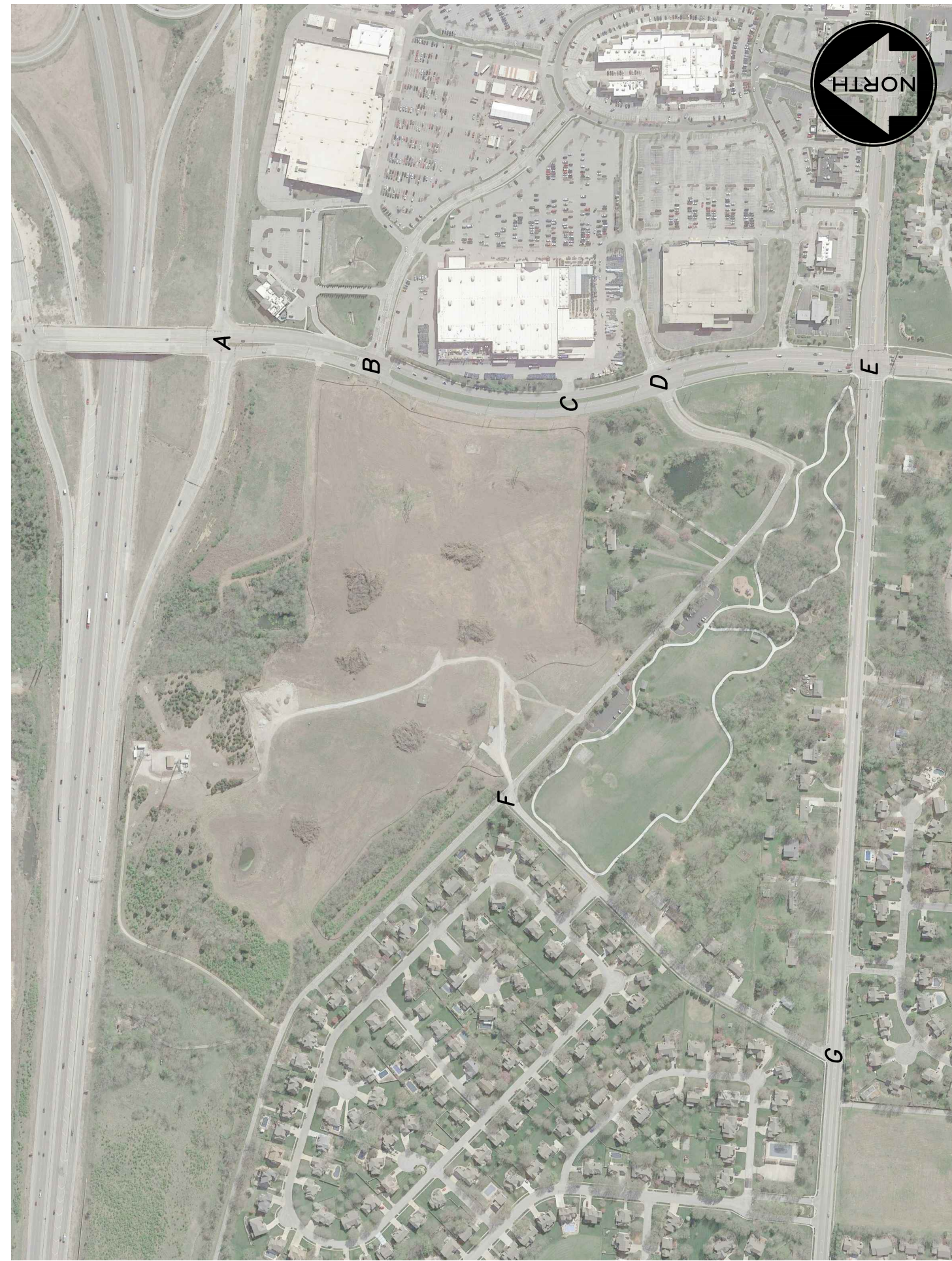
Exhibit G



Exhibit D



Overall Layout



Existing Trip Distribution into the Existing Summit Woods Crossing Development and Along Pryor Road Corridor

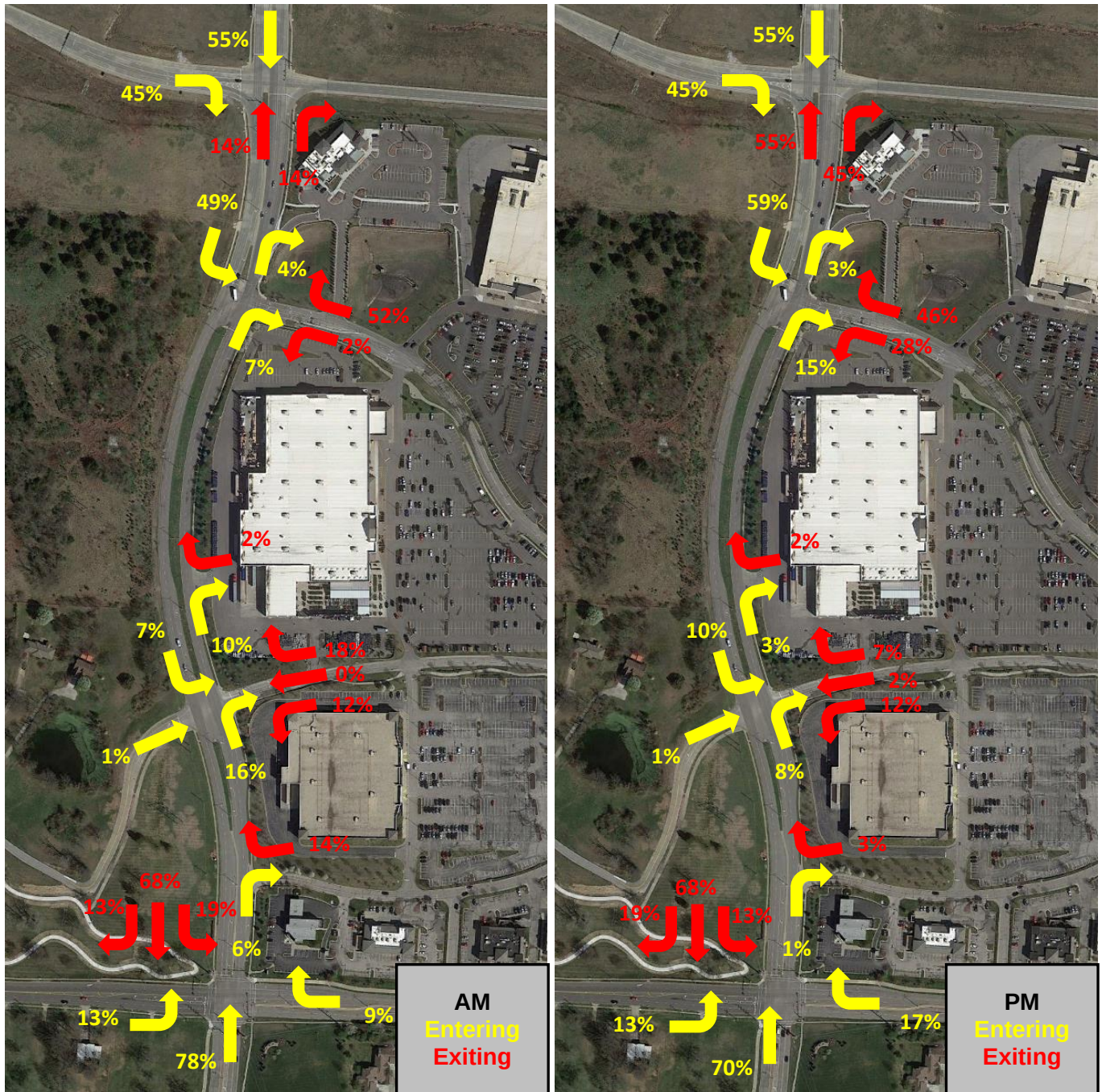


Exhibit 4 - Existing Summit Woods Traffic Distribution

Estimated Phase 1 Traffic Distribution

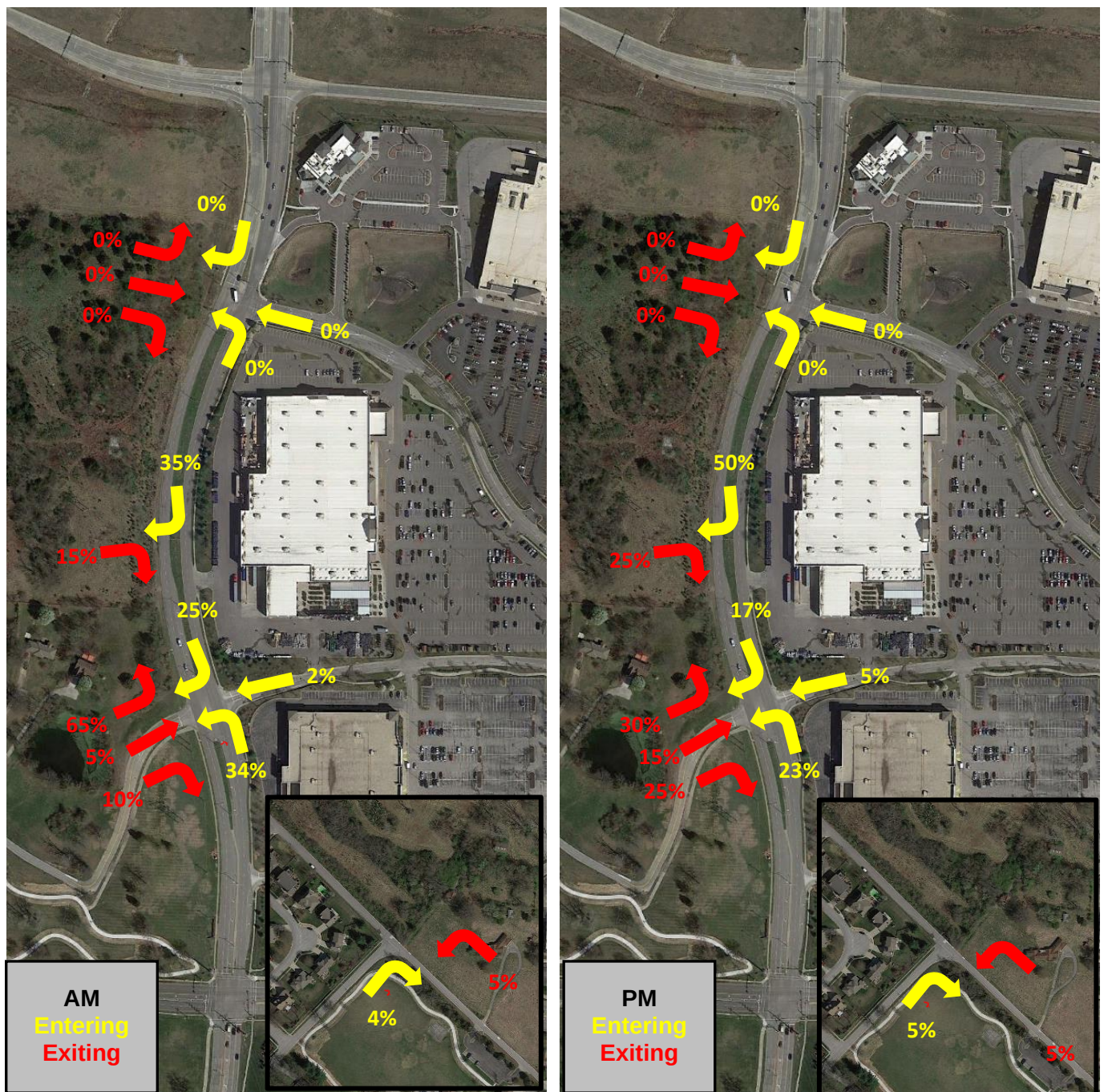


Exhibit 4 - Phase One Traffic Distribution

Estimated Phase Two Traffic Distribution

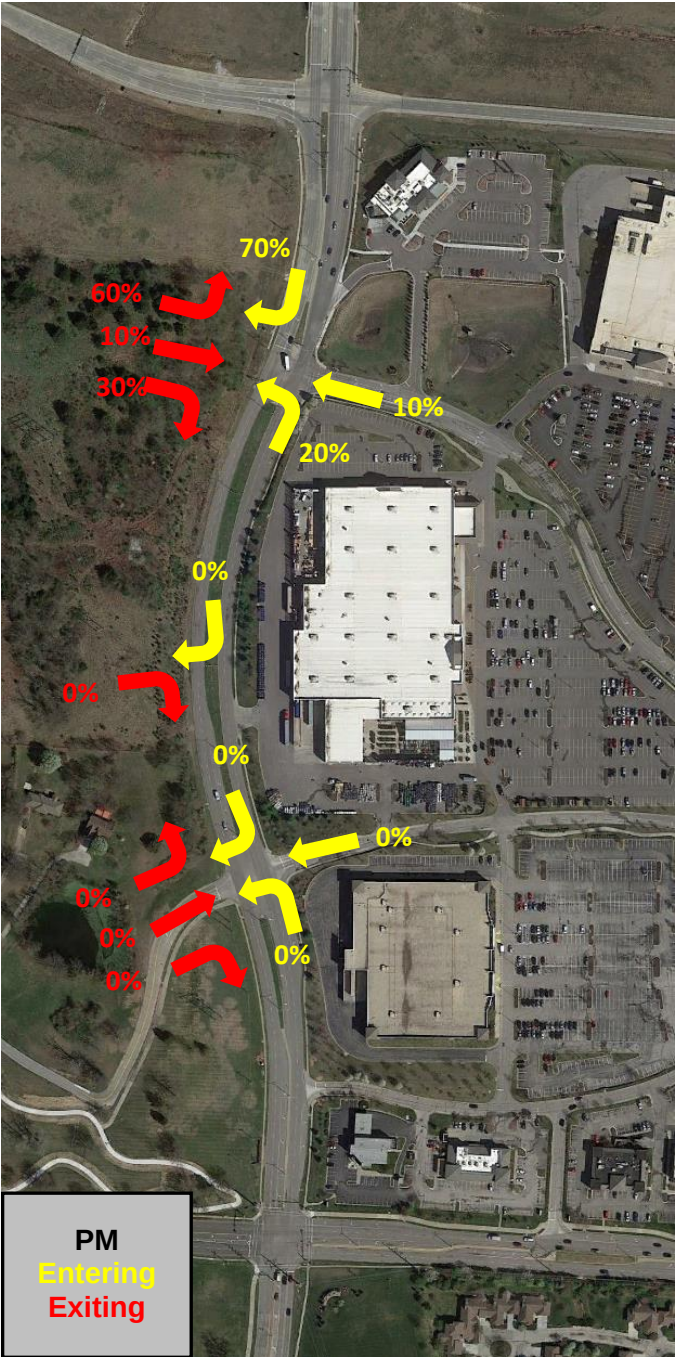
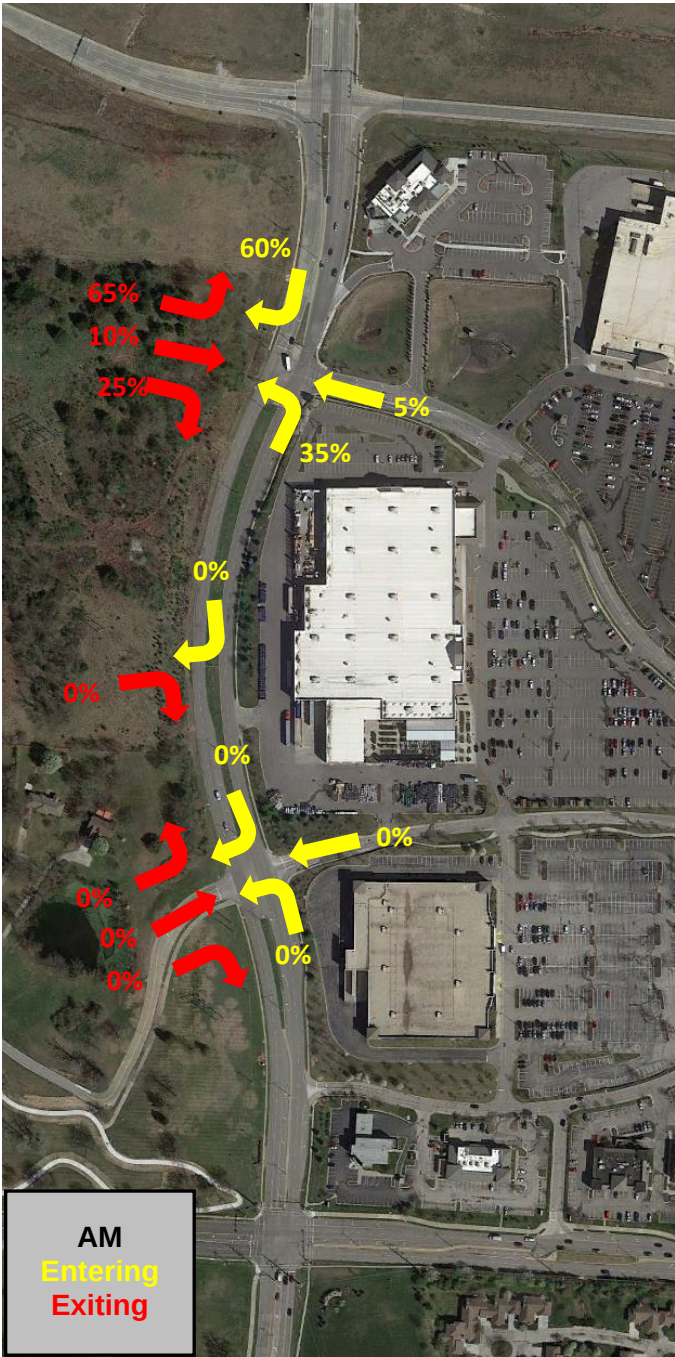


Exhibit 4 - Phase Two Traffic Distribution

Estimated Phase Three Traffic Distribution

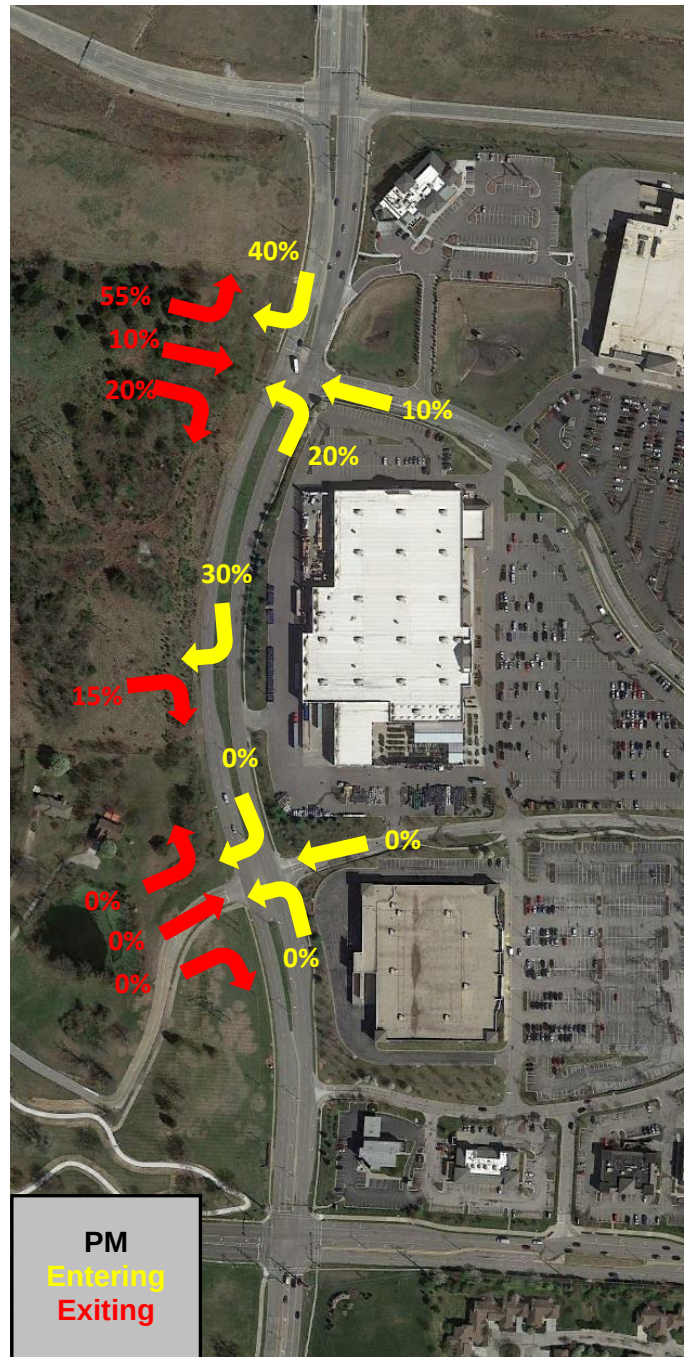
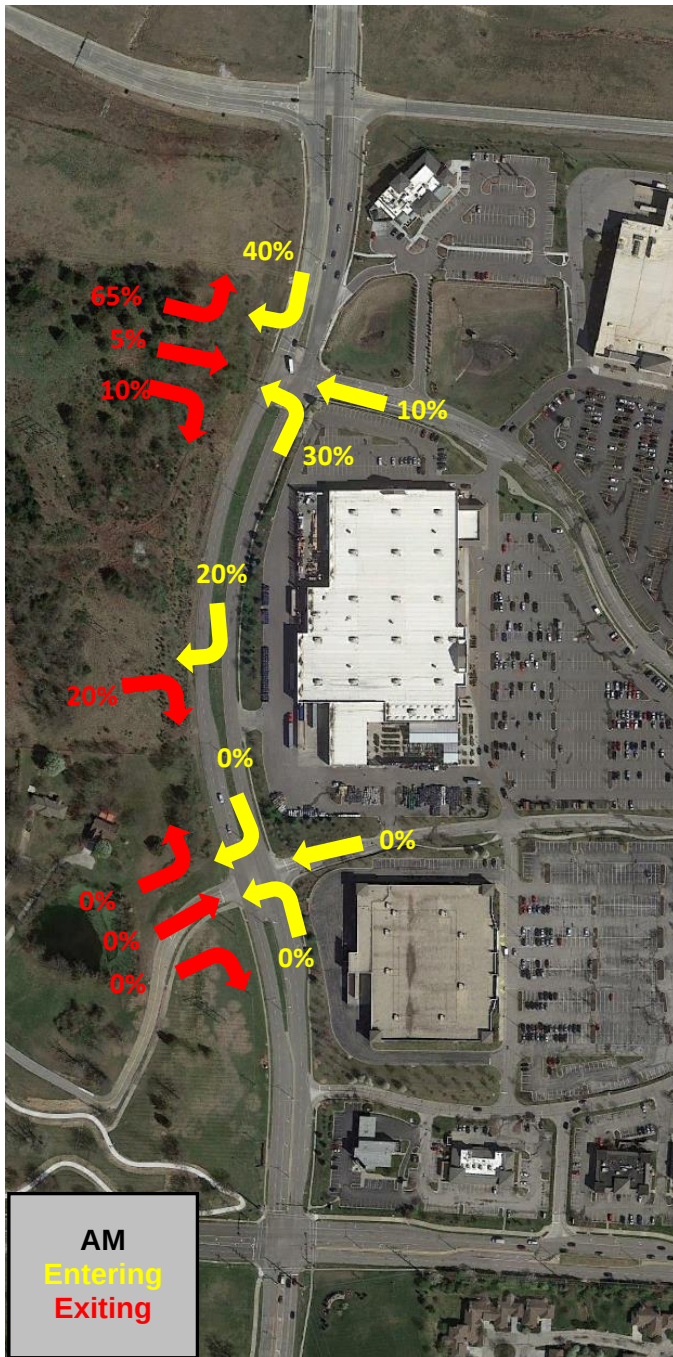


Exhibit 4 - Phase Three Traffic Distribution

Estimated Phases Four & Five Traffic Distribution

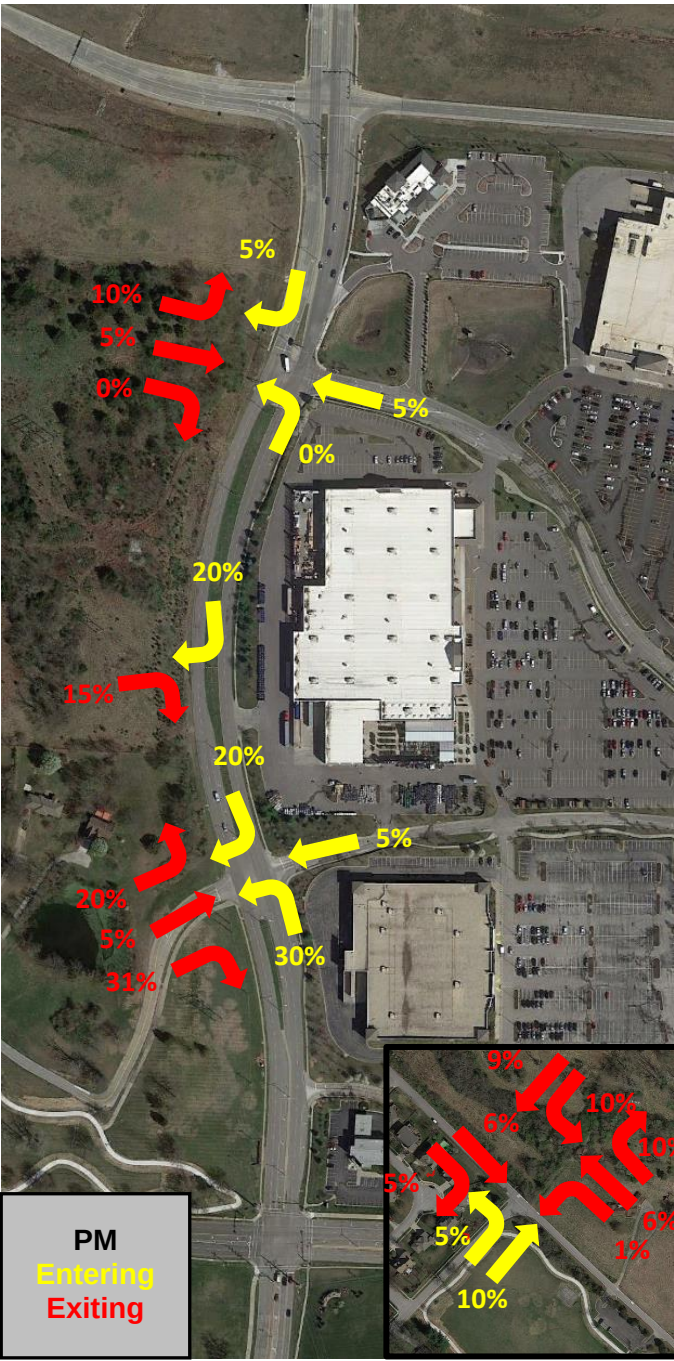
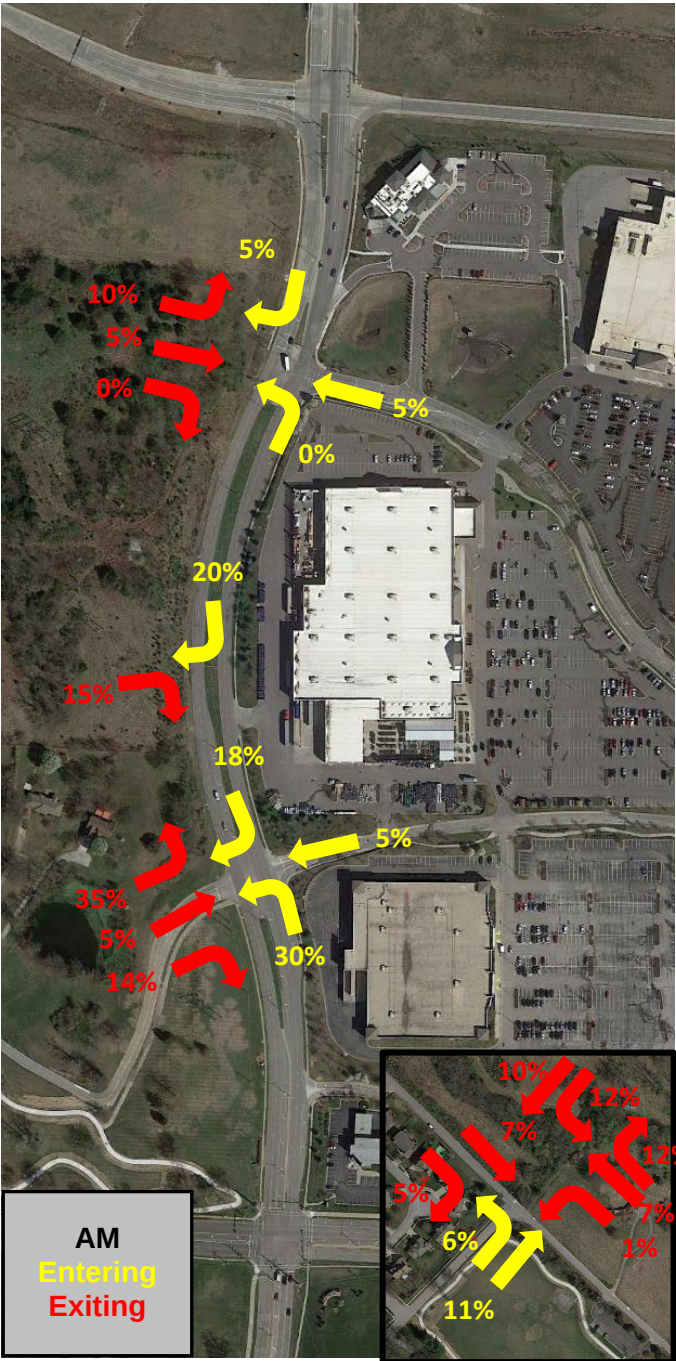


Exhibit 4 - Phase Four & Five
Traffic Distribution

Exhibit A

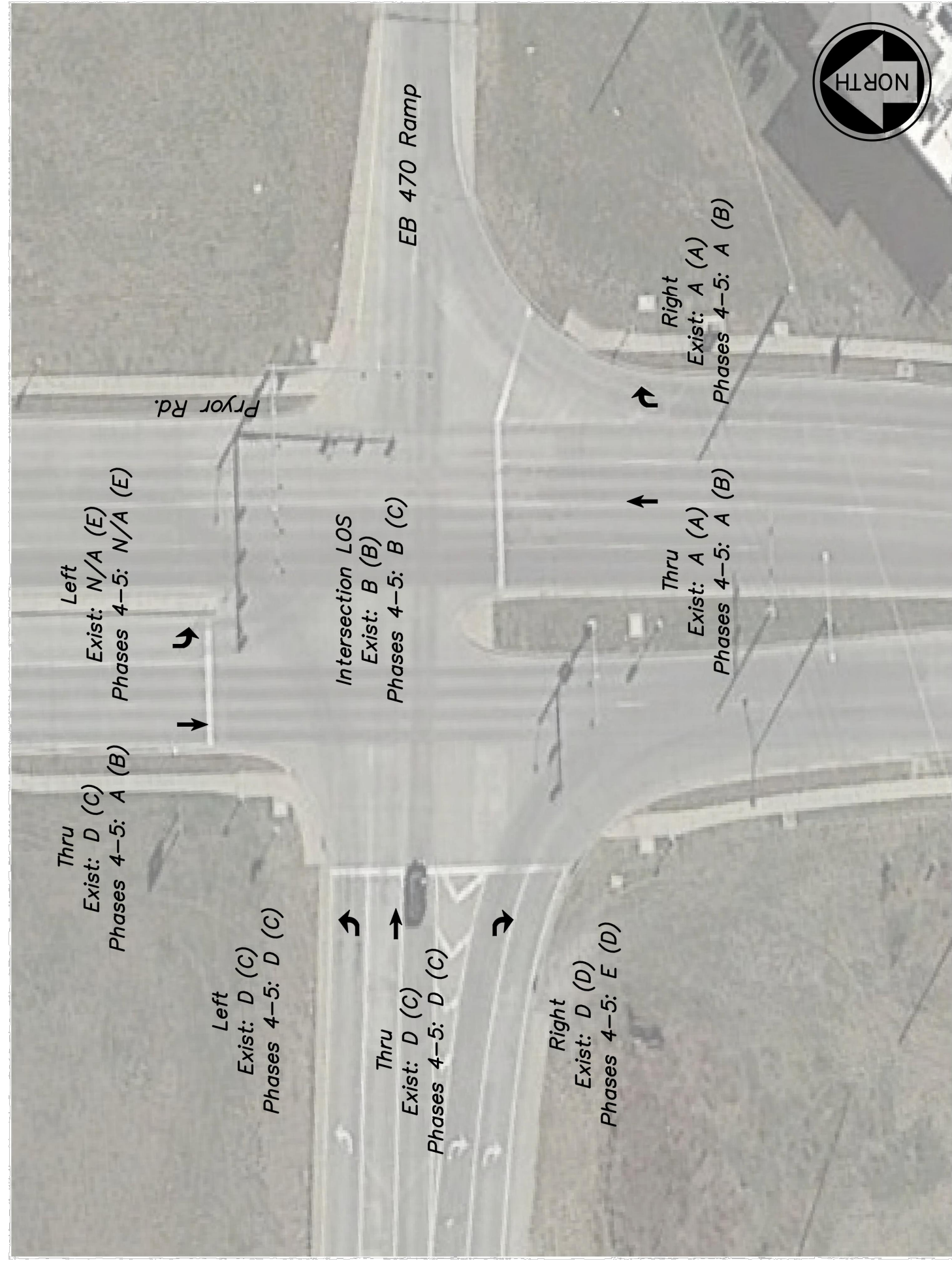


Exhibit E

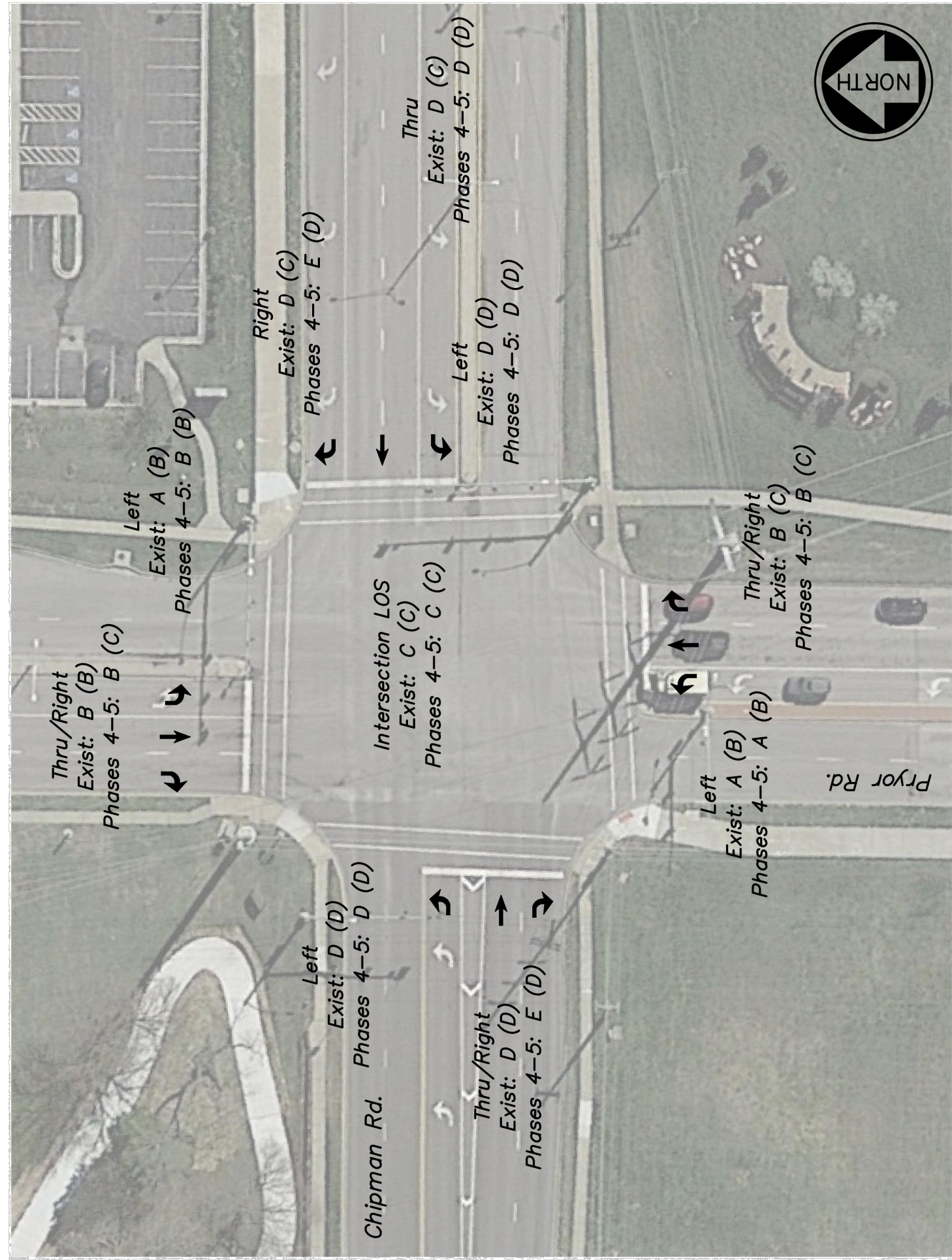


Exhibit B



Exhibit F

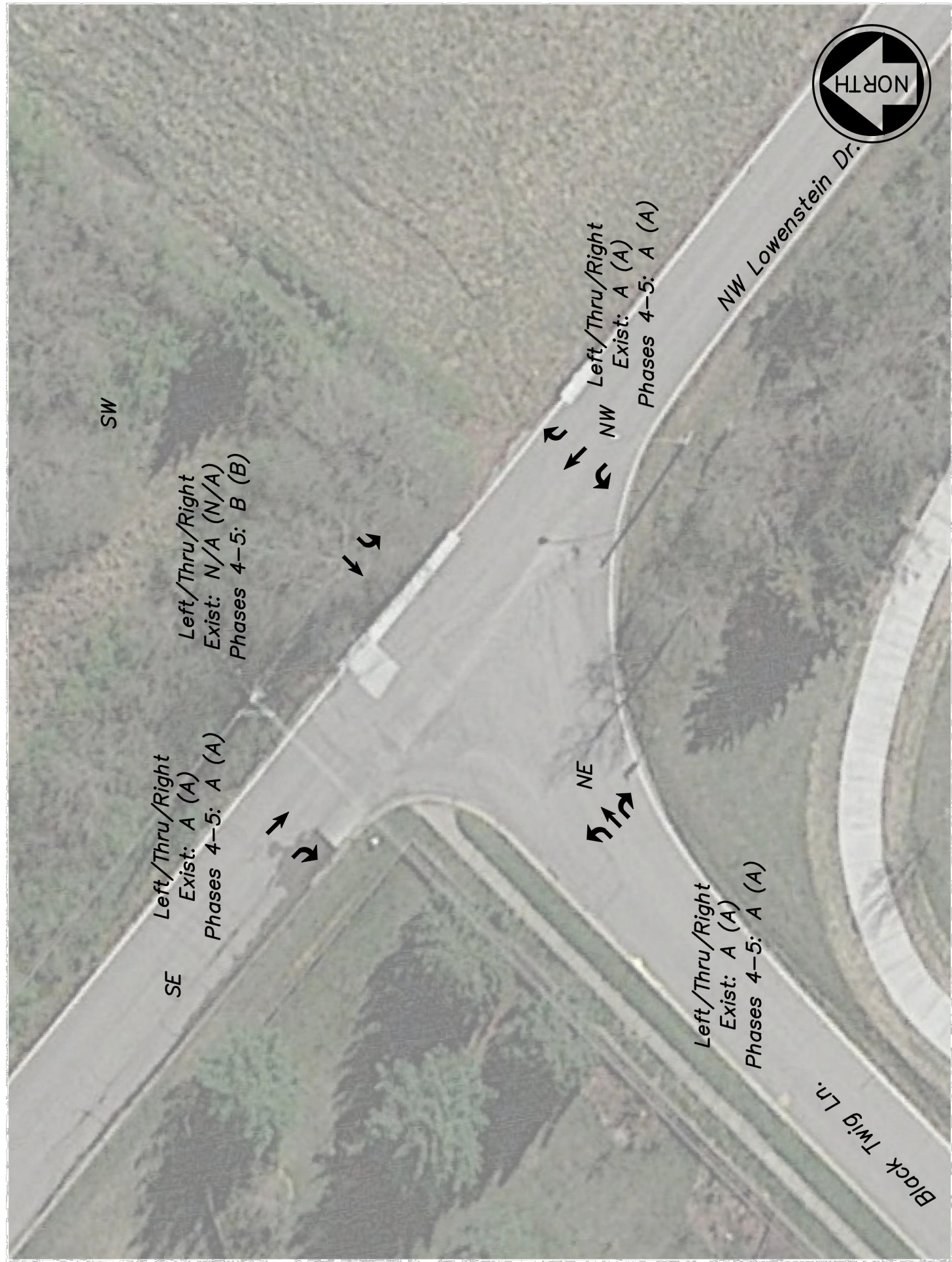


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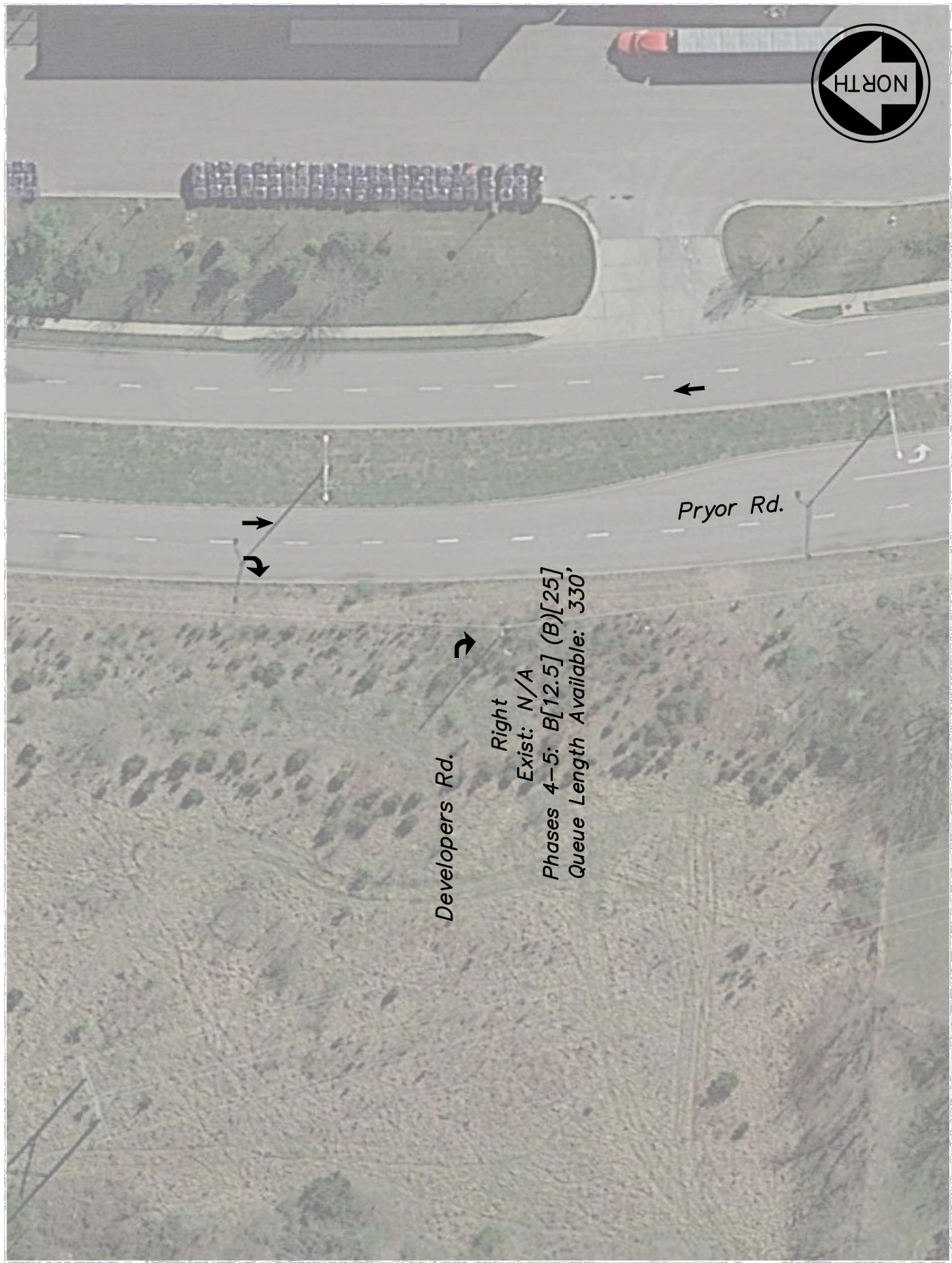


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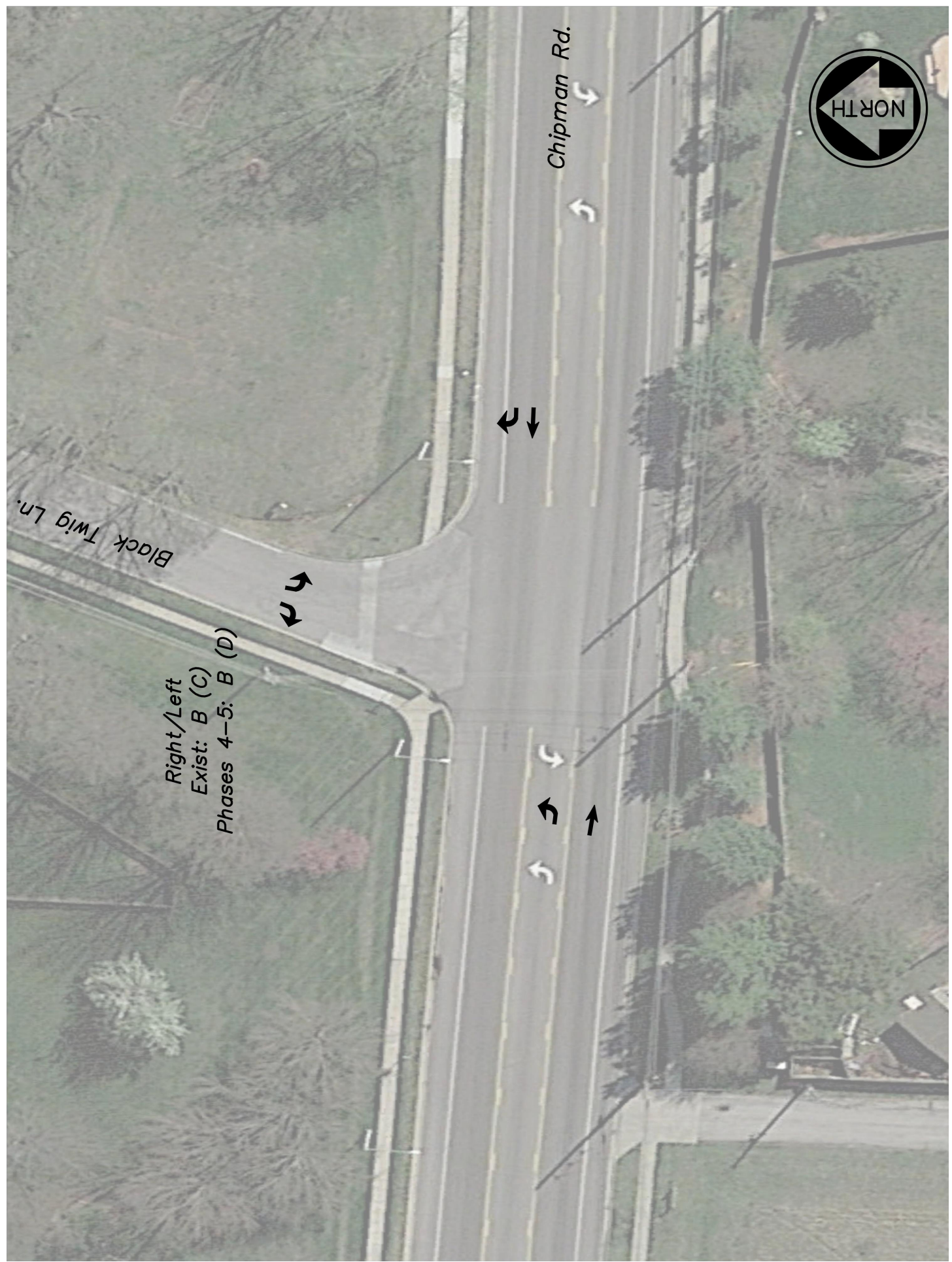
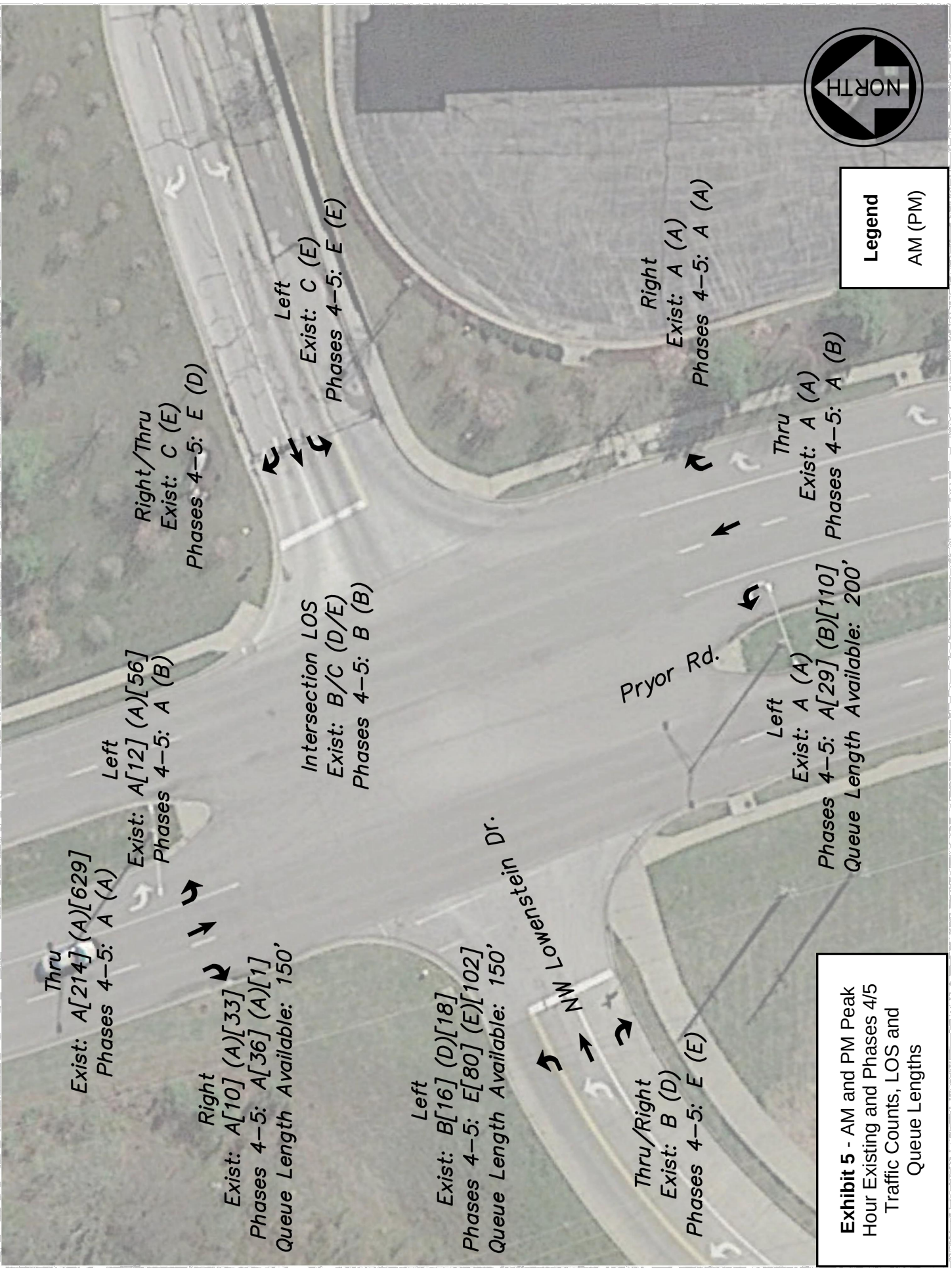


Exhibit D



Overall Layout

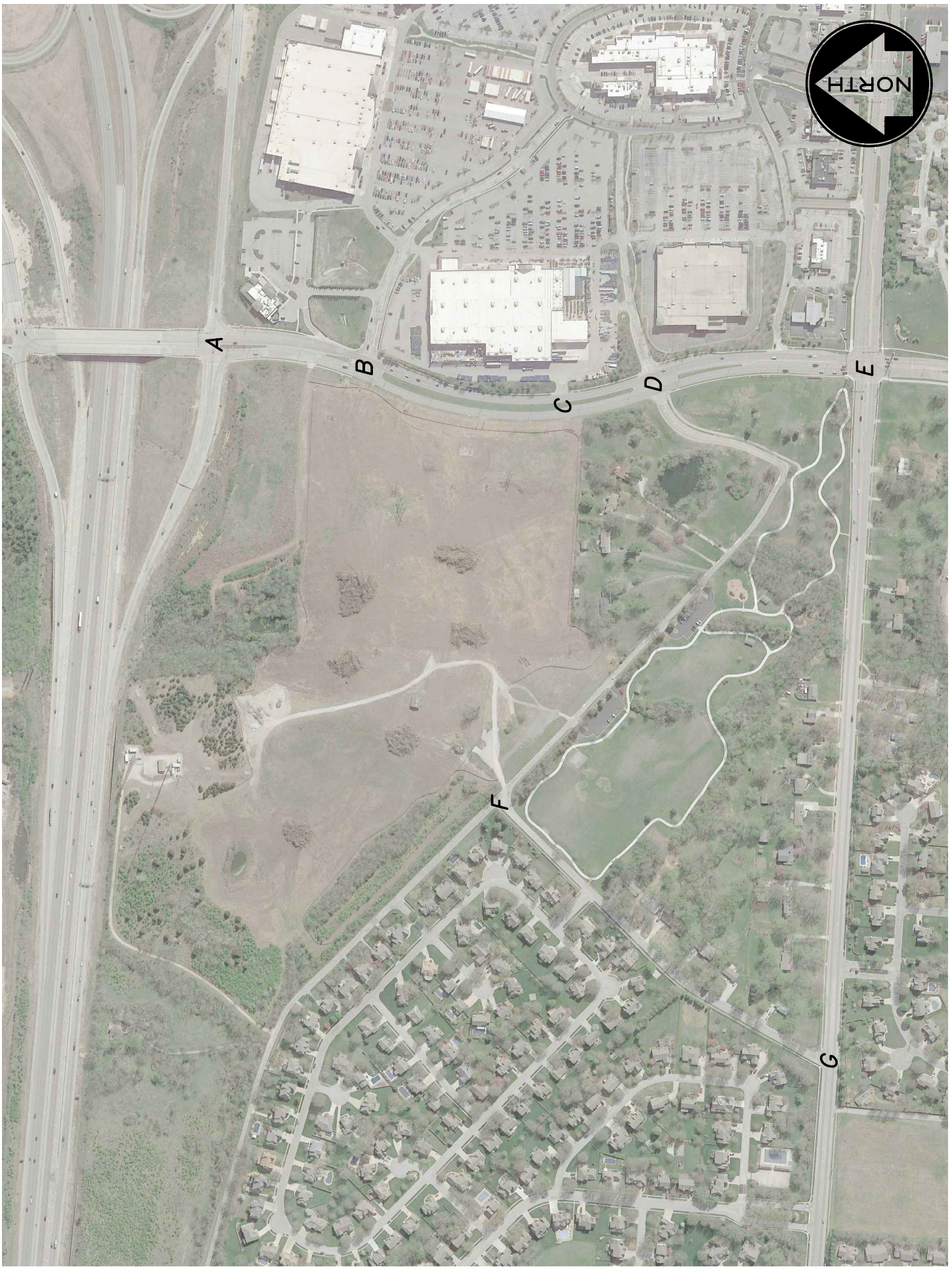


Exhibit 5 - AM and PM Peak
Hour Existing and Phases 4/5
Traffic Counts, LOS and
Queue Lengths

Legend
AM (PM)

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Count Name: EB 470 Ramp and Pryor
Site Code:
Start Date: 09/29/2016
Page No: 1

Turning Movement Data

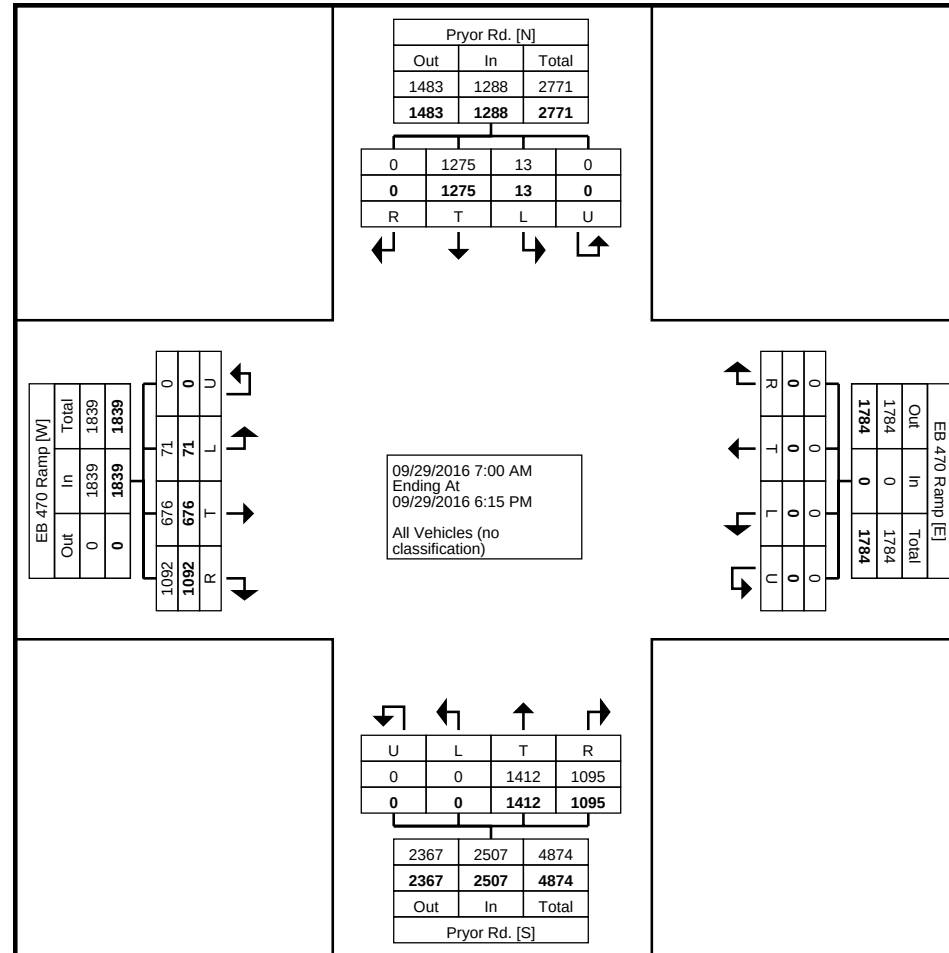
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7:30 AM	0	54	0	0	54	0	0	0	0	0	94	87	0	0	181	34	59	3	0	96	331
7:45 AM	0	47	0	0	47	0	0	0	0	0	75	83	0	0	158	42	71	7	0	120	325
Hourly Total	0	178	0	0	178	0	0	0	0	0	280	379	0	0	659	118	184	16	0	318	1155
8:00 AM	0	38	0	0	38	0	0	0	0	0	61	91	0	0	152	39	55	2	0	96	286
8:15 AM	0	40	0	0	40	0	0	0	0	0	55	67	0	0	122	39	80	3	0	122	284
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9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	98	1	0	99	0	0	0	0	0	69	91	0	0	160	105	25	2	0	132	391
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4:30 PM	0	102	1	0	103	0	0	0	0	0	71	79	0	0	150	108	25	4	0	137	390
4:45 PM	0	106	1	0	107	0	0	0	0	0	80	94	0	0	174	106	37	6	0	149	430
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5:30 PM	0	108	1	0	109	0	0	0	0	0	77	97	0	0	174	97	32	7	0	136	419
5:45 PM	0	121	3	0	124	0	0	0	0	0	80	80	0	0	160	110	38	5	0	153	437
Hourly Total	0	489	6	0	495	0	0	0	0	0	308	396	0	0	704	411	140	22	0	573	1772
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	1275	13	0	1288	0	0	0	0	0	1095	1412	0	0	2507	1092	676	71	0	1839	5634
Approach %	0.0	99.0	1.0	0.0	-	NaN	NaN	NaN	NaN	-	43.7	56.3	0.0	0.0	-	59.4	36.8	3.9	0.0	-	-
Total %	0.0	22.6	0.2	0.0	22.9	0.0	0.0	0.0	0.0	0.0	19.4	25.1	0.0	0.0	44.5	19.4	12.0	1.3	0.0	32.6	-
All Vehicles (no classification)	0	1275	13	0	1288	0	0	0	0	0	1095	1412	0	0	2507	1092	676	71	0	1839	5634
% All Vehicles (no classification)	-	100.0	100.0	-	100.0	-	-	-	-	-	100.0	100.0	-	-	100.0	100.0	100.0	100.0	-	100.0	100.0



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Turning Movement Data Plot



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Turning Movement Peak Hour Data (7:30 AM)

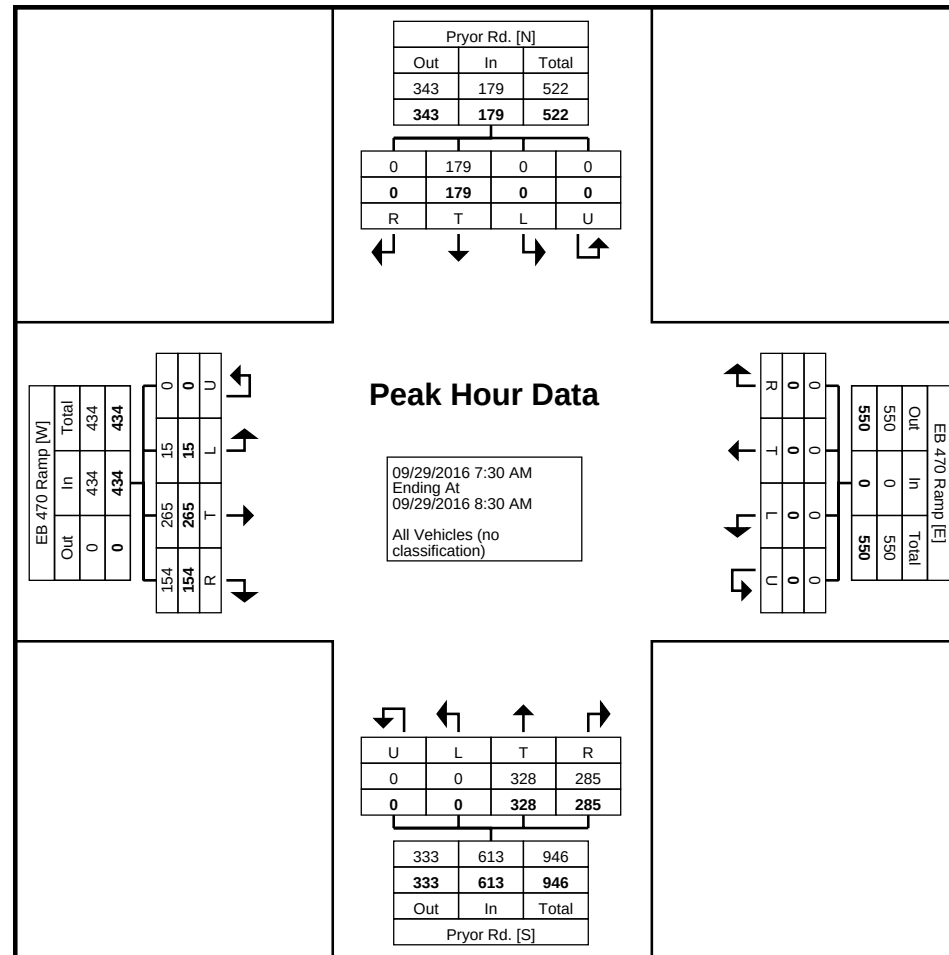
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7:45 AM	0	47	0	0	47	0	0	0	0	0	75	83	0	0	158	42	71	7	0	120	325
8:00 AM	0	38	0	0	38	0	0	0	0	0	61	91	0	0	152	39	55	2	0	96	286
8:15 AM	0	40	0	0	40	0	0	0	0	0	55	67	0	0	122	39	80	3	0	122	284
Total	0	179	0	0	179	0	0	0	0	0	285	328	0	0	613	154	265	15	0	434	1226
Approach %	0.0	100.0	0.0	0.0	-	NaN	NaN	NaN	NaN	-	46.5	53.5	0.0	0.0	-	35.5	61.1	3.5	0.0	-	-
Total %	0.0	14.6	0.0	0.0	14.6	0.0	0.0	0.0	0.0	0.0	23.2	26.8	0.0	0.0	50.0	12.6	21.6	1.2	0.0	35.4	-
PHF	0.000	0.829	0.000	0.000	0.829	0.000	0.000	0.000	0.000	0.000	0.758	0.901	0.000	0.000	0.847	0.917	0.828	0.536	0.000	0.889	0.926
All Vehicles (no classification)	0	179	0	0	179	0	0	0	0	0	285	328	0	0	613	154	265	15	0	434	1226
% All Vehicles (no classification)	-	100.0	-	-	100.0	-	-	-	-	-	100.0	100.0	-	-	100.0	100.0	100.0	100.0	-	100.0	100.0



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Count Name: EB 470 Ramp and Pryor
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Turning Movement Peak Hour Data (5:00 PM)

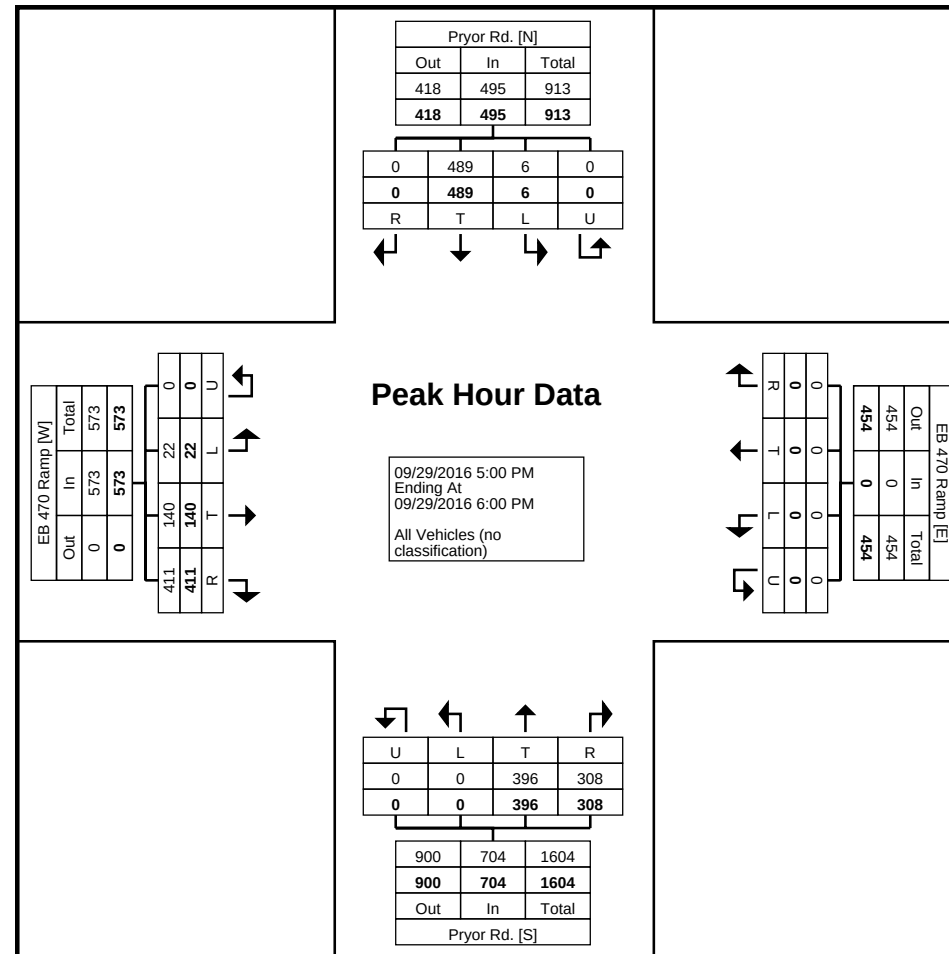
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5:15 PM	0	129	1	0	130	0	0	0	0	0	77	110	0	0	187	97	31	6	0	134	451
5:30 PM	0	108	1	0	109	0	0	0	0	0	77	97	0	0	174	97	32	7	0	136	419
5:45 PM	0	121	3	0	124	0	0	0	0	0	80	80	0	0	160	110	38	5	0	153	437
Total	0	489	6	0	495	0	0	0	0	0	308	396	0	0	704	411	140	22	0	573	1772
Approach %	0.0	98.8	1.2	0.0	-	NaN	NaN	NaN	NaN	-	43.8	56.3	0.0	0.0	-	71.7	24.4	3.8	0.0	-	-
Total %	0.0	27.6	0.3	0.0	27.9	0.0	0.0	0.0	0.0	0.0	17.4	22.3	0.0	0.0	39.7	23.2	7.9	1.2	0.0	32.3	-
PHF	0.000	0.933	0.500	0.000	0.938	0.000	0.000	0.000	0.000	0.000	0.963	0.900	0.000	0.000	0.941	0.934	0.897	0.786	0.000	0.936	0.953
All Vehicles (no classification)	0	489	6	0	495	0	0	0	0	0	308	396	0	0	704	411	140	22	0	573	1772
% All Vehicles (no classification)	-	100.0	100.0	-	100.0	-	-	-	-	-	100.0	100.0	-	-	100.0	100.0	100.0	100.0	-	100.0	100.0



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Count Name: EB 470 Ramp and Pryor
Site Code:
Start Date: 09/29/2016
Page No: 6



Turning Movement Peak Hour Data Plot (5:00 PM)

		Pryor Rd			Summit Woods Rd			Pryor Rd		
		Southbound			Westbound			Northbound		
		LT	THRU	RT	LT	THRU	RT	LT	THRU	RT
7:00 AM	7:15 AM	9	38	0	1	0	6	0	127	2
7:15 AM	7:30 AM	15	47	0	0	0	14	0	146	2
7:30 AM	7:45 AM	15	75	0	0	0	10	0	172	3
7:45 AM	8:00 AM	28	65	0	0	0	14	0	148	2
8:00 AM	8:15 AM	26	49	0	2	0	12	0	140	5
8:15 AM	8:30 AM	32	50	0	3	0	14	0	121	10
8:30 AM	8:45 AM	24	59	0	9	0	22	0	89	11
8:45 AM	9:00 AM	33	53	0	7	0	16	0	93	15
BREAK										
4:00 PM	4:15 PM	75	140	0	33	0	61	0	96	26
4:15 PM	4:30 PM	81	133	0	28	0	70	0	89	13
4:30 PM	4:45 PM	73	140	0	39	0	56	0	94	17
4:45 PM	5:00 PM	85	128	0	36	0	60	0	124	19
5:00 PM	5:15 PM	94	157	0	36	0	62	0	124	19
5:15 PM	5:30 PM	75	148	0	29	0	56	0	132	30
5:30 PM	5:45 PM	80	130	0	32	0	55	0	125	7
5:45 PM	6:00 PM	82	143	0	32	0	63	0	102	32

**Summit Woods Crossing
Counts**



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Count Name: Pryor and Lowenstein
Site Code:
Start Date: 09/29/2016
Page No: 1

Turning Movement Data

Start Time	Pryor Rd. Southbound					Lowenstein Dr. Westbound					Pryor Rd. Northbound					Lowenstein Dr. Eastbound					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
7:00 AM	0	44	0	0	44	3	0	2	0	5	3	140	0	0	143	0	0	7	0	7	199
7:15 AM	2	43	0	0	45	1	0	1	0	2	4	148	5	0	157	1	1	1	0	3	207
7:30 AM	5	66	0	0	71	4	0	3	0	7	7	166	1	0	174	2	0	4	0	6	258
7:45 AM	2	60	3	0	65	5	0	2	0	7	8	137	5	1	151	2	1	6	0	9	232
Hourly Total	9	213	3	0	225	13	0	8	0	21	22	591	11	1	625	5	2	18	0	25	896
8:00 AM	1	45	9	0	55	7	0	6	0	13	8	151	4	0	163	0	0	5	0	5	236
8:15 AM	3	43	5	0	51	3	0	4	0	7	7	122	2	0	131	0	1	6	0	7	196
8:30 AM	1	62	4	0	67	1	0	10	0	11	4	97	2	1	104	8	0	4	0	12	194
8:45 AM	5	54	4	0	63	4	0	8	0	12	5	93	3	1	102	0	0	6	0	6	183
Hourly Total	10	204	22	0	236	15	0	28	0	43	24	463	11	2	500	8	1	21	0	30	809
9:00 AM	2	50	3	0	55	0	1	10	0	11	11	72	2	0	85	1	1	2	0	4	155
9:15 AM	2	52	4	0	58	4	0	6	0	10	4	62	1	0	67	0	2	4	0	6	141
9:30 AM	2	51	7	0	60	5	1	8	0	14	14	80	2	0	96	0	0	5	0	5	175
9:45 AM	3	45	10	0	58	5	1	7	0	13	13	68	2	0	83	3	1	0	0	4	158
Hourly Total	9	198	24	0	231	14	3	31	0	48	42	282	7	0	331	4	4	11	0	19	629
10:00 AM	3	35	3	0	41	8	1	8	0	17	9	59	3	0	71	3	2	2	0	7	136
10:15 AM	3	61	2	0	66	6	1	15	0	22	14	70	5	1	90	1	0	5	0	6	184
10:30 AM	2	51	3	0	56	2	3	10	0	15	5	68	2	3	78	2	1	2	0	5	154
10:45 AM	3	54	5	0	62	3	1	8	0	12	11	89	6	0	106	1	2	3	0	6	186
Hourly Total	11	201	13	0	225	19	6	41	0	66	39	286	16	4	345	7	5	12	0	24	660
11:00 AM	2	70	10	0	82	10	0	19	0	29	16	67	2	0	85	5	3	3	0	11	207
11:15 AM	2	64	13	0	79	8	1	8	0	17	12	60	4	1	77	5	0	4	0	9	182
11:30 AM	4	88	13	0	105	8	2	11	0	21	12	77	3	2	94	0	0	0	0	0	220
11:45 AM	4	73	12	0	89	9	0	12	0	21	14	81	3	3	101	4	0	4	0	8	219
Hourly Total	12	295	48	0	355	35	3	50	0	88	54	285	12	6	357	14	3	11	0	28	828
12:00 PM	6	91	13	0	110	3	0	14	0	17	9	103	4	4	120	3	1	3	0	7	254
12:15 PM	5	94	7	0	106	6	1	17	0	24	14	93	6	0	113	5	2	0	0	7	250
12:30 PM	2	87	16	0	105	14	1	14	0	29	18	102	5	1	126	4	1	3	0	8	268
12:45 PM	2	74	16	1	93	7	0	17	0	24	14	72	3	3	92	5	0	3	0	8	217
Hourly Total	15	346	52	1	414	30	2	62	0	94	55	370	18	8	451	17	4	9	0	30	989
1:00 PM	2	75	4	0	81	9	0	25	0	34	7	74	4	4	89	4	1	3	0	8	212
1:15 PM	2	72	5	0	79	10	3	8	0	21	13	75	3	2	93	3	1	4	0	8	201
1:30 PM	4	84	12	0	100	11	1	17	0	29	8	77	3	0	88	3	1	0	0	4	221
1:45 PM	2	60	4	0	66	14	0	10	0	24	13	74	3	0	90	3	3	3	0	9	189
Hourly Total	10	291	25	0	326	44	4	60	0	108	41	300	13	6	360	13	6	10	0	29	823
2:00 PM	2	97	6	1	106	11	1	14	0	26	19	73	2	1	95	2	0	7	0	9	236
2:15 PM	0	99	8	0	107	8	0	3	0	11	16	98	2	0	116	2	0	2	0	4	238

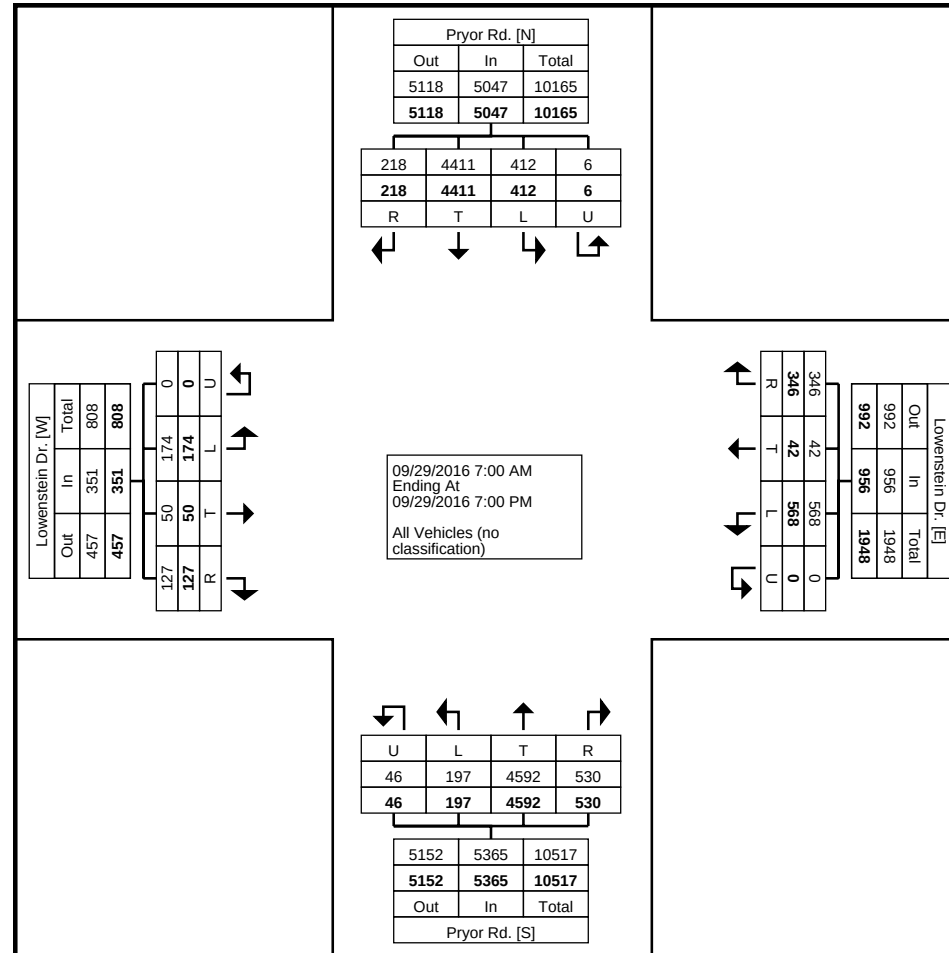
2:30 PM	2	120	7	0	129	5	0	20	0	25	17	90	4	1	112	3	3	2	0	8	274
2:45 PM	4	109	13	1	127	16	1	11	0	28	11	85	3	1	100	2	0	3	0	5	260
Hourly Total	8	425	34	2	469	40	2	48	0	90	63	346	11	3	423	9	3	14	0	26	1008
3:00 PM	6	109	11	1	127	6	2	13	0	21	15	69	1	0	85	2	1	4	0	7	240
3:15 PM	3	116	13	1	133	10	2	27	0	39	11	90	8	2	111	1	0	3	0	4	287
3:30 PM	5	111	3	1	120	5	0	14	0	19	12	97	2	2	113	1	1	2	0	4	256
3:45 PM	3	146	9	0	158	10	0	8	0	18	15	71	1	1	88	1	1	4	0	6	270
Hourly Total	17	482	36	3	538	31	4	62	0	97	53	327	12	5	397	5	3	13	0	21	1053
4:00 PM	6	157	10	0	173	10	0	18	0	28	12	108	4	0	124	4	3	2	0	9	334
4:15 PM	11	142	12	0	165	9	2	18	0	29	12	91	1	1	105	0	0	3	0	3	302
4:30 PM	7	151	13	0	171	3	1	18	0	22	10	109	2	0	121	2	2	4	0	8	322
4:45 PM	5	153	14	0	172	15	5	20	0	40	9	129	3	2	143	4	2	4	0	10	365
Hourly Total	29	603	49	0	681	37	8	74	0	119	43	437	10	3	493	10	7	13	0	30	1323
5:00 PM	10	166	15	0	191	6	0	10	0	16	11	134	1	1	147	2	1	4	0	7	361
5:15 PM	11	159	14	0	184	10	2	15	0	27	12	140	10	0	162	2	2	6	0	10	383
5:30 PM	6	141	13	0	160	9	1	11	0	21	11	112	5	4	132	0	0	6	0	6	319
5:45 PM	15	152	14	0	181	4	0	18	0	22	12	122	12	0	146	3	2	6	0	11	360
Hourly Total	42	618	56	0	716	29	3	54	0	86	46	508	28	5	587	7	5	22	0	34	1423
6:00 PM	20	136	15	0	171	12	0	10	0	22	11	96	14	1	122	4	0	5	0	9	324
6:15 PM	14	158	14	0	186	12	2	15	0	29	13	106	23	0	142	11	5	3	0	19	376
6:30 PM	7	123	11	0	141	8	1	13	0	22	6	90	4	1	101	7	1	8	0	16	280
6:45 PM	5	118	10	0	133	7	4	12	0	23	18	105	7	1	131	6	1	4	0	11	298
Hourly Total	46	535	50	0	631	39	7	50	0	96	48	397	48	3	496	28	7	20	0	55	1278
Grand Total	218	4411	412	6	5047	346	42	568	0	956	530	4592	197	46	5365	127	50	174	0	351	11719
Approach %	4.3	87.4	8.2	0.1	-	36.2	4.4	59.4	0.0	-	9.9	85.6	3.7	0.9	-	36.2	14.2	49.6	0.0	-	-
Total %	1.9	37.6	3.5	0.1	43.1	3.0	0.4	4.8	0.0	8.2	4.5	39.2	1.7	0.4	45.8	1.1	0.4	1.5	0.0	3.0	-
All Vehicles (no classification)	218	4411	412	6	5047	346	42	568	0	956	530	4592	197	46	5365	127	50	174	0	351	11719
% All Vehicles (no classification)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	-	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	-	100.0	100.0



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Count Name: Pryor and Lowenstein
Site Code:
Start Date: 09/29/2016
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Turning Movement Data Plot



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Count Name: Pryor and Lowenstein
Site Code:
Start Date: 09/29/2016
Page No: 4

Turning Movement Peak Hour Data (7:15 AM)

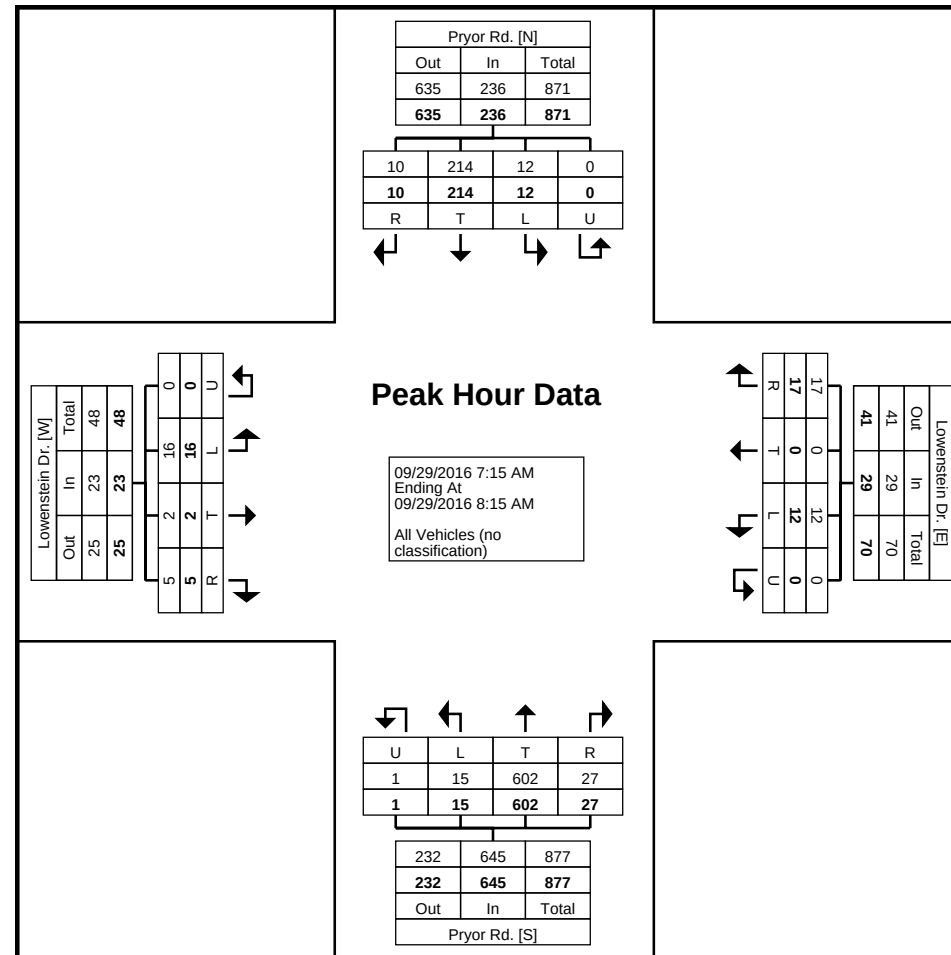
Start Time	Pryor Rd. Southbound					Lowenstein Dr. Westbound					Pryor Rd. Northbound					Lowenstein Dr. Eastbound					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
7:15 AM	2	43	0	0	45	1	0	1	0	2	4	148	5	0	157	1	1	1	0	3	207
7:30 AM	5	66	0	0	71	4	0	3	0	7	7	166	1	0	174	2	0	4	0	6	258
7:45 AM	2	60	3	0	65	5	0	2	0	7	8	137	5	1	151	2	1	6	0	9	232
8:00 AM	1	45	9	0	55	7	0	6	0	13	8	151	4	0	163	0	0	5	0	5	236
Total	10	214	12	0	236	17	0	12	0	29	27	602	15	1	645	5	2	16	0	23	933
Approach %	4.2	90.7	5.1	0.0	-	58.6	0.0	41.4	0.0	-	4.2	93.3	2.3	0.2	-	21.7	8.7	69.6	0.0	-	-
Total %	1.1	22.9	1.3	0.0	25.3	1.8	0.0	1.3	0.0	3.1	2.9	64.5	1.6	0.1	69.1	0.5	0.2	1.7	0.0	2.5	-
PHF	0.500	0.811	0.333	0.000	0.831	0.607	0.000	0.500	0.000	0.558	0.844	0.907	0.750	0.250	0.927	0.625	0.500	0.667	0.000	0.639	0.904
All Vehicles (no classification)	10	214	12	0	236	17	0	12	0	29	27	602	15	1	645	5	2	16	0	23	933
% All Vehicles (no classification)	100.0	100.0	100.0	-	100.0	100.0	-	100.0	-	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	-	100.0	100.0



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Count Name: Pryor and Lowenstein
Site Code:
Start Date: 09/29/2016
Page No: 5



Turning Movement Peak Hour Data Plot (7:15 AM)



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Count Name: Pryor and Lowenstein
Site Code:
Start Date: 09/29/2016
Page No: 6

Turning Movement Peak Hour Data (4:30 PM)

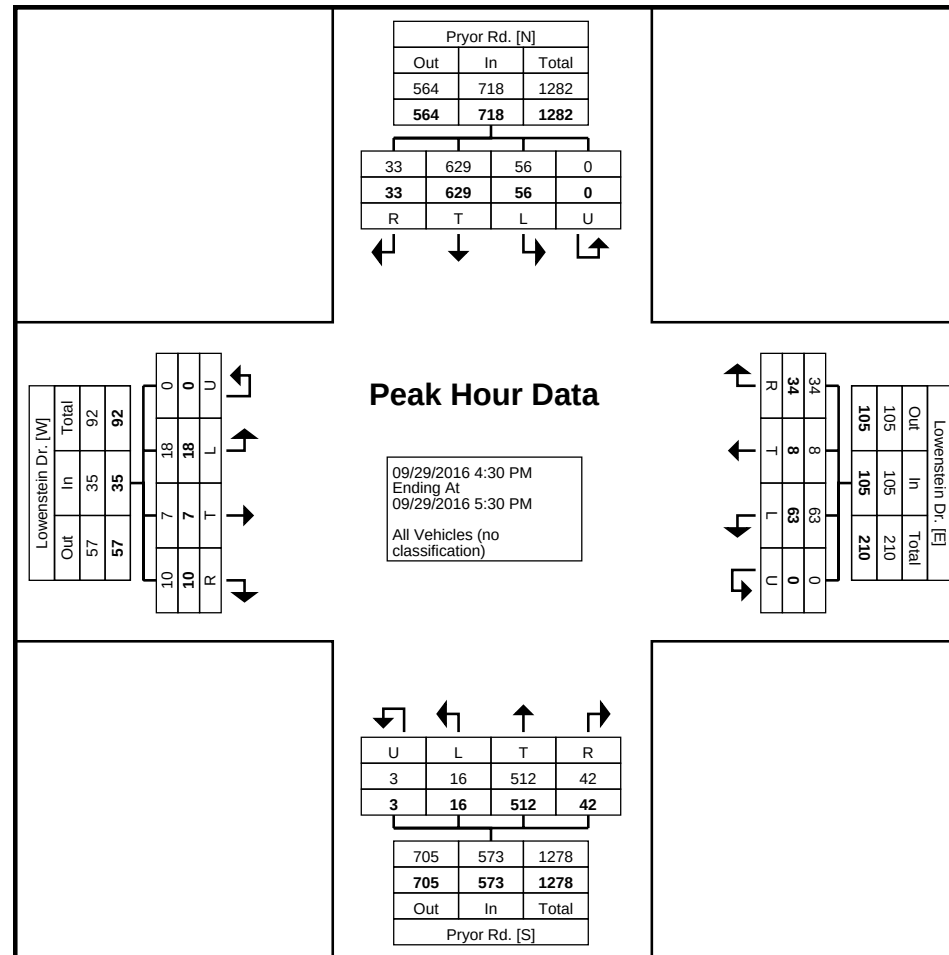
Start Time	Pryor Rd. Southbound					Lowenstein Dr. Westbound					Pryor Rd. Northbound					Lowenstein Dr. Eastbound					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
4:30 PM	7	151	13	0	171	3	1	18	0	22	10	109	2	0	121	2	2	4	0	8	322
4:45 PM	5	153	14	0	172	15	5	20	0	40	9	129	3	2	143	4	2	4	0	10	365
5:00 PM	10	166	15	0	191	6	0	10	0	16	11	134	1	1	147	2	1	4	0	7	361
5:15 PM	11	159	14	0	184	10	2	15	0	27	12	140	10	0	162	2	2	6	0	10	383
Total	33	629	56	0	718	34	8	63	0	105	42	512	16	3	573	10	7	18	0	35	1431
Approach %	4.6	87.6	7.8	0.0	-	32.4	7.6	60.0	0.0	-	7.3	89.4	2.8	0.5	-	28.6	20.0	51.4	0.0	-	-
Total %	2.3	44.0	3.9	0.0	50.2	2.4	0.6	4.4	0.0	7.3	2.9	35.8	1.1	0.2	40.0	0.7	0.5	1.3	0.0	2.4	-
PHF	0.750	0.947	0.933	0.000	0.940	0.567	0.400	0.788	0.000	0.656	0.875	0.914	0.400	0.375	0.884	0.625	0.875	0.750	0.000	0.875	0.934
All Vehicles (no classification)	33	629	56	0	718	34	8	63	0	105	42	512	16	3	573	10	7	18	0	35	1431
% All Vehicles (no classification)	100.0	100.0	100.0	-	100.0	100.0	100.0	100.0	-	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	-	100.0	100.0



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Count Name: Pryor and Lowenstein
Site Code:
Start Date: 09/29/2016
Page No: 7



Turning Movement Peak Hour Data Plot (4:30 PM)



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Forming Partnerships - Delivering Results

Count Name: Chipman and Pryor
Site Code:
Start Date: 09/28/2016
Page No: 1

Turning Movement Data

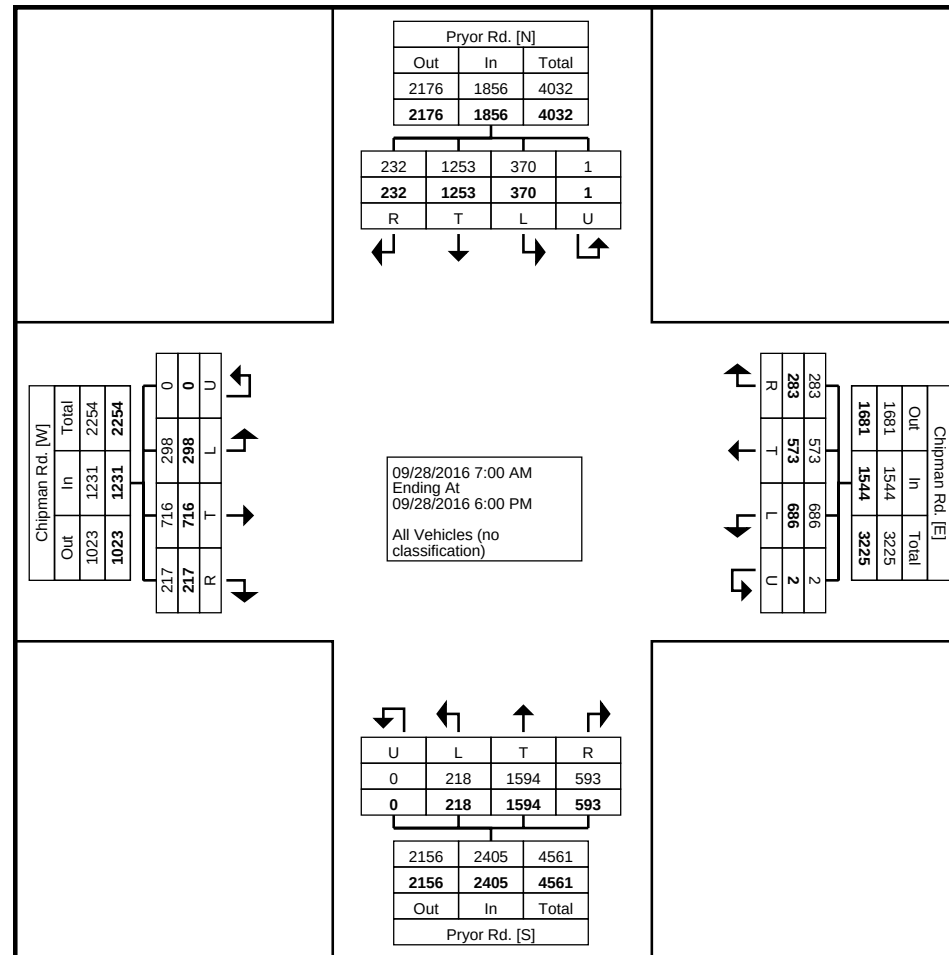
Start Time	Pryor Rd. Southbound					Chipman Rd. Westbound					Pryor Rd. Northbound					Chipman Rd. Eastbound					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
7:00 AM	4	28	8	0	40	16	11	9	0	36	30	112	3	0	145	7	27	25	0	59	280
7:15 AM	8	44	5	0	57	12	29	15	0	56	32	157	8	0	197	7	45	20	0	72	382
7:30 AM	5	41	14	0	60	11	15	22	0	48	29	102	11	0	142	27	45	22	0	94	344
7:45 AM	7	51	16	0	74	18	18	24	0	60	38	123	10	0	171	19	61	25	0	105	410
Hourly Total	24	164	43	0	231	57	73	70	0	200	129	494	32	0	655	60	178	92	0	330	1416
8:00 AM	9	41	8	0	58	17	23	23	0	63	28	115	7	0	150	10	48	19	0	77	348
8:15 AM	7	44	10	0	61	9	14	23	0	46	34	97	9	0	140	11	51	20	0	82	329
8:30 AM	13	32	8	0	53	14	42	28	1	85	32	83	12	0	127	13	26	10	0	49	314
8:45 AM	13	33	14	0	60	7	26	27	0	60	34	64	6	0	104	13	37	10	0	60	284
Hourly Total	42	150	40	0	232	47	105	101	1	254	128	359	34	0	521	47	162	59	0	268	1275
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	22	106	40	0	168	20	50	52	0	122	39	74	16	0	129	13	39	12	0	64	483
4:15 PM	14	102	39	1	156	16	39	51	0	106	29	69	23	0	121	18	35	19	0	72	455
4:30 PM	22	124	27	0	173	20	47	62	0	129	40	86	19	0	145	17	45	20	0	82	529
4:45 PM	15	110	37	0	162	22	46	57	0	125	40	91	16	0	147	11	56	15	0	82	516
Hourly Total	73	442	143	1	659	78	182	222	0	482	148	320	74	0	542	59	175	66	0	300	1983
5:00 PM	18	134	32	0	184	23	56	71	0	150	47	110	18	0	175	16	59	22	0	97	606
5:15 PM	22	123	39	0	184	30	57	78	0	165	53	111	20	0	184	11	61	18	0	90	623
5:30 PM	20	120	29	0	169	22	58	68	1	149	45	97	20	0	162	13	44	29	0	86	566
5:45 PM	33	120	44	0	197	26	42	76	0	144	43	103	20	0	166	11	37	12	0	60	567
Hourly Total	93	497	144	0	734	101	213	293	1	608	188	421	78	0	687	51	201	81	0	333	2362
Grand Total	232	1253	370	1	1856	283	573	686	2	1544	593	1594	218	0	2405	217	716	298	0	1231	7036
Approach %	12.5	67.5	19.9	0.1	-	18.3	37.1	44.4	0.1	-	24.7	66.3	9.1	0.0	-	17.6	58.2	24.2	0.0	-	-
Total %	3.3	17.8	5.3	0.0	26.4	4.0	8.1	9.7	0.0	21.9	8.4	22.7	3.1	0.0	34.2	3.1	10.2	4.2	0.0	17.5	-
All Vehicles (no classification)	232	1253	370	1	1856	283	573	686	2	1544	593	1594	218	0	2405	217	716	298	0	1231	7036
% All Vehicles (no classification)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	-	100.0	100.0	100.0	100.0	-	100.0	100.0



Shafer, Kline & Warren
11250 Corporate Ave

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Forming Partnerships - Delivering Results

Count Name: Chipman and Pryor
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Turning Movement Data Plot



Shafer, Kline & Warren
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Count Name: Chipman and Pryor
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Turning Movement Peak Hour Data (7:15 AM)

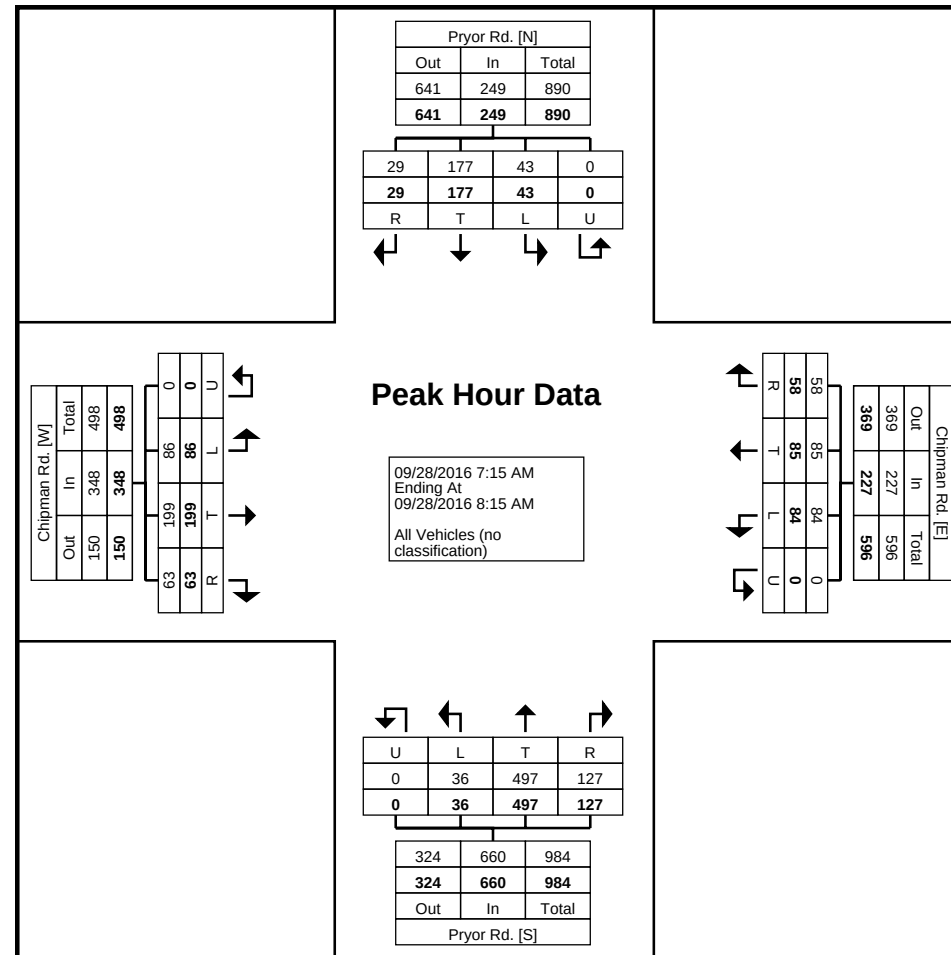
Start Time	Pryor Rd. Southbound					Chipman Rd. Westbound					Pryor Rd. Northbound					Chipman Rd. Eastbound					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
7:15 AM	8	44	5	0	57	12	29	15	0	56	32	157	8	0	197	7	45	20	0	72	382
7:30 AM	5	41	14	0	60	11	15	22	0	48	29	102	11	0	142	27	45	22	0	94	344
7:45 AM	7	51	16	0	74	18	18	24	0	60	38	123	10	0	171	19	61	25	0	105	410
8:00 AM	9	41	8	0	58	17	23	23	0	63	28	115	7	0	150	10	48	19	0	77	348
Total	29	177	43	0	249	58	85	84	0	227	127	497	36	0	660	63	199	86	0	348	1484
Approach %	11.6	71.1	17.3	0.0	-	25.6	37.4	37.0	0.0	-	19.2	75.3	5.5	0.0	-	18.1	57.2	24.7	0.0	-	-
Total %	2.0	11.9	2.9	0.0	16.8	3.9	5.7	5.7	0.0	15.3	8.6	33.5	2.4	0.0	44.5	4.2	13.4	5.8	0.0	23.5	-
PHF	0.806	0.868	0.672	0.000	0.841	0.806	0.733	0.875	0.000	0.901	0.836	0.791	0.818	0.000	0.838	0.583	0.816	0.860	0.000	0.829	0.905
All Vehicles (no classification)	29	177	43	0	249	58	85	84	0	227	127	497	36	0	660	63	199	86	0	348	1484
% All Vehicles (no classification)	100.0	100.0	100.0	-	100.0	100.0	100.0	100.0	-	100.0	100.0	100.0	100.0	-	100.0	100.0	100.0	100.0	-	100.0	100.0



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Count Name: Chipman and Pryor
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Turning Movement Peak Hour Data Plot (7:15 AM)



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Count Name: Chipman and Pryor
Site Code:
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Turning Movement Peak Hour Data (5:00 PM)

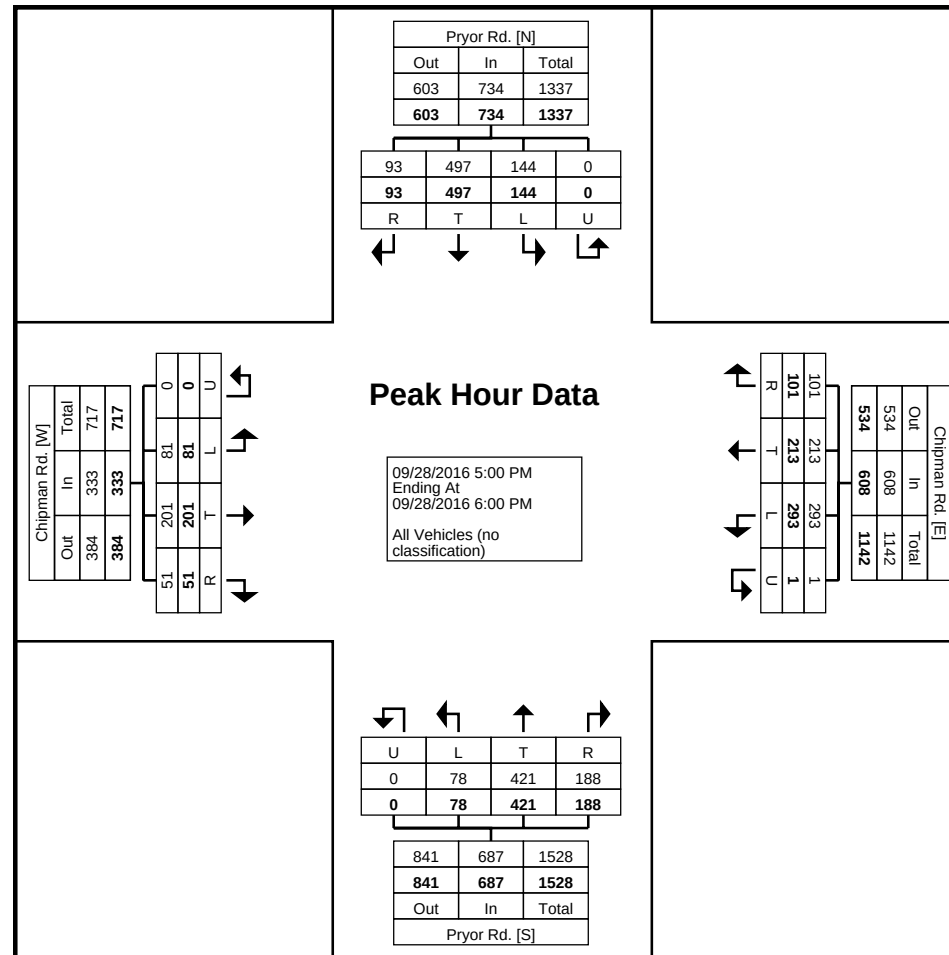
Start Time	Pryor Rd. Southbound					Chipman Rd. Westbound					Pryor Rd. Northbound					Chipman Rd. Eastbound					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
5:00 PM	18	134	32	0	184	23	56	71	0	150	47	110	18	0	175	16	59	22	0	97	606
5:15 PM	22	123	39	0	184	30	57	78	0	165	53	111	20	0	184	11	61	18	0	90	623
5:30 PM	20	120	29	0	169	22	58	68	1	149	45	97	20	0	162	13	44	29	0	86	566
5:45 PM	33	120	44	0	197	26	42	76	0	144	43	103	20	0	166	11	37	12	0	60	567
Total	93	497	144	0	734	101	213	293	1	608	188	421	78	0	687	51	201	81	0	333	2362
Approach %	12.7	67.7	19.6	0.0	-	16.6	35.0	48.2	0.2	-	27.4	61.3	11.4	0.0	-	15.3	60.4	24.3	0.0	-	-
Total %	3.9	21.0	6.1	0.0	31.1	4.3	9.0	12.4	0.0	25.7	8.0	17.8	3.3	0.0	29.1	2.2	8.5	3.4	0.0	14.1	-
PHF	0.705	0.927	0.818	0.000	0.931	0.842	0.918	0.939	0.250	0.921	0.887	0.948	0.975	0.000	0.933	0.797	0.824	0.698	0.000	0.858	0.948
All Vehicles (no classification)	93	497	144	0	734	101	213	293	1	608	188	421	78	0	687	51	201	81	0	333	2362
% All Vehicles (no classification)	100.0	100.0	100.0	-	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	-	100.0	100.0	100.0	100.0	-	100.0	100.0



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Count Name: Chipman and Pryor
Site Code:
Start Date: 09/28/2016
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Turning Movement Peak Hour Data Plot (5:00 PM)

Start Date	1/10/2017					
Start Time	7:00					
Site Code	10017					
Street Name	BlackTwig--		Chipman WB--		Chipman EB--	
Start Time	Left	Right	Thru	Right	Left	Thru
7:00 AM	2	0	8	1	0	14
7:15 AM	0	0	7	0	0	17
7:30 AM	2	2	8	0	0	28
7:45 AM	7	0	14	1	0	57
8:00 AM	4	0	23	1	1	63
8:15 AM	2	1	28	1	0	59
8:30 AM	2	1	43	0	0	59
8:45 AM	1	1	28	0	1	41

Start Date	1/10/2017					
Start Time	16:00					
Site Code	110172					
Street Name	Black Twig--		Chipman WB--		Chipman EB--	
Start Time	Left	Right	Thru	Right	Left	Thru
4:00 PM	2	0	63	7	0	46
4:15 PM	3	1	63	9	0	52
4:30 PM	2	1	57	1	0	61
4:45 PM	1	0	66	7	1	63
5:00 PM	6	0	75	3	0	55
5:15 PM	2	1	69	8	0	63
5:30 PM	5	0	78	2	0	64
5:45 PM	3	1	65	3	0	56

Intersection Chipman & Pryor

9/17/2016 (Saturday)

Time	Turning Movement Counts								Pedestrian Counts				Hourly Total
	WL	ET	SL	NT	EL	WT	NL	ST	ET	NT	WT	ST	
	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	Phase 6	Phase 7	Phase 8	Phase 2	Phase 4	Phase 6	Phase 8	
12:00 AM	10	2	2	5	0	18	1	19	0	0	0	0	145
12:15 AM	5	5	2	8	0	13	1	3	0	0	0	0	
12:30 AM	6	5	1	1	2	3	0	6	0	0	0	0	
12:45 AM	3	6	1	3	0	3	0	11	0	0	0	0	
Total	24	18	6	17	2	37	2	39	0	0	0	0	
1:00 AM	3	0	2	4	0	10	0	8	0	0	0	0	85
1:15 AM	1	4	2	4	0	4	0	4	0	0	0	0	
1:30 AM	1	1	3	3	0	2	4	3	0	0	0	0	
1:45 AM	4	3	1	2	0	5	2	5	0	0	0	0	
Total	9	8	8	13	0	21	6	20	0	0	0	0	
2:00 AM	0	2	2	1	0	2	0	7	0	0	0	0	45
2:15 AM	0	1	1	4	0	2	0	6	0	0	0	0	
2:30 AM	3	0	1	0	0	2	0	7	0	0	0	0	
2:45 AM	0	0	0	2	0	0	0	2	0	0	0	0	
Total	3	3	4	7	0	6	0	22	0	0	0	0	
3:00 AM	0	3	0	1	0	2	0	0	0	0	0	0	48
3:15 AM	1	1	0	3	0	3	1	8	0	0	0	0	
3:30 AM	1	0	0	6	0	1	0	5	0	0	0	0	
3:45 AM	1	2	0	0	1	6	0	2	0	0	0	0	
Total	3	6	0	10	1	12	1	15	0	0	0	0	
4:00 AM	0	0	0	0	0	1	0	0	0	0	0	0	34
4:15 AM	0	1	0	0	0	2	0	2	0	0	0	0	
4:30 AM	2	2	0	3	1	2	0	2	0	0	0	0	
4:45 AM	0	0	0	9	1	2	1	3	0	0	0	0	
Total	2	3	0	12	2	7	1	7	0	0	0	0	
5:00 AM	5	0	0	9	1	0	0	0	0	0	0	0	76
5:15 AM	0	2	1	11	0	2	0	7	0	0	0	0	
5:30 AM	0	4	0	7	1	1	0	2	0	0	0	0	
5:45 AM	1	7	0	10	1	0	1	3	0	0	0	0	
Total	6	13	1	37	3	3	1	12	0	0	0	0	
6:00 AM	6	10	1	7	1	3	1	10	0	0	0	0	509
6:15 AM	8	14	2	24	5	7	1	8	0	0	0	1	
6:30 AM	11	10	4	33	8	1	6	28	0	0	0	0	
6:45 AM	26	24	11	102	9	15	9	103	0	0	0	0	
Total	51	58	18	166	23	26	17	149	0	0	0	1	
7:00 AM	4	20	8	58	4	4	1	23	0	0	0	0	718
7:15 AM	3	35	14	58	11	15	6	29	0	0	0	0	
7:30 AM	13	35	12	82	12	15	10	21	0	0	0	0	
7:45 AM	11	34	17	83	9	18	3	50	0	0	0	0	
Total	31	124	51	281	36	52	20	123	0	0	0	0	
8:00 AM	11	28	13	94	13	24	13	32	0	0	0	0	1051
8:15 AM	13	38	6	123	9	15	11	23	0	0	0	0	
8:30 AM	11	46	16	111	9	22	9	32	0	1	2	0	
8:45 AM	14	45	19	120	18	38	13	58	0	0	0	1	
Total	49	157	54	448	49	99	46	145	0	1	2	1	
9:00 AM	14	56	15	125	18	22	10	46	0	0	0	0	1644
9:15 AM	25	77	12	161	25	54	32	56	0	0	0	0	
9:30 AM	32	71	19	157	17	47	23	58	0	0	0	0	
9:45 AM	16	78	29	167	32	57	26	67	0	0	0	0	
Total	87	282	75	610	92	180	91	227	0	0	0	0	
10:00 AM	36	66	30	157	22	85	26	106	0	0	0	0	2227
10:15 AM	64	54	27	152	17	91	20	101	0	0	0	1	
10:30 AM	60	66	29	200	29	82	36	80	0	1	0	0	
10:45 AM	61	70	26	182	23	94	23	108	1	0	0	1	
Total	221	256	112	691	91	352	105	395	1	1	0	2	
11:00 AM	80	55	33	168	17	92	26	127	0	1	0	1	
11:15 AM	74	71	38	147	19	88	19	118	0	1	0	1	
11:30 AM	71	90	39	183	28	88	22	137	0	0	0	0	
11:45 AM	81	84	35	174	31	85	28	155	0	1	0	1	

Total	306	300	145	672	95	353	95	537	0	3	0	3	2509
12:00 PM	50	80	66	198	22	71	39	150	0	0	0	0	
12:15 PM	62	72	45	198	16	85	49	157	0	0	0	0	
12:30 PM	80	70	69	244	17	100	36	154	0	0	0	0	
12:45 PM	81	64	65	180	34	91	24	160	0	0	0	0	
Total	273	286	245	820	89	347	148	621	0	0	0	0	2829
1:00 PM	103	59	58	182	20	101	29	143	0	0	0	0	
1:15 PM	76	68	74	161	15	107	30	137	0	0	0	0	
1:30 PM	63	70	54	167	20	81	32	163	0	0	0	0	
1:45 PM	80	76	52	150	21	104	29	145	0	0	0	0	
Total	322	273	238	660	76	393	120	588	0	0	0	0	2670
2:00 PM	75	59	41	165	31	67	14	182	0	1	1	1	
2:15 PM	58	59	53	171	25	90	30	155	0	0	0	0	
2:30 PM	83	63	51	159	29	78	18	160	0	0	1	0	
2:45 PM	87	89	60	179	36	107	21	151	0	0	0	0	
Total	303	270	205	674	121	342	83	648	0	1	2	1	2650
3:00 PM	71	61	71	163	30	63	35	172	0	0	0	0	
3:15 PM	97	85	37	170	27	87	33	142	0	0	0	0	
3:30 PM	78	68	63	187	26	72	17	141	0	1	0	0	
3:45 PM	67	101	48	166	26	102	48	150	0	0	0	0	
Total	313	315	219	686	109	324	133	605	0	1	0	0	2705
4:00 PM	51	68	48	157	40	85	23	164	0	1	0	1	
4:15 PM	74	96	35	164	39	94	44	201	0	1	0	0	
4:30 PM	63	66	54	171	34	87	30	171	0	0	0	1	
4:45 PM	66	95	38	214	40	97	29	141	0	0	0	0	
Total	254	325	175	706	153	363	126	677	0	2	0	2	2783
5:00 PM	59	70	37	177	21	80	19	104	0	0	0	0	
5:15 PM	65	61	34	240	42	94	34	127	0	0	1	1	
5:30 PM	67	54	45	278	23	86	61	138	0	0	0	0	
5:45 PM	71	86	90	218	33	90	15	139	0	0	0	0	
Total	262	271	206	913	119	350	129	508	0	0	1	1	2760
6:00 PM	65	114	77	254	18	106	29	175	0	0	0	0	
6:15 PM	95	133	78	242	12	74	35	144	0	0	0	0	
6:30 PM	49	163	112	178	16	78	31	151	0	0	0	0	
6:45 PM	58	107	34	90	18	75	25	94	0	0	0	2	
Total	267	517	301	764	64	333	120	564	0	0	0	2	2932
7:00 PM	80	67	35	135	45	92	18	91	0	0	0	0	
7:15 PM	82	51	44	144	12	81	19	124	0	0	0	0	
7:30 PM	73	43	56	135	11	120	24	129	0	0	0	0	
7:45 PM	71	54	30	75	11	70	11	132	0	0	0	1	
Total	306	215	165	489	79	363	72	476	0	0	0	1	2166
8:00 PM	82	41	52	84	23	72	6	114	0	0	0	1	
8:15 PM	72	34	24	49	13	63	3	128	0	0	0	0	
8:30 PM	61	37	35	57	13	51	9	70	0	0	0	0	
8:45 PM	49	27	16	23	8	60	8	101	0	0	0	0	
Total	264	139	127	213	57	246	26	413	0	0	0	1	1486
9:00 PM	46	31	26	28	13	56	1	99	0	0	0	0	
9:15 PM	37	26	21	60	16	56	7	90	0	0	0	0	
9:30 PM	43	31	12	27	6	39	10	92	0	0	0	0	
9:45 PM	15	20	13	15	5	39	2	84	0	0	0	0	
Total	141	108	72	130	40	190	20	365	0	0	0	0	1066
10:00 PM	18	9	19	25	13	45	0	48	0	0	0	0	
10:15 PM	22	19	4	25	7	31	0	72	0	0	0	0	
10:30 PM	24	10	10	34	7	23	3	73	0	0	0	0	
10:45 PM	14	16	16	26	3	32	3	61	0	0	0	0	
Total	78	54	49	110	30	131	6	254	0	0	0	0	712
11:00 PM	29	19	7	19	5	23	2	32	0	0	0	0	
11:15 PM	10	13	10	12	5	19	0	38	0	0	0	0	
11:30 PM	13	10	16	11	2	16	0	58	0	0	0	0	
11:45 PM	19	7	3	11	2	8	1	37	0	0	0	0	
Total	71	49	36	53	14	66	3	165	0	0	0	0	457

Intersection Summit Woods & Pryor

9/17/2016 (Saturday)

Time	Turning Movement Counts					Pedestrian Counts	
	ST	WT	SL	NT	WL	Hourly Total	
	Phase 2	Phase 4	Phase 5	Phase 6	Phase 7		
12:00 AM	13	0	1	18	9	93	
12:15 AM	11	0	0	16	0		
12:30 AM	7	0	1	4	0		
12:45 AM	11	0	0	2	0		
Total	42	0	2	40	9		
1:00 AM	8	0	0	10	0	52	
1:15 AM	9	0	0	4	0		
1:30 AM	5	0	1	8	0		
1:45 AM	4	0	0	3	0		
Total	26	0	1	25	0		
2:00 AM	9	0	0	2	0	27	
2:15 AM	4	0	0	4	0		
2:30 AM	5	0	0	0	0		
2:45 AM	1	0	0	2	0		
Total	19	0	0	8	0		
3:00 AM	1	0	5	3	0	44	
3:15 AM	5	0	0	4	0		
3:30 AM	5	0	2	6	0		
3:45 AM	0	0	9	4	0		
Total	11	0	16	17	0		
4:00 AM	0	0	5	0	0	38	
4:15 AM	0	0	0	0	0		
4:30 AM	1	0	1	9	0		
4:45 AM	2	0	9	11	0		
Total	3	0	15	20	0		
5:00 AM	0	0	0	9	0	58	
5:15 AM	6	0	2	2	0		
5:30 AM	1	0	3	7	0		
5:45 AM	4	0	9	15	0		
Total	11	0	14	33	0		
6:00 AM	5	0	5	17	0	363	
6:15 AM	9	0	0	28	1		
6:30 AM	19	0	13	56	2		
6:45 AM	67	9	54	71	7		
Total	100	9	72	172	10		

7:00 AM	26	9	7	260	0	
7:15 AM	22	8	5	466	3	
7:30 AM	19	8	12	179	4	
7:45 AM	37	10	46	235	1	
Total	104	35	70	1140	8	1357
8:00 AM	56	4	33	271	3	
8:15 AM	114	12	150	801	7	
8:30 AM	59	11	86	453	5	
8:45 AM	42	29	39	495	18	
Total	271	56	308	2020	33	2688
9:00 AM	121	23	127	411	11	
9:15 AM	38	37	34	281	18	
9:30 AM	52	45	41	314	17	
9:45 AM	63	48	31	347	30	
Total	274	153	233	1353	76	2089
10:00 AM	100	57	55	198	35	
10:15 AM	101	52	88	160	27	
10:30 AM	90	75	59	159	39	
10:45 AM	105	115	62	198	56	
Total	396	299	264	715	157	1831
11:00 AM	91	164	81	147	66	
11:15 AM	107	127	72	149	81	
11:30 AM	88	104	91	144	57	
11:45 AM	102	120	83	153	79	
Total	388	515	327	593	283	2106
12:00 PM	99	156	97	128	81	
12:15 PM	94	130	98	143	91	
12:30 PM	106	123	105	143	81	
12:45 PM	101	144	105	151	100	
Total	400	553	405	565	353	2276
1:00 PM	93	203	92	123	87	
1:15 PM	96	158	85	137	100	
1:30 PM	83	164	82	157	75	
1:45 PM	105	160	97	147	82	
Total	377	685	356	564	344	2326
2:00 PM	105	178	91	141	88	
2:15 PM	84	139	93	157	92	
2:30 PM	79	139	90	152	101	
2:45 PM	112	154	90	171	86	

Total	380	610	364	621	367	2342
3:00 PM	115	162	95	139	85	
3:15 PM	124	155	104	178	79	
3:30 PM	99	143	101	148	91	
3:45 PM	118	127	86	165	90	
Total	456	587	386	630	345	2404
4:00 PM	108	127	86	162	76	
4:15 PM	100	163	94	249	66	
4:30 PM	121	118	97	256	72	
4:45 PM	101	131	88	292	65	
Total	430	539	365	959	279	2572
5:00 PM	99	100	87	442	51	
5:15 PM	86	123	104	350	70	
5:30 PM	121	87	110	263	52	
5:45 PM	135	121	115	276	66	
Total	441	431	416	1331	239	2858
6:00 PM	85	95	89	274	90	
6:15 PM	91	79	72	0	66	
6:30 PM	90	62	46	282	40	
6:45 PM	103	79	71	176	80	
Total	369	315	278	732	276	1970
7:00 PM	109	102	80	238	45	
7:15 PM	166	91	109	228	80	
7:30 PM	92	89	104	145	64	
7:45 PM	75	59	67	97	54	
Total	442	341	360	708	243	2094
8:00 PM	86	47	52	97	70	
8:15 PM	79	64	39	98	41	
8:30 PM	68	58	68	106	37	
8:45 PM	53	36	32	71	42	
Total	286	205	191	372	190	1244
9:00 PM	43	38	32	68	39	
9:15 PM	54	22	28	83	33	
9:30 PM	65	23	24	63	21	
9:45 PM	52	24	21	36	28	
Total	214	107	105	250	121	797
10:00 PM	41	8	12	54	19	
10:15 PM	49	11	4	47	10	
10:30 PM	47	0	1	65	13	

10:45 PM	49	9	4	35	6	
Total	186	28	21	201	48	484
11:00 PM	20	0	5	41	3	
11:15 PM	44	0	1	26	1	
11:30 PM	34	2	7	19	2	
11:45 PM	26	0	1	19	2	
Total	124	2	14	105	8	253

32366 Total Intersection

2858 Max Hour

Intersection Summit Woods & Pryor

9/21/2016 (Wednesday)

Time	Turning Movement Counts					Pedestrian Counts	
	ST	WT	SL	NT	WL	Hourly Total	
	Phase 2	Phase 4	Phase 5	Phase 6	Phase 7		
12:00 AM	5	0	3	16	0		
12:15 AM	5	0	2	8	0		
12:30 AM	3	0	0	5	0		
12:45 AM	2	0	0	4	0		
Total	15	0	5	33	0		53
1:00 AM	4	0	0	5	0		
1:15 AM	10	0	0	8	1		
1:30 AM	1	0	3	4	0		
1:45 AM	5	0	0	3	0		
Total	20	0	3	20	1		44
2:00 AM	4	0	0	6	0		
2:15 AM	1	0	0	4	0		
2:30 AM	2	0	0	2	1		
2:45 AM	2	0	0	2	0		
Total	9	0	0	14	1		24
3:00 AM	7	0	0	3	0		
3:15 AM	0	0	2	4	0		
3:30 AM	3	0	4	4	0		
3:45 AM	3	0	8	10	0		
Total	13	0	14	21	0		48
4:00 AM	3	0	3	13	0		
4:15 AM	3	0	0	5	0		
4:30 AM	2	2	0	17	0		
4:45 AM	1	0	9	17	0		
Total	9	2	12	52	0		75
5:00 AM	4	0	4	18	1		
5:15 AM	7	0	2	30	0		
5:30 AM	5	0	4	47	0		
5:45 AM	12	0	11	71	4		
Total	28	0	21	166	5		220
6:00 AM	11	0	4	88	0		
6:15 AM	28	0	7	123	0		
6:30 AM	27	0	15	216	0		
6:45 AM	72	21	65	261	3		
Total	138	21	91	688	3		941

7:00 AM	61	15	27	341	1	
7:15 AM	231	18	72	267	12	
7:30 AM	290	18	104	401	4	
7:45 AM	308	31	47	256	3	
Total	890	82	250	1265	20	2507
8:00 AM	162	0	108	168	0	
8:15 AM	187	0	129	129	0	
8:30 AM	125	128	46	135	19	
8:45 AM	102	46	39	114	17	
Total	576	174	322	546	36	1654
9:00 AM	105	40	35	148	16	
9:15 AM	101	60	44	140	9	
9:30 AM	68	64	34	139	27	
9:45 AM	68	48	56	141	36	
Total	342	212	169	568	88	1379
10:00 AM	72	112	36	107	30	
10:15 AM	75	70	39	127	32	
10:30 AM	89	97	61	114	37	
10:45 AM	76	105	55	123	36	
Total	312	384	191	471	135	1493
11:00 AM	94	120	75	116	28	
11:15 AM	93	69	84	126	40	
11:30 AM	71	94	63	82	30	
11:45 AM	89	85	67	105	48	
Total	347	368	289	429	146	1579
12:00 PM	82	95	78	120	42	
12:15 PM	102	79	64	119	43	
12:30 PM	85	85	69	109	44	
12:45 PM	97	77	79	162	42	
Total	366	336	290	510	171	1673
1:00 PM	83	91	55	137	54	
1:15 PM	65	95	64	137	39	
1:30 PM	83	101	58	116	40	
1:45 PM	97	98	71	104	45	
Total	328	385	248	494	178	1633
2:00 PM	93	62	61	104	26	
2:15 PM	77	100	43	87	48	
2:30 PM	82	111	62	114	51	
2:45 PM	116	85	70	129	62	

Total	368	358	236	434	187	1583
3:00 PM	110	71	65	118	47	
3:15 PM	132	67	68	140	57	
3:30 PM	124	69	66	195	51	
3:45 PM	145	74	85	181	46	
Total	511	281	284	634	201	1911
4:00 PM	140	81	72	312	63	
4:15 PM	165	63	71	203	27	
4:30 PM	137	93	69	289	65	
4:45 PM	185	61	71	214	64	
Total	627	298	283	1018	219	2445
5:00 PM	242	56	100	355	39	
5:15 PM	153	69	90	459	57	
5:30 PM	182	93	74	282	50	
5:45 PM	151	68	100	434	52	
Total	728	286	364	1530	198	3106
6:00 PM	179	62	126	145	56	
6:15 PM	169	98	95	184	63	
6:30 PM	165	63	73	166	44	
6:45 PM	161	67	92	213	58	
Total	674	290	386	708	221	2279
7:00 PM	233	88	137	437	29	
7:15 PM	126	133	88	151	63	
7:30 PM	108	70	90	158	100	
7:45 PM	133	50	53	94	46	
Total	600	341	368	840	238	2387
8:00 PM	92	31	57	83	34	
8:15 PM	90	23	43	64	30	
8:30 PM	68	24	32	77	36	
8:45 PM	55	23	28	43	28	
Total	305	101	160	267	128	961
9:00 PM	45	33	15	32	20	
9:15 PM	49	23	18	60	18	
9:30 PM	32	5	17	36	8	
9:45 PM	35	10	6	30	7	
Total	161	71	56	158	53	499
10:00 PM	23	12	4	38	12	
10:15 PM	24	4	5	27	4	
10:30 PM	17	0	5	15	6	

10:45 PM	16	2	6	15	2	
Total	80	18	20	95	24	237
11:00 PM	15	1	2	31	0	
11:15 PM	6	0	0	5	1	
11:30 PM	8	0	0	8	0	
11:45 PM	15	0	2	6	1	
Total	44	1	4	50	2	101

28832 Total Intersection

3106 Max Hour

Intersection Chipman & Pryor

9/21/2016 (Wednesday)														
Time	Turning Movement Counts								Pedestrian Counts					Hourly Total
	WL	ET	SL	NT	EL	WT	NL	ST	ET	NT	WT	ST		
	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	Phase 6	Phase 7	Phase 8	Phase 2	Phase 4	Phase 6	Phase 8		
12:00 AM		6	2	0	3	0	14	0	9	0	0	0	0	79
12:15 AM		0	4	0	0	1	5	0	7	0	0	0	0	
12:30 AM		1	1	0	5	0	3	0	3	0	0	0	0	
12:45 AM		1	1	0	3	0	4	1	5	0	0	0	0	
Total		8	8	0	11	1	26	1	24	0	0	0	0	
1:00 AM		1	2	1	2	1	10	0	3	0	0	0	0	66
1:15 AM		2	2	1	2	2	1	0	10	0	0	0	0	
1:30 AM		1	0	0	0	1	6	0	3	0	0	0	0	
1:45 AM		2	0	3	2	0	1	0	7	0	0	0	0	
Total		6	4	5	6	4	18	0	23	0	0	0	0	
2:00 AM		2	1	1	4	0	2	0	2	0	0	0	0	36
2:15 AM		0	0	0	0	2	3	0	4	0	0	0	0	
2:30 AM		2	2	1	0	0	3	0	2	0	0	0	0	
2:45 AM		0	0	0	1	0	1	0	3	0	0	0	0	
Total		4	3	2	5	2	9	0	11	0	0	0	0	
3:00 AM		0	0	0	3	0	0	0	8	0	0	0	0	46
3:15 AM		2	1	0	3	0	0	0	1	0	0	0	0	
3:30 AM		1	0	2	5	1	2	0	1	0	0	0	0	
3:45 AM		0	3	1	6	1	2	0	3	0	0	0	0	
Total		3	4	3	17	2	4	0	13	0	0	0	0	
4:00 AM		1	1	0	8	0	1	1	4	0	0	0	0	95
4:15 AM		1	1	0	8	0	0	1	7	0	0	0	0	
4:30 AM		1	3	0	14	2	1	0	5	0	0	0	0	
4:45 AM		3	6	0	21	0	4	0	1	0	0	0	0	
Total		6	11	0	51	2	6	2	17	0	0	0	0	
5:00 AM		0	5	2	13	0	1	0	6	0	0	0	0	252
5:15 AM		2	3	0	19	3	4	0	7	0	0	0	0	
5:30 AM		5	9	3	38	6	1	2	6	0	0	0	0	
5:45 AM		9	16	4	49	7	9	3	20	0	0	0	0	
Total		16	33	9	119	16	15	5	39	0	0	0	0	
6:00 AM		14	10	1	84	3	6	5	9	0	0	0	1	1188
6:15 AM		16	29	10	110	11	12	8	31	0	0	0	0	
6:30 AM		25	32	5	151	16	28	9	51	0	0	0	0	
6:45 AM		34	50	22	232	30	35	18	90	0	0	0	0	
Total		89	121	38	577	60	81	40	181	0	0	0	1	
7:00 AM		23	50	18	222	28	48	17	35	0	0	0	0	2417
7:15 AM		31	71	8	168	22	109	16	39	0	0	0	0	
7:30 AM		19	143	17	234	30	70	69	70	0	0	0	0	
7:45 AM		29	119	58	264	46	78	118	147	1	0	0	0	
Total		102	383	101	888	126	305	220	291	1	0	0	0	
8:00 AM		28	120	34	153	22	50	77	87	0	0	0	1	2141
8:15 AM		24	93	32	168	16	56	82	82	0	0	0	0	
8:30 AM		40	75	13	159	15	73	71	102	0	0	0	0	
8:45 AM		37	67	13	147	20	61	42	81	0	0	0	0	
Total		129	355	92	627	73	240	272	352	0	0	0	1	
9:00 AM		36	41	28	185	17	85	57	78	0	0	0	0	2096
9:15 AM		55	85	16	146	23	73	48	62	0	0	0	0	
9:30 AM		118	62	11	134	25	142	30	66	0	0	0	0	
9:45 AM		51	67	42	103	20	71	36	83	0	0	0	0	
Total		260	255	97	568	85	371	171	289	0	0	0	0	
10:00 AM		56	41	24	136	26	40	29	68	0	0	0	0	1828
10:15 AM		47	71	30	106	13	76	13	81	0	1	0	0	
10:30 AM		62	57	37	125	26	74	26	99	0	0	0	0	
10:45 AM		57	55	45	131	10	64	27	75	0	0	0	0	
Total		222	224	136	498	75	254	95	323	0	1	0	0	

11:00 AM	80	61	26	135	18	73	20	91	0	1	0	0	
11:15 AM	67	70	41	124	18	68	22	74	0	0	0	0	
11:30 AM	59	60	32	147	7	68	24	88	0	0	0	0	
11:45 AM	89	61	25	149	12	82	28	102	0	0	0	0	
Total	295	252	124	555	55	291	94	355	0	1	0	0	2022
12:00 PM	56	57	42	140	12	93	20	119	0	0	0	0	
12:15 PM	71	70	40	141	43	95	37	93	0	0	0	0	
12:30 PM	72	62	42	125	19	51	23	103	0	0	0	0	
12:45 PM	83	71	58	111	27	76	24	123	0	0	0	0	
Total	282	260	182	517	101	315	104	438	0	0	0	0	2199
1:00 PM	60	60	48	133	21	91	22	106	1	1	1	0	
1:15 PM	64	56	36	147	15	65	28	86	1	0	1	1	
1:30 PM	51	49	48	196	22	62	26	99	0	0	0	0	
1:45 PM	46	44	40	108	15	59	17	74	0	0	0	0	
Total	221	209	172	584	73	277	93	365	2	1	2	1	2000
2:00 PM	80	52	36	116	12	72	30	143	0	0	0	0	
2:15 PM	59	95	52	115	16	61	14	87	0	0	1	0	
2:30 PM	68	62	40	142	21	81	26	143	0	0	0	0	
2:45 PM	44	75	50	128	19	74	45	118	0	0	0	0	
Total	251	284	178	501	68	288	115	491	0	0	1	0	2177
3:00 PM	44	76	47	158	22	74	28	148	0	0	1	0	
3:15 PM	73	83	49	143	32	94	25	137	0	0	0	0	
3:30 PM	81	125	55	167	20	98	44	186	0	0	0	0	
3:45 PM	78	86	45	147	21	88	27	154	0	0	0	0	
Total	276	370	196	615	95	354	124	625	0	0	1	0	2656
4:00 PM	79	78	44	144	23	80	36	193	0	0	0	0	
4:15 PM	65	80	43	171	19	79	38	157	0	0	0	0	
4:30 PM	76	103	43	166	28	62	34	173	0	0	0	0	
4:45 PM	83	99	52	210	37	79	47	204	1	1	0	0	
Total	303	360	182	691	107	300	155	727	1	1	0	0	2827
5:00 PM	106	81	51	190	32	81	47	237	0	0	0	0	
5:15 PM	90	111	34	193	36	117	36	198	0	0	0	0	
5:30 PM	75	111	50	151	21	97	29	184	0	0	0	0	
5:45 PM	91	91	41	225	30	88	33	180	0	0	1	1	
Total	362	394	176	759	119	383	145	799	0	0	1	1	3139
6:00 PM	76	80	50	163	45	98	25	190	0	0	0	0	
6:15 PM	70	75	33	140	23	90	34	162	0	0	0	0	
6:30 PM	95	86	36	136	19	100	30	133	0	0	1	0	
6:45 PM	95	70	37	136	20	112	30	180	0	0	0	1	
Total	336	311	156	575	107	400	119	665	0	0	1	1	2671
7:00 PM	82	60	40	126	21	85	27	119	1	0	1	0	
7:15 PM	105	69	49	189	29	96	23	189	0	0	0	0	
7:30 PM	132	80	77	142	7	101	13	182	0	0	0	0	
7:45 PM	76	45	32	77	8	75	8	151	0	0	0	0	
Total	395	254	198	534	65	357	71	641	1	0	1	0	2517
8:00 PM	75	27	22	48	6	78	4	168	0	0	0	1	
8:15 PM	62	21	23	51	17	97	7	120	0	0	0	0	
8:30 PM	61	17	31	59	3	77	4	113	0	0	0	0	
8:45 PM	50	18	11	40	5	50	6	81	0	0	0	0	
Total	248	83	87	198	31	302	21	482	0	0	0	1	1453
9:00 PM	38	38	9	29	4	52	5	64	0	0	0	0	
9:15 PM	50	31	10	34	10	34	3	82	0	0	0	0	
9:30 PM	30	35	13	13	6	38	0	43	0	0	0	0	
9:45 PM	19	7	1	21	4	15	0	60	0	0	0	0	
Total	137	111	33	97	24	139	8	249	0	0	0	0	798
10:00 PM	13	11	5	23	2	21	1	39	0	0	0	0	
10:15 PM	12	7	3	12	2	32	0	32	0	0	0	0	
10:30 PM	9	8	5	6	0	6	2	24	0	0	0	0	
10:45 PM	2	6	2	5	0	21	2	23	0	0	0	0	
Total	36	32	15	46	4	80	5	118	0	0	0	0	336

11:00 PM	8	7	4	7	2	10	2	17	0	0	0	0	
11:15 PM	3	5	1	1	0	4	2	8	0	0	0	0	
11:30 PM	4	1	0	7	3	7	2	7	0	0	0	0	
11:45 PM	6	3	0	4	0	9	1	27	0	0	0	0	
Total	21	16	5	19	5	30	7	59	0	0	0	0	162

35201 Total Inter:

3139 Max Hour

Trip Generation - 9th Edition

								Trip Ends						
Parcel	Building Use	Phase 1 or 2	Dwelling Units	Building Size Sq Ft	ITE Land Use Code	ITE Page Number	Comments	Daily	AM Total	PM Total	Am Enter	Am Exit	PM Enter	PM Exit
(#)	(text)		(#)	(sq ft)	(#)	(#)	(text)	(trips)	(trips)	(trips)	(trips)	(trips)	(trips)	(trips)
1	Single Family Homes	5	40		210	296	Single Family Detached Housing	448	37	46	9	28	29	17
2	Senior Luxury Apartments	4	182		220	332	Peak Hour of Adjacent Street Used	1223	93	117	19	74	76	41
3	Ball Courts	4	13						22	48	11	11	24	24
4	Extended Stay Hotel	2	90				Hotel	432	48	54	28	20	28	26
5	Hotel	2	130		310	613	Hotel	790	69	78	41	28	40	38
6	Restaurant	2		6,272.5	932	1885	High Turnover (sit-down) restaurant	798	68	62	37	31	37	25
6	Restaurant	2		6,272.5	932	1885	High Turnover (sit-down) restaurant	798	68	62	37	31	37	25
7	Dine-in Restaurant	3		7500	932	1865	High Turnover (Sit-Down) Restaurant	954	81	74	45	36	44	30
8	Dine-in Restaurant	3		7500	932	1865	High Turnover (Sit-Down) Restaurant	954	81	74	45	36	44	30
9	Apartments & Clubhouse	3	275		220	332	Peak Hour of Adjacent Street Used	1790	138	169	28	111	110	59
10	Grocery	1		63119	850	1645	Peak Hour of Adjacent Street Used	5,617	215	554	133	82	283	272
11	Medical/Retail	1		6500	820	1561	Shopping Center	1,149	29	96	18	11	46	50
12	Fast food restaurant	1		5500	934	1912	Fast-Food Restaurant with Drive-Through Windo	2,729	250	180	127	122	93	86
13	Sit down Restaurant	1		6500	932	1865	High Turnover (Sit-Down) Restaurant	826	70	64	39	32	38	26
14	Sit down Restaurant	1		6500	932	1865	High Turnover (Sit-Down) Restaurant	826	70	64	39	32	38	26
			320					19,334	1,339	1,741	655	684	968	773

Phase 1	11,148	634	958	356	278	499	459
Phase 2	2,818	252	256	143	109	141	114
Phase 3	3,697	301	317	117	184	198	118
Phase 4	1,223	114	165	29	85	100	65
Phase 5	448	37	46	9	28	29	17

Total	19,334	1,339	1,741	655	684	968	773
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Phase 4+5 Combined	1,671	152	211	39	113	129	82
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Trip Generation - 10th Edition

								Trip Ends						
Parcel	Building Use	Phase 1 or 2	Dwelling Units	Building Size Sq Ft	ITE Land Use Code	ITE Page Number	Comments	Daily	AM Total	PM Total	Am Enter	Am Exit	PM Enter	PM Exit
(#)	(text)		(#)	(sq ft)	(#)	(#)	(text)	(trips)	(trips)	(trips)	(trips)	(trips)	(trips)	(trips)
1	Single Family Homes	5	40		210	296	Single Family Detached Housing	443	33	42	8	25	26	15
2	Senior Luxury Apartments	4	182		220	332	Peak Hour of Adjacent Street Used	1331	84	100	19	65	63	37
3	Ball Courts	4	13					394	22	55	11	11	27	27
4	Extended Stay Hotel	2	90		310	613	Hotel	589	40	41	23	16	21	20
5	Hotel	2	130		310	613	Hotel	1041	60	71	35	24	36	35
6	Restaurant	2		6,272.5	932	1885	High Turnover (sit-down) restaurant	704	62	61	34	28	38	23
6	Restaurant	2		6,272.5	932	1885	High Turnover (sit-down) restaurant	704	62	61	34	28	38	23
7	Dine-in Restaurant	3		7500	932	1865	High Turnover (Sit-Down) Restaurant	841	75	73	41	34	45	28
8	Dine-in Restaurant	3		7500	932	1865	High Turnover (Sit-Down) Restaurant	841	75	73	41	34	45	28
9	Apartments & Clubhouse	3	275		220	332	Peak Hour of Adjacent Street Used	2038	125	145	29	96	92	54
10	Grocery	1		63119	850	1645	Peak Hour of Adjacent Street Used	5,687	241	555	145	96	283	272
11	Medical/Retail	1		6500	820	1561	Shopping Center	937	155	72	96	59	35	37
12	Fast food restaurant	1		5500	934	1912	Fast-Food Restaurant with Drive-Through Windo	2,590	221	180	113	108	93	86
13	Sit down Restaurant	1		6500	932	1865	High Turnover (Sit-Down) Restaurant	729	65	64	36	29	39	24
14	Sit down Restaurant	1		6500	932	1865	High Turnover (Sit-Down) Restaurant	729	65	64	36	29	39	24
	Total		320					19,600	1,383	1,658	701	682	923	735

Phase 1	10,673	746	933	425	322	490	444
Phase 2	3,037	224	236	127	97	134	102
Phase 3	3,721	274	292	111	163	182	109
Phase 4	1,725	106	155	30	76	91	65
Phase 5	443	33	42	8	25	26	15
Total	19,600	1,383	1,658	701	682	923	735
Phase 4+5 Combined	2,169	139	197	38	100	117	80

West Pryor Village
6: W Pryor Rd & I-470 Ramp

Existing Peak AM
8/8/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	212	133	0	0	0	0	359	291	0	184	0
Future Volume (vph)	14	212	133	0	0	0	0	359	291	0	184	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		400	0		0	0		311	550		0
Storage Lanes	1		2	0		0	0		1	1		0
Taper Length (ft)	100			25			25			50		
Lane Util. Factor	1.00	0.95	0.88	1.00	1.00	1.00	1.00	0.86	1.00	1.00	0.95	1.00
Frt			0.850						0.850			
Flt Protected	0.950											
Satd. Flow (prot)	1770	3539	2787	0	0	0	0	6408	1583	1863	3539	0
Flt Permitted	0.950											
Satd. Flow (perm)	1770	3539	2787	0	0	0	0	6408	1583	1863	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			143						313			
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		297			425			276			300	
Travel Time (s)		6.8			9.7			5.4			5.8	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	15	228	143	0	0	0	0	386	313	0	198	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	15	228	143	0	0	0	0	386	313	0	198	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			30			30	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1					2	1	1	2	
Detector Template	Left	Thru	Right					Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20					100	20	20	100	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Detector 1 Position(ft)	0	0	0					0	0	0	0	
Detector 1 Size(ft)	20	6	20					6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Prot	NA	Perm					NA	Perm	Prot	NA	
Protected Phases	7	4						2		1	6	
Permitted Phases			4						2			

West Pryor Village
6: W Pryor Rd & I-470 Ramp

Existing Peak AM
8/8/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4					2	2	1	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0					6.0	6.0	6.0	6.0	
Minimum Split (s)	11.6	40.3	40.3					35.5	35.5	11.5	41.5	
Total Split (s)	43.0	43.0	43.0					45.5	45.5	11.5	57.0	
Total Split (%)	43.0%	43.0%	43.0%					45.5%	45.5%	11.5%	57.0%	
Maximum Green (s)	37.4	37.7	37.7					40.0	40.0	6.0	51.5	
Yellow Time (s)	3.0	3.8	3.8					4.0	4.0	3.5	4.0	
All-Red Time (s)	2.6	1.5	1.5					1.5	1.5	2.0	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.6	5.3	5.3					5.5	5.5	5.5	5.5	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Recall Mode	None	None	None					C-Max	C-Max	None	None	
Walk Time (s)		5.0	5.0					5.0	5.0		5.0	
Flash Dont Walk (s)		30.0	30.0					25.0	25.0		31.0	
Pedestrian Calls (#/hr)		0	0					0	0		0	
Act Effect Green (s)	9.4	12.0	12.0					77.2	77.2		77.2	
Actuated g/C Ratio	0.09	0.12	0.12					0.77	0.77		0.77	
v/c Ratio	0.09	0.54	0.31					0.08	0.24		0.07	
Control Delay	39.7	45.7	8.5					0.6	0.5		3.1	
Queue Delay	0.0	0.0	0.0					0.0	0.0		0.0	
Total Delay	39.7	45.7	8.5					0.6	0.5		3.1	
LOS	D	D	A					A	A		A	
Approach Delay		31.7						0.6			3.1	
Approach LOS		C						A			A	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 75 (75%), Referenced to phase 2:NBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.54

Intersection Signal Delay: 10.3

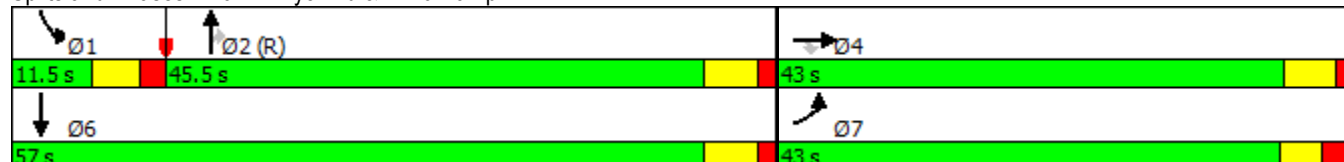
Intersection LOS: B

Intersection Capacity Utilization 32.9%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 6: W Pryor Rd & I-470 Ramp





Lane Group	EBL	EBT	EBR	NBT	NBR	SBT
Lane Group Flow (vph)	15	228	143	386	313	198
v/c Ratio	0.09	0.54	0.31	0.08	0.24	0.07
Control Delay	39.7	45.7	8.5	0.6	0.5	3.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.7	45.7	8.5	0.6	0.5	3.1
Queue Length 50th (ft)	9	73	0	0	0	12
Queue Length 95th (ft)	27	106	29	3	0	25
Internal Link Dist (ft)		217		196		220
Turn Bay Length (ft)	200		400		311	
Base Capacity (vph)	661	1334	1139	4945	1293	2731
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.17	0.13	0.08	0.24	0.07
Intersection Summary						

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	212	133	0	0	0	0	359	291	0	184	0
Future Volume (veh/h)	14	212	133	0	0	0	0	359	291	0	184	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863				0	1863	1863	1863	1863	0
Adj Flow Rate, veh/h	15	228	143				0	386	313	0	198	0
Adj No. of Lanes	1	2	2				0	4	1	1	2	0
Peak Hour Factor	0.93	0.93	0.93				0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	183	365	287				0	5036	1244	2	2781	0
Arrive On Green	0.10	0.10	0.10				0.00	0.79	0.79	0.00	0.79	0.00
Sat Flow, veh/h	1774	3539	2787				0	6669	1583	1774	3632	0
Grp Volume(v), veh/h	15	228	143				0	386	313	0	198	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1393				0	1602	1583	1774	1770	0
Q Serve(g_s), s	0.8	6.2	4.9				0.0	1.4	5.3	0.0	1.3	0.0
Cycle Q Clear(g_c), s	0.8	6.2	4.9				0.0	1.4	5.3	0.0	1.3	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	183	365	287				0	5036	1244	2	2781	0
V/C Ratio(X)	0.08	0.62	0.50				0.00	0.08	0.25	0.00	0.07	0.00
Avail Cap(c_a), veh/h	663	1324	1042				0	5036	1244	106	2781	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	40.6	43.0	42.4				0.0	2.4	2.9	0.0	2.4	0.0
Incr Delay (d2), s/veh	0.2	1.8	1.3				0.0	0.0	0.5	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	3.1	1.9				0.0	0.6	2.4	0.0	0.6	0.0
LnGrp Delay(d),s/veh	40.7	44.7	43.7				0.0	2.5	3.3	0.0	2.4	0.0
LnGrp LOS	D	D	D					A	A		A	
Approach Vol, veh/h		386						699			198	
Approach Delay, s/veh		44.2						2.9			2.4	
Approach LOS		D						A			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	0.0	84.1		15.9		84.1						
Change Period (Y+Rc), s	5.5	5.5		5.6		5.5						
Max Green Setting (Gmax), s	6.0	40.0		37.4		51.5						
Max Q Clear Time (g_c+l1), s	0.0	7.3		8.2		3.3						
Green Ext Time (p_c), s	0.0	5.4		2.1		5.6						
Intersection Summary												
HCM 2010 Ctrl Delay			15.2									
HCM 2010 LOS			B									

West Pryor Village
9: W Pryor Rd & Summit Woods Crossing

Existing Peak AM
8/8/2018

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	2	50	606	12	84	236
Future Volume (vph)	2	50	606	12	84	236
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200	0		150	300	
Storage Lanes	2	1		1	1	
Taper Length (ft)	100				100	
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3433	1583	3539	1583	1770	3539
Flt Permitted	0.950				0.356	
Satd. Flow (perm)	3433	1583	3539	1583	663	3539
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		57		14		
Link Speed (mph)	25		35			35
Link Distance (ft)	358		534			288
Travel Time (s)	9.8		10.4			5.6
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	2	57	689	14	95	268
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2	57	689	14	95	268
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	24		30			30
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Number of Detectors	1	1	2	1	1	2
Detector Template	Left	Right	Thru	Right	Left	Thru
Leading Detector (ft)	20	20	100	20	20	100
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	6	20	20	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)			94			94
Detector 2 Size(ft)			6			6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA	Perm	pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2	6	

West Pryor Village
9: W Pryor Rd & Summit Woods Crossing

Existing Peak AM
8/8/2018

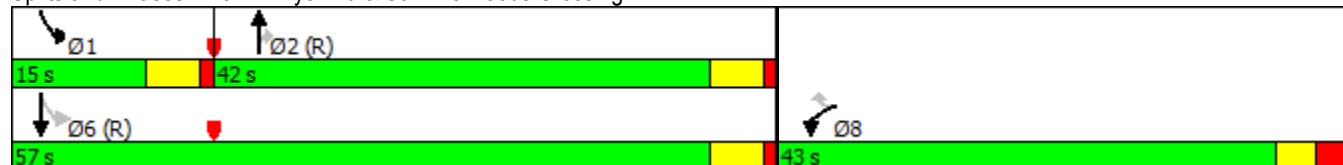


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	43.0	43.0	31.0	31.0	12.7	31.0
Total Split (s)	43.0	43.0	42.0	42.0	15.0	57.0
Total Split (%)	43.0%	43.0%	42.0%	42.0%	15.0%	57.0%
Maximum Green (s)	37.0	37.0	37.0	37.0	10.0	52.0
Yellow Time (s)	3.0	3.0	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	3.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	5.0	5.0	5.0	5.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max	C-Max	None	C-Max
Walk Time (s)	5.0	5.0	5.0	5.0		5.0
Flash Dont Walk (s)	32.0	32.0	21.0	21.0		21.0
Pedestrian Calls (#/hr)	0	0	0	0		0
Act Effect Green (s)	6.8	6.8	76.2	76.2	84.6	85.6
Actuated g/C Ratio	0.07	0.07	0.76	0.76	0.85	0.86
v/c Ratio	0.01	0.35	0.26	0.01	0.15	0.09
Control Delay	42.5	18.4	2.3	0.1	2.2	1.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.5	18.4	2.3	0.1	2.2	1.6
LOS	D	B	A	A	A	A
Approach Delay	19.2		2.3			1.7
Approach LOS	B		A			A

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 60 (60%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.35
Intersection Signal Delay: 3.0
Intersection Capacity Utilization 40.1%
Analysis Period (min) 15
Intersection LOS: A
ICU Level of Service A

Splits and Phases: 9: W Pryor Rd & Summit Woods Crossing





Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	2	57	689	14	95	268
v/c Ratio	0.01	0.35	0.26	0.01	0.15	0.09
Control Delay	42.5	18.4	2.3	0.1	2.2	1.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.5	18.4	2.3	0.1	2.2	1.6
Queue Length 50th (ft)	0	0	14	0	8	11
Queue Length 95th (ft)	4	36	22	m0	15	18
Internal Link Dist (ft)	278		454			208
Turn Bay Length (ft)	200			150	300	
Base Capacity (vph)	1270	621	2696	1209	671	3028
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.09	0.26	0.01	0.14	0.09

Intersection Summary

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

								
Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations	 		 			 		
Traffic Volume (veh/h)	2	50	606	12	84	236		
Future Volume (veh/h)	2	50	606	12	84	236		
Number	3	18	2	12	1	6		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863		
Adj Flow Rate, veh/h	2	57	689	14	95	268		
Adj No. of Lanes	2	1	2	1	1	2		
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	166	77	2605	1165	669	2979		
Arrive On Green	0.05	0.05	0.74	0.74	0.06	0.84		
Sat Flow, veh/h	3442	1583	3632	1583	1774	3632		
Grp Volume(v), veh/h	2	57	689	14	95	268		
Grp Sat Flow(s),veh/h/ln	1721	1583	1770	1583	1774	1770		
Q Serve(g_s), s	0.1	3.6	6.4	0.2	1.1	1.3		
Cycle Q Clear(g_c), s	0.1	3.6	6.4	0.2	1.1	1.3		
Prop In Lane	1.00	1.00		1.00	1.00			
Lane Grp Cap(c), veh/h	166	77	2605	1165	669	2979		
V/C Ratio(X)	0.01	0.74	0.26	0.01	0.14	0.09		
Avail Cap(c_a), veh/h	1273	586	2605	1165	747	2979		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	45.3	47.0	4.3	3.5	2.3	1.4		
Incr Delay (d2), s/veh	0.0	13.3	0.2	0.0	0.1	0.1		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	0.0	1.8	3.2	0.1	0.5	0.7		
LnGrp Delay(d),s/veh	45.3	60.3	4.6	3.5	2.4	1.4		
LnGrp LOS	D	E	A	A	A	A		
Approach Vol, veh/h	59		703			363		
Approach Delay, s/veh	59.7		4.6			1.7		
Approach LOS	E		A			A		
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	10.6	78.6				89.2		10.8
Change Period (Y+Rc), s	5.0	5.0				5.0		6.0
Max Green Setting (Gmax), s	10.0	37.0				52.0		37.0
Max Q Clear Time (g_c+I1), s	3.1	8.4				3.3		5.6
Green Ext Time (p_c), s	0.1	7.2				7.8		0.2
Intersection Summary								
HCM 2010 Ctrl Delay			6.5					
HCM 2010 LOS			A					

West Pryor Village
11: Lowenstein Rd & W Pryor Rd

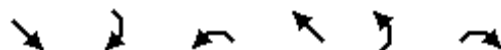
Existing Peak AM
8/8/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	2	5	17	0	12	15	602	27	12	214	10
Future Volume (vph)	16	2	5	17	0	12	15	602	27	12	214	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	0		150	200		150	215		150
Storage Lanes	1		0	0		1	1		1	1		0
Taper Length (ft)	125			25			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt		0.887				0.850			0.850		0.993	
Flt Protected	0.950				0.950		0.950			0.950		
Satd. Flow (prot)	1770	1652	0	0	1770	1583	1770	3539	1583	1770	3514	0
Flt Permitted	0.950				0.950		0.950			0.950		
Satd. Flow (perm)	1770	1652	0	0	1770	1583	1770	3539	1583	1770	3514	0
Link Speed (mph)		30			10			35			35	
Link Distance (ft)		172			227			220			555	
Travel Time (s)		3.9			15.5			4.3			10.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	18	2	6	19	0	13	17	669	30	13	238	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	18	8	0	0	19	13	17	669	30	13	249	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			30			30	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	33.3%						ICU Level of Service A					
Analysis Period (min)	15											

West Pryor Village
11: Lowenstein Rd & W Pryor Rd

Existing Peak AM
8/8/2018

Intersection												
Int Delay, s/veh	1.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	16	2	5	17	0	12	15	602	27	12	214	10
Future Vol, veh/h	16	2	5	17	0	12	15	602	27	12	214	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	-	-	150	200	-	150	215	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	18	2	6	19	0	13	17	669	30	13	238	11
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	638	972	124	849	978	334	249	0	0	669	0	0
Stage 1	270	270	-	702	702	-	-	-	-	-	-	-
Stage 2	368	702	-	147	276	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	361	251	904	254	249	662	1314	-	-	917	-	-
Stage 1	713	685	-	395	439	-	-	-	-	-	-	-
Stage 2	624	439	-	841	680	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	346	244	904	246	242	662	1314	-	-	917	-	-
Mov Cap-2 Maneuver	346	244	-	246	242	-	-	-	-	-	-	-
Stage 1	704	675	-	390	433	-	-	-	-	-	-	-
Stage 2	604	433	-	821	670	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	14.8			16.6			0.2			0.5		
HCM LOS	B			C								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR		
Capacity (veh/h)	1314	-	-	346	510	246	662	917	-	-		
HCM Lane V/C Ratio	0.013	-	-	0.051	0.015	0.077	0.02	0.015	-	-		
HCM Control Delay (s)	7.8	-	-	16	12.2	20.8	10.6	9	-	-		
HCM Lane LOS	A	-	-	C	B	C	B	A	-	-		
HCM 95th %tile Q(veh)	0	-	-	0.2	0	0.2	0.1	0	-	-		



Lane Group	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Volume (vph)	8	0	3	3	0	10
Future Volume (vph)	8	0	3	3	0	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t	0.865					
Flt Protected	0.976					
Satd. Flow (prot)	1863	0	0	1818	1611	0
Flt Permitted	0.976					
Satd. Flow (perm)	1863	0	0	1818	1611	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	866			1603	888	
Travel Time (s)	23.6			43.7	24.2	
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Adj. Flow (vph)	13	0	5	5	0	16
Shared Lane Traffic (%)						
Lane Group Flow (vph)	13	0	0	10	16	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 13.3% ICU Level of Service A

Analysis Period (min) 15

Intersection

Int Delay, s/veh 4.4

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	8	0	3	3	0	10
Future Vol, veh/h	8	0	3	3	0	10
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	63	63	63	63	63	63
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	13	0	5	5	0	16

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	13	27
Stage 1	-	-	13
Stage 2	-	-	14
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	-	1606	988
Stage 1	-	-	1010
Stage 2	-	-	1009
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	1606	985
Mov Cap-2 Maneuver	-	-	985
Stage 1	-	-	1010
Stage 2	-	-	1006

Approach	SE	NW	NE
HCM Control Delay, s	0	3.6	8.4
HCM LOS			A

Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER
Capacity (veh/h)	1067	1606	-	-	-
HCM Lane V/C Ratio	0.015	0.003	-	-	-
HCM Control Delay (s)	8.4	7.2	0	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	0	-	-	-

West Pryor Village
18: Chipman Rd & W Pryor Rd

Existing Peak AM
8/8/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	86	199	63	84	85	58	36	497	127	43	177	29
Future Volume (vph)	86	199	63	84	85	58	36	497	127	43	177	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	200		170	170		0	260		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	70			100			80			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.964				0.850		0.969			0.979	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3412	0	1770	3539	1583	1770	3429	0	1770	3465	0
Flt Permitted	0.694			0.437			0.610			0.349		
Satd. Flow (perm)	1293	3412	0	814	3539	1583	1136	3429	0	650	3465	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		43				153		36			21	
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		651			831			351			533	
Travel Time (s)		12.7			16.2			6.8			10.4	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	95	219	69	92	93	64	40	546	140	47	195	32
Shared Lane Traffic (%)												
Lane Group Flow (vph)	95	288	0	92	93	64	40	686	0	47	227	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			30	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2			6		

West Pryor Village
18: Chipman Rd & W Pryor Rd

Existing Peak AM
8/8/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Minimum Split (s)	12.0	32.0		12.0	35.0	35.0	12.0	34.0		12.0	34.0	
Total Split (s)	12.0	35.0		12.0	35.0	35.0	12.0	41.0		12.0	41.0	
Total Split (%)	12.0%	35.0%		12.0%	35.0%	35.0%	12.0%	41.0%		12.0%	41.0%	
Maximum Green (s)	6.0	30.0		6.0	30.0	30.0	6.0	36.0		6.0	36.0	
Yellow Time (s)	3.5	4.0		3.5	4.0	4.0	3.5	4.0		3.5	4.0	
All-Red Time (s)	2.5	1.0		2.5	1.0	1.0	2.5	1.0		2.5	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	5.0		6.0	5.0	5.0	6.0	5.0		6.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max		None	None	
Walk Time (s)		5.0			5.0	5.0		5.0			5.0	
Flash Dont Walk (s)		22.0			25.0	25.0		24.0			24.0	
Pedestrian Calls (#/hr)		0			0	0		0			0	
Act Effect Green (s)	16.4	12.6		16.4	12.6	12.6	63.0	59.9		63.3	60.0	
Actuated g/C Ratio	0.16	0.13		0.16	0.13	0.13	0.63	0.60		0.63	0.60	
v/c Ratio	0.39	0.62		0.48	0.21	0.19	0.05	0.33		0.10	0.11	
Control Delay	36.0	40.5		39.7	39.3	1.3	7.7	12.2		6.4	9.1	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	36.0	40.5		39.7	39.3	1.3	7.7	12.2		6.4	9.1	
LOS	D	D		D	D	A	A	B		A	A	
Approach Delay		39.4			29.6			11.9			8.7	
Approach LOS		D			C			B			A	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 2 (2%), Referenced to phase 2:NBT, Start of Green

Natural Cycle: 95

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.62

Intersection Signal Delay: 20.5

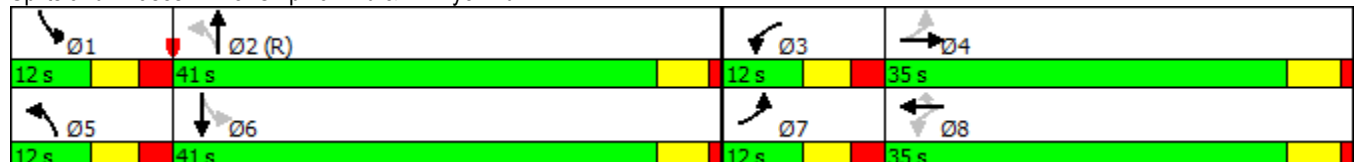
Intersection LOS: C

Intersection Capacity Utilization 52.8%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 18: Chipman Rd & W Pryor Rd



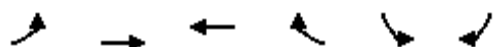


Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	95	288	92	93	64	40	686	47	227
v/c Ratio	0.39	0.62	0.48	0.21	0.19	0.05	0.33	0.10	0.11
Control Delay	36.0	40.5	39.7	39.3	1.3	7.7	12.2	6.4	9.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.0	40.5	39.7	39.3	1.3	7.7	12.2	6.4	9.1
Queue Length 50th (ft)	49	78	47	28	0	8	121	10	28
Queue Length 95th (ft)	88	117	86	50	0	23	182	26	55
Internal Link Dist (ft)		571		751			271		453
Turn Bay Length (ft)	200		200		170	170		260	
Base Capacity (vph)	241	1053	191	1061	582	757	2069	485	2088
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.27	0.48	0.09	0.11	0.05	0.33	0.10	0.11
Intersection Summary									

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	86	199	63	84	85	58	36	497	127	43	177	29
Future Volume (veh/h)	86	199	63	84	85	58	36	497	127	43	177	29
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	95	219	69	92	93	64	40	546	140	47	195	32
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	1	2	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	300	330	101	225	436	195	747	1544	395	484	1699	274
Arrive On Green	0.06	0.12	0.12	0.06	0.12	0.12	0.04	0.55	0.55	0.04	0.56	0.56
Sat Flow, veh/h	1774	2668	819	1774	3539	1583	1774	2793	713	1774	3052	493
Grp Volume(v), veh/h	95	143	145	92	93	64	40	345	341	47	112	115
Grp Sat Flow(s),veh/h/ln	1774	1770	1718	1774	1770	1583	1774	1770	1737	1774	1770	1776
Q Serve(g_s), s	4.6	7.7	8.1	4.5	2.4	3.7	0.9	10.8	10.9	1.1	3.0	3.1
Cycle Q Clear(g_c), s	4.6	7.7	8.1	4.5	2.4	3.7	0.9	10.8	10.9	1.1	3.0	3.1
Prop In Lane	1.00		0.48	1.00		1.00	1.00		0.41	1.00		0.28
Lane Grp Cap(c), veh/h	300	219	212	225	436	195	747	979	960	484	985	988
V/C Ratio(X)	0.32	0.66	0.68	0.41	0.21	0.33	0.05	0.35	0.35	0.10	0.11	0.12
Avail Cap(c_a), veh/h	300	531	515	225	1062	475	782	979	960	513	985	988
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.3	41.8	41.9	35.6	39.5	40.1	8.5	12.4	12.4	9.0	10.5	10.5
Incr Delay (d2), s/veh	0.6	3.3	3.8	1.2	0.2	1.0	0.0	1.0	1.0	0.1	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	4.0	4.0	2.2	1.2	1.7	0.5	5.5	5.5	0.5	1.5	1.5
LnGrp Delay(d),s/veh	35.9	45.1	45.7	36.8	39.7	41.0	8.5	13.4	13.5	9.1	10.5	10.6
LnGrp LOS	D	D	D	D	D	D	A	B	B	A	B	B
Approach Vol, veh/h		383			249			726			274	
Approach Delay, s/veh		43.1			39.0			13.2			10.3	
Approach LOS		D			D			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.4	60.3	12.0	17.4	10.0	60.6	12.0	17.3				
Change Period (Y+Rc), s	6.0	5.0	6.0	5.0	6.0	5.0	6.0	5.0				
Max Green Setting (Gmax), s	6.0	36.0	6.0	30.0	6.0	36.0	6.0	30.0				
Max Q Clear Time (g_c+I1), s	3.1	12.9	6.5	10.1	2.9	5.1	6.6	5.7				
Green Ext Time (p_c), s	0.0	5.7	0.0	2.3	0.0	6.2	0.0	2.4				
Intersection Summary												
HCM 2010 Ctrl Delay			23.6									
HCM 2010 LOS			C									

West Pryor Village
21: Chipman & Black Twig

Existing Peak AM
8/8/2018



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	1	238	108	3	15	2
Future Volume (vph)	1	238	108	3	15	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.997		0.986	
Flt Protected	0.950				0.957	
Satd. Flow (prot)	1770	1863	1857	0	1758	0
Flt Permitted	0.950				0.957	
Satd. Flow (perm)	1770	1863	1857	0	1758	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		500	1814		601	
Travel Time (s)		9.7	35.3		16.4	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	1	274	124	3	17	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1	274	127	0	19	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 22.5% ICU Level of Service A

Analysis Period (min) 15

Intersection						
Int Delay, s/veh	0.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	238	108	3	15	2
Future Vol, veh/h	1	238	108	3	15	2
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	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	274	124	3	17	2
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	128	0	-	0	402	126
Stage 1	-	-	-	-	126	-
Stage 2	-	-	-	-	276	-
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	1458	-	-	-	604	924
Stage 1	-	-	-	-	900	-
Stage 2	-	-	-	-	771	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	1458	-	-	-	604	924
Mov Cap-2 Maneuver	-	-	-	-	604	-
Stage 1	-	-	-	-	900	-
Stage 2	-	-	-	-	770	-
Approach	EB		WB		SB	
HCM Control Delay, s	0		0		10.9	
HCM LOS					B	
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1458	-	-	-	630	
HCM Lane V/C Ratio	0.001	-	-	-	0.031	
HCM Control Delay (s)	7.5	-	-	-	10.9	
HCM Lane LOS	A	-	-	-	B	
HCM 95th %tile Q(veh)	0	-	-	-	0.1	

Intersection: 6: W Pryor Rd & I-470 Ramp

Movement	EB	EB	EB	EB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	T	R	T	T	T	R	T	T
Maximum Queue (ft)	30	132	28	49	44	43	16	85	74	30
Average Queue (ft)	12	92	11	43	14	16	3	38	27	6
95th Queue (ft)	37	128	33	58	43	43	14	88	71	26
Link Distance (ft)		241	241		175	175	175		276	276
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	200			400				311		
Storage Blk Time (%)										
Queuing Penalty (veh)										

Intersection: 9: W Pryor Rd & Summit Woods Crossing

Movement	WB	SB
Directions Served	R	L
Maximum Queue (ft)	51	53
Average Queue (ft)	37	37
95th Queue (ft)	54	70
Link Distance (ft)	279	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		300
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 11: Lowenstein Rd & W Pryor Rd

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	LT	R	L	L
Maximum Queue (ft)	30	31	23	17	26	29
Average Queue (ft)	12	6	8	3	5	6
95th Queue (ft)	36	27	26	15	22	25
Link Distance (ft)		95	161			
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	150			150	200	215
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 16: Black Twig Ln & Lowenstein Rd

Movement	NE
Directions Served	LR
Maximum Queue (ft)	31
Average Queue (ft)	6
95th Queue (ft)	27
Link Distance (ft)	833
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 18: Chipman Rd & W Pryor Rd

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	T	R	L	T	TR	L	T
Maximum Queue (ft)	91	111	90	135	71	47	76	30	98	185	18	58
Average Queue (ft)	65	76	60	78	43	15	42	30	54	110	14	27
95th Queue (ft)	92	119	112	142	75	46	74	31	103	186	23	62
Link Distance (ft)		567	567		777	777			304	304		448
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	200			200			170	170			260	
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 18: Chipman Rd & W Pryor Rd

Movement	SB
Directions Served	TR
Maximum Queue (ft)	75
Average Queue (ft)	26
95th Queue (ft)	79
Link Distance (ft)	448
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 21: Chipman & Black Twig

Movement	SB
Directions Served	LR
Maximum Queue (ft)	20
Average Queue (ft)	4
95th Queue (ft)	17
Link Distance (ft)	521
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 0

Lowenstein Drive Existing Peak PM

6: I-470 Ramp

8/8/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	132	418	0	0	0	0	392	302	4	468	0
Future Volume (vph)	20	132	418	0	0	0	0	392	302	4	468	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		400	0		0	0		311	550		0
Storage Lanes	1		2	0		0	0		1	1		0
Taper Length (ft)	100			25			25			50		
Lane Util. Factor	1.00	0.95	0.88	1.00	1.00	1.00	1.00	0.86	1.00	1.00	0.95	1.00
Frt			0.850							0.850		
Flt Protected	0.950									0.950		
Satd. Flow (prot)	1770	3539	2787	0	0	0	0	6408	1583	1770	3539	0
Flt Permitted	0.950									0.950		
Satd. Flow (perm)	1770	3539	2787	0	0	0	0	6408	1583	1770	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			440						318			
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		297			425			276			300	
Travel Time (s)		6.8			9.7			5.4			5.8	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	21	139	440	0	0	0	0	413	318	4	493	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	21	139	440	0	0	0	0	413	318	4	493	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1					2	1	1	2	
Detector Template	Left	Thru	Right					Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20					100	20	20	100	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Detector 1 Position(ft)	0	0	0					0	0	0	0	
Detector 1 Size(ft)	20	6	20					6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Prot	NA	Perm					NA	Perm	Prot	NA	
Protected Phases	7	4						2		1	6	
Permitted Phases			4						2			

Lowenstein Drive Existing Peak PM
6: I-470 Ramp

8/8/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4					2	2	1	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0					6.0	6.0	6.0	6.0	
Minimum Split (s)	11.6	21.6	21.6					21.5	21.5	11.5	21.5	
Total Split (s)	36.0	36.0	36.0					49.0	49.0	15.0	64.0	
Total Split (%)	36.0%	36.0%	36.0%					49.0%	49.0%	15.0%	64.0%	
Maximum Green (s)	30.4	30.4	30.4					43.5	43.5	9.5	58.5	
Yellow Time (s)	3.8	3.8	3.8					4.0	4.0	4.0	4.0	
All-Red Time (s)	1.8	1.8	1.8					1.5	1.5	1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.6	5.6	5.6					5.5	5.5	5.5	5.5	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Recall Mode	None	None	None					C-Max	C-Max	None	None	
Walk Time (s)		5.0	5.0					5.0	5.0		5.0	
Flash Dont Walk (s)		11.0	11.0					11.0	11.0		11.0	
Pedestrian Calls (#/hr)		0	0					0	0		0	
Act Effect Green (s)	9.2	10.7	10.7					75.8	75.8	6.1	78.2	
Actuated g/C Ratio	0.09	0.11	0.11					0.76	0.76	0.06	0.78	
v/c Ratio	0.13	0.37	0.64					0.09	0.25	0.04	0.18	
Control Delay	41.1	43.4	8.5					1.4	0.7	45.0	3.2	
Queue Delay	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Total Delay	41.1	43.4	8.5					1.4	0.7	45.0	3.2	
LOS	D	D	A					A	A	D	A	
Approach Delay		17.7						1.1			3.5	
Approach LOS		B						A			A	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 35 (35%), Referenced to phase 2:NBT, Start of Green

Natural Cycle: 55

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.64

Intersection Signal Delay: 7.2

Intersection LOS: A

Intersection Capacity Utilization 42.5%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 6: I-470 Ramp



Lowenstein Drive Existing Peak PM
6: I-470 Ramp

8/8/2018

							
Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	21	139	440	413	318	4	493
v/c Ratio	0.13	0.37	0.64	0.09	0.25	0.04	0.18
Control Delay	41.1	43.4	8.5	1.4	0.7	45.0	3.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.1	43.4	8.5	1.4	0.7	45.0	3.2
Queue Length 50th (ft)	13	44	0	4	0	2	32
Queue Length 95th (ft)	34	71	46	10	0	14	57
Internal Link Dist (ft)		217		196			220
Turn Bay Length (ft)	200		400		311	550	
Base Capacity (vph)	538	1075	1153	4857	1277	168	2767
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.13	0.38	0.09	0.25	0.02	0.18
Intersection Summary							

Lowenstein Drive Existing Peak PM
6: I-470 Ramp

8/8/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	132	418	0	0	0	0	392	302	4	468	0
Future Volume (veh/h)	20	132	418	0	0	0	0	392	302	4	468	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863				0	1863	1863	1863	1863	0
Adj Flow Rate, veh/h	21	139	440				0	413	318	4	493	0
Adj No. of Lanes	1	2	2				0	4	1	1	2	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	345	688	542				0	4057	1003	11	2458	0
Arrive On Green	0.19	0.19	0.19				0.00	0.63	0.63	0.01	0.69	0.00
Sat Flow, veh/h	1774	3539	2787				0	6669	1583	1774	3632	0
Grp Volume(v), veh/h	21	139	440				0	413	318	4	493	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1393				0	1602	1583	1774	1770	0
Q Serve(g_s), s	1.0	3.3	15.1				0.0	2.5	9.2	0.2	4.9	0.0
Cycle Q Clear(g_c), s	1.0	3.3	15.1				0.0	2.5	9.2	0.2	4.9	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	345	688	542				0	4057	1003	11	2458	0
V/C Ratio(X)	0.06	0.20	0.81				0.00	0.10	0.32	0.36	0.20	0.00
Avail Cap(c_a), veh/h	539	1076	847				0	4057	1003	169	2458	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	32.8	33.8	38.5				0.0	7.2	8.4	49.5	5.4	0.0
Incr Delay (d2), s/veh	0.1	0.1	3.4				0.0	0.1	0.8	18.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	1.6	6.1				0.0	1.1	4.2	0.2	2.4	0.0
LnGrp Delay(d),s/veh	32.9	33.9	41.9				0.0	7.2	9.2	67.7	5.5	0.0
LnGrp LOS	C	C	D					A	A	E	A	
Approach Vol, veh/h		600						731			497	
Approach Delay, s/veh		39.7						8.1			6.0	
Approach LOS		D						A			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	6.1	68.8		25.0		75.0						
Change Period (Y+Rc), s	5.5	5.5		5.6		5.5						
Max Green Setting (Gmax), s	9.5	43.5		30.4		58.5						
Max Q Clear Time (g_c+l1), s	2.2	11.2		17.1		6.9						
Green Ext Time (p_c), s	0.0	8.4		2.3		8.9						
Intersection Summary												
HCM 2010 Ctrl Delay	17.9											
HCM 2010 LOS	B											

Lowenstein Drive Existing Peak PM
9: Pryor Rd & Summit Woods Crossing

8/8/2018

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	140	234	474	85	327	573
Future Volume (vph)	140	234	474	85	327	573
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150	0		150	300	
Storage Lanes	2	1		1	1	
Taper Length (ft)	100				25	
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3433	1583	3539	1583	1770	3539
Flt Permitted	0.950				0.408	
Satd. Flow (perm)	3433	1583	3539	1583	760	3539
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		260		94		
Link Speed (mph)	30		30			30
Link Distance (ft)	358		534			288
Travel Time (s)	8.1		12.1			6.5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	156	260	527	94	363	637
Shared Lane Traffic (%)						
Lane Group Flow (vph)	156	260	527	94	363	637
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	24		30			30
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Number of Detectors	1	1	2	1	1	2
Detector Template	Left	Right	Thru	Right	Left	Thru
Leading Detector (ft)	20	20	100	20	20	100
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	6	20	20	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)			94			94
Detector 2 Size(ft)			6			6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Prot	NA	Perm	pm+pt	NA
Protected Phases	7	7	2		1	6
Permitted Phases				2	6	

Lowenstein Drive Existing Peak PM
9: Pryor Rd & Summit Woods Crossing

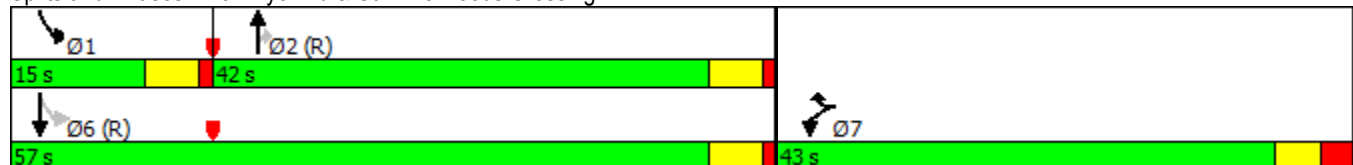
8/8/2018

	↖	↗	↑	↘	↙	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Detector Phase	7	7	2	2	1	6
Switch Phase						
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	43.0	43.0	42.0	42.0	11.0	31.0
Total Split (s)	43.0	43.0	42.0	42.0	15.0	57.0
Total Split (%)	43.0%	43.0%	42.0%	42.0%	15.0%	57.0%
Maximum Green (s)	37.0	37.0	37.0	37.0	10.0	52.0
Yellow Time (s)	3.5	3.5	4.0	4.0	4.0	4.0
All-Red Time (s)	2.5	2.5	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	5.0	5.0	5.0	5.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max	C-Max	None	C-Max
Walk Time (s)	5.0	5.0	5.0	5.0		5.0
Flash Dont Walk (s)	32.0	32.0	32.0	32.0		21.0
Pedestrian Calls (#/hr)	0	0	0	0		0
Act Effect Green (s)	10.4	10.4	61.2	61.2	78.6	78.6
Actuated g/C Ratio	0.10	0.10	0.61	0.61	0.79	0.79
v/c Ratio	0.44	0.66	0.24	0.09	0.50	0.23
Control Delay	45.3	13.6	8.2	1.6	6.0	3.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.3	13.6	8.2	1.6	6.0	3.0
LOS	D	B	A	A	A	A
Approach Delay	25.5		7.2			4.1
Approach LOS	C		A			A

Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 17 (17%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.66
 Intersection Signal Delay: 9.4
 Intersection Capacity Utilization 49.6%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service A

Splits and Phases: 9: Pryor Rd & Summit Woods Crossing



Lowenstein Drive Existing Peak PM
9: Pryor Rd & Summit Woods Crossing

8/8/2018

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	156	260	527	94	363	637
v/c Ratio	0.44	0.66	0.24	0.09	0.50	0.23
Control Delay	45.3	13.6	8.2	1.6	6.0	3.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.3	13.6	8.2	1.6	6.0	3.0
Queue Length 50th (ft)	48	0	57	0	48	42
Queue Length 95th (ft)	76	70	89	4	80	63
Internal Link Dist (ft)	278		454			208
Turn Bay Length (ft)	150			150	300	
Base Capacity (vph)	1270	749	2165	1005	724	2782
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.35	0.24	0.09	0.50	0.23
Intersection Summary						

Lowenstein Drive Existing Peak PM
9: Pryor Rd & Summit Woods Crossing

8/8/2018

								
Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations								
Traffic Volume (veh/h)	140	234	474	85	327	573		
Future Volume (veh/h)	140	234	474	85	327	573		
Number	7	14	2	12	1	6		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863		
Adj Flow Rate, veh/h	156	260	527	94	363	637		
Adj No. of Lanes	2	1	2	1	1	2		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	662	305	1938	867	624	2469		
Arrive On Green	0.19	0.19	0.55	0.55	0.10	0.70		
Sat Flow, veh/h	3442	1583	3632	1583	1774	3632		
Grp Volume(v), veh/h	156	260	527	94	363	637		
Grp Sat Flow(s),veh/h/ln	1721	1583	1770	1583	1774	1770		
Q Serve(g_s), s	3.8	15.9	7.9	2.9	8.6	6.6		
Cycle Q Clear(g_c), s	3.8	15.9	7.9	2.9	8.6	6.6		
Prop In Lane	1.00	1.00		1.00	1.00			
Lane Grp Cap(c), veh/h	662	305	1938	867	624	2469		
V/C Ratio(X)	0.24	0.85	0.27	0.11	0.58	0.26		
Avail Cap(c_a), veh/h	1273	586	1938	867	624	2469		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	34.2	39.0	12.0	10.9	7.8	5.6		
Incr Delay (d2), s/veh	0.2	6.8	0.3	0.3	1.4	0.3		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	1.8	7.5	4.0	1.3	4.4	3.3		
LnGrp Delay(d),s/veh	34.3	45.8	12.4	11.1	9.2	5.8		
LnGrp LOS	C	D	B	B	A	A		
Approach Vol, veh/h	416		621			1000		
Approach Delay, s/veh	41.5		12.2			7.1		
Approach LOS	D		B			A		
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	15.0	59.8		25.2		74.8		
Change Period (Y+Rc), s	5.0	5.0		6.0		5.0		
Max Green Setting (Gmax), s	10.0	37.0		37.0		52.0		
Max Q Clear Time (g_c+I1), s	10.6	9.9		17.9		8.6		
Green Ext Time (p_c), s	0.0	9.6		1.4		10.9		
Intersection Summary								
HCM 2010 Ctrl Delay			15.7					
HCM 2010 LOS			B					

Lowenstein Drive Existing Peak PM
11: Lowenstein Rd & Pryor Rd

8/8/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	7	10	63	8	34	16	512	42	56	629	33
Future Volume (vph)	18	7	10	63	8	34	16	512	42	56	629	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	0		0	200		150	215		150
Storage Lanes	1		0	0		1	1		1	1		0
Taper Length (ft)	125			25			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt		0.913				0.850			0.850		0.993	
Flt Protected	0.950				0.958		0.950			0.950		
Satd. Flow (prot)	1770	1701	0	0	1785	1583	1770	3539	1583	1770	3514	0
Flt Permitted	0.950				0.958		0.950			0.950		
Satd. Flow (perm)	1770	1701	0	0	1785	1583	1770	3539	1583	1770	3514	0
Link Speed (mph)		30			25			35			35	
Link Distance (ft)		172			227			220			555	
Travel Time (s)		3.9			6.2			4.3			10.8	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	19	8	11	68	9	37	17	551	45	60	676	35
Shared Lane Traffic (%)												
Lane Group Flow (vph)	19	19	0	0	77	37	17	551	45	60	711	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			30			30	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	42.3%						ICU Level of Service A					
Analysis Period (min)	15											

Lowenstein Drive Existing Peak PM
11: Lowenstein Rd & Pryor Rd

8/8/2018

Intersection												
Int Delay, s/veh	3.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	18	7	10	63	8	34	16	512	42	56	629	33
Future Vol, veh/h	18	7	10	63	8	34	16	512	42	56	629	33
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	-	-	0	200	-	150	215	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	19	8	11	68	9	37	17	551	45	60	676	35

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1129	1400	356	1047	1417	275	712	0	0	551	0	0
Stage 1	815	815	-	585	585	-	-	-	-	-	-	-
Stage 2	314	585	-	462	832	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	159	139	640	182	136	722	884	-	-	1015	-	-
Stage 1	338	389	-	464	496	-	-	-	-	-	-	-
Stage 2	671	496	-	549	382	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	135	128	640	161	125	722	884	-	-	1015	-	-
Mov Cap-2 Maneuver	135	128	-	161	125	-	-	-	-	-	-	-
Stage 1	332	366	-	455	486	-	-	-	-	-	-	-
Stage 2	614	486	-	497	359	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	28.8	36.1	0.3	0.7
HCM LOS	D	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	884	-	-	135	242	156	722	1015	-	-
HCM Lane V/C Ratio	0.019	-	-	0.143	0.076	0.489	0.051	0.059	-	-
HCM Control Delay (s)	9.2	-	-	36.1	21.1	48.4	10.3	8.8	-	-
HCM Lane LOS	A	-	-	E	C	E	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.5	0.2	2.3	0.2	0.2	-	-

Lowenstein Drive Existing Peak PM
16: Black Twig Ln & Lowenstein Rd

8/8/2018

						
Lane Group	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Volume (vph)	15	0	22	20	1	10
Future Volume (vph)	15	0	22	20	1	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.876	
Flt Protected				0.975	0.996	
Satd. Flow (prot)	1863	0	0	1816	1625	0
Flt Permitted				0.975	0.996	
Satd. Flow (perm)	1863	0	0	1816	1625	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	866			1603	379	
Travel Time (s)	23.6			43.7	10.3	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	16	0	24	22	1	11
Shared Lane Traffic (%)						
Lane Group Flow (vph)	16	0	0	46	12	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	18.9%			ICU Level of Service A		
Analysis Period (min)	15					

Lowenstein Drive Existing Peak PM
16: Black Twig Ln & Lowenstein Rd

8/8/2018

Intersection

Int Delay, s/veh 3.7

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	15	0	22	20	1	10
Future Vol, veh/h	15	0	22	20	1	10
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	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	0	24	22	1	11

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	16	86
Stage 1	-	-	16
Stage 2	-	-	70
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	-	1602	915
Stage 1	-	-	1007
Stage 2	-	-	953
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	1602	901
Mov Cap-2 Maneuver	-	-	901
Stage 1	-	-	1007
Stage 2	-	-	939

Approach	SE	NW	NE
HCM Control Delay, s	0	3.8	8.5
HCM LOS			A

Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER
Capacity (veh/h)	1046	1602	-	-	-
HCM Lane V/C Ratio	0.012	0.015	-	-	-
HCM Control Delay (s)	8.5	7.3	0	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	0	-	-	-

Lowenstein Drive Existing Peak PM
18: Chipman Rd & Pryor Rd

8/8/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	221	55	268	206	95	73	398	180	135	491	77
Future Volume (vph)	75	221	55	268	206	95	73	398	180	135	491	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	200		170	170		0	260		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	70			100			80			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.970				0.850		0.953			0.980	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3433	0	1770	3539	1583	1770	3373	0	1770	3468	0
Flt Permitted	0.616			0.319			0.386			0.316		
Satd. Flow (perm)	1147	3433	0	594	3539	1583	719	3373	0	589	3468	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		30				153		73			18	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		599			831			351			533	
Travel Time (s)		13.6			18.9			8.0			12.1	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	79	233	58	282	217	100	77	419	189	142	517	81
Shared Lane Traffic (%)												
Lane Group Flow (vph)	79	291	0	282	217	100	77	608	0	142	598	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			30	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2			6		

Baseline

Synchro 9 Light Report
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Lowenstein Drive Existing Peak PM
18: Chipman Rd & Pryor Rd

8/8/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Minimum Split (s)	12.0	32.0		12.0	35.0	35.0	12.0	34.0		12.0	34.0	
Total Split (s)	12.0	32.0		20.0	40.0	40.0	12.0	34.0		14.0	36.0	
Total Split (%)	12.0%	32.0%		20.0%	40.0%	40.0%	12.0%	34.0%		14.0%	36.0%	
Maximum Green (s)	6.0	27.0		14.0	35.0	35.0	6.0	29.0		8.0	31.0	
Yellow Time (s)	3.5	4.0		3.5	4.0	4.0	3.5	4.0		3.5	4.0	
All-Red Time (s)	2.5	1.0		2.5	1.0	1.0	2.5	1.0		2.5	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	5.0		6.0	5.0	5.0	6.0	5.0		6.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max		None	None	
Walk Time (s)		5.0			5.0	5.0		5.0			5.0	
Flash Dont Walk (s)		22.0			25.0	25.0		24.0			24.0	
Pedestrian Calls (#/hr)		0			0	0		0			0	
Act Effct Green (s)	18.0	13.0		31.7	23.1	23.1	48.5	41.8		53.2	46.0	
Actuated g/C Ratio	0.18	0.13		0.32	0.23	0.23	0.48	0.42		0.53	0.46	
v/c Ratio	0.33	0.62		0.81	0.27	0.21	0.18	0.42		0.33	0.37	
Control Delay	28.1	42.3		46.3	32.7	2.3	12.4	19.9		11.6	15.6	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	28.1	42.3		46.3	32.7	2.3	12.4	19.9		11.6	15.6	
LOS	C	D		D	C	A	B	B		B	B	
Approach Delay		39.3			34.1			19.1			14.8	
Approach LOS		D			C			B			B	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 0 (0%), Referenced to phase 2:NBT, Start of Green

Natural Cycle: 95

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 24.6

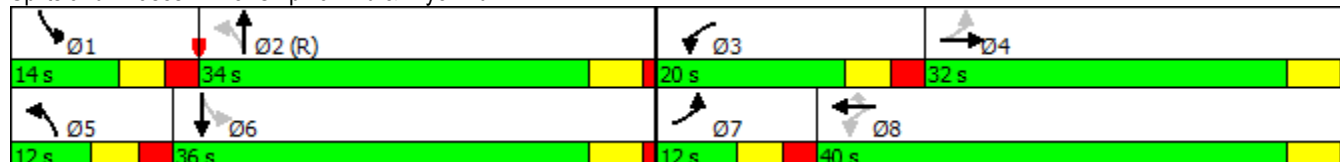
Intersection LOS: C

Intersection Capacity Utilization 64.5%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 18: Chipman Rd & Pryor Rd



Lowenstein Drive Existing Peak PM
18: Chipman Rd & Pryor Rd

8/8/2018



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	79	291	282	217	100	77	608	142	598
v/c Ratio	0.33	0.62	0.81	0.27	0.21	0.18	0.42	0.33	0.37
Control Delay	28.1	42.3	46.3	32.7	2.3	12.4	19.9	11.6	15.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.1	42.3	46.3	32.7	2.3	12.4	19.9	11.6	15.6
Queue Length 50th (ft)	36	83	144	61	0	21	122	33	102
Queue Length 95th (ft)	66	122	#232	91	13	47	193	74	153
Internal Link Dist (ft)		519		751			271		453
Turn Bay Length (ft)	200		200		170	170		260	
Base Capacity (vph)	243	948	353	1238	653	428	1453	427	1606
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.31	0.80	0.18	0.15	0.18	0.42	0.33	0.37

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lowenstein Drive Existing Peak PM
18: Chipman Rd & Pryor Rd

8/8/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	221	55	268	206	95	73	398	180	135	491	77
Future Volume (veh/h)	75	221	55	268	206	95	73	398	180	135	491	77
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	79	233	58	282	217	100	77	419	189	142	517	81
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	306	373	91	377	774	346	447	1062	474	446	1397	218
Arrive On Green	0.05	0.13	0.13	0.14	0.22	0.22	0.05	0.45	0.45	0.06	0.46	0.46
Sat Flow, veh/h	1774	2822	688	1774	3539	1583	1774	2382	1063	1774	3069	479
Grp Volume(v), veh/h	79	144	147	282	217	100	77	310	298	142	297	301
Grp Sat Flow(s),veh/h/ln	1774	1770	1741	1774	1770	1583	1774	1770	1675	1774	1770	1778
Q Serve(g_s), s	3.8	7.7	8.0	13.4	5.1	5.3	2.3	11.8	12.0	4.3	11.0	11.1
Cycle Q Clear(g_c), s	3.8	7.7	8.0	13.4	5.1	5.3	2.3	11.8	12.0	4.3	11.0	11.1
Prop In Lane	1.00		0.40	1.00		1.00	1.00		0.63	1.00		0.27
Lane Grp Cap(c), veh/h	306	234	230	377	774	346	447	789	747	446	805	809
V/C Ratio(X)	0.26	0.62	0.64	0.75	0.28	0.29	0.17	0.39	0.40	0.32	0.37	0.37
Avail Cap(c_a), veh/h	318	478	470	377	1239	554	460	789	747	478	805	809
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.7	41.0	41.1	30.5	32.5	32.6	13.7	18.6	18.7	14.0	17.8	17.9
Incr Delay (d2), s/veh	0.4	2.7	2.9	8.0	0.2	0.5	0.2	1.5	1.6	0.4	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	3.9	4.0	7.3	2.5	2.4	1.1	6.1	5.9	2.1	5.4	5.5
LnGrp Delay(d),s/veh	35.2	43.7	44.1	38.5	32.7	33.0	13.9	20.1	20.3	14.4	18.1	18.2
LnGrp LOS	D	D	D	D	C	C	B	C	C	B	B	B
Approach Vol, veh/h		370			599			685			740	
Approach Delay, s/veh		42.0			35.5			19.5			17.4	
Approach LOS		D			D			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.2	49.6	20.0	18.2	11.3	50.5	11.3	26.9				
Change Period (Y+Rc), s	6.0	5.0	6.0	5.0	6.0	5.0	6.0	5.0				
Max Green Setting (Gmax), s	8.0	29.0	14.0	27.0	6.0	31.0	6.0	35.0				
Max Q Clear Time (g_c+I1), s	6.3	14.0	15.4	10.0	4.3	13.1	5.8	7.3				
Green Ext Time (p_c), s	0.1	6.7	0.0	3.2	0.0	7.4	0.0	3.7				
Intersection Summary												
HCM 2010 Ctrl Delay				26.3								
HCM 2010 LOS				C								

Lowenstein Drive Existing Peak PM
22: Chipman Rd & Black Twig Ln

8/8/2018



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1	288	20	14	1
Future Volume (vph)	0	1	288	20	14	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.991		0.992	
Flt Protected					0.955	
Satd. Flow (prot)	1863	1863	1846	0	1765	0
Flt Permitted					0.955	
Satd. Flow (perm)	1863	1863	1846	0	1765	0
Link Speed (mph)		35	35		35	
Link Distance (ft)		248	1258		980	
Travel Time (s)		4.8	24.5		19.1	
Confl. Peds. (#/hr)	245					
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	1	303	21	15	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1	324	0	16	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	26.4%
Analysis Period (min)	15
	ICU Level of Service A

Lowenstein Drive Existing Peak PM
22: Chipman Rd & Black Twig Ln

8/8/2018

Intersection						
Int Delay, s/veh	0.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1	288	20	14	1
Future Vol, veh/h	0	1	288	20	14	1
Conflicting Peds, #/hr	245	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1	303	21	15	1
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	569	0	-	0	560	559
Stage 1	-	-	-	-	559	-
Stage 2	-	-	-	-	1	-
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	1003	-	-	-	489	529
Stage 1	-	-	-	-	572	-
Stage 2	-	-	-	-	1022	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	1003	-	-	-	310	421
Mov Cap-2 Maneuver	-	-	-	-	310	-
Stage 1	-	-	-	-	455	-
Stage 2	-	-	-	-	813	-
Approach	EB		WB		SB	
HCM Control Delay, s	0		0		17	
HCM LOS					C	
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1003	-	-	-	316	
HCM Lane V/C Ratio	-	-	-	-	0.05	
HCM Control Delay (s)	0	-	-	-	17	
HCM Lane LOS	A	-	-	-	C	
HCM 95th %tile Q(veh)	0	-	-	-	0.2	

Summary of All Intervals

Start Time	4:50
End Time	6:00
Total Time (min)	70
Time Recorded (min)	60
# of Intervals	2
# of Recorded Intervals	1
Vehs Entered	3131
Vehs Exited	3136
Starting Vehs	87
Ending Vehs	82
Travel Distance (mi)	1234
Travel Time (hr)	76.8
Total Delay (hr)	31.8
Total Stops	3492
Fuel Used (gal)	55.0

Interval #0 Information Seeding

Start Time	4:50
End Time	5:00
Total Time (min)	10
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	5:00
End Time	6:00
Total Time (min)	60
Volumes adjusted by Growth Factors.	
Vehs Entered	3131
Vehs Exited	3136
Starting Vehs	87
Ending Vehs	82
Travel Distance (mi)	1234
Travel Time (hr)	76.8
Total Delay (hr)	31.8
Total Stops	3492
Fuel Used (gal)	55.0

6: I-470 Ramp Performance by movement

Movement	EBL	EBT	EBR	NBT	NBR	SBL	SBT	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Denied Del/Veh (s)	3.4	0.1	0.3	0.0	0.0	0.1	0.3	0.2
Total Delay (hr)	0.2	1.2	1.4	0.5	0.2	0.0	0.8	4.3
Total Del/Veh (s)	37.5	32.6	11.7	4.8	1.8	21.0	6.1	8.8
Stop Delay (hr)	0.2	1.0	1.2	0.4	0.1	0.0	0.4	3.4
Stop Del/Veh (s)	34.9	28.9	10.2	3.7	1.1	19.8	3.4	7.0

9: Pryor Rd & Summit Woods Crossing Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Delay (hr)	0.1	0.1	0.0	0.0	0.0	0.0	0.2
Denied Del/Veh (s)	3.5	0.8	0.0	0.0	0.0	0.0	0.4
Total Delay (hr)	1.1	2.5	2.2	0.1	1.5	0.9	8.4
Total Del/Veh (s)	31.9	36.8	16.8	4.1	15.7	5.9	16.4
Stop Delay (hr)	1.0	2.3	1.8	0.1	1.3	0.7	7.2
Stop Del/Veh (s)	28.9	33.6	14.3	3.4	13.2	4.3	14.1

11: Lowenstein Rd & Pryor Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.1	0.0	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.0	0.0	0.0	0.4	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.0
Total Del/Veh (s)	26.9	19.4	4.3	23.0	34.2	5.5	4.8	0.3	0.1	6.3	0.7	0.3
Stop Delay (hr)	0.0	0.0	0.0	0.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Stop Del/Veh (s)	25.5	17.6	4.2	21.7	32.1	5.6	3.2	0.0	0.0	4.2	0.0	0.0

11: Lowenstein Rd & Pryor Rd Performance by movement

Movement	All
Denied Delay (hr)	0.0
Denied Del/Veh (s)	0.0
Total Delay (hr)	0.9
Total Del/Veh (s)	2.3
Stop Delay (hr)	0.7
Stop Del/Veh (s)	1.8

16: Black Twig Ln & Lowenstein Rd Performance by movement

Movement	SET	NWL	NWT	NEL	NET	NER	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	0.0	2.1	0.6	4.5	0.0	2.7	1.0
Stop Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Stop Del/Veh (s)	0.0	0.0	0.0	2.5	0.0	2.4	0.2

18: Chipman Rd & Pryor Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.1	0.0	0.0	0.3	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	3.5	0.1	0.2	3.4	0.3	3.0	3.1	0.3	0.4	0.0	0.0	0.0
Total Delay (hr)	0.4	2.4	0.3	2.4	1.4	0.2	0.4	2.8	1.0	0.8	2.9	0.4
Total Del/Veh (s)	27.6	38.2	16.8	31.2	26.7	6.1	15.1	25.3	16.6	20.1	21.5	17.3
Stop Delay (hr)	0.4	2.1	0.3	2.1	1.2	0.1	0.3	2.2	0.8	0.7	2.4	0.4
Stop Del/Veh (s)	24.8	33.6	15.6	27.2	23.4	5.1	12.3	20.5	13.1	18.0	18.0	15.4

18: Chipman Rd & Pryor Rd Performance by movement

Movement	All
Denied Delay (hr)	0.5
Denied Del/Veh (s)	0.9
Total Delay (hr)	15.2
Total Del/Veh (s)	23.9
Stop Delay (hr)	13.0
Stop Del/Veh (s)	20.4

22: Chipman Rd & Black Twig Ln Performance by movement

Movement	EBT	WBT	WBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.0	0.1	0.0	0.0	0.0	0.0	0.1
Total Del/Veh (s)	0.2	1.2	0.9	7.7	0.0	4.8	1.3
Stop Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Stop Del/Veh (s)	0.0	0.0	0.0	6.2	0.0	3.7	0.2

Total Network Performance

Denied Delay (hr)	0.8
Denied Del/Veh (s)	0.9
Total Delay (hr)	30.9
Total Del/Veh (s)	34.6
Stop Delay (hr)	24.7
Stop Del/Veh (s)	27.6

Intersection: 6: I-470 Ramp

Movement	EB	EB	EB	EB	EB	NB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	T	R	R	T	T	T	T	R	L	T
Maximum Queue (ft)	74	139	125	252	150	22	21	82	106	80	28	198
Average Queue (ft)	19	67	14	100	27	1	1	13	40	24	3	82
95th Queue (ft)	51	115	56	177	81	10	7	47	92	56	14	173
Link Distance (ft)		249	249			174	174	174	174			275
Upstream Blk Time (%)				0								
Queuing Penalty (veh)				0								
Storage Bay Dist (ft)	200			400	400					311	550	
Storage Blk Time (%)				0								
Queuing Penalty (veh)				0								

Intersection: 6: I-470 Ramp

Movement	SB
Directions Served	T
Maximum Queue (ft)	51
Average Queue (ft)	10
95th Queue (ft)	35
Link Distance (ft)	275
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 9: Pryor Rd & Summit Woods Crossing

Movement	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	L	R	T	T	R	L	T	T
Maximum Queue (ft)	44	249	270	118	224	55	160	188	145
Average Queue (ft)	18	56	141	50	96	27	115	89	51
95th Queue (ft)	41	128	217	105	182	50	169	155	104
Link Distance (ft)			279	473	473			217	217
Upstream Blk Time (%)			0						
Queuing Penalty (veh)			0						
Storage Bay Dist (ft)	150	150				150	300		
Storage Blk Time (%)			9		3				
Queuing Penalty (veh)			13		3				

Intersection: 11: Lowenstein Rd & Pryor Rd

Movement	EB	EB	WB	WB	NB	SB	SB
Directions Served	L	TR	LT	R	L	L	TR
Maximum Queue (ft)	30	31	88	43	26	52	15
Average Queue (ft)	6	17	38	14	5	12	0
95th Queue (ft)	26	41	77	31	20	38	5
Link Distance (ft)		95	161	161			488
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	150				200	215	
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 16: Black Twig Ln & Lowenstein Rd

Movement	NE
Directions Served	LR
Maximum Queue (ft)	32
Average Queue (ft)	6
95th Queue (ft)	27
Link Distance (ft)	331
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 18: Chipman Rd & Pryor Rd

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	T	R	L	T	TR	L	T
Maximum Queue (ft)	90	193	174	282	198	103	96	116	193	284	116	152
Average Queue (ft)	33	107	87	141	63	43	32	39	78	191	58	93
95th Queue (ft)	69	167	151	224	114	86	65	78	152	282	107	149
Link Distance (ft)		515	515		777	777			304	304		448
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	200			200			170	170			260	
Storage Blk Time (%)		0		1	0				0			
Queuing Penalty (veh)		0		1	0				0			

Intersection: 18: Chipman Rd & Pryor Rd

Movement	SB
Directions Served	TR
Maximum Queue (ft)	183
Average Queue (ft)	111
95th Queue (ft)	165
Link Distance (ft)	448
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 22: Chipman Rd & Black Twig Ln

Movement	SB
Directions Served	LR
Maximum Queue (ft)	30
Average Queue (ft)	8
95th Queue (ft)	29
Link Distance (ft)	925
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 17

Analyst: Lowenstein Drive Study	Intersection: Chipman Rd & Black Twig Lane
Agency: SKW	Jurisdiction: Lee's Summit
Date: 1/11/2017	Units: U.S. Customary
Project ID: Lowenstein Drive Study	Analysis Year: 2016
EW Street: Chipman Road	NS Street: Black Twig Lane

General Information

Major St. Speed (mph): 0	Population: Not less than 10000
Nearest Signal (ft): 0	Coordinated Signal System: N
Crashes per Yr: 0	

School Crossing

Students in Highest Hour: 0
 Adequate Gaps in Period: 0
 Minutes in Period: 0

Roadway Network

Two Major Routes: 0
 Weekend Count: 0
 5-yr Growth Factor: 0

Geometry and Traffic

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	0	1	0	0	0	0	0	0	0
LaneUsage	L	T			TR						LR	

Results

Warrant 1: Eight-Hour Vehicular Volume	[]
1 A. Minimum Vehicular Volumes	[]
1 B. Interruption of Continuous Traffic	[]
1 80% Vehicular --and-- Interruption Volumes	[]
Warrant 2: Four-Hour Vehicular Volume	
2 A. Four-Hour Vehicular Volumes	[]
Warrant 3: Peak Hour	[]
3 A. Peak-Hour Conditions	[]
3 B. Peak-Hour Vehicular Volume Hours Met	[]
Warrant 4: Pedestrian Volume	[]
4 A. Four Hour Volumes	[]
4 B. One-Hour Volumes	[]
Warrant 5: School Crossing	[]
5 A. Student Volumes	[]
5 B. Gaps Same Period	[]
Warrant 6: Coordinated Signal System	
6 Degree of Platooning	[]
Warrant 7: Crash Experience	[]
7 A. Adequate trials of alternatives	[]

Warrant 8: Roadway Network	[]
8 A. Weekday Volume	[]
8 B. Weekend Volume	[]

Warrant 9: Grade Crossing	[]
9 A. Grade Crossing within 140 ft --and--	[]
9 B. Peak-Hour Vehicular Volumes	[]

Summary											
	Major	Minor	Total	Delay	1A	1A	1B	1B	2	3A	3B
Hours	Volume	Volume	Volume	(Veh-hr)	100%	80%	100%	80%	100%	100%	100%
06-07	155	13	168	0.0	No	No	No	No	No	No	No
07-08	348	12	360	0.0	No	No	No	No	No	No	No
08-09	0	0	0	0.0	No	No	No	No	No	No	No
09-10	0	0	0	0.0	No	No	No	No	No	No	No
10-11	0	0	0	0.0	No	No	No	No	No	No	No
11-12	0	0	0	0.0	No	No	No	No	No	No	No
12-13	0	0	0	0.0	No	No	No	No	No	No	No
13-14	0	0	0	0.0	No	No	No	No	No	No	No
14-15	0	0	0	0.0	No	No	No	No	No	No	No
15-16	0	0	0	0.0	No	No	No	No	No	No	No
16-17	496	10	506	0.0	No	No	No	No	No	No	No
17-18	541	18	559	0.0	No	No	No	No	No	No	No
Total	1540	53	1593		0	0	0	0	0	0	0

Traffic	Volumes (vph)											
	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
	0	116	0	0	37	2	0	0	0	11	0	2
	2	222	0	0	122	2	0	0	0	9	0	3
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	1	222	0	0	249	24	0	0	0	8	0	2
	0	238	0	0	287	16	0	0	0	16	0	2

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Analyst: CLB	Intersection: Lowenstein & Pryor
Agency: SKW	Jurisdiction: Lee's Summit, MO
Date: 10/5/2016	Units: U.S. Customary
Project ID: 160497-010 Lowenstein Rd	Dev.lysis Year: 2016
EW Street: Lowenstein Road	NS Street: Pryor Road

General Information

Major St. Speed (mph): 35	Population: Not less than 10000
Nearest Signal (ft): 765	Coordinated Signal System: N
Crashes per Yr: 0	

School Crossing

Students in Highest Hour: 0
Adequate Gaps in Period: 0
Minutes in Period: 0

Roadway Network

Two Major Routes: 0
Weekend Count: 0
5-yr Growth Factor: 0

Geometry and Traffic

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	1	1	0	1	2	1	1	2	0
LaneUsage	L	TR		L	TR		L	T	R	L	TR	

Results

Warrant 1: Eight-Hour Vehicular Volume	[]
1 A. Minimum Vehicular Volumes	[]
1 B. Interruption of Continuous Traffic	[]
1 80% Vehicular --and-- Interruption Volumes	[]
Warrant 2: Four-Hour Vehicular Volume	
2 A. Four-Hour Vehicular Volumes	[]
Warrant 3: Peak Hour	[]
3 A. Peak-Hour Conditions	[]
3 B. Peak-Hour Vehicular Volume Hours Met	[]
Warrant 4: Pedestrian Volume	[]
4 A. Four Hour Volumes	[]
4 B. One-Hour Volumes	[]
Warrant 5: School Crossing	[]
5 A. Student Volumes	[]
5 B. Gaps Same Period	[]
Warrant 6: Coordinated Signal System	
6 Degree of Platooning	[]
Warrant 7: Crash Experience	[]
7 A. Adequate trials of alternatives	[]

Warrant 8: Roadway Network	[]
8 A. Weekday Volume	[]
8 B. Weekend Volume	[]

Summary											
	Major	Minor	Total	Delay	1A	1A	1B	1B	2	3A	3B
Hours	Volume	Volume	Volume	(Veh-hr)	100%	80%	100%	80%	100%	100%	100%
07-08	849	25	895	0.0	No	No	No	No	No	No	No
08-09	734	43	807	0.0	No	No	No	No	No	No	No
09-10	562	48	629	0.0	No	No	No	No	No	No	No
10-11	566	66	656	0.0	No	No	No	No	No	No	No
11-12	706	88	822	0.0	No	No	No	No	No	No	No
12-13	856	94	980	0.0	No	No	No	Yes	No	No	No
13-14	680	78	787	0.0	No	No	No	No	No	No	No
14-15	887	90	1003	0.0	No	No	No	Yes	No	No	No
15-16	927	97	1045	0.0	No	No	No	Yes	No	No	No
16-17	1171	119	1320	0.0	No	No	Yes	Yes	No	No	No
17-18	1298	96	1428	0.0	No	No	No	Yes	No	No	No
18-19	1124	96	1275	0.0	No	No	No	Yes	No	No	No
Total	10360	940	11647		0	0	1	6	0	0	0

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West Pryor Village
3: W Pryor Rd & Rt-In, Rt-Out

Peak AM - Phase 1
8/9/2018

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				 	 	
Traffic Volume (vph)	0	42	0	809	327	125
Future Volume (vph)	0	42	0	809	327	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0			150
Storage Lanes	0	1	0			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.865				0.850
Flt Protected						
Satd. Flow (prot)	0	1611	0	3539	3539	1583
Flt Permitted						
Satd. Flow (perm)	0	1611	0	3539	3539	1583
Link Speed (mph)	25			35	35	
Link Distance (ft)	458			555	534	
Travel Time (s)	12.5			10.8	10.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	46	0	879	355	136
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	46	0	879	355	136
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			30	30	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	25.7%			ICU Level of Service A		
Analysis Period (min)	15					

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↗↗	↗↗	↗
Traffic Vol, veh/h	0	42	0	809	327	125
Future Vol, veh/h	0	42	0	809	327	125
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	150
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	46	0	879	355	136
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	-	178	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	834	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	834	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	9.6	0		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR		
Capacity (veh/h)	-	834	-	-		
HCM Lane V/C Ratio	-	0.055	-	-		
HCM Control Delay (s)	-	9.6	-	-		
HCM Lane LOS	-	A	-	-		
HCM 95th %tile Q(veh)	-	0.2	-	-		

West Pryor Village
6: I-470 Ramp & W Pryor Rd

Peak AM - Phase 1
8/9/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	212	223	0	0	0	0	457	372	0	308	0
Future Volume (vph)	14	212	223	0	0	0	0	457	372	0	308	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		400	0		0	0		311	550		0
Storage Lanes	1		2	0		0	0		1	1		0
Taper Length (ft)	100			25			25			50		
Lane Util. Factor	1.00	0.95	0.88	1.00	1.00	1.00	1.00	0.86	1.00	1.00	0.95	1.00
Frt			0.850						0.850			
Flt Protected	0.950											
Satd. Flow (prot)	1770	3539	2787	0	0	0	0	6408	1583	1863	3539	0
Flt Permitted	0.950											
Satd. Flow (perm)	1770	3539	2787	0	0	0	0	6408	1583	1863	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			240						400			
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		297			425			276			300	
Travel Time (s)		6.8			9.7			5.4			5.8	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	15	228	240	0	0	0	0	491	400	0	331	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	15	228	240	0	0	0	0	491	400	0	331	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1					2	1	1	2	
Detector Template	Left	Thru	Right					Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20					100	20	20	100	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Detector 1 Position(ft)	0	0	0					0	0	0	0	
Detector 1 Size(ft)	20	6	20					6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Prot	NA	Perm					NA	Perm	Prot	NA	
Protected Phases	7	4						2		1	6	
Permitted Phases			4						2			

West Pryor Village
6: I-470 Ramp & W Pryor Rd

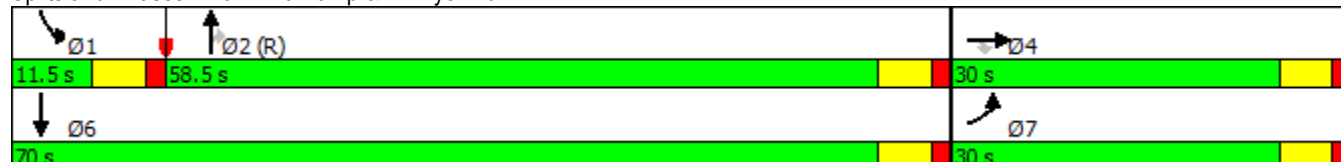
Peak AM - Phase 1
8/9/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4					2	2	1	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0					6.0	6.0	6.0	6.0	
Minimum Split (s)	11.6	21.6	21.6					21.5	21.5	11.5	21.5	
Total Split (s)	30.0	30.0	30.0					58.5	58.5	11.5	70.0	
Total Split (%)	30.0%	30.0%	30.0%					58.5%	58.5%	11.5%	70.0%	
Maximum Green (s)	24.4	24.4	24.4					53.0	53.0	6.0	64.5	
Yellow Time (s)	3.8	3.8	3.8					4.0	4.0	4.0	4.0	
All-Red Time (s)	1.8	1.8	1.8					1.5	1.5	1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.6	5.6	5.6					5.5	5.5	5.5	5.5	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Recall Mode	None	None	None					C-Max	C-Max	None	None	
Walk Time (s)		5.0	5.0					5.0	5.0		5.0	
Flash Dont Walk (s)		11.0	11.0					11.0	11.0		11.0	
Pedestrian Calls (#/hr)		0	0					0	0		0	
Act Effct Green (s)	9.8	12.3	12.3					76.6	76.6		76.6	
Actuated g/C Ratio	0.10	0.12	0.12					0.77	0.77		0.77	
v/c Ratio	0.09	0.52	0.43					0.10	0.31		0.12	
Control Delay	38.9	45.0	7.6					0.7	0.7		3.4	
Queue Delay	0.0	0.0	0.0					0.0	0.0		0.0	
Total Delay	38.9	45.0	7.6					0.7	0.7		3.4	
LOS	D	D	A					A	A		A	
Approach Delay		26.2						0.7			3.4	
Approach LOS		C						A			A	

Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 34 (34%), Referenced to phase 2:NBT, Start of Green
 Natural Cycle: 55
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.52
 Intersection Signal Delay: 8.5
 Intersection Capacity Utilization 38.1%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service A

Splits and Phases: 6: I-470 Ramp & W Pryor Rd



						
Lane Group	EBL	EBT	EBR	NBT	NBR	SBT
Lane Group Flow (vph)	15	228	240	491	400	331
v/c Ratio	0.09	0.52	0.43	0.10	0.31	0.12
Control Delay	38.9	45.0	7.6	0.7	0.7	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.9	45.0	7.6	0.7	0.7	3.4
Queue Length 50th (ft)	9	73	0	1	0	22
Queue Length 95th (ft)	26	105	36	4	2	42
Internal Link Dist (ft)		217		196		220
Turn Bay Length (ft)	200		400		311	
Base Capacity (vph)	431	863	861	4908	1306	2710
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.26	0.28	0.10	0.31	0.12
Intersection Summary						

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	212	223	0	0	0	0	457	372	0	308	0
Future Volume (veh/h)	14	212	223	0	0	0	0	457	372	0	308	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863				0	1863	1863	1863	1863	0
Adj Flow Rate, veh/h	15	228	240				0	491	400	0	331	0
Adj No. of Lanes	1	2	2				0	4	1	1	2	0
Peak Hour Factor	0.93	0.93	0.93				0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	219	438	345				0	4904	1212	2	2709	0
Arrive On Green	0.12	0.12	0.12				0.00	0.77	0.77	0.00	0.77	0.00
Sat Flow, veh/h	1774	3539	2787				0	6669	1583	1774	3632	0
Grp Volume(v), veh/h	15	228	240				0	491	400	0	331	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1393				0	1602	1583	1774	1770	0
Q Serve(g_s), s	0.7	6.0	8.3				0.0	1.9	7.9	0.0	2.4	0.0
Cycle Q Clear(g_c), s	0.7	6.0	8.3				0.0	1.9	7.9	0.0	2.4	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	219	438	345				0	4904	1212	2	2709	0
V/C Ratio(X)	0.07	0.52	0.70				0.00	0.10	0.33	0.00	0.12	0.00
Avail Cap(c_a), veh/h	433	864	680				0	4904	1212	106	2709	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	38.7	41.0	42.0				0.0	3.0	3.7	0.0	3.0	0.0
Incr Delay (d2), s/veh	0.1	1.0	2.5				0.0	0.0	0.7	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	3.0	3.3				0.0	0.9	3.7	0.0	1.2	0.0
LnGrp Delay(d),s/veh	38.9	42.0	44.6				0.0	3.0	4.4	0.0	3.1	0.0
LnGrp LOS	D	D	D					A	A		A	
Approach Vol, veh/h		483						891			331	
Approach Delay, s/veh		43.2						3.6			3.1	
Approach LOS		D						A			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	0.0	82.0		18.0		82.0						
Change Period (Y+Rc), s	5.5	5.5		5.6		5.5						
Max Green Setting (Gmax), s	6.0	53.0		24.4		64.5						
Max Q Clear Time (g_c+I1), s	0.0	9.9		10.3		4.4						
Green Ext Time (p_c), s	0.0	8.4		2.1		8.6						
Intersection Summary												
HCM 2010 Ctrl Delay			14.7									
HCM 2010 LOS			B									

West Pryor Village
9: Summit Crossing & W Pryor Rd

Peak AM - Phase 1
8/9/2018

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰↰	↰	↕↕	↰	↰	↕↕
Traffic Volume (vph)	2	50	785	12	84	450
Future Volume (vph)	2	50	785	12	84	450
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200	0		150	300	
Storage Lanes	2	1		1	1	
Taper Length (ft)	100				100	
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3433	1583	3539	1583	1770	3539
Flt Permitted	0.950				0.280	
Satd. Flow (perm)	3433	1583	3539	1583	522	3539
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		57		13		
Link Speed (mph)	25		35			35
Link Distance (ft)	358		534			288
Travel Time (s)	9.8		10.4			5.6
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	2	57	892	14	95	511
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2	57	892	14	95	511
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	24		30			30
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Number of Detectors	1	1	2	1	1	2
Detector Template	Left	Right	Thru	Right	Left	Thru
Leading Detector (ft)	20	20	100	20	20	100
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	6	20	20	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)			94			94
Detector 2 Size(ft)			6			6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA	Perm	pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2	6	

West Pryor Village
9: Summit Crossing & W Pryor Rd

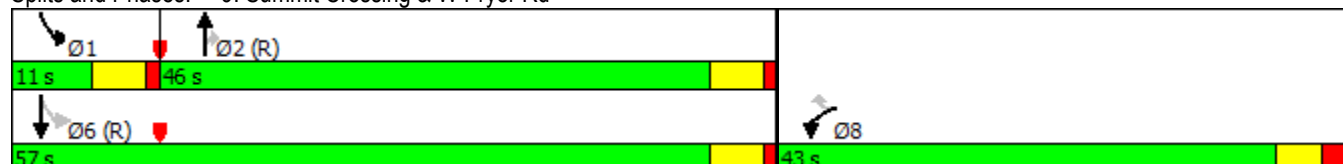
Peak AM - Phase 1
8/9/2018

	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	43.0	43.0	31.0	31.0	11.0	31.0
Total Split (s)	43.0	43.0	46.0	46.0	11.0	57.0
Total Split (%)	43.0%	43.0%	46.0%	46.0%	11.0%	57.0%
Maximum Green (s)	37.0	37.0	41.0	41.0	6.0	52.0
Yellow Time (s)	3.5	3.5	4.0	4.0	4.0	4.0
All-Red Time (s)	2.5	2.5	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	5.0	5.0	5.0	5.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max	C-Max	None	C-Max
Walk Time (s)	5.0	5.0	5.0	5.0		5.0
Flash Dont Walk (s)	32.0	32.0	21.0	21.0		21.0
Pedestrian Calls (#/hr)	0	0	0	0		0
Act Effect Green (s)	6.8	6.8	76.2	76.2	84.6	85.6
Actuated g/C Ratio	0.07	0.07	0.76	0.76	0.85	0.86
v/c Ratio	0.01	0.35	0.33	0.01	0.18	0.17
Control Delay	42.5	18.4	2.8	1.2	2.5	1.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.5	18.4	2.8	1.2	2.5	1.7
LOS	D	B	A	A	A	A
Approach Delay	19.2		2.7			1.8
Approach LOS	B		A			A

Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 34 (34%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
 Natural Cycle: 85
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.35
 Intersection Signal Delay: 3.0
 Intersection LOS: A
 Intersection Capacity Utilization 45.0%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 9: Summit Crossing & W Pryor Rd





Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	2	57	892	14	95	511
v/c Ratio	0.01	0.35	0.33	0.01	0.18	0.17
Control Delay	42.5	18.4	2.8	1.2	2.5	1.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.5	18.4	2.8	1.2	2.5	1.7
Queue Length 50th (ft)	0	0	12	0	8	24
Queue Length 95th (ft)	4	36	78	m0	16	34
Internal Link Dist (ft)	278		454			208
Turn Bay Length (ft)	200			150	300	
Base Capacity (vph)	1270	621	2696	1209	523	3028
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.09	0.33	0.01	0.18	0.17

Intersection Summary

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

								
Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations								
Traffic Volume (veh/h)	2	50	785	12	84	450		
Future Volume (veh/h)	2	50	785	12	84	450		
Number	3	18	2	12	1	6		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863		
Adj Flow Rate, veh/h	2	57	892	14	95	511		
Adj No. of Lanes	2	1	2	1	1	2		
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	166	77	2605	1165	622	2979		
Arrive On Green	0.05	0.05	1.00	1.00	0.06	0.84		
Sat Flow, veh/h	3442	1583	3632	1583	1774	3632		
Grp Volume(v), veh/h	2	57	892	14	95	511		
Grp Sat Flow(s),veh/h/ln	1721	1583	1770	1583	1774	1770		
Q Serve(g_s), s	0.1	3.6	0.0	0.0	1.1	2.7		
Cycle Q Clear(g_c), s	0.1	3.6	0.0	0.0	1.1	2.7		
Prop In Lane	1.00	1.00		1.00	1.00			
Lane Grp Cap(c), veh/h	166	77	2605	1165	622	2979		
V/C Ratio(X)	0.01	0.74	0.34	0.01	0.15	0.17		
Avail Cap(c_a), veh/h	1273	586	2605	1165	630	2979		
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	45.3	47.0	0.0	0.0	1.9	1.5		
Incr Delay (d2), s/veh	0.0	13.3	0.4	0.0	0.1	0.1		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	0.0	1.8	0.1	0.0	0.5	1.3		
LnGrp Delay(d),s/veh	45.3	60.3	0.4	0.0	2.0	1.6		
LnGrp LOS	D	E	A	A	A	A		
Approach Vol, veh/h	59		906			606		
Approach Delay, s/veh	59.7		0.4			1.7		
Approach LOS	E		A			A		
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	10.6	78.6				89.2		10.8
Change Period (Y+Rc), s	5.0	5.0				5.0		6.0
Max Green Setting (Gmax), s	6.0	41.0				52.0		37.0
Max Q Clear Time (g_c+I1), s	3.1	2.0				4.7		5.6
Green Ext Time (p_c), s	0.0	12.8				13.4		0.2
Intersection Summary								
HCM 2010 Ctrl Delay			3.1					
HCM 2010 LOS			A					

West Pryor Village
11: W Pryor Rd & Lowenstein Rd

Peak AM - Phase 1

8/9/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	197	16	33	17	7	12	136	602	27	12	256	99
Future Volume (vph)	197	16	33	17	7	12	136	602	27	12	256	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	0		150	200		150	215		150
Storage Lanes	2		0	1		0	1		1	1		1
Taper Length (ft)	125			25			100			100		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.899			0.907				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	1675	0	1770	1690	0	1770	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.517			0.397		
Satd. Flow (perm)	3433	1675	0	1770	1690	0	963	3539	1583	740	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		37			13				164			164
Link Speed (mph)		30			25			35			35	
Link Distance (ft)		172			227			220			555	
Travel Time (s)		3.9			6.2			4.3			10.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	219	18	37	19	8	13	151	669	30	13	284	110
Shared Lane Traffic (%)												
Lane Group Flow (vph)	219	55	0	19	21	0	151	669	30	13	284	110
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			30			30	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases							2		2	6		6

Baseline

Synchro 9 Light Report
Page 11

West Pryor Village
11: W Pryor Rd & Lowenstein Rd

Peak AM - Phase 1

8/9/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	12.0	39.5		12.0	36.5		12.5	30.0	30.0	12.5	30.0	30.0
Total Split (s)	17.0	41.5		12.0	36.5		15.5	34.0	34.0	12.5	31.0	31.0
Total Split (%)	17.0%	41.5%		12.0%	36.5%		15.5%	34.0%	34.0%	12.5%	31.0%	31.0%
Maximum Green (s)	11.0	36.0		6.0	31.0		9.0	29.0	29.0	6.0	26.0	26.0
Yellow Time (s)	3.0	3.5		3.0	3.5		3.5	4.0	4.0	3.5	4.0	4.0
All-Red Time (s)	3.0	2.0		3.0	2.0		3.0	1.0	1.0	3.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	5.5		6.0	5.5		6.5	5.0	5.0	6.5	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		5.0			5.0			5.0	5.0		5.0	5.0
Flash Dont Walk (s)		29.0			26.0			20.0	20.0		20.0	20.0
Pedestrian Calls (#/hr)		0			0			0	0		0	0
Act Effect Green (s)	10.3	11.2		6.0	6.5		71.7	71.0	71.0	63.2	58.7	58.7
Actuated g/C Ratio	0.10	0.11		0.06	0.06		0.72	0.71	0.71	0.63	0.59	0.59
v/c Ratio	0.62	0.25		0.18	0.17		0.20	0.27	0.03	0.02	0.14	0.11
Control Delay	50.9	21.9		48.8	29.8		4.4	4.4	0.0	7.5	11.8	2.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.9	21.9		48.8	29.8		4.4	4.4	0.0	7.5	11.8	2.8
LOS	D	C		D	C		A	A	A	A	B	A
Approach Delay		45.1			38.9			4.3			9.2	
Approach LOS		D			D			A			A	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 2 (2%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 95

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.62

Intersection Signal Delay: 13.6

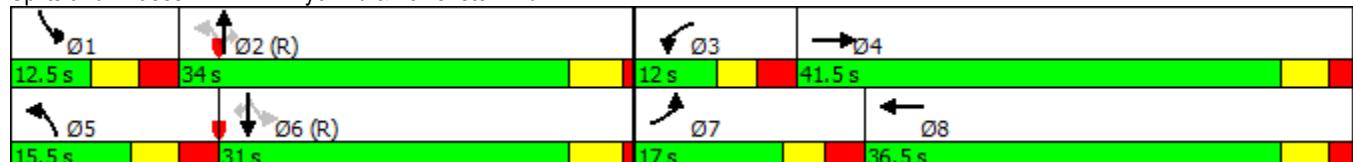
Intersection LOS: B

Intersection Capacity Utilization 48.1%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 11: W Pryor Rd & Lowenstein Rd





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	219	55	19	21	151	669	30	13	284	110
v/c Ratio	0.62	0.25	0.18	0.17	0.20	0.27	0.03	0.02	0.14	0.11
Control Delay	50.9	21.9	48.8	29.8	4.4	4.4	0.0	7.5	11.8	2.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.9	21.9	48.8	29.8	4.4	4.4	0.0	7.5	11.8	2.8
Queue Length 50th (ft)	69	10	12	5	19	41	0	1	38	0
Queue Length 95th (ft)	108	46	35	28	36	68	m0	12	84	19
Internal Link Dist (ft)		92		147		140			475	
Turn Bay Length (ft)	150				200		150	215		150
Base Capacity (vph)	377	626	106	532	768	2511	1170	530	2076	996
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.58	0.09	0.18	0.04	0.20	0.27	0.03	0.02	0.14	0.11

Intersection Summary

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

West Pryor Village
11: W Pryor Rd & Lowenstein Rd

Peak AM - Phase 1

8/9/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	197	16	33	17	7	12	136	602	27	12	256	99
Future Volume (veh/h)	197	16	33	17	7	12	136	602	27	12	256	99
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	219	18	37	19	8	13	151	669	30	13	284	110
Adj No. of Lanes	2	1	0	1	1	0	1	2	1	1	2	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	289	63	129	44	36	58	740	2166	969	492	2022	904
Arrive On Green	0.08	0.12	0.12	0.02	0.06	0.06	0.06	0.61	0.61	0.04	1.00	1.00
Sat Flow, veh/h	3442	545	1120	1774	640	1040	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	219	0	55	19	0	21	151	669	30	13	284	110
Grp Sat Flow(s),veh/h/ln	1721	0	1665	1774	0	1679	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	6.2	0.0	3.0	1.1	0.0	1.2	3.4	9.0	0.7	0.3	0.0	0.0
Cycle Q Clear(g_c), s	6.2	0.0	3.0	1.1	0.0	1.2	3.4	9.0	0.7	0.3	0.0	0.0
Prop In Lane	1.00		0.67	1.00		0.62	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	289	0	192	44	0	94	740	2166	969	492	2022	904
V/C Ratio(X)	0.76	0.00	0.29	0.44	0.00	0.22	0.20	0.31	0.03	0.03	0.14	0.12
Avail Cap(c_a), veh/h	379	0	599	106	0	521	795	2166	969	566	2022	904
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.8	0.0	40.5	48.1	0.0	45.1	7.5	9.3	7.7	8.5	0.0	0.0
Incr Delay (d2), s/veh	6.3	0.0	0.8	6.7	0.0	1.2	0.1	0.4	0.1	0.0	0.1	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	0.0	1.4	0.6	0.0	0.6	1.7	4.5	0.3	0.1	0.0	0.1
LnGrp Delay(d),s/veh	51.1	0.0	41.3	54.8	0.0	46.3	7.6	9.6	7.7	8.5	0.1	0.3
LnGrp LOS	D		D	D		D	A	A	A	A	A	A
Approach Vol, veh/h		274			40			850			407	
Approach Delay, s/veh		49.1			50.4			9.2			0.4	
Approach LOS		D			D			A			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.3	66.2	8.5	17.0	12.4	62.1	14.4	11.1				
Change Period (Y+Rc), s	6.5	5.0	6.0	5.5	6.5	5.0	6.0	5.5				
Max Green Setting (Gmax), s	6.0	29.0	6.0	36.0	9.0	26.0	11.0	31.0				
Max Q Clear Time (g_c+l1), s	2.3	11.0	3.1	5.0	5.4	2.0	8.2	3.2				
Green Ext Time (p_c), s	0.0	6.5	0.0	0.4	0.1	7.3	0.2	0.4				
Intersection Summary												
HCM 2010 Ctrl Delay				14.9								
HCM 2010 LOS				B								

						
Lane Group	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Volume (vph)	8	0	20	3	0	26
Future Volume (vph)	8	0	20	3	0	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865					
Flt Protected	0.959					
Satd. Flow (prot)	1863	0	0	1786	1611	0
Flt Permitted	0.959					
Satd. Flow (perm)	1863	0	0	1786	1611	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	866			1603	379	
Travel Time (s)	23.6			43.7	10.3	
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Adj. Flow (vph)	13	0	32	5	0	41
Shared Lane Traffic (%)						
Lane Group Flow (vph)	13	0	0	37	41	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	17.9%			ICU Level of Service A		
Analysis Period (min)	15					

Intersection

Int Delay, s/veh 6.4

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	8	0	20	3	0	26
Future Vol, veh/h	8	0	20	3	0	26
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	63	63	63	63	63	63
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	13	0	32	5	0	41

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	13	81
Stage 1	-	-	13
Stage 2	-	-	68
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	-	1606	921
Stage 1	-	-	1010
Stage 2	-	-	955
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	1606	903
Mov Cap-2 Maneuver	-	-	903
Stage 1	-	-	1010
Stage 2	-	-	936

Approach	SE	NW	NE
HCM Control Delay, s	0	6.3	8.5
HCM LOS			A

Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER
Capacity (veh/h)	1067	1606	-	-	-
HCM Lane V/C Ratio	0.039	0.02	-	-	-
HCM Control Delay (s)	8.5	7.3	0	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	0.1	-	-	-

West Pryor Village
18: Chipman Rd & Pryor Rd

Peak AM - Phase 1

8/9/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	102	205	65	84	85	69	36	591	127	55	230	38
Future Volume (vph)	102	205	65	84	85	69	36	591	127	55	230	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	200		170	170		0	260		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	70			100			80			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.964				0.850		0.973			0.979	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3412	0	1770	3539	1583	1770	3444	0	1770	3465	0
Flt Permitted	0.618			0.506			0.572			0.285		
Satd. Flow (perm)	1151	3412	0	943	3539	1583	1065	3444	0	531	3465	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		43				153		29			21	
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		651			831			351			533	
Travel Time (s)		12.7			16.2			6.8			10.4	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	112	225	71	92	93	76	40	649	140	60	253	42
Shared Lane Traffic (%)												
Lane Group Flow (vph)	112	296	0	92	93	76	40	789	0	60	295	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			30	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2			6		

Baseline

Synchro 9 Light Report
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West Pryor Village
18: Chipman Rd & Pryor Rd

Peak AM - Phase 1

8/9/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Minimum Split (s)	12.0	32.0		11.5	35.0	35.0	12.0	34.0		12.0	34.0	
Total Split (s)	12.0	35.0		12.0	35.0	35.0	12.0	41.0		12.0	41.0	
Total Split (%)	12.0%	35.0%		12.0%	35.0%	35.0%	12.0%	41.0%		12.0%	41.0%	
Maximum Green (s)	6.0	30.0		8.0	30.0	30.0	6.0	36.0		6.0	36.0	
Yellow Time (s)	3.5	4.0		3.5	4.0	4.0	3.5	4.0		3.5	4.0	
All-Red Time (s)	2.5	1.0		0.5	1.0	1.0	2.5	1.0		2.5	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	5.0		4.0	5.0	5.0	6.0	5.0		6.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max		None	None	
Walk Time (s)		5.0			5.0	5.0		5.0			5.0	
Flash Dont Walk (s)		22.0			25.0	25.0		24.0			24.0	
Pedestrian Calls (#/hr)		0			0	0		0			0	
Act Effct Green (s)	18.5	14.7		21.0	12.3	12.3	59.5	55.2		61.4	58.0	
Actuated g/C Ratio	0.18	0.15		0.21	0.12	0.12	0.60	0.55		0.61	0.58	
v/c Ratio	0.45	0.55		0.35	0.21	0.23	0.06	0.41		0.15	0.15	
Control Delay	37.2	38.0		32.2	39.2	1.6	7.9	14.7		7.1	8.5	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	37.2	38.0		32.2	39.2	1.6	7.9	14.7		7.1	8.5	
LOS	D	D		C	D	A	A	B		A	A	
Approach Delay		37.8			25.8			14.4			8.3	
Approach LOS		D			C			B			A	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 80 (80%), Referenced to phase 2:NBT, Start of Green

Natural Cycle: 95

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.55

Intersection Signal Delay: 20.0

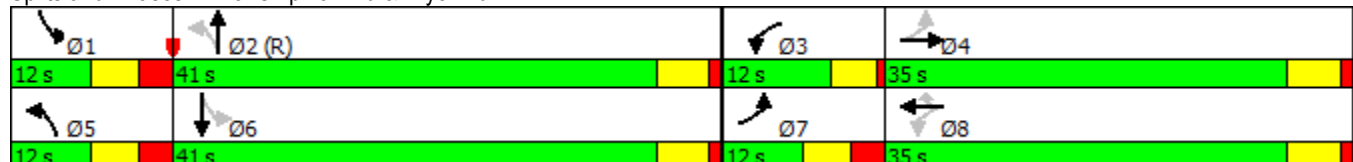
Intersection LOS: B

Intersection Capacity Utilization 54.8%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 18: Chipman Rd & Pryor Rd



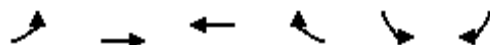


Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	112	296	92	93	76	40	789	60	295
v/c Ratio	0.45	0.55	0.35	0.21	0.23	0.06	0.41	0.15	0.15
Control Delay	37.2	38.0	32.2	39.2	1.6	7.9	14.7	7.1	8.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.2	38.0	32.2	39.2	1.6	7.9	14.7	7.1	8.5
Queue Length 50th (ft)	58	81	46	28	0	9	148	11	35
Queue Length 95th (ft)	100	120	83	50	0	23	221	27	57
Internal Link Dist (ft)		571		751			271		453
Turn Bay Length (ft)	200		200		170	170		260	
Base Capacity (vph)	250	1053	266	1061	582	680	1914	411	2017
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.28	0.35	0.09	0.13	0.06	0.41	0.15	0.15
Intersection Summary									

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	102	205	65	84	85	69	36	591	127	55	230	38
Future Volume (veh/h)	102	205	65	84	85	69	36	591	127	55	230	38
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	112	225	71	92	93	76	40	649	140	60	253	42
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	1	2	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	279	338	104	227	379	170	719	1635	352	458	1744	286
Arrive On Green	0.06	0.13	0.13	0.06	0.11	0.11	0.04	0.56	0.56	0.05	0.57	0.57
Sat Flow, veh/h	1774	2667	821	1774	3539	1583	1774	2898	624	1774	3045	499
Grp Volume(v), veh/h	112	147	149	92	93	76	40	396	393	60	146	149
Grp Sat Flow(s),veh/h/ln	1774	1770	1718	1774	1770	1583	1774	1770	1753	1774	1770	1775
Q Serve(g_s), s	5.6	7.9	8.3	4.6	2.4	4.5	0.9	12.6	12.6	1.4	3.8	3.9
Cycle Q Clear(g_c), s	5.6	7.9	8.3	4.6	2.4	4.5	0.9	12.6	12.6	1.4	3.8	3.9
Prop In Lane	1.00		0.48	1.00		1.00	1.00		0.36	1.00		0.28
Lane Grp Cap(c), veh/h	279	224	217	227	379	170	719	998	989	458	1013	1016
V/C Ratio(X)	0.40	0.66	0.68	0.41	0.25	0.45	0.06	0.40	0.40	0.13	0.14	0.15
Avail Cap(c_a), veh/h	279	531	515	261	1062	475	754	998	989	478	1013	1016
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.0	41.6	41.8	36.7	40.9	41.9	8.1	12.2	12.2	8.6	10.0	10.0
Incr Delay (d2), s/veh	0.9	3.3	3.8	1.2	0.3	1.8	0.0	1.2	1.2	0.1	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	4.1	4.1	2.3	1.2	2.1	0.4	6.4	6.3	0.7	1.9	1.9
LnGrp Delay(d),s/veh	38.0	44.9	45.5	37.9	41.3	43.7	8.1	13.4	13.4	8.8	10.0	10.0
LnGrp LOS	D	D	D	D	D	D	A	B	B	A	B	B
Approach Vol, veh/h		408			261			829			355	
Approach Delay, s/veh		43.2			40.8			13.2			9.8	
Approach LOS		D			D			B			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.9	61.4	10.1	17.7	10.0	62.3	12.0	15.7				
Change Period (Y+Rc), s	6.0	5.0	4.0	5.0	6.0	5.0	6.0	5.0				
Max Green Setting (Gmax), s	6.0	36.0	8.0	30.0	6.0	36.0	6.0	30.0				
Max Q Clear Time (g_c+I1), s	3.4	14.6	6.6	10.3	2.9	5.9	7.6	6.5				
Green Ext Time (p_c), s	0.0	6.8	0.0	2.4	0.0	7.6	0.0	2.5				
Intersection Summary												
HCM 2010 Ctrl Delay			23.0									
HCM 2010 LOS			C									

West Pryor Village
21: Chipman Rd & Black Twig Rd

Peak AM - Phase 1
8/9/2018



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	11	254	113	6	22	9
Future Volume (vph)	11	254	113	6	22	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.993		0.961	
Flt Protected	0.950				0.966	
Satd. Flow (prot)	1770	1863	1850	0	1729	0
Flt Permitted	0.950				0.966	
Satd. Flow (perm)	1770	1863	1850	0	1729	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		499	1199		944	
Travel Time (s)		9.7	23.4		25.7	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	13	292	130	7	25	10
Shared Lane Traffic (%)						
Lane Group Flow (vph)	13	292	137	0	35	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 23.4% ICU Level of Service A

Analysis Period (min) 15

Intersection

Int Delay, s/veh 1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	11	254	113	6	22	9
Future Vol, veh/h	11	254	113	6	22	9
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	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	13	292	130	7	25	10

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	137	0	450
Stage 1	-	-	133
Stage 2	-	-	317
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	1447	-	567
Stage 1	-	-	893
Stage 2	-	-	738
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1447	-	562
Mov Cap-2 Maneuver	-	-	562
Stage 1	-	-	893
Stage 2	-	-	731

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	11
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1447	-	-	-	633
HCM Lane V/C Ratio	0.009	-	-	-	0.056
HCM Control Delay (s)	7.5	-	-	-	11
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.2

Intersection: 3: W Pryor Rd & Rt-In, Rt-Out

Movement	EB
Directions Served	R
Maximum Queue (ft)	23
Average Queue (ft)	13
95th Queue (ft)	31
Link Distance (ft)	389
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 6: I-470 Ramp & W Pryor Rd

Movement	EB	EB	EB	EB	EB	NB	NB	NB	SB	SB
Directions Served	L	T	T	R	R	T	T	R	T	T
Maximum Queue (ft)	31	139	29	47	97	21	15	114	51	30
Average Queue (ft)	15	101	20	31	35	4	3	55	21	23
95th Queue (ft)	37	139	38	44	88	18	13	126	53	43
Link Distance (ft)		249	249			174	174		275	275
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	200			400	400			311		
Storage Blk Time (%)										
Queuing Penalty (veh)										

Intersection: 9: Summit Crossing & W Pryor Rd

Movement	WB	NB	NB	SB	SB	SB
Directions Served	R	T	T	L	T	T
Maximum Queue (ft)	77	28	120	31	53	28
Average Queue (ft)	42	6	40	18	11	6
95th Queue (ft)	74	25	114	42	45	24
Link Distance (ft)	279	475	475		217	217
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)				300		
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 11: W Pryor Rd & Lowenstein Rd

Movement	EB	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	L	TR	L	TR	L	T	T	R	L	T	T
Maximum Queue (ft)	55	81	58	24	20	64	66	83	17	24	27	27
Average Queue (ft)	39	59	39	14	8	23	30	46	7	5	10	15
95th Queue (ft)	65	78	73	33	25	62	68	91	21	20	31	34
Link Distance (ft)			85	162	162		145	145			481	481
Upstream Blk Time (%)		0										
Queuing Penalty (veh)		0										
Storage Bay Dist (ft)	150	150				200			150	215		
Storage Blk Time (%)		0										
Queuing Penalty (veh)		0										

Intersection: 11: W Pryor Rd & Lowenstein Rd

Movement	SB
Directions Served	R
Maximum Queue (ft)	51
Average Queue (ft)	16
95th Queue (ft)	50
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	150
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 16: Lowenstein Rd

Movement	NE
Directions Served	LR
Maximum Queue (ft)	50
Average Queue (ft)	10
95th Queue (ft)	43
Link Distance (ft)	330
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 18: Chipman Rd & Pryor Rd

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	T	R	L	T	TR	L	T
Maximum Queue (ft)	156	107	154	70	115	35	53	30	150	225	40	15
Average Queue (ft)	70	81	106	47	59	25	38	15	95	150	23	10
95th Queue (ft)	147	118	155	77	120	46	57	38	172	253	48	19
Link Distance (ft)		567	567		777	777			304	304		448
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	200			200			170	170			260	
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 18: Chipman Rd & Pryor Rd

Movement	SB
Directions Served	TR
Maximum Queue (ft)	31
Average Queue (ft)	11
95th Queue (ft)	29
Link Distance (ft)	448
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 21: Chipman Rd & Black Twig Rd

Movement	SB
Directions Served	LR
Maximum Queue (ft)	30
Average Queue (ft)	18
95th Queue (ft)	43
Link Distance (ft)	886
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 0

West Pryor Village
3: Pryor Rd & Rt-In, Rt-Out

Peak PM - Phase 1
8/8/2018

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				 	 	
Traffic Volume (vph)	0	98	0	681	785	212
Future Volume (vph)	0	98	0	681	785	212
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0			150
Storage Lanes	0	1	0			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.865				0.850
Flt Protected						
Satd. Flow (prot)	0	1611	0	3539	3539	1583
Flt Permitted						
Satd. Flow (perm)	0	1611	0	3539	3539	1583
Link Speed (mph)	30			30	30	
Link Distance (ft)	520			555	534	
Travel Time (s)	11.8			12.6	12.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	107	0	740	853	230
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	107	0	740	853	230
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	34.4%			ICU Level of Service A		
Analysis Period (min)	15					

Intersection

Int Delay, s/veh 0.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	98	0	681	785	212
Future Vol, veh/h	0	98	0	681	785	212
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	150
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	107	0	740	853	230

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	427	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	576	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	576	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.7	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	576	-	-
HCM Lane V/C Ratio	-	0.185	-	-
HCM Control Delay (s)	-	12.7	-	-
HCM Lane LOS	-	B	-	-
HCM 95th %tile Q(veh)	-	0.7	-	-

West Pryor Village
6: I-470 Ramp

Peak PM - Phase 1
8/8/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	132	551	0	0	0	0	458	353	4	619	0
Future Volume (vph)	20	132	551	0	0	0	0	458	353	4	619	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		400	0		0	0		311	550		0
Storage Lanes	1		2	0		0	0		1	1		0
Taper Length (ft)	100			25			25			50		
Lane Util. Factor	1.00	0.95	0.88	1.00	1.00	1.00	1.00	0.86	1.00	1.00	0.95	1.00
Frt			0.850						0.850			
Flt Protected	0.950									0.950		
Satd. Flow (prot)	1770	3539	2787	0	0	0	0	6408	1583	1770	3539	0
Flt Permitted	0.950									0.950		
Satd. Flow (perm)	1770	3539	2787	0	0	0	0	6408	1583	1770	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			426						372			
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		297			425			276			300	
Travel Time (s)		6.8			9.7			5.4			5.8	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	21	139	580	0	0	0	0	482	372	4	652	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	21	139	580	0	0	0	0	482	372	4	652	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			30			30	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1					2	1	1	2	
Detector Template	Left	Thru	Right					Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20					100	20	20	100	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Detector 1 Position(ft)	0	0	0					0	0	0	0	
Detector 1 Size(ft)	20	6	20					6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Prot	NA	Perm					NA	Perm	Prot	NA	
Protected Phases	7	4						2		1	6	
Permitted Phases			4						2			

West Pryor Village
6: I-470 Ramp

Peak PM - Phase 1
8/8/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4					2	2	1	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0					6.0	6.0	6.0	6.0	
Minimum Split (s)	11.6	21.6	21.6					21.5	21.5	11.5	21.5	
Total Split (s)	38.0	38.0	38.0					48.0	48.0	14.0	62.0	
Total Split (%)	38.0%	38.0%	38.0%					48.0%	48.0%	14.0%	62.0%	
Maximum Green (s)	32.4	32.4	32.4					42.5	42.5	8.5	56.5	
Yellow Time (s)	3.8	3.8	3.8					4.0	4.0	4.0	4.0	
All-Red Time (s)	1.8	1.8	1.8					1.5	1.5	1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.6	5.6	5.6					5.5	5.5	5.5	5.5	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Recall Mode	None	None	None					C-Max	C-Max	None	None	
Walk Time (s)		5.0	5.0					5.0	5.0		5.0	
Flash Dont Walk (s)		11.0	11.0					11.0	11.0		11.0	
Pedestrian Calls (#/hr)		0	0					0	0		0	
Act Effect Green (s)	11.9	14.2	14.2					72.3	72.3	6.1	74.7	
Actuated g/C Ratio	0.12	0.14	0.14					0.72	0.72	0.06	0.75	
v/c Ratio	0.10	0.28	0.76					0.10	0.30	0.04	0.25	
Control Delay	35.9	37.8	17.3					2.4	0.7	45.0	4.9	
Queue Delay	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Total Delay	35.9	37.8	17.3					2.4	0.7	45.0	4.9	
LOS	D	D	B					A	A	D	A	
Approach Delay		21.7						1.7			5.1	
Approach LOS		C						A			A	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 28 (28%), Referenced to phase 2:NBT, Start of Green

Natural Cycle: 55

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.76

Intersection Signal Delay: 9.3

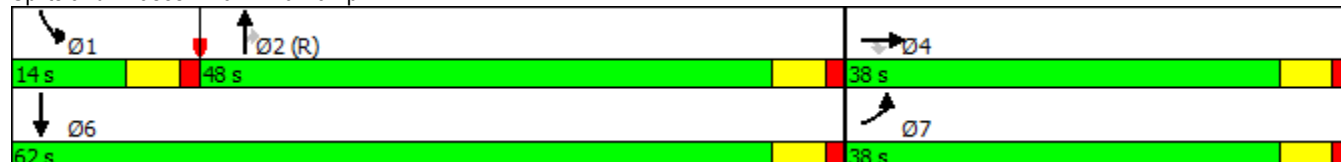
Intersection LOS: A

Intersection Capacity Utilization 45.7%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 6: I-470 Ramp



							
Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	21	139	580	482	372	4	652
v/c Ratio	0.10	0.28	0.76	0.10	0.30	0.04	0.25
Control Delay	35.9	37.8	17.3	2.4	0.7	45.0	4.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.9	37.8	17.3	2.4	0.7	45.0	4.9
Queue Length 50th (ft)	13	42	51	5	0	2	55
Queue Length 95th (ft)	30	63	104	21	5	14	108
Internal Link Dist (ft)		217		196			220
Turn Bay Length (ft)	200		400		311	550	
Base Capacity (vph)	573	1146	1190	4631	1247	150	2642
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.12	0.49	0.10	0.30	0.03	0.25
Intersection Summary							

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	132	551	0	0	0	0	458	353	4	619	0
Future Volume (veh/h)	20	132	551	0	0	0	0	458	353	4	619	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863				0	1863	1863	1863	1863	0
Adj Flow Rate, veh/h	21	139	580				0	482	372	4	652	0
Adj No. of Lanes	1	2	2				0	4	1	1	2	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	434	866	682				0	3736	923	11	2280	0
Arrive On Green	0.24	0.24	0.24				0.00	0.58	0.58	0.01	0.64	0.00
Sat Flow, veh/h	1774	3539	2787				0	6669	1583	1774	3632	0
Grp Volume(v), veh/h	21	139	580				0	482	372	4	652	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1393				0	1602	1583	1774	1770	0
Q Serve(g_s), s	0.9	3.1	19.9				0.0	3.4	12.8	0.2	8.0	0.0
Cycle Q Clear(g_c), s	0.9	3.1	19.9				0.0	3.4	12.8	0.2	8.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	434	866	682				0	3736	923	11	2280	0
V/C Ratio(X)	0.05	0.16	0.85				0.00	0.13	0.40	0.36	0.29	0.00
Avail Cap(c_a), veh/h	575	1147	903				0	3736	923	151	2280	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	28.9	29.7	36.0				0.0	9.4	11.4	49.5	7.8	0.0
Incr Delay (d2), s/veh	0.0	0.1	6.1				0.0	0.1	1.3	18.2	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	1.5	8.2				0.0	1.5	5.9	0.2	3.9	0.0
LnGrp Delay(d),s/veh	28.9	29.8	42.1				0.0	9.5	12.7	67.7	7.8	0.0
LnGrp LOS	C	C	D					A	B	E	A	
Approach Vol, veh/h		740						854			656	
Approach Delay, s/veh		39.4						10.9			8.2	
Approach LOS		D						B			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	6.1	63.8		30.1		69.9						
Change Period (Y+Rc), s	5.5	5.5		5.6		5.5						
Max Green Setting (Gmax), s	8.5	42.5		32.4		56.5						
Max Q Clear Time (g_c+I1), s	2.2	14.8		21.9		10.0						
Green Ext Time (p_c), s	0.0	10.5		2.6		12.1						
Intersection Summary												
HCM 2010 Ctrl Delay			19.5									
HCM 2010 LOS			B									

West Pryor Village
9: Pryor Rd & Summit Woods Crossing

Peak PM - Phase 1
8/8/2018

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	140	234	591	85	327	857
Future Volume (vph)	140	234	591	85	327	857
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150	0		150	300	
Storage Lanes	2	1		1	1	
Taper Length (ft)	100				25	
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3433	1583	3539	1583	1770	3539
Flt Permitted	0.950				0.346	
Satd. Flow (perm)	3433	1583	3539	1583	645	3539
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		260		94		
Link Speed (mph)	25		35			35
Link Distance (ft)	358		534			288
Travel Time (s)	9.8		10.4			5.6
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	156	260	657	94	363	952
Shared Lane Traffic (%)						
Lane Group Flow (vph)	156	260	657	94	363	952
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		30			30
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Number of Detectors	1	1	2	1	1	2
Detector Template	Left	Right	Thru	Right	Left	Thru
Leading Detector (ft)	20	20	100	20	20	100
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	6	20	20	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)			94			94
Detector 2 Size(ft)			6			6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Prot	NA	Perm	pm+pt	NA
Protected Phases	7	7	2		1	6
Permitted Phases				2	6	

West Pryor Village
9: Pryor Rd & Summit Woods Crossing

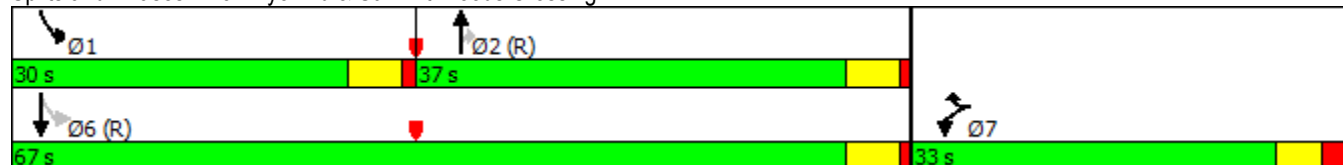
Peak PM - Phase 1
8/8/2018

	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Detector Phase	7	7	2	2	1	6
Switch Phase						
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	32.0	32.0	32.5	32.5	11.0	31.0
Total Split (s)	33.0	33.0	37.0	37.0	30.0	67.0
Total Split (%)	33.0%	33.0%	37.0%	37.0%	30.0%	67.0%
Maximum Green (s)	27.0	27.0	32.0	32.0	25.0	62.0
Yellow Time (s)	3.5	3.5	4.0	4.0	4.0	4.0
All-Red Time (s)	2.5	2.5	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	5.0	5.0	5.0	5.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max	C-Max	None	C-Max
Walk Time (s)	5.0	5.0	5.0	5.0		5.0
Flash Dont Walk (s)	21.0	21.0	21.0	21.0		21.0
Pedestrian Calls (#/hr)	0	0	0	0		0
Act Effect Green (s)	10.3	10.3	61.1	61.1	78.7	78.7
Actuated g/C Ratio	0.10	0.10	0.61	0.61	0.79	0.79
v/c Ratio	0.44	0.66	0.30	0.09	0.56	0.34
Control Delay	45.4	13.7	3.6	0.4	6.9	3.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.4	13.7	3.6	0.4	6.9	3.0
LOS	D	B	A	A	A	A
Approach Delay	25.6		3.2			4.1
Approach LOS	C		A			A

Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 26 (26%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.66
 Intersection Signal Delay: 7.4
 Intersection Capacity Utilization 52.8%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service A

Splits and Phases: 9: Pryor Rd & Summit Woods Crossing



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	156	260	657	94	363	952
v/c Ratio	0.44	0.66	0.30	0.09	0.56	0.34
Control Delay	45.4	13.7	3.6	0.4	6.9	3.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.4	13.7	3.6	0.4	6.9	3.0
Queue Length 50th (ft)	48	0	10	0	41	60
Queue Length 95th (ft)	76	70	75	1	69	83
Internal Link Dist (ft)	278		454			208
Turn Bay Length (ft)	150			150	300	
Base Capacity (vph)	926	617	2163	1004	788	2784
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.42	0.30	0.09	0.46	0.34
Intersection Summary						

								
Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations								
Traffic Volume (veh/h)	140	234	591	85	327	857		
Future Volume (veh/h)	140	234	591	85	327	857		
Number	7	14	2	12	1	6		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863		
Adj Flow Rate, veh/h	156	260	657	94	363	952		
Adj No. of Lanes	2	1	2	1	1	2		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	653	300	1897	849	539	2479		
Arrive On Green	0.19	0.19	0.18	0.18	0.11	0.70		
Sat Flow, veh/h	3442	1583	3632	1583	1774	3632		
Grp Volume(v), veh/h	156	260	657	94	363	952		
Grp Sat Flow(s),veh/h/ln	1721	1583	1770	1583	1774	1770		
Q Serve(g_s), s	3.8	15.9	16.3	5.0	8.5	11.0		
Cycle Q Clear(g_c), s	3.8	15.9	16.3	5.0	8.5	11.0		
Prop In Lane	1.00	1.00		1.00	1.00			
Lane Grp Cap(c), veh/h	653	300	1897	849	539	2479		
V/C Ratio(X)	0.24	0.87	0.35	0.11	0.67	0.38		
Avail Cap(c_a), veh/h	929	427	1897	849	780	2479		
HCM Platoon Ratio	1.00	1.00	0.33	0.33	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	34.4	39.3	25.8	21.1	10.3	6.1		
Incr Delay (d2), s/veh	0.2	12.4	0.5	0.3	1.5	0.5		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	1.8	8.0	8.1	2.3	4.3	5.4		
LnGrp Delay(d),s/veh	34.6	51.7	26.3	21.4	11.7	6.6		
LnGrp LOS	C	D	C	C	B	A		
Approach Vol, veh/h	416		751			1315		
Approach Delay, s/veh	45.3		25.7			8.0		
Approach LOS	D		C			A		
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	16.4	58.6		25.0		75.0		
Change Period (Y+Rc), s	5.0	5.0		6.0		5.0		
Max Green Setting (Gmax), s	25.0	32.0		27.0		62.0		
Max Q Clear Time (g_c+I1), s	10.5	18.3		17.9		13.0		
Green Ext Time (p_c), s	1.0	8.9		1.0		17.2		
Intersection Summary								
HCM 2010 Ctrl Delay			19.6					
HCM 2010 LOS			B					

West Pryor Village
11: Lowenstein Rd & Pryor Rd

Peak PM - Phase 1

8/8/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	135	66	108	63	29	34	114	512	42	56	727	105
Future Volume (vph)	135	66	108	63	29	34	114	512	42	56	727	105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	0		0	200		150	215		450
Storage Lanes	2		0	1		0	1		1	1		1
Taper Length (ft)	125			25			100			100		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.907			0.918				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	1690	0	1770	1710	0	1770	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.275			0.434		
Satd. Flow (perm)	3433	1690	0	1770	1710	0	512	3539	1583	808	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		89			37				164			164
Link Speed (mph)		30			25			35			35	
Link Distance (ft)		172			227			220			555	
Travel Time (s)		3.9			6.2			4.3			10.8	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	145	71	116	68	31	37	123	551	45	60	782	113
Shared Lane Traffic (%)												
Lane Group Flow (vph)	145	187	0	68	68	0	123	551	45	60	782	113
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			30			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases							2		2	6		6

Baseline

Synchro 9 Light Report
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West Pryor Village
11: Lowenstein Rd & Pryor Rd

Peak PM - Phase 1

8/8/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	12.0	39.5		12.0	36.5		12.5	30.0	30.0	12.5	30.0	30.0
Total Split (s)	14.0	39.5		13.0	38.5		14.0	35.0	35.0	12.5	33.5	33.5
Total Split (%)	14.0%	39.5%		13.0%	38.5%		14.0%	35.0%	35.0%	12.5%	33.5%	33.5%
Maximum Green (s)	8.0	34.0		7.0	33.0		7.5	30.0	30.0	6.0	28.5	28.5
Yellow Time (s)	3.0	3.5		3.0	3.5		3.5	4.0	4.0	3.5	4.0	4.0
All-Red Time (s)	3.0	2.0		3.0	2.0		3.0	1.0	1.0	3.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	5.5		6.0	5.5		6.5	5.0	5.0	6.5	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		5.0			5.0			5.0	5.0		5.0	5.0
Flash Dont Walk (s)		29.0			26.0			20.0	20.0		20.0	20.0
Pedestrian Calls (#/hr)		0			0			0	0		0	0
Act Effect Green (s)	7.8	12.0		6.8	10.9		61.8	56.1	56.1	57.7	52.2	52.2
Actuated g/C Ratio	0.08	0.12		0.07	0.11		0.62	0.56	0.56	0.58	0.52	0.52
v/c Ratio	0.55	0.67		0.57	0.31		0.29	0.28	0.05	0.11	0.42	0.12
Control Delay	52.4	33.2		64.1	24.6		14.2	16.8	1.0	8.6	16.1	2.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.4	33.2		64.1	24.6		14.2	16.8	1.0	8.6	16.1	2.0
LOS	D	C		E	C		B	B	A	A	B	A
Approach Delay		41.6			44.3			15.4			14.0	
Approach LOS		D			D			B			B	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 95 (95%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 95

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.67

Intersection Signal Delay: 20.7

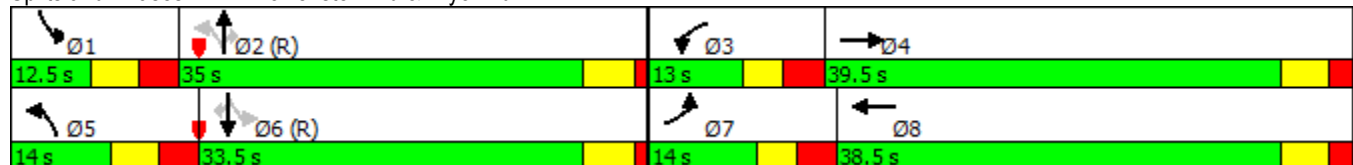
Intersection LOS: C

Intersection Capacity Utilization 60.3%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 11: Lowenstein Rd & Pryor Rd





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	145	187	68	68	123	551	45	60	782	113
v/c Ratio	0.55	0.67	0.57	0.31	0.29	0.28	0.05	0.11	0.42	0.12
Control Delay	52.4	33.2	64.1	24.6	14.2	16.8	1.0	8.6	16.1	2.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.4	33.2	64.1	24.6	14.2	16.8	1.0	8.6	16.1	2.0
Queue Length 50th (ft)	46	60	43	18	22	77	0	13	143	0
Queue Length 95th (ft)	78	124	#96	55	96	186	m6	33	220	8
Internal Link Dist (ft)		92		147		140			475	
Turn Bay Length (ft)	150				200		150	215		450
Base Capacity (vph)	274	633	123	589	426	1986	960	533	1848	904
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.30	0.55	0.12	0.29	0.28	0.05	0.11	0.42	0.13

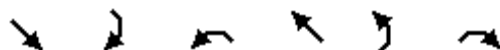
Intersection Summary

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

Queue shown is maximum after two cycles.

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

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	135	66	108	63	29	34	114	512	42	56	727	105
Future Volume (veh/h)	135	66	108	63	29	34	114	512	42	56	727	105
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	145	71	116	68	31	37	123	551	45	60	782	113
Adj No. of Lanes	2	1	0	1	1	0	1	2	1	1	2	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	210	91	148	90	103	122	374	1869	836	519	1835	821
Arrive On Green	0.06	0.14	0.14	0.05	0.13	0.13	0.06	0.53	0.53	0.02	0.17	0.17
Sat Flow, veh/h	3442	637	1041	1774	775	925	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	145	0	187	68	0	68	123	551	45	60	782	113
Grp Sat Flow(s),veh/h/ln	1721	0	1679	1774	0	1700	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	4.1	0.0	10.7	3.8	0.0	3.6	3.2	8.7	1.4	1.5	19.8	6.1
Cycle Q Clear(g_c), s	4.1	0.0	10.7	3.8	0.0	3.6	3.2	8.7	1.4	1.5	19.8	6.1
Prop In Lane	1.00		0.62	1.00		0.54	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	210	0	239	90	0	225	374	1869	836	519	1835	821
V/C Ratio(X)	0.69	0.00	0.78	0.75	0.00	0.30	0.33	0.29	0.05	0.12	0.43	0.14
Avail Cap(c_a), veh/h	275	0	571	124	0	561	404	1869	836	539	1835	821
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.0	0.0	41.4	46.8	0.0	39.2	12.1	13.2	11.5	10.4	28.1	22.5
Incr Delay (d2), s/veh	4.8	0.0	5.5	15.5	0.0	0.7	0.5	0.4	0.1	0.1	0.7	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	0.0	5.4	2.2	0.0	1.7	1.6	4.3	0.6	0.8	9.9	2.7
LnGrp Delay(d),s/veh	50.8	0.0	46.9	62.3	0.0	39.9	12.6	13.6	11.6	10.5	28.9	22.8
LnGrp LOS	D		D	E		D	B	B	B	B	C	C
Approach Vol, veh/h		332			136			719			955	
Approach Delay, s/veh		48.6			51.1			13.3			27.0	
Approach LOS		D			D			B			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.4	57.8	11.1	19.7	12.3	56.9	12.1	18.7				
Change Period (Y+Rc), s	6.5	5.0	6.0	5.5	6.5	5.0	6.0	5.5				
Max Green Setting (Gmax), s	6.0	30.0	7.0	34.0	7.5	28.5	8.0	33.0				
Max Q Clear Time (g_c+I1), s	3.5	10.7	5.8	12.7	5.2	21.8	6.1	5.6				
Green Ext Time (p_c), s	0.0	9.5	0.0	1.5	0.1	4.5	0.1	1.6				
Intersection Summary												
HCM 2010 Ctrl Delay				27.3								
HCM 2010 LOS				C								



Lane Group	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Volume (vph)	15	0	56	20	1	35
Future Volume (vph)	15	0	56	20	1	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.868	
Flt Protected				0.964	0.999	
Satd. Flow (prot)	1863	0	0	1796	1615	0
Flt Permitted				0.964	0.999	
Satd. Flow (perm)	1863	0	0	1796	1615	0
Link Speed (mph)	25			30	25	
Link Distance (ft)	866			1603	379	
Travel Time (s)	23.6			36.4	10.3	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	16	0	62	22	1	38
Shared Lane Traffic (%)						
Lane Group Flow (vph)	16	0	0	84	39	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 20.8% ICU Level of Service A

Analysis Period (min) 15

Intersection

Int Delay, s/veh 5.7

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	15	0	56	20	1	35
Future Vol, veh/h	15	0	56	20	1	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	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	0	62	22	1	38

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	16	161
Stage 1	-	-	16
Stage 2	-	-	145
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	-	1602	830
Stage 1	-	-	1007
Stage 2	-	-	882
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	1602	798
Mov Cap-2 Maneuver	-	-	798
Stage 1	-	-	1007
Stage 2	-	-	848

Approach	SE	NW	NE
HCM Control Delay, s	0	5.4	8.6
HCM LOS			A

Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER
Capacity (veh/h)	1053	1602	-	-	-
HCM Lane V/C Ratio	0.038	0.038	-	-	-
HCM Control Delay (s)	8.6	7.3	0	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	0.1	-	-	-

West Pryor Village
18: Chipman Rd & Pryor Rd

Peak PM - Phase 1

8/8/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	88	221	55	268	206	112	73	467	180	172	628	131
Future Volume (vph)	88	221	55	268	206	112	73	467	180	172	628	131
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	200		170	170		0	260		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	70			100			80			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.970				0.850		0.958			0.974	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3433	0	1770	3539	1583	1770	3391	0	1770	3447	0
Flt Permitted	0.616			0.319			0.287			0.274		
Satd. Flow (perm)	1147	3433	0	594	3539	1583	535	3391	0	510	3447	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		30				153		58			26	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		599			831			351			533	
Travel Time (s)		13.6			18.9			8.0			12.1	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	93	233	58	282	217	118	77	492	189	181	661	138
Shared Lane Traffic (%)												
Lane Group Flow (vph)	93	291	0	282	217	118	77	681	0	181	799	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2			6		

West Pryor Village
18: Chipman Rd & Pryor Rd

Peak PM - Phase 1

8/8/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Minimum Split (s)	12.0	32.0		12.0	35.0	35.0	12.0	34.0		12.0	34.0	
Total Split (s)	12.0	32.0		18.0	38.0	38.0	12.0	35.0		15.0	38.0	
Total Split (%)	12.0%	32.0%		18.0%	38.0%	38.0%	12.0%	35.0%		15.0%	38.0%	
Maximum Green (s)	6.0	27.0		12.0	33.0	33.0	6.0	30.0		9.0	33.0	
Yellow Time (s)	3.5	4.0		3.5	4.0	4.0	3.5	4.0		3.5	4.0	
All-Red Time (s)	2.5	1.0		2.5	1.0	1.0	2.5	1.0		2.5	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	5.0		6.0	5.0	5.0	6.0	5.0		6.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max		None	None	
Walk Time (s)		5.0			5.0	5.0		5.0			5.0	
Flash Dont Walk (s)		22.0			25.0	25.0		24.0			24.0	
Pedestrian Calls (#/hr)		0			0	0		0			0	
Act Effct Green (s)	18.0	13.0		30.0	21.4	21.4	49.1	42.5		55.9	47.9	
Actuated g/C Ratio	0.18	0.13		0.30	0.21	0.21	0.49	0.42		0.56	0.48	
v/c Ratio	0.38	0.62		0.88	0.29	0.26	0.22	0.46		0.44	0.48	
Control Delay	31.0	42.3		59.2	34.4	3.9	12.1	20.9		13.2	9.4	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	31.0	42.3		59.2	34.4	3.9	12.1	20.9		13.2	9.4	
LOS	C	D		E	C	A	B	C		B	A	
Approach Delay		39.6			39.9			20.0			10.1	
Approach LOS		D			D			C			B	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 4 (4%), Referenced to phase 2:NBT, Start of Green

Natural Cycle: 95

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 23.7

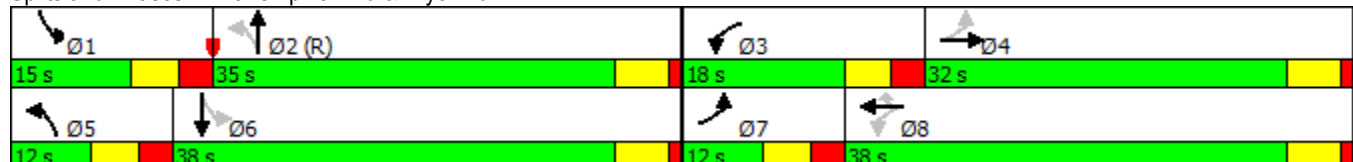
Intersection LOS: C

Intersection Capacity Utilization 68.4%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 18: Chipman Rd & Pryor Rd





Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	93	291	282	217	118	77	681	181	799
v/c Ratio	0.38	0.62	0.88	0.29	0.26	0.22	0.46	0.44	0.48
Control Delay	31.0	42.3	59.2	34.4	3.9	12.1	20.9	13.2	9.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.0	42.3	59.2	34.4	3.9	12.1	20.9	13.2	9.4
Queue Length 50th (ft)	44	83	149	63	0	20	144	25	52
Queue Length 95th (ft)	78	122	#221	93	26	45	224	78	87
Internal Link Dist (ft)		519		751			271		453
Turn Bay Length (ft)	200		200		170	170		260	
Base Capacity (vph)	243	948	319	1167	624	355	1475	421	1663
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.31	0.88	0.19	0.19	0.22	0.46	0.43	0.48

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	88	221	55	268	206	112	73	467	180	172	628	131
Future Volume (veh/h)	88	221	55	268	206	112	73	467	180	172	628	131
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	93	233	58	282	217	118	77	492	189	181	661	138
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	316	374	91	342	682	305	383	1136	434	445	1384	289
Arrive On Green	0.06	0.13	0.13	0.12	0.19	0.19	0.05	0.45	0.45	0.07	0.47	0.47
Sat Flow, veh/h	1774	2822	688	1774	3539	1583	1774	2506	957	1774	2917	608
Grp Volume(v), veh/h	93	144	147	282	217	118	77	347	334	181	401	398
Grp Sat Flow(s),veh/h/ln	1774	1770	1741	1774	1770	1583	1774	1770	1694	1774	1770	1755
Q Serve(g_s), s	4.5	7.7	8.0	12.0	5.3	6.5	2.2	13.3	13.4	5.4	15.4	15.4
Cycle Q Clear(g_c), s	4.5	7.7	8.0	12.0	5.3	6.5	2.2	13.3	13.4	5.4	15.4	15.4
Prop In Lane	1.00		0.40	1.00		1.00	1.00		0.57	1.00		0.35
Lane Grp Cap(c), veh/h	316	235	231	342	682	305	383	802	768	445	840	833
V/C Ratio(X)	0.29	0.62	0.64	0.82	0.32	0.39	0.20	0.43	0.44	0.41	0.48	0.48
Avail Cap(c_a), veh/h	316	478	470	342	1168	523	395	802	768	473	840	833
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.4	41.0	41.1	33.4	34.7	35.2	13.7	18.6	18.6	13.6	17.8	17.9
Incr Delay (d2), s/veh	0.5	2.6	2.9	15.0	0.3	0.8	0.3	1.7	1.8	0.6	0.4	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	3.9	4.0	3.3	2.6	2.9	1.1	6.8	6.6	2.6	7.6	7.5
LnGrp Delay(d),s/veh	34.9	43.6	44.0	48.5	35.0	36.0	14.0	20.3	20.4	14.2	18.3	18.3
LnGrp LOS	C	D	D	D	C	D	B	C	C	B	B	B
Approach Vol, veh/h		384			617			758			980	
Approach Delay, s/veh		41.6			41.3			19.7			17.5	
Approach LOS		D			D			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.4	50.3	18.0	18.3	11.3	52.4	12.0	24.3				
Change Period (Y+Rc), s	6.0	5.0	6.0	5.0	6.0	5.0	6.0	5.0				
Max Green Setting (Gmax), s	9.0	30.0	12.0	27.0	6.0	33.0	6.0	33.0				
Max Q Clear Time (g_c+I1), s	7.4	15.4	14.0	10.0	4.2	17.4	6.5	8.5				
Green Ext Time (p_c), s	0.1	8.1	0.0	3.3	0.0	8.5	0.0	3.6				
Intersection Summary												
HCM 2010 Ctrl Delay				26.9								
HCM 2010 LOS				C								

West Pryor Village
22: Chipman Rd & Black Twig Rd

Peak PM - Phase 1
8/8/2018



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	11	258	342	31	24	21
Future Volume (vph)	11	258	342	31	24	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.989		0.937	
Flt Protected	0.950				0.974	
Satd. Flow (prot)	1770	1863	1842	0	1700	0
Flt Permitted	0.950				0.974	
Satd. Flow (perm)	1770	1863	1842	0	1700	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		248	1258		980	
Travel Time (s)		4.8	24.5		26.7	
Confl. Peds. (#/hr)	245					
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	12	272	360	33	25	22
Shared Lane Traffic (%)						
Lane Group Flow (vph)	12	272	393	0	47	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 29.9% ICU Level of Service A

Analysis Period (min) 15

Intersection

Int Delay, s/veh 1.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	11	258	342	31	24	21
Future Vol, veh/h	11	258	342	31	24	21
Conflicting Peds, #/hr	245	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	272	360	33	25	22

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	638	0	916
Stage 1	-	-	621
Stage 2	-	-	295
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	946	-	302
Stage 1	-	-	536
Stage 2	-	-	755
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	946	-	189
Mov Cap-2 Maneuver	-	-	189
Stage 1	-	-	427
Stage 2	-	-	593

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	22.9
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	946	-	-	-	248
HCM Lane V/C Ratio	0.012	-	-	-	0.191
HCM Control Delay (s)	8.9	-	-	-	22.9
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.7

Summary of All Intervals

Start Time	4:50
End Time	6:00
Total Time (min)	70
Time Recorded (min)	60
# of Intervals	2
# of Recorded Intervals	1
Vehs Entered	3934
Vehs Exited	3957
Starting Vehs	132
Ending Vehs	109
Travel Distance (mi)	1706
Travel Time (hr)	108.1
Total Delay (hr)	46.1
Total Stops	4982
Fuel Used (gal)	77.8

Interval #0 Information Seeding

Start Time	4:50
End Time	5:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	5:00
End Time	6:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Vehs Entered	3934
Vehs Exited	3957
Starting Vehs	132
Ending Vehs	109
Travel Distance (mi)	1706
Travel Time (hr)	108.1
Total Delay (hr)	46.1
Total Stops	4982
Fuel Used (gal)	77.8

Intersection: 3: Pryor Rd & Rt-In, Rt-Out

Movement	EB
Directions Served	R
Maximum Queue (ft)	45
Average Queue (ft)	30
95th Queue (ft)	48
Link Distance (ft)	460
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 6: I-470 Ramp

Movement	EB	EB	EB	EB	EB	NB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	T	R	R	T	T	T	T	R	L	T
Maximum Queue (ft)	52	136	28	256	163	14	42	85	97	84	51	142
Average Queue (ft)	18	62	7	135	63	0	2	20	55	26	4	80
95th Queue (ft)	46	111	26	225	127	5	16	55	92	59	23	137
Link Distance (ft)		241	241			175	175	175	175			276
Upstream Blk Time (%)				0								
Queuing Penalty (veh)				0								
Storage Bay Dist (ft)	200			400	400					311	550	
Storage Blk Time (%)				0								
Queuing Penalty (veh)				0								

Intersection: 6: I-470 Ramp

Movement	SB
Directions Served	T
Maximum Queue (ft)	114
Average Queue (ft)	52
95th Queue (ft)	101
Link Distance (ft)	276
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 9: Pryor Rd & Summit Woods Crossing

Movement	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	L	R	T	T	R	L	T	T
Maximum Queue (ft)	65	249	293	229	265	74	219	214	179
Average Queue (ft)	15	77	157	83	135	26	112	96	93
95th Queue (ft)	39	169	269	174	241	59	180	178	159
Link Distance (ft)			278	480	480			221	221
Upstream Blk Time (%)			1				0	0	
Queuing Penalty (veh)			0				0	0	
Storage Bay Dist (ft)	150	150				150	300		
Storage Blk Time (%)		1	11		8		0	0	
Queuing Penalty (veh)		2	15		7		1	0	

Intersection: 11: Lowenstein Rd & Pryor Rd

Movement	EB	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	L	TR	L	TR	L	T	T	R	L	T	T
Maximum Queue (ft)	92	94	129	113	168	144	150	192	42	90	288	308
Average Queue (ft)	33	53	72	51	30	45	51	97	9	27	132	146
95th Queue (ft)	72	94	108	100	85	92	109	164	29	65	225	247
Link Distance (ft)			94	161	161		145	145			482	482
Upstream Blk Time (%)	0	1	3		0	0	0	3				
Queuing Penalty (veh)	0	0	1		0	0	2	11				
Storage Bay Dist (ft)	150	150				200			150	215		
Storage Blk Time (%)	0	1	3			0	0	3			1	
Queuing Penalty (veh)	0	2	4			0	1	1			1	

Intersection: 11: Lowenstein Rd & Pryor Rd

Movement	SB
Directions Served	R
Maximum Queue (ft)	77
Average Queue (ft)	27
95th Queue (ft)	63
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	450
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 16: Black Twig Ln & Lowenstein Rd

Movement	NE
Directions Served	LR
Maximum Queue (ft)	50
Average Queue (ft)	24
95th Queue (ft)	47
Link Distance (ft)	331
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 18: Chipman Rd & Pryor Rd

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	T	R	L	T	TR	L	T
Maximum Queue (ft)	97	118	135	274	158	131	90	94	185	288	108	265
Average Queue (ft)	51	70	80	142	73	53	42	37	96	142	51	86
95th Queue (ft)	96	107	128	219	125	102	69	72	165	239	89	193
Link Distance (ft)		524	524		784	784			304	304		447
Upstream Blk Time (%)										0		
Queuing Penalty (veh)										0		
Storage Bay Dist (ft)	200			200			170	170			260	
Storage Blk Time (%)				3					1			0
Queuing Penalty (veh)				3					1			0

Intersection: 18: Chipman Rd & Pryor Rd

Movement	SB
Directions Served	TR
Maximum Queue (ft)	279
Average Queue (ft)	116
95th Queue (ft)	222
Link Distance (ft)	447
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 22: Chipman Rd & Black Twig Rd

Movement	EB	SB
Directions Served	L	LR
Maximum Queue (ft)	31	52
Average Queue (ft)	7	21
95th Queue (ft)	28	48
Link Distance (ft)	226	925
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 52

Analyst: Lowenstein Drive Study	Intersection: Chipman Rd & Black Twig Lane
Agency: SKW	Jurisdiction: Lee's Summit
Date: 1/11/2017	Units: U.S. Customary
Project ID: Lowenstein Drive Study	Analysis Year: 2016
EW Street: Chipman Road	NS Street: Black Twig Lane

General Information

Major St. Speed (mph): 0	Population: Not less than 10000
Nearest Signal (ft): 0	Coordinated Signal System: N
Crashes per Yr: 0	

School Crossing

Students in Highest Hour: 0
 Adequate Gaps in Period: 0
 Minutes in Period: 0

Roadway Network

Two Major Routes: 0
 Weekend Count: 0
 5-yr Growth Factor: 0

Geometry and Traffic

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	0	1	0	0	0	0	0	0	0
LaneUsage	L	T			TR						LR	

Results

Warrant 1: Eight-Hour Vehicular Volume	[]
1 A. Minimum Vehicular Volumes	[]
1 B. Interruption of Continuous Traffic	[]
1 80% Vehicular --and-- Interruption Volumes	[]
Warrant 2: Four-Hour Vehicular Volume	
2 A. Four-Hour Vehicular Volumes	[]
Warrant 3: Peak Hour	[]
3 A. Peak-Hour Conditions	[]
3 B. Peak-Hour Vehicular Volume Hours Met	[]
Warrant 4: Pedestrian Volume	[]
4 A. Four Hour Volumes	[]
4 B. One-Hour Volumes	[]
Warrant 5: School Crossing	[]
5 A. Student Volumes	[]
5 B. Gaps Same Period	[]
Warrant 6: Coordinated Signal System	
6 Degree of Platooning	[]
Warrant 7: Crash Experience	[]
7 A. Adequate trials of alternatives	[]

Warrant 8: Roadway Network	[]
8 A. Weekday Volume	[]
8 B. Weekend Volume	[]

Warrant 9: Grade Crossing	[]
9 A. Grade Crossing within 140 ft --and--	[]
9 B. Peak-Hour Vehicular Volumes	[]

Summary											
	Major	Minor	Total	Delay	1A	1A	1B	1B	2	3A	3B
Hours	Volume	Volume	Volume	(Veh-hr)	100%	80%	100%	80%	100%	100%	100%
06-07	224	31	255	0.0	No	No	No	No	No	No	No
07-08	406	31	437	0.0	No	No	No	No	No	No	No
08-09	0	0	0	0.0	No	No	No	No	No	No	No
09-10	0	0	0	0.0	No	No	No	No	No	No	No
10-11	0	0	0	0.0	No	No	No	No	No	No	No
11-12	0	0	0	0.0	No	No	No	No	No	No	No
12-13	0	0	0	0.0	No	No	No	No	No	No	No
13-14	0	0	0	0.0	No	No	No	No	No	No	No
14-15	0	0	0	0.0	No	No	No	No	No	No	No
15-16	0	0	0	0.0	No	No	No	No	No	No	No
16-17	656	45	701	0.0	No	No	No	No	No	No	No
17-18	656	45	701	0.0	No	No	No	No	No	No	No
Total	1942	152	2094		0	0	0	0	0	0	0

Traffic Volumes (vph)												
Eastbound			Westbound			Northbound			Southbound			
L	T	R	L	T	R	L	T	R	L	T	R	
11	150	0	0	57	6	0	0	0	22	0	9	
11	266	0	0	123	6	0	0	0	22	0	9	
0	0	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	0	0	0	
11	265	0	0	349	31	0	0	0	24	0	21	
11	265	0	0	349	31	0	0	0	24	0	21	

Pedestrian Volumes and Gaps (Per Hour)								
	Volume	Gap	Volume	Gap	Volume	Gap	Volume	Gap
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0
Delay	sec/veh	veh-hrs	sec/veh	veh-hrs	sec/veh	veh-hrs	sec/veh	veh-hrs
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

[illegible]

Analyst: CLB	Intersection: Lowenstein & Pryor
Agency: SKW	Jurisdiction: Lee's Summit, MO
Date: 10/5/2016	Units: U.S. Customary
Project ID: 160497-010 Lowenstein Rd	Dev.lysis Year: 2016
EW Street: Lowenstein Road	NS Street: Pryor Road

General Information

Major St. Speed (mph): 35	Population: Not less than 10000
Nearest Signal (ft): 765	Coordinated Signal System: N
Crashes per Yr: 0	

School Crossing

Students in Highest Hour: 0
Adequate Gaps in Period: 0
Minutes in Period: 0

Roadway Network

Two Major Routes: 0
Weekend Count: 0
5-yr Growth Factor: 0

Geometry and Traffic

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	1	1	0	1	2	0	1	2	1
LaneUsage	L	TR		L	TR		L	TR		L	T	R

Results

Warrant 1: Eight-Hour Vehicular Volume	[X]
1 A. Minimum Vehicular Volumes	[]
1 B. Interruption of Continuous Traffic	[]
1 80% Vehicular --and-- Interruption Volumes	[X]
Warrant 2: Four-Hour Vehicular Volume	
2 A. Four-Hour Vehicular Volumes	[X]
Warrant 3: Peak Hour	[X]
3 A. Peak-Hour Conditions	[]
3 B. Peak-Hour Vehicular Volume Hours Met	[X]
Warrant 4: Pedestrian Volume	[]
4 A. Four Hour Volumes	[]
4 B. One-Hour Volumes	[]
Warrant 5: School Crossing	[]
5 A. Student Volumes	[]
5 B. Gaps Same Period	[]
Warrant 6: Coordinated Signal System	
6 Degree of Platooning	[]
Warrant 7: Crash Experience	[]
7 A. Adequate trials of alternatives	[]

[]

$$[x]$$

[]

[]

[]

[]

[]

$$[\quad]$$

Summary											
	Major	Minor	Total	Delay	1A	1A	1B	1B	2	3A	3B
Hours	Volume	Volume	Volume	(Veh-hr)	100%	80%	100%	80%	100%	100%	100%
07-08	1064	246	1338	0.0	Yes	Yes	Yes	Yes	Yes	No	No
08-09	845	187	1082	0.0	No	Yes	No	Yes	No	No	No
09-10	646	119	829	0.0	No	No	No	No	No	No	No
10-11	708	150	956	0.0	No	No	No	No	No	No	No
11-12	832	176	1112	0.0	No	Yes	No	Yes	No	No	No
12-13	1030	187	1322	0.0	No	Yes	Yes	Yes	Yes	No	No
13-14	801	182	1082	0.0	No	Yes	No	Yes	No	No	No
14-15	987	163	1251	0.0	No	Yes	Yes	Yes	No	No	No
15-16	1079	131	1328	0.0	No	No	Yes	Yes	No	No	No
16-17	1376	188	1725	0.0	No	Yes	Yes	Yes	Yes	No	No
17-18	1447	309	1874	0.0	Yes	Yes	Yes	Yes	Yes	No	Yes
18-19	1618	344	2095	0.0	Yes	Yes	Yes	Yes	Yes	No	Yes
Total	12433	2382	15994		3	9	7	10	5	0	2

Traffic Volumes (vph)

Eastbound			Westbound			Northbound			Southbound		
L	T	R	L	T	R	L	T	R	L	T	R
197	16	33	8	7	13	136	591	22	3	213	99
131	6	50	28	7	15	69	463	24	22	204	63
69	25	25	31	19	14	44	282	42	24	198	56
75	31	44	41	38	19	100	286	39	13	201	69
69	19	88	50	19	35	75	285	54	48	295	75
56	25	106	62	13	30	113	370	55	52	346	94
63	100	19	30	25	44	81	300	41	25	291	63
88	19	56	48	13	40	69	346	63	34	425	50
81	19	31	62	25	31	75	327	53	36	482	106
81	44	63	74	50	37	63	437	43	49	603	181
135	66	108	50	29	39	114	508	46	56	618	105
125	44	175	39	44	50	300	397	48	50	535	288

Pedestrian Volumes and Gaps (Per Hour)

[illegible][illegible]

[illegible]

West Pryor Village
3: W Pryor Rd & Rt-In Rt-Out

Peak AM - Phase 1-2
8/9/2018



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↗↗	↗↗	↗
Traffic Volume (vph)	0	42	0	658	354	125
Future Volume (vph)	0	42	0	658	354	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.865				0.850
Flt Protected						
Satd. Flow (prot)	0	1611	0	3539	3539	1583
Flt Permitted						
Satd. Flow (perm)	0	1611	0	3539	3539	1583
Link Speed (mph)	30			35	35	
Link Distance (ft)	458			555	534	
Travel Time (s)	10.4			10.8	10.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	46	0	715	385	136
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	46	0	715	385	136
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			30	30	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 21.5% ICU Level of Service A

Analysis Period (min) 15

Intersection

Int Delay, s/veh 0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	42	0	658	354	125
Future Vol, veh/h	0	42	0	658	354	125
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	46	0	715	385	136

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	192	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	817	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	817	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

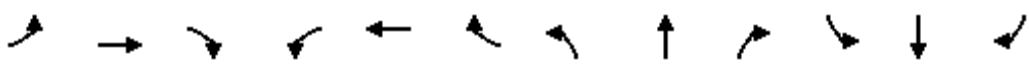
Approach	EB	NB	SB
HCM Control Delay, s	9.7	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	817	-	-
HCM Lane V/C Ratio	-	0.056	-	-
HCM Control Delay (s)	-	9.7	-	-
HCM Lane LOS	-	A	-	-
HCM 95th %tile Q(veh)	-	0.2	-	-

West Pryor Village
6: W Pryor Rd & I-470 Ramp

Peak AM - Phase 1-2

8/9/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	212	259	0	0	0	0	496	404	0	358	0
Future Volume (vph)	14	212	259	0	0	0	0	496	404	0	358	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		400	0		0	0		311	550		0
Storage Lanes	1		2	0		0	0		1	1		0
Taper Length (ft)	100			25			25			50		
Lane Util. Factor	1.00	0.95	0.88	1.00	1.00	1.00	1.00	0.86	1.00	1.00	0.95	1.00
Frt			0.850							0.850		
Flt Protected	0.950											
Satd. Flow (prot)	1770	3539	2787	0	0	0	0	6408	1583	1863	3539	0
Flt Permitted	0.950											
Satd. Flow (perm)	1770	3539	2787	0	0	0	0	6408	1583	1863	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			278						434			
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		297			425			276			300	
Travel Time (s)		6.8			9.7			5.4			5.8	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	15	228	278	0	0	0	0	533	434	0	385	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	15	228	278	0	0	0	0	533	434	0	385	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			30			30	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1					2	1	1	2	
Detector Template	Left	Thru	Right					Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20					100	20	20	100	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Detector 1 Position(ft)	0	0	0					0	0	0	0	
Detector 1 Size(ft)	20	6	20					6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Prot	NA	Perm					NA	Perm	Prot	NA	
Protected Phases	7	4						2		1	6	
Permitted Phases			4						2			

West Pryor Village
6: W Pryor Rd & I-470 Ramp

Peak AM - Phase 1-2

8/9/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4					2	2	1	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0					6.0	6.0	6.0	6.0	
Minimum Split (s)	11.6	40.6	40.6					35.5	35.5	11.5	41.5	
Total Split (s)	48.0	48.0	48.0					70.5	70.5	11.5	82.0	
Total Split (%)	36.9%	36.9%	36.9%					54.2%	54.2%	8.8%	63.1%	
Maximum Green (s)	42.4	42.4	42.4					65.0	65.0	6.0	76.5	
Yellow Time (s)	3.8	3.8	3.8					4.0	4.0	4.0	4.0	
All-Red Time (s)	1.8	1.8	1.8					1.5	1.5	1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.6	5.6	5.6					5.5	5.5	5.5	5.5	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Recall Mode	None	None	None					C-Max	C-Max	None	None	
Walk Time (s)		5.0	5.0					5.0	5.0		5.0	
Flash Dont Walk (s)		30.0	30.0					25.0	25.0		31.0	
Pedestrian Calls (#/hr)		0	0					0	0		0	
Act Effect Green (s)	10.8	14.5	14.5					104.4	104.4		104.4	
Actuated g/C Ratio	0.08	0.11	0.11					0.80	0.80		0.80	
v/c Ratio	0.10	0.58	0.50					0.10	0.32		0.14	
Control Delay	52.7	60.3	8.8					0.5	0.7		3.2	
Queue Delay	0.0	0.0	0.0					0.0	0.2		0.0	
Total Delay	52.7	60.3	8.8					0.5	0.8		3.2	
LOS	D	E	A					A	A		A	
Approach Delay		32.6						0.7			3.2	
Approach LOS		C						A			A	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 4 (3%), Referenced to phase 2:NBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.58

Intersection Signal Delay: 10.1

Intersection LOS: B

Intersection Capacity Utilization 40.1%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 6: W Pryor Rd & I-470 Ramp





Lane Group	EBL	EBT	EBR	NBT	NBR	SBT
Lane Group Flow (vph)	15	228	278	533	434	385
v/c Ratio	0.10	0.58	0.50	0.10	0.32	0.14
Control Delay	52.7	60.3	8.8	0.5	0.7	3.2
Queue Delay	0.0	0.0	0.0	0.0	0.2	0.0
Total Delay	52.7	60.3	8.8	0.5	0.8	3.2
Queue Length 50th (ft)	12	97	0	2	0	31
Queue Length 95th (ft)	33	135	43	7	0	52
Internal Link Dist (ft)		217		196		220
Turn Bay Length (ft)	200		400		311	
Base Capacity (vph)	577	1154	1096	5146	1356	2841
Starvation Cap Reductn	0	0	0	0	289	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.20	0.25	0.10	0.41	0.14
Intersection Summary						

West Pryor Village
6: W Pryor Rd & I-470 Ramp

Peak AM - Phase 1-2

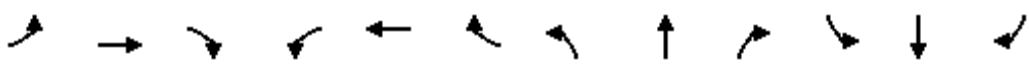
8/9/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	212	259	0	0	0	0	496	404	0	358	0
Future Volume (veh/h)	14	212	259	0	0	0	0	496	404	0	358	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863				0	1863	1863	1863	1863	0
Adj Flow Rate, veh/h	15	228	278				0	533	434	0	385	0
Adj No. of Lanes	1	2	2				0	4	1	1	2	0
Peak Hour Factor	0.93	0.93	0.93				0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	235	469	369				0	5012	1238	1	2768	0
Arrive On Green	0.13	0.13	0.13				0.00	0.78	0.78	0.00	0.78	0.00
Sat Flow, veh/h	1774	3539	2787				0	6669	1583	1774	3632	0
Grp Volume(v), veh/h	15	228	278				0	533	434	0	385	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1393				0	1602	1583	1774	1770	0
Q Serve(g_s), s	1.0	7.8	12.5				0.0	2.6	10.7	0.0	3.5	0.0
Cycle Q Clear(g_c), s	1.0	7.8	12.5				0.0	2.6	10.7	0.0	3.5	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	235	469	369				0	5012	1238	1	2768	0
V/C Ratio(X)	0.06	0.49	0.75				0.00	0.11	0.35	0.00	0.14	0.00
Avail Cap(c_a), veh/h	579	1154	909				0	5012	1238	82	2768	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	49.3	52.3	54.3				0.0	3.4	4.3	0.0	3.5	0.0
Incr Delay (d2), s/veh	0.1	0.8	3.1				0.0	0.0	0.8	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	3.9	5.0				0.0	1.1	4.9	0.0	1.7	0.0
LnGrp Delay(d),s/veh	49.4	53.1	57.5				0.0	3.4	5.0	0.0	3.5	0.0
LnGrp LOS	D	D	E					A	A		A	
Approach Vol, veh/h		521						967			385	
Approach Delay, s/veh		55.3						4.1			3.5	
Approach LOS		E						A			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	0.0	107.2		22.8		107.2						
Change Period (Y+Rc), s	5.5	5.5		5.6		5.5						
Max Green Setting (Gmax), s	6.0	65.0		42.4		76.5						
Max Q Clear Time (g_c+I1), s	0.0	12.7		14.5		5.5						
Green Ext Time (p_c), s	0.0	9.9		2.7		10.1						
Intersection Summary												
HCM 2010 Ctrl Delay			18.2									
HCM 2010 LOS			B									

West Pryor Village
9: W Pryor Rd & Summit Crossing

Peak AM - Phase 1-2

8/9/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	71	11	27	2	7	50	50	785	12	84	450	86
Future Volume (vph)	71	11	27	2	7	50	50	785	12	84	450	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	200		0	150		150	300		0
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	25			100			75			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.894				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1665	0	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.496			0.728			0.464			0.264		
Satd. Flow (perm)	924	1665	0	1356	1863	1583	864	3539	1583	492	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		31				126			176			176
Link Speed (mph)		25			30			35			35	
Link Distance (ft)		800			358			534			288	
Travel Time (s)		21.8			8.1			10.4			5.6	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	81	13	31	2	8	57	57	892	14	95	511	98
Shared Lane Traffic (%)												
Lane Group Flow (vph)	81	44	0	2	8	57	57	892	14	95	511	98
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			30			30	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2		2	6		6

Baseline

Synchro 9 Light Report
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West Pryor Village
9: W Pryor Rd & Summit Crossing

Peak AM - Phase 1-2

8/9/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	12.0	43.0		43.0	43.0	43.0	12.0	32.0	32.0	12.0	32.0	32.0
Total Split (s)	12.0	43.0		43.0	74.0	74.0	12.0	32.0	32.0	12.0	32.0	32.0
Total Split (%)	9.2%	33.1%		33.1%	56.9%	56.9%	9.2%	24.6%	24.6%	9.2%	24.6%	24.6%
Maximum Green (s)	6.0	37.0		37.0	68.0	68.0	6.0	26.0	26.0	6.0	26.0	26.0
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.5	2.5		2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		5.0		5.0	5.0	5.0		5.0	5.0		5.0	5.0
Flash Dont Walk (s)		32.0		32.0	32.0	32.0		21.0	21.0		21.0	21.0
Pedestrian Calls (#/hr)		0		0	0	0		0	0		0	0
Act Effect Green (s)	15.3	14.1		11.8	6.9	6.9	93.1	86.5	86.5	99.0	91.2	91.2
Actuated g/C Ratio	0.12	0.11		0.09	0.05	0.05	0.72	0.67	0.67	0.76	0.70	0.70
v/c Ratio	0.55	0.21		0.01	0.08	0.28	0.09	0.38	0.01	0.21	0.21	0.08
Control Delay	65.4	27.1		46.5	59.1	3.4	3.5	8.7	0.0	4.9	7.6	0.3
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.4	27.1		46.5	59.1	3.4	3.5	8.7	0.0	4.9	7.6	0.3
LOS	E	C		D	E	A	A	A	A	A	A	A
Approach Delay		51.9			11.3			8.3			6.2	
Approach LOS		D			B			A			A	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 19 (15%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 130

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.55

Intersection Signal Delay: 10.5

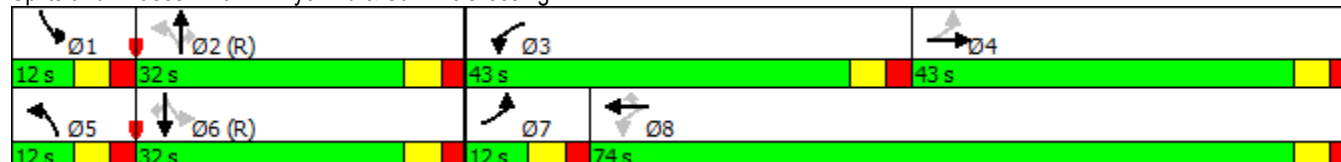
Intersection LOS: B

Intersection Capacity Utilization 52.3%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 9: W Pryor Rd & Summit Crossing



West Pryor Village
9: W Pryor Rd & Summit Crossing

Peak AM - Phase 1-2
8/9/2018

											
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	81	44	2	8	57	57	892	14	95	511	98
v/c Ratio	0.55	0.21	0.01	0.08	0.28	0.09	0.38	0.01	0.21	0.21	0.08
Control Delay	65.4	27.1	46.5	59.1	3.4	3.5	8.7	0.0	4.9	7.6	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.4	27.1	46.5	59.1	3.4	3.5	8.7	0.0	4.9	7.6	0.3
Queue Length 50th (ft)	63	10	1	7	0	7	116	0	17	72	0
Queue Length 95th (ft)	108	48	9	23	0	15	221	m0	30	114	0
Internal Link Dist (ft)		720		278			454			208	
Turn Bay Length (ft)			200			150		150	300		
Base Capacity (vph)	147	496	503	974	888	665	2354	1112	462	2483	1163
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.09	0.00	0.01	0.06	0.09	0.38	0.01	0.21	0.21	0.08

Intersection Summary

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

West Pryor Village
9: W Pryor Rd & Summit Crossing

Peak AM - Phase 1-2

8/9/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	71	11	27	2	7	50	50	785	12	84	450	86
Future Volume (veh/h)	71	11	27	2	7	50	50	785	12	84	450	86
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	81	12	31	2	8	57	57	892	14	95	511	98
Adj No. of Lanes	1	1	0	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	203	25	64	176	100	85	629	2374	1062	546	2390	1069
Arrive On Green	0.05	0.05	0.05	0.05	0.05	0.05	0.08	1.00	1.00	0.04	0.68	0.68
Sat Flow, veh/h	1774	461	1191	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	81	0	43	2	8	57	57	892	14	95	511	98
Grp Sat Flow(s),veh/h/ln	1774	0	1653	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	5.6	0.0	3.3	0.1	0.5	4.6	1.2	0.0	0.0	2.1	7.1	2.8
Cycle Q Clear(g_c), s	5.6	0.0	3.3	0.1	0.5	4.6	1.2	0.0	0.0	2.1	7.1	2.8
Prop In Lane	1.00		0.72	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	203	0	89	176	100	85	629	2374	1062	546	2390	1069
V/C Ratio(X)	0.40	0.00	0.48	0.01	0.08	0.67	0.09	0.38	0.01	0.17	0.21	0.09
Avail Cap(c_a), veh/h	203	0	470	599	974	828	639	2374	1062	548	2390	1069
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.2	0.0	59.7	52.8	58.5	60.4	5.5	0.0	0.0	5.6	8.0	7.3
Incr Delay (d2), s/veh	1.3	0.0	4.0	0.0	0.3	8.8	0.1	0.5	0.0	0.2	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	0.0	1.6	0.1	0.3	2.2	0.6	0.2	0.0	1.0	3.5	1.3
LnGrp Delay(d),s/veh	56.5	0.0	63.7	52.8	58.8	69.2	5.6	0.5	0.0	5.7	8.2	7.5
LnGrp LOS	E		E	D	E	E	A	A	A	A	A	A
Approach Vol, veh/h		124			67			963			704	
Approach Delay, s/veh		59.0			67.5			0.8			7.8	
Approach LOS		E			E			A			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.8	93.2	12.0	13.0	11.2	93.8	12.0	13.0				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	6.0	26.0	37.0	37.0	6.0	26.0	6.0	68.0				
Max Q Clear Time (g_c+I1), s	4.1	2.0	2.1	5.3	3.2	9.1	7.6	6.6				
Green Ext Time (p_c), s	0.0	11.0	0.0	0.5	0.0	9.1	0.0	0.5				
Intersection Summary												
HCM 2010 Ctrl Delay			9.7									
HCM 2010 LOS			A									

West Pryor Village
11: Lowenstein Rd & W Pryor Rd

Peak AM - Phase 1-2

8/9/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	197	16	33	17	7	12	136	652	27	12	283	99
Future Volume (vph)	197	16	33	17	7	12	136	652	27	12	283	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	0		150	200		150	215		450
Storage Lanes	2		0	1		0	1		1	1		1
Taper Length (ft)	125			25			100			100		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.899			0.907				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	1675	0	1770	1690	0	1770	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.517			0.374		
Satd. Flow (perm)	3433	1675	0	1770	1690	0	963	3539	1583	697	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		37			13				180			180
Link Speed (mph)		30			25			35			35	
Link Distance (ft)		172			227			220			555	
Travel Time (s)		3.9			6.2			4.3			10.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	219	18	37	19	8	13	151	724	30	13	314	110
Shared Lane Traffic (%)												
Lane Group Flow (vph)	219	55	0	19	21	0	151	724	30	13	314	110
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			30			30	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases							2		2	6		6

Baseline

Synchro 9 Light Report
Page 11

West Pryor Village
11: Lowenstein Rd & W Pryor Rd

Peak AM - Phase 1-2

8/9/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	12.0	40.0		12.0	37.0		12.5	30.0	30.0	12.5	30.0	30.0
Total Split (s)	24.0	47.0		14.0	37.0		20.0	55.0	55.0	14.0	49.0	49.0
Total Split (%)	18.5%	36.2%		10.8%	28.5%		15.4%	42.3%	42.3%	10.8%	37.7%	37.7%
Maximum Green (s)	18.0	41.0		8.0	31.0		13.5	50.0	50.0	7.5	44.0	44.0
Yellow Time (s)	3.0	3.5		3.0	3.5		3.5	4.0	4.0	3.5	4.0	4.0
All-Red Time (s)	3.0	2.5		3.0	2.5		3.0	1.0	1.0	3.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.5	5.0	5.0	6.5	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		5.0			5.0			5.0	5.0		5.0	5.0
Flash Dont Walk (s)		29.0			26.0			20.0	20.0		20.0	20.0
Pedestrian Calls (#/hr)		0			0			0	0		0	0
Act Effect Green (s)	13.6	16.0		6.9	6.7		95.4	92.4	92.4	86.6	82.0	82.0
Actuated g/C Ratio	0.10	0.12		0.05	0.05		0.73	0.71	0.71	0.67	0.63	0.63
v/c Ratio	0.61	0.23		0.20	0.21		0.20	0.29	0.03	0.03	0.14	0.10
Control Delay	62.8	24.8		63.7	39.4		2.3	4.4	0.0	4.7	5.5	1.9
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.8	24.8		63.7	39.4		2.3	4.4	0.0	4.7	5.5	1.9
LOS	E	C		E	D		A	A	A	A	A	A
Approach Delay		55.2			51.0			3.9			4.6	
Approach LOS		E			D			A			A	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 22 (17%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 95

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.61

Intersection Signal Delay: 13.7

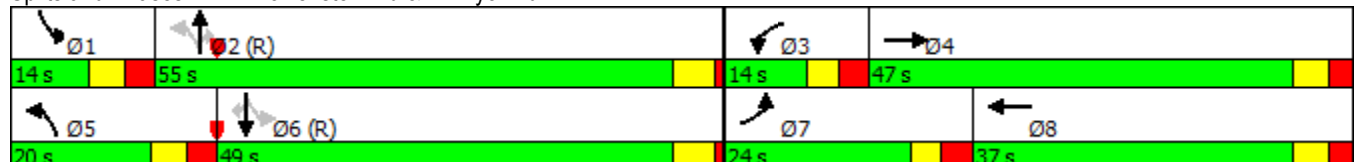
Intersection LOS: B

Intersection Capacity Utilization 49.9%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 11: Lowenstein Rd & W Pryor Rd





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	219	55	19	21	151	724	30	13	314	110
v/c Ratio	0.61	0.23	0.20	0.21	0.20	0.29	0.03	0.03	0.14	0.10
Control Delay	62.8	24.8	63.7	39.4	2.3	4.4	0.0	4.7	5.5	1.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.8	24.8	63.7	39.4	2.3	4.4	0.0	4.7	5.5	1.9
Queue Length 50th (ft)	92	12	16	7	7	16	0	2	51	0
Queue Length 95th (ft)	130	54	42	35	20	226	0	9	90	31
Internal Link Dist (ft)		92		147		140			475	
Turn Bay Length (ft)	150				200		150	215		450
Base Capacity (vph)	475	553	108	412	794	2516	1177	533	2232	1065
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.46	0.10	0.18	0.05	0.19	0.29	0.03	0.02	0.14	0.10

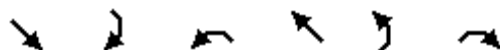
Intersection Summary

West Pryor Village
11: Lowenstein Rd & W Pryor Rd

Peak AM - Phase 1-2

8/9/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	197	16	33	17	7	12	136	652	27	12	283	99
Future Volume (veh/h)	197	16	33	17	7	12	136	652	27	12	283	99
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	219	18	37	19	8	13	151	724	30	13	314	110
Adj No. of Lanes	2	1	0	1	1	0	1	2	1	1	2	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	279	56	115	41	29	46	758	2393	1071	505	2292	1025
Arrive On Green	0.08	0.10	0.10	0.02	0.04	0.04	0.05	0.68	0.68	0.03	1.00	1.00
Sat Flow, veh/h	3442	545	1120	1774	640	1040	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	219	0	55	19	0	21	151	724	30	13	314	110
Grp Sat Flow(s),veh/h/ln	1721	0	1665	1774	0	1679	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	8.1	0.0	4.0	1.4	0.0	1.6	3.7	10.8	0.8	0.3	0.0	0.0
Cycle Q Clear(g_c), s	8.1	0.0	4.0	1.4	0.0	1.6	3.7	10.8	0.8	0.3	0.0	0.0
Prop In Lane	1.00		0.67	1.00		0.62	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	279	0	171	41	0	75	758	2393	1071	505	2292	1025
V/C Ratio(X)	0.78	0.00	0.32	0.47	0.00	0.28	0.20	0.30	0.03	0.03	0.14	0.11
Avail Cap(c_a), veh/h	477	0	525	109	0	400	861	2393	1071	577	2292	1025
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.6	0.0	54.1	62.7	0.0	60.1	6.7	8.6	6.9	7.4	0.0	0.0
Incr Delay (d2), s/veh	4.8	0.0	1.1	8.1	0.0	2.0	0.1	0.3	0.0	0.0	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.1	0.0	1.9	0.8	0.0	0.8	1.8	5.3	0.4	0.2	0.0	0.1
LnGrp Delay(d),s/veh	63.4	0.0	55.2	70.8	0.0	62.1	6.8	8.9	7.0	7.4	0.1	0.2
LnGrp LOS	E		E	E		E	A	A	A	A	A	A
Approach Vol, veh/h		274			40			905			437	
Approach Delay, s/veh		61.8			66.2			8.5			0.4	
Approach LOS		E			E			A			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.7	92.9	9.0	19.4	12.5	89.2	16.5	11.8				
Change Period (Y+Rc), s	6.5	5.0	6.0	6.0	6.5	5.0	6.0	6.0				
Max Green Setting (Gmax), s	7.5	50.0	8.0	41.0	13.5	44.0	18.0	31.0				
Max Q Clear Time (g_c+I1), s	2.3	12.8	3.4	6.0	5.7	2.0	10.1	3.6				
Green Ext Time (p_c), s	0.0	9.0	0.0	0.4	0.2	9.2	0.4	0.4				
Intersection Summary												
HCM 2010 Ctrl Delay			16.6									
HCM 2010 LOS			B									



Lane Group	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Volume (vph)	8	0	20	3	0	26
Future Volume (vph)	8	0	20	3	0	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.865	
Flt Protected				0.959		
Satd. Flow (prot)	1863	0	0	1786	1611	0
Flt Permitted				0.959		
Satd. Flow (perm)	1863	0	0	1786	1611	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	866			1603	379	
Travel Time (s)	19.7			36.4	8.6	
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Adj. Flow (vph)	13	0	32	5	0	41
Shared Lane Traffic (%)						
Lane Group Flow (vph)	13	0	0	37	41	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 17.9% ICU Level of Service A

Analysis Period (min) 15

Intersection

Int Delay, s/veh 6.4

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	8	0	20	3	0	26
Future Vol, veh/h	8	0	20	3	0	26
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	63	63	63	63	63	63
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	13	0	32	5	0	41

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	13	81
Stage 1	-	-	13
Stage 2	-	-	68
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	-	1606	921
Stage 1	-	-	1010
Stage 2	-	-	955
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	1606	903
Mov Cap-2 Maneuver	-	-	903
Stage 1	-	-	1010
Stage 2	-	-	936

Approach	SE	NW	NE
HCM Control Delay, s	0	6.3	8.5
HCM LOS			A

Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER
Capacity (veh/h)	1067	1606	-	-	-
HCM Lane V/C Ratio	0.039	0.02	-	-	-
HCM Control Delay (s)	8.5	7.3	0	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	0.1	-	-	-

West Pryor Village
18: Chipman Rd & W Pryor Rd

Peak AM - Phase 1-2

8/9/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	109	205	65	84	85	74	36	630	127	60	249	41
Future Volume (vph)	109	205	65	84	85	74	36	630	127	60	249	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	200		170	170		0	260		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	70			100			80			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.964				0.850		0.975			0.979	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3412	0	1770	3539	1583	1770	3451	0	1770	3465	0
Flt Permitted	0.613			0.402			0.558			0.285		
Satd. Flow (perm)	1142	3412	0	749	3539	1583	1039	3451	0	531	3465	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		32				117		23			18	
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		651			831			351			533	
Travel Time (s)		12.7			16.2			6.8			10.4	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	120	225	71	92	93	81	40	692	140	66	274	45
Shared Lane Traffic (%)												
Lane Group Flow (vph)	120	296	0	92	93	81	40	832	0	66	319	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			30	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2			6		

Baseline

Synchro 9 Light Report
Page 17

West Pryor Village
18: Chipman Rd & W Pryor Rd

Peak AM - Phase 1-2

8/9/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Minimum Split (s)	12.0	32.0		12.0	35.0	35.0	12.0	34.0		12.0	34.0	
Total Split (s)	17.0	40.0		15.0	38.0	38.0	15.0	60.0		15.0	60.0	
Total Split (%)	13.1%	30.8%		11.5%	29.2%	29.2%	11.5%	46.2%		11.5%	46.2%	
Maximum Green (s)	11.0	35.0		9.0	33.0	33.0	9.0	55.0		9.0	55.0	
Yellow Time (s)	3.5	4.0		3.5	4.0	4.0	3.5	4.0		3.5	4.0	
All-Red Time (s)	2.5	1.0		2.5	1.0	1.0	2.5	1.0		2.5	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	5.0		6.0	5.0	5.0	6.0	5.0		6.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max		None	None	
Walk Time (s)		5.0			5.0	5.0		5.0			5.0	
Flash Dont Walk (s)		22.0			25.0	25.0		24.0			24.0	
Pedestrian Calls (#/hr)		0			0	0		0			0	
Act Effect Green (s)	25.0	15.5		21.3	13.7	13.7	83.4	79.0		84.7	79.6	
Actuated g/C Ratio	0.19	0.12		0.16	0.11	0.11	0.64	0.61		0.65	0.61	
v/c Ratio	0.45	0.68		0.48	0.25	0.30	0.06	0.40		0.16	0.15	
Control Delay	46.6	56.6		49.3	54.1	5.8	8.0	14.6		8.0	9.6	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	46.6	56.6		49.3	54.1	5.8	8.0	14.6		8.0	9.6	
LOS	D	E		D	D	A	A	B		A	A	
Approach Delay		53.7			37.7			14.3			9.3	
Approach LOS		D			D			B			A	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 109 (84%), Referenced to phase 2:NBTL, Start of Green

Natural Cycle: 95

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.68

Intersection Signal Delay: 25.0

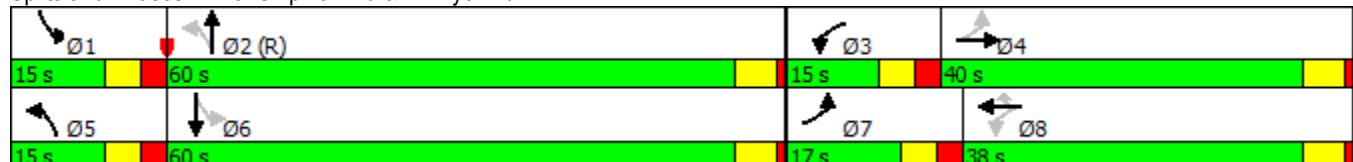
Intersection LOS: C

Intersection Capacity Utilization 56.7%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 18: Chipman Rd & W Pryor Rd





Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	120	296	92	93	81	40	832	66	319
v/c Ratio	0.45	0.68	0.48	0.25	0.30	0.06	0.40	0.16	0.15
Control Delay	46.6	56.6	49.3	54.1	5.8	8.0	14.6	8.0	9.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.6	56.6	49.3	54.1	5.8	8.0	14.6	8.0	9.6
Queue Length 50th (ft)	85	113	64	38	0	10	184	16	47
Queue Length 95th (ft)	136	157	108	64	20	25	260	29	65
Internal Link Dist (ft)		571		751			271		453
Turn Bay Length (ft)	200		200		170	170		260	
Base Capacity (vph)	277	942	195	898	489	731	2106	436	2129
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.31	0.47	0.10	0.17	0.05	0.40	0.15	0.15
Intersection Summary									

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	109	205	65	84	85	74	36	630	127	60	249	41
Future Volume (veh/h)	109	205	65	84	85	74	36	630	127	60	249	41
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	120	225	71	92	93	81	40	692	140	66	274	45
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	1	2	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	282	315	97	197	364	163	731	1795	363	453	1886	306
Arrive On Green	0.07	0.12	0.12	0.06	0.10	0.10	0.04	0.61	0.61	0.04	0.62	0.62
Sat Flow, veh/h	1774	2667	821	1774	3539	1583	1774	2934	593	1774	3050	495
Grp Volume(v), veh/h	120	147	149	92	93	81	40	417	415	66	158	161
Grp Sat Flow(s),veh/h/ln	1774	1770	1718	1774	1770	1583	1774	1770	1758	1774	1770	1775
Q Serve(g_s), s	7.8	10.4	10.9	6.0	3.1	6.3	1.1	15.6	15.6	1.7	4.8	5.0
Cycle Q Clear(g_c), s	7.8	10.4	10.9	6.0	3.1	6.3	1.1	15.6	15.6	1.7	4.8	5.0
Prop In Lane	1.00		0.48	1.00		1.00	1.00		0.34	1.00		0.28
Lane Grp Cap(c), veh/h	282	209	203	197	364	163	731	1083	1075	453	1094	1098
V/C Ratio(X)	0.43	0.71	0.73	0.47	0.26	0.50	0.05	0.39	0.39	0.15	0.14	0.15
Avail Cap(c_a), veh/h	300	476	463	215	898	402	791	1083	1075	501	1094	1098
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.2	55.2	55.4	48.5	53.7	55.1	8.4	12.8	12.8	9.1	10.4	10.4
Incr Delay (d2), s/veh	1.0	4.3	5.1	1.7	0.4	2.3	0.0	1.0	1.0	0.1	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	5.4	5.4	3.0	1.6	2.9	0.5	7.8	7.8	0.9	2.4	2.4
LnGrp Delay(d),s/veh	48.3	59.5	60.4	50.2	54.1	57.5	8.4	13.9	13.9	9.3	10.5	10.5
LnGrp LOS	D	E	E	D	D	E	A	B	B	A	B	B
Approach Vol, veh/h		416			266			872			385	
Approach Delay, s/veh		56.6			53.8			13.6			10.3	
Approach LOS		E			D			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.4	84.5	13.7	20.3	10.6	85.4	15.7	18.4				
Change Period (Y+Rc), s	6.0	5.0	6.0	5.0	6.0	5.0	6.0	5.0				
Max Green Setting (Gmax), s	9.0	55.0	9.0	35.0	9.0	55.0	11.0	33.0				
Max Q Clear Time (g_c+l1), s	3.7	17.6	8.0	12.9	3.1	7.0	9.8	8.3				
Green Ext Time (p_c), s	0.0	8.6	0.0	2.5	0.0	8.9	0.0	2.5				
Intersection Summary												
HCM 2010 Ctrl Delay				27.7								
HCM 2010 LOS				C								

West Pryor Village
21: Chipman Rd & Black Twig Rd

Peak AM - Phase 1-2
8/9/2018



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	11	261	116	6	22	9
Future Volume (vph)	11	261	116	6	22	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.993		0.961	
Flt Protected	0.950				0.966	
Satd. Flow (prot)	1770	1863	1850	0	1729	0
Flt Permitted	0.950				0.966	
Satd. Flow (perm)	1770	1863	1850	0	1729	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		499	1199		944	
Travel Time (s)		9.7	23.4		25.7	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	13	300	133	7	25	10
Shared Lane Traffic (%)						
Lane Group Flow (vph)	13	300	140	0	35	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 23.7% ICU Level of Service A

Analysis Period (min) 15

Intersection

Int Delay, s/veh 1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	11	261	116	6	22	9
Future Vol, veh/h	11	261	116	6	22	9
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	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	13	300	133	7	25	10

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	140	0	462
Stage 1	-	-	137
Stage 2	-	-	325
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	1443	-	558
Stage 1	-	-	890
Stage 2	-	-	732
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1443	-	553
Mov Cap-2 Maneuver	-	-	553
Stage 1	-	-	890
Stage 2	-	-	725

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	11.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1443	-	-	-	624
HCM Lane V/C Ratio	0.009	-	-	-	0.057
HCM Control Delay (s)	7.5	-	-	-	11.1
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.2

Intersection: 3: W Pryor Rd & Rt-In Rt-Out

Movement	EB
Directions Served	R
Maximum Queue (ft)	46
Average Queue (ft)	17
95th Queue (ft)	52
Link Distance (ft)	389
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 6: W Pryor Rd & I-470 Ramp

Movement	EB	EB	EB	EB	EB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	T	R	R	T	T	T	R	T	T
Maximum Queue (ft)	26	239	178	73	52	46	42	39	57	30	117
Average Queue (ft)	5	136	68	55	32	33	20	13	26	21	64
95th Queue (ft)	22	251	207	82	64	50	45	37	63	41	135
Link Distance (ft)		235	235			172	172	172		276	276
Upstream Blk Time (%)		1									
Queuing Penalty (veh)		0									
Storage Bay Dist (ft)	200			400	400				311		
Storage Blk Time (%)		5									
Queuing Penalty (veh)		1									

Intersection: 9: W Pryor Rd & Summit Crossing

Movement	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	TR	T	R	L	T	T	R	L	T	T	R
Maximum Queue (ft)	51	117	48	28	65	46	63	15	47	25	65	23
Average Queue (ft)	26	61	10	16	22	32	25	3	34	14	37	12
95th Queue (ft)	64	126	41	38	61	50	65	13	49	34	64	29
Link Distance (ft)	728	728	280	280		465	465			206	206	206
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)					150			150	300			
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 11: Lowenstein Rd & W Pryor Rd

Movement	EB	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	L	TR	L	TR	L	T	T	T	T	R
Maximum Queue (ft)	58	58	56	24	20	68	86	84	27	50	52
Average Queue (ft)	47	56	42	13	12	42	26	42	5	10	24
95th Queue (ft)	64	58	70	28	28	72	79	80	23	43	61
Link Distance (ft)			85	162	162		145	145	481	481	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	150	150				200					450
Storage Blk Time (%)											
Queuing Penalty (veh)											

Intersection: 16: Black Twig rd & Lowenstein Rd

Movement	NE
Directions Served	LR
Maximum Queue (ft)	53
Average Queue (ft)	35
95th Queue (ft)	50
Link Distance (ft)	330
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 18: Chipman Rd & W Pryor Rd

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	T	R	L	T	TR	L	T
Maximum Queue (ft)	186	132	210	91	68	30	53	30	244	224	40	37
Average Queue (ft)	66	86	117	54	42	18	27	14	144	136	27	16
95th Queue (ft)	170	134	212	126	72	41	55	36	245	232	54	36
Link Distance (ft)		567	567		777	777			304	304		448
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	200			200			170	170			260	
Storage Blk Time (%)	0								5			
Queuing Penalty (veh)	0								2			

Intersection: 18: Chipman Rd & W Pryor Rd

Movement	SB
Directions Served	TR
Maximum Queue (ft)	53
Average Queue (ft)	29
95th Queue (ft)	58
Link Distance (ft)	448
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 21: Chipman Rd & Black Twig Rd

Movement	SB
Directions Served	LR
Maximum Queue (ft)	31
Average Queue (ft)	12
95th Queue (ft)	37
Link Distance (ft)	886
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 3

West Pryor Village
3: Pryor Rd & Rt-In, Rt-Out

Peak PM - Phase 1-2
8/8/2018



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↗↗	↘↘	↗
Traffic Volume (vph)	0	98	0	705	814	212
Future Volume (vph)	0	98	0	705	814	212
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0			150
Storage Lanes	0	1	0			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.865				0.850
Flt Protected						
Satd. Flow (prot)	0	1611	0	3539	3539	1583
Flt Permitted						
Satd. Flow (perm)	0	1611	0	3539	3539	1583
Link Speed (mph)	30			35	35	
Link Distance (ft)	520			555	534	
Travel Time (s)	11.8			10.8	10.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	107	0	766	885	230
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	107	0	766	885	230
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			30	30	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 35.2% ICU Level of Service A
Analysis Period (min) 15

Intersection

Int Delay, s/veh 0.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	98	0	705	814	212
Future Vol, veh/h	0	98	0	705	814	212
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	150
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	107	0	766	885	230

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	442	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	563	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	563	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.9	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	563	-	-
HCM Lane V/C Ratio	-	0.189	-	-
HCM Control Delay (s)	-	12.9	-	-
HCM Lane LOS	-	B	-	-
HCM 95th %tile Q(veh)	-	0.7	-	-

West Pryor Village
6: I-470 Ramp

Peak PM - Phase 1-2

8/8/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	132	590	0	0	0	0	490	379	4	664	0
Future Volume (vph)	20	132	590	0	0	0	0	490	379	4	664	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		400	0		0	0		311	550		0
Storage Lanes	1		2	0		0	0		1	1		0
Taper Length (ft)	100			25			25			50		
Lane Util. Factor	1.00	0.95	0.88	1.00	1.00	1.00	1.00	0.86	1.00	1.00	0.95	1.00
Frt			0.850						0.850			
Flt Protected	0.950									0.950		
Satd. Flow (prot)	1770	3539	2787	0	0	0	0	6408	1583	1770	3539	0
Flt Permitted	0.950									0.950		
Satd. Flow (perm)	1770	3539	2787	0	0	0	0	6408	1583	1770	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			331						399			
Link Speed (mph)		35			30			35			35	
Link Distance (ft)		297			425			276			300	
Travel Time (s)		5.8			9.7			5.4			5.8	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	21	139	621	0	0	0	0	516	399	4	699	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	21	139	621	0	0	0	0	516	399	4	699	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			30			30	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1					2	1	1	2	
Detector Template	Left	Thru	Right					Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20					100	20	20	100	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Detector 1 Position(ft)	0	0	0					0	0	0	0	
Detector 1 Size(ft)	20	6	20					6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Prot	NA	Perm					NA	Perm	Prot	NA	
Protected Phases	7	4						2		1	6	
Permitted Phases			4						2			

Baseline

Synchro 9 Light Report
Page 3

West Pryor Village
6: I-470 Ramp

Peak PM - Phase 1-2

8/8/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4					2	2	1	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0					6.0	6.0	6.0	6.0	
Minimum Split (s)	11.6	40.6	40.6					35.5	35.5	11.5	41.5	
Total Split (s)	52.0	52.0	52.0					54.0	54.0	14.0	68.0	
Total Split (%)	43.3%	43.3%	43.3%					45.0%	45.0%	11.7%	56.7%	
Maximum Green (s)	46.4	46.4	46.4					48.5	48.5	8.5	62.5	
Yellow Time (s)	3.8	3.8	3.8					4.0	4.0	4.0	4.0	
All-Red Time (s)	1.8	1.8	1.8					1.5	1.5	1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.6	5.6	5.6					5.5	5.5	5.5	5.5	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Recall Mode	None	None	None					C-Max	C-Max	None	None	
Walk Time (s)		5.0	5.0					5.0	5.0		5.0	
Flash Dont Walk (s)		30.0	30.0					25.0	25.0		31.0	
Pedestrian Calls (#/hr)		0	0					0	0		0	
Act Effct Green (s)	15.3	21.4	21.4					85.1	85.1	6.1	87.5	
Actuated g/C Ratio	0.13	0.18	0.18					0.71	0.71	0.05	0.73	
v/c Ratio	0.09	0.22	0.81					0.11	0.32	0.04	0.27	
Control Delay	40.6	40.9	29.6					2.9	0.8	55.0	6.6	
Queue Delay	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Total Delay	40.6	40.9	29.6					2.9	0.8	55.0	6.6	
LOS	D	D	C					A	A	D	A	
Approach Delay		31.9						2.0			6.9	
Approach LOS		C						A			A	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 26 (22%), Referenced to phase 2:NBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 13.1

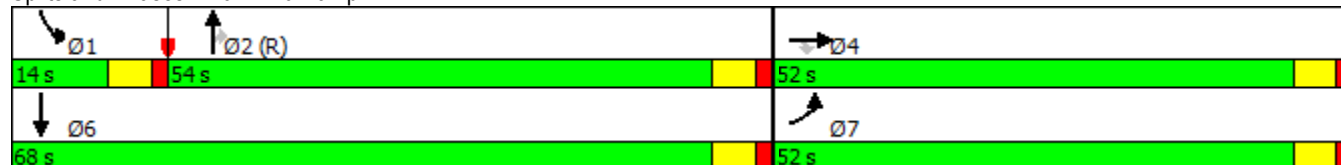
Intersection LOS: B

Intersection Capacity Utilization 48.2%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 6: I-470 Ramp



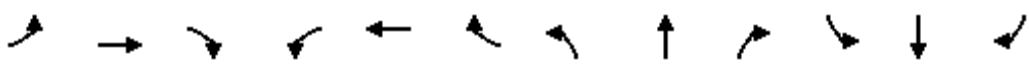
							
Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	21	139	621	516	399	4	699
v/c Ratio	0.09	0.22	0.81	0.11	0.32	0.04	0.27
Control Delay	40.6	40.9	29.6	2.9	0.8	55.0	6.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.6	40.9	29.6	2.9	0.8	55.0	6.6
Queue Length 50th (ft)	16	48	126	7	0	3	84
Queue Length 95th (ft)	33	71	181	26	7	15	148
Internal Link Dist (ft)		217		196			220
Turn Bay Length (ft)	200		400		311	550	
Base Capacity (vph)	684	1368	1280	4542	1238	125	2579
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.10	0.49	0.11	0.32	0.03	0.27
Intersection Summary							

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	132	590	0	0	0	0	490	379	4	664	0
Future Volume (veh/h)	20	132	590	0	0	0	0	490	379	4	664	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863				0	1863	1863	1863	1863	0
Adj Flow Rate, veh/h	21	139	621				0	516	399	4	699	0
Adj No. of Lanes	1	2	2				0	4	1	1	2	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	458	913	719				0	3829	946	11	2299	0
Arrive On Green	0.26	0.26	0.26				0.00	0.60	0.60	0.01	0.65	0.00
Sat Flow, veh/h	1774	3539	2787				0	6669	1583	1774	3632	0
Grp Volume(v), veh/h	21	139	621				0	516	399	4	699	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1393				0	1602	1583	1774	1770	0
Q Serve(g_s), s	1.1	3.6	25.5				0.0	4.2	16.3	0.3	10.3	0.0
Cycle Q Clear(g_c), s	1.1	3.6	25.5				0.0	4.2	16.3	0.3	10.3	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	458	913	719				0	3829	946	11	2299	0
V/C Ratio(X)	0.05	0.15	0.86				0.00	0.13	0.42	0.36	0.30	0.00
Avail Cap(c_a), veh/h	686	1368	1078				0	3829	946	126	2299	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	33.4	34.4	42.5				0.0	10.6	13.0	59.4	9.2	0.0
Incr Delay (d2), s/veh	0.0	0.1	4.9				0.0	0.1	1.4	18.7	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	1.8	10.3				0.0	1.9	7.5	0.2	5.1	0.0
LnGrp Delay(d),s/veh	33.5	34.5	47.5				0.0	10.6	14.4	78.0	9.3	0.0
LnGrp LOS	C	C	D					B	B	E	A	
Approach Vol, veh/h		781						915			703	
Approach Delay, s/veh		44.8						12.3			9.6	
Approach LOS		D						B			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	6.2	77.2		36.6		83.4						
Change Period (Y+Rc), s	5.5	5.5		5.6		5.5						
Max Green Setting (Gmax), s	8.5	48.5		46.4		62.5						
Max Q Clear Time (g_c+I1), s	2.3	18.3		27.5		12.3						
Green Ext Time (p_c), s	0.0	11.9		3.4		13.7						
Intersection Summary												
HCM 2010 Ctrl Delay			22.1									
HCM 2010 LOS			C									

West Pryor Village
9: Pryor Rd & Summit Woods Crossing

Peak PM - Phase 1-2

8/8/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	10	29	140	12	234	24	591	85	327	857	84
Future Volume (vph)	58	10	29	140	12	234	24	591	85	327	857	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	150		0	150		150	300		150
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	25			100			75			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.888				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1654	0	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.603			0.729			0.301			0.225		
Satd. Flow (perm)	1123	1654	0	1358	1863	1583	561	3539	1583	419	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		32				260			182			182
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		589			358			534			288	
Travel Time (s)		16.1			9.8			10.4			5.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	64	11	32	156	13	260	27	657	94	363	952	93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	64	43	0	156	13	260	27	657	94	363	952	93
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			30			30	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2		2	6		6

West Pryor Village
9: Pryor Rd & Summit Woods Crossing

Peak PM - Phase 1-2
8/8/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	32.0	43.0		12.0	43.0	43.0	11.0	31.0	31.0	11.0	31.0	31.0
Total Split (s)	32.0	63.0		12.0	43.0	43.0	11.0	31.0	31.0	14.0	34.0	34.0
Total Split (%)	26.7%	52.5%		10.0%	35.8%	35.8%	9.2%	25.8%	25.8%	11.7%	28.3%	28.3%
Maximum Green (s)	26.0	57.0		6.0	37.0	37.0	6.0	26.0	26.0	9.0	29.0	29.0
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.5	2.5		2.5	2.5	2.5	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)	5.0	5.0			5.0	5.0		5.0	5.0		5.0	5.0
Flash Dont Walk (s)	21.0	32.0			32.0	32.0		21.0	21.0		21.0	21.0
Pedestrian Calls (#/hr)	0	0			0	0		0	0		0	0
Act Effect Green (s)	19.9	12.0		13.5	8.7	8.7	46.3	40.0	40.0	87.4	80.5	80.5
Actuated g/C Ratio	0.17	0.10		0.11	0.07	0.07	0.39	0.33	0.33	0.73	0.67	0.67
v/c Ratio	0.27	0.22		0.90	0.10	0.73	0.10	0.56	0.14	0.46	0.40	0.08
Control Delay	40.8	22.5		93.1	50.9	18.7	6.7	27.1	1.3	13.1	9.0	0.2
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.8	22.5		93.1	50.9	18.7	6.7	27.1	1.3	13.1	9.0	0.2
LOS	D	C		F	D	B	A	C	A	B	A	A
Approach Delay		33.5			46.7			23.3			9.5	
Approach LOS		C			D			C			A	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 14 (12%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 130

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 20.2

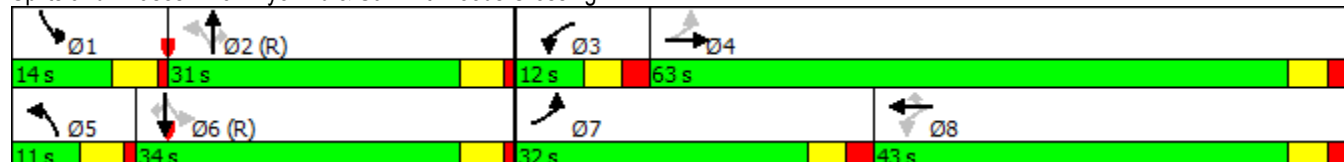
Intersection LOS: C

Intersection Capacity Utilization 62.2%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 9: Pryor Rd & Summit Woods Crossing



West Pryor Village
9: Pryor Rd & Summit Woods Crossing

Peak PM - Phase 1-2
8/8/2018

											
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	64	43	156	13	260	27	657	94	363	952	93
v/c Ratio	0.27	0.22	0.90	0.10	0.73	0.10	0.56	0.14	0.46	0.40	0.08
Control Delay	40.8	22.5	93.1	50.9	18.7	6.7	27.1	1.3	13.1	9.0	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.8	22.5	93.1	50.9	18.7	6.7	27.1	1.3	13.1	9.0	0.2
Queue Length 50th (ft)	43	8	110	10	0	4	114	0	68	130	0
Queue Length 95th (ft)	73	40	155	29	79	m19	140	4	196	280	0
Internal Link Dist (ft)		509		278			454			208	
Turn Bay Length (ft)			150			150		150	300		150
Base Capacity (vph)	399	802	173	574	667	279	1180	649	782	2374	1122
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.05	0.90	0.02	0.39	0.10	0.56	0.14	0.46	0.40	0.08

Intersection Summary

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

West Pryor Village
9: Pryor Rd & Summit Woods Crossing

Peak PM - Phase 1-2
8/8/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	58	10	29	140	12	234	24	591	85	327	857	84
Future Volume (veh/h)	58	10	29	140	12	234	24	591	85	327	857	84
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	64	11	32	156	13	260	27	657	94	363	952	93
Adj No. of Lanes	1	1	0	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	347	78	228	371	346	294	320	1791	801	552	1951	873
Arrive On Green	0.05	0.19	0.19	0.05	0.19	0.19	0.06	1.00	1.00	0.08	0.55	0.55
Sat Flow, veh/h	1774	421	1225	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	64	0	43	156	13	260	27	657	94	363	952	93
Grp Sat Flow(s),veh/h/ln	1774	0	1647	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	3.4	0.0	2.6	6.0	0.7	19.2	0.8	0.0	0.0	9.0	19.8	3.4
Cycle Q Clear(g_c), s	3.4	0.0	2.6	6.0	0.7	19.2	0.8	0.0	0.0	9.0	19.8	3.4
Prop In Lane	1.00		0.74	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	347	0	306	371	346	294	320	1791	801	552	1951	873
V/C Ratio(X)	0.18	0.00	0.14	0.42	0.04	0.88	0.08	0.37	0.12	0.66	0.49	0.11
Avail Cap(c_a), veh/h	643	0	782	371	574	488	356	1791	801	552	1951	873
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.4	0.0	40.8	39.3	40.1	47.6	13.6	0.0	0.0	13.3	16.5	12.8
Incr Delay (d2), s/veh	0.3	0.0	0.2	0.8	0.0	10.4	0.1	0.6	0.3	2.9	0.9	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	0.0	1.2	1.6	0.4	9.3	0.4	0.1	0.1	6.1	9.9	1.5
LnGrp Delay(d),s/veh	36.6	0.0	41.1	40.1	40.1	58.0	13.7	0.6	0.3	16.1	17.4	13.1
LnGrp LOS	D		D	D	D	E	B	A	A	B	B	B
Approach Vol, veh/h		107			429			778			1408	
Approach Delay, s/veh		38.4			50.9			1.0			16.8	
Approach LOS		D			D			A			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.0	65.7	12.0	28.3	8.6	71.2	12.0	28.3				
Change Period (Y+Rc), s	5.0	5.0	6.0	6.0	5.0	5.0	6.0	6.0				
Max Green Setting (Gmax), s	9.0	26.0	6.0	57.0	6.0	29.0	26.0	37.0				
Max Q Clear Time (g_c+l1), s	11.0	2.0	8.0	4.6	2.8	21.8	5.4	21.2				
Green Ext Time (p_c), s	0.0	13.1	0.0	1.3	0.0	5.4	0.1	1.1				
Intersection Summary												
HCM 2010 Ctrl Delay			18.5									
HCM 2010 LOS			B									

West Pryor Village
11: Lowenstein Rd & Pryor Rd

Peak PM - Phase 1-2

8/8/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	135	66	108	63	29	34	114	536	42	56	756	105
Future Volume (vph)	135	66	108	63	29	34	114	536	42	56	756	105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	0		0	200		150	215		150
Storage Lanes	2		0	1		0	1		1	1		0
Taper Length (ft)	125			25			100			100		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt		0.907			0.918				0.850		0.982	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	1690	0	1770	1710	0	1770	3539	1583	1770	3476	0
Flt Permitted	0.950			0.950			0.235			0.421		
Satd. Flow (perm)	3433	1690	0	1770	1710	0	438	3539	1583	784	3476	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		68			37				118		14	
Link Speed (mph)		30			25			35			35	
Link Distance (ft)		172			227			220			555	
Travel Time (s)		3.9			6.2			4.3			10.8	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	145	71	116	68	31	37	123	576	45	60	813	113
Shared Lane Traffic (%)												
Lane Group Flow (vph)	145	187	0	68	68	0	123	576	45	60	926	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			30			30	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases							2		2	6		

Baseline

Synchro 9 Light Report
Page 11

West Pryor Village
11: Lowenstein Rd & Pryor Rd

Peak PM - Phase 1-2

8/8/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	
Minimum Split (s)	11.5	39.5		11.5	36.5		11.0	30.0	30.0	11.0	32.5	
Total Split (s)	15.6	39.6		16.0	40.0		17.0	53.4	53.4	11.0	47.4	
Total Split (%)	13.0%	33.0%		13.3%	33.3%		14.2%	44.5%	44.5%	9.2%	39.5%	
Maximum Green (s)	10.1	34.1		10.5	34.5		12.0	48.4	48.4	6.0	42.4	
Yellow Time (s)	3.5	3.5		3.5	3.5		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	
Walk Time (s)		5.0			5.0			5.0	5.0		5.0	
Flash Dont Walk (s)		29.0			26.0			20.0	20.0		20.0	
Pedestrian Calls (#/hr)		0			0			0	0		0	
Act Effect Green (s)	9.4	14.3		9.1	13.9		80.5	73.1	73.1	76.4	69.4	
Actuated g/C Ratio	0.08	0.12		0.08	0.12		0.67	0.61	0.61	0.64	0.58	
v/c Ratio	0.54	0.72		0.51	0.29		0.32	0.27	0.04	0.11	0.46	
Control Delay	60.9	46.8		66.4	27.0		7.0	5.9	0.1	5.5	9.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	60.9	46.8		66.4	27.0		7.0	5.9	0.1	5.5	9.9	
LOS	E	D		E	C		A	A	A	A	A	
Approach Delay		53.0			46.7			5.7			9.7	
Approach LOS		D			D			A			A	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 3 (3%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 95

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.72

Intersection Signal Delay: 17.2

Intersection LOS: B

Intersection Capacity Utilization 63.2%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 11: Lowenstein Rd & Pryor Rd

 Ø1	 Ø2 (R)	 Ø3	 Ø4
11 s	53.4 s	16 s	39.6 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
17 s	47.4 s	15.6 s	40 s

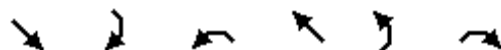


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	145	187	68	68	123	576	45	60	926
v/c Ratio	0.54	0.72	0.51	0.29	0.32	0.27	0.04	0.11	0.46
Control Delay	60.9	46.8	66.4	27.0	7.0	5.9	0.1	5.5	9.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.9	46.8	66.4	27.0	7.0	5.9	0.1	5.5	9.9
Queue Length 50th (ft)	56	90	51	22	14	41	0	9	105
Queue Length 95th (ft)	90	159	99	62	31	66	1	m18	m127
Internal Link Dist (ft)		92		147		140			475
Turn Bay Length (ft)	150				200		150	215	
Base Capacity (vph)	288	528	154	517	434	2155	1010	557	2015
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.35	0.44	0.13	0.28	0.27	0.04	0.11	0.46

Intersection Summary

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

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 			 			 	 		 		
Traffic Volume (veh/h)	135	66	108	63	29	34	114	536	42	56	756	105
Future Volume (veh/h)	135	66	108	63	29	34	114	536	42	56	756	105
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	145	71	116	68	31	37	123	576	45	60	813	113
Adj No. of Lanes	2	1	0	1	1	0	1	2	1	1	2	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	202	87	143	87	99	118	502	2108	943	550	1841	256
Arrive On Green	0.06	0.14	0.14	0.05	0.13	0.13	0.05	0.60	0.60	0.09	1.00	1.00
Sat Flow, veh/h	3442	637	1041	1774	775	925	1774	3539	1583	1774	3122	434
Grp Volume(v), veh/h	145	0	187	68	0	68	123	576	45	60	461	465
Grp Sat Flow(s),veh/h/ln	1721	0	1679	1774	0	1700	1774	1770	1583	1774	1770	1786
Q Serve(g_s), s	5.0	0.0	13.0	4.5	0.0	4.4	3.2	9.4	1.4	1.5	0.0	0.0
Cycle Q Clear(g_c), s	5.0	0.0	13.0	4.5	0.0	4.4	3.2	9.4	1.4	1.5	0.0	0.0
Prop In Lane	1.00		0.62	1.00		0.54	1.00		1.00	1.00		0.24
Lane Grp Cap(c), veh/h	202	0	230	87	0	217	502	2108	943	550	1044	1053
V/C Ratio(X)	0.72	0.00	0.81	0.78	0.00	0.31	0.25	0.27	0.05	0.11	0.44	0.44
Avail Cap(c_a), veh/h	290	0	477	155	0	489	592	2108	943	562	1044	1053
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.5	0.0	50.3	56.4	0.0	47.6	8.4	11.7	10.1	8.3	0.0	0.0
Incr Delay (d2), s/veh	4.8	0.0	6.8	13.8	0.0	0.8	0.3	0.3	0.1	0.1	1.4	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.0	6.5	2.6	0.0	2.1	1.6	4.7	0.6	0.7	0.4	0.4
LnGrp Delay(d),s/veh	60.3	0.0	57.2	70.2	0.0	48.4	8.7	12.0	10.2	8.4	1.4	1.3
LnGrp LOS	E		E	E		D	A	B	B	A	A	A
Approach Vol, veh/h		332			136			744			986	
Approach Delay, s/veh		58.5			59.3			11.4			1.8	
Approach LOS		E			E			B			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.2	76.5	11.4	21.9	10.9	75.8	12.5	20.8				
Change Period (Y+Rc), s	5.0	5.0	5.5	5.5	5.0	5.0	5.5	5.5				
Max Green Setting (Gmax), s	6.0	48.4	10.5	34.1	12.0	42.4	10.1	34.5				
Max Q Clear Time (g_c+I1), s	3.5	11.4	6.5	15.0	5.2	2.0	7.0	6.4				
Green Ext Time (p_c), s	0.0	13.1	0.0	1.4	0.1	13.4	0.1	1.6				
Intersection Summary												
HCM 2010 Ctrl Delay			17.2									
HCM 2010 LOS			B									



Lane Group	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Volume (vph)	15	0	56	20	1	35
Future Volume (vph)	15	0	56	20	1	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.868	
Flt Protected				0.965	0.999	
Satd. Flow (prot)	1863	0	0	1798	1615	0
Flt Permitted				0.965	0.999	
Satd. Flow (perm)	1863	0	0	1798	1615	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	866			1603	379	
Travel Time (s)	19.7			36.4	8.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	0	61	22	1	38
Shared Lane Traffic (%)						
Lane Group Flow (vph)	16	0	0	83	39	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 20.8% ICU Level of Service A

Analysis Period (min) 15

Intersection

Int Delay, s/veh 5.7

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	15	0	56	20	1	35
Future Vol, veh/h	15	0	56	20	1	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	-	-	-	-	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	16	0	61	22	1	38

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	159
Stage 1	-	-	16
Stage 2	-	-	143
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	-	1602	832
Stage 1	-	-	1007
Stage 2	-	-	884
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	1602	800
Mov Cap-2 Maneuver	-	-	800
Stage 1	-	-	1007
Stage 2	-	-	850

Approach	SE	NW	NE
HCM Control Delay, s	0	5.4	8.6
HCM LOS			A

Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER
Capacity (veh/h)	1053	1602	-	-	-
HCM Lane V/C Ratio	0.037	0.038	-	-	-
HCM Control Delay (s)	8.6	7.3	0	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	0.1	-	-	-

West Pryor Village
18: Chipman Rd & Pryor Rd

Peak PM - Phase 1-2

8/8/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	91	221	55	268	206	116	73	484	180	178	648	134
Future Volume (vph)	91	221	55	268	206	116	73	484	180	178	648	134
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	200		170	170		0	260		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	70			100			80			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.970				0.850		0.959			0.974	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3433	0	1770	3539	1583	1770	3394	0	1770	3447	0
Flt Permitted	0.616			0.275			0.279			0.271		
Satd. Flow (perm)	1147	3433	0	512	3539	1583	520	3394	0	505	3447	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		24				182		46			23	
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		599			831			351			533	
Travel Time (s)		11.7			16.2			6.8			10.4	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	96	233	58	282	217	122	77	509	189	187	682	141
Shared Lane Traffic (%)												
Lane Group Flow (vph)	96	291	0	282	217	122	77	698	0	187	823	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			30	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2			6		

Baseline

Synchro 9 Light Report
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West Pryor Village
18: Chipman Rd & Pryor Rd

Peak PM - Phase 1-2

8/8/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Minimum Split (s)	12.0	32.0		12.0	35.0	35.0	12.0	34.0		12.0	34.0	
Total Split (s)	12.0	32.0		26.0	46.0	46.0	12.0	41.0		21.0	50.0	
Total Split (%)	10.0%	26.7%		21.7%	38.3%	38.3%	10.0%	34.2%		17.5%	41.7%	
Maximum Green (s)	6.0	27.0		20.0	41.0	41.0	6.0	36.0		15.0	45.0	
Yellow Time (s)	3.5	4.0		3.5	4.0	4.0	3.5	4.0		3.5	4.0	
All-Red Time (s)	2.5	1.0		2.5	1.0	1.0	2.5	1.0		2.5	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	5.0		6.0	5.0	5.0	6.0	5.0		6.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max		None	None	
Walk Time (s)		5.0			5.0	5.0		5.0			5.0	
Flash Dont Walk (s)		22.0			25.0	25.0		24.0			24.0	
Pedestrian Calls (#/hr)		0			0	0		0			0	
Act Effct Green (s)	19.7	14.7		38.4	27.4	27.4	59.8	52.9		68.2	59.1	
Actuated g/C Ratio	0.16	0.12		0.32	0.23	0.23	0.50	0.44		0.57	0.49	
v/c Ratio	0.44	0.66		0.78	0.27	0.24	0.23	0.46		0.46	0.48	
Control Delay	37.4	53.1		48.3	37.9	2.1	14.6	24.5		21.5	20.7	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	37.4	53.1		48.3	37.9	2.1	14.6	24.5		21.5	20.7	
LOS	D	D		D	D	A	B	C		C	C	
Approach Delay		49.2			35.6			23.5			20.9	
Approach LOS		D			D			C			C	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 105 (88%), Referenced to phase 2:NBTL, Start of Green

Natural Cycle: 95

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 28.8

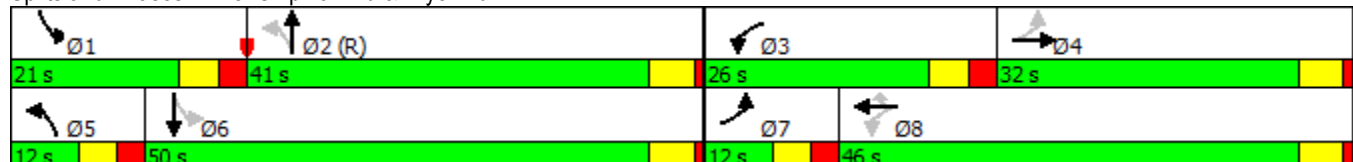
Intersection LOS: C

Intersection Capacity Utilization 69.2%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 18: Chipman Rd & Pryor Rd



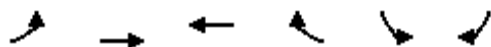


Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	96	291	282	217	122	77	698	187	823
v/c Ratio	0.44	0.66	0.78	0.27	0.24	0.23	0.46	0.46	0.48
Control Delay	37.4	53.1	48.3	37.9	2.1	14.6	24.5	21.5	20.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.4	53.1	48.3	37.9	2.1	14.6	24.5	21.5	20.7
Queue Length 50th (ft)	52	105	173	72	0	26	185	54	147
Queue Length 95th (ft)	89	147	244	102	10	53	273	159	277
Internal Link Dist (ft)		519		751			271		453
Turn Bay Length (ft)	200		200		170	170		260	
Base Capacity (vph)	219	791	373	1209	660	341	1520	453	1708
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.44	0.37	0.76	0.18	0.18	0.23	0.46	0.41	0.48
Intersection Summary									

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	91	221	55	268	206	116	73	484	180	178	648	134
Future Volume (veh/h)	91	221	55	268	206	116	73	484	180	178	648	134
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	96	233	58	282	217	122	77	509	189	187	682	141
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	276	346	84	375	795	356	369	1188	439	438	1449	299
Arrive On Green	0.05	0.12	0.12	0.15	0.22	0.22	0.05	0.47	0.47	0.07	0.50	0.50
Sat Flow, veh/h	1774	2822	688	1774	3539	1583	1774	2532	935	1774	2922	604
Grp Volume(v), veh/h	96	144	147	282	217	122	77	355	343	187	413	410
Grp Sat Flow(s),veh/h/ln	1774	1770	1741	1774	1770	1583	1774	1770	1698	1774	1770	1756
Q Serve(g_s), s	5.7	9.3	9.7	16.1	6.1	7.8	2.6	16.0	16.1	6.5	18.4	18.4
Cycle Q Clear(g_c), s	5.7	9.3	9.7	16.1	6.1	7.8	2.6	16.0	16.1	6.5	18.4	18.4
Prop In Lane	1.00		0.40	1.00		1.00	1.00		0.55	1.00		0.34
Lane Grp Cap(c), veh/h	276	217	214	375	795	356	369	831	797	438	877	871
V/C Ratio(X)	0.35	0.66	0.69	0.75	0.27	0.34	0.21	0.43	0.43	0.43	0.47	0.47
Avail Cap(c_a), veh/h	276	398	392	401	1209	541	375	831	797	531	877	871
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.4	50.3	50.4	36.6	38.4	39.1	15.8	21.1	21.2	15.5	19.9	19.9
Incr Delay (d2), s/veh	0.8	3.5	3.9	7.3	0.2	0.6	0.3	1.6	1.7	0.7	0.4	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	4.8	4.9	8.6	3.0	3.4	1.3	8.2	7.9	3.2	9.0	9.0
LnGrp Delay(d),s/veh	44.2	53.8	54.3	43.9	38.6	39.6	16.1	22.7	22.9	16.2	20.3	20.3
LnGrp LOS	D	D	D	D	D	D	B	C	C	B	C	C
Approach Vol, veh/h		387			621			775			1010	
Approach Delay, s/veh		51.6			41.2			22.1			19.5	
Approach LOS		D			D			C			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.7	61.3	24.2	19.7	11.5	64.5	12.0	32.0				
Change Period (Y+Rc), s	6.0	5.0	6.0	5.0	6.0	5.0	6.0	5.0				
Max Green Setting (Gmax), s	15.0	36.0	20.0	27.0	6.0	45.0	6.0	41.0				
Max Q Clear Time (g_c+l1), s	8.5	18.1	18.1	11.7	4.6	20.4	7.7	9.8				
Green Ext Time (p_c), s	0.3	9.1	0.2	3.0	0.0	10.7	0.0	3.6				
Intersection Summary												
HCM 2010 Ctrl Delay				29.5								
HCM 2010 LOS				C								

West Pryor Village
22: Chipman Rd & Black Twig Rd

Peak PM - Phase 1-2
8/8/2018



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	11	261	345	31	24	21
Future Volume (vph)	11	261	345	31	24	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.989		0.937	
Flt Protected	0.950				0.974	
Satd. Flow (prot)	1770	1863	1842	0	1700	0
Flt Permitted	0.950				0.974	
Satd. Flow (perm)	1770	1863	1842	0	1700	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		248	1258		980	
Travel Time (s)		4.8	24.5		26.7	
Confl. Peds. (#/hr)	245					
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	12	275	363	33	25	22
Shared Lane Traffic (%)						
Lane Group Flow (vph)	12	275	396	0	47	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 30.0% ICU Level of Service A

Analysis Period (min) 15

Intersection

Int Delay, s/veh 1.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	11	261	345	31	24	21
Future Vol, veh/h	11	261	345	31	24	21
Conflicting Peds, #/hr	245	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	275	363	33	25	22

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	641	0	922
Stage 1	-	-	624
Stage 2	-	-	298
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	943	-	300
Stage 1	-	-	534
Stage 2	-	-	753
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	943	-	188
Mov Cap-2 Maneuver	-	-	188
Stage 1	-	-	425
Stage 2	-	-	592

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	23
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	943	-	-	-	247
HCM Lane V/C Ratio	0.012	-	-	-	0.192
HCM Control Delay (s)	8.9	-	-	-	23
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.7

Summary of All Intervals

Start Time	4:50
End Time	6:00
Total Time (min)	70
Time Recorded (min)	60
# of Intervals	2
# of Recorded Intervals	1
Vehs Entered	4239
Vehs Exited	4249
Starting Vehs	110
Ending Vehs	100
Travel Distance (mi)	1827
Travel Time (hr)	119.8
Total Delay (hr)	54.6
Total Stops	4970
Fuel Used (gal)	84.2

Interval #0 Information Seeding

Start Time	4:50
End Time	5:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	5:00
End Time	6:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Vehs Entered	4239
Vehs Exited	4249
Starting Vehs	110
Ending Vehs	100
Travel Distance (mi)	1827
Travel Time (hr)	119.8
Total Delay (hr)	54.6
Total Stops	4970
Fuel Used (gal)	84.2

Intersection: 3: Pryor Rd & Rt-In, Rt-Out

Movement	EB
Directions Served	R
Maximum Queue (ft)	48
Average Queue (ft)	27
95th Queue (ft)	43
Link Distance (ft)	451
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 6: I-470 Ramp

Movement	EB	EB	EB	EB	EB	NB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	T	R	R	T	T	T	T	R	L	T
Maximum Queue (ft)	95	183	143	256	191	109	86	62	185	163	30	291
Average Queue (ft)	25	83	19	141	78	29	18	11	24	42	5	97
95th Queue (ft)	67	148	76	245	163	82	58	42	86	114	20	187
Link Distance (ft)		241	241			175	175	175	175			276
Upstream Blk Time (%)				1					0	0		0
Queuing Penalty (veh)				0					0	0		0
Storage Bay Dist (ft)	200			400	400					311	550	
Storage Blk Time (%)		0		1					0	0		0
Queuing Penalty (veh)		0		1					0	0		0

Intersection: 6: I-470 Ramp

Movement	SB
Directions Served	T
Maximum Queue (ft)	156
Average Queue (ft)	54
95th Queue (ft)	119
Link Distance (ft)	276
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 9: Pryor Rd & Summit Woods Crossing

Movement	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	T	R	L	T	T	R	L	T	T
Maximum Queue (ft)	94	93	209	222	200	43	224	283	200	210	287	190
Average Queue (ft)	42	36	107	19	69	11	72	131	22	126	104	98
95th Queue (ft)	82	74	211	86	134	30	168	246	102	195	241	181
Link Distance (ft)	523	523		280	280		462	462			210	210
Upstream Blk Time (%)										1	3	0
Queuing Penalty (veh)										0	16	0
Storage Bay Dist (ft)			150			150			150	300		
Storage Blk Time (%)			14				2	5		1	3	1
Queuing Penalty (veh)			2				0	4		3	8	1

Intersection: 9: Pryor Rd & Summit Woods Crossing

Movement	SB	B2	B2
Directions Served	R	T	T
Maximum Queue (ft)	36	85	78
Average Queue (ft)	8	5	3
95th Queue (ft)	24	38	26
Link Distance (ft)		175	175
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	150		
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 11: Lowenstein Rd & Pryor Rd

Movement	EB	EB	EB	B12	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	L	TR	T	L	TR	L	T	T	R	L	T
Maximum Queue (ft)	76	85	139	26	111	125	128	153	147	18	60	230
Average Queue (ft)	33	58	76	2	55	43	55	25	47	6	25	82
95th Queue (ft)	69	98	118	12	102	98	96	88	112	18	51	160
Link Distance (ft)			85	382	162	162		145	145			481
Upstream Blk Time (%)	0	1	11				0	0	0			
Queuing Penalty (veh)	0	0	5				0	1	0			
Storage Bay Dist (ft)	150	150					200			150	215	
Storage Blk Time (%)	0	1	11				0	0	0			0
Queuing Penalty (veh)	0	2	14				0	0	0			0

Intersection: 11: Lowenstein Rd & Pryor Rd

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	219	241
Average Queue (ft)	87	33
95th Queue (ft)	169	105
Link Distance (ft)	481	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		150
Storage Blk Time (%)	2	
Queuing Penalty (veh)	2	

Intersection: 16: Black Twig Ln & Lowenstein Rd

Movement	NW	NE
Directions Served	LT	LR
Maximum Queue (ft)	30	54
Average Queue (ft)	1	28
95th Queue (ft)	10	46
Link Distance (ft)	1559	331
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 18: Chipman Rd & Pryor Rd

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	T	R	L	T	TR	L	T
Maximum Queue (ft)	151	132	172	261	211	164	93	74	284	319	124	257
Average Queue (ft)	63	81	100	155	76	65	43	39	130	206	63	108
95th Queue (ft)	118	123	158	233	162	122	75	64	235	344	111	204
Link Distance (ft)		515	515		777	777			304	304		448
Upstream Blk Time (%)									0	2		
Queuing Penalty (veh)									0	0		
Storage Bay Dist (ft)	200			200			170	170			260	
Storage Blk Time (%)				4	0	0			2			0
Queuing Penalty (veh)				4	0	0			1			0

Intersection: 18: Chipman Rd & Pryor Rd

Movement	SB
Directions Served	TR
Maximum Queue (ft)	269
Average Queue (ft)	122
95th Queue (ft)	216
Link Distance (ft)	448
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 22: Chipman Rd & Black Twig Rd

Movement	EB	WB	SB
Directions Served	L	TR	LR
Maximum Queue (ft)	31	51	54
Average Queue (ft)	13	3	25
95th Queue (ft)	37	20	48
Link Distance (ft)	226	1193	925
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 67

West Pryor Village
3: W Pryor Rd & Rt-In, Rt-Out

Peak AM - Phase 1-3
8/9/2018



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	79	0	693	372	148
Future Volume (vph)	0	79	0	693	372	148
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.865				0.850
Flt Protected						
Satd. Flow (prot)	0	1611	0	3539	3539	1583
Flt Permitted						
Satd. Flow (perm)	0	1611	0	3539	3539	1583
Link Speed (mph)	30			35	35	
Link Distance (ft)	458			555	534	
Travel Time (s)	10.4			10.8	10.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	86	0	753	404	161
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	86	0	753	404	161
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			30	30	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 22.5% ICU Level of Service A

Analysis Period (min) 15

Intersection						
Int Delay, s/veh	0.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↗↗	↗↗	↗
Traffic Vol, veh/h	0	79	0	693	372	148
Future Vol, veh/h	0	79	0	693	372	148
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	86	0	753	404	161
Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	202	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	805	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	805	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB		NB		SB	
HCM Control Delay, s	10		0		0	
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR		
Capacity (veh/h)	-	805	-	-		
HCM Lane V/C Ratio	-	0.107	-	-		
HCM Control Delay (s)	-	10	-	-		
HCM Lane LOS	-	B	-	-		
HCM 95th %tile Q(veh)	-	0.4	-	-		

West Pryor Village
6: W Pryor Rd & I-470 Ramp

Peak AM - Phase 1-3

8/9/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	212	288	0	0	0	0	562	458	0	399	0
Future Volume (vph)	14	212	288	0	0	0	0	562	458	0	399	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		400	0		0	0		311	550		0
Storage Lanes	1		2	0		0	0		1	1		0
Taper Length (ft)	100			25			25			50		
Lane Util. Factor	1.00	0.95	0.88	1.00	1.00	1.00	1.00	0.86	1.00	1.00	0.95	1.00
Frt			0.850						0.850			
Flt Protected	0.950											
Satd. Flow (prot)	1770	3539	2787	0	0	0	0	6408	1583	1863	3539	0
Flt Permitted	0.950											
Satd. Flow (perm)	1770	3539	2787	0	0	0	0	6408	1583	1863	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			310						492			
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		297			425			276			300	
Travel Time (s)		6.8			9.7			5.4			5.8	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	15	228	310	0	0	0	0	604	492	0	429	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	15	228	310	0	0	0	0	604	492	0	429	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			30			30	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1					2	1	1	2	
Detector Template	Left	Thru	Right					Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20					100	20	20	100	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Detector 1 Position(ft)	0	0	0					0	0	0	0	
Detector 1 Size(ft)	20	6	20					6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Prot	NA	Perm					NA	Perm	Prot	NA	
Protected Phases	7	4						2		1	6	
Permitted Phases			4						2			

West Pryor Village
6: W Pryor Rd & I-470 Ramp

Peak AM - Phase 1-3

8/9/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4					2	2	1	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0					6.0	6.0	6.0	6.0	
Minimum Split (s)	11.6	40.6	40.6					35.5	35.5	11.5	41.5	
Total Split (s)	48.0	48.0	48.0					70.5	70.5	11.5	82.0	
Total Split (%)	36.9%	36.9%	36.9%					54.2%	54.2%	8.8%	63.1%	
Maximum Green (s)	42.4	42.4	42.4					65.0	65.0	6.0	76.5	
Yellow Time (s)	3.8	3.8	3.8					4.0	4.0	4.0	4.0	
All-Red Time (s)	1.8	1.8	1.8					1.5	1.5	1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.6	5.6	5.6					5.5	5.5	5.5	5.5	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Recall Mode	None	None	None					C-Max	C-Max	None	None	
Walk Time (s)		5.0	5.0					5.0	5.0		5.0	
Flash Dont Walk (s)		30.0	30.0					25.0	25.0		31.0	
Pedestrian Calls (#/hr)		0	0					0	0		0	
Act Effct Green (s)	10.8	14.5	14.5					104.4	104.4		104.4	
Actuated g/C Ratio	0.08	0.11	0.11					0.80	0.80		0.80	
v/c Ratio	0.10	0.58	0.53					0.12	0.36		0.15	
Control Delay	52.7	60.3	8.8					0.9	0.8		3.2	
Queue Delay	0.0	0.0	0.0					0.0	0.2		0.0	
Total Delay	52.7	60.3	8.8					0.9	1.0		3.2	
LOS	D	E	A					A	A		A	
Approach Delay		31.2						1.0			3.2	
Approach LOS		C						A			A	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 38 (29%), Referenced to phase 2:NBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.58

Intersection Signal Delay: 9.5

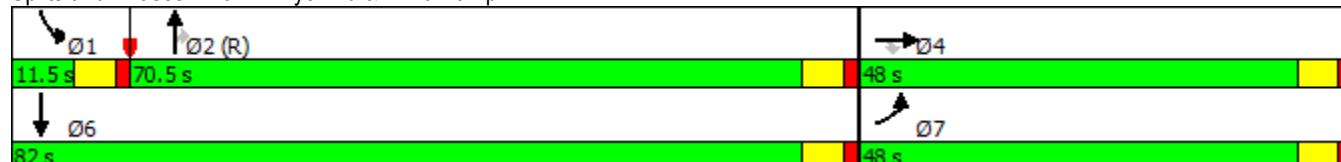
Intersection LOS: A

Intersection Capacity Utilization 43.5%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 6: W Pryor Rd & I-470 Ramp





Lane Group	EBL	EBT	EBR	NBT	NBR	SBT
Lane Group Flow (vph)	15	228	310	604	492	429
v/c Ratio	0.10	0.58	0.53	0.12	0.36	0.15
Control Delay	52.7	60.3	8.8	0.9	0.8	3.2
Queue Delay	0.0	0.0	0.0	0.0	0.2	0.0
Total Delay	52.7	60.3	8.8	0.9	1.0	3.2
Queue Length 50th (ft)	12	97	0	3	0	35
Queue Length 95th (ft)	33	135	45	m11	m0	57
Internal Link Dist (ft)		217		196		220
Turn Bay Length (ft)	200		400		311	
Base Capacity (vph)	577	1154	1117	5146	1368	2841
Starvation Cap Reductn	0	0	0	0	313	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.20	0.28	0.12	0.47	0.15

Intersection Summary

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

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	212	288	0	0	0	0	562	458	0	399	0
Future Volume (veh/h)	14	212	288	0	0	0	0	562	458	0	399	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863				0	1863	1863	1863	1863	0
Adj Flow Rate, veh/h	15	228	310				0	604	492	0	429	0
Adj No. of Lanes	1	2	2				0	4	1	1	2	0
Peak Hour Factor	0.93	0.93	0.93				0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	256	511	403				0	4935	1219	1	2726	0
Arrive On Green	0.14	0.14	0.14				0.00	0.77	0.77	0.00	0.77	0.00
Sat Flow, veh/h	1774	3539	2787				0	6669	1583	1774	3632	0
Grp Volume(v), veh/h	15	228	310				0	604	492	0	429	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1393				0	1602	1583	1774	1770	0
Q Serve(g_s), s	0.9	7.7	13.9				0.0	3.1	13.5	0.0	4.1	0.0
Cycle Q Clear(g_c), s	0.9	7.7	13.9				0.0	3.1	13.5	0.0	4.1	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	256	511	403				0	4935	1219	1	2726	0
V/C Ratio(X)	0.06	0.45	0.77				0.00	0.12	0.40	0.00	0.16	0.00
Avail Cap(c_a), veh/h	579	1154	909				0	4935	1219	82	2726	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	48.0	50.9	53.5				0.0	3.8	5.0	0.0	3.9	0.0
Incr Delay (d2), s/veh	0.1	0.6	3.1				0.0	0.1	1.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	3.8	5.6				0.0	1.4	6.1	0.0	2.0	0.0
LnGrp Delay(d),s/veh	48.1	51.5	56.7				0.0	3.8	6.0	0.0	3.9	0.0
LnGrp LOS	D	D	E					A	A		A	
Approach Vol, veh/h		553						1096			429	
Approach Delay, s/veh		54.3						4.8			3.9	
Approach LOS		D						A			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	0.0	105.6		24.4		105.6						
Change Period (Y+Rc), s	5.5	5.5		5.6		5.5						
Max Green Setting (Gmax), s	6.0	65.0		42.4		76.5						
Max Q Clear Time (g_c+l1), s	0.0	15.5		15.9		6.1						
Green Ext Time (p_c), s	0.0	11.8		2.9		12.2						
Intersection Summary												
HCM 2010 Ctrl Delay			17.8									
HCM 2010 LOS			B									

West Pryor Village
9: W Pryor Rd & Summit Crossing

Peak AM - Phase 1-3

8/9/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	190	20	46	2	19	50	85	785	12	84	473	133
Future Volume (vph)	190	20	46	2	19	50	85	785	12	84	473	133
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	200		0	150		150	300		0
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	25			100			75			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.896				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1669	0	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.457			0.708			0.430			0.254		
Satd. Flow (perm)	851	1669	0	1319	1863	1583	801	3539	1583	473	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		52				109			168			168
Link Speed (mph)		30			25			35			35	
Link Distance (ft)		800			358			534			288	
Travel Time (s)		18.2			9.8			10.4			5.6	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	216	23	52	2	22	57	97	892	14	95	538	151
Shared Lane Traffic (%)												
Lane Group Flow (vph)	216	75	0	2	22	57	97	892	14	95	538	151
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			30			30	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2		2	6		6

Baseline

Synchro 9 Light Report
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West Pryor Village
9: W Pryor Rd & Summit Crossing

Peak AM - Phase 1-3

8/9/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	12.0	43.0		43.0	43.0	43.0	11.0	31.0	31.0	11.0	31.0	31.0
Total Split (s)	20.0	43.0		43.0	66.0	66.0	11.0	33.0	33.0	11.0	33.0	33.0
Total Split (%)	15.4%	33.1%		33.1%	50.8%	50.8%	8.5%	25.4%	25.4%	8.5%	25.4%	25.4%
Maximum Green (s)	14.0	37.0		37.0	60.0	60.0	6.0	28.0	28.0	6.0	28.0	28.0
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.5	2.5		2.5	2.5	2.5	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		5.0		5.0	5.0	5.0		5.0	5.0		5.0	5.0
Flash Dont Walk (s)		32.0		32.0	32.0	32.0		21.0	21.0		21.0	21.0
Pedestrian Calls (#/hr)		0		0	0	0		0	0		0	0
Act Effect Green (s)	24.8	22.4		12.1	7.2	7.2	87.8	80.1	80.1	90.5	81.4	81.4
Actuated g/C Ratio	0.19	0.17		0.09	0.06	0.06	0.68	0.62	0.62	0.70	0.63	0.63
v/c Ratio	0.83	0.23		0.01	0.21	0.30	0.16	0.41	0.01	0.23	0.24	0.14
Control Delay	73.3	20.4		40.5	62.9	4.0	5.6	11.7	0.0	7.1	11.1	1.0
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	73.3	20.4		40.5	62.9	4.0	5.6	11.7	0.0	7.1	11.1	1.0
LOS	E	C		D	E	A	A	B	A	A	B	A
Approach Delay		59.6			20.9			11.0			8.7	
Approach LOS		E			C			B			A	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 41 (32%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 130

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 17.1

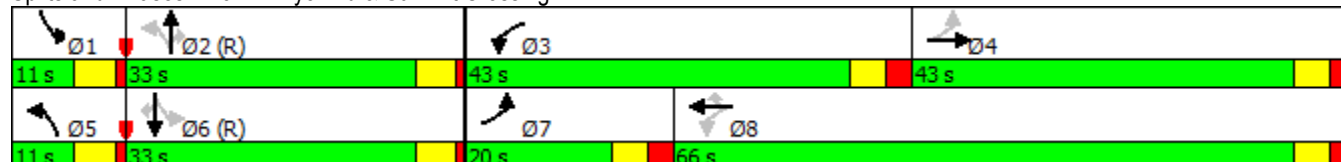
Intersection LOS: B

Intersection Capacity Utilization 57.2%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 9: W Pryor Rd & Summit Crossing



West Pryor Village
9: W Pryor Rd & Summit Crossing

Peak AM - Phase 1-3
8/9/2018



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	216	75	2	22	57	97	892	14	95	538	151
v/c Ratio	0.83	0.23	0.01	0.21	0.30	0.16	0.41	0.01	0.23	0.24	0.14
Control Delay	73.3	20.4	40.5	62.9	4.0	5.6	11.7	0.0	7.1	11.1	1.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	73.3	20.4	40.5	62.9	4.0	5.6	11.7	0.0	7.1	11.1	1.0
Queue Length 50th (ft)	166	16	1	18	0	16	195	0	22	96	0
Queue Length 95th (ft)	#252	62	8	45	0	29	219	m0	36	138	10
Internal Link Dist (ft)		720		278			454			208	
Turn Bay Length (ft)			200			150		150	300		
Base Capacity (vph)	261	512	503	859	789	598	2180	1039	419	2216	1054
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.83	0.15	0.00	0.03	0.07	0.16	0.41	0.01	0.23	0.24	0.14

Intersection Summary

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

Queue shown is maximum after two cycles.

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

West Pryor Village
9: W Pryor Rd & Summit Crossing

Peak AM - Phase 1-3

8/9/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	190	20	46	2	19	50	85	785	12	84	473	133
Future Volume (veh/h)	190	20	46	2	19	50	85	785	12	84	473	133
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	216	23	52	2	22	57	97	892	14	95	538	151
Adj No. of Lanes	1	1	0	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	306	60	136	212	106	90	551	2201	984	516	2200	984
Arrive On Green	0.11	0.12	0.12	0.05	0.06	0.06	0.09	1.00	1.00	0.04	0.62	0.62
Sat Flow, veh/h	1774	509	1151	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	216	0	75	2	22	57	97	892	14	95	538	151
Grp Sat Flow(s),veh/h/ln	1774	0	1660	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	14.0	0.0	5.4	0.1	1.5	4.6	2.5	0.0	0.0	2.5	8.8	5.2
Cycle Q Clear(g_c), s	14.0	0.0	5.4	0.1	1.5	4.6	2.5	0.0	0.0	2.5	8.8	5.2
Prop In Lane	1.00		0.69	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	306	0	196	212	106	90	551	2201	984	516	2200	984
V/C Ratio(X)	0.71	0.00	0.38	0.01	0.21	0.64	0.18	0.41	0.01	0.18	0.24	0.15
Avail Cap(c_a), veh/h	306	0	472	635	860	731	553	2201	984	518	2200	984
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.0	0.0	52.9	52.4	58.5	60.0	7.6	0.0	0.0	7.6	11.0	10.3
Incr Delay (d2), s/veh	7.2	0.0	1.2	0.0	1.0	7.2	0.2	0.6	0.0	0.2	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	2.6	0.1	0.8	2.2	1.2	0.2	0.0	1.2	4.3	2.4
LnGrp Delay(d),s/veh	57.2	0.0	54.2	52.4	59.5	67.2	7.8	0.6	0.0	7.8	11.2	10.6
LnGrp LOS	E		D	D	E	E	A	A	A	A	B	B
Approach Vol, veh/h		291			81			1003			784	
Approach Delay, s/veh		56.4			64.8			1.2			10.7	
Approach LOS		E			E			A			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.8	85.8	12.0	21.4	10.8	85.8	20.0	13.4				
Change Period (Y+Rc), s	5.0	5.0	6.0	6.0	5.0	5.0	6.0	6.0				
Max Green Setting (Gmax), s	6.0	28.0	37.0	37.0	6.0	28.0	14.0	60.0				
Max Q Clear Time (g_c+I1), s	4.5	2.0	2.1	7.4	4.5	10.8	16.0	6.6				
Green Ext Time (p_c), s	0.0	12.0	0.0	0.7	0.0	9.5	0.0	0.8				
Intersection Summary												
HCM 2010 Ctrl Delay			14.5									
HCM 2010 LOS			B									

West Pryor Village
11: W Pryor Rd & Lowenstein Rd

Peak AM - Phase 1-3

8/9/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	197	16	33	17	7	12	136	687	27	12	338	99
Future Volume (vph)	197	16	33	17	7	12	136	687	27	12	338	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	0		150	200		150	215		150
Storage Lanes	2		0	1		0	1		1	1		1
Taper Length (ft)	125			25			100			100		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.899			0.907				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	1675	0	1770	1690	0	1770	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.481			0.356		
Satd. Flow (perm)	3433	1675	0	1770	1690	0	896	3539	1583	663	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		37			13				176			176
Link Speed (mph)		30			25			35			35	
Link Distance (ft)		172			227			220			555	
Travel Time (s)		3.9			6.2			4.3			10.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	219	18	37	19	8	13	151	763	30	13	376	110
Shared Lane Traffic (%)												
Lane Group Flow (vph)	219	55	0	19	21	0	151	763	30	13	376	110
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			30			30	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases							2		2	6		6

Baseline

Synchro 9 Light Report
Page 11

West Pryor Village
11: W Pryor Rd & Lowenstein Rd

Peak AM - Phase 1-3

8/9/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	12.0	39.5		12.0	36.5		12.5	30.0	30.0	12.5	30.0	30.0
Total Split (s)	24.0	46.5		14.0	36.5		20.0	55.5	55.5	14.0	49.5	49.5
Total Split (%)	18.5%	35.8%		10.8%	28.1%		15.4%	42.7%	42.7%	10.8%	38.1%	38.1%
Maximum Green (s)	18.0	41.0		8.0	31.0		13.5	50.5	50.5	7.5	44.5	44.5
Yellow Time (s)	3.0	3.5		3.0	3.5		3.5	4.0	4.0	3.5	4.0	4.0
All-Red Time (s)	3.0	2.0		3.0	2.0		3.0	1.0	1.0	3.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	5.5		6.0	5.5		6.5	5.0	5.0	6.5	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		5.0			5.0			5.0	5.0		5.0	5.0
Flash Dont Walk (s)		29.0			26.0			20.0	20.0		20.0	20.0
Pedestrian Calls (#/hr)		0			0			0	0		0	0
Act Effect Green (s)	13.6	16.2		6.9	6.7		95.7	92.7	92.7	86.9	82.4	82.4
Actuated g/C Ratio	0.10	0.12		0.05	0.05		0.74	0.71	0.71	0.67	0.63	0.63
v/c Ratio	0.61	0.23		0.20	0.21		0.21	0.30	0.03	0.03	0.17	0.10
Control Delay	62.8	24.8		63.7	39.4		2.8	4.5	0.0	3.4	4.6	0.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.8	24.8		63.7	39.4		2.8	4.5	0.0	3.4	4.6	0.3
LOS	E	C		E	D		A	A	A	A	A	A
Approach Delay		55.2			51.0			4.1			3.6	
Approach LOS		E			D			A			A	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 44 (34%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 95

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.61

Intersection Signal Delay: 13.0

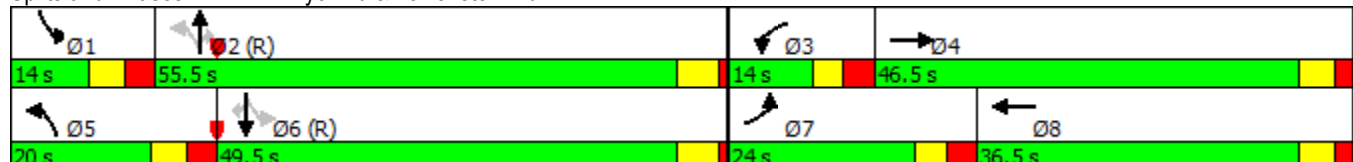
Intersection LOS: B

Intersection Capacity Utilization 50.4%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 11: W Pryor Rd & Lowenstein Rd





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	219	55	19	21	151	763	30	13	376	110
v/c Ratio	0.61	0.23	0.20	0.21	0.21	0.30	0.03	0.03	0.17	0.10
Control Delay	62.8	24.8	63.7	39.4	2.8	4.5	0.0	3.4	4.6	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.8	24.8	63.7	39.4	2.8	4.5	0.0	3.4	4.6	0.3
Queue Length 50th (ft)	92	12	16	7	7	17	0	1	21	0
Queue Length 95th (ft)	130	54	42	35	24	229	m0	5	52	1
Internal Link Dist (ft)		92		147		140			475	
Turn Bay Length (ft)	150				200		150	215		150
Base Capacity (vph)	475	553	108	412	754	2524	1179	514	2242	1067
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.46	0.10	0.18	0.05	0.20	0.30	0.03	0.03	0.17	0.10

Intersection Summary

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

West Pryor Village
11: W Pryor Rd & Lowenstein Rd

Peak AM - Phase 1-3

8/9/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	197	16	33	17	7	12	136	687	27	12	338	99
Future Volume (veh/h)	197	16	33	17	7	12	136	687	27	12	338	99
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	219	18	37	19	8	13	151	763	30	13	376	110
Adj No. of Lanes	2	1	0	1	1	0	1	2	1	1	2	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	279	56	115	41	29	46	727	2407	1077	489	2305	1031
Arrive On Green	0.08	0.10	0.10	0.02	0.04	0.04	0.05	0.68	0.68	0.03	1.00	1.00
Sat Flow, veh/h	3442	545	1120	1774	640	1040	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	219	0	55	19	0	21	151	763	30	13	376	110
Grp Sat Flow(s),veh/h/ln	1721	0	1665	1774	0	1679	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	8.1	0.0	4.0	1.4	0.0	1.6	3.7	11.4	0.8	0.3	0.0	0.0
Cycle Q Clear(g_c), s	8.1	0.0	4.0	1.4	0.0	1.6	3.7	11.4	0.8	0.3	0.0	0.0
Prop In Lane	1.00		0.67	1.00		0.62	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	279	0	171	41	0	75	727	2407	1077	489	2305	1031
V/C Ratio(X)	0.78	0.00	0.32	0.47	0.00	0.28	0.21	0.32	0.03	0.03	0.16	0.11
Avail Cap(c_a), veh/h	477	0	525	109	0	400	830	2407	1077	561	2305	1031
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.6	0.0	54.1	62.7	0.0	60.1	6.5	8.5	6.8	7.3	0.0	0.0
Incr Delay (d2), s/veh	4.8	0.0	1.1	8.1	0.0	2.0	0.1	0.3	0.0	0.0	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.1	0.0	1.9	0.8	0.0	0.8	1.8	5.6	0.4	0.2	0.0	0.1
LnGrp Delay(d),s/veh	63.4	0.0	55.2	70.8	0.0	62.1	6.6	8.8	6.8	7.3	0.2	0.2
LnGrp LOS	E		E	E		E	A	A	A	A	A	A
Approach Vol, veh/h		274			40			944			499	
Approach Delay, s/veh		61.8			66.2			8.4			0.4	
Approach LOS		E			E			A			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.7	93.4	9.0	18.9	12.5	89.7	16.5	11.3				
Change Period (Y+Rc), s	6.5	5.0	6.0	5.5	6.5	5.0	6.0	5.5				
Max Green Setting (Gmax), s	7.5	50.5	8.0	41.0	13.5	44.5	18.0	31.0				
Max Q Clear Time (g_c+I1), s	2.3	13.4	3.4	6.0	5.7	2.0	10.1	3.6				
Green Ext Time (p_c), s	0.0	10.1	0.0	0.4	0.2	10.4	0.4	0.4				
Intersection Summary												
HCM 2010 Ctrl Delay			15.8									
HCM 2010 LOS			B									

						
Lane Group	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Volume (vph)	8	0	20	3	0	26
Future Volume (vph)	8	0	20	3	0	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865					
Flt Protected	0.959					
Satd. Flow (prot)	1863	0	0	1786	1611	0
Flt Permitted	0.959					
Satd. Flow (perm)	1863	0	0	1786	1611	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	866			1603	379	
Travel Time (s)	19.7			36.4	8.6	
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Adj. Flow (vph)	13	0	32	5	0	41
Shared Lane Traffic (%)						
Lane Group Flow (vph)	13	0	0	37	41	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	9		15	15		9
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	17.9%			ICU Level of Service A		
Analysis Period (min)	15					

Intersection

Int Delay, s/veh 6.4

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	8	0	20	3	0	26
Future Vol, veh/h	8	0	20	3	0	26
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	63	63	63	63	63	63
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	13	0	32	5	0	41

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	13	81
Stage 1	-	-	13
Stage 2	-	-	68
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	-	1606	921
Stage 1	-	-	1010
Stage 2	-	-	955
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	1606	903
Mov Cap-2 Maneuver	-	-	903
Stage 1	-	-	1010
Stage 2	-	-	936

Approach	SE	NW	NE
HCM Control Delay, s	0	6.3	8.5
HCM LOS			A

Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER
Capacity (veh/h)	1067	1606	-	-	-
HCM Lane V/C Ratio	0.039	0.02	-	-	-
HCM Control Delay (s)	8.5	7.3	0	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	0.1	-	-	-

West Pryor Village
18: Chipman Rd & W Pryor Rd

Peak AM - Phase 1-3

8/9/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	114	205	65	84	85	77	36	657	127	69	288	48
Future Volume (vph)	114	205	65	84	85	77	36	657	127	69	288	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	200		170	170		0	260		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	70			100			80			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.964				0.850		0.976			0.978	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3412	0	1770	3539	1583	1770	3454	0	1770	3461	0
Flt Permitted	0.609			0.405			0.530			0.274		
Satd. Flow (perm)	1134	3412	0	754	3539	1583	987	3454	0	510	3461	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		31				117		22			19	
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		651			831			351			533	
Travel Time (s)		12.7			16.2			6.8			10.4	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	125	225	71	92	93	85	40	722	140	76	316	53
Shared Lane Traffic (%)												
Lane Group Flow (vph)	125	296	0	92	93	85	40	862	0	76	369	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			30			30	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2			6		

Baseline

Synchro 9 Light Report
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West Pryor Village
18: Chipman Rd & W Pryor Rd

Peak AM - Phase 1-3

8/9/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Minimum Split (s)	12.0	32.0		12.0	35.0	35.0	12.0	34.0		12.0	34.0	
Total Split (s)	16.0	39.0		14.0	37.0	37.0	13.0	62.0		15.0	64.0	
Total Split (%)	12.3%	30.0%		10.8%	28.5%	28.5%	10.0%	47.7%		11.5%	49.2%	
Maximum Green (s)	10.0	34.0		8.0	32.0	32.0	7.0	57.0		9.0	59.0	
Yellow Time (s)	3.5	4.0		3.5	4.0	4.0	3.5	4.0		3.5	4.0	
All-Red Time (s)	2.5	1.0		2.5	1.0	1.0	2.5	1.0		2.5	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	5.0		6.0	5.0	5.0	6.0	5.0		6.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max		None	None	
Walk Time (s)		5.0			5.0	5.0		5.0			5.0	
Flash Dont Walk (s)		22.0			25.0	25.0		24.0			24.0	
Pedestrian Calls (#/hr)		0			0	0		0			0	
Act Effct Green (s)	24.3	15.5		20.5	13.6	13.6	84.0	79.6		85.7	80.4	
Actuated g/C Ratio	0.19	0.12		0.16	0.10	0.10	0.65	0.61		0.66	0.62	
v/c Ratio	0.48	0.68		0.51	0.25	0.31	0.06	0.41		0.19	0.17	
Control Delay	48.8	56.9		52.0	54.1	6.5	7.6	14.5		8.1	9.4	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	48.8	56.9		52.0	54.1	6.5	7.6	14.5		8.1	9.4	
LOS	D	E		D	D	A	A	B		A	A	
Approach Delay		54.5			38.4			14.2			9.2	
Approach LOS		D			D			B			A	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 1 (1%), Referenced to phase 2:NBT, Start of Green

Natural Cycle: 95

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.68

Intersection Signal Delay: 24.6

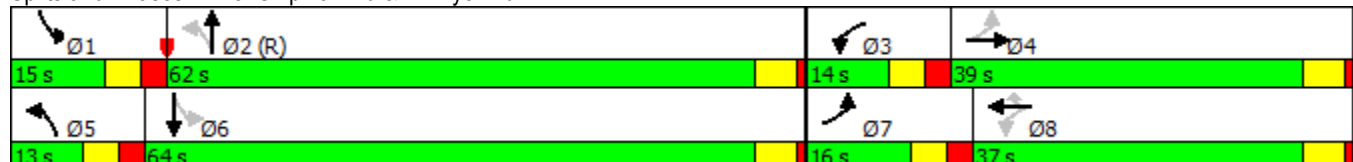
Intersection LOS: C

Intersection Capacity Utilization 57.5%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 18: Chipman Rd & W Pryor Rd



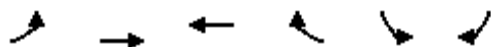


Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	125	296	92	93	85	40	862	76	369
v/c Ratio	0.48	0.68	0.51	0.25	0.31	0.06	0.41	0.19	0.17
Control Delay	48.8	56.9	52.0	54.1	6.5	7.6	14.5	8.1	9.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.8	56.9	52.0	54.1	6.5	7.6	14.5	8.1	9.4
Queue Length 50th (ft)	89	114	64	38	0	10	191	17	54
Queue Length 95th (ft)	143	158	110	64	24	25	268	33	71
Internal Link Dist (ft)		571		751			271		453
Turn Bay Length (ft)	200		200		170	170		260	
Base Capacity (vph)	262	915	182	871	477	683	2124	427	2148
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.48	0.32	0.51	0.11	0.18	0.06	0.41	0.18	0.17
Intersection Summary									

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	114	205	65	84	85	77	36	657	127	69	288	48
Future Volume (veh/h)	114	205	65	84	85	77	36	657	127	69	288	48
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	125	225	71	92	93	85	40	722	140	76	316	53
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	1	2	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	283	314	97	197	354	159	697	1806	350	442	1880	312
Arrive On Green	0.08	0.12	0.12	0.06	0.10	0.10	0.04	0.61	0.61	0.04	0.62	0.62
Sat Flow, veh/h	1774	2667	821	1774	3539	1583	1774	2958	573	1774	3039	504
Grp Volume(v), veh/h	125	147	149	92	93	85	40	432	430	76	183	186
Grp Sat Flow(s),veh/h/ln	1774	1770	1718	1774	1770	1583	1774	1770	1762	1774	1770	1774
Q Serve(g_s), s	8.1	10.4	10.9	6.0	3.2	6.6	1.1	16.3	16.4	2.0	5.7	5.8
Cycle Q Clear(g_c), s	8.1	10.4	10.9	6.0	3.2	6.6	1.1	16.3	16.4	2.0	5.7	5.8
Prop In Lane	1.00		0.48	1.00		1.00	1.00		0.33	1.00		0.28
Lane Grp Cap(c), veh/h	283	209	203	197	354	159	697	1080	1076	442	1094	1097
V/C Ratio(X)	0.44	0.71	0.73	0.47	0.26	0.54	0.06	0.40	0.40	0.17	0.17	0.17
Avail Cap(c_a), veh/h	283	463	449	202	871	390	730	1080	1076	488	1094	1097
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.4	55.2	55.4	48.8	54.1	55.6	8.4	13.0	13.0	9.3	10.6	10.6
Incr Delay (d2), s/veh	1.1	4.3	5.1	1.7	0.4	2.8	0.0	1.1	1.1	0.2	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	5.4	5.4	3.0	1.6	3.0	0.5	8.2	8.2	1.0	2.8	2.9
LnGrp Delay(d),s/veh	48.5	59.5	60.5	50.5	54.4	58.4	8.5	14.1	14.2	9.5	10.6	10.6
LnGrp LOS	D	E	E	D	D	E	A	B	B	A	B	B
Approach Vol, veh/h		421			270			902			445	
Approach Delay, s/veh		56.6			54.3			13.9			10.4	
Approach LOS		E			D			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.6	84.4	13.7	20.3	10.6	85.4	16.0	18.0				
Change Period (Y+Rc), s	6.0	5.0	6.0	5.0	6.0	5.0	6.0	5.0				
Max Green Setting (Gmax), s	9.0	57.0	8.0	34.0	7.0	59.0	10.0	32.0				
Max Q Clear Time (g_c+l1), s	4.0	18.4	8.0	12.9	3.1	7.8	10.1	8.6				
Green Ext Time (p_c), s	0.1	9.4	0.0	2.5	0.0	9.8	0.0	2.5				
Intersection Summary												
HCM 2010 Ctrl Delay				27.3								
HCM 2010 LOS				C								

West Pryor Village
21: Chipman Rd & Black Twig

Peak AM - Phase 1-3
8/9/2018



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	11	266	123	6	22	9
Future Volume (vph)	11	266	123	6	22	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.994		0.961	
Flt Protected	0.950				0.966	
Satd. Flow (prot)	1770	1863	1852	0	1729	0
Flt Permitted	0.950				0.966	
Satd. Flow (perm)	1770	1863	1852	0	1729	0
Link Speed (mph)		35	35		30	
Link Distance (ft)		499	1199		944	
Travel Time (s)		9.7	23.4		21.5	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	13	306	141	7	25	10
Shared Lane Traffic (%)						
Lane Group Flow (vph)	13	306	148	0	35	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 24.0% ICU Level of Service A

Analysis Period (min) 15

Intersection						
Int Delay, s/veh	1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	11	266	123	6	22	9
Future Vol, veh/h	11	266	123	6	22	9
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	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	13	306	141	7	25	10
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	148	0	-	0	476	145
Stage 1	-	-	-	-	145	-
Stage 2	-	-	-	-	331	-
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	1434	-	-	-	548	902
Stage 1	-	-	-	-	882	-
Stage 2	-	-	-	-	728	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	1434	-	-	-	543	902
Mov Cap-2 Maneuver	-	-	-	-	543	-
Stage 1	-	-	-	-	882	-
Stage 2	-	-	-	-	721	-
Approach	EB		WB		SB	
HCM Control Delay, s	0.3		0		11.2	
HCM LOS					B	
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1434	-	-	-	614	
HCM Lane V/C Ratio	0.009	-	-	-	0.058	
HCM Control Delay (s)	7.5	-	-	-	11.2	
HCM Lane LOS	A	-	-	-	B	
HCM 95th %tile Q(veh)	0	-	-	-	0.2	

Intersection: 3: W Pryor Rd & Rt-In, Rt-Out

Movement	EB
Directions Served	R
Maximum Queue (ft)	46
Average Queue (ft)	27
95th Queue (ft)	43
Link Distance (ft)	389
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 6: W Pryor Rd & I-470 Ramp

Movement	EB	EB	EB	EB	EB	NB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	T	R	R	T	T	T	T	R	T	T
Maximum Queue (ft)	25	178	142	75	51	151	108	96	17	158	118	72
Average Queue (ft)	5	140	67	60	22	56	50	50	10	94	58	38
95th Queue (ft)	22	176	156	77	54	151	125	109	24	189	140	78
Link Distance (ft)		235	235			172	172	172	172		276	276
Upstream Blk Time (%)										0		
Queuing Penalty (veh)										0		
Storage Bay Dist (ft)	200			400	400					311		
Storage Blk Time (%)										0		
Queuing Penalty (veh)										0		

Intersection: 9: W Pryor Rd & Summit Crossing

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	TR	T	R	L	T	T	L	T	T	R
Maximum Queue (ft)	305	52	27	30	66	128	171	49	133	172	23
Average Queue (ft)	243	34	18	24	49	77	110	36	78	101	12
95th Queue (ft)	340	48	35	43	75	154	212	53	136	176	28
Link Distance (ft)	728	728	280	280		465	465		206	206	206
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)					150			300			
Storage Blk Time (%)							4				
Queuing Penalty (veh)							0				

Intersection: 11: W Pryor Rd & Lowenstein Rd

Movement	EB	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	L	TR	L	TR	L	T	T	R	L	T	T
Maximum Queue (ft)	58	58	22	67	20	66	62	60	15	24	28	51
Average Queue (ft)	45	46	15	29	8	53	12	30	3	5	6	19
95th Queue (ft)	61	66	30	74	25	69	53	60	13	20	24	50
Link Distance (ft)			85	162	162		145	145			481	481
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	150	150				200			150	215		
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 11: W Pryor Rd & Lowenstein Rd

Movement	SB
Directions Served	R
Maximum Queue (ft)	28
Average Queue (ft)	6
95th Queue (ft)	24
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	150
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 16: Black Twig Rd & Lowenstein Rd

Movement	NE
Directions Served	LR
Maximum Queue (ft)	31
Average Queue (ft)	12
95th Queue (ft)	35
Link Distance (ft)	330
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 18: Chipman Rd & W Pryor Rd

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	T	R	L	T	TR	L	T
Maximum Queue (ft)	112	132	135	117	96	30	70	31	179	230	38	58
Average Queue (ft)	87	71	67	60	69	6	35	12	114	143	18	34
95th Queue (ft)	126	128	132	114	110	26	73	37	193	257	37	65
Link Distance (ft)		567	567		776	776			305	305		448
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	200			200			170	170			260	
Storage Blk Time (%)									1			
Queuing Penalty (veh)									0			

Intersection: 18: Chipman Rd & W Pryor Rd

Movement	SB
Directions Served	TR
Maximum Queue (ft)	77
Average Queue (ft)	47
95th Queue (ft)	82
Link Distance (ft)	448
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 21: Chipman Rd & Black Twig

Movement	EB	SB
Directions Served	L	LR
Maximum Queue (ft)	28	30
Average Queue (ft)	6	18
95th Queue (ft)	25	41
Link Distance (ft)	473	886
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 1

West Pryor Village
3: W Pryor Rd & Rt-In, Rt-Out

Peak AM - Phase 1-4&5
8/9/2018



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↕	↕	↗
Traffic Volume (vph)	0	106	0	757	393	171
Future Volume (vph)	0	106	0	757	393	171
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.865				0.850
Flt Protected						
Satd. Flow (prot)	0	1611	0	3539	3539	1583
Flt Permitted						
Satd. Flow (perm)	0	1611	0	3539	3539	1583
Link Speed (mph)	30			35	35	
Link Distance (ft)	458			555	534	
Travel Time (s)	10.4			10.8	10.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	115	0	823	427	186
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	115	0	823	427	186
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			30	30	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 24.3% ICU Level of Service A

Analysis Period (min) 15

Intersection						
Int Delay, s/veh	0.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	106	0	757	393	171
Future Vol, veh/h	0	106	0	757	393	171
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	115	0	823	427	186
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	-	214	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	791	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	791	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	10.3	0		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR		
Capacity (veh/h)	-	791	-	-		
HCM Lane V/C Ratio	-	0.146	-	-		
HCM Control Delay (s)	-	10.3	-	-		
HCM Lane LOS	-	B	-	-		
HCM 95th %tile Q(veh)	-	0.5	-	-		

West Pryor Village
6: W Pryor Rd & I-470 Ramp

Peak AM - Phase 1-4&5

8/9/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	212	309	0	0	0	0	607	495	0	428	0
Future Volume (vph)	14	212	309	0	0	0	0	607	495	0	428	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		400	0		0	0		311	550		0
Storage Lanes	1		2	0		0	0		1	1		0
Taper Length (ft)	100			25			25			50		
Lane Util. Factor	1.00	0.95	0.88	1.00	1.00	1.00	1.00	0.86	1.00	1.00	0.95	1.00
Frt			0.850						0.850			
Flt Protected	0.950											
Satd. Flow (prot)	1770	3539	2787	0	0	0	0	6408	1583	1863	3539	0
Flt Permitted	0.950											
Satd. Flow (perm)	1770	3539	2787	0	0	0	0	6408	1583	1863	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			332						510			
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		297			425			276			300	
Travel Time (s)		6.8			9.7			5.4			5.8	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	15	228	332	0	0	0	0	653	532	0	460	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	15	228	332	0	0	0	0	653	532	0	460	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			30			30	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1					2	1	1	2	
Detector Template	Left	Thru	Right					Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20					100	20	20	100	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Detector 1 Position(ft)	0	0	0					0	0	0	0	
Detector 1 Size(ft)	20	6	20					6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Prot	NA	Perm					NA	Perm	Prot	NA	
Protected Phases	7	4						2		1	6	
Permitted Phases			4						2			

West Pryor Village
6: W Pryor Rd & I-470 Ramp

Peak AM - Phase 1-4&5

8/9/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4					2	2	1	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0					6.0	6.0	6.0	6.0	
Minimum Split (s)	11.6	40.6	40.6					35.5	35.5	11.5	41.5	
Total Split (s)	48.0	48.0	48.0					75.5	75.5	11.5	87.0	
Total Split (%)	35.6%	35.6%	35.6%					55.9%	55.9%	8.5%	64.4%	
Maximum Green (s)	42.4	42.4	42.4					70.0	70.0	6.0	81.5	
Yellow Time (s)	3.8	3.8	3.8					4.0	4.0	4.0	4.0	
All-Red Time (s)	1.8	1.8	1.8					1.5	1.5	1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.6	5.6	5.6					5.5	5.5	5.5	5.5	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Recall Mode	None	None	None					C-Max	C-Max	None	None	
Walk Time (s)		5.0	5.0					5.0	5.0		5.0	
Flash Dont Walk (s)		30.0	30.0					25.0	25.0		31.0	
Pedestrian Calls (#/hr)		0	0					0	0		0	
Act Effect Green (s)	11.3	15.4	15.4					108.5	108.5		108.5	
Actuated g/C Ratio	0.08	0.11	0.11					0.80	0.80		0.80	
v/c Ratio	0.10	0.57	0.54					0.13	0.39		0.16	
Control Delay	54.4	61.6	8.7					0.9	0.9		3.4	
Queue Delay	0.0	0.0	0.0					0.0	0.2		0.0	
Total Delay	54.4	61.6	8.7					0.9	1.1		3.4	
LOS	D	E	A					A	A		A	
Approach Delay		30.9						1.0			3.4	
Approach LOS		C						A			A	

Intersection Summary

Area Type: Other

Cycle Length: 135

Actuated Cycle Length: 135

Offset: 29 (21%), Referenced to phase 2:NBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.57

Intersection Signal Delay: 9.2

Intersection LOS: A

Intersection Capacity Utilization 45.8%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 6: W Pryor Rd & I-470 Ramp





Lane Group	EBL	EBT	EBR	NBT	NBR	SBT
Lane Group Flow (vph)	15	228	332	653	532	460
v/c Ratio	0.10	0.57	0.54	0.13	0.39	0.16
Control Delay	54.4	61.6	8.7	0.9	0.9	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.2	0.0
Total Delay	54.4	61.6	8.7	0.9	1.1	3.4
Queue Length 50th (ft)	13	101	0	3	0	38
Queue Length 95th (ft)	33	139	47	m11	m0	64
Internal Link Dist (ft)		217		196		220
Turn Bay Length (ft)	200		400		311	
Base Capacity (vph)	555	1111	1103	5151	1372	2844
Starvation Cap Reductn	0	0	0	0	298	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.21	0.30	0.13	0.50	0.16

Intersection Summary

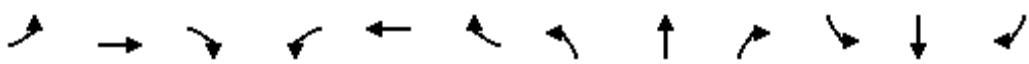
m Volume for 95th percentile queue is metered by upstream signal.

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	212	309	0	0	0	0	607	495	0	428	0
Future Volume (veh/h)	14	212	309	0	0	0	0	607	495	0	428	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863				0	1863	1863	1863	1863	0
Adj Flow Rate, veh/h	15	228	332				0	653	532	0	460	0
Adj No. of Lanes	1	2	2				0	4	1	1	2	0
Peak Hour Factor	0.93	0.93	0.93				0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	268	535	422				0	4912	1214	1	2713	0
Arrive On Green	0.15	0.15	0.15				0.00	0.77	0.77	0.00	0.77	0.00
Sat Flow, veh/h	1774	3539	2787				0	6669	1583	1774	3632	0
Grp Volume(v), veh/h	15	228	332				0	653	532	0	460	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1393				0	1602	1583	1774	1770	0
Q Serve(g_s), s	1.0	7.9	15.5				0.0	3.6	16.0	0.0	4.7	0.0
Cycle Q Clear(g_c), s	1.0	7.9	15.5				0.0	3.6	16.0	0.0	4.7	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	268	535	422				0	4912	1214	1	2713	0
V/C Ratio(X)	0.06	0.43	0.79				0.00	0.13	0.44	0.00	0.17	0.00
Avail Cap(c_a), veh/h	557	1112	875				0	4912	1214	79	2713	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	49.0	52.0	55.2				0.0	4.1	5.5	0.0	4.2	0.0
Incr Delay (d2), s/veh	0.1	0.5	3.3				0.0	0.1	1.2	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	3.9	6.1				0.0	1.6	7.3	0.0	2.3	0.0
LnGrp Delay(d),s/veh	49.1	52.5	58.5				0.0	4.2	6.7	0.0	4.3	0.0
LnGrp LOS	D	D	E					A	A		A	
Approach Vol, veh/h		575						1185			460	
Approach Delay, s/veh		55.9						5.3			4.3	
Approach LOS		E						A			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	0.0	109.0		26.0		109.0						
Change Period (Y+Rc), s	5.5	5.5		5.6		5.5						
Max Green Setting (Gmax), s	6.0	70.0		42.4		81.5						
Max Q Clear Time (g_c+I1), s	0.0	18.0		17.5		6.7						
Green Ext Time (p_c), s	0.0	13.5		2.9		14.0						
Intersection Summary												
HCM 2010 Ctrl Delay			18.2									
HCM 2010 LOS			B									

West Pryor Village
9: W Pryor Rd & Summit Crossing

Peak AM - Phase 1-4&5

8/9/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	209	29	46	2	25	50	85	849	12	84	517	138
Future Volume (vph)	209	29	46	2	25	50	85	849	12	84	517	138
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	200		0	150		150	300		0
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	25			100			75			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.908				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1691	0	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.462			0.702			0.401			0.226		
Satd. Flow (perm)	861	1691	0	1308	1863	1583	747	3539	1583	421	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		52				105			162			162
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		800			358			534			288	
Travel Time (s)		18.2			8.1			10.4			5.6	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	238	33	52	2	28	57	97	965	14	95	588	157
Shared Lane Traffic (%)												
Lane Group Flow (vph)	238	85	0	2	28	57	97	965	14	95	588	157
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			30			30	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2		2	6		6

West Pryor Village
9: W Pryor Rd & Summit Crossing

Peak AM - Phase 1-4&5

8/9/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	12.0	43.0		43.0	43.0	43.0	11.0	31.0	31.0	11.0	31.0	31.0
Total Split (s)	22.0	43.0		43.0	64.0	64.0	13.0	38.0	38.0	11.0	36.0	36.0
Total Split (%)	16.3%	31.9%		31.9%	47.4%	47.4%	9.6%	28.1%	28.1%	8.1%	26.7%	26.7%
Maximum Green (s)	16.0	37.0		37.0	58.0	58.0	8.0	33.0	33.0	6.0	31.0	31.0
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.5	2.5		2.5	2.5	2.5	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		5.0		5.0	5.0	5.0		5.0	5.0		5.0	5.0
Flash Dont Walk (s)		32.0		32.0	32.0	32.0		21.0	21.0		21.0	21.0
Pedestrian Calls (#/hr)		0		0	0	0		0	0		0	0
Act Effect Green (s)	27.3	24.8		12.5	7.7	7.7	90.3	82.4	82.4	93.2	83.9	83.9
Actuated g/C Ratio	0.20	0.18		0.09	0.06	0.06	0.67	0.61	0.61	0.69	0.62	0.62
v/c Ratio	0.85	0.24		0.01	0.27	0.30	0.17	0.45	0.01	0.25	0.27	0.15
Control Delay	75.2	22.9		41.0	66.6	4.5	5.5	12.0	0.0	7.9	12.1	1.5
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	75.2	22.9		41.0	66.6	4.5	5.5	12.0	0.0	7.9	12.1	1.5
LOS	E	C		D	E	A	A	B	A	A	B	A
Approach Delay		61.4			25.3			11.3			9.6	
Approach LOS		E			C			B			A	

Intersection Summary

Area Type: Other

Cycle Length: 135

Actuated Cycle Length: 135

Offset: 31 (23%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 130

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 18.2

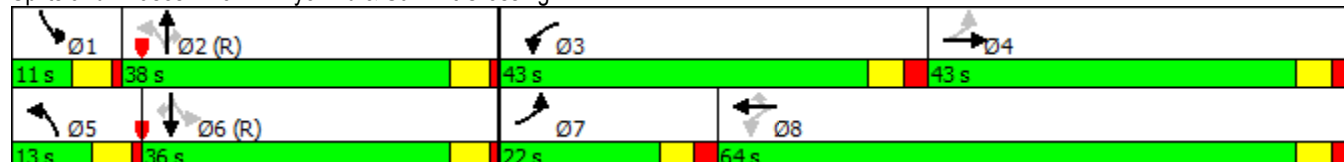
Intersection LOS: B

Intersection Capacity Utilization 60.0%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 9: W Pryor Rd & Summit Crossing





Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	238	85	2	28	57	97	965	14	95	588	157
v/c Ratio	0.85	0.24	0.01	0.27	0.30	0.17	0.45	0.01	0.25	0.27	0.15
Control Delay	75.2	22.9	41.0	66.6	4.5	5.5	12.0	0.0	7.9	12.1	1.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	75.2	22.9	41.0	66.6	4.5	5.5	12.0	0.0	7.9	12.1	1.5
Queue Length 50th (ft)	190	23	1	24	0	17	244	0	24	112	0
Queue Length 95th (ft)	#282	73	8	55	1	29	276	m0	39	158	14
Internal Link Dist (ft)		720		278			454			208	
Turn Bay Length (ft)			200			150		150	300		
Base Capacity (vph)	281	501	485	800	739	567	2160	1029	384	2198	1045
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.85	0.17	0.00	0.04	0.08	0.17	0.45	0.01	0.25	0.27	0.15

Intersection Summary

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

Queue shown is maximum after two cycles.

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

West Pryor Village
9: W Pryor Rd & Summit Crossing

Peak AM - Phase 1-4&5
8/9/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	209	29	46	2	25	50	85	849	12	84	517	138
Future Volume (veh/h)	209	29	46	2	25	50	85	849	12	84	517	138
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	238	33	52	2	28	57	97	965	14	95	588	157
Adj No. of Lanes	1	1	0	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	319	85	134	206	105	90	517	2190	980	484	2190	980
Arrive On Green	0.12	0.13	0.13	0.04	0.06	0.06	0.09	1.00	1.00	0.04	0.62	0.62
Sat Flow, veh/h	1774	653	1029	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	238	0	85	2	28	57	97	965	14	95	588	157
Grp Sat Flow(s),veh/h/ln	1774	0	1681	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	16.0	0.0	6.2	0.1	1.9	4.8	2.7	0.0	0.0	2.6	10.3	5.7
Cycle Q Clear(g_c), s	16.0	0.0	6.2	0.1	1.9	4.8	2.7	0.0	0.0	2.6	10.3	5.7
Prop In Lane	1.00		0.61	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	319	0	220	206	105	90	517	2190	980	484	2190	980
V/C Ratio(X)	0.75	0.00	0.39	0.01	0.27	0.64	0.19	0.44	0.01	0.20	0.27	0.16
Avail Cap(c_a), veh/h	319	0	461	614	800	680	545	2190	980	486	2190	980
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.5	0.0	53.7	54.6	61.0	62.3	8.2	0.0	0.0	8.2	11.8	10.9
Incr Delay (d2), s/veh	9.3	0.0	1.1	0.0	1.3	7.3	0.2	0.6	0.0	0.2	0.3	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.0	3.0	0.1	1.0	2.3	1.3	0.2	0.0	1.3	5.1	2.6
LnGrp Delay(d),s/veh	60.7	0.0	54.8	54.6	62.3	69.6	8.4	0.6	0.0	8.4	12.1	11.2
LnGrp LOS	E		D	D	E	E	A	A	A	A	B	B
Approach Vol, veh/h		323			87			1076			840	
Approach Delay, s/veh		59.2			66.9			1.3			11.5	
Approach LOS		E			E			A			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.8	88.5	12.0	23.6	10.8	88.5	22.0	13.6				
Change Period (Y+Rc), s	5.0	5.0	6.0	6.0	5.0	5.0	6.0	6.0				
Max Green Setting (Gmax), s	6.0	33.0	37.0	37.0	8.0	31.0	16.0	58.0				
Max Q Clear Time (g_c+l1), s	4.6	2.0	2.1	8.2	4.7	12.3	18.0	6.8				
Green Ext Time (p_c), s	0.0	14.4	0.0	0.8	0.1	10.9	0.0	0.9				
Intersection Summary												
HCM 2010 Ctrl Delay			15.5									
HCM 2010 LOS			B									

West Pryor Village
11: Lowenstein Rd & W Pryor Rd

Peak AM - Phase 1-4&5

8/9/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	261	25	59	17	13	12	171	687	27	12	366	120
Future Volume (vph)	261	25	59	17	13	12	171	687	27	12	366	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	0		150	200		150	215		450
Storage Lanes	2		0	1		0	1		1	1		1
Taper Length (ft)	125			25			100			100		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.895			0.928				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	1667	0	1770	1729	0	1770	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.458			0.357		
Satd. Flow (perm)	3433	1667	0	1770	1729	0	853	3539	1583	665	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		66			13				170			222
Link Speed (mph)		30			25			35			35	
Link Distance (ft)		172			227			220			555	
Travel Time (s)		3.9			6.2			4.3			10.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	290	28	66	19	14	13	190	763	30	13	407	133
Shared Lane Traffic (%)												
Lane Group Flow (vph)	290	94	0	19	27	0	190	763	30	13	407	133
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			30			30	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases							2		2	6		6

Baseline

Synchro 9 Light Report
Page 11

West Pryor Village
11: Lowenstein Rd & W Pryor Rd

Peak AM - Phase 1-4&5

8/9/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	12.5	39.5		12.0	36.5		12.5	30.0	30.0	12.5	32.5	32.5
Total Split (s)	29.0	51.5		14.0	36.5		26.0	55.5	55.5	14.0	43.5	43.5
Total Split (%)	21.5%	38.1%		10.4%	27.0%		19.3%	41.1%	41.1%	10.4%	32.2%	32.2%
Maximum Green (s)	23.0	46.0		8.0	31.0		19.5	50.5	50.5	7.5	38.5	38.5
Yellow Time (s)	3.0	3.5		3.0	3.5		3.5	4.0	4.0	3.5	4.0	4.0
All-Red Time (s)	3.0	2.0		3.0	2.0		3.0	1.0	1.0	3.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	5.5		6.0	5.5		6.5	5.0	5.0	6.5	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		5.0			5.0			5.0	5.0		5.0	5.0
Flash Dont Walk (s)		29.0			26.0			20.0	20.0		20.0	20.0
Pedestrian Calls (#/hr)		0			0			0	0		0	0
Act Effect Green (s)	16.7	19.6		6.9	7.1		97.8	94.3	94.3	87.1	82.5	82.5
Actuated g/C Ratio	0.12	0.15		0.05	0.05		0.72	0.70	0.70	0.65	0.61	0.61
v/c Ratio	0.69	0.32		0.21	0.26		0.28	0.31	0.03	0.03	0.19	0.13
Control Delay	65.0	21.3		66.5	44.7		3.1	4.1	0.0	5.8	7.8	2.1
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.0	21.3		66.5	44.7		3.1	4.1	0.0	5.8	7.8	2.1
LOS	E	C		E	D		A	A	A	A	A	A
Approach Delay		54.3			53.7			3.8			6.3	
Approach LOS		D			D			A			A	

Intersection Summary

Area Type: Other

Cycle Length: 135

Actuated Cycle Length: 135

Offset: 52 (39%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.69

Intersection Signal Delay: 15.5

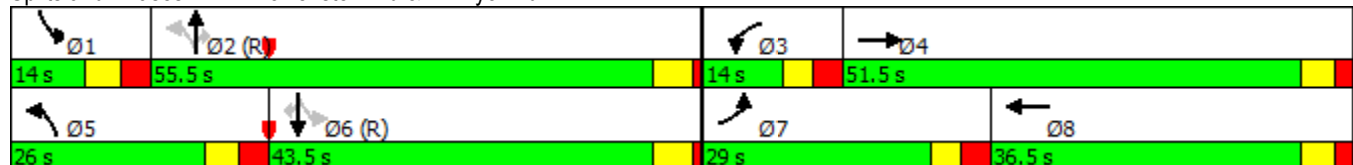
Intersection LOS: B

Intersection Capacity Utilization 52.3%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 11: Lowenstein Rd & W Pryor Rd





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	290	94	19	27	190	763	30	13	407	133
v/c Ratio	0.69	0.32	0.21	0.26	0.28	0.31	0.03	0.03	0.19	0.13
Control Delay	65.0	21.3	66.5	44.7	3.1	4.1	0.0	5.8	7.8	2.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.0	21.3	66.5	44.7	3.1	4.1	0.0	5.8	7.8	2.1
Queue Length 50th (ft)	127	20	16	12	10	20	0	1	82	11
Queue Length 95th (ft)	171	72	43	44	29	178	m0	9	137	43
Internal Link Dist (ft)		92		147		140			475	
Turn Bay Length (ft)	150				200		150	215		450
Base Capacity (vph)	584	611	104	407	750	2471	1156	497	2163	1054
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.15	0.18	0.07	0.25	0.31	0.03	0.03	0.19	0.13

Intersection Summary

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

West Pryor Village
11: Lowenstein Rd & W Pryor Rd

Peak AM - Phase 1-4&5

8/9/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	261	25	59	17	13	12	171	687	27	12	366	120
Future Volume (veh/h)	261	25	59	17	13	12	171	687	27	12	366	120
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	290	28	66	19	14	13	190	763	30	13	407	133
Adj No. of Lanes	2	1	0	1	1	0	1	2	1	1	2	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	353	61	145	40	39	37	692	2356	1054	475	2221	994
Arrive On Green	0.10	0.12	0.12	0.02	0.04	0.04	0.06	0.67	0.67	0.03	1.00	1.00
Sat Flow, veh/h	3442	494	1164	1774	890	827	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	290	0	94	19	0	27	190	763	30	13	407	133
Grp Sat Flow(s),veh/h/ln	1721	0	1657	1774	0	1717	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	11.1	0.0	7.1	1.4	0.0	2.1	5.1	12.4	0.9	0.4	0.0	0.0
Cycle Q Clear(g_c), s	11.1	0.0	7.1	1.4	0.0	2.1	5.1	12.4	0.9	0.4	0.0	0.0
Prop In Lane	1.00		0.70	1.00		0.48	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	353	0	206	40	0	76	692	2356	1054	475	2221	994
V/C Ratio(X)	0.82	0.00	0.46	0.47	0.00	0.36	0.27	0.32	0.03	0.03	0.18	0.13
Avail Cap(c_a), veh/h	586	0	565	105	0	394	851	2356	1054	543	2221	994
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	59.4	0.0	54.9	65.2	0.0	62.6	7.4	9.6	7.7	8.6	0.0	0.0
Incr Delay (d2), s/veh	4.8	0.0	1.6	8.4	0.0	2.8	0.2	0.4	0.1	0.0	0.2	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.6	0.0	3.4	0.8	0.0	1.0	2.5	6.2	0.4	0.2	0.1	0.1
LnGrp Delay(d),s/veh	64.1	0.0	56.5	73.6	0.0	65.5	7.6	10.0	7.7	8.6	0.2	0.3
LnGrp LOS	E		E	E		E	A	A	A	A	A	A
Approach Vol, veh/h		384			46			983			553	
Approach Delay, s/veh		62.2			68.8			9.5			0.4	
Approach LOS		E			E			A			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.8	94.9	9.1	22.3	13.9	89.7	19.9	11.5				
Change Period (Y+Rc), s	6.5	5.0	6.0	5.5	6.5	5.0	6.0	5.5				
Max Green Setting (Gmax), s	7.5	50.5	8.0	46.0	19.5	38.5	23.0	31.0				
Max Q Clear Time (g_c+I1), s	2.4	14.4	3.4	9.1	7.1	2.0	13.1	4.1				
Green Ext Time (p_c), s	0.0	10.5	0.0	0.7	0.4	10.5	0.7	0.7				
Intersection Summary												
HCM 2010 Ctrl Delay			18.6									
HCM 2010 LOS			B									

West Pryor Village
16: Black Twig Rd & Lowenstein Rd

Peak AM - Phase 1-4&5

8/9/2018

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	22	19	20	17	14	7	13	26	33	28	0
Future Volume (vph)	0	22	19	20	17	14	7	13	26	33	28	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.938			0.963			0.924				
Flt Protected					0.981			0.993			0.974	
Satd. Flow (prot)	0	1747	0	0	1760	0	0	1709	0	0	1814	0
Flt Permitted					0.981			0.993			0.974	
Satd. Flow (perm)	0	1747	0	0	1760	0	0	1709	0	0	1814	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		866			1603			379			181	
Travel Time (s)		19.7			36.4			8.6			4.1	
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63
Adj. Flow (vph)	0	35	30	32	27	22	11	21	41	52	44	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	65	0	0	81	0	0	73	0	0	96	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 25.1% ICU Level of Service A

Analysis Period (min) 15

Intersection															
Int Delay, s/veh	6.3														
Movement	SEL	SET	SER		NWL	NWT	NWR		NEL	NET	NER		SWL	SWT	SWR
Lane Configurations		↕				↕				↕				↕	
Traffic Vol, veh/h	0	22	19		20	17	14		7	13	26		33	28	0
Future Vol, veh/h	0	22	19		20	17	14		7	13	26		33	28	0
Conflicting Peds, #/hr	0	0	0		0	0	0		0	0	0		0	0	0
Sign Control	Free	Free	Free		Free	Free	Free		Stop	Stop	Stop		Stop	Stop	Stop
RT Channelized	-	-	None		-	-	None		-	-	None		-	-	None
Storage Length	-	-	-		-	-	-		-	-	-		-	-	-
Veh in Median Storage, #	-	0	-		-	0	-		-	0	-		-	0	-
Grade, %	-	0	-		-	0	-		-	0	-		-	0	-
Peak Hour Factor	63	63	63		63	63	63		63	63	63		63	63	63
Heavy Vehicles, %	2	2	2		2	2	2		2	2	2		2	2	2
Mvmt Flow	0	35	30		32	27	22		11	21	41		52	44	0
Major/Minor	Major1				Major2				Minor1				Minor2		
Conflicting Flow All	49	0	0		65	0	0		174	163	50		183	167	38
Stage 1	-	-	-		-	-	-		50	50	-		102	102	-
Stage 2	-	-	-		-	-	-		124	113	-		81	65	-
Critical Hdwy	4.12	-	-		4.12	-	-		7.12	6.52	6.22		7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-		-	-	-		6.12	5.52	-		6.12	5.52	-
Critical Hdwy Stg 2	-	-	-		-	-	-		6.12	5.52	-		6.12	5.52	-
Follow-up Hdwy	2.218	-	-		2.218	-	-		3.518	4.018	3.318		3.518	4.018	3.318
Pot Cap-1 Maneuver	1558	-	-		1537	-	-		789	729	1018		778	726	1034
Stage 1	-	-	-		-	-	-		963	853	-		904	811	-
Stage 2	-	-	-		-	-	-		880	802	-		927	841	-
Platoon blocked, %		-	-			-	-								
Mov Cap-1 Maneuver	1558	-	-		1537	-	-		739	714	1018		718	711	1034
Mov Cap-2 Maneuver	-	-	-		-	-	-		739	714	-		718	711	
Stage 1	-	-	-		-	-	-		963	853	-		904	794	-
Stage 2	-	-	-		-	-	-		813	785	-		868	841	-
Approach	SE				NW				NE				SW		
HCM Control Delay, s	0				2.9				9.6				10.8		
HCM LOS									A				B		
Minor Lane/Major Mvmt	NELn1	NWL	NWT	NWR	SEL	SET	SERSWLn1								
Capacity (veh/h)	864	1537	-	-	1558	-	-	715							
HCM Lane V/C Ratio	0.085	0.021	-	-	-	-	-	0.135							
HCM Control Delay (s)	9.6	7.4	0	-	0	-	-	10.8							
HCM Lane LOS	A	A	A	-	A	-	-	B							
HCM 95th %tile Q(veh)	0.3	0.1	-	-	0	-	-	0.5							

West Pryor Village
18: Chipman Rd & W Pryor Rd

Peak AM - Phase 1-4&5

8/9/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	119	247	83	84	87	80	36	684	127	78	326	54
Future Volume (vph)	119	247	83	84	87	80	36	684	127	78	326	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	200		170	170		0	260		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	70			100			80			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.962				0.850		0.976			0.979	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3405	0	1770	3539	1583	1770	3454	0	1770	3465	0
Flt Permitted	0.669			0.291			0.505			0.246		
Satd. Flow (perm)	1246	3405	0	542	3539	1583	941	3454	0	458	3465	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		32				113		20			18	
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		651			831			351			533	
Travel Time (s)		12.7			16.2			6.8			10.4	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	131	271	91	92	96	88	40	752	140	86	358	59
Shared Lane Traffic (%)												
Lane Group Flow (vph)	131	362	0	92	96	88	40	892	0	86	417	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			30	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2			6		

Baseline

Synchro 9 Light Report
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West Pryor Village
18: Chipman Rd & W Pryor Rd

Peak AM - Phase 1-4&5

8/9/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Minimum Split (s)	12.0	32.0		12.0	35.0	35.0	12.0	34.0		12.0	34.0	
Total Split (s)	17.0	38.0		17.0	38.0	38.0	13.0	63.0		17.0	67.0	
Total Split (%)	12.6%	28.1%		12.6%	28.1%	28.1%	9.6%	46.7%		12.6%	49.6%	
Maximum Green (s)	11.0	33.0		11.0	33.0	33.0	7.0	58.0		11.0	62.0	
Yellow Time (s)	3.5	4.0		3.5	4.0	4.0	3.5	4.0		3.5	4.0	
All-Red Time (s)	2.5	1.0		2.5	1.0	1.0	2.5	1.0		2.5	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	5.0		6.0	5.0	5.0	6.0	5.0		6.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max		None	None	
Walk Time (s)		5.0			5.0	5.0		5.0			5.0	
Flash Dont Walk (s)		22.0			25.0	25.0		24.0			24.0	
Pedestrian Calls (#/hr)		0			0	0		0			0	
Act Effct Green (s)	28.1	18.5		26.9	17.9	17.9	82.3	76.6		85.9	80.2	
Actuated g/C Ratio	0.21	0.14		0.20	0.13	0.13	0.61	0.57		0.64	0.59	
v/c Ratio	0.44	0.73		0.46	0.20	0.29	0.07	0.45		0.23	0.20	
Control Delay	45.1	59.6		46.8	51.8	6.3	9.6	18.4		13.1	10.7	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	45.1	59.6		46.8	51.8	6.3	9.6	18.4		13.1	10.7	
LOS	D	E		D	D	A	A	B		B	B	
Approach Delay		55.8			35.6			18.0			11.1	
Approach LOS		E			D			B			B	

Intersection Summary

Area Type: Other

Cycle Length: 135

Actuated Cycle Length: 135

Offset: 1 (1%), Referenced to phase 2:NBT, Start of Green

Natural Cycle: 95

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.73

Intersection Signal Delay: 27.1

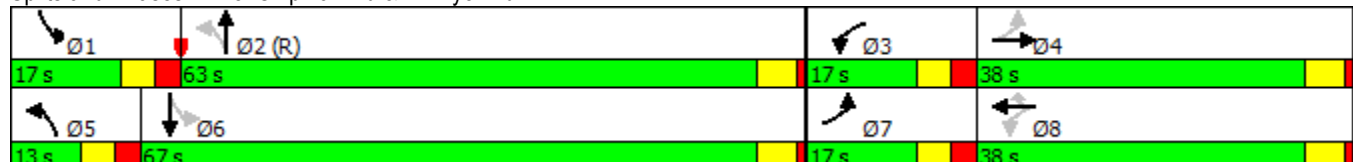
Intersection LOS: C

Intersection Capacity Utilization 59.9%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 18: Chipman Rd & W Pryor Rd





Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	131	362	92	96	88	40	892	86	417
v/c Ratio	0.44	0.73	0.46	0.20	0.29	0.07	0.45	0.23	0.20
Control Delay	45.1	59.6	46.8	51.8	6.3	9.6	18.4	13.1	10.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.1	59.6	46.8	51.8	6.3	9.6	18.4	13.1	10.7
Queue Length 50th (ft)	93	148	64	40	0	12	228	22	74
Queue Length 95th (ft)	144	196	106	65	29	28	318	58	73
Internal Link Dist (ft)		571		751			271		453
Turn Bay Length (ft)	200		200		170	170		260	
Base Capacity (vph)	305	856	211	865	472	621	1967	405	2065
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.42	0.44	0.11	0.19	0.06	0.45	0.21	0.20
Intersection Summary									

West Pryor Village
18: Chipman Rd & W Pryor Rd

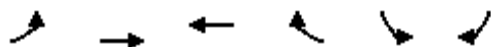
Peak AM - Phase 1-4&5

8/9/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	119	247	83	84	87	80	36	684	127	78	326	54
Future Volume (veh/h)	119	247	83	84	87	80	36	684	127	78	326	54
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	131	271	91	92	96	88	40	752	140	86	358	59
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	1	2	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	303	359	118	192	414	185	650	1785	332	417	1850	302
Arrive On Green	0.08	0.14	0.14	0.06	0.12	0.12	0.03	0.60	0.60	0.04	0.61	0.61
Sat Flow, veh/h	1774	2620	861	1774	3539	1583	1774	2980	555	1774	3047	498
Grp Volume(v), veh/h	131	181	181	92	96	88	40	447	445	86	207	210
Grp Sat Flow(s),veh/h/ln	1774	1770	1711	1774	1770	1583	1774	1770	1765	1774	1770	1775
Q Serve(g_s), s	8.7	13.3	13.8	6.1	3.3	7.0	1.1	18.3	18.3	2.5	7.0	7.1
Cycle Q Clear(g_c), s	8.7	13.3	13.8	6.1	3.3	7.0	1.1	18.3	18.3	2.5	7.0	7.1
Prop In Lane	1.00		0.50	1.00		1.00	1.00		0.31	1.00		0.28
Lane Grp Cap(c), veh/h	303	243	235	192	414	185	650	1060	1057	417	1074	1077
V/C Ratio(X)	0.43	0.75	0.77	0.48	0.23	0.48	0.06	0.42	0.42	0.21	0.19	0.20
Avail Cap(c_a), veh/h	308	433	418	234	865	387	680	1060	1057	486	1074	1077
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.2	56.0	56.2	48.9	54.1	55.7	9.4	14.5	14.5	10.5	11.8	11.8
Incr Delay (d2), s/veh	1.0	4.5	5.3	1.8	0.3	1.9	0.0	1.2	1.2	0.2	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.3	6.8	6.9	3.1	1.6	3.2	0.6	9.3	9.3	1.2	3.4	3.5
LnGrp Delay(d),s/veh	48.2	60.5	61.5	50.8	54.4	57.6	9.5	15.8	15.8	10.8	11.9	11.9
LnGrp LOS	D	E	E	D	D	E	A	B	B	B	B	B
Approach Vol, veh/h		493			276			932			503	
Approach Delay, s/veh		57.6			54.2			15.5			11.7	
Approach LOS		E			D			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.8	85.9	13.9	23.5	10.7	87.0	16.6	20.8				
Change Period (Y+Rc), s	6.0	5.0	6.0	5.0	6.0	5.0	6.0	5.0				
Max Green Setting (Gmax), s	11.0	58.0	11.0	33.0	7.0	62.0	11.0	33.0				
Max Q Clear Time (g_c+l1), s	4.5	20.3	8.1	15.8	3.1	9.1	10.7	9.0				
Green Ext Time (p_c), s	0.1	10.2	0.0	2.7	0.0	10.8	0.0	3.0				
Intersection Summary												
HCM 2010 Ctrl Delay			28.9									
HCM 2010 LOS			C									

West Pryor Village
21: Chipman Rd & Black Twig Rd

Peak AM - Phase 1-4&5
8/9/2018



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	27	271	129	10	44	32
Future Volume (vph)	27	271	129	10	44	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.991		0.943	
Flt Protected	0.950				0.972	
Satd. Flow (prot)	1770	1863	1846	0	1707	0
Flt Permitted	0.950				0.972	
Satd. Flow (perm)	1770	1863	1846	0	1707	0
Link Speed (mph)		35	35		30	
Link Distance (ft)		499	1199		944	
Travel Time (s)		9.7	23.4		21.5	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	31	311	148	11	51	37
Shared Lane Traffic (%)						
Lane Group Flow (vph)	31	311	159	0	88	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 25.3% ICU Level of Service A

Analysis Period (min) 15

Intersection						
Int Delay, s/veh	2.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	27	271	129	10	44	32
Future Vol, veh/h	27	271	129	10	44	32
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	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	31	311	148	11	51	37
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	160	0	-	0	528	154
Stage 1	-	-	-	-	154	-
Stage 2	-	-	-	-	374	-
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	1419	-	-	-	511	892
Stage 1	-	-	-	-	874	-
Stage 2	-	-	-	-	696	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	1419	-	-	-	500	892
Mov Cap-2 Maneuver	-	-	-	-	500	-
Stage 1	-	-	-	-	874	-
Stage 2	-	-	-	-	681	-
Approach	EB		WB		SB	
HCM Control Delay, s	0.7		0		11.8	
HCM LOS					B	
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1419	-	-	-	614	
HCM Lane V/C Ratio	0.022	-	-	-	0.142	
HCM Control Delay (s)	7.6	-	-	-	11.8	
HCM Lane LOS	A	-	-	-	B	
HCM 95th %tile Q(veh)	0.1	-	-	-	0.5	

West Pryor Village
3: Pryor Rd & Rt-In, Rt-Out

Peak PM - Phase 1-3
8/8/2018



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	113	0	739	834	263
Future Volume (vph)	0	113	0	739	834	263
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0			150
Storage Lanes	0	1	0			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.865				0.850
Flt Protected						
Satd. Flow (prot)	0	1611	0	3539	3539	1583
Flt Permitted						
Satd. Flow (perm)	0	1611	0	3539	3539	1583
Link Speed (mph)	30			30	30	
Link Distance (ft)	520			555	534	
Travel Time (s)	11.8			12.6	12.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	123	0	803	907	286
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	123	0	803	907	286
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 36.7% ICU Level of Service A

Analysis Period (min) 15

Intersection						
Int Delay, s/veh	0.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	113	0	739	834	263
Future Vol, veh/h	0	113	0	739	834	263
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	150
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	123	0	803	907	286
Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	453	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	554	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	554	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB		NB		SB	
HCM Control Delay, s	13.3		0		0	
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR		
Capacity (veh/h)	-	554	-	-		
HCM Lane V/C Ratio	-	0.222	-	-		
HCM Control Delay (s)	-	13.3	-	-		
HCM Lane LOS	-	B	-	-		
HCM 95th %tile Q(veh)	-	0.8	-	-		

West Pryor Village
6: I-470 Ramp

Peak PM - Phase 1-3

8/8/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	132	645	0	0	0	0	521	403	4	726	0
Future Volume (vph)	20	132	645	0	0	0	0	521	403	4	726	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		400	0		0	0		311	550		0
Storage Lanes	1		2	0		0	0		1	1		0
Taper Length (ft)	100			25			25			50		
Lane Util. Factor	1.00	0.95	0.88	1.00	1.00	1.00	1.00	0.86	1.00	1.00	0.95	1.00
Frt			0.850						0.850			
Flt Protected	0.950									0.950		
Satd. Flow (prot)	1770	3539	2787	0	0	0	0	6408	1583	1770	3539	0
Flt Permitted	0.950									0.950		
Satd. Flow (perm)	1770	3539	2787	0	0	0	0	6408	1583	1770	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			285						424			
Link Speed (mph)		35			30			35			35	
Link Distance (ft)		297			425			276			300	
Travel Time (s)		5.8			9.7			5.4			5.8	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	21	139	679	0	0	0	0	548	424	4	764	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	21	139	679	0	0	0	0	548	424	4	764	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			30			30	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1					2	1	1	2	
Detector Template	Left	Thru	Right					Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20					100	20	20	100	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Detector 1 Position(ft)	0	0	0					0	0	0	0	
Detector 1 Size(ft)	20	6	20					6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Prot	NA	Perm					NA	Perm	Prot	NA	
Protected Phases	7	4						2		1	6	
Permitted Phases			4						2			

Baseline

Synchro 9 Light Report
Page 3

West Pryor Village
6: I-470 Ramp

Peak PM - Phase 1-3

8/8/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4					2	2	1	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0					6.0	6.0	6.0	6.0	
Minimum Split (s)	11.6	40.6	40.6					35.5	35.5	11.5	41.5	
Total Split (s)	56.0	56.0	56.0					60.0	60.0	14.0	74.0	
Total Split (%)	43.1%	43.1%	43.1%					46.2%	46.2%	10.8%	56.9%	
Maximum Green (s)	50.4	50.4	50.4					54.5	54.5	8.5	68.5	
Yellow Time (s)	3.8	3.8	3.8					4.0	4.0	4.0	4.0	
All-Red Time (s)	1.8	1.8	1.8					1.5	1.5	1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.6	5.6	5.6					5.5	5.5	5.5	5.5	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Recall Mode	None	None	None					C-Max	C-Max	None	None	
Walk Time (s)		5.0	5.0					5.0	5.0		5.0	
Flash Dont Walk (s)		30.0	30.0					25.0	25.0		31.0	
Pedestrian Calls (#/hr)		0	0					0	0		0	
Act Effct Green (s)	22.2	28.2	28.2					88.3	88.3	6.2	90.7	
Actuated g/C Ratio	0.17	0.22	0.22					0.68	0.68	0.05	0.70	
v/c Ratio	0.07	0.18	0.82					0.13	0.35	0.05	0.31	
Control Delay	37.9	40.1	35.7					3.4	0.9	60.2	8.8	
Queue Delay	0.0	0.0	0.0					0.0	0.3	0.0	0.0	
Total Delay	37.9	40.1	35.7					3.4	1.2	60.2	8.8	
LOS	D	D	D					A	A	E	A	
Approach Delay		36.5						2.4			9.1	
Approach LOS		D						A			A	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 35 (27%), Referenced to phase 2:NBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 15.5

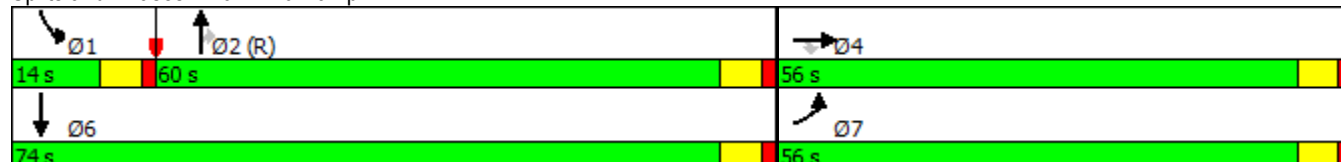
Intersection LOS: B

Intersection Capacity Utilization 51.9%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 6: I-470 Ramp



							
Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	21	139	679	548	424	4	764
v/c Ratio	0.07	0.18	0.82	0.13	0.35	0.05	0.31
Control Delay	37.9	40.1	35.7	3.4	0.9	60.2	8.8
Queue Delay	0.0	0.0	0.0	0.0	0.3	0.0	0.0
Total Delay	37.9	40.1	35.7	3.4	1.2	60.2	8.8
Queue Length 50th (ft)	14	51	188	9	0	3	117
Queue Length 95th (ft)	34	72	242	30	8	16	193
Internal Link Dist (ft)		217		196			220
Turn Bay Length (ft)	200		400		311	550	
Base Capacity (vph)	686	1372	1255	4350	1211	115	2469
Starvation Cap Reductn	0	0	0	0	334	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.10	0.54	0.13	0.48	0.03	0.31
Intersection Summary							

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	132	645	0	0	0	0	521	403	4	726	0
Future Volume (veh/h)	20	132	645	0	0	0	0	521	403	4	726	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863				0	1863	1863	1863	1863	0
Adj Flow Rate, veh/h	21	139	679				0	548	424	4	764	0
Adj No. of Lanes	1	2	2				0	4	1	1	2	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	491	979	771				0	3778	933	11	2258	0
Arrive On Green	0.28	0.28	0.28				0.00	0.59	0.59	0.01	0.64	0.00
Sat Flow, veh/h	1774	3539	2787				0	6669	1583	1774	3632	0
Grp Volume(v), veh/h	21	139	679				0	548	424	4	764	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1393				0	1602	1583	1774	1770	0
Q Serve(g_s), s	1.1	3.8	30.3				0.0	5.0	19.5	0.3	13.0	0.0
Cycle Q Clear(g_c), s	1.1	3.8	30.3				0.0	5.0	19.5	0.3	13.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	491	979	771				0	3778	933	11	2258	0
V/C Ratio(X)	0.04	0.14	0.88				0.00	0.15	0.45	0.36	0.34	0.00
Avail Cap(c_a), veh/h	688	1372	1080				0	3778	933	116	2258	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	34.4	35.4	45.0				0.0	12.0	15.0	64.3	10.9	0.0
Incr Delay (d2), s/veh	0.0	0.1	6.4				0.0	0.1	1.6	18.9	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	1.9	12.4				0.0	2.2	8.9	0.2	6.3	0.0
LnGrp Delay(d),s/veh	34.5	35.5	51.4				0.0	12.1	16.6	83.2	10.9	0.0
LnGrp LOS	C	D	D					B	B	F	B	
Approach Vol, veh/h		839						972			768	
Approach Delay, s/veh		48.4						14.0			11.3	
Approach LOS		D						B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	6.3	82.1		41.6		88.4						
Change Period (Y+Rc), s	5.5	5.5		5.6		5.5						
Max Green Setting (Gmax), s	8.5	54.5		50.4		68.5						
Max Q Clear Time (g_c+I1), s	2.3	21.5		32.3		15.0						
Green Ext Time (p_c), s	0.0	13.6		3.7		15.6						
Intersection Summary												
HCM 2010 Ctrl Delay			24.4									
HCM 2010 LOS			C									

West Pryor Village
9: Pryor Rd & Summit Woods Crossing

Peak PM - Phase 1-3

8/8/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	113	20	49	140	29	234	58	591	85	327	907	151
Future Volume (vph)	113	20	49	140	29	234	58	591	85	327	907	151
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	150		0	150		150	300		150
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	25			100			75			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.893				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1663	0	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.500			0.708			0.284			0.260		
Satd. Flow (perm)	931	1663	0	1319	1863	1583	529	3539	1583	484	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		54				260			210			168
Link Speed (mph)		30			25			35			35	
Link Distance (ft)		589			358			534			288	
Travel Time (s)		13.4			9.8			10.4			5.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	126	22	54	156	32	260	64	657	94	363	1008	168
Shared Lane Traffic (%)												
Lane Group Flow (vph)	126	76	0	156	32	260	64	657	94	363	1008	168
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			30			30	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2		2	6		6

Baseline

Synchro 9 Light Report
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West Pryor Village
9: Pryor Rd & Summit Woods Crossing

Peak PM - Phase 1-3

8/8/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	32.0	43.0		12.0	43.0	43.0	11.0	31.0	31.0	11.0	31.0	31.0
Total Split (s)	32.0	63.0		12.0	43.0	43.0	11.0	31.0	31.0	24.0	44.0	44.0
Total Split (%)	24.6%	48.5%		9.2%	33.1%	33.1%	8.5%	23.8%	23.8%	18.5%	33.8%	33.8%
Maximum Green (s)	26.0	57.0		6.0	37.0	37.0	6.0	26.0	26.0	19.0	39.0	39.0
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.5	2.5		2.5	2.5	2.5	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	21.0	32.0		32.0	32.0	32.0	21.0	21.0	21.0	21.0	21.0	21.0
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0	0	0	0	0
Act Effect Green (s)	27.0	16.8		17.2	9.4	9.4	57.6	50.4	50.4	89.6	79.6	79.6
Actuated g/C Ratio	0.21	0.13		0.13	0.07	0.07	0.44	0.39	0.39	0.69	0.61	0.61
v/c Ratio	0.45	0.29		0.76	0.24	0.73	0.21	0.48	0.13	0.54	0.47	0.16
Control Delay	46.0	20.2		71.1	59.2	19.0	9.9	25.2	1.0	14.2	11.8	0.6
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0
Total Delay	46.0	20.2		71.1	59.2	19.0	9.9	25.2	1.0	14.2	12.1	0.6
LOS	D	C		E	E	B	A	C	A	B	B	A
Approach Delay		36.3			40.0			21.2			11.3	
Approach LOS		D			D			C			B	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 23 (18%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 130

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.76

Intersection Signal Delay: 20.0

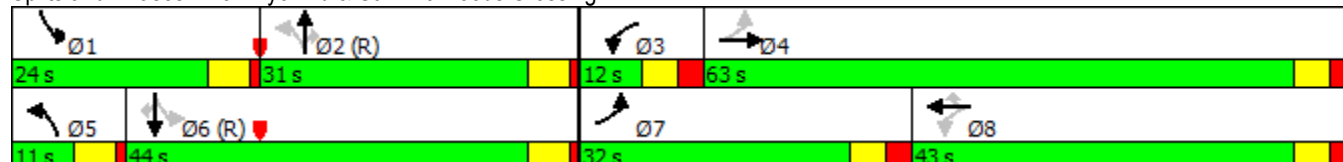
Intersection LOS: B

Intersection Capacity Utilization 62.2%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 9: Pryor Rd & Summit Woods Crossing



West Pryor Village
9: Pryor Rd & Summit Woods Crossing

Peak PM - Phase 1-3

8/8/2018



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	126	76	156	32	260	64	657	94	363	1008	168
v/c Ratio	0.45	0.29	0.76	0.24	0.73	0.21	0.48	0.13	0.54	0.47	0.16
Control Delay	46.0	20.2	71.1	59.2	19.0	9.9	25.2	1.0	14.2	11.8	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0
Total Delay	46.0	20.2	71.1	59.2	19.0	9.9	25.2	1.0	14.2	12.1	0.6
Queue Length 50th (ft)	91	17	115	26	0	12	135	0	72	147	0
Queue Length 95th (ft)	129	56	156	57	82	m44	172	5	212	337	6
Internal Link Dist (ft)		509		278			454			208	
Turn Bay Length (ft)			150			150		150	300		150
Base Capacity (vph)	388	759	205	530	636	303	1372	742	671	2166	1034
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	511	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.32	0.10	0.76	0.06	0.41	0.21	0.48	0.13	0.54	0.61	0.16

Intersection Summary

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

West Pryor Village
9: Pryor Rd & Summit Woods Crossing

Peak PM - Phase 1-3

8/8/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	113	20	49	140	29	234	58	591	85	327	907	151
Future Volume (veh/h)	113	20	49	140	29	234	58	591	85	327	907	151
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	126	22	54	156	32	260	64	657	94	363	1008	168
Adj No. of Lanes	1	1	0	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	372	102	251	369	346	294	292	1580	707	571	1874	839
Arrive On Green	0.07	0.21	0.21	0.05	0.19	0.19	0.08	0.89	0.89	0.12	0.53	0.53
Sat Flow, veh/h	1774	479	1176	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	126	0	76	156	32	260	64	657	94	363	1008	168
Grp Sat Flow(s),veh/h/ln	1774	0	1655	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	7.4	0.0	4.9	6.0	1.9	20.8	2.5	4.1	0.9	13.8	24.4	7.3
Cycle Q Clear(g_c), s	7.4	0.0	4.9	6.0	1.9	20.8	2.5	4.1	0.9	13.8	24.4	7.3
Prop In Lane	1.00		0.71	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	372	0	353	369	346	294	292	1580	707	571	1874	839
V/C Ratio(X)	0.34	0.00	0.22	0.42	0.09	0.89	0.22	0.42	0.13	0.64	0.54	0.20
Avail Cap(c_a), veh/h	596	0	726	369	530	451	300	1580	707	609	1874	839
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.4	0.0	42.1	42.7	43.9	51.6	17.7	4.1	3.9	14.3	20.1	16.1
Incr Delay (d2), s/veh	0.5	0.0	0.3	0.8	0.1	12.7	0.4	0.8	0.4	2.0	1.1	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	0.0	2.3	2.0	1.0	10.1	1.2	2.0	0.4	7.0	12.2	3.3
LnGrp Delay(d),s/veh	38.9	0.0	42.4	43.5	44.0	64.3	18.0	4.9	4.3	16.3	21.2	16.6
LnGrp LOS	D		D	D	D	E	B	A	A	B	C	B
Approach Vol, veh/h		202			448			815			1539	
Approach Delay, s/veh		40.2			55.6			5.8			19.6	
Approach LOS		D			E			A			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	21.2	63.0	12.0	33.7	10.4	73.8	15.6	30.1				
Change Period (Y+Rc), s	5.0	5.0	6.0	6.0	5.0	5.0	6.0	6.0				
Max Green Setting (Gmax), s	19.0	26.0	6.0	57.0	6.0	39.0	26.0	37.0				
Max Q Clear Time (g_c+l1), s	15.8	6.1	8.0	6.9	4.5	26.4	9.4	22.8				
Green Ext Time (p_c), s	0.4	12.4	0.0	1.6	0.0	8.9	0.3	1.3				
Intersection Summary												
HCM 2010 Ctrl Delay			22.6									
HCM 2010 LOS			C									

West Pryor Village
11: Lowenstein Rd & Pryor Rd

Peak PM - Phase 1-3

8/8/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	135	66	108	63	29	34	114	570	42	56	791	105
Future Volume (vph)	135	66	108	63	29	34	114	570	42	56	791	105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	0		0	200		150	215		450
Storage Lanes	2		0	1		0	1		1	1		1
Taper Length (ft)	125			25			100			100		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.907			0.918				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	1690	0	1770	1710	0	1770	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.262			0.400		
Satd. Flow (perm)	3433	1690	0	1770	1710	0	488	3539	1583	745	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		62			37				126			126
Link Speed (mph)		30			25			35			35	
Link Distance (ft)		172			227			220			555	
Travel Time (s)		3.9			6.2			4.3			10.8	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	145	71	116	68	31	37	123	613	45	60	851	113
Shared Lane Traffic (%)												
Lane Group Flow (vph)	145	187	0	68	68	0	123	613	45	60	851	113
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			30			30	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases							2		2	6		6

Baseline

Synchro 9 Light Report
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West Pryor Village
11: Lowenstein Rd & Pryor Rd

Peak PM - Phase 1-3

8/8/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	12.0	39.5		12.0	36.5		12.5	30.0	30.0	12.5	30.0	30.0
Total Split (s)	16.0	41.0		17.0	42.0		18.0	59.0	59.0	13.0	54.0	54.0
Total Split (%)	12.3%	31.5%		13.1%	32.3%		13.8%	45.4%	45.4%	10.0%	41.5%	41.5%
Maximum Green (s)	10.0	35.5		11.0	36.5		11.5	54.0	54.0	6.5	49.0	49.0
Yellow Time (s)	3.0	3.5		3.0	3.5		3.5	4.0	4.0	3.5	4.0	4.0
All-Red Time (s)	3.0	2.0		3.0	2.0		3.0	1.0	1.0	3.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	5.5		6.0	5.5		6.5	5.0	5.0	6.5	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		5.0			5.0			5.0	5.0		5.0	5.0
Flash Dont Walk (s)		29.0			26.0			20.0	20.0		20.0	20.0
Pedestrian Calls (#/hr)		0			0			0	0		0	0
Act Effect Green (s)	9.5	15.4		9.5	15.2		86.1	79.9	79.9	81.4	75.7	75.7
Actuated g/C Ratio	0.07	0.12		0.07	0.12		0.66	0.61	0.61	0.63	0.58	0.58
v/c Ratio	0.58	0.74		0.53	0.29		0.30	0.28	0.04	0.11	0.41	0.12
Control Delay	67.9	52.9		72.8	28.6		5.3	4.6	0.1	5.8	9.2	0.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.9	52.9		72.8	28.6		5.3	4.6	0.1	5.8	9.2	0.3
LOS	E	D		E	C		A	A	A	A	A	A
Approach Delay		59.5			50.7			4.5			8.0	
Approach LOS		E			D			A			A	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 13 (10%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 95

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.74

Intersection Signal Delay: 16.9

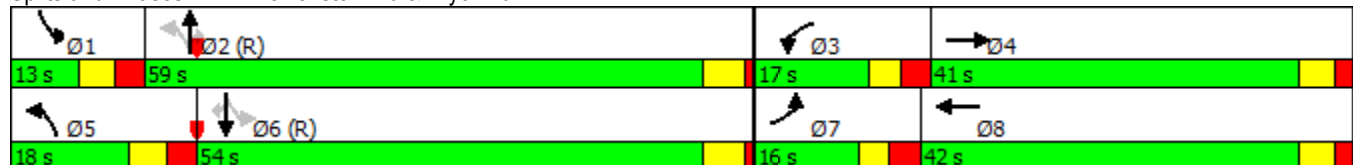
Intersection LOS: B

Intersection Capacity Utilization 62.0%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 11: Lowenstein Rd & Pryor Rd



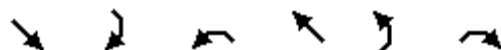


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	145	187	68	68	123	613	45	60	851	113
v/c Ratio	0.58	0.74	0.53	0.29	0.30	0.28	0.04	0.11	0.41	0.12
Control Delay	67.9	52.9	72.8	28.6	5.3	4.6	0.1	5.8	9.2	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.9	52.9	72.8	28.6	5.3	4.6	0.1	5.8	9.2	0.3
Queue Length 50th (ft)	61	103	56	24	11	33	0	10	93	0
Queue Length 95th (ft)	97	176	106	65	30	63	0	m19	118	m1
Internal Link Dist (ft)		92		147		140			475	
Turn Bay Length (ft)	150				200		150	215		450
Base Capacity (vph)	264	506	149	506	443	2175	1021	525	2061	974
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.37	0.46	0.13	0.28	0.28	0.04	0.11	0.41	0.12

Intersection Summary

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

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	135	66	108	63	29	34	114	570	42	56	791	105
Future Volume (veh/h)	135	66	108	63	29	34	114	570	42	56	791	105
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	145	71	116	68	31	37	123	613	45	60	851	113
Adj No. of Lanes	2	1	0	1	1	0	1	2	1	1	2	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	197	86	141	87	98	117	481	2117	947	525	2101	940
Arrive On Green	0.06	0.13	0.13	0.05	0.13	0.13	0.05	0.60	0.60	0.08	1.00	1.00
Sat Flow, veh/h	3442	637	1041	1774	775	925	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	145	0	187	68	0	68	123	613	45	60	851	113
Grp Sat Flow(s),veh/h/ln	1721	0	1679	1774	0	1700	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	5.4	0.0	14.1	4.9	0.0	4.7	3.5	10.9	1.5	1.7	0.0	0.0
Cycle Q Clear(g_c), s	5.4	0.0	14.1	4.9	0.0	4.7	3.5	10.9	1.5	1.7	0.0	0.0
Prop In Lane	1.00		0.62	1.00		0.54	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	197	0	227	87	0	215	481	2117	947	525	2101	940
V/C Ratio(X)	0.74	0.00	0.83	0.78	0.00	0.32	0.26	0.29	0.05	0.11	0.41	0.12
Avail Cap(c_a), veh/h	265	0	458	150	0	477	557	2117	947	541	2101	940
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	60.3	0.0	54.7	61.1	0.0	51.6	9.1	12.7	10.8	9.0	0.0	0.0
Incr Delay (d2), s/veh	7.0	0.0	7.4	14.1	0.0	0.8	0.3	0.3	0.1	0.1	0.6	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	0.0	7.0	2.8	0.0	2.3	1.7	5.5	0.7	0.8	0.2	0.1
LnGrp Delay(d),s/veh	67.3	0.0	62.2	75.2	0.0	52.5	9.4	13.0	10.9	9.1	0.6	0.3
LnGrp LOS	E		E	E		D	A	B	B	A	A	A
Approach Vol, veh/h		332			136			781			1024	
Approach Delay, s/veh		64.4			63.8			12.3			1.0	
Approach LOS		E			E			B			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.8	82.8	12.4	23.0	12.4	82.2	13.4	22.0				
Change Period (Y+Rc), s	6.5	5.0	6.0	5.5	6.5	5.0	6.0	5.5				
Max Green Setting (Gmax), s	6.5	54.0	11.0	35.5	11.5	49.0	10.0	36.5				
Max Q Clear Time (g_c+l1), s	3.7	12.9	6.9	16.1	5.5	2.0	7.4	6.7				
Green Ext Time (p_c), s	0.0	14.6	0.0	1.4	0.1	15.1	0.1	1.6				
Intersection Summary												
HCM 2010 Ctrl Delay			17.9									
HCM 2010 LOS			B									



Lane Group	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Volume (vph)	15	0	56	20	1	35
Future Volume (vph)	15	0	56	20	1	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr t					0.868	
Fl t Protected				0.964	0.999	
Satd. Flow (prot)	1863	0	0	1796	1615	0
Fl t Permitted				0.964	0.999	
Satd. Flow (perm)	1863	0	0	1796	1615	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	866			1603	379	
Travel Time (s)	19.7			36.4	8.6	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	16	0	62	22	1	38
Shared Lane Traffic (%)						
Lane Group Flow (vph)	16	0	0	84	39	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 20.8% ICU Level of Service A

Analysis Period (min) 15

Intersection

Int Delay, s/veh 5.7

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	15	0	56	20	1	35
Future Vol, veh/h	15	0	56	20	1	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	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	0	62	22	1	38

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	16	161
Stage 1	-	-	16
Stage 2	-	-	145
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	-	1602	830
Stage 1	-	-	1007
Stage 2	-	-	882
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	1602	798
Mov Cap-2 Maneuver	-	-	798
Stage 1	-	-	1007
Stage 2	-	-	848

Approach	SE	NW	NE
HCM Control Delay, s	0	5.4	8.6
HCM LOS			A

Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER
Capacity (veh/h)	1053	1602	-	-	-
HCM Lane V/C Ratio	0.038	0.038	-	-	-
HCM Control Delay (s)	8.6	7.3	0	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	0.1	-	-	-

West Pryor Village
18: Chipman Rd & Pryor Rd

Peak PM - Phase 1-3

8/8/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	221	55	268	206	131	73	548	180	185	673	138
Future Volume (vph)	95	221	55	268	206	131	73	548	180	185	673	138
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	200		170	170		0	260		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	70			100			80			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.970				0.850		0.963			0.975	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3433	0	1770	3539	1583	1770	3408	0	1770	3451	0
Flt Permitted	0.616			0.265			0.272			0.248		
Satd. Flow (perm)	1147	3433	0	494	3539	1583	507	3408	0	462	3451	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		21				168		36			23	
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		599			831			351			533	
Travel Time (s)		11.7			16.2			6.8			10.4	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	100	233	58	282	217	138	77	577	189	195	708	145
Shared Lane Traffic (%)												
Lane Group Flow (vph)	100	291	0	282	217	138	77	766	0	195	853	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			30	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2			6		

Baseline

Synchro 9 Light Report
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West Pryor Village
18: Chipman Rd & Pryor Rd

Peak PM - Phase 1-3

8/8/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Minimum Split (s)	12.0	32.0		12.0	35.0	35.0	12.0	34.0		12.0	34.0	
Total Split (s)	12.0	32.0		27.0	47.0	47.0	12.0	47.0		24.0	59.0	
Total Split (%)	9.2%	24.6%		20.8%	36.2%	36.2%	9.2%	36.2%		18.5%	45.4%	
Maximum Green (s)	6.0	27.0		21.0	42.0	42.0	6.0	42.0		18.0	54.0	
Yellow Time (s)	3.5	4.0		3.5	4.0	4.0	3.5	4.0		3.5	4.0	
All-Red Time (s)	2.5	1.0		2.5	1.0	1.0	2.5	1.0		2.5	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	5.0		6.0	5.0	5.0	6.0	5.0		6.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max		None	None	
Walk Time (s)		5.0			5.0	5.0		5.0			5.0	
Flash Dont Walk (s)		22.0			25.0	25.0		24.0			24.0	
Pedestrian Calls (#/hr)		0			0	0		0			0	
Act Effct Green (s)	20.6	15.6		40.4	29.4	29.4	67.2	60.2		76.5	67.0	
Actuated g/C Ratio	0.16	0.12		0.31	0.23	0.23	0.52	0.46		0.59	0.52	
v/c Ratio	0.48	0.68		0.81	0.27	0.28	0.23	0.48		0.49	0.48	
Control Delay	43.2	58.6		54.7	41.4	4.1	14.5	25.4		24.9	20.2	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	43.2	58.6		54.7	41.4	4.1	14.5	25.4		24.9	20.2	
LOS	D	E		D	D	A	B	C		C	C	
Approach Delay		54.7			39.2			24.4			21.1	
Approach LOS		D			D			C			C	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 122 (94%), Referenced to phase 2:NBTL, Start of Green

Natural Cycle: 95

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 30.5

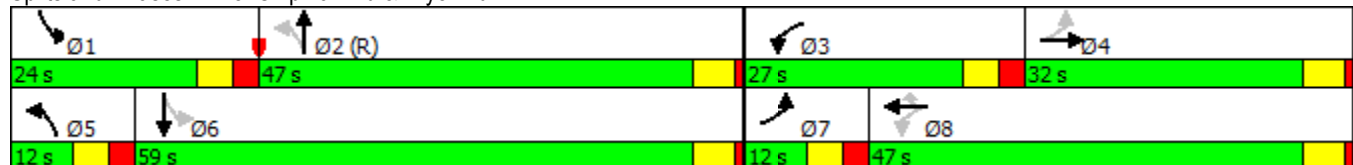
Intersection LOS: C

Intersection Capacity Utilization 71.4%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 18: Chipman Rd & Pryor Rd





Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	100	291	282	217	138	77	766	195	853
v/c Ratio	0.48	0.68	0.81	0.27	0.28	0.23	0.48	0.49	0.48
Control Delay	43.2	58.6	54.7	41.4	4.1	14.5	25.4	24.9	20.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.2	58.6	54.7	41.4	4.1	14.5	25.4	24.9	20.2
Queue Length 50th (ft)	61	116	192	78	0	27	222	66	161
Queue Length 95th (ft)	101	160	#270	111	31	54	318	177	302
Internal Link Dist (ft)		519		751			271		453
Turn Bay Length (ft)	200		200		170	170		260	
Base Capacity (vph)	210	729	359	1143	625	339	1598	456	1788
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.48	0.40	0.79	0.19	0.22	0.23	0.48	0.43	0.48

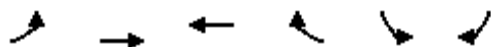
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	95	221	55	268	206	131	73	548	180	185	673	138
Future Volume (veh/h)	95	221	55	268	206	131	73	548	180	185	673	138
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	100	233	58	282	217	138	77	577	189	195	708	145
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	259	338	82	366	795	356	366	1279	418	423	1512	310
Arrive On Green	0.05	0.12	0.12	0.15	0.22	0.22	0.04	0.49	0.49	0.07	0.52	0.52
Sat Flow, veh/h	1774	2822	688	1774	3539	1583	1774	2624	857	1774	2927	599
Grp Volume(v), veh/h	100	144	147	282	217	138	77	389	377	195	428	425
Grp Sat Flow(s),veh/h/ln	1774	1770	1741	1774	1770	1583	1774	1770	1711	1774	1770	1757
Q Serve(g_s), s	6.0	10.2	10.5	17.5	6.6	9.6	2.8	18.7	18.8	7.1	20.0	20.1
Cycle Q Clear(g_c), s	6.0	10.2	10.5	17.5	6.6	9.6	2.8	18.7	18.8	7.1	20.0	20.1
Prop In Lane	1.00		0.40	1.00		1.00	1.00		0.50	1.00		0.34
Lane Grp Cap(c), veh/h	259	212	208	366	795	356	366	863	835	423	914	908
V/C Ratio(X)	0.39	0.68	0.70	0.77	0.27	0.39	0.21	0.45	0.45	0.46	0.47	0.47
Avail Cap(c_a), veh/h	259	368	362	384	1143	512	371	863	835	540	914	908
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.0	54.9	55.0	40.2	41.6	42.8	16.1	21.9	21.9	16.0	20.0	20.0
Incr Delay (d2), s/veh	0.9	3.8	4.3	8.9	0.2	0.7	0.3	1.7	1.8	0.8	0.4	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	5.2	5.3	9.4	3.2	4.3	1.4	9.6	9.3	3.5	9.8	9.8
LnGrp Delay(d),s/veh	48.9	58.7	59.3	49.1	41.8	43.5	16.4	23.6	23.7	16.8	20.4	20.4
LnGrp LOS	D	E	E	D	D	D	B	C	C	B	C	C
Approach Vol, veh/h		391			637			843			1048	
Approach Delay, s/veh		56.4			45.4			23.0			19.7	
Approach LOS		E			D			C			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.4	68.4	25.7	20.5	11.6	72.2	12.0	34.2				
Change Period (Y+Rc), s	6.0	5.0	6.0	5.0	6.0	5.0	6.0	5.0				
Max Green Setting (Gmax), s	18.0	42.0	21.0	27.0	6.0	54.0	6.0	42.0				
Max Q Clear Time (g_c+I1), s	9.1	20.8	19.5	12.5	4.8	22.1	8.0	11.6				
Green Ext Time (p_c), s	0.3	10.7	0.1	3.0	0.0	13.0	0.0	3.7				
Intersection Summary												
HCM 2010 Ctrl Delay			31.2									
HCM 2010 LOS			C									

West Pryor Village
22: Chipman Rd & Black Twig Rd

Peak PM - Phase 1-3
8/8/2018



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	11	265	349	31	24	21
Future Volume (vph)	11	265	349	31	24	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.989		0.937	
Flt Protected	0.950				0.974	
Satd. Flow (prot)	1770	1863	1842	0	1700	0
Flt Permitted	0.950				0.974	
Satd. Flow (perm)	1770	1863	1842	0	1700	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		248	1258		980	
Travel Time (s)		5.6	28.6		22.3	
Confl. Peds. (#/hr)	245					
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	12	279	367	33	25	22
Shared Lane Traffic (%)						
Lane Group Flow (vph)	12	279	400	0	47	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane		Yes				
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 30.2% ICU Level of Service A
Analysis Period (min) 15

Intersection

Int Delay, s/veh 1.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	11	265	349	31	24	21
Future Vol, veh/h	11	265	349	31	24	21
Conflicting Peds, #/hr	245	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	279	367	33	25	22

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	645	0	931
Stage 1	-	-	629
Stage 2	-	-	302
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	940	-	296
Stage 1	-	-	531
Stage 2	-	-	750
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	940	-	185
Mov Cap-2 Maneuver	-	-	185
Stage 1	-	-	423
Stage 2	-	-	589

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	23.3
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	940	-	-	-	244
HCM Lane V/C Ratio	0.012	-	-	-	0.194
HCM Control Delay (s)	8.9	-	-	-	23.3
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.7

Summary of All Intervals

Start Time	4:50
End Time	6:00
Total Time (min)	70
Time Recorded (min)	60
# of Intervals	2
# of Recorded Intervals	1
Vehs Entered	4462
Vehs Exited	4469
Starting Vehs	121
Ending Vehs	114
Travel Distance (mi)	1882
Travel Time (hr)	129.0
Total Delay (hr)	60.5
Total Stops	5240
Fuel Used (gal)	88.4

Interval #0 Information Seeding

Start Time	4:50
End Time	5:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	5:00
End Time	6:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Vehs Entered	4462
Vehs Exited	4469
Starting Vehs	121
Ending Vehs	114
Travel Distance (mi)	1882
Travel Time (hr)	129.0
Total Delay (hr)	60.5
Total Stops	5240
Fuel Used (gal)	88.4

Intersection: 3: Pryor Rd & Rt-In, Rt-Out

Movement	EB
Directions Served	R
Maximum Queue (ft)	91
Average Queue (ft)	34
95th Queue (ft)	66
Link Distance (ft)	460
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 6: I-470 Ramp

Movement	EB	EB	EB	EB	EB	NB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	T	R	R	T	T	T	T	R	L	T
Maximum Queue (ft)	94	136	123	217	180	75	90	67	81	115	49	182
Average Queue (ft)	29	86	19	126	74	18	14	8	22	24	5	85
95th Queue (ft)	65	133	71	196	140	60	53	33	62	67	25	152
Link Distance (ft)		241	241			175	175	175	175			276
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	200			400	400					311	550	
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 6: I-470 Ramp

Movement	SB
Directions Served	T
Maximum Queue (ft)	204
Average Queue (ft)	65
95th Queue (ft)	134
Link Distance (ft)	276
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 9: Pryor Rd & Summit Woods Crossing

Movement	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	T	R	L	T	T	R	L	T	T
Maximum Queue (ft)	175	158	250	295	159	89	150	213	200	209	236	237
Average Queue (ft)	87	54	97	45	72	28	66	122	39	123	119	131
95th Queue (ft)	154	121	172	154	127	62	129	215	141	192	209	198
Link Distance (ft)	523	523		280	280		462	462			210	210
Upstream Blk Time (%)				3						1	1	1
Queuing Penalty (veh)				0						0	4	4
Storage Bay Dist (ft)			150			150			150	300		
Storage Blk Time (%)			4				0	9		1	1	5
Queuing Penalty (veh)			1				0	7		3	2	7

Intersection: 9: Pryor Rd & Summit Woods Crossing

Movement	SB
Directions Served	R
Maximum Queue (ft)	200
Average Queue (ft)	29
95th Queue (ft)	85
Link Distance (ft)	
Upstream Blk Time (%)	0
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	150
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 11: Lowenstein Rd & Pryor Rd

Movement	EB	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	L	TR	L	TR	L	T	T	R	L	T	T
Maximum Queue (ft)	58	83	128	132	106	98	105	139	18	314	336	292
Average Queue (ft)	34	48	63	50	43	54	21	56	4	41	76	96
95th Queue (ft)	66	79	96	109	87	94	58	109	16	130	195	213
Link Distance (ft)			85	162	162		145	145			481	481
Upstream Blk Time (%)		1	5					0				
Queuing Penalty (veh)		0	3					0				
Storage Bay Dist (ft)	150	150				200			150	215		
Storage Blk Time (%)		1	5					0			1	
Queuing Penalty (veh)		2	7					0			1	

Intersection: 11: Lowenstein Rd & Pryor Rd

Movement	SB
Directions Served	R
Maximum Queue (ft)	52
Average Queue (ft)	18
95th Queue (ft)	48
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	450
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 16: Black Twig Ln & Lowenstein Rd

Movement	NE
Directions Served	LR
Maximum Queue (ft)	55
Average Queue (ft)	21
95th Queue (ft)	48
Link Distance (ft)	331
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 18: Chipman Rd & Pryor Rd

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	T	R	L	T	TR	L	T
Maximum Queue (ft)	156	157	217	262	234	124	116	74	316	319	166	359
Average Queue (ft)	74	76	84	165	84	64	43	33	176	233	90	113
95th Queue (ft)	130	126	165	256	153	116	78	61	298	361	155	234
Link Distance (ft)		515	515		777	777			304	304		448
Upstream Blk Time (%)									1	4		
Queuing Penalty (veh)									0	0		
Storage Bay Dist (ft)	200			200			170	170			260	
Storage Blk Time (%)				6					7			1
Queuing Penalty (veh)				6					5			2

Intersection: 18: Chipman Rd & Pryor Rd

Movement	SB
Directions Served	TR
Maximum Queue (ft)	381
Average Queue (ft)	131
95th Queue (ft)	257
Link Distance (ft)	448
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 22: Chipman Rd & Black Twig Rd

Movement	EB	SB
Directions Served	L	LR
Maximum Queue (ft)	31	72
Average Queue (ft)	4	28
95th Queue (ft)	20	52
Link Distance (ft)	226	925
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 55

Intersection: 3: W Pryor Rd & Rt-In, Rt-Out

Movement	EB
Directions Served	R
Maximum Queue (ft)	46
Average Queue (ft)	27
95th Queue (ft)	43
Link Distance (ft)	389
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 6: W Pryor Rd & I-470 Ramp

Movement	EB	EB	EB	EB	EB	NB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	T	R	R	T	T	T	T	R	T	T
Maximum Queue (ft)	47	191	120	74	54	68	86	13	39	60	96	136
Average Queue (ft)	16	139	76	62	23	44	33	3	8	45	52	60
95th Queue (ft)	49	208	161	77	57	90	86	12	33	64	92	125
Link Distance (ft)		235	235			172	172	172	172		276	276
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	200			400	400					311		
Storage Blk Time (%)		0										
Queuing Penalty (veh)		0										

Intersection: 9: W Pryor Rd & Summit Crossing

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	TR	T	R	L	T	T	L	T	T	R
Maximum Queue (ft)	204	93	56	30	45	122	186	49	63	111	44
Average Queue (ft)	131	50	35	29	35	72	109	39	45	84	26
95th Queue (ft)	196	89	58	30	54	116	203	57	65	113	41
Link Distance (ft)	728	728	280	280		465	465		206	206	206
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)					150			300			
Storage Blk Time (%)							3				
Queuing Penalty (veh)							0				

Intersection: 11: Lowenstein Rd & W Pryor Rd

Movement	EB	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	L	TR	L	TR	L	T	T	R	L	T	T
Maximum Queue (ft)	58	84	87	45	42	114	168	42	15	24	114	114
Average Queue (ft)	51	61	55	20	26	82	38	16	3	10	32	34
95th Queue (ft)	60	80	89	45	52	125	146	49	13	25	102	104
Link Distance (ft)			85	162	162		145	145			481	481
Upstream Blk Time (%)		0	0				1					
Queuing Penalty (veh)		0	0				6					
Storage Bay Dist (ft)	150	150				200			150	215		
Storage Blk Time (%)		0	0				1					
Queuing Penalty (veh)		0	0				2					

Intersection: 11: Lowenstein Rd & W Pryor Rd

Movement	SB
Directions Served	R
Maximum Queue (ft)	27
Average Queue (ft)	5
95th Queue (ft)	23
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	450
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 16: Black Twig Rd & Lowenstein Rd

Movement	NE	SW
Directions Served	LTR	LTR
Maximum Queue (ft)	52	29
Average Queue (ft)	35	17
95th Queue (ft)	49	41
Link Distance (ft)	330	150
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 18: Chipman Rd & W Pryor Rd

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	T	R	L	T	TR	L	T
Maximum Queue (ft)	71	175	263	49	113	52	71	38	266	250	85	58
Average Queue (ft)	61	132	194	37	77	33	32	20	192	188	40	22
95th Queue (ft)	78	194	285	53	109	64	69	47	264	279	91	59
Link Distance (ft)		567	567		777	777			304	304		448
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	200			200			170	170			260	
Storage Blk Time (%)									12			
Queuing Penalty (veh)									4			

Intersection: 18: Chipman Rd & W Pryor Rd

Movement	SB
Directions Served	TR
Maximum Queue (ft)	75
Average Queue (ft)	33
95th Queue (ft)	71
Link Distance (ft)	448
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 21: Chipman Rd & Black Twig Rd

Movement	SB
Directions Served	LR
Maximum Queue (ft)	31
Average Queue (ft)	24
95th Queue (ft)	45
Link Distance (ft)	886
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 13

West Pryor Village
9: W Pryor Rd & Summit Crossing

Peak AM - Phase 1-4&5 - 2 EB LTs

8/10/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	209	29	46	2	25	50	85	849	12	84	517	138
Future Volume (vph)	209	29	46	2	25	50	85	849	12	84	517	138
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	200		0	150		150	300		0
Storage Lanes	2		0	1		1	1		1	1		1
Taper Length (ft)	150			100			75			100		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.908				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	1691	0	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.462			0.702			0.405			0.230		
Satd. Flow (perm)	1670	1691	0	1308	1863	1583	754	3539	1583	428	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		52				105			162			162
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		800			358			534			288	
Travel Time (s)		18.2			8.1			10.4			5.6	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	238	33	52	2	28	57	97	965	14	95	588	157
Shared Lane Traffic (%)												
Lane Group Flow (vph)	238	85	0	2	28	57	97	965	14	95	588	157
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			30			30	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2		2	6		6

West Pryor Village
9: W Pryor Rd & Summit Crossing

Peak AM - Phase 1-4&5 - 2 EB LTs

8/10/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	12.0	43.0		43.0	43.0	43.0	11.0	31.0	31.0	11.0	31.0	31.0
Total Split (s)	22.0	43.0		43.0	64.0	64.0	13.0	38.0	38.0	11.0	36.0	36.0
Total Split (%)	16.3%	31.9%		31.9%	47.4%	47.4%	9.6%	28.1%	28.1%	8.1%	26.7%	26.7%
Maximum Green (s)	16.0	37.0		37.0	58.0	58.0	8.0	33.0	33.0	6.0	31.0	31.0
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.5	2.5		2.5	2.5	2.5	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		5.0		5.0	5.0	5.0		5.0	5.0		5.0	5.0
Flash Dont Walk (s)		32.0		32.0	32.0	32.0		21.0	21.0		21.0	21.0
Pedestrian Calls (#/hr)		0		0	0	0		0	0		0	0
Act Effect Green (s)	25.4	23.0		12.5	7.7	7.7	92.1	84.3	84.3	95.0	85.7	85.7
Actuated g/C Ratio	0.19	0.17		0.09	0.06	0.06	0.68	0.62	0.62	0.70	0.63	0.63
v/c Ratio	0.48	0.26		0.01	0.27	0.30	0.17	0.44	0.01	0.24	0.26	0.15
Control Delay	49.6	23.3		41.0	66.6	4.5	5.3	11.4	0.0	7.6	11.5	1.5
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.6	23.3		41.0	66.6	4.5	5.3	11.4	0.0	7.6	11.5	1.5
LOS	D	C		D	E	A	A	B	A	A	B	A
Approach Delay		42.7			25.3			10.7			9.2	
Approach LOS		D			C			B			A	

Intersection Summary

Area Type: Other

Cycle Length: 135

Actuated Cycle Length: 135

Offset: 31 (23%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 130

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.48

Intersection Signal Delay: 15.2

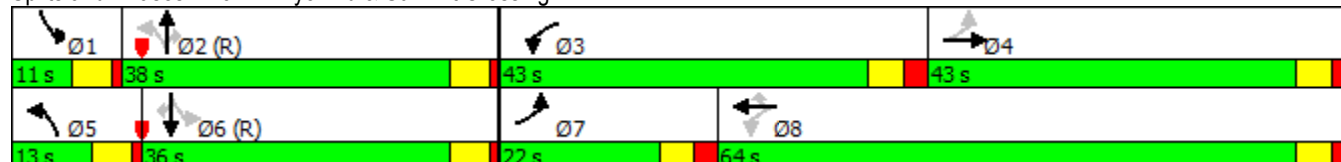
Intersection LOS: B

Intersection Capacity Utilization 54.4%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 9: W Pryor Rd & Summit Crossing



West Pryor Village
9: W Pryor Rd & Summit Crossing

Peak AM - Phase 1-4&5 - 2 EB LTs

8/10/2018

											
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	238	85	2	28	57	97	965	14	95	588	157
v/c Ratio	0.48	0.26	0.01	0.27	0.30	0.17	0.44	0.01	0.24	0.26	0.15
Control Delay	49.6	23.3	41.0	66.6	4.5	5.3	11.4	0.0	7.6	11.5	1.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.6	23.3	41.0	66.6	4.5	5.3	11.4	0.0	7.6	11.5	1.5
Queue Length 50th (ft)	92	24	1	24	0	17	242	0	23	111	0
Queue Length 95th (ft)	124	73	8	55	1	29	276	m0	39	158	14
Internal Link Dist (ft)		720		278			454			208	
Turn Bay Length (ft)	150		200			150		150	300		
Base Capacity (vph)	536	501	485	800	739	581	2208	1048	393	2247	1064
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.44	0.17	0.00	0.04	0.08	0.17	0.44	0.01	0.24	0.26	0.15

Intersection Summary

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

West Pryor Village
9: W Pryor Rd & Summit Crossing

Peak AM - Phase 1-4&5 - 2 EB LTs

8/10/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	209	29	46	2	25	50	85	849	12	84	517	138
Future Volume (veh/h)	209	29	46	2	25	50	85	849	12	84	517	138
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	238	33	52	2	28	57	97	965	14	95	588	157
Adj No. of Lanes	2	1	0	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	493	61	96	191	105	90	549	2322	1039	505	2322	1039
Arrive On Green	0.08	0.09	0.09	0.04	0.06	0.06	0.09	1.00	1.00	0.04	0.66	0.66
Sat Flow, veh/h	3442	653	1029	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	238	0	85	2	28	57	97	965	14	95	588	157
Grp Sat Flow(s),veh/h/ln	1721	0	1681	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	8.6	0.0	6.5	0.1	1.9	4.8	2.4	0.0	0.0	2.3	9.3	5.1
Cycle Q Clear(g_c), s	8.6	0.0	6.5	0.1	1.9	4.8	2.4	0.0	0.0	2.3	9.3	5.1
Prop In Lane	1.00		0.61	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	493	0	157	191	105	90	549	2322	1039	505	2322	1039
V/C Ratio(X)	0.48	0.00	0.54	0.01	0.27	0.64	0.18	0.42	0.01	0.19	0.25	0.15
Avail Cap(c_a), veh/h	622	0	461	598	800	680	577	2322	1039	508	2322	1039
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.1	0.0	58.5	54.6	61.0	62.3	6.5	0.0	0.0	6.4	9.6	8.9
Incr Delay (d2), s/veh	0.7	0.0	2.9	0.0	1.3	7.3	0.2	0.5	0.0	0.2	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.1	0.0	3.1	0.1	1.0	2.3	1.2	0.2	0.0	1.1	4.6	2.3
LnGrp Delay(d),s/veh	53.8	0.0	61.4	54.6	62.3	69.6	6.7	0.5	0.0	6.6	9.8	9.2
LnGrp LOS	D		E	D	E	E	A	A	A	A	A	A
Approach Vol, veh/h		323			87			1076			840	
Approach Delay, s/veh		55.8			66.9			1.1			9.3	
Approach LOS		E			E			A			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.8	93.6	12.0	18.6	10.8	93.6	16.9	13.6				
Change Period (Y+Rc), s	5.0	5.0	6.0	6.0	5.0	5.0	6.0	6.0				
Max Green Setting (Gmax), s	6.0	33.0	37.0	37.0	8.0	31.0	16.0	58.0				
Max Q Clear Time (g_c+I1), s	4.3	2.0	2.1	8.5	4.4	11.3	10.6	6.8				
Green Ext Time (p_c), s	0.0	14.4	0.0	0.8	0.1	11.3	0.4	0.9				
Intersection Summary												
HCM 2010 Ctrl Delay			14.1									
HCM 2010 LOS			B									

West Pryor Village
3: Pryor Rd & Rt-In, Rt-Out

Peak PM - Phase 1-4&5
8/8/2018



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↕	↕	↗
Traffic Volume (vph)	0	128	0	759	868	296
Future Volume (vph)	0	128	0	759	868	296
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0			150
Storage Lanes	0	1	0			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.865				0.850
Flt Protected						
Satd. Flow (prot)	0	1611	0	3539	3539	1583
Flt Permitted						
Satd. Flow (perm)	0	1611	0	3539	3539	1583
Link Speed (mph)	30			30	30	
Link Distance (ft)	520			555	534	
Travel Time (s)	11.8			12.6	12.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	139	0	825	943	322
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	139	0	825	943	322
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			30	30	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 38.6% ICU Level of Service A

Analysis Period (min) 15

Intersection

Int Delay, s/veh 0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	128	0	759	868	296
Future Vol, veh/h	0	128	0	759	868	296
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	150
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	139	0	825	943	322

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	472	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	538	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	538	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	538	-	-
HCM Lane V/C Ratio	-	0.259	-	-
HCM Control Delay (s)	-	14	-	-
HCM Lane LOS	-	B	-	-
HCM 95th %tile Q(veh)	-	1	-	-

West Pryor Village
6: I-470 Ramp

Peak PM - Phase 1-4&5

8/8/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	132	681	0	0	0	0	538	416	4	766	0
Future Volume (vph)	20	132	681	0	0	0	0	538	416	4	766	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		400	0		0	0		311	550		0
Storage Lanes	1		2	0		0	0		1	1		0
Taper Length (ft)	100			25			25			50		
Lane Util. Factor	1.00	0.95	0.88	1.00	1.00	1.00	1.00	0.86	1.00	1.00	0.95	1.00
Frt			0.850						0.850			
Flt Protected	0.950									0.950		
Satd. Flow (prot)	1770	3539	2787	0	0	0	0	6408	1583	1770	3539	0
Flt Permitted	0.950									0.950		
Satd. Flow (perm)	1770	3539	2787	0	0	0	0	6408	1583	1770	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			241						438			
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		297			425			276			300	
Travel Time (s)		6.8			9.7			5.4			5.8	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	21	139	717	0	0	0	0	566	438	4	806	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	21	139	717	0	0	0	0	566	438	4	806	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			30			30	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1					2	1	1	2	
Detector Template	Left	Thru	Right					Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20					100	20	20	100	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Detector 1 Position(ft)	0	0	0					0	0	0	0	
Detector 1 Size(ft)	20	6	20					6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Prot	NA	Perm					NA	Perm	Prot	NA	
Protected Phases	7	4						2		1	6	
Permitted Phases			4						2			

West Pryor Village
6: I-470 Ramp

Peak PM - Phase 1-4&5

8/8/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4					2	2	1	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0					6.0	6.0	6.0	6.0	
Minimum Split (s)	11.6	40.6	40.6					35.5	35.5	11.5	41.5	
Total Split (s)	53.0	53.0	53.0					54.0	54.0	13.0	67.0	
Total Split (%)	44.2%	44.2%	44.2%					45.0%	45.0%	10.8%	55.8%	
Maximum Green (s)	47.4	47.4	47.4					48.5	48.5	7.5	61.5	
Yellow Time (s)	3.8	3.8	3.8					4.0	4.0	4.0	4.0	
All-Red Time (s)	1.8	1.8	1.8					1.5	1.5	1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.6	5.6	5.6					5.5	5.5	5.5	5.5	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Recall Mode	None	None	None					C-Max	C-Max	None	None	
Walk Time (s)		5.0	5.0					5.0	5.0		5.0	
Flash Dont Walk (s)		30.0	30.0					25.0	25.0		31.0	
Pedestrian Calls (#/hr)		0	0					0	0		0	
Act Effect Green (s)	19.0	30.6	30.6					75.8	75.8	6.1	78.3	
Actuated g/C Ratio	0.16	0.26	0.26					0.63	0.63	0.05	0.65	
v/c Ratio	0.07	0.15	0.80					0.14	0.38	0.04	0.35	
Control Delay	35.2	33.1	34.1					4.0	0.9	55.0	10.9	
Queue Delay	0.0	0.0	0.0					0.0	0.2	0.0	0.0	
Total Delay	35.2	33.1	34.1					4.0	1.2	55.0	10.9	
LOS	D	C	C					A	A	D	B	
Approach Delay		34.0						2.7			11.1	
Approach LOS		C						A			B	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 1 (1%), Referenced to phase 2:NBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.80

Intersection Signal Delay: 15.4

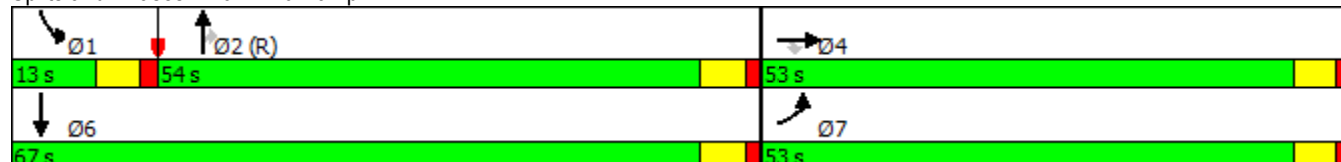
Intersection LOS: B

Intersection Capacity Utilization 54.2%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 6: I-470 Ramp



							
Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	21	139	717	566	438	4	806
v/c Ratio	0.07	0.15	0.80	0.14	0.38	0.04	0.35
Control Delay	35.2	33.1	34.1	4.0	0.9	55.0	10.9
Queue Delay	0.0	0.0	0.0	0.0	0.2	0.0	0.0
Total Delay	35.2	33.1	34.1	4.0	1.2	55.0	10.9
Queue Length 50th (ft)	16	44	203	12	0	3	136
Queue Length 95th (ft)	29	62	250	31	6	15	222
Internal Link Dist (ft)		217		196			220
Turn Bay Length (ft)	200		400		311	550	
Base Capacity (vph)	699	1397	1246	4049	1161	110	2307
Starvation Cap Reductn	0	0	0	0	238	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.10	0.58	0.14	0.47	0.04	0.35
Intersection Summary							

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	132	681	0	0	0	0	538	416	4	766	0
Future Volume (veh/h)	20	132	681	0	0	0	0	538	416	4	766	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863				0	1863	1863	1863	1863	0
Adj Flow Rate, veh/h	21	139	717				0	566	438	4	806	0
Adj No. of Lanes	1	2	2				0	4	1	1	2	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	520	1037	817				0	3604	890	11	2175	0
Arrive On Green	0.29	0.29	0.29				0.00	0.56	0.56	0.01	0.61	0.00
Sat Flow, veh/h	1774	3539	2787				0	6669	1583	1774	3632	0
Grp Volume(v), veh/h	21	139	717				0	566	438	4	806	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1393				0	1602	1583	1774	1770	0
Q Serve(g_s), s	1.0	3.5	29.4				0.0	5.1	20.1	0.3	13.6	0.0
Cycle Q Clear(g_c), s	1.0	3.5	29.4				0.0	5.1	20.1	0.3	13.6	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	520	1037	817				0	3604	890	11	2175	0
V/C Ratio(X)	0.04	0.13	0.88				0.00	0.16	0.49	0.36	0.37	0.00
Avail Cap(c_a), veh/h	701	1398	1101				0	3604	890	111	2175	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	30.3	31.2	40.4				0.0	12.6	15.9	59.4	11.5	0.0
Incr Delay (d2), s/veh	0.0	0.1	6.4				0.0	0.1	1.9	18.7	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	1.7	12.0				0.0	2.3	9.2	0.2	6.6	0.0
LnGrp Delay(d),s/veh	30.4	31.3	46.8				0.0	12.7	17.8	78.0	11.7	0.0
LnGrp LOS	C	C	D					B	B	E	B	
Approach Vol, veh/h		877						1004			810	
Approach Delay, s/veh		44.0						14.9			12.0	
Approach LOS		D						B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	6.2	73.0		40.8		79.2						
Change Period (Y+Rc), s	5.5	5.5		5.6		5.5						
Max Green Setting (Gmax), s	7.5	48.5		47.4		61.5						
Max Q Clear Time (g_c+I1), s	2.3	22.1		31.4		15.6						
Green Ext Time (p_c), s	0.0	13.0		3.8		16.1						
Intersection Summary												
HCM 2010 Ctrl Delay			23.5									
HCM 2010 LOS			C									

West Pryor Village
9: Pryor Rd & Summit Woods Crossing

Peak PM - Phase 1-4&5

8/8/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	123	25	49	140	37	234	58	611	85	327	975	160
Future Volume (vph)	123	25	49	140	37	234	58	611	85	327	975	160
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	150		0	150		150	300		150
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	25			100			75			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.901				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1678	0	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.496			0.704			0.264			0.174		
Satd. Flow (perm)	924	1678	0	1311	1863	1583	492	3539	1583	324	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		54				260			182			182
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		589			358			534			288	
Travel Time (s)		16.1			9.8			10.4			5.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	137	28	54	156	41	260	64	679	94	363	1083	178
Shared Lane Traffic (%)												
Lane Group Flow (vph)	137	82	0	156	41	260	64	679	94	363	1083	178
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			30			30	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2		2	6		6

Baseline

Synchro 9 Light Report
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West Pryor Village
9: Pryor Rd & Summit Woods Crossing

Peak PM - Phase 1-4&5
8/8/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	32.5	43.0		12.0	43.0	43.0	11.0	31.0	31.0	11.0	31.0	31.0
Total Split (s)	32.5	63.5		12.0	43.0	43.0	11.0	31.5	31.5	13.0	33.5	33.5
Total Split (%)	27.1%	52.9%		10.0%	35.8%	35.8%	9.2%	26.3%	26.3%	10.8%	27.9%	27.9%
Maximum Green (s)	26.5	57.5		6.0	37.0	37.0	6.0	26.5	26.5	8.0	28.5	28.5
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.5	2.5		2.5	2.5	2.5	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)	5.0	5.0			5.0	5.0		5.0	5.0		5.0	5.0
Flash Dont Walk (s)	21.0	32.0			32.0	32.0		21.0	21.0		21.0	21.0
Pedestrian Calls (#/hr)	0	0			0	0		0	0		0	0
Act Effect Green (s)	27.0	16.8		17.2	9.4	9.4	41.9	34.7	34.7	79.6	69.6	69.6
Actuated g/C Ratio	0.22	0.14		0.14	0.08	0.08	0.35	0.29	0.29	0.66	0.58	0.58
v/c Ratio	0.45	0.29		0.70	0.28	0.72	0.26	0.66	0.16	0.52	0.53	0.18
Control Delay	41.0	19.8		59.3	55.2	17.6	14.2	44.2	3.8	20.3	13.4	0.8
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.0	19.8		59.3	55.2	17.6	14.2	44.2	3.8	20.3	13.4	0.8
LOS	D	B		E	E	B	B	D	A	C	B	A
Approach Delay		33.0			35.2			37.4			13.5	
Approach LOS		C			D			D			B	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 112 (93%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 130

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.72

Intersection Signal Delay: 24.4

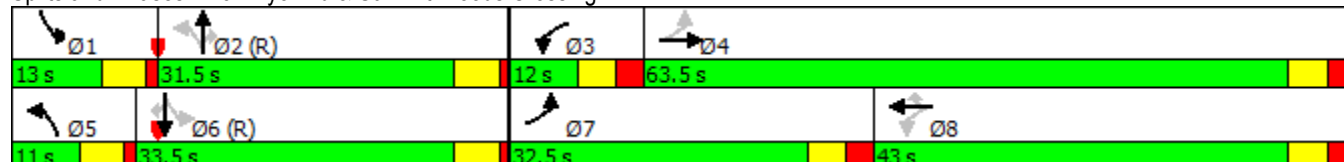
Intersection LOS: C

Intersection Capacity Utilization 62.8%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 9: Pryor Rd & Summit Woods Crossing



West Pryor Village
9: Pryor Rd & Summit Woods Crossing

Peak PM - Phase 1-4&5
8/8/2018

											
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	137	82	156	41	260	64	679	94	363	1083	178
v/c Ratio	0.45	0.29	0.70	0.28	0.72	0.26	0.66	0.16	0.52	0.53	0.18
Control Delay	41.0	19.8	59.3	55.2	17.6	14.2	44.2	3.8	20.3	13.4	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.0	19.8	59.3	55.2	17.6	14.2	44.2	3.8	20.3	13.4	0.8
Queue Length 50th (ft)	89	19	102	31	0	23	206	4	109	218	0
Queue Length 95th (ft)	125	58	141	63	78	m41	199	m11	293	340	20
Internal Link Dist (ft)		509		278			454			208	
Turn Bay Length (ft)			150			150		150	300		150
Base Capacity (vph)	424	832	222	574	667	249	1022	586	696	2051	994
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.32	0.10	0.70	0.07	0.39	0.26	0.66	0.16	0.52	0.53	0.18

Intersection Summary

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

West Pryor Village
9: Pryor Rd & Summit Woods Crossing

Peak PM - Phase 1-4&5
8/8/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	123	25	49	140	37	234	58	611	85	327	975	160
Future Volume (veh/h)	123	25	49	140	37	234	58	611	85	327	975	160
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	137	28	54	156	41	260	64	679	94	363	1083	178
Adj No. of Lanes	1	1	0	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	385	125	241	383	351	298	263	1703	762	448	1783	798
Arrive On Green	0.08	0.22	0.22	0.05	0.19	0.19	0.06	0.64	0.64	0.07	0.50	0.50
Sat Flow, veh/h	1774	570	1099	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	137	0	82	156	41	260	64	679	94	363	1083	178
Grp Sat Flow(s),veh/h/ln	1774	0	1669	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	7.3	0.0	4.8	6.0	2.2	19.1	2.1	11.1	2.8	8.0	26.3	7.5
Cycle Q Clear(g_c), s	7.3	0.0	4.8	6.0	2.2	19.1	2.1	11.1	2.8	8.0	26.3	7.5
Prop In Lane	1.00		0.66	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	385	0	365	383	351	298	263	1703	762	448	1783	798
V/C Ratio(X)	0.36	0.00	0.22	0.41	0.12	0.87	0.24	0.40	0.12	0.81	0.61	0.22
Avail Cap(c_a), veh/h	634	0	800	383	574	488	274	1703	762	448	1783	798
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.8	0.0	38.5	38.6	40.4	47.3	16.5	13.2	11.7	22.9	21.3	16.7
Incr Delay (d2), s/veh	0.6	0.0	0.3	0.7	0.1	9.4	0.5	0.7	0.3	10.7	1.5	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	0.0	2.3	1.6	1.1	9.1	1.1	5.6	1.3	8.4	13.2	3.4
LnGrp Delay(d),s/veh	35.3	0.0	38.8	39.3	40.6	56.7	17.0	13.9	12.0	33.6	22.8	17.3
LnGrp LOS	D		D	D	D	E	B	B	B	C	C	B
Approach Vol, veh/h		219			457			837			1624	
Approach Delay, s/veh		36.6			49.3			13.9			24.6	
Approach LOS		D			D			B			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.0	62.7	12.0	32.3	10.3	65.4	15.7	28.6				
Change Period (Y+Rc), s	5.0	5.0	6.0	6.0	5.0	5.0	6.0	6.0				
Max Green Setting (Gmax), s	8.0	26.5	6.0	57.5	6.0	28.5	26.5	37.0				
Max Q Clear Time (g_c+I1), s	10.0	13.1	8.0	6.8	4.1	28.3	9.3	21.1				
Green Ext Time (p_c), s	0.0	9.7	0.0	1.8	0.0	0.2	0.3	1.5				
Intersection Summary												
HCM 2010 Ctrl Delay			26.2									
HCM 2010 LOS			C									

West Pryor Village
11: Lowenstein Rd & Pryor Rd

Peak PM - Phase 1-4&5

8/8/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	155	71	139	63	38	34	164	570	42	56	806	139
Future Volume (vph)	155	71	139	63	38	34	164	570	42	56	806	139
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	0		0	200		150	215		150
Storage Lanes	2		0	1		0	1		1	1		1
Taper Length (ft)	125			25			100			100		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.901			0.929				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	1678	0	1770	1730	0	1770	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.238			0.408		
Satd. Flow (perm)	3433	1678	0	1770	1730	0	443	3539	1583	760	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		82			37				136			195
Link Speed (mph)		30			25			35			35	
Link Distance (ft)		172			227			220			555	
Travel Time (s)		3.9			6.2			4.3			10.8	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	167	76	149	68	41	37	176	613	45	60	867	149
Shared Lane Traffic (%)												
Lane Group Flow (vph)	167	225	0	68	78	0	176	613	45	60	867	149
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			30			30	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases							2		2	6		6

Baseline

Synchro 9 Light Report
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West Pryor Village
11: Lowenstein Rd & Pryor Rd

Peak PM - Phase 1-4&5

8/8/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	12.0	39.5		12.0	36.5		12.5	30.0	30.0	12.5	30.0	30.0
Total Split (s)	16.0	39.5		14.0	37.5		21.0	53.9	53.9	12.6	45.5	45.5
Total Split (%)	13.3%	32.9%		11.7%	31.3%		17.5%	44.9%	44.9%	10.5%	37.9%	37.9%
Maximum Green (s)	10.0	34.0		8.0	32.0		14.5	48.9	48.9	6.1	40.5	40.5
Yellow Time (s)	3.0	3.5		3.0	3.5		3.5	4.0	4.0	3.5	4.0	4.0
All-Red Time (s)	3.0	2.0		3.0	2.0		3.0	1.0	1.0	3.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	5.5		6.0	5.5		6.5	5.0	5.0	6.5	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		5.0			5.0			5.0	5.0		5.0	5.0
Flash Dont Walk (s)		29.0			26.0			20.0	20.0		20.0	20.0
Pedestrian Calls (#/hr)		0			0			0	0		0	0
Act Effect Green (s)	9.6	16.2		7.6	14.1		78.6	71.0	71.0	70.8	65.1	65.1
Actuated g/C Ratio	0.08	0.14		0.06	0.12		0.66	0.59	0.59	0.59	0.54	0.54
v/c Ratio	0.61	0.76		0.60	0.33		0.43	0.29	0.05	0.12	0.45	0.16
Control Delay	63.3	47.0		76.9	29.8		19.3	14.9	0.9	5.9	10.2	0.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.3	47.0		76.9	29.8		19.3	14.9	0.9	5.9	10.2	0.3
LOS	E	D		E	C		B	B	A	A	B	A
Approach Delay		53.9			51.7			15.1			8.6	
Approach LOS		D			D			B			A	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 115 (96%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 95

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.76

Intersection Signal Delay: 20.6

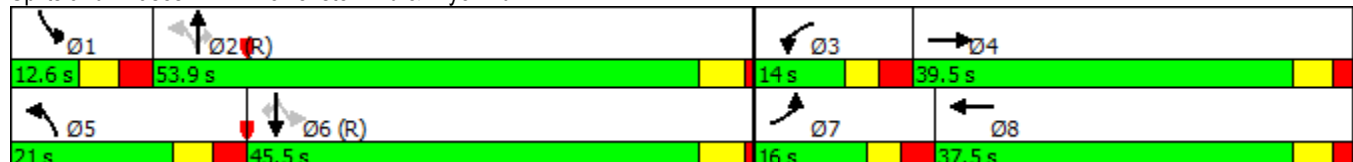
Intersection LOS: C

Intersection Capacity Utilization 67.4%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 11: Lowenstein Rd & Pryor Rd





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	167	225	68	78	176	613	45	60	867	149
v/c Ratio	0.61	0.76	0.60	0.33	0.43	0.29	0.05	0.12	0.45	0.16
Control Delay	63.3	47.0	76.9	29.8	19.3	14.9	0.9	5.9	10.2	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.3	47.0	76.9	29.8	19.3	14.9	0.9	5.9	10.2	0.3
Queue Length 50th (ft)	65	108	52	29	48	92	0	9	100	1
Queue Length 95th (ft)	102	183	#111	71	145	196	m5	m19	125	m1
Internal Link Dist (ft)		92		147		140			475	
Turn Bay Length (ft)	150				200		150	215		150
Base Capacity (vph)	286	534	118	488	460	2092	991	508	1919	947
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.58	0.42	0.58	0.16	0.38	0.29	0.05	0.12	0.45	0.16

Intersection Summary

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

Queue shown is maximum after two cycles.

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

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	155	71	139	63	38	34	164	570	42	56	806	139
Future Volume (veh/h)	155	71	139	63	38	34	164	570	42	56	806	139
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	167	76	149	68	41	37	176	613	45	60	867	149
Adj No. of Lanes	2	1	0	1	1	0	1	2	1	1	2	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	224	91	178	87	131	118	467	1964	878	493	1894	847
Arrive On Green	0.07	0.16	0.16	0.05	0.15	0.15	0.06	0.55	0.55	0.09	1.00	1.00
Sat Flow, veh/h	3442	563	1104	1774	904	815	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	167	0	225	68	0	78	176	613	45	60	867	149
Grp Sat Flow(s),veh/h/ln	1721	0	1668	1774	0	1719	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	5.7	0.0	15.7	4.5	0.0	4.9	5.3	11.2	1.6	1.8	0.0	0.0
Cycle Q Clear(g_c), s	5.7	0.0	15.7	4.5	0.0	4.9	5.3	11.2	1.6	1.8	0.0	0.0
Prop In Lane	1.00		0.66	1.00		0.47	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	224	0	269	87	0	250	467	1964	878	493	1894	847
V/C Ratio(X)	0.75	0.00	0.84	0.78	0.00	0.31	0.38	0.31	0.05	0.12	0.46	0.18
Avail Cap(c_a), veh/h	287	0	473	118	0	458	570	1964	878	507	1894	847
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.1	0.0	48.8	56.4	0.0	45.9	10.8	14.4	12.2	10.9	0.0	0.0
Incr Delay (d2), s/veh	7.7	0.0	6.8	20.5	0.0	0.7	0.5	0.4	0.1	0.1	0.8	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	0.0	7.8	2.7	0.0	2.4	2.6	5.6	0.7	0.8	0.2	0.1
LnGrp Delay(d),s/veh	62.8	0.0	55.6	76.9	0.0	46.6	11.3	14.8	12.3	11.0	0.8	0.5
LnGrp LOS	E		E	E		D	B	B	B	B	A	A
Approach Vol, veh/h		392			146			834			1076	
Approach Delay, s/veh		58.6			60.7			13.9			1.3	
Approach LOS		E			E			B			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.7	71.6	11.9	24.9	14.0	69.2	13.8	22.9				
Change Period (Y+Rc), s	6.5	5.0	6.0	5.5	6.5	5.0	6.0	5.5				
Max Green Setting (Gmax), s	6.1	48.9	8.0	34.0	14.5	40.5	10.0	32.0				
Max Q Clear Time (g_c+I1), s	3.8	13.2	6.5	17.7	7.3	2.0	7.7	6.9				
Green Ext Time (p_c), s	0.0	14.4	0.0	1.7	0.3	14.8	0.1	1.9				
Intersection Summary												
HCM 2010 Ctrl Delay			18.3									
HCM 2010 LOS			B									

West Pryor Village
16: Black Twig Ln & Lowenstein Rd

Peak PM - Phase 1-4&5
8/8/2018

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	25	20	56	27	17	9	17	35	39	35	0
Future Volume (vph)	0	25	20	56	27	17	9	17	35	39	35	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.939			0.977			0.923				
Flt Protected					0.973			0.993			0.974	
Satd. Flow (prot)	0	1749	0	0	1771	0	0	1707	0	0	1814	0
Flt Permitted					0.973			0.993			0.974	
Satd. Flow (perm)	0	1749	0	0	1771	0	0	1707	0	0	1814	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		866			1603			379			362	
Travel Time (s)		19.7			36.4			8.6			8.2	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	0	27	22	62	30	19	10	19	38	43	38	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	49	0	0	111	0	0	67	0	0	81	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization 29.6%	ICU Level of Service A											
Analysis Period (min) 15												

Intersection																			
Int Delay, s/veh	6.5																		
Movement	SEL	SET	SER	NWL			NWT	NWR	NEL			NET	NER	SWL			SWT	SWR	
Lane Configurations		↕						↕			↕						↕		
Traffic Vol, veh/h	0	25	20	56			27	17	9			17	35	39			35	0	
Future Vol, veh/h	0	25	20	56			27	17	9			17	35	39			35	0	
Conflicting Peds, #/hr	0	0	0	0			0	0	0			0	0	0			0	0	
Sign Control	Free	Free	Free	Free			Free	Free	Stop			Stop	Stop	Stop			Stop	Stop	
RT Channelized	-	-	None	-			-	None	-			-	None	-			-	None	
Storage Length	-	-	-	-			-	-	-			-	-	-			-	-	
Veh in Median Storage, #	-	0	-	-			0	-	-			0	-	-			0	-	
Grade, %	-	0	-	-			0	-	-			0	-	-			0	-	
Peak Hour Factor	91	91	91	91			91	91	91			91	91	91			91	91	
Heavy Vehicles, %	2	2	2	2			2	2	2			2	2	2			2	2	
Mvmt Flow	0	27	22	62			30	19	10			19	38	43			38	0	
Major/Minor	Major1			Major2			Minor1			Minor2									
Conflicting Flow All	48	0	0	49			0	0	219			209	38	229			211	39	
Stage 1	-	-	-	-			-	-	38			38	-	162			162	-	
Stage 2	-	-	-	-			-	-	181			171	-	67			49	-	
Critical Hdwy	4.12	-	-	4.12			-	-	7.12			6.52	6.22	7.12			6.52	6.22	
Critical Hdwy Stg 1	-	-	-	-			-	-	6.12			5.52	-	6.12			5.52	-	
Critical Hdwy Stg 2	-	-	-	-			-	-	6.12			5.52	-	6.12			5.52	-	
Follow-up Hdwy	2.218	-	-	2.218			-	-	3.518			4.018	3.318	3.518			4.018	3.318	
Pot Cap-1 Maneuver	1559	-	-	1558			-	-	737			688	1034	726			686	1033	
Stage 1	-	-	-	-			-	-	977			863	-	840			764	-	
Stage 2	-	-	-	-			-	-	821			757	-	943			854	-	
Platoon blocked, %		-	-				-	-											
Mov Cap-1 Maneuver	1559	-	-	1558			-	-	682			660	1034	663			658	1033	
Mov Cap-2 Maneuver	-	-	-	-			-	-	682			660	-	663			658	-	
Stage 1	-	-	-	-			-	-	977			863	-	840			733	-	
Stage 2	-	-	-	-			-	-	746			726	-	888			854	-	
Approach	SE			NW			NE			SW									
HCM Control Delay, s	0			4.1			9.7			11.2									
HCM LOS							A			B									
Minor Lane/Major Mvmt	NELn1	NWL	NWT	NWR	SEL	SET	SERSWLn1												
Capacity (veh/h)	838	1558	-	-	1559	-	-	661											
HCM Lane V/C Ratio	0.08	0.039	-	-	-	-	-	0.123											
HCM Control Delay (s)	9.7	7.4	0	-	0	-	-	11.2											
HCM Lane LOS	A	A	A	-	A	-	-	B											
HCM 95th %tile Q(veh)	0.3	0.1	-	-	0	-	-	0.4											

West Pryor Village
18: Chipman Rd & Pryor Rd

Peak PM - Phase 1-4&5

8/8/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	102	221	55	268	206	139	73	583	180	194	705	143
Future Volume (vph)	102	221	55	268	206	139	73	583	180	194	705	143
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	200		170	170		0	260		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	70			100			80			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00	1.00		1.00		0.99	1.00	1.00		1.00	1.00	
Frt		0.970				0.850		0.965			0.975	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3423	0	1770	3539	1583	1770	3404	0	1770	3437	0
Flt Permitted	0.616			0.275			0.260			0.224		
Satd. Flow (perm)	1145	3423	0	512	3539	1561	484	3404	0	417	3437	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		24				182		35			24	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		599			831			351			533	
Travel Time (s)		13.6			18.9			8.0			12.1	
Confl. Peds. (#/hr)	2		2	2		2	2		2	2		2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	107	233	58	282	217	146	77	614	189	204	742	151
Shared Lane Traffic (%)												
Lane Group Flow (vph)	107	291	0	282	217	146	77	803	0	204	893	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	

Baseline

Synchro 9 Light Report
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West Pryor Village
18: Chipman Rd & Pryor Rd

Peak PM - Phase 1-4&5
8/8/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2			6		
Detector Phase	7	4		3	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Minimum Split (s)	12.0	32.0		12.0	35.0	35.0	12.0	34.0		12.0	34.0	
Total Split (s)	12.0	32.0		23.0	43.0	43.0	12.0	42.0		23.0	53.0	
Total Split (%)	10.0%	26.7%		19.2%	35.8%	35.8%	10.0%	35.0%		19.2%	44.2%	
Maximum Green (s)	6.0	27.0		17.0	38.0	38.0	6.0	37.0		17.0	48.0	
Yellow Time (s)	3.5	4.0		3.5	4.0	4.0	3.5	4.0		3.5	4.0	
All-Red Time (s)	2.5	1.0		2.5	1.0	1.0	2.5	1.0		2.5	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	5.0		6.0	5.0	5.0	6.0	5.0		6.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max		None	None	
Walk Time (s)		5.0			5.0	5.0		5.0			5.0	
Flash Dont Walk (s)		22.0			25.0	25.0		24.0			24.0	
Pedestrian Calls (#/hr)		0			0	0		0			0	
Act Effct Green (s)	19.7	14.7		36.3	25.3	25.3	60.6	53.8		70.9	61.3	
Actuated g/C Ratio	0.16	0.12		0.30	0.21	0.21	0.50	0.45		0.59	0.51	
v/c Ratio	0.49	0.66		0.86	0.29	0.31	0.24	0.52		0.52	0.51	
Control Delay	41.2	53.2		59.7	40.1	4.1	13.7	25.6		21.7	10.7	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	41.2	53.2		59.7	40.1	4.1	13.7	25.6		21.7	10.7	
LOS	D	D		E	D	A	B	C		C	B	
Approach Delay		50.0			40.5			24.5			12.8	
Approach LOS		D			D			C			B	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 8 (7%), Referenced to phase 2:NBTL, Start of Green

Natural Cycle: 95

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 27.0

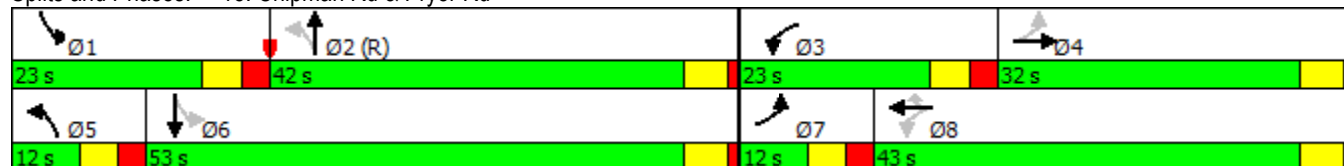
Intersection LOS: C

Intersection Capacity Utilization 76.8%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 18: Chipman Rd & Pryor Rd





Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	107	291	282	217	146	77	803	204	893
v/c Ratio	0.49	0.66	0.86	0.29	0.31	0.24	0.52	0.52	0.51
Control Delay	41.2	53.2	59.7	40.1	4.1	13.7	25.6	21.7	10.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.2	53.2	59.7	40.1	4.1	13.7	25.6	21.7	10.7
Queue Length 50th (ft)	61	105	180	74	0	24	220	36	78
Queue Length 95th (ft)	102	147	#260	106	29	50	328	131	117
Internal Link Dist (ft)		519		751			271		453
Turn Bay Length (ft)	200		200		170	170		260	
Base Capacity (vph)	219	788	332	1120	618	327	1544	445	1767
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.37	0.85	0.19	0.24	0.24	0.52	0.46	0.51

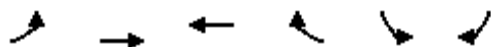
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	102	221	55	268	206	139	73	583	180	194	705	143
Future Volume (veh/h)	102	221	55	268	206	139	73	583	180	194	705	143
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	107	233	58	282	217	146	77	614	189	204	742	151
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	281	368	90	366	786	351	345	1242	382	406	1460	297
Arrive On Green	0.05	0.13	0.13	0.14	0.22	0.22	0.05	0.47	0.47	0.08	0.50	0.50
Sat Flow, veh/h	1774	2820	687	1774	3539	1579	1774	2667	820	1774	2930	596
Grp Volume(v), veh/h	107	144	147	282	217	146	77	407	396	204	448	445
Grp Sat Flow(s),veh/h/ln	1774	1770	1738	1774	1770	1579	1774	1770	1717	1774	1770	1756
Q Serve(g_s), s	6.0	9.3	9.6	16.1	6.1	9.5	2.7	19.1	19.2	7.1	20.4	20.4
Cycle Q Clear(g_c), s	6.0	9.3	9.6	16.1	6.1	9.5	2.7	19.1	19.2	7.1	20.4	20.4
Prop In Lane	1.00		0.40	1.00		1.00	1.00		0.48	1.00		0.34
Lane Grp Cap(c), veh/h	281	231	227	366	786	351	345	824	800	406	882	875
V/C Ratio(X)	0.38	0.63	0.65	0.77	0.28	0.42	0.22	0.49	0.49	0.50	0.51	0.51
Avail Cap(c_a), veh/h	281	398	391	366	1121	500	352	824	800	518	882	875
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.9	49.4	49.5	36.8	38.7	40.0	16.2	22.2	22.2	16.3	20.2	20.2
Incr Delay (d2), s/veh	0.9	2.8	3.1	9.7	0.2	0.8	0.3	2.1	2.2	1.0	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	4.7	4.8	8.8	3.0	4.2	1.3	9.8	9.6	3.5	10.1	10.0
LnGrp Delay(d),s/veh	43.7	52.2	52.6	46.5	38.9	40.8	16.6	24.3	24.4	17.2	20.7	20.7
LnGrp LOS	D	D	D	D	D	D	B	C	C	B	C	C
Approach Vol, veh/h		398			645			880			1097	
Approach Delay, s/veh		50.1			42.6			23.7			20.1	
Approach LOS		D			D			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.4	60.9	23.0	20.7	11.5	64.8	12.0	31.7				
Change Period (Y+Rc), s	6.0	5.0	6.0	5.0	6.0	5.0	6.0	5.0				
Max Green Setting (Gmax), s	17.0	37.0	17.0	27.0	6.0	48.0	6.0	38.0				
Max Q Clear Time (g_c+l1), s	9.1	21.2	18.1	11.6	4.7	22.4	8.0	11.5				
Green Ext Time (p_c), s	0.3	9.7	0.0	3.2	0.0	13.1	0.0	3.8				
Intersection Summary												
HCM 2010 Ctrl Delay			29.9									
HCM 2010 LOS			C									

West Pryor Village
22: Chipman Rd & Black Twig Rd

Peak PM - Phase 1-4&5
8/8/2018



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	24	272	354	33	51	49
Future Volume (vph)	24	272	354	33	51	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.988		0.934	
Flt Protected	0.950				0.975	
Satd. Flow (prot)	1770	1863	1840	0	1696	0
Flt Permitted	0.950				0.975	
Satd. Flow (perm)	1770	1863	1840	0	1696	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		248	1258		980	
Travel Time (s)		5.6	28.6		22.3	
Confl. Peds. (#/hr)	245					
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	25	286	373	35	54	52
Shared Lane Traffic (%)						
Lane Group Flow (vph)	25	286	408	0	106	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 33.1% ICU Level of Service A

Analysis Period (min) 15

Intersection

Int Delay, s/veh 4.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	24	272	354	33	51	49
Future Vol, veh/h	24	272	354	33	51	49
Conflicting Peds, #/hr	245	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	25	286	373	35	54	52

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	652	0	972
Stage 1	-	-	635
Stage 2	-	-	337
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	935	-	280
Stage 1	-	-	528
Stage 2	-	-	723
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	935	-	173
Mov Cap-2 Maneuver	-	-	173
Stage 1	-	-	420
Stage 2	-	-	560

Approach	EB	WB	SB
HCM Control Delay, s	0.7	0	32
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	935	-	-	-	236
HCM Lane V/C Ratio	0.027	-	-	-	0.446
HCM Control Delay (s)	9	-	-	-	32
HCM Lane LOS	A	-	-	-	D
HCM 95th %tile Q(veh)	0.1	-	-	-	2.1

Summary of All Intervals

Start Time	4:50
End Time	6:00
Total Time (min)	70
Time Recorded (min)	60
# of Intervals	2
# of Recorded Intervals	1
Vehs Entered	4756
Vehs Exited	4754
Starting Vehs	130
Ending Vehs	132
Travel Distance (mi)	2025
Travel Time (hr)	135.9
Total Delay (hr)	61.0
Total Stops	5916
Fuel Used (gal)	93.0

Interval #0 Information Seeding

Start Time	4:50
End Time	5:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	5:00
End Time	6:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Vehs Entered	4756
Vehs Exited	4754
Starting Vehs	130
Ending Vehs	132
Travel Distance (mi)	2025
Travel Time (hr)	135.9
Total Delay (hr)	61.0
Total Stops	5916
Fuel Used (gal)	93.0

3: Pryor Rd & Rt-In, Rt-Out Performance by movement

Movement	EBR	NBT	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.2	0.0	0.0	0.0	0.0
Total Delay (hr)	0.3	0.3	0.5	0.2	1.2
Total Del/Veh (s)	8.1	1.2	1.8	2.5	2.1
Stop Delay (hr)	0.2	0.0	0.0	0.0	0.3
Stop Del/Veh (s)	7.6	0.1	0.1	0.1	0.5

6: I-470 Ramp Performance by movement

Movement	EBL	EBT	EBR	NBT	NBR	SBL	SBT	All
Denied Delay (hr)	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.2
Denied Del/Veh (s)	2.1	0.2	0.8	0.0	0.0	0.8	0.3	0.3
Total Delay (hr)	0.3	1.9	3.0	0.8	0.2	0.1	2.2	8.5
Total Del/Veh (s)	50.2	40.4	16.0	5.0	1.9	68.6	9.9	11.6
Stop Delay (hr)	0.3	1.7	2.7	0.6	0.1	0.1	1.5	7.0
Stop Del/Veh (s)	48.1	36.7	14.5	3.9	1.1	66.9	6.6	9.6

9: Pryor Rd & Summit Woods Crossing Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.2	0.2	0.2	3.2	0.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	1.5	0.4	0.4	2.1	0.7	0.7	0.3	3.7	0.2	1.6	3.2	0.1
Total Del/Veh (s)	46.5	61.2	25.3	46.8	50.5	10.4	18.9	22.2	6.5	17.4	11.2	3.0
Stop Delay (hr)	1.4	0.4	0.3	1.9	0.6	0.6	0.2	2.9	0.1	1.3	2.3	0.1
Stop Del/Veh (s)	43.5	58.5	24.0	44.1	47.7	9.6	16.5	17.4	4.5	14.6	8.2	2.1

9: Pryor Rd & Summit Woods Crossing Performance by movement

Movement	All
Denied Delay (hr)	0.2
Denied Del/Veh (s)	0.2
Total Delay (hr)	14.7
Total Del/Veh (s)	18.4
Stop Delay (hr)	12.3
Stop Del/Veh (s)	15.4

11: Lowenstein Rd & Pryor Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.5	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	10.3	16.2	11.6	0.2	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	2.3	0.9	0.6	1.0	0.6	0.2	0.9	1.5	0.0	0.2	3.3	0.1
Total Del/Veh (s)	51.5	38.6	18.3	57.3	53.6	19.2	21.0	8.5	2.8	12.7	13.8	3.4
Stop Delay (hr)	2.2	0.8	0.6	1.0	0.6	0.2	0.9	1.2	0.0	0.1	2.3	0.1
Stop Del/Veh (s)	50.9	36.7	18.3	55.4	50.8	19.0	19.1	6.9	2.6	9.8	9.7	1.7

11: Lowenstein Rd & Pryor Rd Performance by movement

Movement	All
Denied Delay (hr)	1.2
Denied Del/Veh (s)	1.9
Total Delay (hr)	11.5
Total Del/Veh (s)	17.6
Stop Delay (hr)	9.9
Stop Del/Veh (s)	15.1

16: Black Twig Ln & Lowenstein Rd Performance by movement

Movement	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0
Total Delay (hr)	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.3
Total Del/Veh (s)	0.7	0.1	3.1	0.6	1.2	5.5	5.5	2.5	4.7	6.6	1.7
Stop Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Stop Del/Veh (s)	0.0	0.0	0.3	0.0	0.0	4.1	2.7	2.4	2.8	3.3	0.7

18: Chipman Rd & Pryor Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.3	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.9	0.0	0.0	3.3	0.3	3.0	3.3	0.4	0.5	0.0	0.0	0.0
Total Delay (hr)	1.2	2.8	0.5	3.1	2.0	0.3	0.5	3.4	0.9	1.3	2.3	0.4
Total Del/Veh (s)	35.1	46.0	32.2	40.7	39.4	7.6	23.8	22.2	18.7	23.6	11.5	9.9
Stop Delay (hr)	1.1	2.6	0.5	2.8	1.9	0.3	0.4	2.7	0.8	1.2	1.7	0.3
Stop Del/Veh (s)	32.2	41.9	30.0	36.3	36.0	6.5	20.7	17.6	15.5	20.6	8.2	7.4

18: Chipman Rd & Pryor Rd Performance by movement

Movement	All
Denied Delay (hr)	0.6
Denied Del/Veh (s)	0.7
Total Delay (hr)	19.0
Total Del/Veh (s)	23.5
Stop Delay (hr)	16.2
Stop Del/Veh (s)	20.0

22: Chipman Rd & Black Twig Rd Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.1
Total Delay (hr)	0.0	0.0	0.2	0.0	0.2	0.0	0.1	0.5
Total Del/Veh (s)	3.3	0.1	1.7	0.9	13.0	0.0	9.4	2.3
Stop Delay (hr)	0.0	0.0	0.0	0.0	0.2	0.0	0.1	0.3
Stop Del/Veh (s)	1.5	0.0	0.0	0.0	10.9	0.0	9.2	1.3

Total Network Performance

Denied Delay (hr)	2.2
Denied Del/Veh (s)	1.7
Total Delay (hr)	58.7
Total Del/Veh (s)	43.3
Stop Delay (hr)	46.7
Stop Del/Veh (s)	34.4

Intersection: 3: Pryor Rd & Rt-In, Rt-Out

Movement	EB
Directions Served	R
Maximum Queue (ft)	66
Average Queue (ft)	35
95th Queue (ft)	60
Link Distance (ft)	451
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 6: I-470 Ramp

Movement	EB	EB	EB	EB	EB	NB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	T	R	R	T	T	T	T	R	L	T
Maximum Queue (ft)	89	197	123	280	256	89	86	66	80	62	29	291
Average Queue (ft)	23	88	25	139	96	21	17	13	24	30	3	129
95th Queue (ft)	57	146	84	237	180	61	60	47	63	62	18	220
Link Distance (ft)		241	241			175	175	175	175			276
Upstream Blk Time (%)				2	1							1
Queuing Penalty (veh)				0	0							0
Storage Bay Dist (ft)	200			400	400					311	550	
Storage Blk Time (%)		0		2	1							1
Queuing Penalty (veh)		0		1	1							0

Intersection: 6: I-470 Ramp

Movement	SB
Directions Served	T
Maximum Queue (ft)	229
Average Queue (ft)	85
95th Queue (ft)	167
Link Distance (ft)	276
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 9: Pryor Rd & Summit Woods Crossing

Movement	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	T	R	L	T	T	R	L	T	T
Maximum Queue (ft)	183	134	240	131	138	59	275	349	200	209	287	284
Average Queue (ft)	90	54	102	40	73	22	98	156	45	115	121	149
95th Queue (ft)	159	106	176	90	112	43	189	282	161	202	220	256
Link Distance (ft)	523	523		280	280		462	462			210	210
Upstream Blk Time (%)										1	1	2
Queuing Penalty (veh)										0	8	14
Storage Bay Dist (ft)			150			150			150	300		
Storage Blk Time (%)			3	0			3	11		1	1	10
Queuing Penalty (veh)			1	0			1	9		4	4	15

Intersection: 9: Pryor Rd & Summit Woods Crossing

Movement	SB	B2	B2
Directions Served	R	T	T
Maximum Queue (ft)	200	81	20
Average Queue (ft)	56	3	1
95th Queue (ft)	174	27	7
Link Distance (ft)		175	175
Upstream Blk Time (%)	0		
Queuing Penalty (veh)	0		
Storage Bay Dist (ft)	150		
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 11: Lowenstein Rd & Pryor Rd

Movement	EB	EB	EB	B12	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	L	TR	T	L	TR	L	T	T	R	L	T
Maximum Queue (ft)	76	84	139	63	111	164	136	165	202	18	70	327
Average Queue (ft)	45	56	79	5	49	49	63	47	81	7	17	128
95th Queue (ft)	71	90	130	28	91	117	110	116	164	20	48	257
Link Distance (ft)			85	382	162	162		145	145			481
Upstream Blk Time (%)	0	4	10			2	1	1	3			
Queuing Penalty (veh)	0	0	10			0	0	2	13			
Storage Bay Dist (ft)	150	150					200			150	215	
Storage Blk Time (%)	0	4	10				1	1	3			1
Queuing Penalty (veh)	0	9	16				2	1	1			1

Intersection: 11: Lowenstein Rd & Pryor Rd

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	326	53
Average Queue (ft)	135	30
95th Queue (ft)	257	55
Link Distance (ft)	481	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		150
Storage Blk Time (%)	4	
Queuing Penalty (veh)	6	

Intersection: 16: Black Twig Ln & Lowenstein Rd

Movement	NW	NE	SW
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	54	50	53
Average Queue (ft)	5	26	27
95th Queue (ft)	28	47	52
Link Distance (ft)	1552	331	331
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 18: Chipman Rd & Pryor Rd

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	T	R	L	T	TR	L	T
Maximum Queue (ft)	117	164	204	265	160	196	86	92	285	319	192	268
Average Queue (ft)	73	85	101	164	78	56	46	44	154	190	80	77
95th Queue (ft)	120	140	164	232	129	123	74	77	253	281	148	172
Link Distance (ft)		524	524		784	784			304	304		447
Upstream Blk Time (%)									0	0		
Queuing Penalty (veh)									0	0		
Storage Bay Dist (ft)	200			200			170	170			260	
Storage Blk Time (%)				4					4			0
Queuing Penalty (veh)				4					3			0

Intersection: 18: Chipman Rd & Pryor Rd

Movement	SB
Directions Served	TR
Maximum Queue (ft)	253
Average Queue (ft)	106
95th Queue (ft)	199
Link Distance (ft)	447
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 22: Chipman Rd & Black Twig Rd

Movement	EB	SB
Directions Served	L	LR
Maximum Queue (ft)	54	117
Average Queue (ft)	6	47
95th Queue (ft)	29	87
Link Distance (ft)	226	924
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 127

Analyst: Lowenstein Drive Study	Intersection: Chipman Rd & Black Twig Lane
Agency: SKW	Jurisdiction: Lee's Summit
Date: 1/11/2017	Units: U.S. Customary
Project ID: Lowenstein Drive Study	Analysis Year: 2016
EW Street: Chipman Road	NS Street: Black Twig Lane

General Information

Major St. Speed (mph): 0	Population: Not less than 10000
Nearest Signal (ft): 0	Coordinated Signal System: N
Crashes per Yr: 0	

School Crossing

Students in Highest Hour: 0
 Adequate Gaps in Period: 0
 Minutes in Period: 0

Roadway Network

Two Major Routes: 0
 Weekend Count: 0
 5-yr Growth Factor: 0

Geometry and Traffic

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	0	1	0	0	0	0	0	0	0
LaneUsage	L	T			TR						LR	

Results

Warrant 1: Eight-Hour Vehicular Volume	[]
1 A. Minimum Vehicular Volumes	[]
1 B. Interruption of Continuous Traffic	[]
1 80% Vehicular --and-- Interruption Volumes	[]
Warrant 2: Four-Hour Vehicular Volume	
2 A. Four-Hour Vehicular Volumes	[]
Warrant 3: Peak Hour	[]
3 A. Peak-Hour Conditions	[]
3 B. Peak-Hour Vehicular Volume Hours Met	[]
Warrant 4: Pedestrian Volume	[]
4 A. Four Hour Volumes	[]
4 B. One-Hour Volumes	[]
Warrant 5: School Crossing	[]
5 A. Student Volumes	[]
5 B. Gaps Same Period	[]
Warrant 6: Coordinated Signal System	
6 Degree of Platooning	[]
Warrant 7: Crash Experience	[]
7 A. Adequate trials of alternatives	[]

Warrant 8: Roadway Network	[]
8 A. Weekday Volume	[]
8 B. Weekend Volume	[]

Warrant 9: Grade Crossing	[]
9 A. Grade Crossing within 140 ft --and--	[]
9 B. Peak-Hour Vehicular Volumes	[]

	Summary										
	Major	Minor	Total	Delay	1A	1A	1B	1B	2	3A	3B
Hours	Volume	Volume	Volume	(Veh-hr)	100%	80%	100%	80%	100%	100%	100%
06-07	262	76	338	0.0	No	No	No	No	No	No	No
07-08	437	76	513	0.0	No	No	No	No	No	No	No
08-09	0	0	0	0.0	No	No	No	No	No	No	No
09-10	0	0	0	0.0	No	No	No	No	No	No	No
10-11	0	0	0	0.0	No	No	No	No	No	No	No
11-12	0	0	0	0.0	No	No	No	No	No	No	No
12-13	0	0	0	0.0	No	No	No	No	No	No	No
13-14	0	0	0	0.0	No	No	No	No	No	No	No
14-15	0	0	0	0.0	No	No	No	No	No	No	No
15-16	0	0	0	0.0	No	No	No	No	No	No	No
16-17	683	100	783	0.0	No	No	No	No	No	No	No
17-18	683	100	783	0.0	No	No	No	No	No	No	No
Total	2065	352	2417		0	0	0	0	0	0	0

Traffic	Volumes (vph)											
	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
	27	150	0	0	75	10	0	0	0	44	0	32
	27	271	0	0	129	10	0	0	0	44	0	32
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	24	272	0	0	354	33	0	0	0	51	0	49
	24	272	0	0	354	33	0	0	0	51	0	49

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HCS7 Two-Way Stop-Control Report

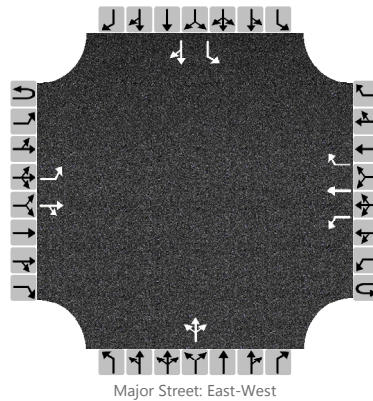
General Information

Analyst	CLB
Agency/Co.	SKW
Date Performed	2/9/2017
Analysis Year	2017
Time Analyzed	Peak AM - Phase 4&5
Intersection Orientation	East-West
Project Description	Lowenstein Drive Development

Site Information

Intersection	Lowenstein and Grocery
Jurisdiction	Lee's Summit
East/West Street	Lowenstein
North/South Street	Grocery/Restaurant Way
Peak Hour Factor	0.92
Analysis Time Period (hrs)	1.00

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	1	0	0	1	1	1		0	1	0		1	1	0
Configuration		L		TR		L	T	R			LTR			L		TR
Volume, V (veh/h)		13	23	0		77	47	180		5	0	49		243	0	30
Percent Heavy Vehicles (%)		3				3				3	3	3		3	3	3
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)																
Critical Headway (sec)																
Base Follow-Up Headway (sec)																
Follow-Up Headway (sec)																

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		14				84					58			264		33
Capacity, c (veh/h)		1312				1581					986			589		1013
v/c Ratio		0.01				0.05					0.06			0.45		0.03
95% Queue Length, Q ₉₅ (veh)		0.0				0.2					0.2			2.4		0.1
Control Delay (s/veh)		7.8				7.4					8.9			16.1		8.7
Level of Service, LOS		A				A					A			C		A
Approach Delay (s/veh)	2.8				1.9				8.9				15.2			
Approach LOS									A				C			

HCS7 Two-Way Stop-Control Report

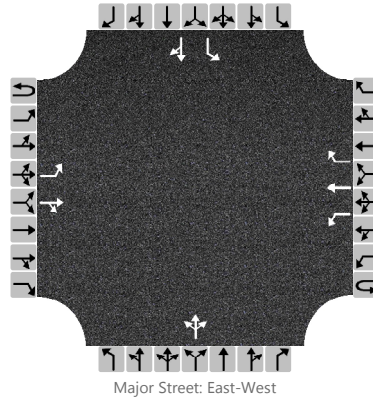
General Information

Analyst	CLB
Agency/Co.	SKW
Date Performed	5/30/18
Analysis Year	2017
Time Analyzed	Peak PM - Phase 4&5
Intersection Orientation	East-West
Project Description	Lowenstein Drive Development

Site Information

Intersection	Lowenstein and Grocery
Jurisdiction	Lee's Summit
East/West Street	Lowenstein
North/South Street	Grocery/Restaurant Way
Peak Hour Factor	0.92
Analysis Time Period (hrs)	1.00

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	1	0	0	1	1	1		0	1	0		1	1	0
Configuration		L		TR		L	T	R			LTR			L		TR
Volume, V (veh/h)		15	99	0		76	143	122		7	0	45		221	0	30
Percent Heavy Vehicles (%)		3				3				3	3	3		3	3	3
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)																
Critical Headway (sec)																
Base Follow-Up Headway (sec)																
Follow-Up Headway (sec)																

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		16				83					57			240		33
Capacity, c (veh/h)		1267				1475					818			440		888
v/c Ratio		0.01				0.06					0.07			0.55		0.04
95% Queue Length, Q ₉₅ (veh)		0.0				0.2					0.2			3.5		0.1
Control Delay (s/veh)		7.9				7.6					9.7			22.9		9.2
Level of Service, LOS		A				A					A			C		A
Approach Delay (s/veh)	1.0				1.7				9.7				21.2			
Approach LOS									A				C			