STAR Bond Development

Traffic Impact Study
Goddard, Kansas

Prepared for:

Kansas Department of Transportation

City of Goddard, Kansas

Prepared by TranSystems

November 2018

TranSystems

EXPERIENCE | Transportation

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November 30, 2018

Kansas Department of Transportation
Ms. Nelda Buckley, P.E.
700 SW Harrison Street
2nd Floor - Tower
Topeka, KS 66603-3745

Re: Traffic Impact Study for the City of Goddard STAR Bond Development
Goddard, Kansas

Dear Ms. Buckley:

The City of Goddard is requesting assistance for a project at 183rd Street and U.S. Highway 400 in Goddard, Kansas. The City of Goddard is building a $50 million STAR Bond project that will be a destination of choice for south-central Kansas and the greater mid-west. The STAR Bond district is expected to generate 400 new jobs, which will only serve to increase traffic counts in an already busy area. This potential road project will enhance safety and navigability for Goddard residents and Kansan's alike.

In response to your request and authorization, TranSystems Corporation has completed a traffic impact study for the proposed STAR Bond Development in Goddard, Kansas. The purpose of this study is to assess the impact of the proposed development on the surrounding transportation system.

Included in this study is a discussion of the anticipated impact of the proposed development on the adjacent street network and identified improvements to mitigate deficiencies for the following development conditions:

- Existing Conditions
- Existing plus Proposed Development Conditions
- Future plus Proposed Development Conditions

We trust that the enclosed information proves beneficial to you in this phase of the development process. We appreciate the opportunity to be of service to you and we will be available to review this study with you at your convenience.

Sincerely,

By: _____
Slade G. Engstrom, PE, PTOE

CC: Brian Silcott, Goddard City Administrator

SGE:ssp:ccb:P125140035

Introduction

TranSystems Corporation has completed a traffic impact study for the proposed STAR Bond Development in Goddard, Kansas. The limits of the study corridor extend from 215th Street on the west of Goddard to 167th Street on the east of Goddard. The basic limits of the proposed development are the area bounded by N. Goddard Road, E. Kellogg Drive, and 183rd Street. The purpose of this study is to assess the impact of the proposed STAR Bond Development on the surrounding transportation system. The study evaluates the increased traffic between the development and US-54 directly adjacent to Kellogg Drive north of the proposed site. The location of the proposed development relative to the major streets in the area is shown on ***Figure A-1*** in ***Appendix A***.

US-54 freeway concept plans have been previously completed to a field check (30%) level though the City of Goddard. Currently, the timeline for the freeway improvements has not been established and funding has not been identified. Included in this study is a discussion of the anticipated traffic growth along the corridor from the proposed STAR bond development and the resulting improvements necessary to mitigate development traffic and maintain traffic operations until US-54 is developed into the planned freeway facility with grade-separated arterials.

Proposed Development Plan

The proposed development will be located south of US-54 (Kellogg) between North Goddard Road and 183rd Street. ***Figures A-1*** and ***A-2*** show the location and site plan of the proposed development and its relationship with the surrounding area. Preliminary and future site layouts are shown on ***Figures A-3*** through ***A-5.*** The Goddard Aquatic Center and Sports Complex is anticipated to be a regional destination attraction with a focus to attract national youth sporting events and tournaments. The development includes an Olympic quality swimming complex operated by the International Swimming Hall of Fame, 150-room full-service hotel with conference facility, four baseball/softball fields, retail and dining.

Study Area

To assess the impacts of the proposed development, several intersections were identified for study during the A.M. and P.M. peak hours. The intersections are located in the immediate area of the site and include:

- 215th Street and US-54;
- Main Street and US-54;
- Cedar Street and US-54;
- 199th Street / N. Goddard Road and US-54;
- Barber Street and US-54;
- 183rd Street and US-54; and
- 167th Street and US-54.

Turning Movement Counts

A.M. and P.M. weekday peak hour traffic volumes were collected at the existing study intersections between November 10 and December 2, 2015, from 7:00 a.m. to 9:00 a.m. and from 4:00 p.m. to 6:00 p.m. In general, the peak hours for all study intersections were determined to be from 7:00 a.m. to 8:00 a.m. and from 4:30 p.m. to 5:30 p.m. The study area includes Eisenhower High School (school hours 7:35 a.m.-2:51 p.m.), Eisenhower Middle School (school hours 7:35 a.m.-2:51 p.m.), Apollo Elementary School (school hours 8:45 a.m.-4:01 p.m.), Explorer Elementary School (school hours 8:45 a.m.-4:01 p.m.), and Discovery Intermediate School (school hours 7:45 a.m.-3:01 p.m.). The weather was generally clear to partly cloudy on all days when counts were recorded. All schools were in session at the time of the counts. The existing lane configurations and traffic control devices, A.M. peak hour traffic volumes and P.M. peak hour traffic volumes are shown on ***Figures A-8*** through ***A-10***, respectively.

Machine Traffic Data Collection

TranSystems placed machine counters at the locations mentioned earlier to determine 24-hour daily approach volumes on these streets over a typical weekday. The counters were in place between Sunday, November 8, 2015, and Sunday, November 22, 2015. The counts were collected in 15-minute intervals and are included in *Figure A-17* and *Appendix B.* The 24-hour traffic volumes recorded at these locations are summarized in *Table 1*.

Table 1
Average Daily Traffic (ADT) Volumes

Location	24-Hour Volume
US-54 and west of 215th Street	12,424
US-54 between Main Street and 199th Street	16,504
US-54 between 199th Street and 183rd Street	17,682
US-54 east of 183rd Street	19,502
199th Street north of US-54	2,275
199th Street south of US-54	4,493
US-54 north frontage road east of 199th Street (W. Kellogg Drive)	1,177
US-54 north frontage road west of 199th Street (W. Kellogg Drive)	1,118
US-54 north frontage access at Barber Street (W. Kellogg Drive)	1,046

Spot Speed Study

As a part of the traffic volume counts, speed data was collected and a speed study was conducted within the project limits, between 199th Street and 183rd Street, to make recommendations as to appropriate speeds for the roadway segment. One of the more important statistics obtained from a spot speed study is the 85th percentile speed. This statistic represents the speed at which 85 percent of the observed vehicles are traveling at or below and is generally regarded as the speed considered reasonable and appropriate by most drivers. Vehicle speeds on US-54 were recorded using a radar speed detecting device. The results of the study for data collected on Wednesday, November 11, 2015 are shown in *Table 2*. Relative frequency distributions for the data have also been prepared and are included in the *Appendix B*.

Table 2
Speed Observations

Intersection Approach	Number of Observations	Posted Speed Limit (mph)	85th Percentile Speed (mph)
Eastbound US-54 between 199th & 183rd Street	125	50	57.7
Westbound US-54 between 199th & 183rd Street	125	60	59.1

The posted speed limit on US-54 is 70 mph west of Goddard and 60 mph east of Goddard except through the City of Goddard. A 50 mph posted speed limit generally occurs in the city limits from east of 215th Street to west of 183rd Street and appear to be appropriate at this time.

Street Network

The proposed site including proposed improvements are shown in *Figure A-3* in *Appendix A.* US-54 is the principal east/west arterial roadway located just north of the proposed site. US-54 is a suburban arterial roadway with two through lanes in both directions and a posted speed limit of 50 mph within the city limits with an open ditch on the north side. US-54 is on the National Highway System (NHS) and is classified as a Class B route per KDOT's route classification. Class B routes are non-interstate routes that serve as the most important statewide and interstate corridors for travel. The long-term goal for this route is full-access control as part of planned corridor.

East Kellogg Drive is an east/west frontage road for US-54 and collector street located immediately north of the proposed development with a posted speed limit of 30 mph. West Kellogg Drive is an east/west frontage road for US-54 and collector with one lane in each direction and a posted speed limit of 30 mph located north of US-54. North Main Street and North Cedar Street are two north/south collector streets with one lane in each direction and a speed limit of 30 mph. North Main Street generally serves as access to the Goddard school complex which includes five schools on the south side of US-54. North Goddard Road/199th Street is the minor north/south arterial street located west of the proposed site with one lane in each direction and a posted speed limit of 40 mph southbound and 30 mph northbound. 183rd Street is a minor north/south arterial street located east of the proposed development with one lane in each direction and a posted speed limit of 40 mph. 167th Street is a minor north/south arterial street with one lane in each direction and a posted speed limit 55 mph both southbound and northbound. 167th Street generally serves as access to the Eisenhower school complex which includes four schools on the north side of US-54. Future improvements include addition of a signalized intersection at US-54 and Barber Street. Barber Street north of US-54 currently serves as an access point to US-54 for the residential neighborhood located to the north of West Kellogg Drive (north frontage road) from Casado Road or Seasons Street.

The existing site plan for the STAR Bond Development includes a new Barber Street connection to US-54 from the south frontage road. Access to the proposed site is provided from the East Kellogg Drive (south frontage road) with traffic accessing the south frontage road from the existing traffic signals at 199th Street and 183rd Street. We recommend direct access from US-54 to the proposed site by connecting Barber Street to US-54. Additionally, construction of offsite mid-mile circulatory roads to improve choices for alternative paths and connections. Planning for future circulatory roads prior to site development is a great opportunity for the City to identify areas needed for right-of-way and reduce associated acquisition costs. In conjunction with the construction of the Barber Street connection, we recommend the realignment of West Kellogg Drive at 183rd Street in order to increase the storage capacity for the southbound approach, improve accessibility to the frontage road, and increase safety at the intersection by removing conflicts within the intersection's influence area. The proposed realignment has been platted prior to this report and is similar to the constructed frontage road south of US-54 at 183rd. The proposed site including future proposed improvements are shown in ***Figure A-5*** in ***Appendix A.***

Surrounding Land Use

The US-54 corridor through the City of Goddard is a developed area type and includes moderate commercial with predominantly retail and restaurant land uses. Agriculture land is located on either end of the corridor and surrounds the City of Goddard. A residential neighborhood, a trailer park, and commercial businesses are located adjacent to the proposed development on the west. Fast food restaurants are located to the west of North Goddard Road. A Walmart is located to the east of the proposed development with access points on 183rd Street and East Kellogg Drive (south frontage road). An industrial area with multiple businesses is located to the south of the proposed development.

Traffic Operation Assessment

The study intersections were evaluated based on the methodologies outlined in the Highway Capacity Manual (HCM), 2010 Edition, published by the Transportation Research Board. The operating conditions at an intersection are graded by the "level of service" experienced by drivers. Level of service (LOS) describes the quality of traffic operating conditions and is rated from "A" to "F". LOS A represents the most desirable condition with free-flow movement of traffic with minimal delays. LOS F generally indicates severely congested conditions with excessive delays to motorists. Intermediate grades of B, C, D, and E reflect incremental increases in the average delay per stopped vehicle. Delay is measured in seconds per vehicle. ***Table 3*** shows the upper limit of delay associated with each level of service for signalized and unsignalized intersections.

Table 3 Intersection Level of Service Delay Thresholds		
Level of Service (LOS)	Signalized	Unsignalized
A	< 10 Seconds	< 10 Seconds
B	< 20 Seconds	< 15 Seconds
C	< 35 Seconds	< 25 Seconds
D	< 55 Seconds	< 35 Seconds
E	< 80 Seconds	< 50 Seconds
F	≥ 80 Seconds	≥ 50 Seconds

While one of the primary measurements of traffic operations, LOS, applies to both signalized and unsignalized intersections, there are significant differences between how these intersections operate and how they are evaluated. LOS for signalized intersections reflects the operation of the intersection as a whole. While the individual movements may operate with varying LOS ratings, that is largely a function of the signal timings and how the intersection is operating relative to other signals in the vicinity. As an example, in a coordinated system of multiple signalized intersections, some minor side-street approaches may have LOS ratings of D, E or even F. This can be the result of the length of time provided to the major movements and do not reflect a condition where the intersection is operating over capacity or is judged to be operating poorly.

Unsignalized intersections, in contrast, are evaluated based on the movement grouping which are required to yield to other traffic. Typically, this is the left turns off of the major street and the side-street approaches for two-way stop-controlled intersections. Lower LOS ratings (D, E and F) do not, in themselves, indicate significant difficulties or the need for additional improvements. Many times there are convenient alternative paths to avoid the longer delays. Other times, the volumes on the unsignalized approaches are relatively minor when compared to the major street traffic.

The decision to install a traffic signal, which is often considered when lower LOS ratings are projected, should be based on engineering studies and the warrants for traffic signal installation as outlined in the Federal Highway Administration's Manual on Uniform Traffic Control Devices. Signals are typically not recommended in locations where there are convenient alternative paths, or the installation of a traffic signal would have negative impacts on the surrounding transportation system. For instance, if the new signalized intersection is located too close to existing traffic signals it may not be recommended despite meeting the minimum warrants.

In addition to delay (and the corresponding Level of Service), a secondary means of evaluation is often utilized to assess the overall capacity of the intersection or unsignalized movement. This evaluation is a ratio of volume to capacity (*v/c*) that reflects, regardless of delay, the ability to accommodate the existing or projected traffic volumes over the course of a peak hour. A *v/c* ratio of 1.00 reflects the capacity of the intersection or movement.

Lastly, traffic queues are evaluated as part of the analyses. Long traffic queues which extend beyond the amount of storage available, either between intersections or within turn lanes, can have significant impacts on operations. The projected vehicular queues are analyzed to ensure the analyses are reflective of the physical constraints of the study intersections and to identify if additional storage is needed for turn lanes.

The LOS rating deemed acceptable varies by community, facility type and traffic control device. In communities similar to the city of Goddard, a LOS D for signalized intersections is often found to be acceptable. However, at unsignalized intersections LOS D, E and above are often accepted for low to moderate traffic volumes where the installation of a traffic signal is not warranted by the conditions at the intersection or the location has been deemed undesirable for signalization for other reasons, e.g. the close proximity of an existing traffic signal or the presence of a convenient alternative path.

The Synchro software package was used to evaluate signalized and stop controlled intersections. Synchro was also used to evaluate the estimated travel time for the US-54 corridor between 215th Street to 167th. Travel time was used as measure of effectiveness (MOE), because the 2010 HCM does not calculate a LOS for non-standard intersection phasing, a condition for a Restricted Crossing U-Turn (RCUT) described later in this report. The US-54 travel time is used as a measure of effectiveness when comparing each condition and is summarized in *Table 13*. In order to calibrate Synchro to real-world conditions, the corridor was driven in both the eastbound and westbound directions from 215th Street to 167th Street on January 4, 2017 during peak hours. The driven travel times were then compared to the Synchro output travel times for existing conditions. Travel times were within one minute of each other and are summarized in *Table 4*. Documented results from the Synchro analysis are based on HCM methodology and have been included in *Appendix E*.

Table 4
Existing Conditions Travel Time Comparison

Average Travel Time	A.M. Peak Hour[1]		P.M. Peak Hour[1]	
	Eastbound	Westbound	Eastbound	Westbound
Driven	4:45	4:28	4:20	4:06
Synchro Analyzed Existing Conditions	5:26	4:50	5:00	4:54

1 – Travel Time in mm:ss

As shown in *Table 4,* the westbound travel times are general lower than eastbound travel times. Currently, a single free signal timing plan is being utilized and is not adjusted for time-of-day or traffic distribution during peak hours. The existing timing plan favors westbound traffic.

Existing Conditions

The results of the intersection analysis for the existing conditions during A.M. and P.M. peak hour are summarized in *Table 5*. The study intersections were evaluated with the lane configurations shown on *Figure A-8*. The existing traffic volumes are shown on *Figures A-9* and *A-10*. *Appendix E* contains the analyses output files from Synchro.
The intersections of East Kellogg Drive/North Cedar Street and East Kellogg Drive/North Goddard Street are not included because the eastbound traffic originates from a parking lot with low traffic volumes and only westbound traffic is stop controlled. Synchro will not evaluate this condition.

Table 5
Intersection Operational Analysis
Existing Conditions

Intersection	A.M. Peak Hour			P.M. Peak Hour		
Movement	LOS[1]	Delay[2]	v/c[3]	LOS[1]	Delay[2]	v/c[3]
US-54 and 215th Street						
Northbound (All Movements)	*C*	*15*	*0.17*	*C*	*22.7*	*0.224*
Eastbound (Left Turn)	*A*	*8.1*	*0.018*	*A*	*9.5*	*0.012*
Westbound (Left Turn)	*A*	*9*	*0.029*	*A*	*8.7*	*0.05*
Southbound (All Movements)	*C*	*19.2*	*0.176*	*D*	*27.7*	*0.161*
US-54 and North Main Street						
Northbound (All Movements)	*D*	*25.3*	*0.457*	*C*	*19.2*	*0.281*
Eastbound (Left Turn)	*A*	*8.5*	*0.007*	*A*	*9.8*	*0.009*
Westbound (Left Turn)	*B*	*10.7*	*0.184*	*A*	*9.2*	*0.076*
Southbound (All Movements)	*F*	*57.8*	*0.493*	*E*	*46.5*	*0.54*
West Kellogg Drive and North Main Street						
Northbound (Left Turn)	*A*	*7.5*	*0.022*	*A*	*7.6*	*0.041*
Eastbound (All Movements)	*B*	*10.2*	*0.052*	*B*	*11.5*	*0.068*
Westbound (All Movements)	*B*	*10.1*	*0.064*	*B*	*12.1*	*0.161*
Southbound (Left Turn)	*A*	*7.5*	*0.025*	*A*	*7.5*	*0.024*

US-54 and North Cedar Street						
Northbound (All Movements)	*C*	*24.4*	*0.154*	*C*	*18.9*	*0.147*
Westbound (Left Turn)	*B*	*10.4*	*0.045*	*A*	*9.3*	*0.029*
US-54 and North Goddard Road/199th Street						
All Movements (Signalized Intersection)	*D*	*37.9*	*1.31**	*D*	*42.5*	*1.27**
West Kellogg Drive and 199th Street						
Northbound (Left Turn)	*A*	*7.7*	*0.017*	*A*	*7.7*	*0.05*
Eastbound (All Movements)	*B*	*10.8*	*0.117*	*B*	*12.1*	*0.151*
Westbound (All Movements)	*B*	*11.4*	*0.025*	*B*	*13.1*	*0.123*
Southbound (Left Turn)	*A*	*7.5*	*0.007*	*A*	*0.0*	*0.0*
US-54 and North Barber Street						
Eastbound (Left Turn)	*A*	*9.4*	*0.013*	*B*	*11.2*	*0.045*
Southbound (All Movements)	*C*	*24.4*	*0.224*	*E*	*35.1*	*0.242*
West Kellogg Drive and North Barber Street						
Northbound (Left Turn)	*A*	*7.4*	*0.007*	*A*	*7.4*	*0.006*
Eastbound (All Movements)	*A*	*9.2*	*0.022*	*A*	*9.4*	*0.07*
Westbound (All Movements)	*A*	*9.4*	*0.077*	*A*	*9.5*	*0.047*
Southbound (Left Turn)	*A*	*7.4*	*0.001*	*A*	*7.4*	*0.001*
US-54 and 183rd Street						
All Movements (Signalized Intersection)	*E*	*60.2*	*0.99**	*D*	*38.1*	*0.81**
West Kellogg Drive and 183rd Street						
Northbound (Left Turn)	*A*	*8.2*	*0.008*	*A*	*7.8*	*0.025*
Eastbound (All Movements)	*B*	*11.4*	*0.045*	*B*	*11.3*	*0.049*
East Kellogg Drive and 183rd Street						
Northbound (Left Turn)	*A*	*7.9*	*0.002*	*A*	*0.0*	*0.0*
Eastbound (All Movements)	*B*	*10.2*	*0.008*	*B*	*10.7*	*0.019*
East Kellogg Drive and Walmart Entrance						
Northbound (All Movements)	*A*	*8.7*	*0.001*	*A*	*8.9*	*0.045*
Westbound (Left Turn)	*A*	*0.0*	*0.0*	*A*	*7.4*	*0.001*
US-54 and 167th Street						
All Movements (Signalized Intersection)	*C*	*20.4*	*0.80**	*B*	*17.0*	*0.61**

1 – Level of Service
2 – Delay in seconds per vehicle
3 – Volume/Capacity Ratio
* – Highest Movement v/c

All the intersections, excluding US-54 and North Goddard Road, US-54 and 183rd Street, and US-54 and 167th Street, are stop controlled intersections. The peak hour analyses show that all the intersections perform at acceptable level of service during the peak hours in existing conditions except the signalized intersection of US-54 and 183rd Street and the southbound movement at the intersection of US-54 and North Main Street.

Although roadway connections to US-54 were evaluated in the traffic analysis, the purpose of this study is to assess the impact of the proposed STAR Bond Development on the surrounding transportation system. Focus was given to Barber Street and the signalized intersections at 183rd and 199th Streets. Further refinement should be completed for side street connections to US-54 outside of the focus area.

Proposed Development and Traffic Growth

Proposed Development

The scope of analysis for the assessment of the proposed development's impact on the surrounding transportation system is based in large part on the recommended practices of the Institute of Transportation Engineers (ITE), as outlined in their Traffic Engineering Handbook. ITE is a nationally-recognized organization of transportation professionals with members from both private and public sectors.

The analysis of the proposed development's impact includes:

- Trip Generation estimates;
- Trip Distribution assumptions;
- Operational Analysis of the surrounding transportation system;
- Site Plan Review.

Each of these analysis methodologies and findings are described in more detail in the subsequent sections of the report.

Trip Generation

The vehicle trips generated by the proposed development were estimated using the Institute of Transportation Engineers' (ITE) Trip Generation, 9th Edition. Several assumptions were made to determine the land uses and intensities that were used to develop the trip generation estimates. Assumptions were based on the site plan and data provided by the developer and from engineering judgement. The Goddard Aquatic Center and Sports Complex is anticipated to be a regional destination attraction with a focus to attract national youth sporting events and tournaments. The hotel is intended to serve not only the sports complex, but also host conferences and other events. Four pad sites are shown in the site plan (*Figure A-2*) along the west side of Barber Street. The developer intends for these lots to be restaurants or supporting retail infrastructure. The pad sites were all assumed to be high-turnover restaurants which results in a more conservative trip generation (almost 3 times more trips) compared to trip generation for either a shopping center or specialty retail. The average size for this type of restaurant in the Wichita area is approximately 8,000 square feet. For comparison based on 1,000 square feet of gross floor area/leasable space, the average trip generation is 127.15 trips for high-turnover (sit-down) restaurant compared to 42.70 trips for a shopping center and 44.32 trips for a specialty retail center.

There is no land use in Trip Generation that is directly comparable to the proposed Aquatics Center and Sports Complex. The total area of the Aquatics Center is approximately 100,000 combined square feet over three floors. The plan for the facility includes a building with three large pools on the first floor, which is approximately 70,000 square feet. The pools include a 50-meter long course competition pool, a 50-meter warm-up pool and a 25-meter training pool with an integrated diving well. The first floor also includes training rooms, locker rooms, several offices, and spectator seating areas. A smaller second floor includes a fitness center and more spectator seating. There is a lower floor that has mechanical and equipment rooms.

The Athletic Club land use in Trip Generation is most similar to the proposed Aquatics Center and Sports Complex development. The Athletic Club land use includes competitive team sport activities, social facilities, pools, locker rooms, athletic courts and workout facilities. It is not likely that the facilities used to develop trip generation data for the Athletic Club land use include as much square footage for pools as the proposed Aquatics Center. The pools at the Goddard Aquatic Center occupy the vast majority of the square footage of the facility. When developing trip generation estimates for this site, development trips will likely be overestimated if the full square footage of the proposed facility is used. The roughly rectangular portion of the main floor, excluding some of the training rooms and training pool is approximately 50,000 square feet which is representative of the portion of the facility that will be in use during typical weekday peak hours. The Athletic Club Trip Generation also accounts for the four baseball/softball fields to be constructed as part of the facility.

The estimated daily, A.M. peak hour and P.M. peak hour traffic volumes associated with this development are shown in *Table 6*. Saturday peak hours were not specifically evaluated. Saturday trip generation and distribution is similar to weekday trips and peak traffic volumes on US-54 are typically 20% less on weekends compared to weekday peak traffic.

Table 6 Development Trip Generation										
Land Use	Intensity		ITE Code	Average Daily	A.M. Peak Hour			P.M. Peak Hour		
					Total	In	Out	Total	In	Out
Lodging										
Hotel (total rooms)	150	rooms	310	1,230	80	43	37	90	52	38
Lodging Sub-Total	150	rooms		1,230	80	43	37	90	52	38
Dining										
High-Turnover (Sit-Down) Restaurant	8,000	sf	932	1,020	110	58	52	150	81	69
High-Turnover (Sit-Down) Restaurant	8,000	sf	932	1,020	110	58	52	150	81	69
High-Turnover (Sit-Down) Restaurant	8,000	sf	932	1,020	110	58	52	150	81	69
High-Turnover (Sit-Down) Restaurant	8,000	sf	932	1,020	110	58	52	150	81	69
Dining Sub-Total	32,000	sf		4,080	440	232	208	600	324	276
Aquatics Center										
Athletic Club	50,000	sf	493	2,150	160	93	67	292	184	108
Aquatics Center Sub-Total	50,000	sf		2,150	160	93	67	292	184	108
			Total	*7,460*	*680*	*368*	*312*	*982*	*560*	*422*

The proposed development is anticipated to generate approximately *7,460* daily net new trips, with *680* trips in the A.M. peak hour and *982* trips in the P.M. peak hour. The generated trips and property use meet the Type 6 access type classification per the KDOT Access Management Policy. Type 6 access is defined as commercial land use with high traffic volumes of 500 or more trips per day and helps determine the design criteria and location access for the development.

The development trip generation shown in *Table 6* accounts for the STAR bond development and does not include development outside of the proposed development limits, including the east side of Barber Street. The aquatics center, hotel and baseball/softball fields are anticipated to be constructed at the same time. The restaurants and other commercial sites are anticipated to be constructed within three (3) years of the aquatics center and hotel completion. When estimating the future year 2040 conditions discussed later in this report, existing traffic volumes were increased by regional growth factors accounting for future development, including the area between Barber Street and 183rd Street, within the limits of the study.

Trip Distribution

The estimated peak hour trips generated by the proposed development were distributed onto the street system based on the trip distributions summarized below. The proposed development is a regional, competitive sports complex with a significant number of trips coming from the east (Wichita). *Table 7* illustrates the general distributions used in this study. These distributions are derived based on existing travel patterns and site geometry. The detailed distribution patterns through the study intersections are documented in *Appendix C.*

Table 7 Trip Distribution	
Direction To/From	Percentage
East on US-54	55%
West on US-54	25%
North	10%
South	10%
Total	100%

Design Characteristics

The intersection of both Barber Street and 183rd Street are signalized intersections with Type 6 access in developed areas. Type 6 access is described as a high volume access with 500 or more vehicles per day or 50 or more vehicles per peak hour of the highway. Each proposed improvement was designed to accommodate the turning path of an interstate semitrailer (WB-67) design vehicle. Although the percent of trucks accessing the proposed development is expected to be low, the design will accommodate large trucks for deliveries and other activities. The existing profile of US-54 is level with a vertical profile slope of less than 1%. The intersection sight distance relates to a drivers ability to see approaching vehicles on other legs on the intersection. Signalized intersections do not typically have intersection sight triangle issues except for right turn on red applications. The permitted right turn on a red signal requires the appropriate departure sight triangles for approaching traffic and is a function of approaching vehicle speed and intersection geometry. ***Figure A-7*** in ***Appendix A*** illustrates the proposed functional distances and corner clearances. *Table 8* outlines the proposed site characteristics.

Table 8
Proposed Design Characteristics

Proposed Design Criteria	US-54 at Barber Street	US-54 at 183rd Street
Type of Area	Developed	Developed
Access Type	Type 6	Type 6
Design Vehicle	WB-67	WB-67
US-54 Speed Limit (mph) at intersection	50	50
Stopping Sight Distance (feet)	425	425
Intersection Sight Distance (feet) [1]	480	480
Minimum Upstream Functional Distance (feet)	WB= 785, EB= 635	WB= 960, EB= 995
Minimum Downstream Functional Distance (feet)	355	355
Corner Clearance (feet)	115	115

1 – Right Turn from Minor Road at signalized intersection

Alternative Travel Modes

Currently, the proposed bond site does not include sidewalk or other alternative transportation connections (transit, bicycle, pedestrian, etc.) to the surrounding system. When evaluating alternative modes of transportation, pedestrian travel is the most applicable to this development. The Prairie Sunset Trail, a hike/bike trail located along an abandoned railroad line on the south side of the proposed development, connects Garden Plain through Goddard and continues to Wichita. However, the current site plan does not show connections to this trail. On the north side of the proposed development, existing sidewalks, trails, or other alternative modes of travel are not present nor is there an existing pedestrian crossing near US-54. The City of Goddard has indicated that they have an existing issue with pedestrians (including children) trying to cross US-54 from the residential developments on the north side of US-54 to the south side on bicycles or walking. When school is in session, the Goddard Police Department frequently provides transportation to children trying to cross US-54 at 183rd Street. Neither the existing traffic signal at Goddard Road/199th Street or 183rd Street incorporates pedestrian crossings. If feasible, the proposed improvements should incorporate a pedestrian crossing to alleviate pedestrian demand in the area.

Alternative travel modes (specifically pedestrian facilities) were evaluated within the proposed intersection improvements, but a comprehensive pedestrian plan for the surrounding system was not included. Further refinement should be completed for alternative travel modes and connected pathways.

US-54 and Barber Street Improvement Alternatives

Several possible improvements were identified at the study intersection of US-54 and Barber Street to achieve an acceptable Level of Service and manage projected vehicular queues from the impact of the proposed development. These improvements include:

- Installation of a traffic signal at US-54 and Barber Street intersection; and

- Construction of a Signalized Restricted Crossing U-Turn (RCUT) at US-54 and Barber Street with U-turn locations approximately 700' west and 1,160' east of Barber Street. The Barber Street connection and the two U-turns are collectively evaluated as the RCUT.

Restricted Crossing U-Turn (RCUT) intersections, also referred to as super street intersections, are excellent in median locations with dominant traffic on the major road. Compared to conventional at-grade intersections with similar traffic volumes, they move traffic more efficiently and are safer. A RCUT intersection works by eliminating direct left turn and through movements from the minor street approaches and instead accommodates those movements by requiring drivers to make a right turn from the minor street approach and then making a U-turn downstream. Additional information on RCUTs may be found in the Federal Highway Association (FHWA) publication "Alternative Intersections/Interchanges: Informational Report (AIIR)".

There are several key advantages to an RCUT intersection for access to US-54 from the proposed development:

- An RCUT intersection has fewer traffic conflict points which relates to fewer crashes. According to studies conducted by the FHWA, injury crashes may be reduced by 40% and fatal crashes reduced by 70% when compared to traditional signalized intersections.
- On a signalized RCUT as proposed for this development, only two signal phases are required compared to a traditional intersection. This results in significant time savings and reduced emissions from stopped vehicles.
- Pedestrians could cross the RCUT signalized intersection in two-stages. They would encounter fewer conflicting traffic streams and have a refuge area in the center median. This two-stage pedestrian crossing approach allows the signal to operate traffic more efficiently than a traditional signal and pedestrians can cross during the left phase cycle.
- Utilizing an RCUT gets motorist accustomed to using U-turns for access to sites between 183rd and 199th. U-turns are planned for future freeway access, which is planned to be similar to existing US-54 locations through the City of Wichita (such as in the Woodlawn and Oliver area). For the proposed RCUT in this study, locating the U-turns at the existing signalized intersections, Goddard Road/199th Street and 183rd Street, was evaluated but ultimately not chosen because neither the intersection geometry nor traffic signals support the U-turns at the existing intersections. A combination of the U-turns at the existing intersections complicate the intersection geometry, require additional space to accommodate turning vehicles, and create more conflict points.

Existing Plus Development Condition

Intersection analyses were conducted to determine the impact on existing conditions with the addition of the proposed development. For this condition, the development does not directly connect to US-54, but only to the south frontage road. The existing plus development condition includes only improvements that may be completed with the existing infrastructure without additional geometric or traffic signal improvements. The existing traffic signal timings were optimized for this condition but are not coordinated since signal coordination requires additional equipment. The results for the intersection analyses of existing plus proposed development peak hour conditions have been summarized in *Table 9.*

The assessment of existing plus development conditions is an iterative process that begins by applying development traffic volumes to the existing street system. As deficiencies were identified, improvements were considered and evaluated to achieve acceptable levels of service.

The study intersections were evaluated with the existing plus development lane configurations, traffic volumes, and traffic controls shown on ***Figures A-11*** and ***A-12***. ***Appendix E*** contains the analysis output files from Synchro.

Table 9 Intersection Operational Analysis Existing Plus Development Conditions						
Intersection	A.M. Peak Hour			P.M. Peak Hour		
Movement	LOS[1]	Delay[2]	v/c[3]	LOS[1]	Delay[2]	v/c[3]
US-54 and 215th Street						
Northbound (All Movements)	*C*	*17.7*	*0.206*	*E*	*35.1*	*0.332*
Eastbound (Left Turn)	*A*	*8.3*	*0.019*	*B*	*10.2*	*0.014*
Westbound (Left Turn)	*A*	*9.5*	*0.033*	*A*	*9.2*	*0.056*
Southbound (All Movements)	*C*	*23.7*	*0.221*	*E*	*43.6*	*0.247*
US-54 and North Main Street						
Northbound (All Movements)	*E*	*38.9*	*0.615*	*D*	*28.4*	*0.436*
Eastbound (Left Turn)	*A*	*8.7*	*0.008*	*B*	*10.6*	*0.01*
Westbound (Left Turn)	*B*	*11.7*	*0.22*	*A*	*9.9*	*0.103*
Southbound (All Movements)	*F*	*117.6*	*0.749*	*F*	*169.9*	*1.012*
West Kellogg Drive and North Main Street						
Northbound (Left Turn)	*A*	*7.5*	*0.022*	*A*	*7.6*	*0.041*
Eastbound (All Movements)	*B*	*10.3*	*0.053*	*B*	*11.6*	*0.068*
Westbound (All Movements)	*B*	*10.2*	*0.064*	*B*	*12.2*	*0.163*
Southbound (Left Turn)	*A*	*7.5*	*0.025*	*A*	*7.5*	*0.025*
US-54 and North Cedar Street						
Northbound (All Movements)	*D*	*31.3*	*0.198*	*D*	*25.6*	*0.203*
Westbound (Left Turn)	*B*	*11.1*	*0.051*	*B*	*10.0*	*0.034*
US-54 and North Goddard Road/199th Street						
All Movements (Signalized Intersection)	*F*	*86.7*	*2.15**	*F*	*376.8*	*6.33**
West Kellogg Drive and 199th Street						
Northbound (Left Turn)	*A*	*7.8*	*0.017*	*A*	*7.7*	*0.05*
Eastbound (All Movements)	*B*	*10.9*	*0.117*	*B*	*12.2*	*0.153*
Westbound (All Movements)	*B*	*11.5*	*0.025*	*B*	*13.3*	*0.125*
Southbound (Left Turn)	*A*	*7.5*	*0.007*	*A*	*0.0*	*0.0*
US-54 and North Barber Street						
Eastbound (Left Turn)	*A*	*9.5*	*0.013*	*B*	*11.2*	*0.045*
Southbound (All Movements)	*C*	*24.9*	*0.228*	*E*	*36.4*	*0.25*
West Kellogg Drive and North Barber Street						
Northbound (Left Turn)	*A*	*7.4*	*0.007*	*A*	*7.4*	*0.006*
Eastbound (All Movements)	*A*	*9.2*	*0.022*	*A*	*9.4*	*0.07*
Westbound (All Movements)	*A*	*9.4*	*0.077*	*A*	*9.5*	*0.047*
Southbound (Left Turn)	*A*	*7.4*	*0.001*	*A*	*7.4*	*0.001*
US-54 and 183rd Street						
All Movements (Signalized Intersection)	*F*	*138.0*	*2.34**	*F*	*197.7*	*3.21**
West Kellogg Drive and 183rd Street						
Northbound (Left Turn)	*A*	*8.2*	*0.008*	*A*	*7.9*	*0.026*
Eastbound (All Movements)	*B*	*11.7*	*0.046*	*B*	*11.8*	*0.052*
East Kellogg Drive and 183rd Street						
Northbound (Left Turn)	*A*	*8.6*	*0.006*	*A*	*9.1*	*0.007*
Eastbound (All Movements)	*C*	*16.9*	*0.462*	*C*	*19.6*	*0.516*
East Kellogg Drive and Walmart Entrance						
Northbound (All Movements)	*B*	*11.0*	*0.004*	*C*	*15.2*	*0.11*
Westbound (Left Turn)	*A*	*0.0*	*0.0*	*A*	*8.0*	*0.002*
US-54 and 167th Street						
All Movements (Signalized Intersection)	*C*	*28.0*	*0.83**	*B*	*15.1*	*0.71**

1 – Level of Service
2 – Delay in seconds per vehicle
3 – Volume/Capacity Ratio
* – Highest Movement v/c

The peak hour analyses show that the signalized intersections, except the intersection at US-54 and 167th Street, perform at a level of service (LOS) F during the peak hours in existing conditions. LOS F is below an acceptable level at these signals and generally indicates severely congested conditions with excessive delays to motorists. To improve the LOS at these intersections, direct access will need to be considered to the site by connecting Barber Street to US-54 by signalization. By distributing development traffic away from the existing intersections, intersection LOS will increase while also improving site access. Additionally, the intersections of US-54/215th Street, US-54/North Main Street, and US-54/North Barber Street indicate the southbound movements operate at a LOS E or lower.

Improvements at intersections not directly impacted by the proposed development were not considered as part of this study. The purpose of this study is to assess the impact of the proposed STAR Bond Development on the surrounding transportation system from 199th to 183rd. Focus was given to Barber Street and the signalized intersections. Further analysis is required for the side street connections to US-54 outside of these limits.

Existing Plus Development Condition with Restricted Crossing U-Turn (RCUT)

Intersection analyses were conducted to determine the impact on existing conditions with the addition of the proposed development. The system was evaluated with development trips on the existing conditions and the addition of direct access to the proposed development using a Restricted Crossing U-Turn (RCUT) located at Barber Street. As shown in the existing plus development condition, the signalized intersections at 199th and 183rd Streets perform at LOS F during peak hours. By allowing direct access to the site from US-54, turning traffic at the existing signalized intersections is reduced, increasing the intersection level of service. Additionally, as a regional destination, direct access to the development is easier for motorists not familiar with the location. The results for the intersection analyses of existing plus proposed development peak hour conditions have been summarized in ***Table 10***. The results reflect the improvements considered for this scenario.

The study intersections are evaluated with a Restricted Crossing U-Turn (RCUT) type signalized intersection at Barber Street, the existing plus development lane configurations, traffic volumes, and traffic controls shown on ***Figures A-13*** and ***A-14. Appendix E*** contains the analysis output files from the Synchro software.

Improvements were identified at deficient study intersections to achieve an acceptable Level of Service and manage projected vehicular queues from the impact of the proposed development on existing conditions. These improvements include:

- Connecting Barber Street to US-54 from the development site and constructing a Restricted Crossing U-Turn (RCUT) with U-turn locations approximately 700' west and 1,160' east of Barber Street. The west U-turn includes a 200' single left turn lane and the east U-turn includes 380' dual left turn lanes. Median widths are generally 18' on the west single U-turn and 6' on the east dual U-turn. The RCUT requires additional "loons" to accommodate turning vehicles. The loons provide additional turning space for large vehicles and is shown on ***Figure A-3***.
- Two-Stage pedestrian crossing at the Barber Street RCUT signalized intersection. This two-stage pedestrian crossing reduces the impact to motorists for greater efficiently.
- Installation of a median island on Barber Street both north and south side of US-54 to restrict the through movement and the left turn movements from East and West Kellogg Drives onto Barber Street and US-54, respectively. This is recommended for safety by reducing conflicting traffic movements with the approaching through roadway. To keep full property access, mid-mile circulation roads as illustrated in ***Figure A-5*** would be required.
- Realignment of West Kellogg Drive at 183rd Street in order to increase the storage capacity for the southbound approach, improve accessibility to the frontage road, and increase safety at the intersection by removing conflicts within the intersection's influence area.
- Coordinate the signals at 167th, 183rd, Barber RCUT and 199th Street.
- Installation of a STOP sign on the eastbound approach of the intersection of North Goddard Road and East Kellogg Drive.

- Installation of a STOP sign on the eastbound approach of the intersection of North Cedar Street and East Kellogg Drive.
- Construction of a dedicated 350' southbound left turn and 230' right turn lane located at US-54 and 183rd Street.
- Construction of a dedicated 200' northbound right turn lane at US-54 and 183rd Street.
- Construction of eastbound single 250' left turn lane at US-54 and Barber Street.
- Construction of westbound dual 450' left turn lanes at US-54 and Barber Street.
- Construction of eastbound and westbound 310' right turn lanes located at US-54 and Barber Street.
- Construction of offsite mid-mile circulatory roads to improve choices for alternative paths and connections.

Table 10
Intersection Operational Analysis
Existing Plus Development Conditions (RCUT)

Intersection	A.M. Peak Hour			P.M. Peak Hour		
Movement	LOS[1]	Delay[2]	v/c[3]	LOS[1]	Delay[2]	v/c[3]
US-54 and 215th Street						
Northbound (All Movements)	*C*	*17.7*	*0.206*	*E*	*35.1*	*0.332*
Eastbound (Left Turn)	*A*	*8.3*	*0.019*	*B*	*10.2*	*0.014*
Westbound (Left Turn)	*A*	*9.5*	*0.033*	*A*	*9.2*	*0.056*
Southbound (All Movements)	*C*	*23.7*	*0.221*	*E*	*43.6*	*0.247*
US-54 and North Main Street						
Northbound (All Movements)	*E*	*38.9*	*0.615*	*D*	*28.8*	*0.441*
Eastbound (Left Turn)	*A*	*8.7*	*0.008*	*B*	*10.6*	*0.01*
Westbound (Left Turn)	*B*	*11.7*	*0.22*	*A*	*9.9*	*0.104*
Southbound (All Movements)	*F*	*117.6*	*0.749*	*F*	*177.9*	*1.033*
West Kellogg Drive and North Main Street						
Northbound (Left Turn)	*A*	*7.5*	*0.022*	*A*	*7.6*	*0.041*
Eastbound (All Movements)	*B*	*10.3*	*0.053*	*B*	*11.6*	*0.069*
Westbound (All Movements)	*B*	*10.2*	*0.064*	*B*	*12.2*	*0.164*
Southbound (Left Turn)	*A*	*7.5*	*0.025*	*A*	*7.5*	*0.025*
US-54 and North Cedar Street						
Northbound (All Movements)	*D*	*31.3*	*0.198*	*D*	*26.7*	*0.212*
Westbound (Left Turn)	*B*	*11.1*	*0.051*	*B*	*10.0*	*0.034*
East Kellogg Drive and North Cedar Street						
Northbound (All Movements)	*A*	*0*	*0*	*A*	*0*	*0*
Eastbound (All Movements)	*A*	*0*	*0*	*A*	*0*	*0*
Westbound (All Movements)	*A*	*8.9*	*0.037*	*A*	*9.1*	*0.039*
Southbound (All Movements)	*A*	*7.4*	*0.002*	*A*	*0*	*0*
US-54 and North Goddard Road/199th Street						
All Movements (Signalized Intersection)	*D*	*43.2*	*0.89**	*D*	*41.9*	*0.90**
West Kellogg Drive and 199th Street						
Northbound (Left Turn)	*A*	*7.8*	*0.017*	*A*	*7.7*	*0.05*
Eastbound (All Movements)	*B*	*10.9*	*0.117*	*B*	*12.3*	*0.155*
Westbound (All Movements)	*B*	*11.5*	*0.025*	*B*	*13.4*	*0.127*
Southbound (Left Turn)	*A*	*7.5*	*0.007*	*A*	*0.0*	*0.0*
East Kellogg Drive and North Goddard Road						
Northbound (Left Turn)	*A*	*8.0*	*0.012*	*A*	*7.9*	*0.007*
Eastbound (All Movements)	*B*	*13.2*	*0.156*	*B*	*12.7*	*0.109*
Westbound (All Movements)	*B*	*12.8*	*0.023*	*A*	*0.0*	*-*
Southbound (Left Turn)	*A*	*7.9*	*0.017*	*A*	*8.1*	*0.02*
US-54 and North Barber Street (RCUT)**						
All Movements (Signalized Intersection)	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*

West Kellogg Drive and North Barber Street						
Eastbound (All Movements)	*A*	*8.5*	*0.019*	*A*	*8.7*	*0.058*
Westbound (All Movements)	*A*	*0.0*	*-*	*A*	*8.6*	*0.001*
East Kellogg Drive and North Barber Street						
Eastbound (All Movements)	*A*	*9.8*	*0.045*	*B*	*10.7*	*0.08*
Westbound (All Movements)	*A*	*9.5*	*0.007*	*B*	*10.2*	*0.058*
West Kellogg Drive and Seasons Street						
Eastbound (Left Turn)	*A*	*7.4*	*0.016*	*A*	*7.5*	*0.047*
Southbound (All Movements)	*A*	*9.4*	*0.103*	*B*	*10.2*	*0.089*
US-54 and 183rd Street						
All Movements (Signalized Intersection)	*E*	*64.1*	*1.05**	*D*	*44.2*	*0.78**
West Kellogg Drive and 183rd Street						
Northbound (Left Turn)	*A*	*9.3*	*0.01*	*A*	*9.3*	*0.03*
Eastbound (All Movements)	*B*	*11.4*	*0.09*	*B*	*11.6*	*0.08*
East Kellogg Drive and 183rd Street						
Northbound (Left Turn)	*A*	*8.0*	*0.002*	*A*	*0.0*	*-*
Eastbound (All Movements)	*B*	*11.0*	*0.055*	*B*	*11.3*	*0.076*
East Kellogg Drive and Walmart Entrance						
Northbound (All Movements)	*A*	*8.8*	*0.002*	*A*	*9.4*	*0.051*
Westbound (Left Turn)	*A*	*7.4*	*0.006*	*A*	*7.5*	*0.018*
US-54 and 167th Street						
All Movements (Signalized Intersection)	*C*	*31.1*	*0.86**	*C*	*25.8*	*0.84**

1 – Level of Service
2 – Delay in seconds per vehicle
3- Volume/Capacity Ratio
* - Highest Movement V/C
** - Includes signalized U-turns. LOS not supported by 2010 HCM. See Table 11 for US-54 MOE

The peak hour analyses shows that all the signalized intersections perform at an acceptable level of service during the peak hours with the RCUT. While a LOS E at US-54 and 183rd Street is below generally acceptable practices, the LOS is maintained to existing levels, but includes the additional development traffic. Although functioning poorly, the corridor is anticipated to continue as a signalized corridor until the freeway facility is funded and constructed (freeway concept plans have been completed to a field check phase). At the intersections of US-54/215th Street, US-54/North Main Street, and US-54/North Barber Street the southbound movements are found to operate at a LOS E or lower.

Due to the increased vehicle weaving and signals from the RCUT along with the City of Goddard's expansion towards the east, it is recommended to move the existing 50 mph speed limits to the east side of 183rd prior to the existing signal. This removes the speed limit change from within the RCUT mixing area, allows for better recognition of approaching traffic on the corridor, and provides a logical location for traffic to anticipate a speed limit change.

Future Year 2040 Conditions

The results for the intersection analyses for the future 2040 development peak hour conditions have been summarized for the RCUT in *Table 11*. The study intersections were evaluated with the future lane configurations and traffic control shown on *Figures A-5* and *A-6*. Growth factors were derived from the most recent updates to the region's current forecasted plan found in Wichita Area Metropolitan Planning Organization (WAMPO) travel demand model and the growth applied to the existing turning movement volumes. The future peak hour traffic volumes were increased approximately 3.0% per year on the north and south approaches and approximately 1.1% per year on US-54. The difference in traffic volumes were then distributed based on existing and anticipated travel patterns. The intersections of West Kellogg Drive/199th Street, East Kellogg Drive/N. Goddard Road, and West Kellogg Drive/183rd Street are not included for future 2040 charts. Traffic volumes exceed intersection capacity due to the close proximity of the frontage roads to US-54 and cannot be adequately evaluated for this condition using Synchro. Additional traffic from these intersections is not anticipated to significantly increase traffic volumes at the Barber Street (RCUT) intersection. Proposed medians at Barber Street will restrict drivers from turning left making the existing intersections a more direct route and remain the driver choice. The future traffic volumes are shown in *Figures A-15* and *A-16*. *Appendix E* contains the output files from Synchro.

Table 11 Intersection Operational Analysis Future Year 2040 Conditions (RCUT)						
Intersection	A.M. Peak Hour			P.M. Peak Hour		
Movement	LOS[1]	Delay[2]	v/c[3]	LOS[1]	Delay[2]	v/c[3]
US-54 and 215th Street						
Northbound (All Movements)	*F*	*>300*	*-*	*F*	*>300*	*-*
Eastbound (Left Turn)	*B*	*10.6*	*0.043*	*C*	*15.6*	*0.04*
Westbound (Left Turn)	*B*	*11.1*	*0.112*	*B*	*10.5*	*0.14*
Southbound (All Movements)	*F*	*>300*	*6.02*	*F*	*>300*	*-*
US-54 and North Main Street						
Northbound (All Movements)	*F*	*>300*	*-*	*F*	*>300*	*-*
Eastbound (Left Turn)	*B*	*10.3*	*0.014*	*B*	*14.8*	*0.02*
Westbound (Left Turn)	*C*	*16.8*	*0.469*	*B*	*11.2*	*0.179*
Southbound (All Movements)	*F*	*>300*	*-*	*F*	*>300*	*-*
West Kellogg Drive and North Main Street						
Northbound (Left Turn)	*A*	*7.7*	*0.044*	*A*	*7.9*	*0.079*
Eastbound (All Movements)	*B*	*13.6*	*0.184*	*C*	*19.5*	*0.286*
Westbound (All Movements)	*B*	*13.4*	*0.212*	*E*	*35.0*	*0.683*
Southbound (Left Turn)	*A*	*7.6*	*0.063*	*A*	*7.7*	*0.062*
US-54 and North Cedar Street						
Northbound (All Movements)	*F*	*>300*	*2.359*	*F*	*>300*	*2.067*
Westbound (Left Turn)	*C*	*16.0*	*0.152*	*B*	*12.5*	*0.102*
East Kellogg Drive and North Cedar Street						
Northbound (All Movements)	*A*	*7.6*	*0.001*	*A*	*7.6*	*0.001*
Eastbound (All Movements)	*B*	*10.2*	*0.006*	*B*	*10.3*	*0.006*
Westbound (All Movements)	*A*	*9.6*	*0.126*	*B*	*10.1*	*0.141*
Southbound (All Movements)	*A*	*7.4*	*0.004*	*A*	*0*	*0*
US-54 and North Goddard Road/199th Street						
All Movements (Signalized Intersection)	*F*	*149.4*	*1.11**	*F*	*119.6*	*1.94**
US-54 and North Barber Street (RCUT)**						
All Movements (Signalized Intersection)	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
West Kellogg Drive and North Barber Street						
Eastbound (All Movements)	*A*	*8.6*	*0.041*	*A*	*0.0*	*-*
Westbound (All Movements)	*A*	*0.0*	*-*	*A*	*8.6*	*0.035*
East Kellogg Drive and North Barber Street						
Eastbound (All Movements)	*A*	*9.8*	*0.045*	*B*	*10.7*	*0.08*
Westbound (All Movements)	*A*	*9.6*	*0.022*	*B*	*11.0*	*0.186*
West Kellogg Drive and Seasons Street						
Eastbound (Left Turn)	*A*	*7.5*	*0.049*	*A*	*7.8*	*0.102*
Southbound (All Movements)	*B*	*11.4*	*0.266*	*B*	*13.5*	*0.256*
US-54 and 183rd Street						
All Movements (Signalized Intersection)	*F*	*148.4*	*2.79**	*F*	*86.1*	*1.11**
East Kellogg Drive and 183rd Street						
Northbound (Left Turn)	*A*	*8.8*	*0.007*	*A*	*0.0*	*-*
Eastbound (All Movements)	*B*	*13.6*	*0.081*	*C*	*15.3*	*0.123*
East Kellogg Drive and Walmart Entrance						
Northbound (All Movements)	*A*	*8.9*	*0.007*	*B*	*10.6*	*0.178*
Westbound (Left Turn)	*A*	*7.4*	*0.012*	*A*	*7.5*	*0.035*
US-54 and 167th Street						
All Movements (Signalized Intersection)	*F*	*199.9*	*1.66**	*E*	*70.0*	*1.55**

1 – Level of Service
2 – Delay in seconds per vehicle
3 – Volume/Capacity Ratio
* – Highest Movement v/c
** - Includes signalized U-turns. LOS not supported by 2010 HCM.

The results of the analysis show that the study corridor will not operate at acceptable levels of service in the future year 2040 with the exception of minor streets. 183rd and 199th Street footprints were increased to be more representative of the future (dual lefts, etc.) for the analysis.

The purpose of the future scenario is to examine how the RCUT performs adjacent to 183rd and 199th prior to the freeway facility being constructed along US-54. Although both signals adjacent to the Barber intersection experience issues (even if there was no signal at Barber Street the traffic volumes begin to exceed capacities in the peak hours), due to the two phase signal, the Barber RCUT is still able to operate with relatively minor queuing along US-54 or Barber Street and maintain proper coordination between the signals at 183rd and 199th streets during the future scenario.

Additional Future Year Analysis

The RCUT was further evaluated to determine its maximum capacity before creating significant impacts to US-54 through traffic, queuing or excessive delay at the intersection. Using Synchro to perform the analysis, we began with the future year 2040 Condition (RCUT) volumes then increased the development traffic until the RCUT was no longer functioning reasonably. Signal timings and coordination were then modified for additional efficiencies. The intersection was then re-evaluated until the intersection was over capacity. The saturation point was determined to be when the westbound dual-left turn lane at Barber Street experienced excessive spill over onto the westbound US-54 through lanes and the northbound right-turn took several cycles in order to clear the traffic queue. After several iterations, we determined that development trips could approximately double (from the future year 2040 volumes) and the RCUT would still reasonably be working.

Traffic Queuing

Traffic queue lengths are evaluated to determine the required storage length of turn bays. When the number of vehicles is greater than the allowable storage space, turning vehicles may spill over into through lanes. Inadequate storage not only creates a potentially unsafe condition, but can reduce the intersection capacity and increase delay. The RCUT was evaluated for both the Existing Plus Development and Future Year 2040 Conditions. The intersection of US-54 and 183rd Street was evaluated for the Existing Plus Development condition with the recommended improvements previously discussed and shown in ***Figure A-3***. US-54 and 183rd Street was not evaluated for the Future Year 2040 condition since the intersection will require additional geometric improvements in order to maintain an acceptable LOS as previously discussed. The geometric improvements include additional left, right and through lanes on 183rd Street as shown in the previously completed US-54 freeway concept plans.

The turn lane lengths as shown on ***Figure A-6*** are recommended based on the 95th percentile queue lengths analyzed from Synchro. Although Synchro is not able to support a calculated Level of Service (LOS) for signalized U-turns (RCUT) as previously discussed, Synchro can estimate queue lengths. The 95th percentile traffic queue lengths were evaluated using the Synchro software and the results are shown in ***Table 12.***

Table 12
Peak Hour 95th Percentile Queue Lengths (RCUT)

Intersection	Exist. + Dev.		Future Year 2040	
Movement	A.M.	P.M.	A.M.	P.M.
US-54 and West RCUT U-Turn				
Westbound (U-Turn)	*23*	*111*	*49*	*107*
US-54 and North Barber Street (RCUT)				
Eastbound (Left Turn)	*23*	*83*	*118*	*156*
Eastbound (Right Turn)	*54*	*51*	*77*	*49*
Westbound (Left Turn)	*149*	*230*	*117*	*249*
Westbound (Right Turn)	*0*	*0*	*30*	*0*
Northbound (Right Turn)	*74*	*70*	*82*	*81*
Southbound (Right Turn)	*31*	*64*	*68*	*40*

US-54 and East RCUT U-Turn				
Eastbound (U-Turn)	*97*	*192*	*192*	*207*
US-54 and 183rd Street				
Eastbound (Left Turn)	*44*	*57*	*N/A**	*N/A**
Eastbound (Right Turn)	*27*	*54*		
Westbound (Left Turn)	*156*	*175*		
Westbound (Right Turn)	*26*	*43*		
Northbound (Left Turn)	*76*	*114*		
Northbound (Right Turn)	*36*	*49*		
Southbound (Left Turn)	*64*	*60*		
Southbound (Right Turn)	*42*	*53*		

* – Additional intersection improvements required by Future 2040.

Summary

This study documents the transportation impact of the proposed STAR Bond Development in Goddard, Kansas. Included in this study is a review of the anticipated impact of the proposed development on the existing transportation system and the resulting improvements necessary to mitigate development traffic and maintain the best capacity until US-54 is ultimately developed into a freeway facility with grade-separated arterials. This study is a review of the existing plus development condition with no improvements, the existing plus development condition with a Restricted Crossing U-Turn Intersection (RCUT) concept for US-54 and Barber Street, and future 2040 conditions; Specifically:

- The amount of vehicular traffic estimated to be generated by the development;
- The projected distribution patterns of the development traffic onto the surrounding transportation system;
- An analysis of existing intersection operating conditions;
- An analysis of the intersection operating conditions with the addition of the proposed development; and
- Identification of improvements to the surrounding transportation system to mitigate the potential impact of the proposed development.

The 2010 Highway Capacity Manual (HCM) does not support a calculated Level of Service (LOS) for clustered intersections such as the proposed RCUT. To compare the effectiveness of each condition, the estimated overall delay and travel time (in seconds) for the US-54 corridor was calculated and summarized in *Table 13*. Documented results from the Synchro analysis have been included in *Appendix D*.

Table 13
US-54 Corridor Measures of Effectiveness (MOE)

Condition	A.M. Peak Hour		P.M. Peak Hour	
	Delay[1]	Travel Time[2]	Delay[1]	Travel Time[2]
Existing				
Eastbound	*118.1*	*325.5*	*88.9*	*300.1*
Westbound	*88.3*	*290.2*	*85.6*	*294.0*
Existing + Development				
Eastbound	*113.7*	*322.2*	*92.5*	*302.9*
Westbound	*162.4*	*364.6*	*587.5*	*905.6*
Existing + Development (RCUT)				
Eastbound	*119.5*	*333.8*	*96.1*	*310.4*
Westbound	*69.8*	*278.7*	*91.9*	*304.3*
Future Year 2040 (RCUT)				
Eastbound	*207.4*	*425.9*	*137.1*	*356.0*
Westbound	*102.6*	*318.0*	*216.8*	*432.8*

1 – Delay in seconds per vehicle
2 – US-54 Travel Time in seconds

The proposed development is anticipated to generate approximately *7,460* daily net new trips, with *680* trips in the A.M. peak hour and *982* trips in the P.M. peak hour. Proposed pad sites were conservatively evaluated as high-turn over restaurants generating almost 3 times more trips than shopping centers or specialty retail centers. The development trip generation accounts for the STAR bond development and does not include development outside of the proposed development limits. Future year conditions were increased by regional growth factors accounting for future development. Additionally, the RCUT was evaluated to determine its maximum capacity. It was determined that development trips could approximately double and the RCUT would still operate without excessive queuing or delay.

The following improvements are recommended to mitigate the impact of the proposed development on the existing transportation system until the ultimate US-54 freeway section is constructed. Recommended improvements are shown on *Figure A-6* in *Appendix A*:

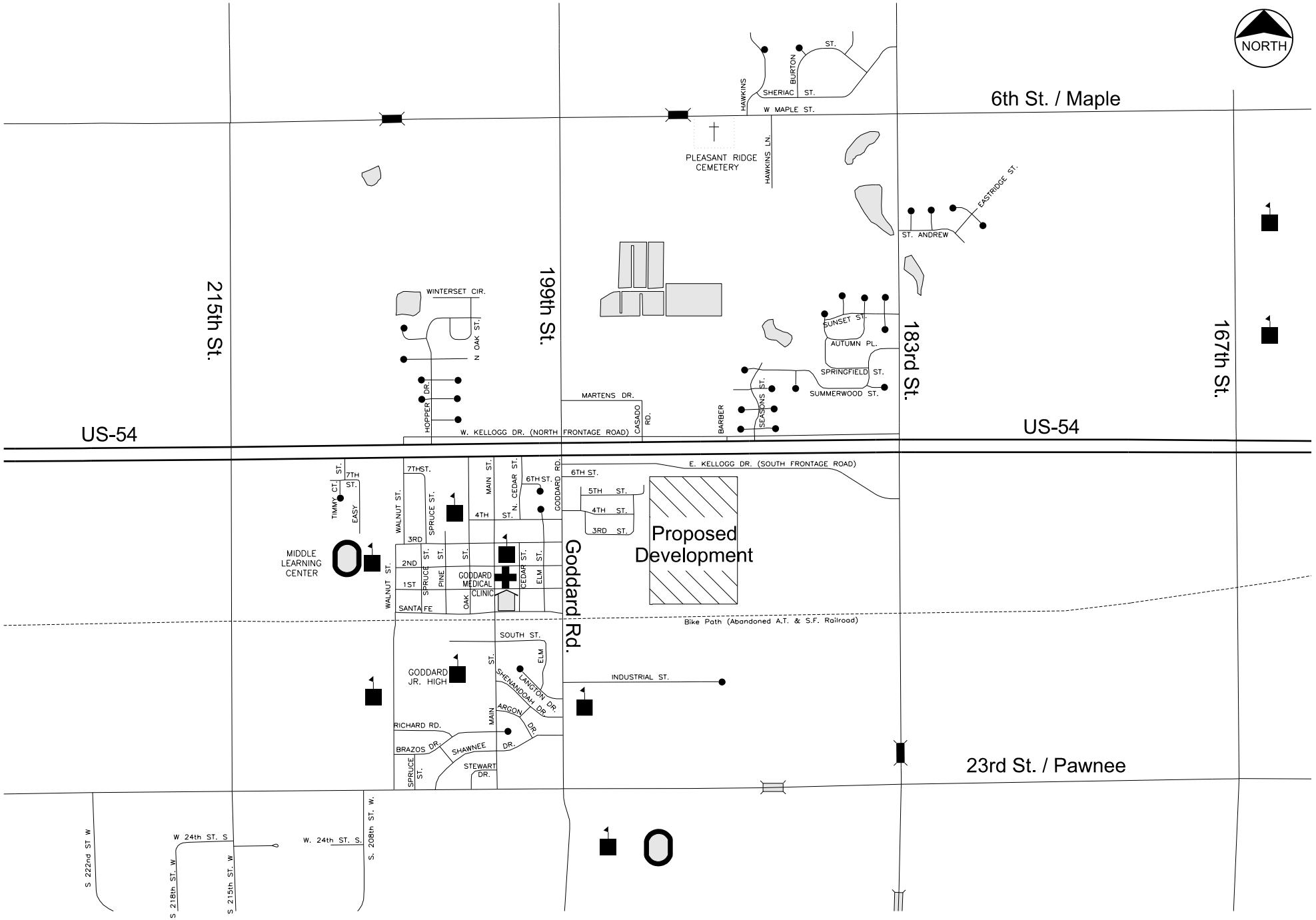
- Coordination of the signals at the intersections of 167th Street, 183th Street, and 199th Street with US-54 to ensure more efficient traffic flow. Coordinated signals result in less frequent stops and reduce the overall delays on the corridor. In addition to coordination, using the suggested timing plan and lagging the westbound left turn movements at 183rd and 167th Street results in improved capacity, efficiency, and reduced delays.
- Although both the concepts discussed (signalized Barber Street and the RCUT intersection) provide acceptable LOS for the existing plus development conditions, with future growth, the RCUT concept will provide greater capacity, increased safety and improved movement of traffic. The RCUT at the Baber Street and US-54 intersection results in longer green intervals and reduced stops when compared to improvement alternatives. Although the RCUT provides superior efficiencies over a traffic signal, the RCUT is an unconventional design. Public acceptance and input is critical to the success of the design.
- Connecting Barber Street to US-54 from the development site and constructing a RCUT with U-turn locations approximately 700' west and 1,160' east of Barber Street. The west U-turn includes a 200' single left turn lane and the east U-turn includes 380' dual left turn lanes. Median widths are generally 18' on the west single U-turn and 6' on the east dual U-turn. The RCUT requires additional "loons" to accommodate turning vehicles. The loons provide additional turning space for large vehicles and is shown on *Figure A-3*.
- Installing a two-stage pedestrian crossing at the Barber Street RCUT intersection. Providing an at-grade pedestrian crossing is not recommended as a long-term solution, but only to provide the ability for pedestrians to cross until a permanent crossing, such as a grade-separated pedestrian crossing or the future freeway section, can be established.
- Installation of a median islands on Barber Street both north and south side of US-54 to restrict the through movements and the left turn movements from East and West Kellogg Drives onto Barber Street and US-54, respectively. This is recommended for safety by reducing conflicting traffic movements. Additional site access will likely need to be constructed to maintain good access to the properties.
- Realignment of West Kellogg Drive at 183rd Street in order to increase the storage capacity for the southbound approach, improve accessibility to the frontage road, and increase safety at the intersection by removing conflicts within the intersection's influence area. The proposed realignment has been previously platted prior to this report and is similar to the constructed frontage road south of US-54 at 183rd.
- Installation of a STOP sign on the eastbound approach of the intersection of North Goddard Road and East Kellogg Drive.
- Installation of a STOP sign on the eastbound approach of the intersection of North Cedar Street and East Kellogg Drive.
- Installation of STOP signs on Kellogg Drive (both north and south US-54) at Barber Street.
- Construction of a dedicated 350' southbound left turn and 230' right turn lane located at US-54 and 183rd Street.
- Construction of a dedicated 200' northbound right turn lane at US-54 and 183rd Street.
- Construction of eastbound single 250' left turn lane at US-54 and Barber Street.
- Construction of westbound dual 450' left turn lanes at US-54 and Barber Street.
- Construction of eastbound and westbound 310' right turn lanes located at US-54 and Barber Street.

- Construction of offsite mid-mile circulatory roads to improve choices for alternative paths and connections. Planning for future circulatory roads prior to site development is a great opportunity for the City to identify areas needed for right-of-way and reduce associated acquisition costs.
- Installation of advanced traffic signal warning for EB traffic before the199th Street traffic signal. 199th Street is the first signalized intersection into the corridor from the west. Generally, a signalized intersection occurs every mile for WB traffic and advanced warning is not needed.
- Relocate the 50 mph speed limits to the east side of 183rd Street prior to the signal.

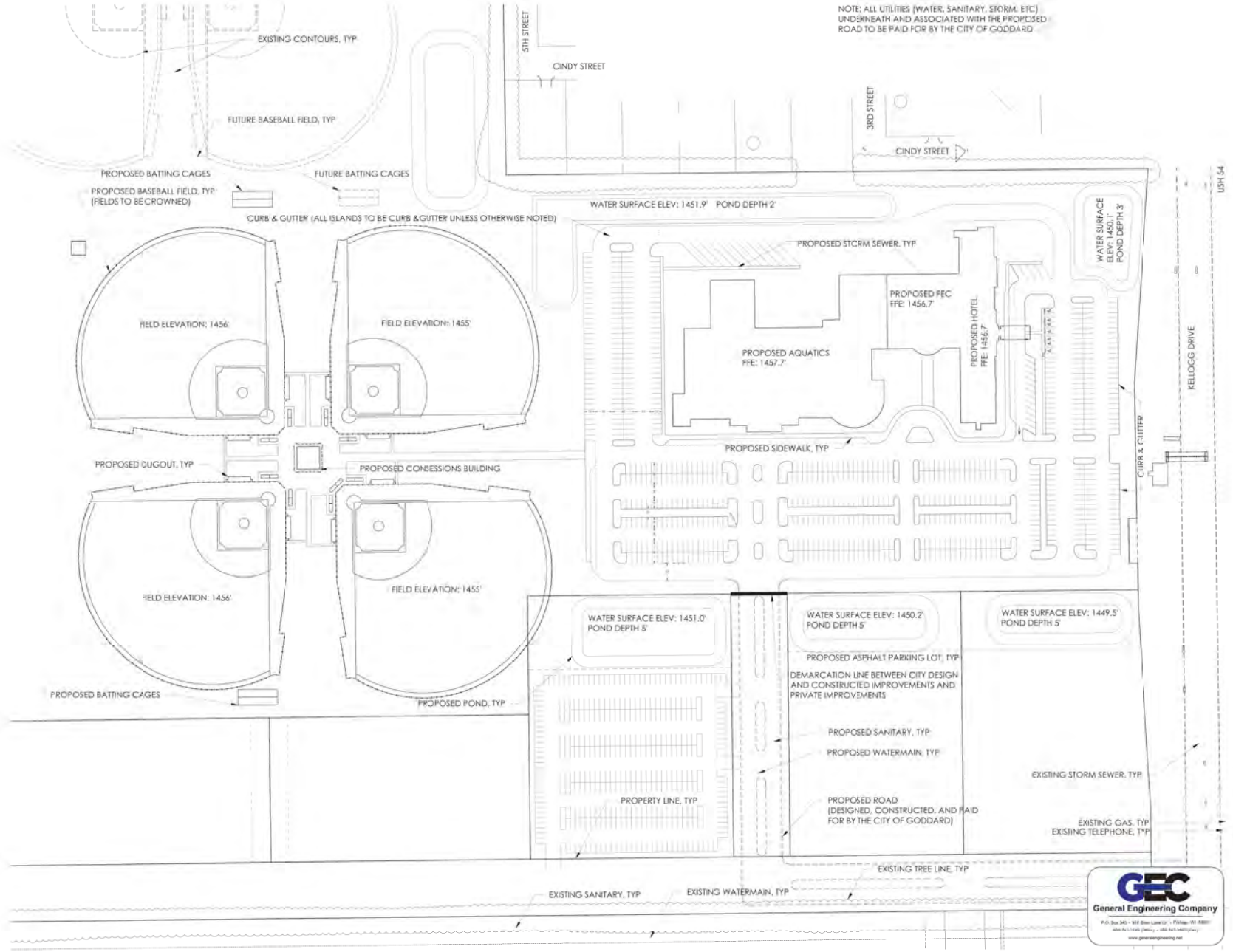
Excluding the installation of median islands on Barber Street both north and south of US-54 and construction of mid-mile roadways, all recommendations should be constructed concurrently with the proposed development. Although operations at Barber Street were not specifically studied without medians islands on the frontage roads, existing locations within Wichita region, including Goddard, have shown that restricting vehicle movements when the frontage road is in close proximity to the intersection is necessary for safety and proper operation of the intersection. At a minimum, the median islands at Barber Street should be installed when the intersection crash frequency exceeds the state critical crash rate for urban intersections. Additionally, installation of the median islands will trigger the necessity of mid-mile or additional circulatory roadways to provide access around the development and prevent vehicles traveling on the frontage roads from required U-turns within the development.

Appendix A - Figures

Figure A-1 Location Map
Figure A-2 Site Plan
Figure A-3 Preliminary Concept
Figure A-4 Typical Sections
Figure A-5 Future Concept
Figure A-6 Future Lane Configurations and Proposed Improvements
Figure A-7 Proposed Design Characteristics
Figure A-8 Existing - Lane Configurations
Figure A-9 Existing - A.M. Peak Hour Traffic Volumes
Figure A-10 Existing - P.M. Peak Hour Traffic Volumes
Figure A-11 Existing Plus Proposed Development Conditions - A.M. Peak Hour Traffic Volumes
Figure A-12 Existing Plus Proposed Development Conditions - P.M. Peak Hour Traffic Volumes
Figure A-13 Existing Plus Proposed Development Conditions (RCUT) - A.M. Peak Hour Traffic Volumes
Figure A-14 Existing Plus Proposed Development Conditions (RCUT) - P.M. Peak Hour Traffic Volumes
Figure A-15 Future 2040 Conditions (RCUT) - A.M. Peak Hour Traffic Volumes
Figure A-16 Future 2040 Conditions (RCUT) - P.M. Peak Hour Traffic Volumes
Figure A-17 Average Daily Traffic



TranSystems	LOCATION MAP	STAR Bond Development Goddard, Kansas	November 2018 No Scale	Figure A-1

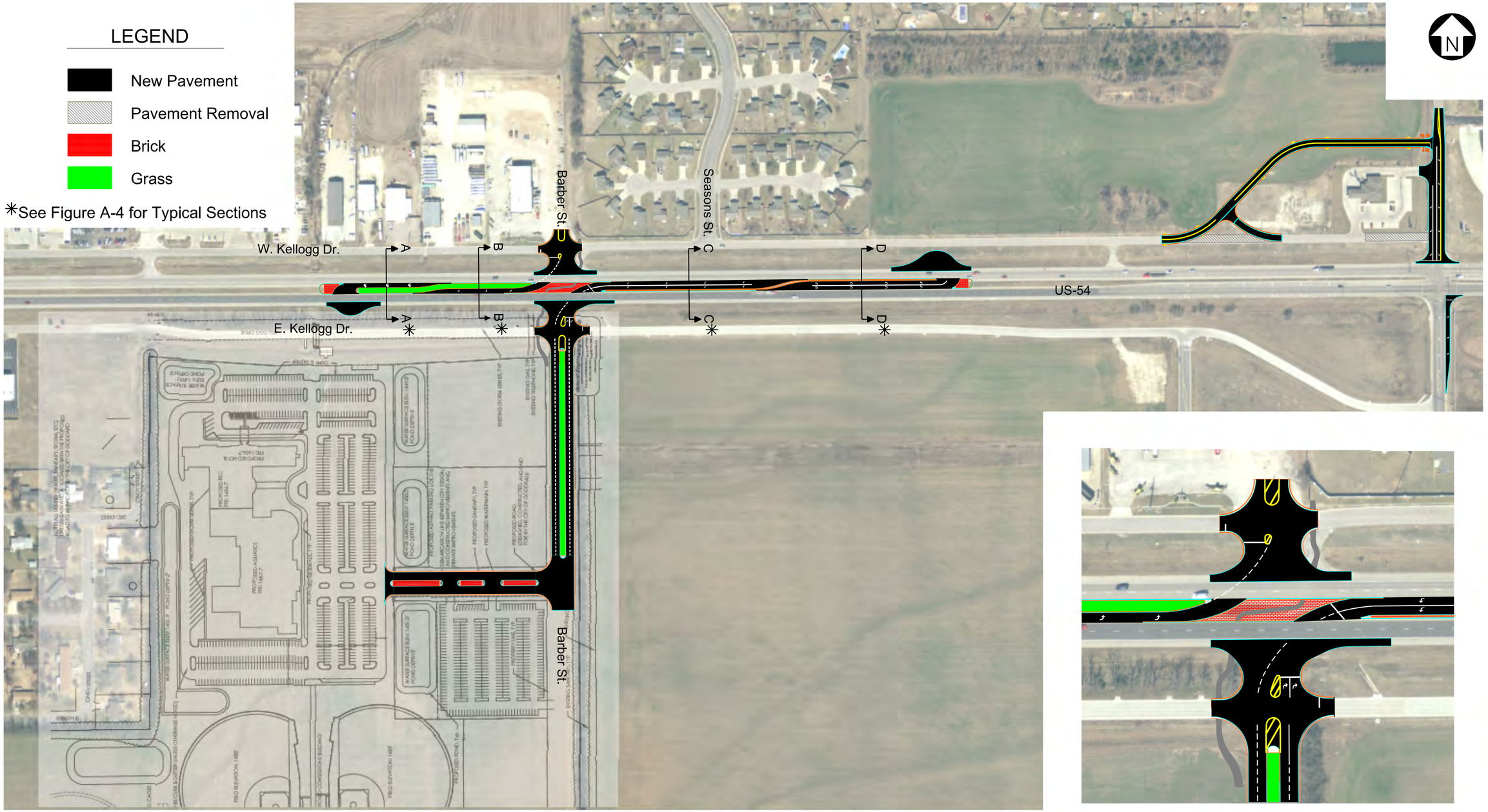


TranSystems	SITE PLAN	STAR Bond Development Goddard, Kansas	November 2018 No Scale	Figure A-2

LEGEND

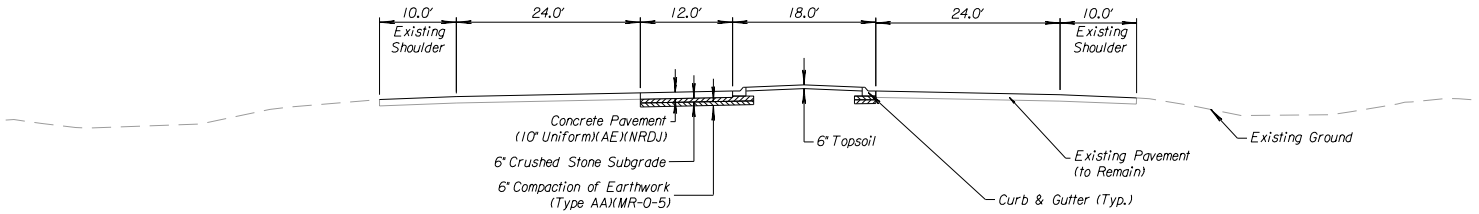
- New Pavement
- Pavement Removal
- Brick
- Grass

✳See Figure A-4 for Typical Sections

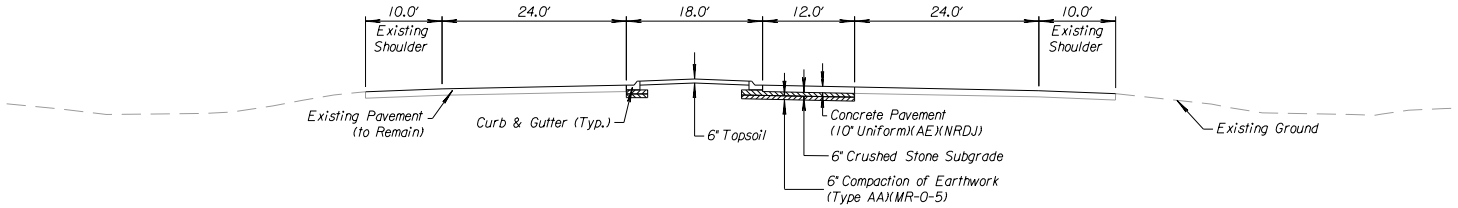


Barber Intersection Detail

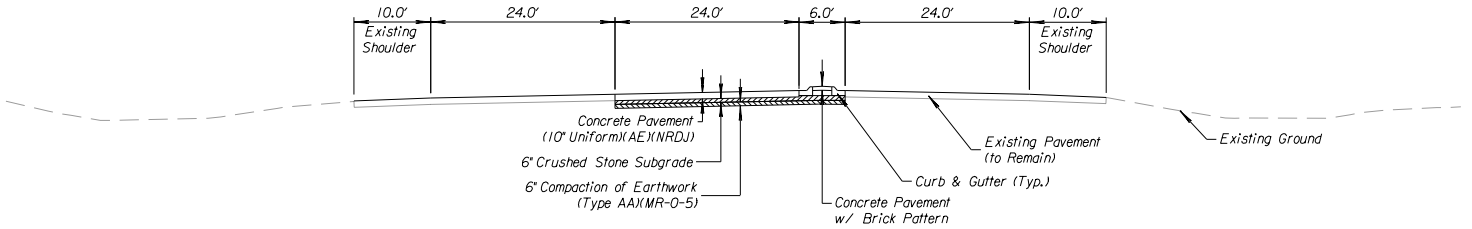
TranSystems	PRELIMINARY CONCEPT	STAR Bond Development Goddard, Kansas	November 2018 No Scale	Figure A-3



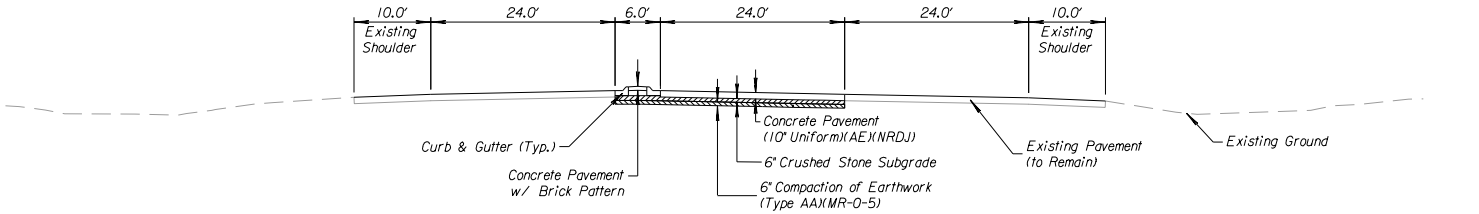
TYPICAL SECTION A-A
West U-Turn



TYPICAL SECTION B-B
West U-Turn

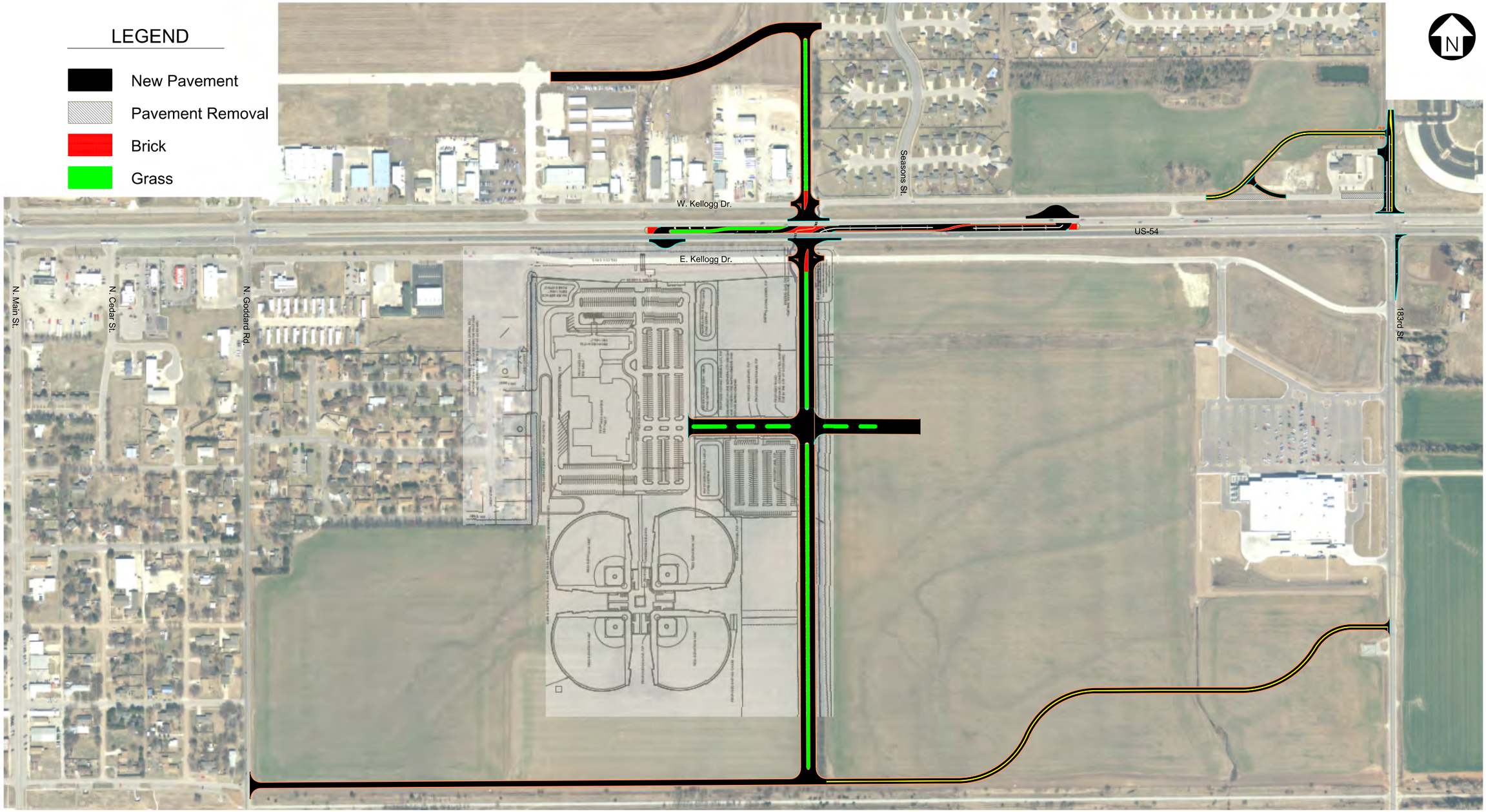


TYPICAL SECTION C-C
East U-Turn



TYPICAL SECTION D-D
East U-Turn

TranSystems	TYPICAL SECTIONS	Star Bond Development Goddard, Kansas	November 2018 No Scale	Figure A-4



TranSystems	FUTURE CONCEPT	STAR Bond Development Goddard, Kansas	November 2018 No Scale	Figure A-5

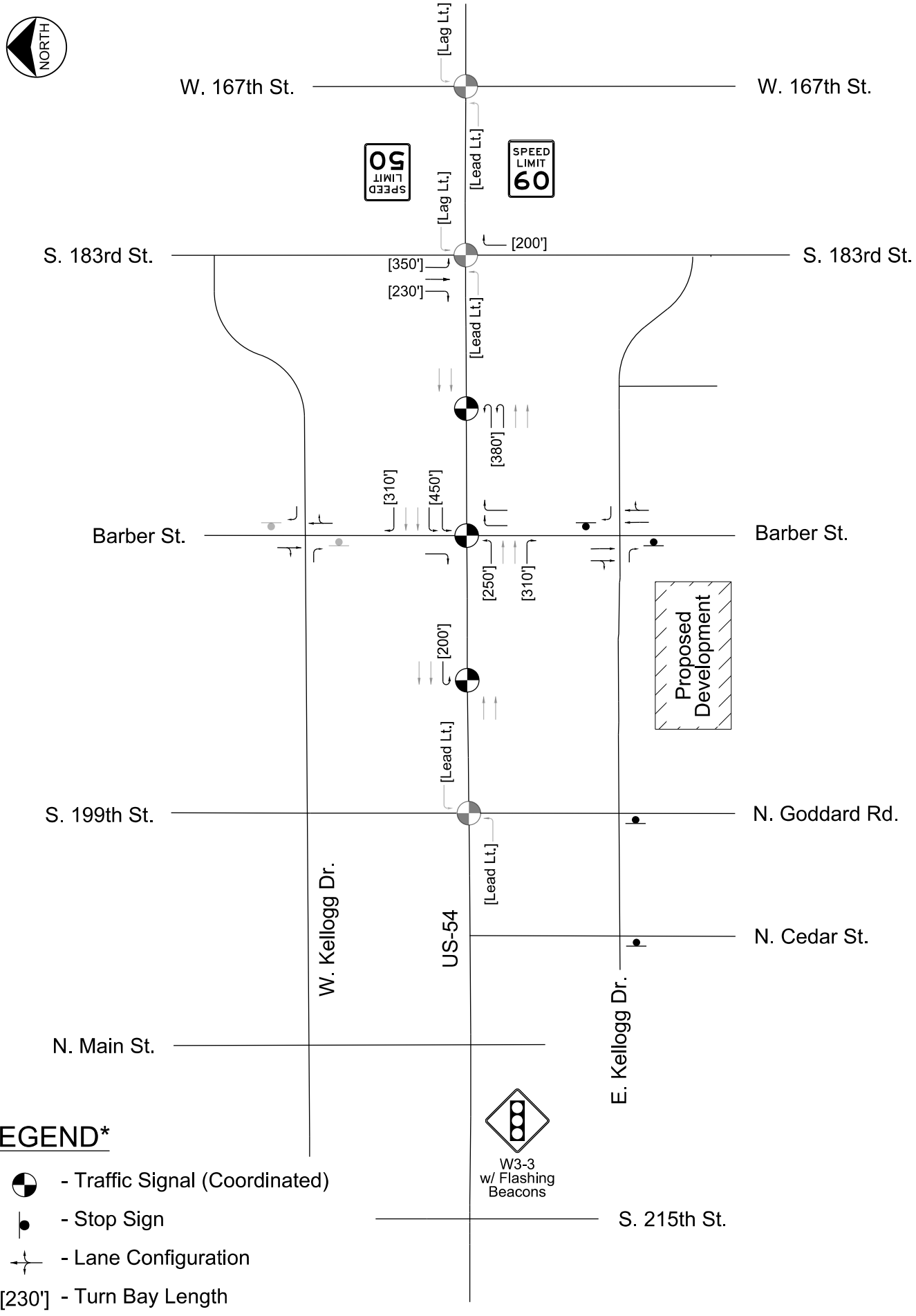


Figure A-6

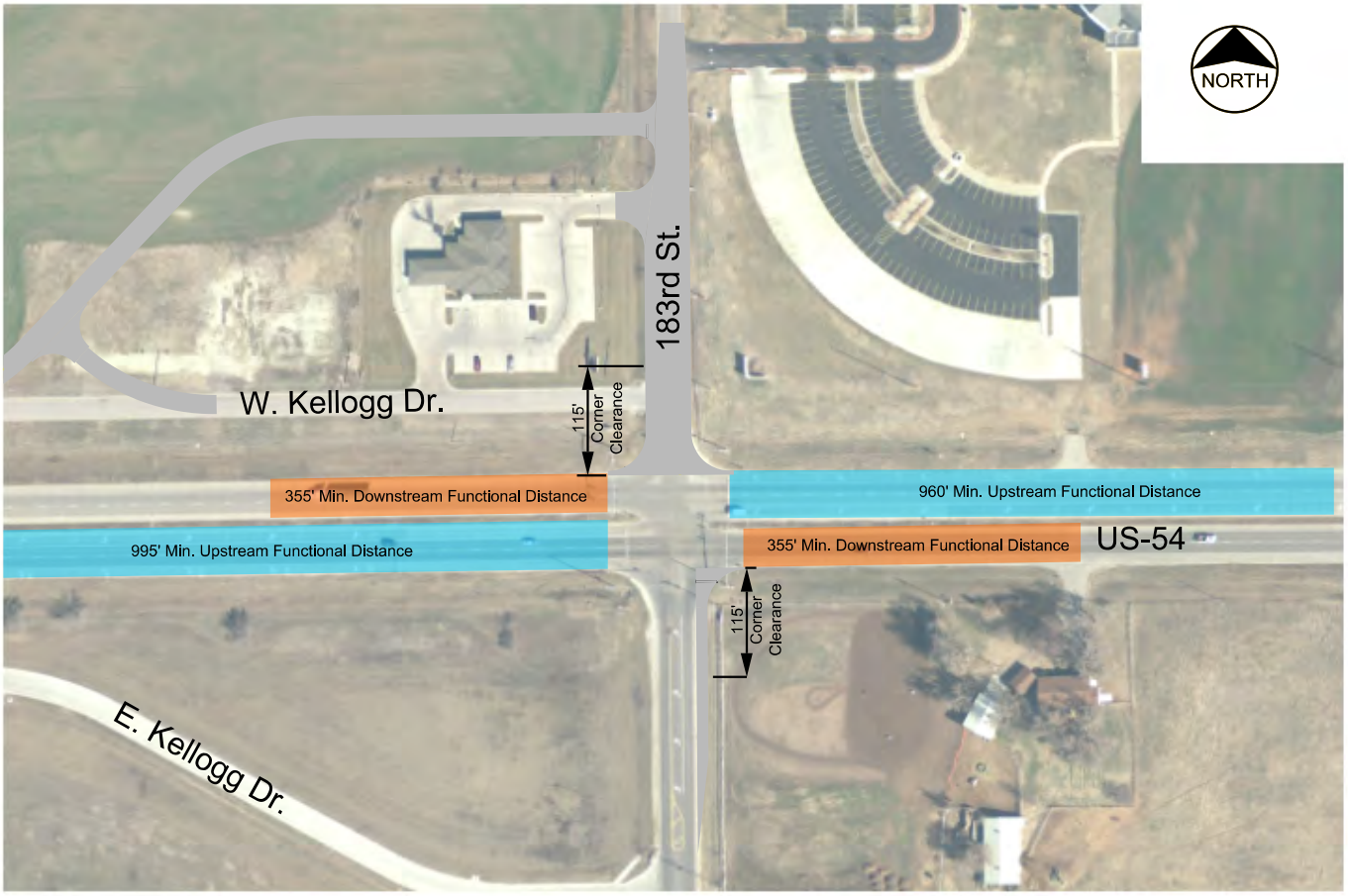
November 2018

No Scale

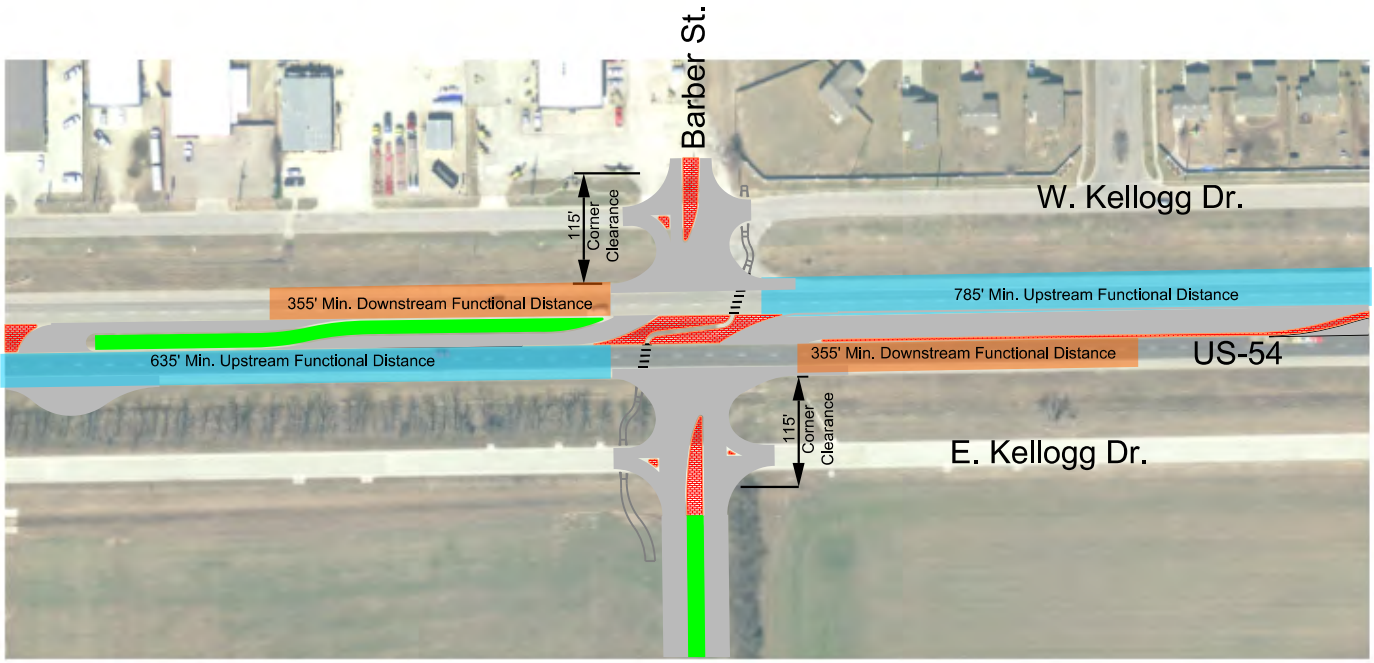
STAR Bond Development
Goddard, Kansas

FUTURE LANE CONFIGURATIONS
& PROPOSED IMPROVEMENTS

Trans Systems



US-54 & 183RD STREET INTERSECTION



US-54 & BARBER STREET INTERSECTION

Figure A-7

November 2018

No Scale

STAR Bond Development
Goddard, Kansas

PROPOSED DESIGN CHARACTERISTICS

TranSystems

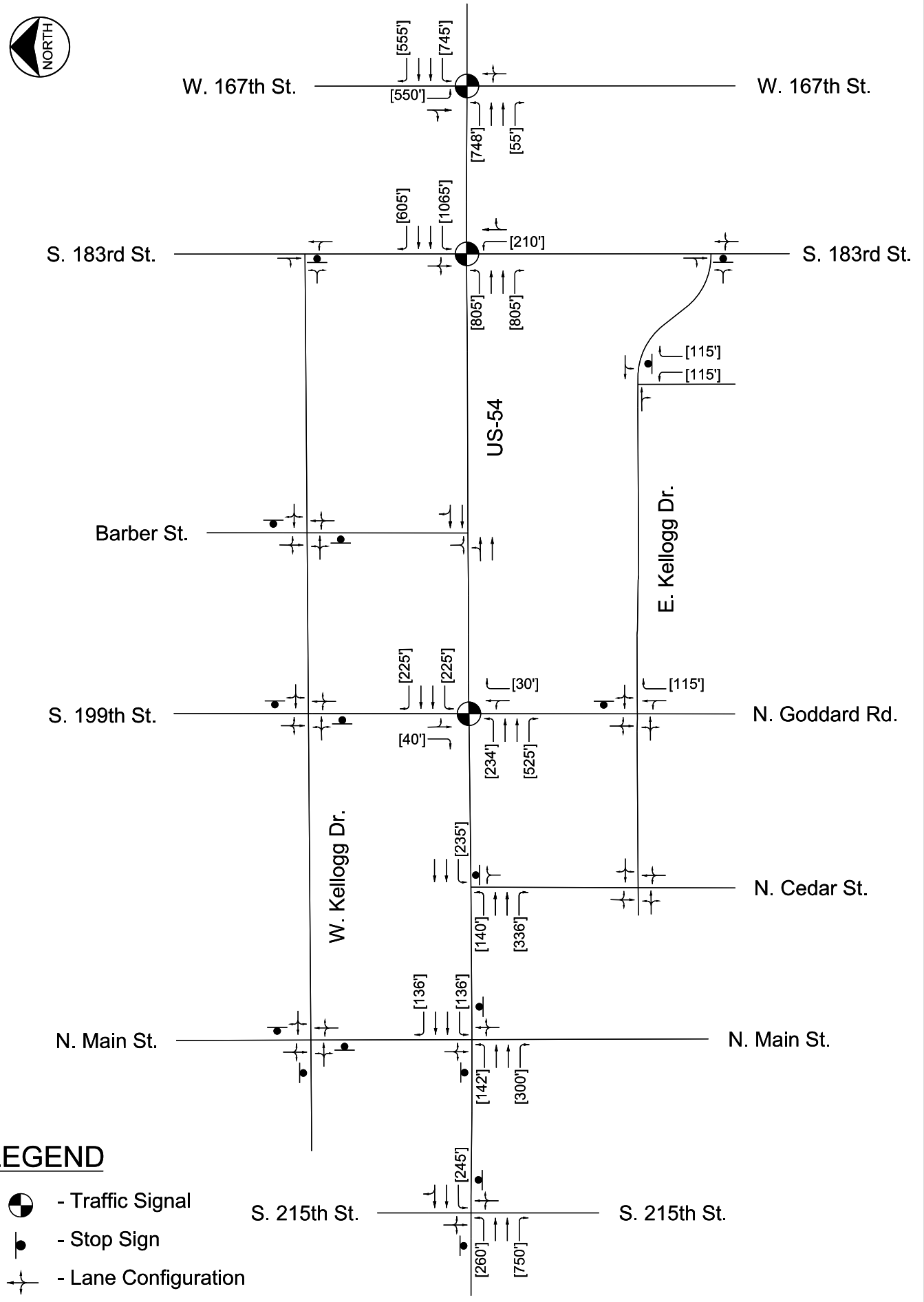


Figure A-8

November 2018

No Scale

STAR Bond Development
Goddard, Kansas

EXISTING LANE CONFIGURATION

TranSystems

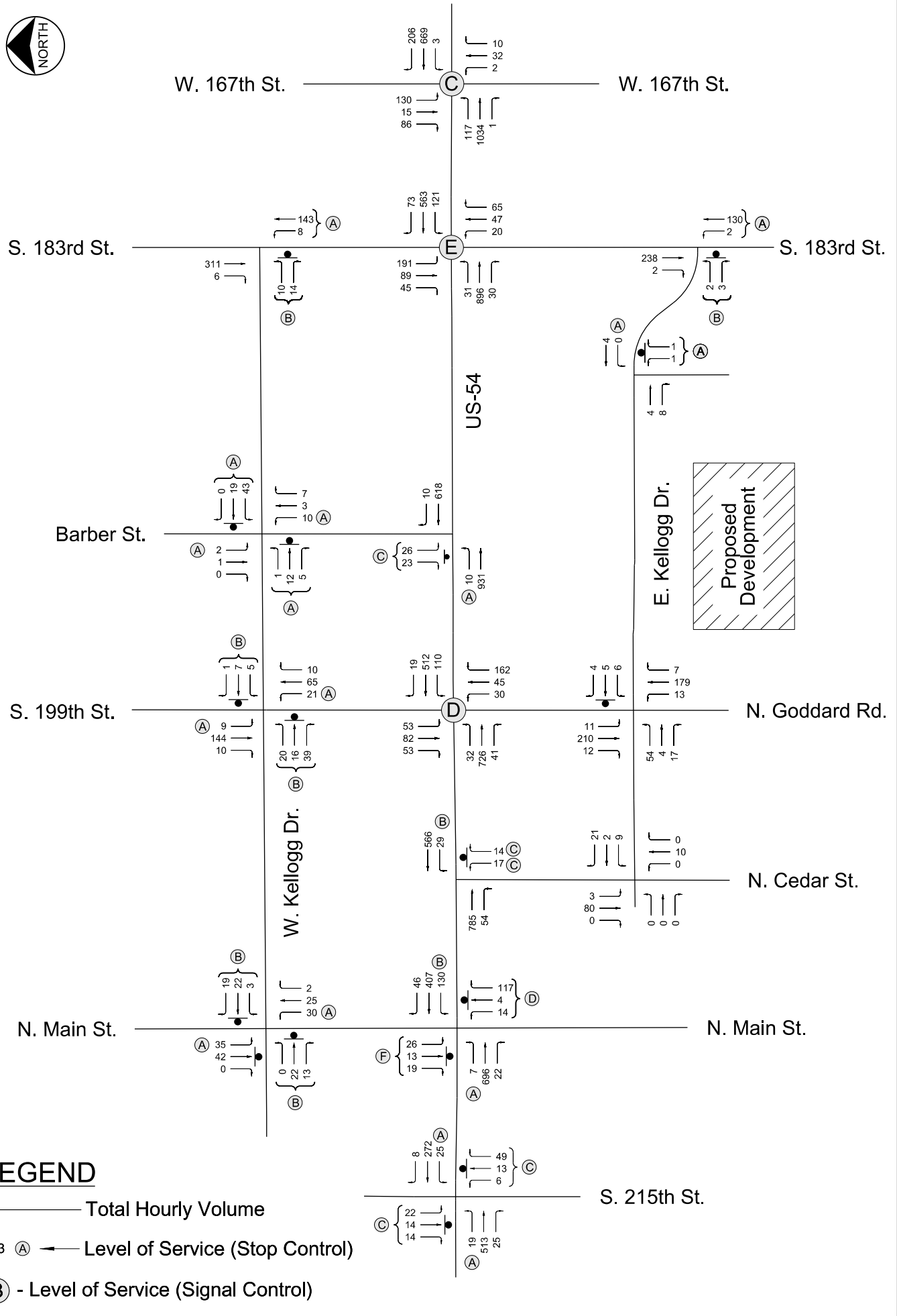


Figure A-9

November 2018

No Scale

STAR Bond Development
Goddard, Kansas

EXISTING A.M. PEAK HOUR
TRAFFIC VOLUMES

TranSystems

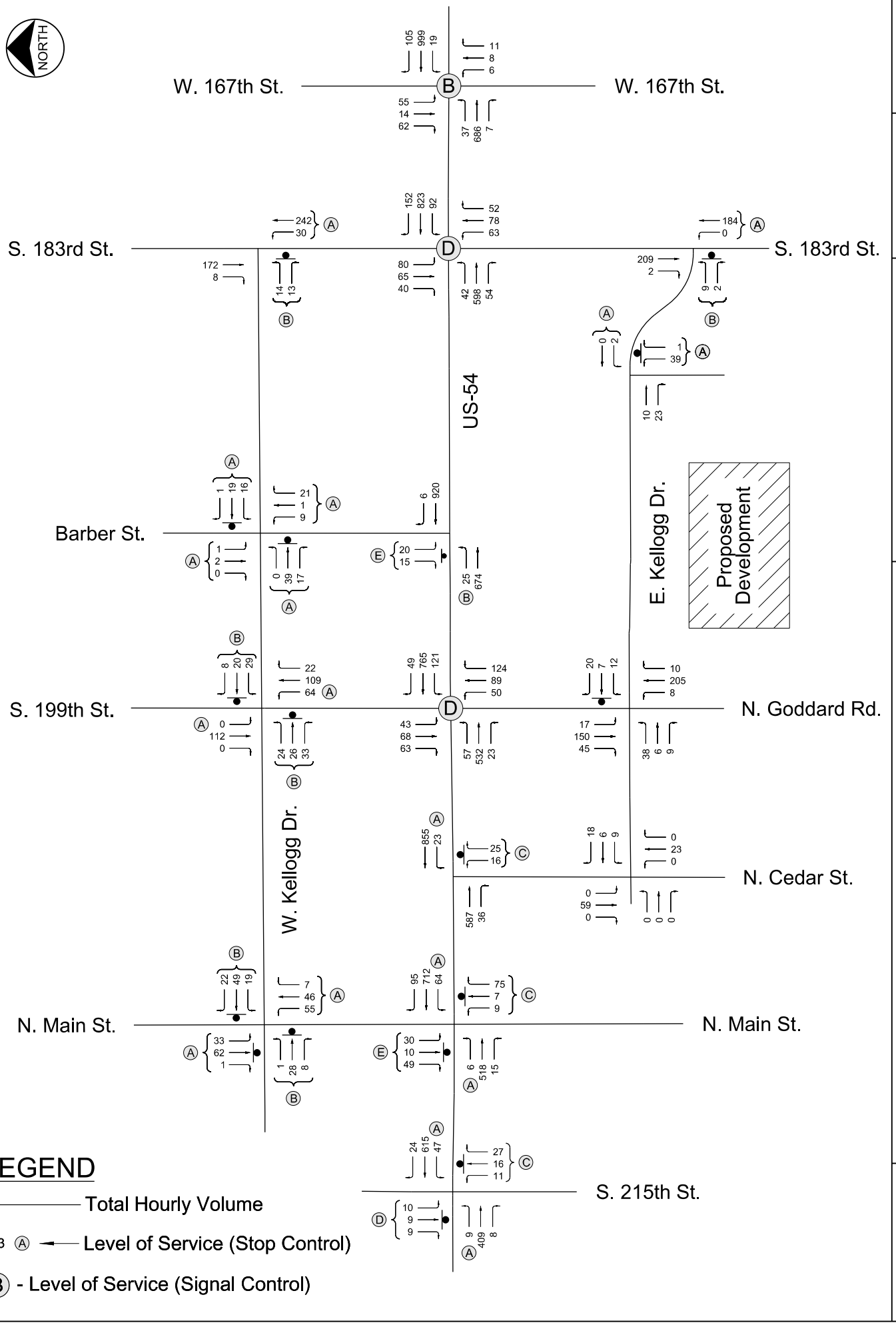


Figure A-10

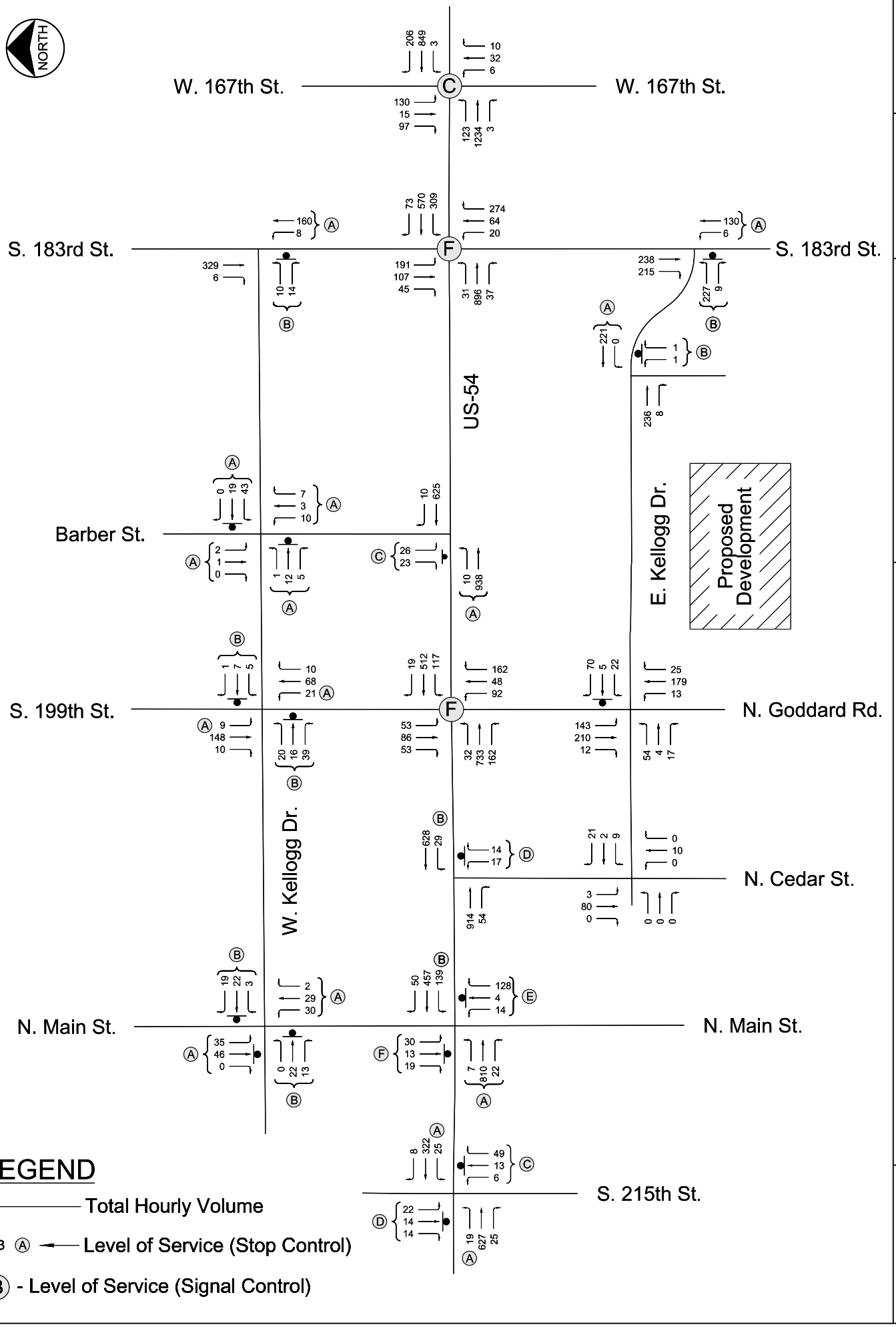
November 2018

No Scale

STAR Bond Development
Goddard, Kansas

EXISTING P.M. PEAK HOUR
TRAFFIC VOLUMES

TranSystems



EXISTING PLUS DEVELOPMENT
A.M. PEAK HOUR TRAFFIC VOLUMES

STAR Bond Development
Goddard, Kansas

November 2018
No Scale

Figure A-11

TranSystems

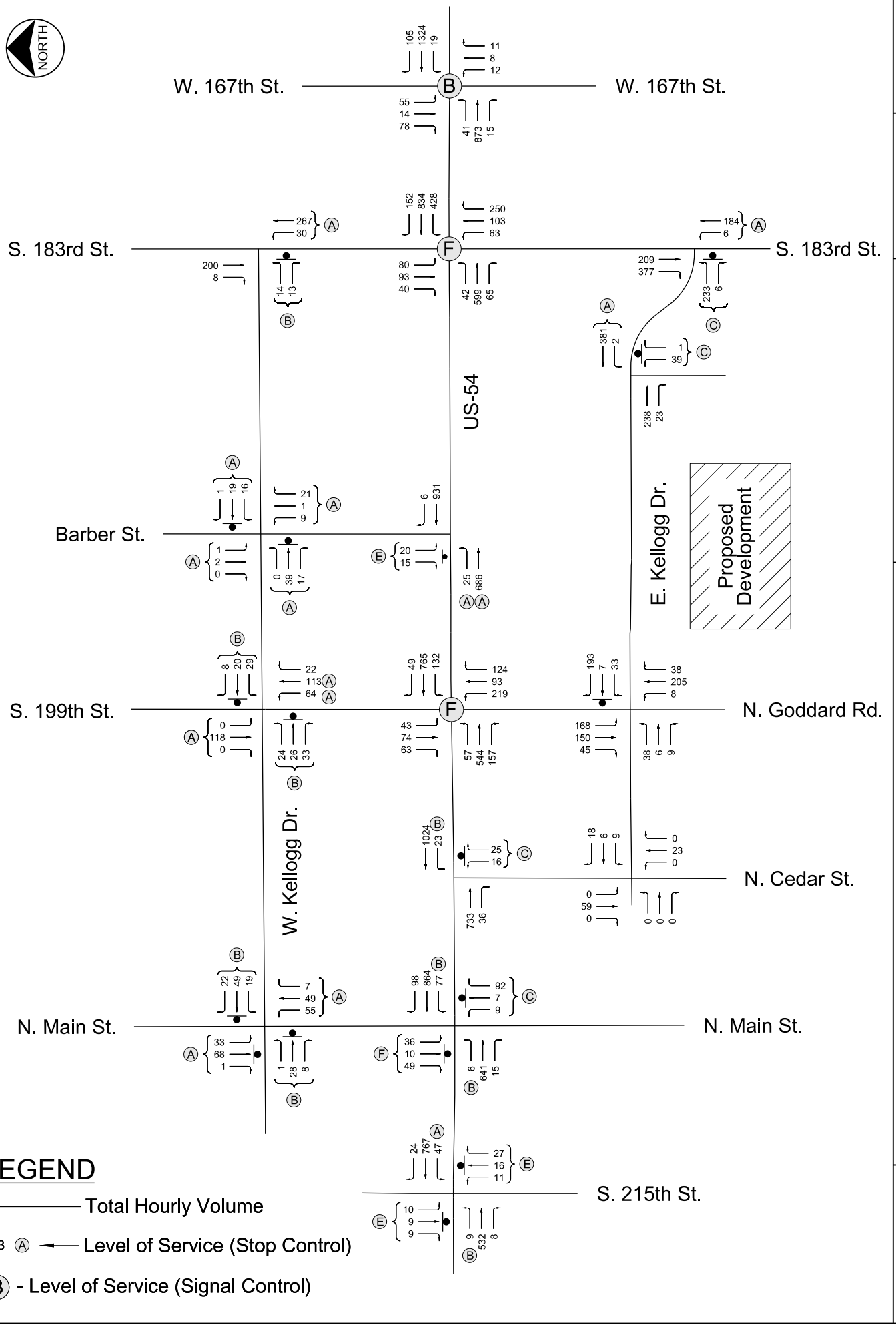


Figure A-12

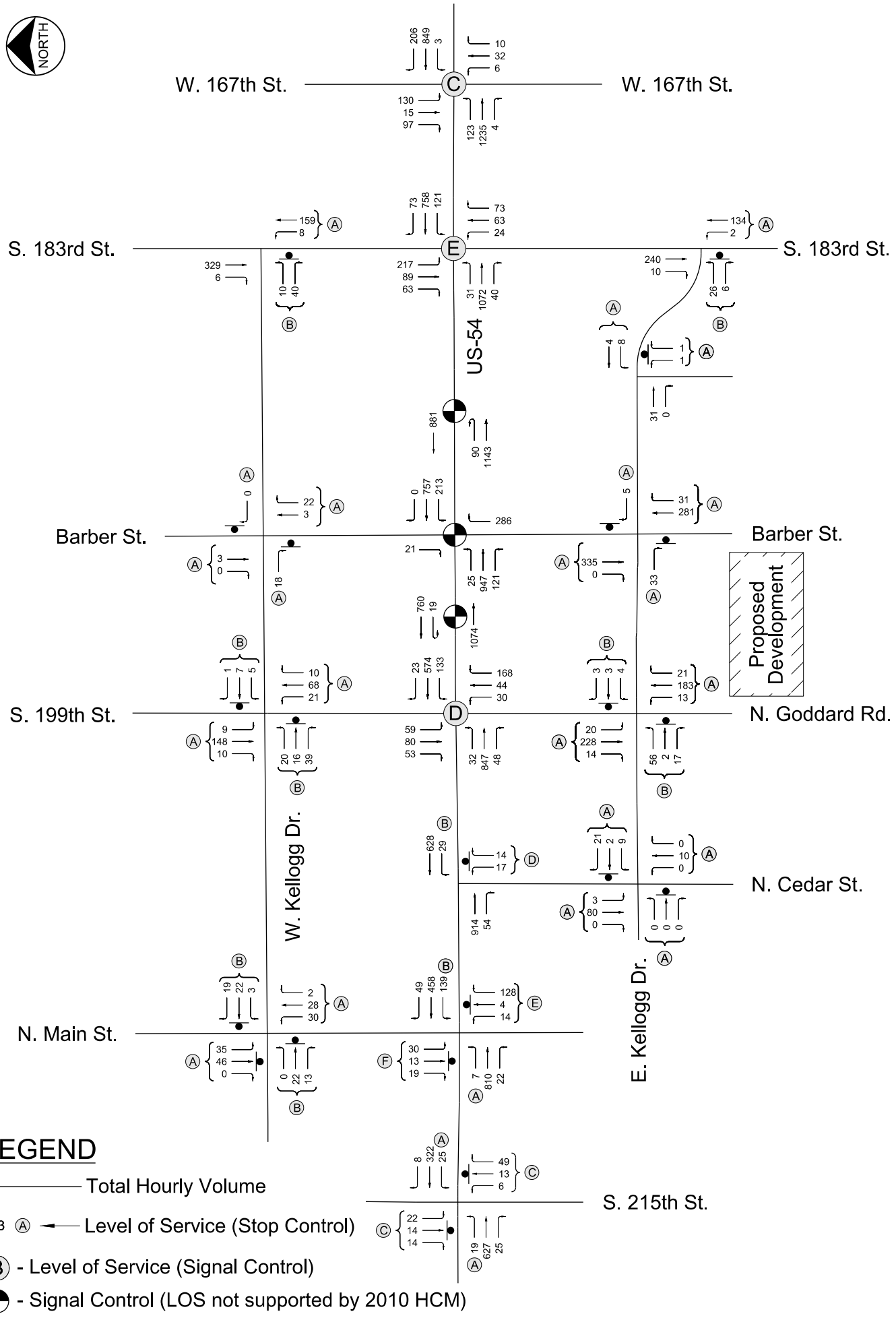
November 2018

No Scale

STAR Bond Development
Goddard, Kansas

EXISTING PLUS DEVELOPMENT
P.M. PEAK HOUR TRAFFIC VOLUMES

TranSystems



STAR Bond Development
Goddard, Kansas

EXISTING PLUS DEVELOPMENT (RCUT)
A.M. PEAK HOUR TRAFFIC VOLUMES

November 2018

No Scale

Figure A-13

TranSystems

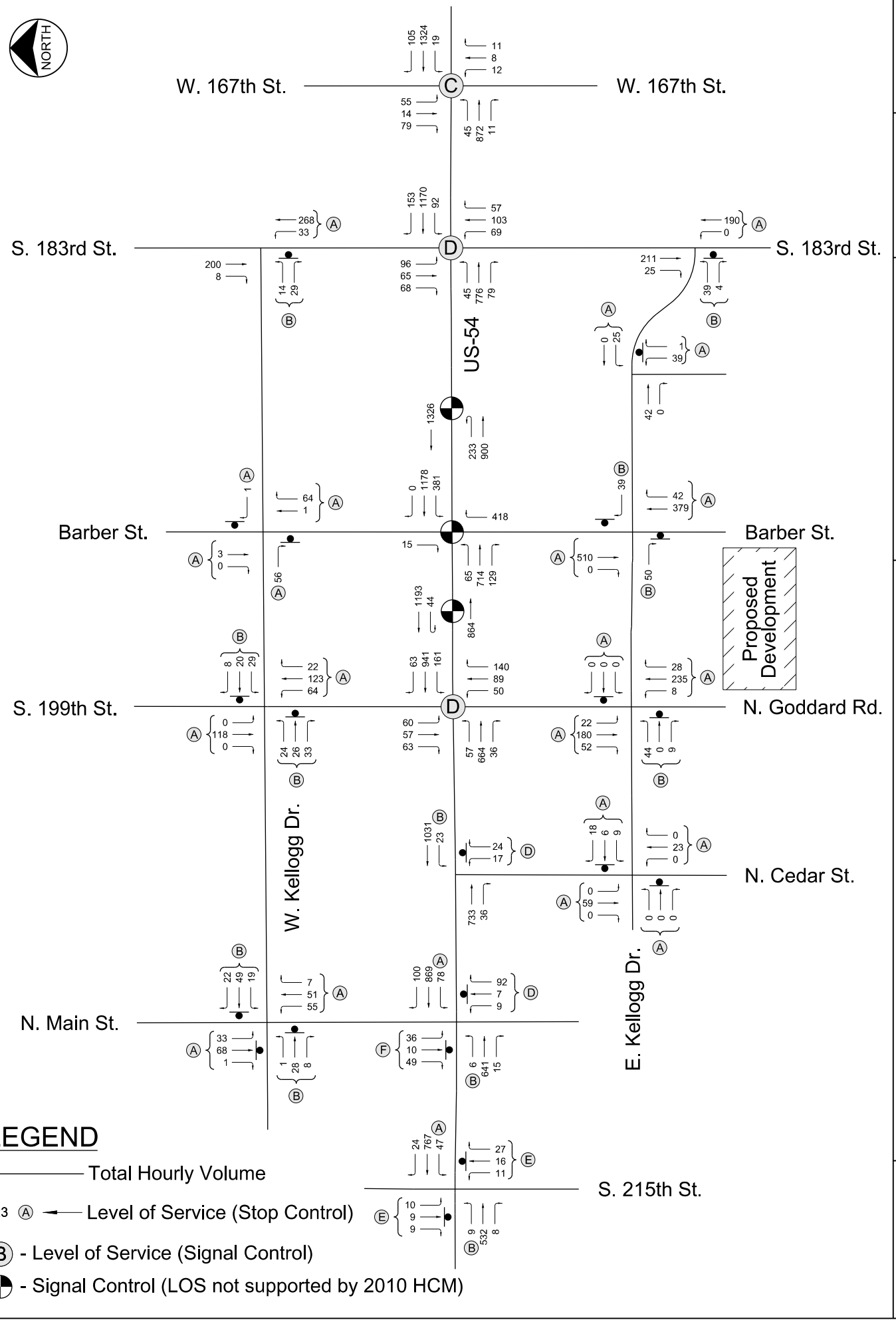


Figure A-14

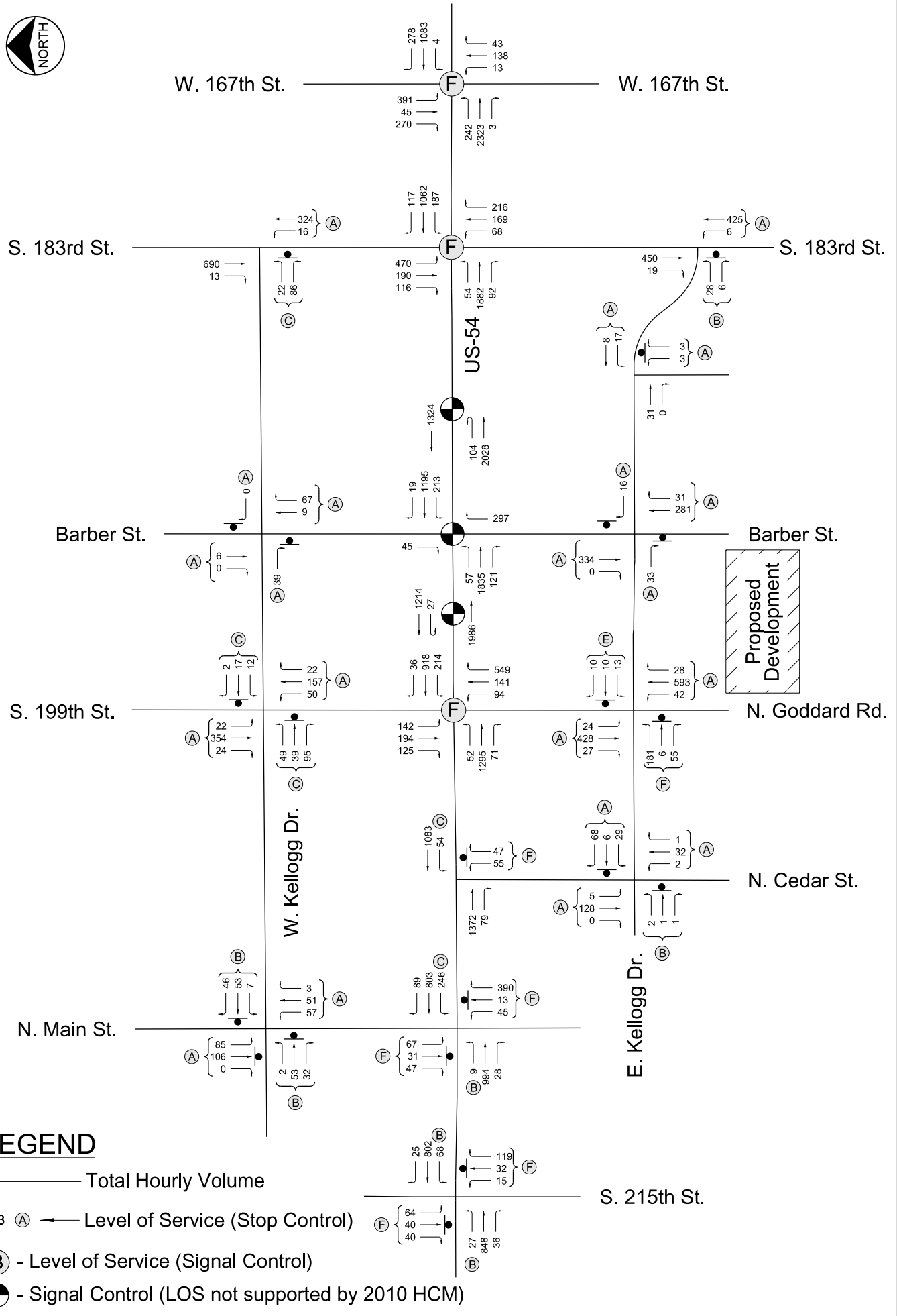
November 2018

No Scale

STAR Bond Development
Goddard, Kansas

EXISTING PLUS DEVELOPMENT (RCUT)
P.M. PEAK HOUR TRAFFIC VOLUMES

Trans Systems



FUTURE YEAR 2040 (RCUT)
A.M. PEAK HOUR TRAFFIC VOLUMES

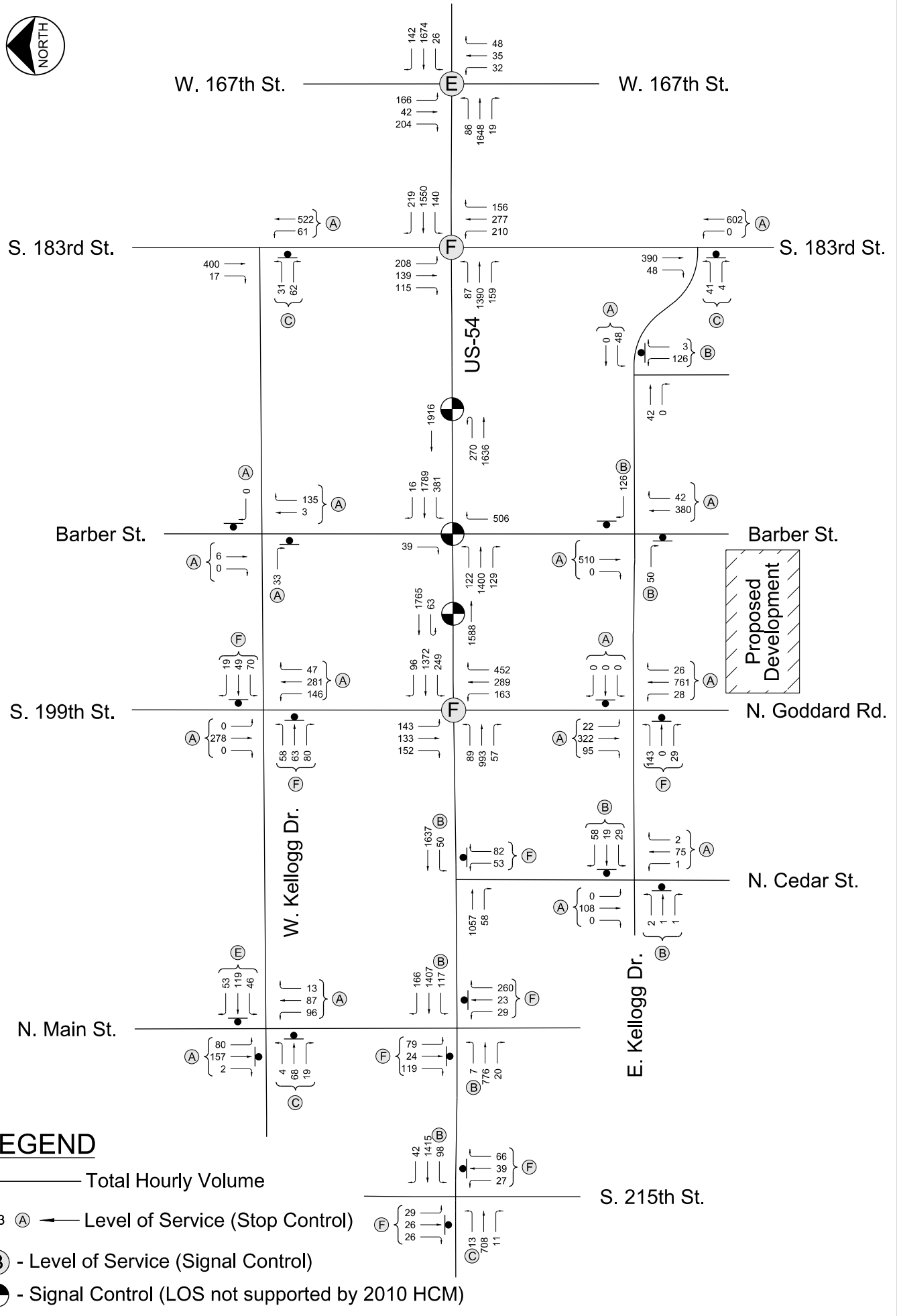
STAR Bond Development
Goddard, Kansas

November 2018

No Scale

Figure A-15

Trans Systems



STAR Bond Development
Goddard, Kansas

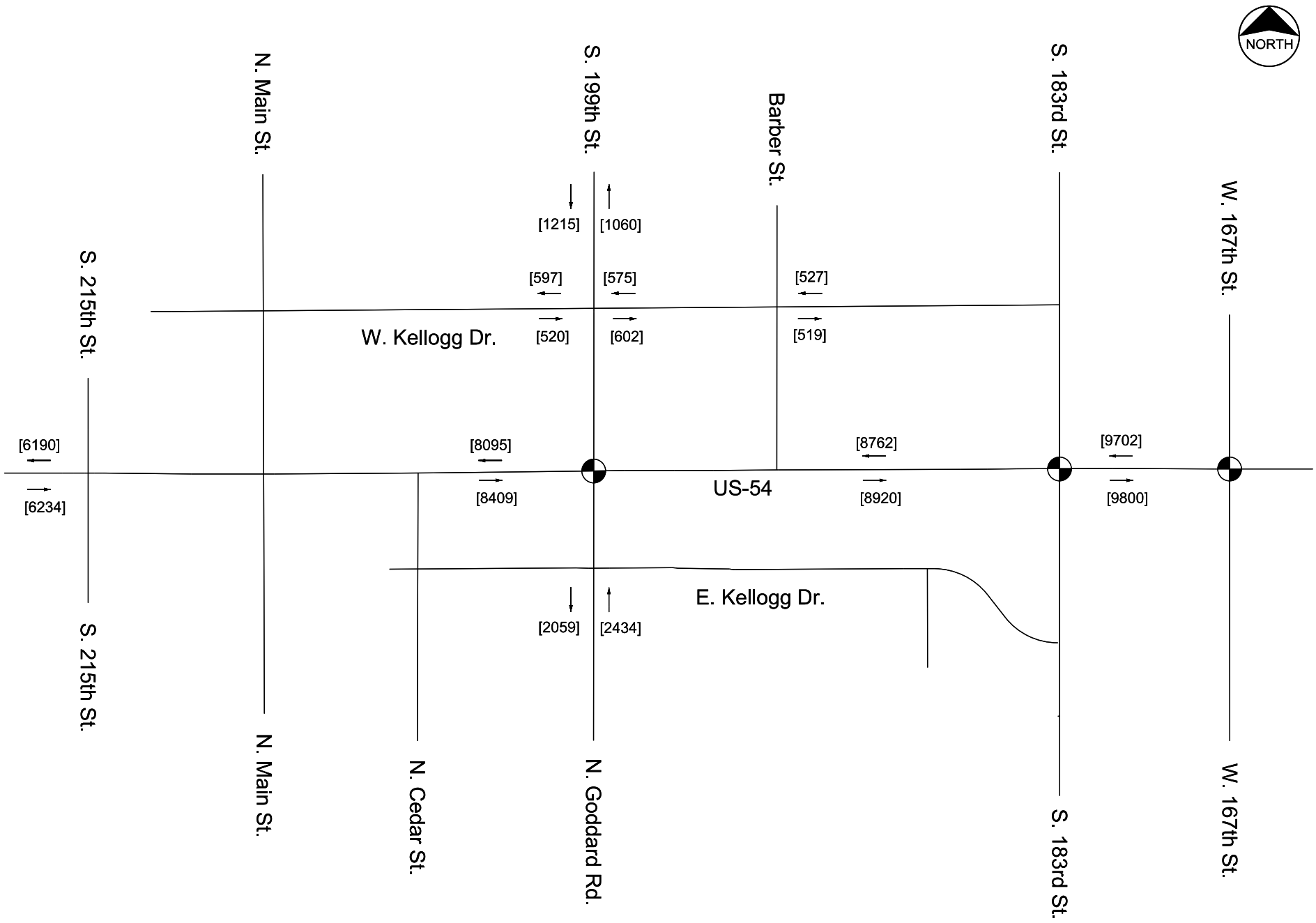
FUTURE YEAR 2040 (RCUT)
P.M. PEAK HOUR TRAFFIC VOLUMES

November 2018

No Scale

Figure A-16

Trans Systems



TranSystems	AVERAGE DAILY TRAFFIC	STAR Bond Development Goddard, Kansas	November 2018 No Scale	Figure A-17

Appendix B – Daily Traffic Counts and Spot Speed Studies

See attached worksheets.

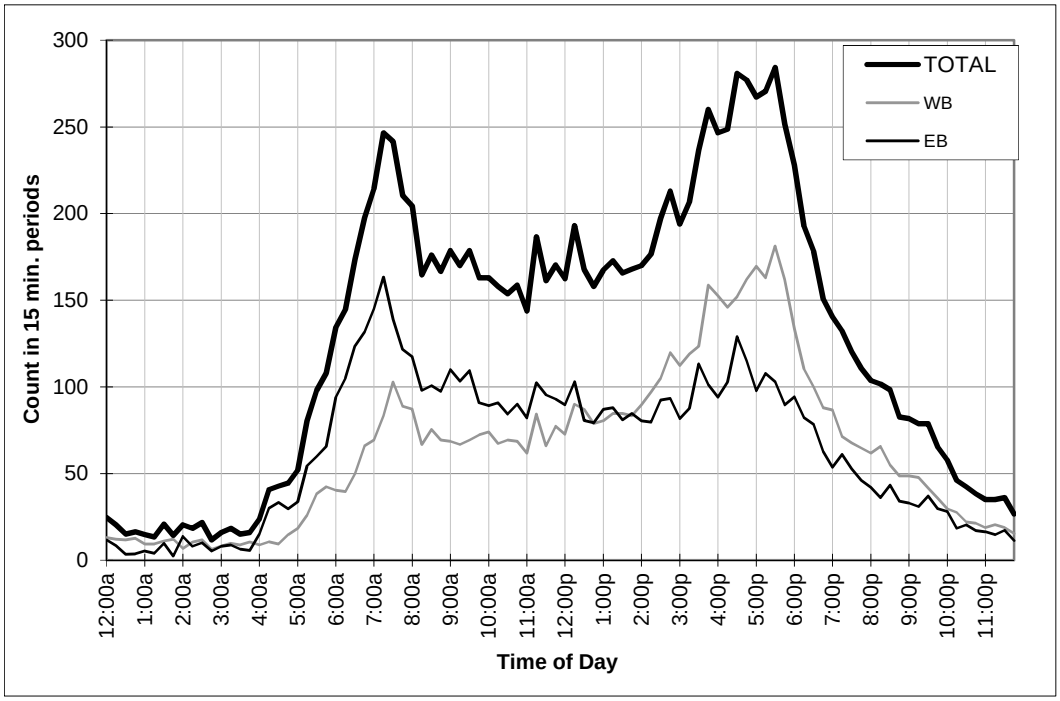
Daily Traffic Count

Goddard Traffic Impact Study

Goddard, Kansas

Location: US-54 West of 215th Street

Period Start	WB	EB	TOTAL
12:00a	13	12	25
12:15a	12	8	20
12:30a	12	3	15
12:45a	13	4	16
1:00a	9	5	15
1:15a	9	4	13
1:30a	11	10	21
1:45a	12	2	14
2:00a	7	14	20
2:15a	10	8	18
2:30a	12	10	22
2:45a	6	5	12
3:00a	8	8	16
3:15a	10	9	18
3:30a	9	6	15
3:45a	10	6	16
4:00a	9	15	24
4:15a	11	30	41
4:30a	9	33	43
4:45a	15	30	44
5:00a	18	34	52
5:15a	26	54	80
5:30a	38	60	98
5:45a	42	66	108
6:00a	40	94	134
6:15a	40	105	145
6:30a	50	124	174
6:45a	66	132	198
7:00a	69	145	214
7:15a	83	163	247
7:30a	103	139	242
7:45a	89	122	210
8:00a	87	117	204
8:15a	67	98	165
8:30a	75	101	176
8:45a	69	97	167
9:00a	69	110	179
9:15a	67	103	170
9:30a	69	109	179
9:45a	72	91	163
10:00a	74	89	163
10:15a	67	91	158
10:30a	69	84	154
10:45a	69	90	159
11:00a	62	82	144
11:15a	84	102	187
11:30a	66	95	161
11:45a	77	93	170
12:00p	73	90	162
12:15p	90	103	193
12:30p	87	81	168
12:45p	79	79	158
1:00p	80	87	167
1:15p	85	88	173
1:30p	85	81	166
1:45p	83	85	168
2:00p	90	80	170
2:15p	97	80	177
2:30p	105	92	197
2:45p	120	93	213
3:00p	112	82	194
3:15p	119	88	207
3:30p	123	113	237
3:45p	159	101	260
4:00p	153	94	247
4:15p	146	103	249
4:30p	152	129	281
4:45p	162	115	277
5:00p	170	98	267
5:15p	163	108	271
5:30p	181	103	284
5:45p	162	90	252
6:00p	134	94	228
6:15p	110	82	193
6:30p	100	78	178
6:45p	88	63	151
7:00p	87	54	140
7:15p	71	61	132
7:30p	68	53	120
7:45p	65	46	111
8:00p	62	42	104
8:15p	66	36	102
8:30p	55	43	98
8:45p	49	34	83
9:00p	49	33	82
9:15p	48	31	79
9:30p	42	37	79
9:45p	36	30	65
10:00p	30	28	58
10:15p	28	18	46
10:30p	22	20	42
10:45p	21	17	38
11:00p	19	16	35
11:15p	20	15	35
11:30p	19	17	36
11:45p	15	11	27



HOURLY TOTALS

Period Start	WB	EB	TOTAL
12:00a	49	27	76
1:00a	42	21	63
2:00a	35	37	72
3:00a	37	29	65
4:00a	43	108	151
5:00a	125	213	338
6:00a	196	454	650
7:00a	344	569	913
8:00a	298	413	712
9:00a	277	413	690
10:00a	279	354	633
11:00a	289	373	662
12:00p	328	353	681
1:00p	333	341	674
2:00p	411	346	757
3:00p	513	384	897
4:00p	613	441	1053
5:00p	676	398	1074
6:00p	432	318	750
7:00p	290	213	504
8:00p	231	155	386
9:00p	174	131	304
10:00p	101	84	184
11:00p	73	60	133

Approach	Count Start Date	AM Peak 7:00a - 8:00a	Mid-day Peak 2:30p - 3:30p	PM Peak 4:45p - 5:45p	Totals
Westbound	Mon 11/16/15 12:00 AM	344	456	676	6,190
Eastbound	Mon 11/16/15 12:00 AM	569	355	423	6,234
TOTAL		913	811	1,099	12,424

TranSystems Corporation
245 N. Waco, Ste. 222, Wichita, KS 67202 - (316) 303-3000

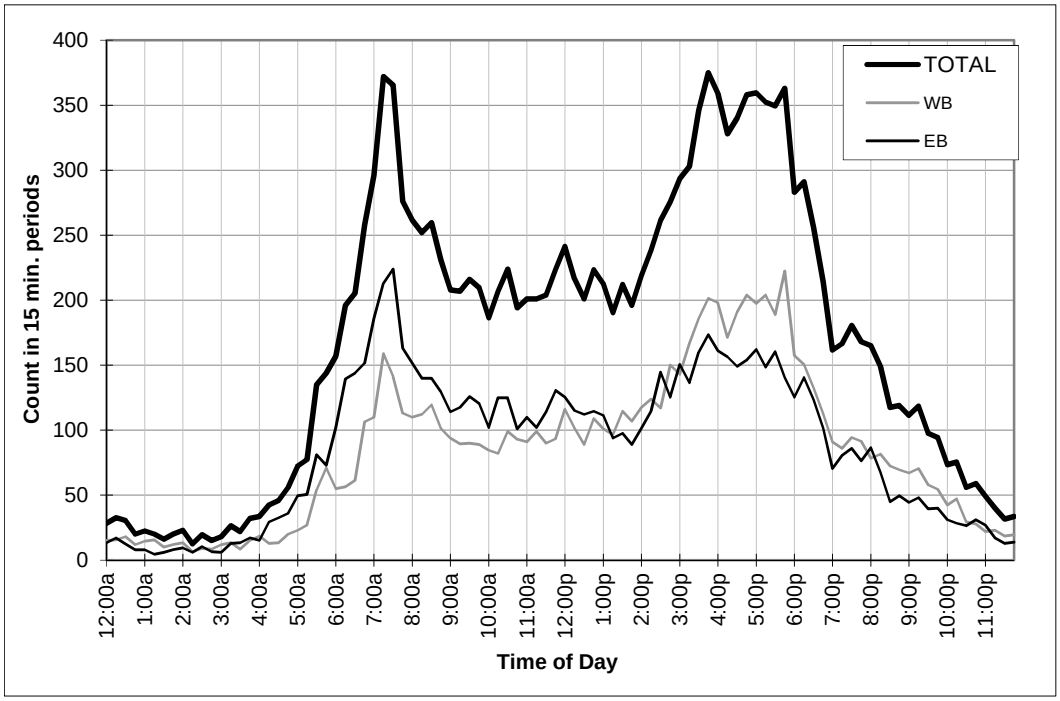
Daily Traffic Count

Goddard Traffic Impact Study

Goddard, Kansas

Location: US-54 Between Main Street & 199th Street

Period Start	WB	EB	TOTAL
12:00a	15	14	29
12:15a	16	17	33
12:30a	18	13	31
12:45a	12	8	20
1:00a	15	8	23
1:15a	16	5	20
1:30a	10	6	16
1:45a	12	8	20
2:00a	14	10	23
2:15a	7	6	13
2:30a	9	11	20
2:45a	9	7	15
3:00a	12	6	18
3:15a	14	13	27
3:30a	9	14	22
3:45a	15	17	32
4:00a	19	15	34
4:15a	13	30	43
4:30a	14	33	46
4:45a	20	36	56
5:00a	23	50	73
5:15a	27	51	78
5:30a	54	81	135
5:45a	71	73	144
6:00a	55	102	157
6:15a	57	140	196
6:30a	62	144	206
6:45a	107	152	258
7:00a	110	186	296
7:15a	159	213	372
7:30a	142	224	366
7:45a	113	163	276
8:00a	110	152	262
8:15a	112	140	252
8:30a	120	140	260
8:45a	102	130	231
9:00a	94	114	208
9:15a	90	118	207
9:30a	90	126	216
9:45a	89	121	210
10:00a	85	102	187
10:15a	82	125	207
10:30a	99	125	224
10:45a	93	101	194
11:00a	91	110	201
11:15a	99	102	201
11:30a	90	114	204
11:45a	94	131	224
12:00p	116	126	242
12:15p	102	115	217
12:30p	89	112	201
12:45p	109	115	224
1:00p	101	112	213
1:15p	97	94	191
1:30p	115	98	212
1:45p	107	89	196
2:00p	118	102	219
2:15p	124	115	239
2:30p	117	145	262
2:45p	150	126	276
3:00p	143	151	294
3:15p	167	137	303
3:30p	186	160	346
3:45p	202	174	375
4:00p	198	161	359
4:15p	172	157	328
4:30p	191	149	340
4:45p	204	154	358
5:00p	198	162	360
5:15p	204	149	353
5:30p	189	161	350
5:45p	223	141	363
6:00p	158	126	283
6:15p	151	141	291
6:30p	133	124	256
6:45p	113	102	214
7:00p	91	71	162
7:15p	86	81	167
7:30p	95	86	181
7:45p	92	77	168
8:00p	79	87	165
8:15p	82	68	149
8:30p	73	45	118
8:45p	70	50	119
9:00p	67	45	112
9:15p	71	48	119
9:30p	58	40	98
9:45p	55	40	95
10:00p	43	31	74
10:15p	47	29	76
10:30p	30	27	56
10:45p	28	31	59
11:00p	22	27	49
11:15p	23	17	40
11:30p	19	13	32
11:45p	20	14	34



HOURLY TOTALS

Period Start	WB	EB	TOTAL
12:00a	61	51	112
1:00a	52	27	79
2:00a	38	33	70
3:00a	49	50	99
4:00a	65	113	178
5:00a	175	254	429
6:00a	280	537	817
7:00a	524	786	1310
8:00a	443	561	1004
9:00a	363	478	841
10:00a	359	453	812
11:00a	374	457	830
12:00p	416	467	883
1:00p	419	392	811
2:00p	509	486	995
3:00p	697	621	1318
4:00p	765	621	1385
5:00p	813	612	1425
6:00p	553	491	1044
7:00p	363	314	677
8:00p	302	249	551
9:00p	250	172	422
10:00p	147	117	264
11:00p	83	71	154

Approach	Count Start Date	AM Peak 7:00a - 8:00a	Mid-day Peak 2:30p - 3:30p	PM Peak 5:00p - 6:00p	Totals
Westbound	Mon 11/9/15 12:00 AM	524	577	813	8,095
Eastbound	Mon 11/9/15 12:00 AM	786	557	612	8,409
TOTAL		1,310	1,134	1,425	16,504

TranSystems Corporation
245 N. Waco, Ste. 222, Wichita, KS 67202 - (316) 303-3000

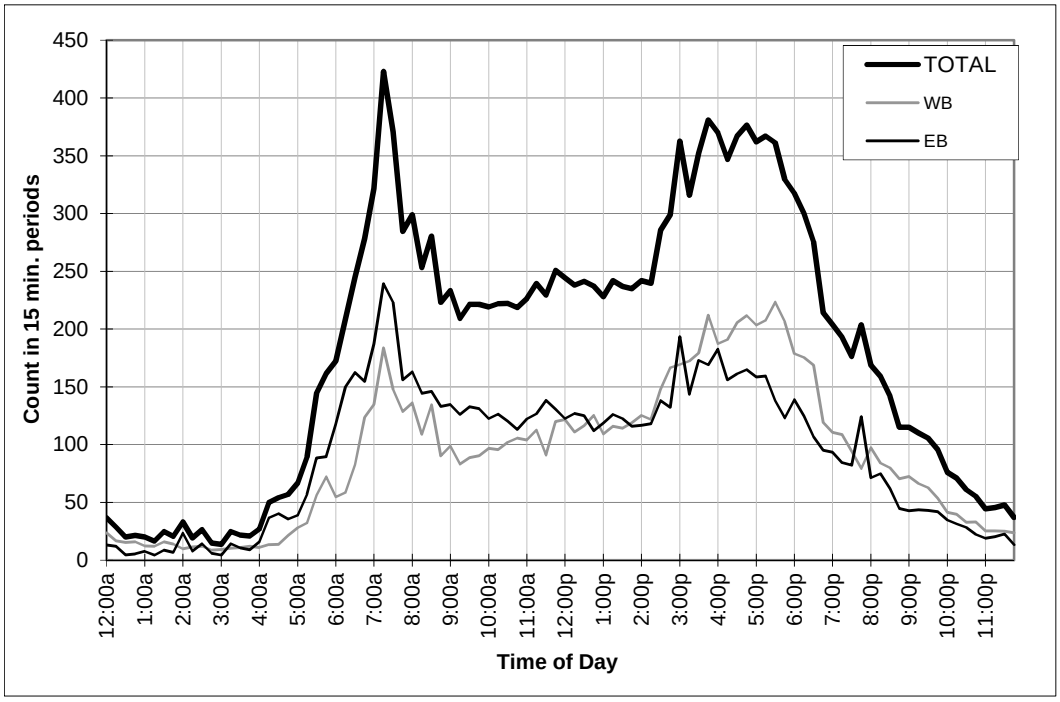
Daily Traffic Count

Goddard Traffic Impact Study

Goddard, Kansas

Location: US-54 Between 199th Street & 183rd Street

Period Start	WB	EB	TOTAL
12:00a	24	13	37
12:15a	17	12	29
12:30a	15	5	20
12:45a	16	5	21
1:00a	12	8	20
1:15a	12	4	16
1:30a	16	9	25
1:45a	14	7	21
2:00a	10	23	33
2:15a	11	8	19
2:30a	12	14	26
2:45a	9	6	15
3:00a	9	4	14
3:15a	10	14	25
3:30a	11	11	22
3:45a	12	9	21
4:00a	11	16	27
4:15a	13	37	50
4:30a	14	40	54
4:45a	21	36	57
5:00a	28	39	67
5:15a	32	57	89
5:30a	56	88	145
5:45a	72	90	162
6:00a	55	118	172
6:15a	59	150	209
6:30a	83	162	245
6:45a	124	155	278
7:00a	135	187	322
7:15a	184	239	423
7:30a	148	223	371
7:45a	129	156	285
8:00a	136	163	299
8:15a	109	144	253
8:30a	134	146	280
8:45a	90	133	223
9:00a	99	135	233
9:15a	83	126	209
9:30a	89	133	221
9:45a	90	131	221
10:00a	97	123	219
10:15a	96	126	222
10:30a	102	120	222
10:45a	106	113	219
11:00a	104	122	226
11:15a	113	127	239
11:30a	91	138	229
11:45a	120	131	251
12:00p	122	123	244
12:15p	111	127	238
12:30p	116	125	241
12:45p	125	112	237
1:00p	109	119	228
1:15p	116	126	242
1:30p	114	123	237
1:45p	119	116	235
2:00p	125	117	242
2:15p	122	118	240
2:30p	148	138	286
2:45p	167	132	299
3:00p	169	193	363
3:15p	172	144	316
3:30p	179	173	352
3:45p	212	169	381
4:00p	187	183	370
4:15p	191	156	347
4:30p	206	161	367
4:45p	212	165	377
5:00p	203	159	362
5:15p	208	159	367
5:30p	223	138	361
5:45p	206	123	329
6:00p	179	139	318
6:15p	175	125	300
6:30p	169	107	275
6:45p	119	95	214
7:00p	111	93	204
7:15p	109	84	193
7:30p	94	82	176
7:45p	79	124	204
8:00p	97	71	169
8:15p	84	75	159
8:30p	80	62	142
8:45p	70	45	115
9:00p	72	43	115
9:15p	66	44	110
9:30p	63	43	106
9:45p	54	42	96
10:00p	41	35	76
10:15p	40	31	71
10:30p	33	28	61
10:45p	33	22	55
11:00p	25	19	44
11:15p	25	20	46
11:30p	25	23	48
11:45p	24	13	37



HOURLY TOTALS

Period Start	WB	EB	TOTAL
12:00a	72	35	107
1:00a	54	27	82
2:00a	42	52	93
3:00a	43	38	81
4:00a	59	129	188
5:00a	189	274	463
6:00a	320	585	904
7:00a	595	805	1400
8:00a	469	586	1056
9:00a	361	524	885
10:00a	400	482	882
11:00a	428	518	946
12:00p	474	487	961
1:00p	459	483	942
2:00p	561	505	1066
3:00p	733	679	1412
4:00p	796	665	1461
5:00p	841	579	1420
6:00p	642	465	1107
7:00p	393	384	777
8:00p	332	253	585
9:00p	255	171	426
10:00p	147	117	263
11:00p	99	75	175

Approach	Count Start Date	AM Peak 7:00a - 8:00a	Mid-day Peak 2:30p - 3:30p	PM Peak 4:30p - 5:30p	Totals
Westbound	Mon 11/16/15 12:00 AM	595	656	828	8,762
Eastbound	Mon 11/16/15 12:00 AM	805	607	644	8,920
TOTAL		1,400	1,263	1,473	17,682

TranSystems Corporation
245 N. Waco, Ste. 222, Wichita, KS 67202 - (316) 303-3000

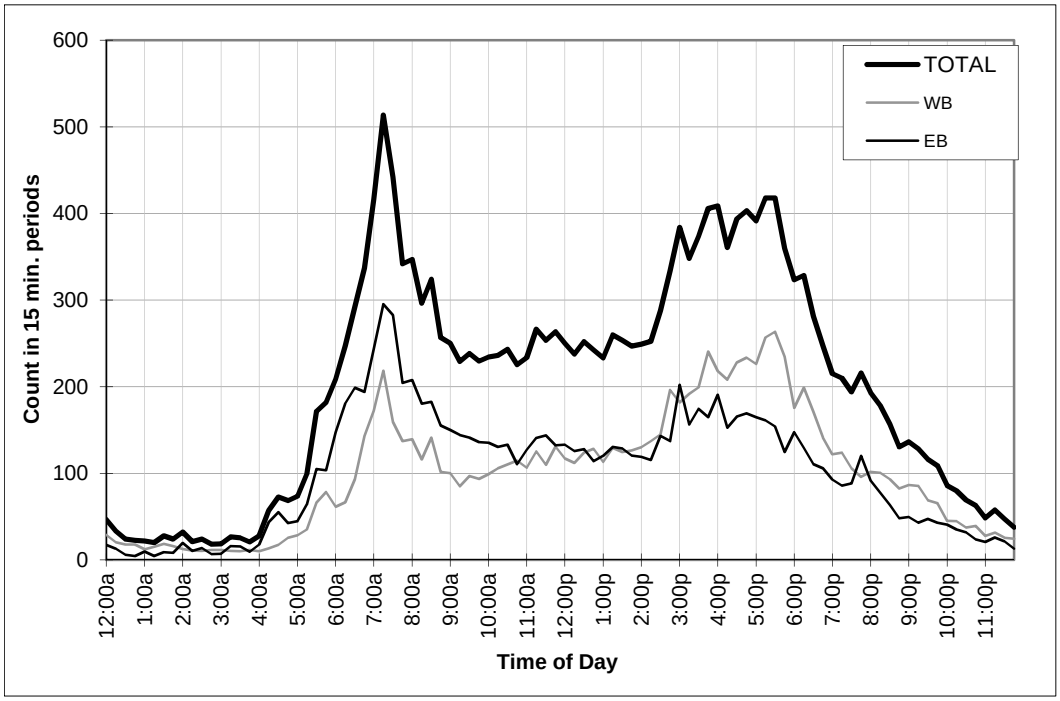
Daily Traffic Count

Goddard Traffic Impact Study

Goddard, Kansas

Location: US-54 East of 183rd Street

Period Start	WB	EB	TOTAL
12:00a	29	18	47
12:15a	20	13	33
12:30a	18	6	24
12:45a	18	5	23
1:00a	12	10	22
1:15a	15	5	20
1:30a	19	9	28
1:45a	16	8	24
2:00a	13	20	32
2:15a	11	10	21
2:30a	10	14	24
2:45a	12	7	18
3:00a	12	7	19
3:15a	11	16	27
3:30a	10	16	26
3:45a	12	9	21
4:00a	10	18	28
4:15a	13	44	57
4:30a	17	55	73
4:45a	26	43	68
5:00a	29	45	74
5:15a	35	64	99
5:30a	66	105	171
5:45a	78	104	182
6:00a	61	147	209
6:15a	67	181	247
6:30a	93	199	292
6:45a	143	194	337
7:00a	172	244	416
7:15a	218	295	514
7:30a	159	283	442
7:45a	137	204	342
8:00a	139	208	347
8:15a	116	180	296
8:30a	141	183	324
8:45a	102	155	257
9:00a	100	150	250
9:15a	85	144	229
9:30a	97	141	238
9:45a	94	136	230
10:00a	99	135	234
10:15a	106	130	236
10:30a	110	133	243
10:45a	115	111	225
11:00a	106	127	234
11:15a	125	141	266
11:30a	110	144	254
11:45a	131	132	263
12:00p	117	133	250
12:15p	112	126	238
12:30p	124	128	252
12:45p	128	114	242
1:00p	113	120	233
1:15p	129	130	260
1:30p	125	129	253
1:45p	126	121	247
2:00p	130	119	249
2:15p	137	115	252
2:30p	145	143	288
2:45p	196	137	334
3:00p	182	202	384
3:15p	192	156	348
3:30p	199	174	374
3:45p	241	165	406
4:00p	218	191	409
4:15p	208	153	361
4:30p	228	166	394
4:45p	234	169	403
5:00p	226	165	391
5:15p	257	161	418
5:30p	263	154	418
5:45p	235	125	359
6:00p	176	148	323
6:15p	199	129	328
6:30p	171	111	281
6:45p	141	106	247
7:00p	122	93	215
7:15p	124	86	210
7:30p	106	88	194
7:45p	96	120	216
8:00p	102	91	193
8:15p	101	77	178
8:30p	93	63	157
8:45p	82	48	131
9:00p	87	50	136
9:15p	85	43	128
9:30p	69	47	116
9:45p	66	43	109
10:00p	45	41	86
10:15p	45	35	80
10:30p	37	32	69
10:45p	39	24	63
11:00p	28	21	49
11:15p	32	26	58
11:30p	26	22	47
11:45p	25	13	38



HOURLY TOTALS

Period Start	WB	EB	TOTAL
12:00a	85	41	127
1:00a	62	32	94
2:00a	46	50	96
3:00a	44	48	92
4:00a	66	160	226
5:00a	209	318	526
6:00a	364	721	1085
7:00a	687	1026	1713
8:00a	498	726	1224
9:00a	376	571	947
10:00a	430	509	939
11:00a	473	544	1017
12:00p	482	501	982
1:00p	494	500	993
2:00p	608	515	1123
3:00p	814	698	1511
4:00p	888	678	1566
5:00p	981	605	1586
6:00p	687	493	1180
7:00p	447	388	835
8:00p	378	280	658
9:00p	306	183	489
10:00p	167	132	298
11:00p	110	81	191

Approach	Count Start Date	AM Peak 7:00a - 8:00a	Mid-day Peak 2:30p - 3:30p	PM Peak 4:45p - 5:45p	Totals
Westbound	Mon 11/16/15 12:00 AM	687	715	980	9,702
Eastbound	Mon 11/16/15 12:00 AM	1,026	639	650	9,800
TOTAL		1,713	1,354	1,630	19,502

TranSystems Corporation
245 N. Waco, Ste. 222, Wichita, KS 67202 - (316) 303-3000

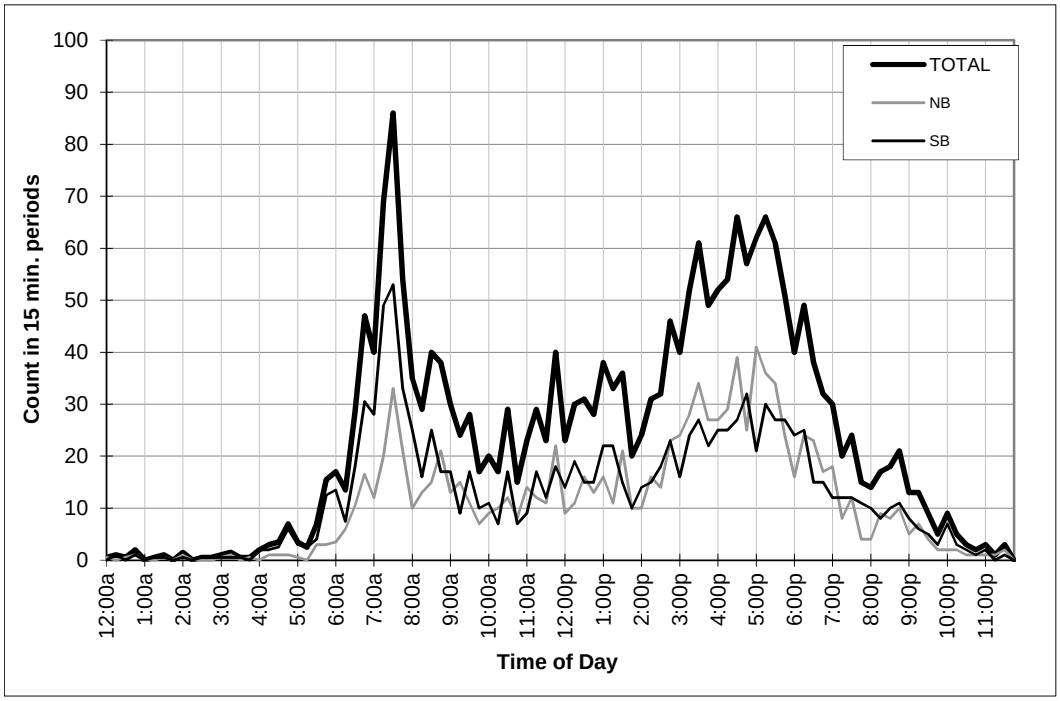
Daily Traffic Count

Goddard Traffic Impact Study

Goddard, Kansas

Location: 199th Street North of US-54

Period Start	NB	SB	TOTAL
12:00a	1	0	1
12:15a	0	1	1
12:30a	1	0	1
12:45a	1	1	2
1:00a	0	0	0
1:15a	0	1	1
1:30a	1	1	1
1:45a	0	0	0
2:00a	1	1	2
2:15a	0	0	0
2:30a	0	1	1
2:45a	0	1	1
3:00a	1	1	1
3:15a	1	1	2
3:30a	0	1	1
3:45a	1	0	1
4:00a	0	2	2
4:15a	1	2	3
4:30a	1	3	4
4:45a	1	6	7
5:00a	1	3	4
5:15a	0	3	3
5:30a	3	4	7
5:45a	3	13	16
6:00a	4	14	17
6:15a	6	8	14
6:30a	11	18	29
6:45a	17	31	47
7:00a	12	28	40
7:15a	20	49	69
7:30a	33	53	86
7:45a	21	33	54
8:00a	10	25	35
8:15a	13	16	29
8:30a	15	25	40
8:45a	21	17	38
9:00a	13	17	30
9:15a	15	9	24
9:30a	11	17	28
9:45a	7	10	17
10:00a	9	11	20
10:15a	10	7	17
10:30a	12	17	29
10:45a	8	7	15
11:00a	14	9	23
11:15a	12	17	29
11:30a	11	12	23
11:45a	22	18	40
12:00p	9	14	23
12:15p	11	19	30
12:30p	16	15	31
12:45p	13	15	28
1:00p	16	22	38
1:15p	11	22	33
1:30p	21	15	36
1:45p	10	10	20
2:00p	10	14	24
2:15p	16	15	31
2:30p	14	18	32
2:45p	23	23	46
3:00p	24	16	40
3:15p	28	24	52
3:30p	34	27	61
3:45p	27	22	49
4:00p	27	25	52
4:15p	29	25	54
4:30p	39	27	66
4:45p	25	32	57
5:00p	41	21	62
5:15p	36	30	66
5:30p	34	27	61
5:45p	24	27	51
6:00p	16	24	40
6:15p	24	25	49
6:30p	23	15	38
6:45p	17	15	32
7:00p	18	12	30
7:15p	8	12	20
7:30p	12	12	24
7:45p	4	11	15
8:00p	4	10	14
8:15p	9	8	17
8:30p	8	10	18
8:45p	10	11	21
9:00p	5	8	13
9:15p	7	6	13
9:30p	4	5	9
9:45p	2	3	5
10:00p	2	7	9
10:15p	2	3	5
10:30p	1	2	3
10:45p	1	1	2
11:00p	1	2	3
11:15p	1	0	1
11:30p	2	1	3
11:45p	0	0	0



HOURLY TOTALS

Period Start	NB	SB	TOTAL
12:00a	2	2	4
1:00a	1	1	2
2:00a	1	2	3
3:00a	2	2	4
4:00a	3	13	16
5:00a	7	22	29
6:00a	37	70	106
7:00a	86	163	249
8:00a	59	83	142
9:00a	46	53	99
10:00a	39	42	81
11:00a	59	56	115
12:00p	49	63	112
1:00p	58	69	127
2:00p	63	70	133
3:00p	113	89	202
4:00p	120	109	229
5:00p	135	105	240
6:00p	80	79	159
7:00p	42	47	89
8:00p	31	39	70
9:00p	18	22	40
10:00p	6	13	19
11:00p	4	3	7

Approach	Count Start Date	AM Peak 7:00a - 8:00a	Mid-day Peak 2:30p - 3:30p	PM Peak 4:30p - 5:30p	Totals
Northbound	Mon 11/9/15 4:15 PM	86	89	141	1,060
Southbound	Mon 11/9/15 4:15 PM	163	81	110	1,215
TOTAL		249	170	251	2,275

TranSystems Corporation
245 N. Waco, Ste. 222, Wichita, KS 67202 - (316) 303-3000

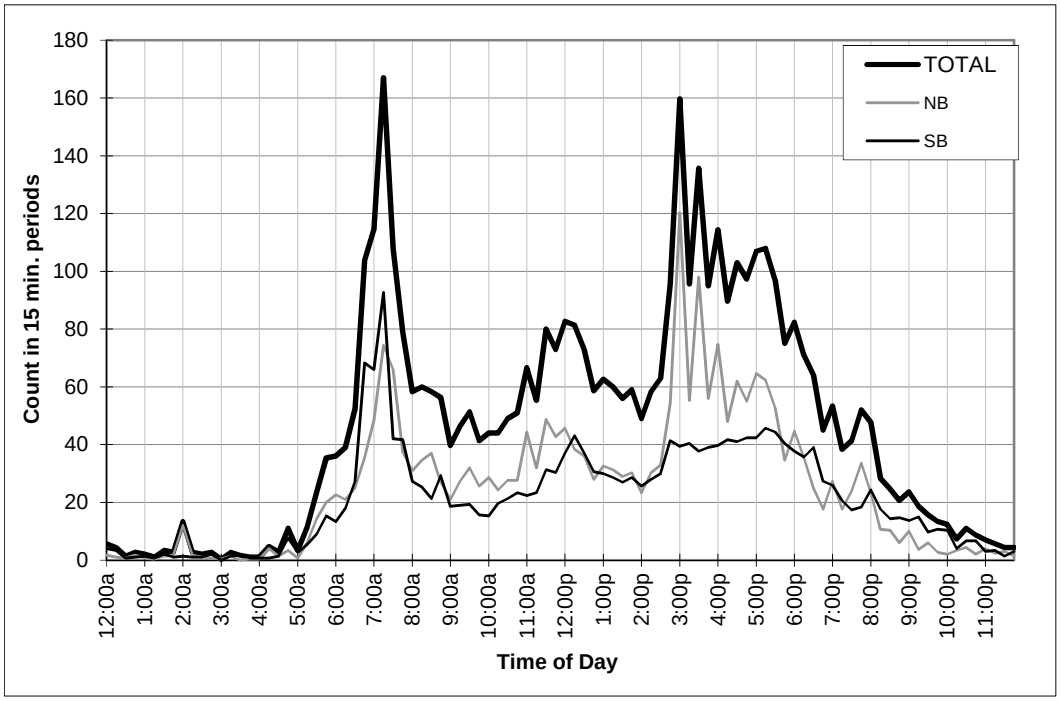
Daily Traffic Count

Goddard Traffic Impact Study

Goddard, Kansas

Location: 199th Street South of US-54

Period Start	NB	SB	TOTAL	Period Start	NB	SB	TOTAL	Period Start	NB	SB	TOTAL	Period Start	NB	SB	TOTAL
12:00a	2	4	6	6:00a	23	13	36	12:00p	46	37	83	6:00p	45	38	82
12:15a	1	3	4	6:15a	21	18	39	12:15p	38	43	81	6:15p	35	36	71
12:30a	1	1	1	6:30a	25	27	52	12:30p	36	37	73	6:30p	25	39	64
12:45a	2	1	3	6:45a	35	68	104	12:45p	28	31	59	6:45p	18	27	45
1:00a	1	1	2	7:00a	48	66	114	1:00p	33	30	63	7:00p	27	26	53
1:15a	0	1	1	7:15a	74	93	167	1:15p	31	29	60	7:15p	18	21	38
1:30a	1	2	3	7:30a	66	42	108	1:30p	29	27	56	7:30p	24	17	41
1:45a	2	1	3	7:45a	37	42	79	1:45p	30	29	59	7:45p	34	18	52
2:00a	12	1	13	8:00a	31	27	58	2:00p	23	26	49	8:00p	23	24	48
2:15a	2	1	3	8:15a	35	25	60	2:15p	30	28	58	8:15p	11	18	28
2:30a	1	1	2	8:30a	37	21	58	2:30p	33	30	63	8:30p	10	14	25
2:45a	1	2	3	8:45a	27	29	56	2:45p	54	41	96	8:45p	6	15	21
3:00a	0	0	0	9:00a	21	19	40	3:00p	120	39	160	9:00p	10	14	24
3:15a	1	1	3	9:15a	27	19	46	3:15p	55	40	96	9:15p	4	15	19
3:30a	0	2	2	9:30a	32	19	51	3:30p	98	38	136	9:30p	6	10	16
3:45a	0	1	1	9:45a	26	16	41	3:45p	56	39	95	9:45p	3	11	13
4:00a	0	1	1	10:00a	29	15	44	4:00p	75	40	114	10:00p	2	10	12
4:15a	4	1	5	10:15a	24	20	44	4:15p	48	42	90	10:15p	3	4	7
4:30a	1	1	3	10:30a	28	21	49	4:30p	62	41	103	10:30p	4	7	11
4:45a	3	8	11	10:45a	28	23	51	4:45p	55	42	97	10:45p	2	7	9
5:00a	1	3	3	11:00a	44	22	67	5:00p	65	42	107	11:00p	4	3	7
5:15a	6	5	11	11:15a	32	23	55	5:15p	62	46	108	11:15p	2	3	6
5:30a	14	9	23	11:30a	49	31	80	5:30p	53	44	97	11:30p	3	1	4
5:45a	20	15	35	11:45a	43	30	73	5:45p	35	40	75	11:45p	1	3	4



HOURLY TOTALS

Period Start	NB	SB	TOTAL
12:00a	5	9	14
1:00a	4	5	9
2:00a	15	5	21
3:00a	2	4	6
4:00a	9	10	19
5:00a	41	32	73
6:00a	104	127	231
7:00a	226	242	468
8:00a	130	103	233
9:00a	106	73	179
10:00a	108	80	188
11:00a	168	107	275
12:00p	148	148	296
1:00p	123	114	238
2:00p	141	125	266
3:00p	330	156	486
4:00p	240	165	404
5:00p	214	173	387
6:00p	123	140	262
7:00p	103	82	185
8:00p	50	71	121
9:00p	22	49	71
10:00p	12	28	39
11:00p	11	11	21

Approach	Count Start Date	AM Peak 6:45a - 7:45a	Mid-day Peak 2:30p - 3:30p	PM Peak 2:45p - 3:45p	Totals
Northbound	Mon 11/16/15 12:00 AM	224	263	328	2,434
Southbound	Mon 11/16/15 12:00 AM	269	151	159	2,059
TOTAL		493	414	487	4,493

TranSystems Corporation
245 N. Waco, Ste. 222, Wichita, KS 67202 - (316) 303-3000

Daily Traffic Count

Goddard Traffic Impact Study

Goddard, Kansas

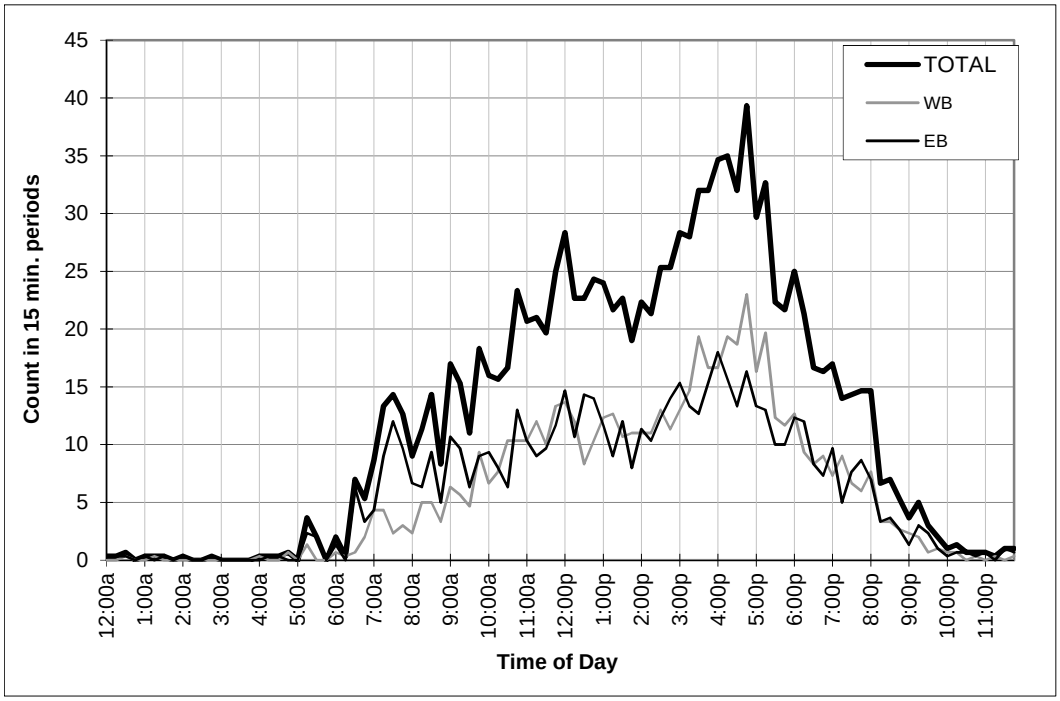
Location: West Kellogg Drive East of 199th Street

Period Start	WB	EB	TOTAL
12:00a	0	0	0
12:15a	0	0	0
12:30a	0	0	1
12:45a	0	0	0
1:00a	0	0	0
1:15a	0	0	0
1:30a	0	0	0
1:45a	0	0	0
2:00a	0	0	0
2:15a	0	0	0
2:30a	0	0	0
2:45a	0	0	0
3:00a	0	0	0
3:15a	0	0	0
3:30a	0	0	0
3:45a	0	0	0
4:00a	0	0	0
4:15a	0	0	0
4:30a	0	0	0
4:45a	1	0	1
5:00a	0	0	0
5:15a	1	2	4
5:30a	0	2	2
5:45a	0	0	0

Period Start	WB	EB	TOTAL
6:00a	1	1	2
6:15a	0	0	0
6:30a	1	6	7
6:45a	2	3	5
7:00a	4	4	9
7:15a	4	9	13
7:30a	2	12	14
7:45a	3	10	13
8:00a	2	7	9
8:15a	5	6	11
8:30a	5	9	14
8:45a	3	5	8
9:00a	6	11	17
9:15a	6	10	15
9:30a	5	6	11
9:45a	9	9	18
10:00a	7	9	16
10:15a	8	8	16
10:30a	10	6	17
10:45a	10	13	23
11:00a	10	10	21
11:15a	12	9	21
11:30a	10	10	20
11:45a	13	12	25

Period Start	WB	EB	TOTAL
12:00p	14	15	28
12:15p	12	11	23
12:30p	8	14	23
12:45p	10	14	24
1:00p	12	12	24
1:15p	13	9	22
1:30p	11	12	23
1:45p	11	8	19
2:00p	11	11	22
2:15p	11	10	21
2:30p	13	12	25
2:45p	11	14	25
3:00p	13	15	28
3:15p	15	13	28
3:30p	19	13	32
3:45p	17	15	32
4:00p	17	18	35
4:15p	19	16	35
4:30p	19	13	32
4:45p	23	16	39
5:00p	16	13	30
5:15p	20	13	33
5:30p	12	10	22
5:45p	12	10	22

Period Start	WB	EB	TOTAL
6:00p	13	12	25
6:15p	9	12	21
6:30p	8	8	17
6:45p	9	7	16
7:00p	7	10	17
7:15p	9	5	14
7:30p	7	8	14
7:45p	6	9	15
8:00p	8	7	15
8:15p	3	3	7
8:30p	3	4	7
8:45p	3	3	5
9:00p	2	1	4
9:15p	2	3	5
9:30p	1	2	3
9:45p	1	1	2
10:00p	1	0	1
10:15p	1	1	1
10:30p	0	1	1
10:45p	0	0	1
11:00p	0	1	1
11:15p	0	0	0
11:30p	0	1	1
11:45p	0	1	1



HOURLY TOTALS

Period Start	WB	EB	TOTAL
12:00a	0	1	1
1:00a	0	1	1
2:00a	0	1	1
3:00a	0	0	0
4:00a	1	1	2
5:00a	1	4	6
6:00a	4	11	15
7:00a	14	35	49
8:00a	16	27	43
9:00a	26	36	62
10:00a	35	37	72
11:00a	46	41	86
12:00p	44	54	98
1:00p	47	41	87
2:00p	46	48	94
3:00p	64	57	120
4:00p	78	63	141
5:00p	60	46	106
6:00p	39	40	79
7:00p	29	31	60
8:00p	17	17	34
9:00p	6	8	14
10:00p	2	2	4
11:00p	1	2	3

Approach	Count Start Date	AM Peak 10:15a - 11:15a	Mid-day Peak 2:30p - 3:30p	PM Peak 4:00p - 5:00p	Totals
Westbound	Mon 11/16/15 12:00 AM	39	52	78	575
Eastbound	Mon 11/16/15 12:00 AM	38	55	63	602
TOTAL		76	107	141	1,177

TranSystems Corporation
245 N. Waco, Ste. 222, Wichita, KS 67202 - (316) 303-3000

Daily Traffic Count

Goddard Traffic Impact Study

Goddard, Kansas

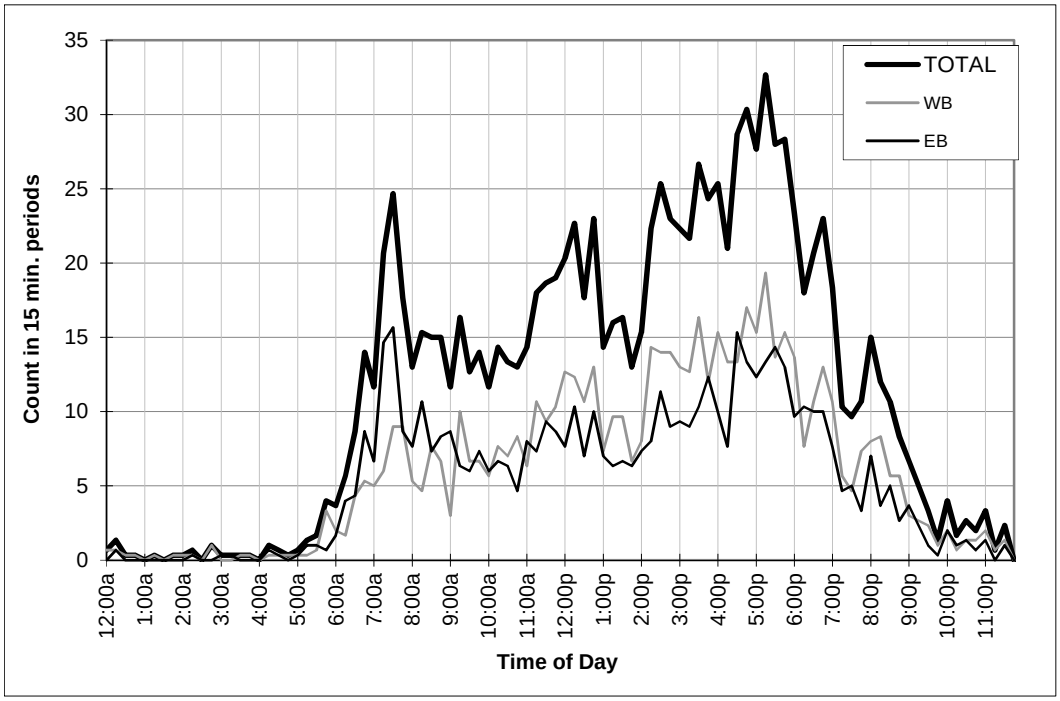
Location: West Kellogg Drive West of 199th Street

Period Start	WB	EB	TOTAL
12:00a	1	0	1
12:15a	1	1	1
12:30a	0	0	0
12:45a	0	0	0
1:00a	0	0	0
1:15a	0	0	0
1:30a	0	0	0
1:45a	0	0	0
2:00a	0	0	0
2:15a	0	0	1
2:30a	0	0	0
2:45a	1	0	1
3:00a	0	0	0
3:15a	0	0	0
3:30a	0	0	0
3:45a	0	0	0
4:00a	0	0	0
4:15a	0	1	1
4:30a	0	0	1
4:45a	0	0	0
5:00a	0	0	1
5:15a	0	1	1
5:30a	1	1	2
5:45a	3	1	4

Period Start	WB	EB	TOTAL
6:00a	2	2	4
6:15a	2	4	6
6:30a	4	4	9
6:45a	5	9	14
7:00a	5	7	12
7:15a	6	15	21
7:30a	9	16	25
7:45a	9	9	18
8:00a	5	8	13
8:15a	5	11	15
8:30a	8	7	15
8:45a	7	8	15
9:00a	3	9	12
9:15a	10	6	16
9:30a	7	6	13
9:45a	7	7	14
10:00a	6	6	12
10:15a	8	7	14
10:30a	7	6	13
10:45a	8	5	13
11:00a	6	8	14
11:15a	11	7	18
11:30a	9	9	19
11:45a	10	9	19

Period Start	WB	EB	TOTAL
12:00p	13	8	20
12:15p	12	10	23
12:30p	11	7	18
12:45p	13	10	23
1:00p	7	7	14
1:15p	10	6	16
1:30p	10	7	16
1:45p	7	6	13
2:00p	8	7	15
2:15p	14	8	22
2:30p	14	11	25
2:45p	14	9	23
3:00p	13	9	22
3:15p	13	9	22
3:30p	16	10	27
3:45p	12	12	24
4:00p	15	10	25
4:15p	13	8	21
4:30p	13	15	29
4:45p	17	13	30
5:00p	15	12	28
5:15p	19	13	33
5:30p	14	14	28
5:45p	15	13	28

Period Start	WB	EB	TOTAL
6:00p	14	10	23
6:15p	8	10	18
6:30p	11	10	21
6:45p	13	10	23
7:00p	11	8	18
7:15p	6	5	10
7:30p	5	5	10
7:45p	7	3	11
8:00p	8	7	15
8:15p	8	4	12
8:30p	6	5	11
8:45p	6	3	8
9:00p	3	4	7
9:15p	3	2	5
9:30p	2	1	3
9:45p	1	0	1
10:00p	2	2	4
10:15p	1	1	2
10:30p	1	1	3
10:45p	1	1	2
11:00p	2	1	3
11:15p	1	0	1
11:30p	1	1	2
11:45p	0	0	0



HOURLY TOTALS

Period Start	WB	EB	TOTAL
12:00a	2	1	3
1:00a	1	0	1
2:00a	2	0	2
3:00a	1	1	1
4:00a	1	1	2
5:00a	5	3	8
6:00a	13	19	32
7:00a	29	46	75
8:00a	24	34	58
9:00a	26	28	55
10:00a	29	24	52
11:00a	37	33	70
12:00p	49	35	84
1:00p	33	26	60
2:00p	50	36	86
3:00p	54	41	95
4:00p	59	46	105
5:00p	64	53	117
6:00p	45	40	85
7:00p	28	21	49
8:00p	28	18	46
9:00p	9	7	16
10:00p	5	5	10
11:00p	4	2	6

Approach	Count Start Date	AM Peak 7:15a - 8:15a	Mid-day Peak 2:15p - 3:15p	PM Peak 4:30p - 5:30p	Totals
Westbound	Mon 11/9/15 12:18 PM	29	55	65	597
Eastbound	Mon 11/9/15 12:18 PM	47	38	54	520
TOTAL		76	93	119	1,118

TranSystems Corporation
245 N. Waco, Ste. 222, Wichita, KS 67202 - (316) 303-3000

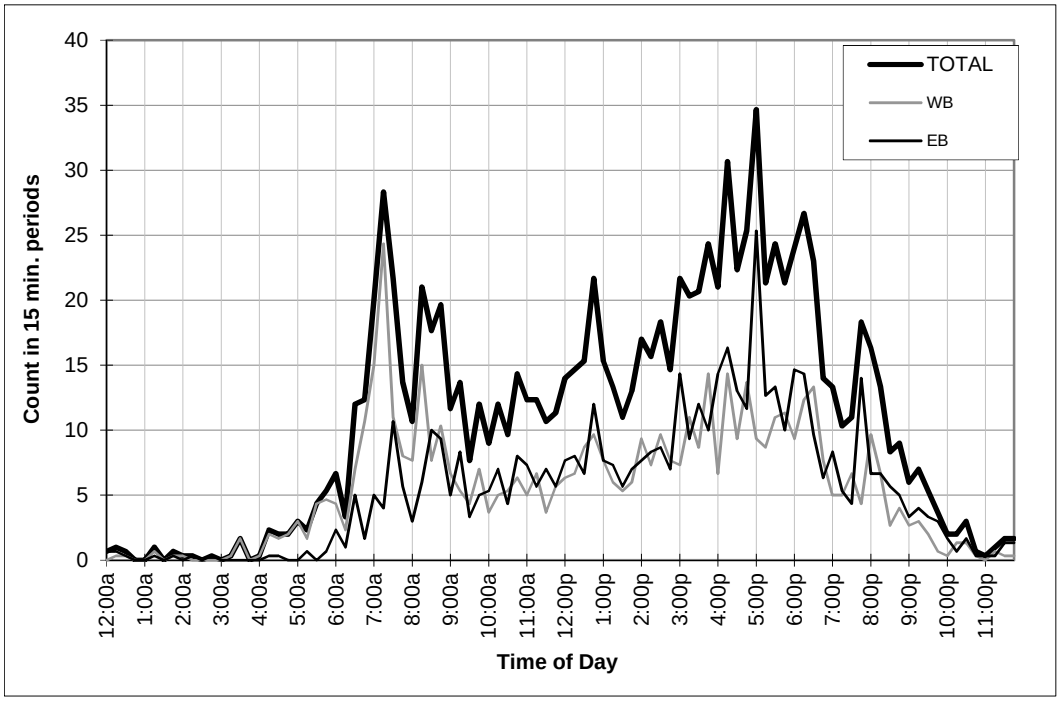
Daily Traffic Count

Goddard Traffic Impact Study

Goddard, Kansas

Location: West Kellogg Drive East of Barber Street

Period Start	WB	EB	TOTAL
12:00a	0	1	1
12:15a	0	1	1
12:30a	0	0	1
12:45a	0	0	0
1:00a	0	0	0
1:15a	1	0	1
1:30a	0	0	0
1:45a	0	0	1
2:00a	0	0	0
2:15a	0	0	0
2:30a	0	0	0
2:45a	0	0	0
3:00a	0	0	0
3:15a	0	0	0
3:30a	2	0	2
3:45a	0	0	0
4:00a	0	0	0
4:15a	2	0	2
4:30a	2	0	2
4:45a	2	0	2
5:00a	3	0	3
5:15a	2	1	2
5:30a	4	0	4
5:45a	5	1	5
6:00a	4	2	7
6:15a	2	1	3
6:30a	7	5	12
6:45a	11	2	12
7:00a	15	5	20
7:15a	24	4	28
7:30a	11	11	22
7:45a	8	6	14
8:00a	8	3	11
8:15a	15	6	21
8:30a	8	10	18
8:45a	10	9	20
9:00a	7	5	12
9:15a	5	8	14
9:30a	4	3	8
9:45a	7	5	12
10:00a	4	5	9
10:15a	5	7	12
10:30a	5	4	10
10:45a	6	8	14
11:00a	5	7	12
11:15a	7	6	12
11:30a	4	7	11
11:45a	6	6	11
12:00p	6	8	14
12:15p	7	8	15
12:30p	9	7	15
12:45p	10	12	22
1:00p	8	8	15
1:15p	6	7	13
1:30p	5	6	11
1:45p	6	7	13
2:00p	9	8	17
2:15p	7	8	16
2:30p	10	9	18
2:45p	8	7	15
3:00p	7	14	22
3:15p	11	9	20
3:30p	9	12	21
3:45p	14	10	24
4:00p	7	14	21
4:15p	14	16	31
4:30p	9	13	22
4:45p	14	12	25
5:00p	9	25	35
5:15p	9	13	21
5:30p	11	13	24
5:45p	11	10	21
6:00p	9	15	24
6:15p	12	14	27
6:30p	13	10	23
6:45p	8	6	14
7:00p	5	8	13
7:15p	5	5	10
7:30p	7	4	11
7:45p	4	14	18
8:00p	10	7	16
8:15p	7	7	13
8:30p	3	6	8
8:45p	4	5	9
9:00p	3	3	6
9:15p	3	4	7
9:30p	2	3	5
9:45p	1	3	4
10:00p	0	2	2
10:15p	1	1	2
10:30p	1	2	3
10:45p	0	0	1
11:00p	0	0	0
11:15p	1	0	1
11:30p	0	1	2
11:45p	0	1	2



HOURLY TOTALS

Period Start	WB	EB	TOTAL
12:00a	1	2	2
1:00a	1	1	2
2:00a	0	1	1
3:00a	2	0	2
4:00a	6	1	7
5:00a	14	1	15
6:00a	24	10	34
7:00a	58	25	84
8:00a	41	28	69
9:00a	23	22	45
10:00a	20	25	45
11:00a	21	26	47
12:00p	31	34	66
1:00p	25	28	53
2:00p	34	32	66
3:00p	41	46	87
4:00p	44	55	99
5:00p	40	61	102
6:00p	43	45	88
7:00p	21	32	53
8:00p	23	24	47
9:00p	8	14	22
10:00p	3	4	8
11:00p	1	3	5

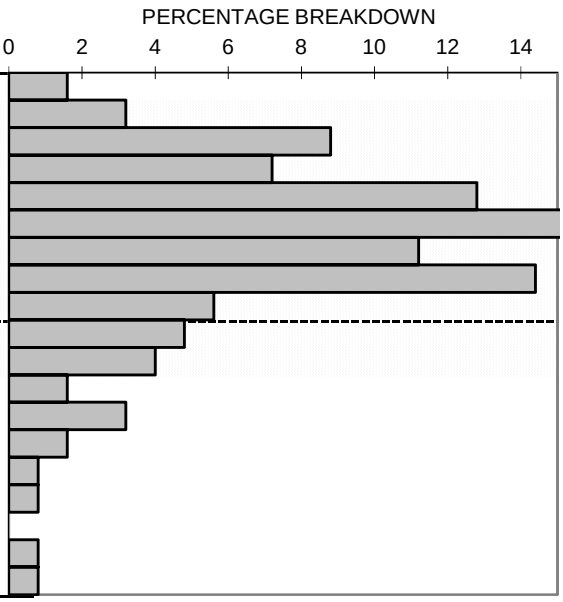
Approach	Count Start Date	AM Peak 7:00a - 8:00a	Mid-day Peak 2:30p - 3:30p	PM Peak 4:15p - 5:15p	Totals
Westbound	Mon 11/16/15 1:00 PM	58	36	47	527
Eastbound	Mon 11/16/15 1:00 PM	25	39	66	519
TOTAL		84	75	113	1,046

TranSystems Corporation
245 N. Waco, Ste. 222, Wichita, KS 67202 - (316) 303-3000

SPOT SPEED STUDY RESULTS
RELATIVE FREQUENCY DISTRIBUTION
GODDARD TRAFFIC IMPACT STUDY

CITY: Goddard
COUNTY: Sedgwick
LOCATION: US-54 east of 199th Street
OBSERVER: SSP
SPEED LIMIT: 50
TIME START: 10:19 AM
DATE: 11/11/2015
DIRECTION: EB
TIME END: 11:28 AM

SPEED	FREQUENCY	ACUM TOTAL	ACUM %
49	2	2	1.6
50	4	6	4.8
51	11	17	13.6
52	9	26	20.8
53	16	42	33.6
54	21	63	50.4
55	14	77	61.6
56	18	95	76.0
57	7	102	81.6
58	6	108	86.4
59	5	113	90.4
60	2	115	92.0
61	4	119	95.2
62	2	121	96.8
63	1	122	97.6
64	1	123	98.4
65	0	123	98.4
66	1	124	99.2
67	1	125	100.0



AVERAGE SPEED = 55.
50th PERCENTILE = 54.
85th PERCENTILE = 57.7
90th PERCENTILE = 58.9
95th PERCENTILE = 60.9

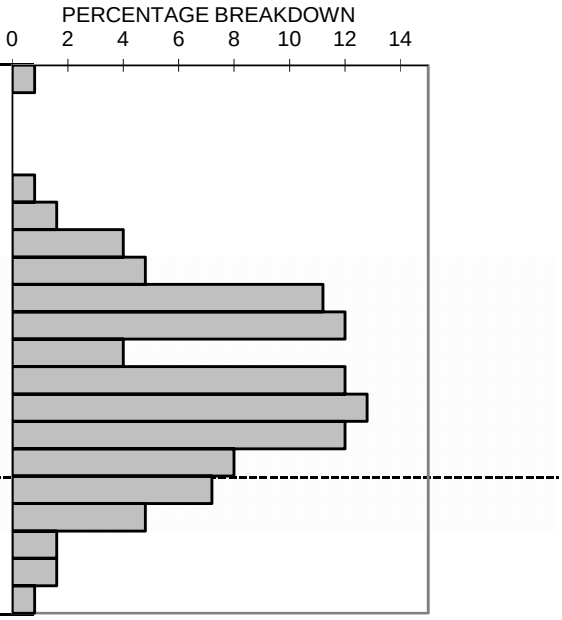
PACE = 50 - 59
VEHICLES IN PACE = 111
% IN PACE = 88.8
% BELOW PACE = 1.6
% ABOVE PACE = 9.6

SAMPLE VARIANCE = 11.2578065
STANDARD DEVIATION = 3.3552655
RANGE 1*S = 72.8
RANGE 2*S = 95.2
RANGE 3*S = 98.4

SPOT SPEED STUDY RESULTS
RELATIVE FREQUENCY DISTRIBUTION
GODDARD TRAFFIC IMPACT STUDY

CITY: Goddard
COUNTY: Sedgwick
LOCATION: US-54 east of 199th Street
OBSERVER: SSP
SPEED LIMIT: 60
TIME START: 11:46 AM
DATE: 11/11/2015
DIRECTION: WB
TIME END: 12:40 PM

SPEED	FREQUENCY	ACUM TOTAL	ACUM %
45	1	1	0.8
46	0	1	0.8
47	0	1	0.8
48	0	1	0.8
49	1	2	1.6
50	2	4	3.2
51	5	9	7.2
52	6	15	12.0
53	14	29	23.2
54	15	44	35.2
55	5	49	39.2
56	15	64	51.2
57	16	80	64.0
58	15	95	76.0
59	10	105	84.0
60	9	114	91.2
61	6	120	96.0
62	2	122	97.6
63	2	124	99.2
64	1	125	100.0



AVERAGE SPEED = 56.2
50th PERCENTILE = 55.9
85th PERCENTILE = 59.1
90th PERCENTILE = 59.8
95th PERCENTILE = 60.8

PACE = 52 - 61
VEHICLES IN PACE = 111
% IN PACE = 88.8
% BELOW PACE = 7.2
% ABOVE PACE = 4.

SAMPLE VARIANCE = 10.8451613
STANDARD DEVIATION = 3.2931992
RANGE 1*S = 72.
RANGE 2*S = 96.
RANGE 3*S = 99.2

Appendix C – Trip Generation and Distribution

See attached worksheets.

STAR Bond Development Traffic Impact Study

Goddard, KS

Trip Generation

		ITE		A.M. Peak Hour					P.M. Peak Hour					Saturday Peak Hour				
Land Use	Intensity	Code	Daily	Total	% In	% Out	In	Out	Total	% In	% Out	In	Out	Total	% In	% Out	In	Out
Lodging																		
Hotel (total rooms)	150 rooms	310	1,230	80	54%	46%	43	37	90	58%	42%	52	38	110	56%	44%	62	48
Lodging Sub-Total	*150 rooms*		*1,230*	*80*			*43*	*37*	*90*			*52*	*38*	*110*			*62*	*48*
Dining																		
High-Turnover (Sit-Down) Restaurant	8,000 sf	932	1,020	110	53%	47%	58	52	150	54%	46%	81	69	110	53%	47%	58	52
High-Turnover (Sit-Down) Restaurant	8,000 sf	932	1,020	110	53%	47%	58	52	150	54%	46%	81	69	110	53%	47%	58	52
High-Turnover (Sit-Down) Restaurant	8,000 sf	932	1,020	110	53%	47%	58	52	150	54%	46%	81	69	110	53%	47%	58	52
High-Turnover (Sit-Down) Restaurant	8,000 sf	932	1,020	110	53%	47%	58	52	150	54%	46%	81	69	110	53%	47%	58	52
Dining Sub-Total	*32,000 sf*		*4,080*	*440*			*232*	*208*	*600*			*324*	*276*	*440*			*232*	*208*
Aquatics Center																		
Athletic Club	50,000 sf	493	2,150	160	58%	42%	93	67	292	63%	37%	184	108	140	49%	51%	69	71
Aquatics Center Sub-Total	*50,000 sf*		*2,150*	*160*			*93*	*67*	*292*			*184*	*108*	*140*			*69*	*71*
		Total	*7,460*	*680*			*368*	*312*	*982*			*560*	*422*	*690*			*363*	*327*
Notes -				4%					14%					13%				

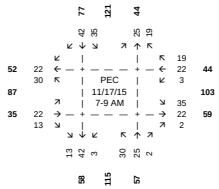
Estimates based on ITE's Trip Generation, 9th Edition

* - PM Peak Hour of Generator Used (not of Adj. Traffic)

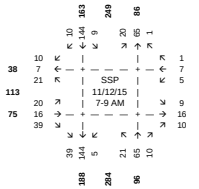
STAR Bond Development Traffic Impact Study
Goddard, KS

Existing Traffic Volumes (Adjusted)
AM Peak Hour

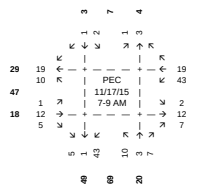
Intersection (W Kellogg Dr/N Main Street)



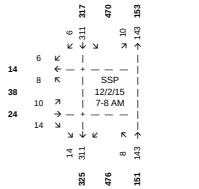
Intersection (W Kellogg Dr/199th Street)



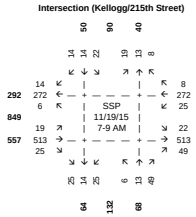
Intersection (W Kellogg Dr/Barber Street)



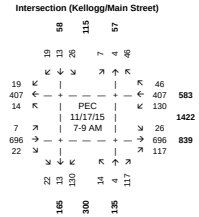
Intersection (W Kellogg Dr/183rd Street)



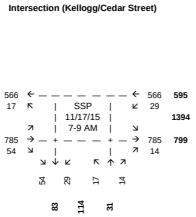
Intersection (Kellogg/215th Street)



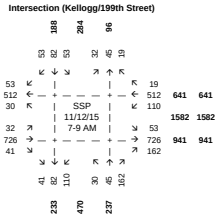
Intersection (Kellogg/Main Street)



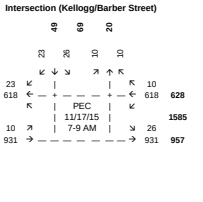
Intersection (Kellogg/Cedar Street)



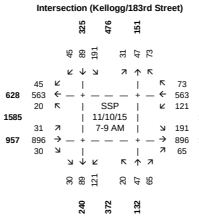
Intersection (Kellogg/199th Street)



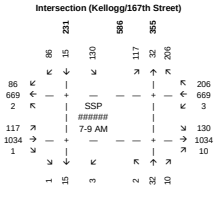
Intersection (Kellogg/Barber Street)



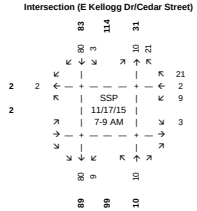
Intersection (Kellogg/183rd Street)



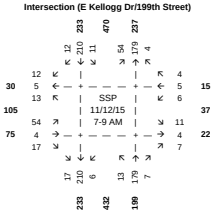
Intersection (Kellogg/167th Street)



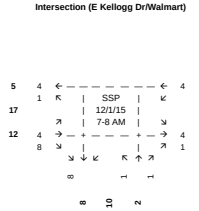
Intersection (E Kellogg Dr/Cedar Street)



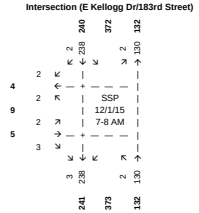
Intersection (E Kellogg Dr/199th Street)



Intersection (E Kellogg Dr/Walmart)



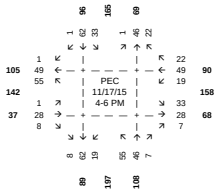
Intersection (E Kellogg Dr/183rd Street)



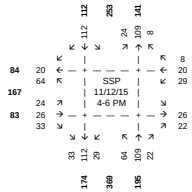
STAR Bond Development Traffic Impact Study
Goddard, KS

Existing Traffic Volumes (Adjusted)
PM Peak Hour

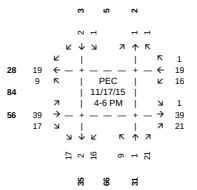
Intersection (W Kellogg Dr/N Main Street)



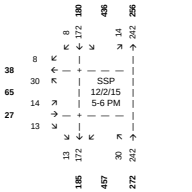
Intersection (W Kellogg/199th Street)



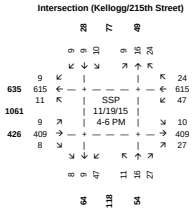
Intersection (W Kellogg Dr/Barber Street)



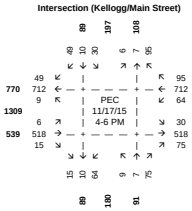
Intersection (W Kellogg Dr/183rd Street)



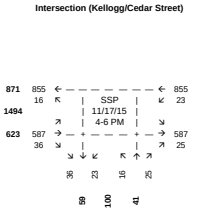
Intersection (Kellogg/215th Street)



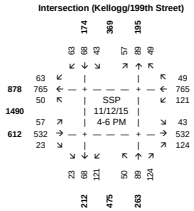
Intersection (Kellogg/Main Street)



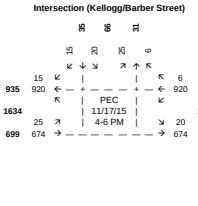
Intersection (Kellogg/Cedar Street)



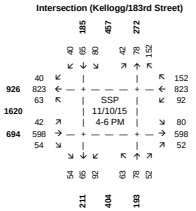
Intersection (Kellogg/199th Street)



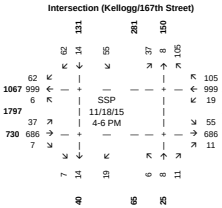
Intersection (Kellogg/Barber Street)



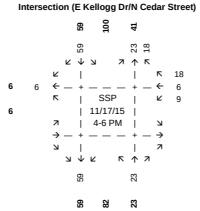
Intersection (Kellogg/183rd Street)



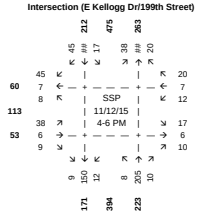
Intersection (Kellogg/167th Street)



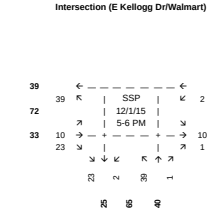
Intersection (E Kellogg Dr/N Cedar Street)



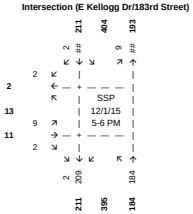
Intersection (E Kellogg Dr/199th Street)



Intersection (E Kellogg Dr/Walmart)



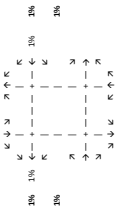
Intersection (E Kellogg Dr/183rd Street)



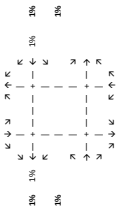
STAR Bond Development Traffic Impact Study
Goddard, KS

Trip Distribution (Existing Configuration)
AM Inbound %

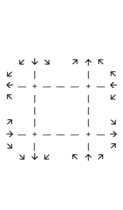
Intersection (W Kellogg Dr/N Main Street)



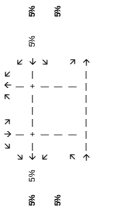
Intersection (W Kellogg/199th Street)



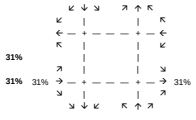
Intersection (W Kellogg Dr/Barber Street)



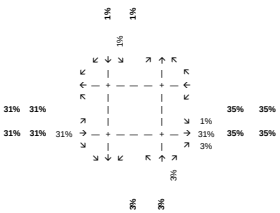
Intersection (Kellogg Dr/183rd Street)



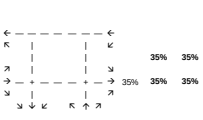
Intersection (Kellogg/215th Street)



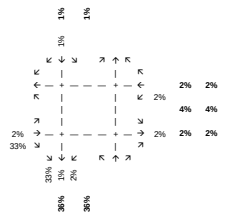
Intersection (Kellogg/Main Street)



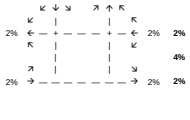
Intersection (Kellogg/Cedar Street)



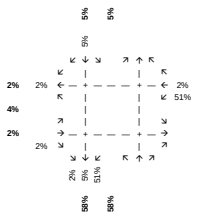
Intersection (Kellogg/199th Street)



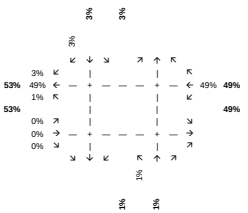
Intersection (Kellogg/Barber Street)



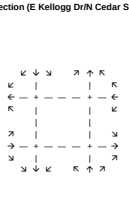
Intersection (Kellogg/183rd Street)



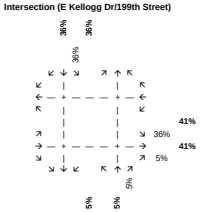
Intersection (Kellogg/167th Street)



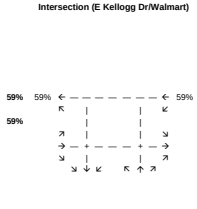
Intersection (E Kellogg Dr/N Cedar Street)



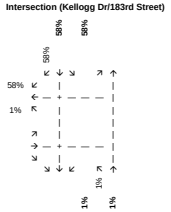
Intersection (E Kellogg Dr/199th Street)



Intersection (E Kellogg Dr/Walmart)



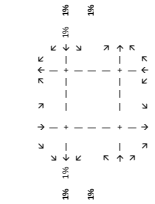
Intersection (Kellogg Dr/183rd Street)



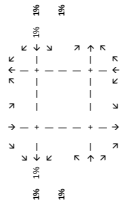
STAR Bond Development Traffic Impact Study
Goddard, KS

Trip Distribution (Existing Configuration)
PM Inbound %

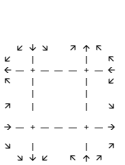
Intersection (W Kellogg Dr/N Main Street)



Intersection (W Kellogg/199th Street)

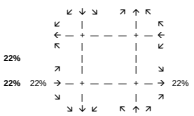


Intersection (W Kellogg Dr/Barber Street)

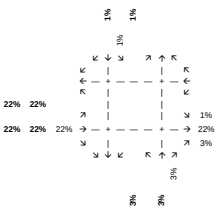


Intersection (Kellogg Dr/183rd Street)

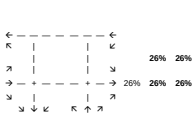
Intersection (Kellogg/215th Street)



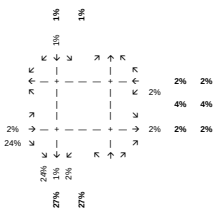
Intersection (Kellogg/Main Street)



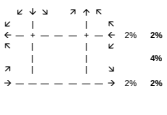
Intersection (Kellogg/Cedar Street)



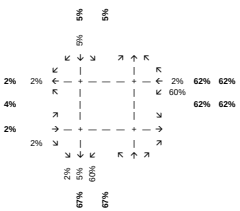
Intersection (Kellogg/199th Street)



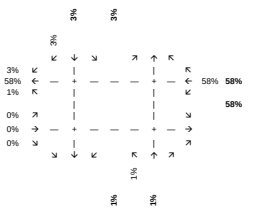
Intersection (Kellogg/Barber Street)



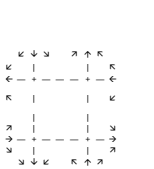
Intersection (Kellogg/183rd Street)



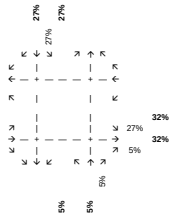
Intersection (Kellogg/167th Street)



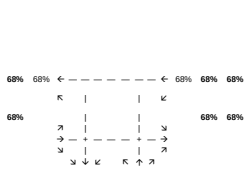
Intersection (E Kellogg Dr/N Cedar Street)



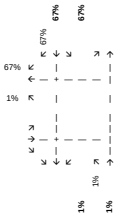
Intersection (E Kellogg Dr/199th Street)



Intersection (E Kellogg Dr/Walmart)



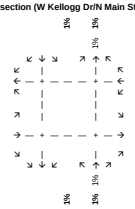
Intersection (Kellogg Dr/183rd Street)



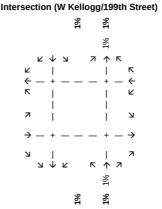
STAR Bond Development Traffic Impact Study
Goddard, KS

Trip Distribution (Existing Configuration)
AM Outbound %

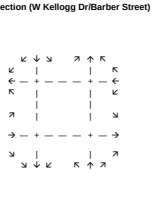
Intersection (W Kellogg Dr/N Main Street)



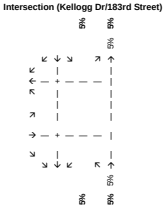
Intersection (W Kellogg/199th Street)



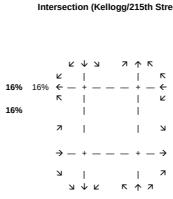
Intersection (W Kellogg Dr/Barber Street)



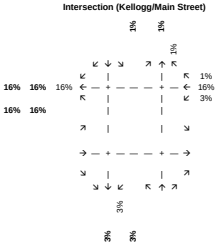
Intersection (Kellogg Dr/183rd Street)



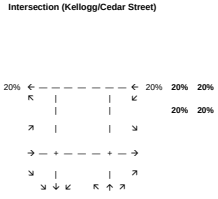
Intersection (Kellogg/215th Street)



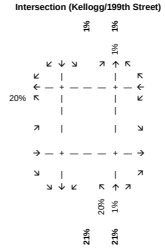
Intersection (Kellogg/Main Street)



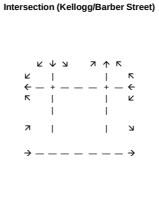
Intersection (Kellogg/Cedar Street)



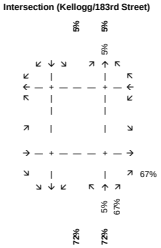
Intersection (Kellogg/199th Street)



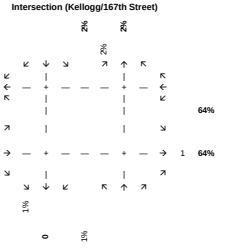
Intersection (Kellogg/Barber Street)



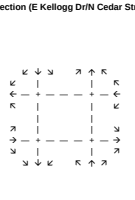
Intersection (Kellogg/183rd Street)



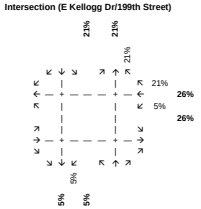
Intersection (Kellogg/167th Street)



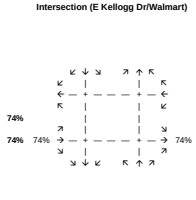
Intersection (E Kellogg Dr/N Cedar Street)



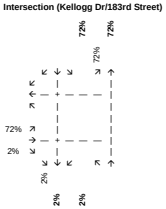
Intersection (E Kellogg Dr/199th Street)



Intersection (E Kellogg Dr/Walmart)



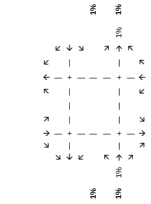
Intersection (Kellogg Dr/183rd Street)



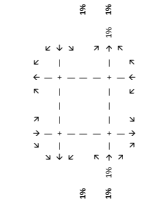
STAR Bond Development Traffic Impact Study
Goddard, KS

Trip Distribution (Existing Configuration)
PM Outbound %

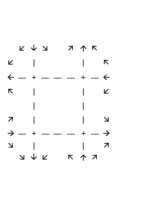
Intersection (W Kellogg Dr/N Main Street)



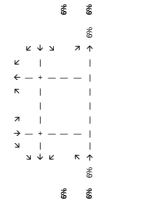
Intersection (W Kellogg/199th Street)



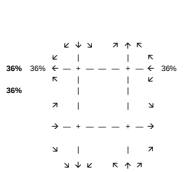
Intersection (W Kellogg Dr/Barber Street)



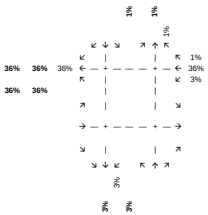
Intersection (Kellogg Dr/183rd Street)



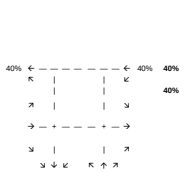
Intersection (Kellogg/215th Street)



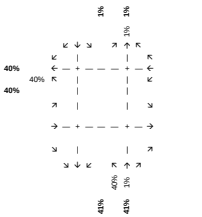
Intersection (Kellogg/Main Street)



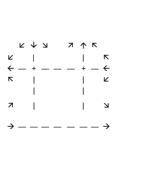
Intersection (Kellogg/Cedar Street)



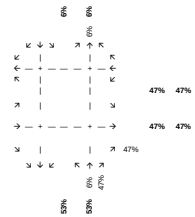
Intersection (Kellogg/199th Street)



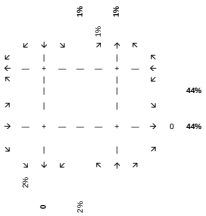
Intersection (Kellogg/Barber Street)



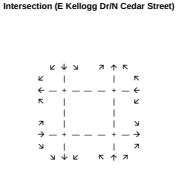
Intersection (Kellogg/183rd Street)



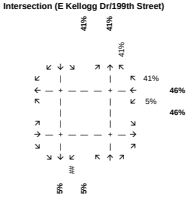
Intersection (Kellogg/167th Street)



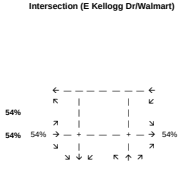
Intersection (E Kellogg Dr/N Cedar Street)



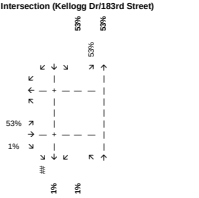
Intersection (E Kellogg Dr/199th Street)



Intersection (E Kellogg Dr/Walmart)



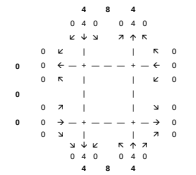
Intersection (Kellogg Dr/183rd Street)



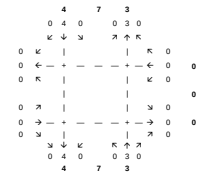
STAR Bond Development Traffic Impact Study
Goddard, KS

Development Trips (Existing Configuration)
AM Peak Hour

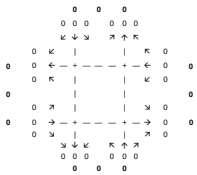
Intersection (W Kellogg Dr/N Main Street)



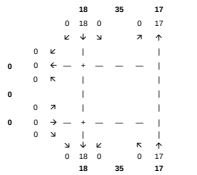
Intersection (W Kellogg/199th Street)



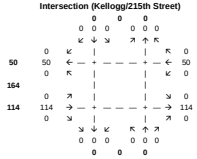
Intersection (W Kellogg Dr/Barber Street)



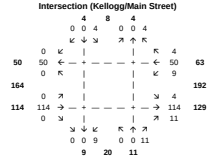
Intersection (Kellogg Dr/183rd Street)



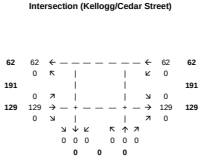
Intersection (Kellogg/215th Street)



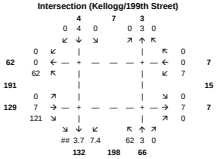
Intersection (Kellogg/Main Street)



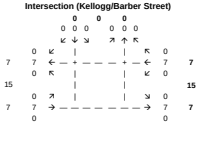
Intersection (Kellogg/Cedar Street)



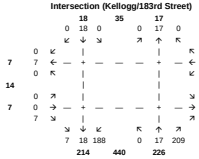
Intersection (Kellogg/199th Street)



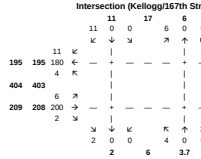
Intersection (Kellogg/Barber Street)



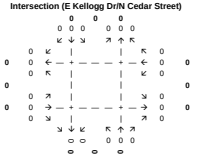
Intersection (Kellogg/183rd Street)



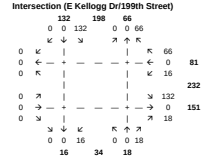
Intersection (Kellogg/167th Street)



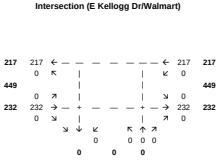
Intersection (E Kellogg Dr/N Cedar Street)



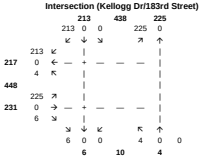
Intersection (E Kellogg Dr/199th Street)



Intersection (E Kellogg Dr/Walmart)

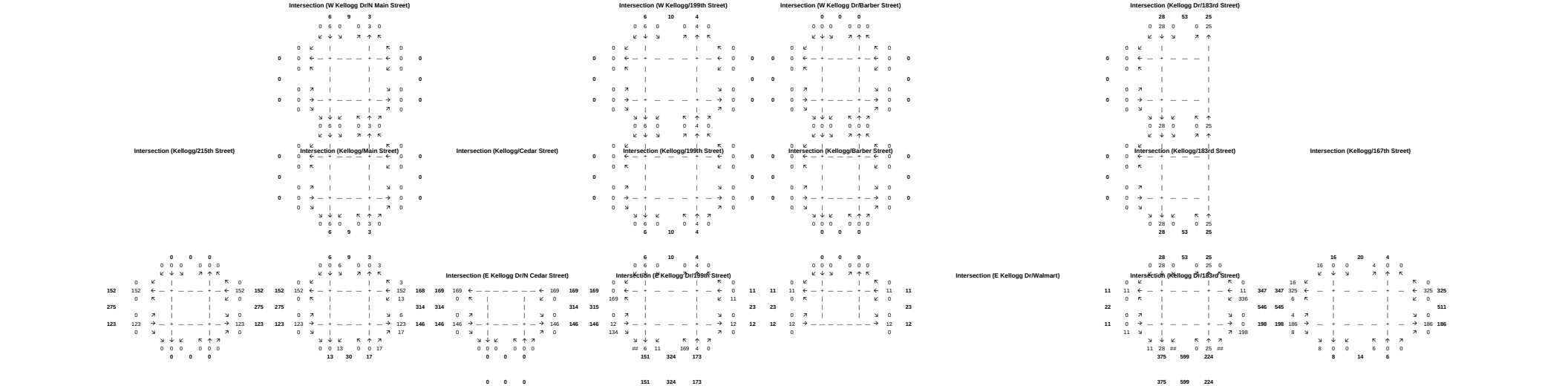


Intersection (Kellogg Dr/183rd Street)



STAR Bond Development Traffic Impact Study
Goddard, KS

Development Trips (Existing Configuration)
PM Peak Hour



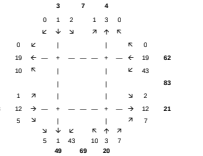
STAR Bond Development Traffic Impact Study
Goddard, KS

Existing (Adj.) + Development Trips
AM Peak Hour

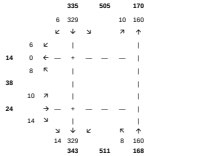
Intersection (W Kellogg Dr/N Main Street)

Intersection (W Kellogg/199th Street)

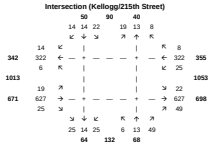
Intersection (W Kellogg Dr/Barber Street)



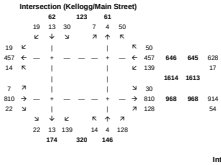
Intersection (Kellogg Dr/183rd Street)



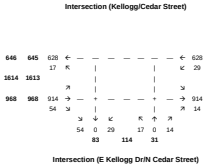
Intersection (Kellogg/215th Street)



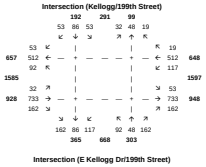
Intersection (Kellogg/Main Street)



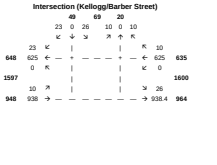
Intersection (Kellogg/Cedar Street)



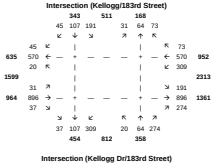
Intersection (Kellogg/199th Street)



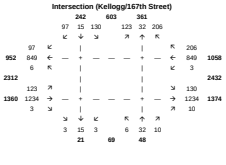
Intersection (Kellogg/Barber Street)



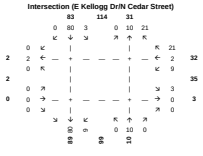
Intersection (Kellogg/183rd Street)



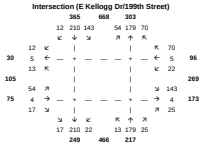
Intersection (Kellogg/167th Street)



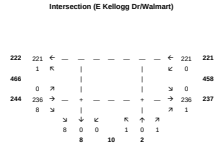
Intersection (E Kellogg Dr/N Cedar Street)



Intersection (E Kellogg Dr/199th Street)



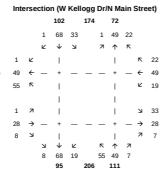
Intersection (E Kellogg Dr/Walmart)

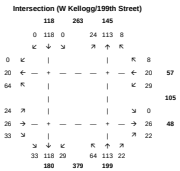


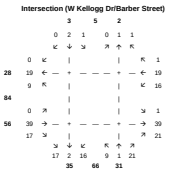
Intersection (Kellogg Dr/183rd Street)

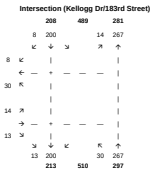
STAR Bond Development Traffic Impact Study
Goddard, KS

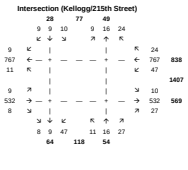
Existing (Adj.) + Development Trips
PM Peak Hour

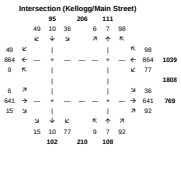


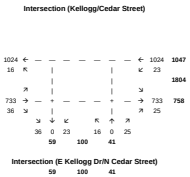


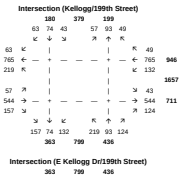


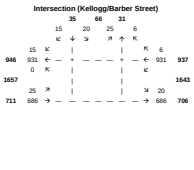


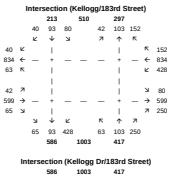


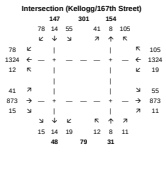


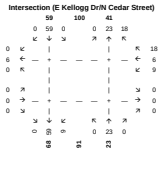


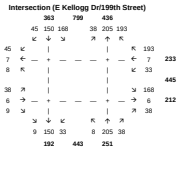


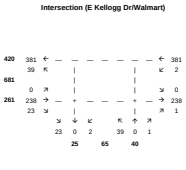


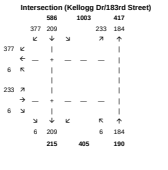






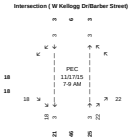


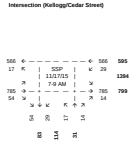


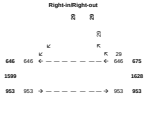


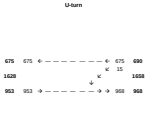
STAR Bond Development Traffic Impact Study
Goddard, KS

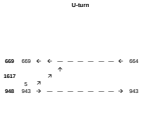
Existing + Build (RCUT) Traffic Volumes (Adjusted)
AM Peak Hour

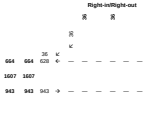


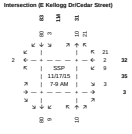


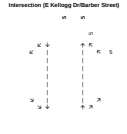


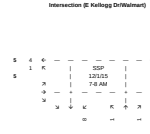






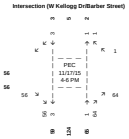


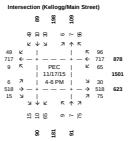


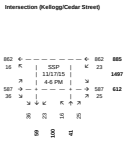


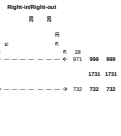
STAR Bond Development Traffic Impact Study
Goddard, KS

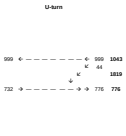
Existing + Build (RCUT) Traffic Volumes (Adjusted)
PM Peak Hour

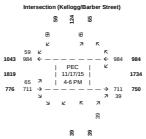


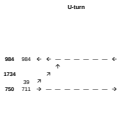


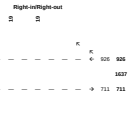


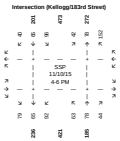


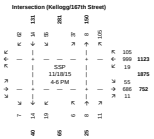


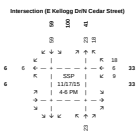


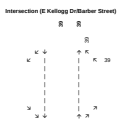


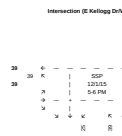






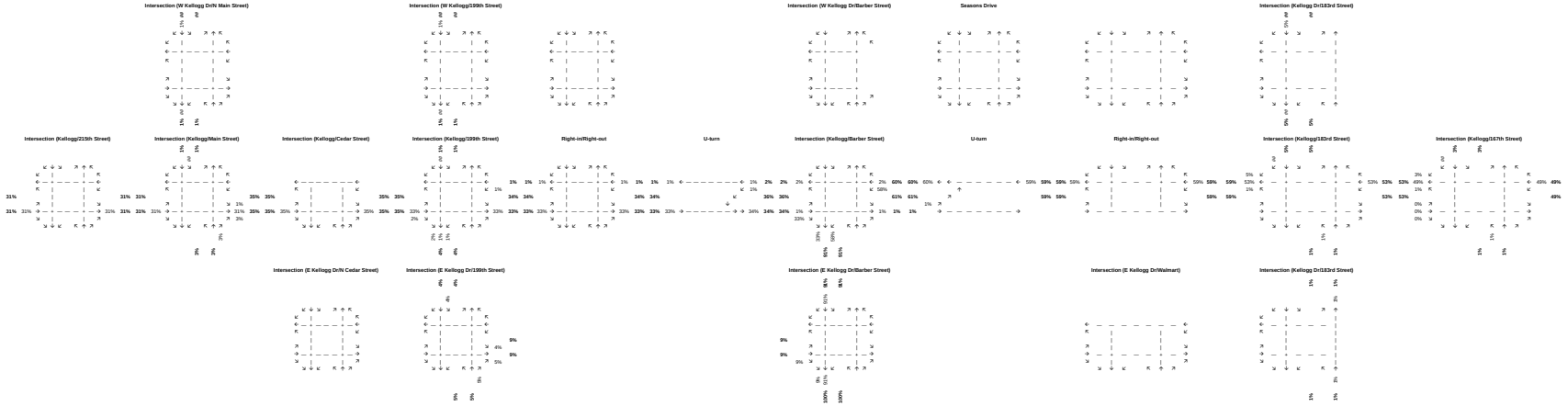






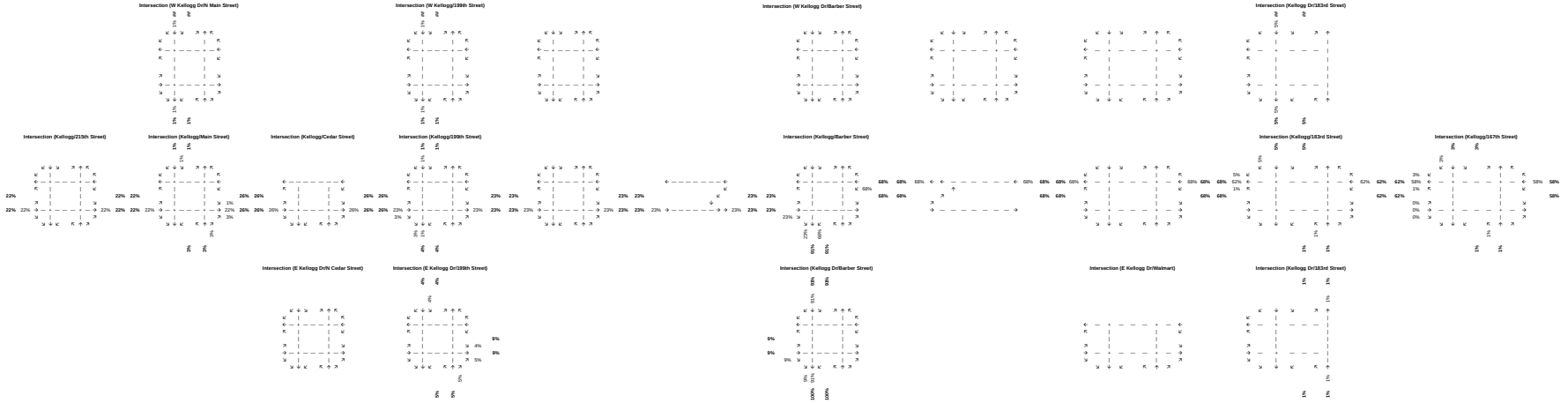
STAR Bond Development Traffic Impact Study
Goddard, KS

Trip Distribution (RCUT)
AM Inbound %



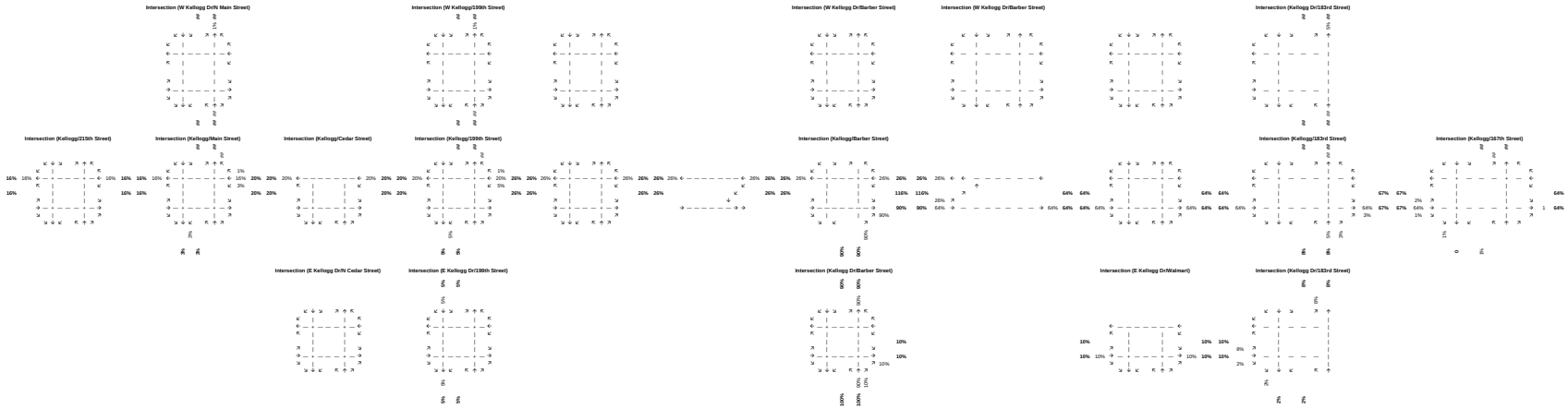
STAR Bond Development Traffic Impact Study
Goddard, KS

Trip Distribution (RCUT)
PM Inbound %



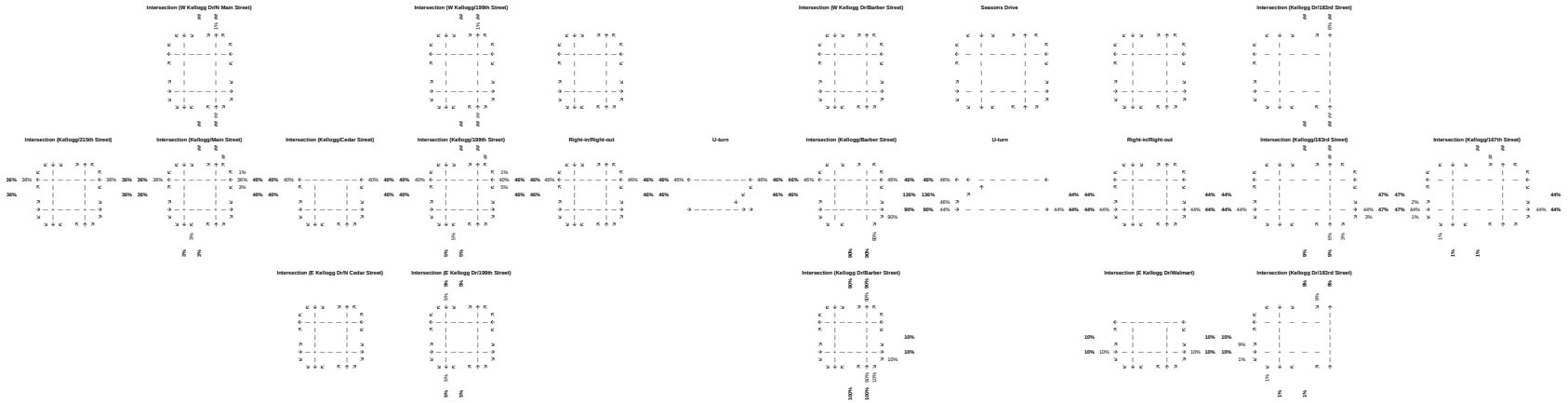
STAR Bond Development Traffic Impact Study
Goddard, KS

Trip Distribution (RCUT)
AM Outbound %



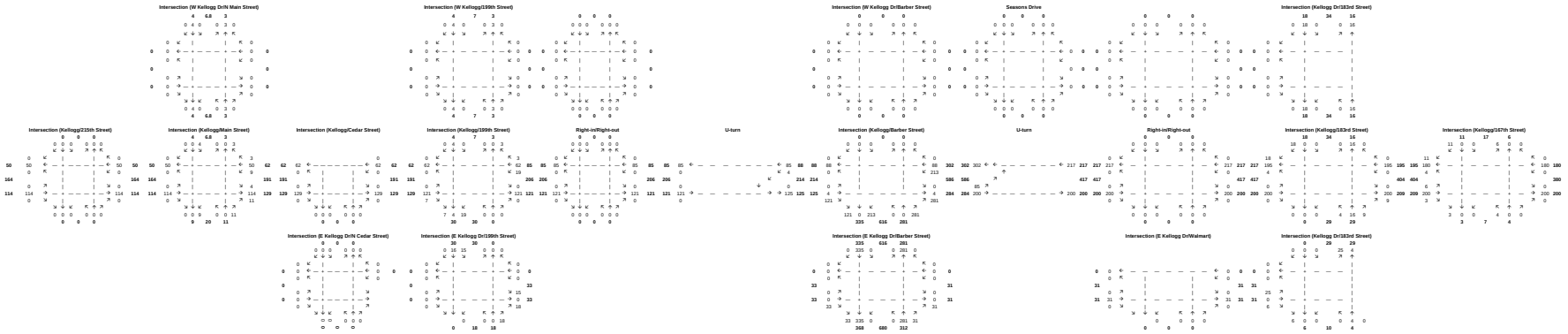
STAR Bond Development Traffic Impact Study
Goddard, KS

Trip Distribution (RCUT)
PM Outbound %



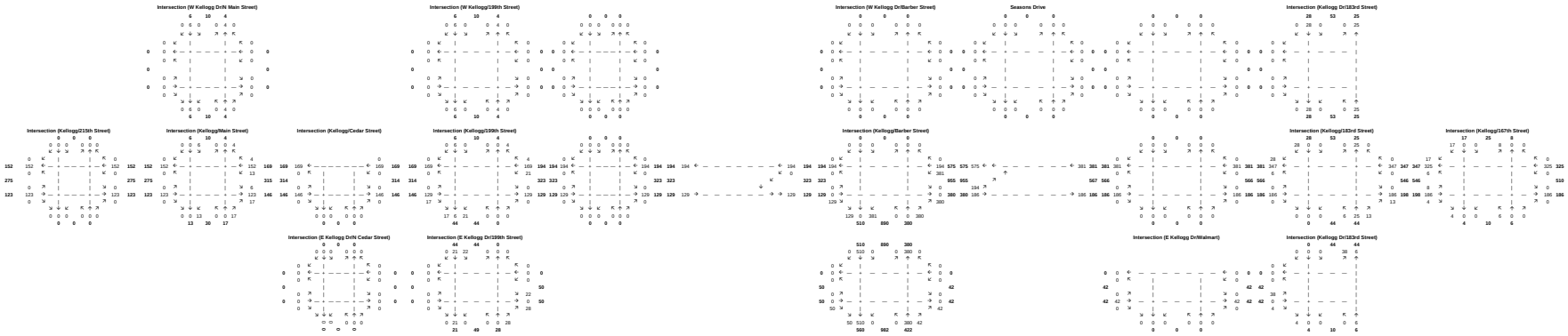
STAR Bond Development Traffic Impact Study
Goddard, KS

Development Trips (RCUT)
AM Peak Hour



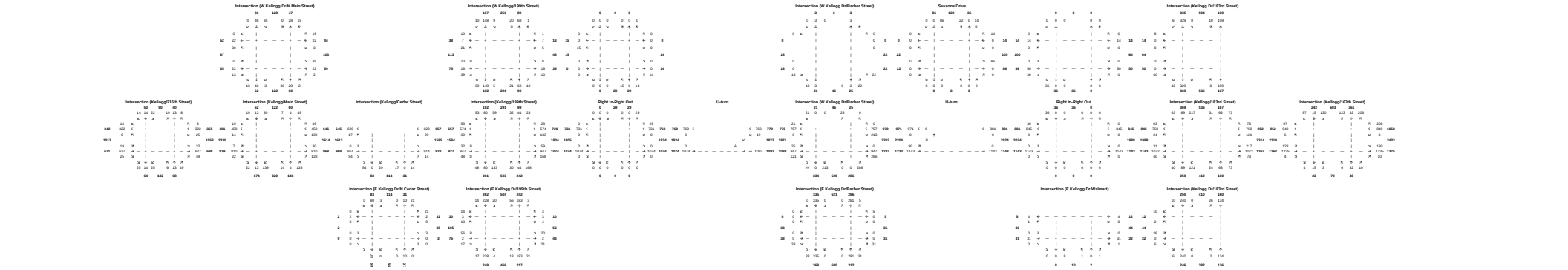
STAR Bond Development Traffic Impact Study
Goddard, KS

Development Trips (RCUT)
PM Peak Hour



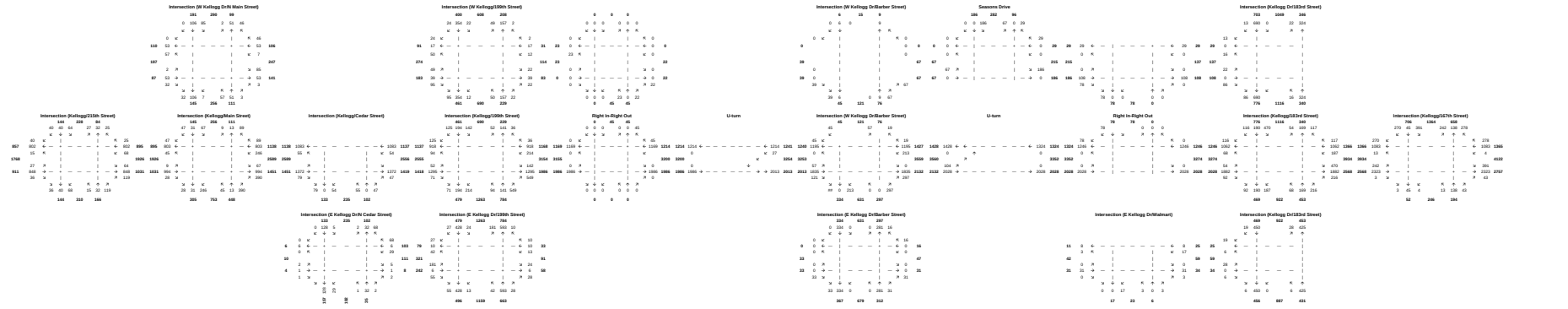
STAR Bond Development Traffic Impact Study
Goddard, KS

Existing (Adj.) + Development Trips w / RCUT at Barber Street
AM Peak Hour



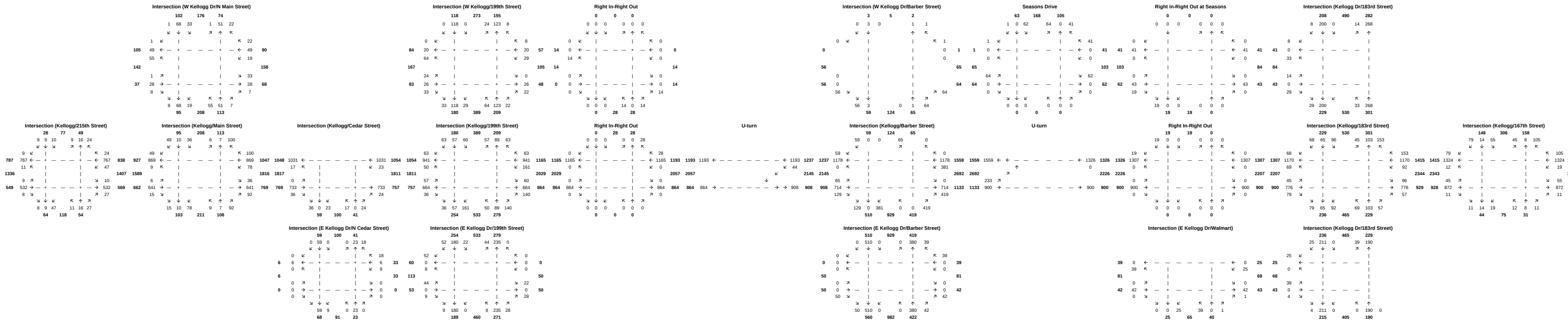
STAR Bond Development Traffic Impact Study
Goddard, KS

2040 + Devlopment Trips w/ RCUT at Barber Street
AM Peak Hour



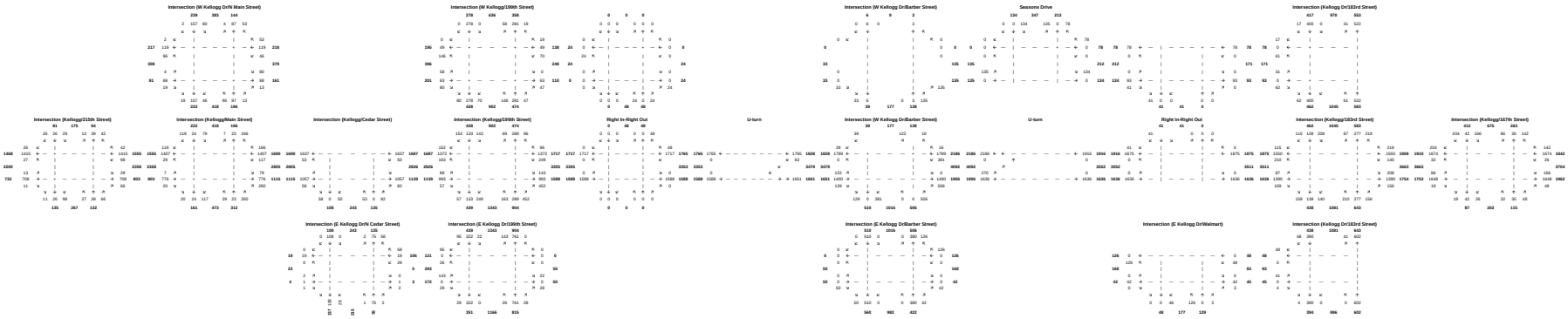
STAR Bond Development Traffic Impact Study
Goddard, KS

Existing (Adj.) + Development Trips w/ RCUT at Barber Street
PM Peak Hour



STAR Bond Development Traffic Impact Study
Goddard, KS

2040 + Devlopment Trips w / RCUT at Barber Street
PM Peak Hour



Appendix D – US-54 Corridor MOE

See attached reports.

Arterial Level of Service: EB US-54

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
S. 215TH ST.	3	0.9	13.9	0.2	57
N. MAIN ST.	15	1.9	51.6	0.8	54
N. CEDAR ST.	18	0.9	7.0	0.1	44
N. GODDARD RD.	6	18.9	27.3	0.1	15
BARBER ST.	20	8.0	43.4	0.5	41
S. 183RD ST.	9	60.2	92.7	0.5	19
W. 167TH ST.	12	27.3	89.5	1.0	40
Total		118.1	325.5	3.2	35

Arterial Level of Service: WB US-54

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
W. 167TH ST.	12	15.7	34.9	0.3	31
S. 183RD ST.	9	39.9	103.6	1.0	35
BARBER ST.	20	11.0	41.1	0.5	44
S. 199TH ST.	6	15.1	49.9	0.5	36
N. CEDAR ST.	18	3.8	12.3	0.1	34
N. MAIN ST.	15	0.7	6.8	0.1	45
S. 215TH ST.	3	2.1	41.4	0.8	67
Total		88.3	290.2	3.3	41

Arterial Level of Service: EB US-54

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
S. 215TH ST.	3	0.8	13.7	0.2	57
N. MAIN ST.	15	1.5	52.5	0.8	53
N. CEDAR ST.	18	0.6	6.7	0.1	46
N. GODDARD RD.	6	19.0	27.5	0.1	15
BARBER ST.	20	7.2	42.7	0.5	42
S. 183RD ST.	9	33.3	65.8	0.5	27
W. 167TH ST.	12	26.5	91.2	1.0	39
Total		88.9	300.1	3.2	38

Arterial Level of Service: WB US-54

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
W. 167TH ST.	12	13.7	33.3	0.3	32
S. 183RD ST.	9	32.5	97.0	1.0	37
BARBER ST.	20	10.5	40.7	0.5	44
S. 199TH ST.	6	20.6	56.2	0.5	32
N. CEDAR ST.	18	4.1	12.7	0.1	33
N. MAIN ST.	15	0.9	7.1	0.1	43
S. 215TH ST.	3	3.3	47.1	0.8	59
Total		85.6	294.0	3.3	40

Arterial Level of Service: EB US-54

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
S. 215TH ST.	3	1.0	14.0	0.2	56
N. MAIN ST.	15	2.3	52.4	0.8	53
N. CEDAR ST.	18	1.0	7.1	0.1	43
N. GODDARD RD.	6	23.3	31.8	0.1	13
BARBER ST.	20	8.9	44.4	0.5	40
S. 183RD ST.	9	45.9	78.6	0.5	23
W. 167TH ST.	12	31.3	93.8	1.0	38
Total		113.7	322.2	3.2	36

Arterial Level of Service: WB US-54

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
W. 167TH ST.	12	26.2	45.7	0.3	24
S. 183RD ST.	9	108.8	171.1	1.0	21
BARBER ST.	20	10.0	39.8	0.5	45
S. 199TH ST.	6	13.2	48.5	0.5	37
N. CEDAR ST.	18	2.2	10.7	0.1	39
N. MAIN ST.	15	0.5	6.8	0.1	45
S. 215TH ST.	3	1.5	42.0	0.8	67
Total		162.4	364.6	3.3	32

Arterial Level of Service: EB US-54

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
S. 215TH ST.	3	0.9	13.8	0.2	57
N. MAIN ST.	15	1.7	53.2	0.8	52
N. CEDAR ST.	18	0.7	6.8	0.1	45
N. GODDARD RD.	6	29.4	37.8	0.1	11
BARBER ST.	20	8.0	43.8	0.5	41
S. 183RD ST.	9	24.2	57.1	0.5	32
W. 167TH ST.	12	27.7	90.5	1.0	40
Total		92.5	302.9	3.2	38

Arterial Level of Service: WB US-54

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
W. 167TH ST.	12	145.9	283.4	0.3	7
S. 183RD ST.	9	380.4	436.4	1.0	8
BARBER ST.	20	12.1	41.9	0.5	43
S. 199TH ST.	6	39.4	75.1	0.5	24
N. CEDAR ST.	18	5.9	14.4	0.1	29
N. MAIN ST.	15	0.8	7.0	0.1	44
S. 215TH ST.	3	3.0	47.4	0.8	59
Total		587.5	905.6	3.3	15

Arterial Level of Service: EB US-54

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
S. 215TH ST.	3	1.1	14.1	0.2	56
N. MAIN ST.	15	2.4	53.0	0.8	53
N. CEDAR ST.	18	1.3	7.4	0.1	42
N. GODDARD RD.	6	34.7	43.2	0.1	10
CASADO RD.	39	8.5	26.4	0.2	34
	47	1.3	8.1	0.1	41
BARBER ST.	20	10.9	21.5	0.1	25
	33	3.6	19.7	0.2	40
	51	0.7	7.5	0.1	47
S. 183RD ST.	9	34.9	47.9	0.2	14
W. 167TH ST.	12	20.2	85.1	1.0	42
Total		119.5	333.8	3.2	34

Arterial Level of Service: WB US-54

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
W. 167TH ST.	12	20.6	39.9	0.3	27
S. 183RD ST.	9	20.8	83.9	1.0	43
	51	3.6	16.9	0.2	40
	33	2.5	9.6	0.1	37
BARBER ST.	20	5.4	21.8	0.2	36
	47	1.9	12.9	0.1	41
CASADO RD.	39	0.5	7.0	0.1	48
S. 199TH ST.	6	9.5	27.2	0.2	33
N. CEDAR ST.	18	1.7	10.2	0.1	41
N. MAIN ST.	15	0.9	7.0	0.1	44
S. 215TH ST.	3	2.4	42.3	0.8	66
Total		69.8	278.7	3.3	42

Arterial Level of Service: EB US-54

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
S. 215TH ST.	3	1.0	13.9	0.2	57
N. MAIN ST.	15	1.9	52.9	0.8	53
N. CEDAR ST.	18	0.8	7.0	0.1	44
N. GODDARD RD.	6	28.3	36.8	0.1	11
CASADO RD.	39	5.9	23.4	0.2	38
	47	1.6	8.2	0.1	40
BARBER ST.	20	6.4	17.3	0.1	31
	33	2.5	18.6	0.2	42
	51	0.4	7.2	0.1	49
S. 183RD ST.	9	32.4	45.3	0.2	15
W. 167TH ST.	12	14.9	79.9	1.0	45
Total		96.1	310.4	3.2	37

Arterial Level of Service: WB US-54

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
W. 167TH ST.	12	22.1	41.6	0.3	26
S. 183RD ST.	9	27.7	90.9	1.0	39
	51	4.4	17.4	0.2	39
	33	3.2	10.2	0.1	35
BARBER ST.	20	8.2	24.8	0.2	32
	47	3.3	14.1	0.1	38
CASADO RD.	39	0.7	7.0	0.1	47
S. 199TH ST.	6	15.5	32.8	0.2	27
N. CEDAR ST.	18	2.4	10.9	0.1	38
N. MAIN ST.	15	0.8	7.0	0.1	44
S. 215TH ST.	3	3.6	47.5	0.8	59
Total		91.9	304.3	3.3	39

Arterial Level of Service: EB US-54

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
S. 215TH ST.	3	1.8	14.8	0.2	54
N. MAIN ST.	15	4.0	58.9	0.8	47
N. CEDAR ST.	18	2.3	8.4	0.1	37
N. GODDARD RD.	6	39.0	47.2	0.1	9
CASADO RD.	39	14.6	32.9	0.2	27
	47	8.9	15.8	0.1	21
BARBER ST.	20	8.8	19.3	0.1	27
	33	4.6	22.6	0.2	39
	51	1.9	6.9	0.1	37
S. 183RD ST.	9	46.3	59.2	0.2	11
W. 167TH ST.	12	75.3	139.8	1.0	26
Total		207.4	425.9	3.2	27

Arterial Level of Service: WB US-54

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
W. 167TH ST.	12	39.6	59.1	0.3	18
S. 183RD ST.	9	18.6	80.7	1.0	45
	51	2.5	16.4	0.2	41
	33	1.4	6.7	0.1	38
BARBER ST.	20	9.6	27.6	0.2	32
	47	4.3	15.1	0.1	35
CASADO RD.	39	0.9	7.4	0.1	45
S. 199TH ST.	6	18.2	35.8	0.2	25
N. CEDAR ST.	18	2.7	11.4	0.1	37
N. MAIN ST.	15	0.9	7.0	0.1	44
S. 215TH ST.	3	4.0	50.7	0.8	55
Total		102.6	318.0	3.3	37

Arterial Level of Service: EB US-54

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
S. 215TH ST.	3	1.7	14.7	0.2	54
N. MAIN ST.	15	3.3	58.2	0.8	48
N. CEDAR ST.	18	2.1	8.2	0.1	38
N. GODDARD RD.	6	43.3	51.3	0.1	8
CASADO RD.	39	9.2	27.6	0.2	32
	47	1.3	8.2	0.1	41
BARBER ST.	20	5.0	15.6	0.1	34
	33	3.3	20.9	0.2	41
	51	0.8	6.4	0.1	45
S. 183RD ST.	9	43.0	55.9	0.2	12
W. 167TH ST.	12	24.0	89.1	1.0	40
Total		137.1	356.0	3.2	32

Arterial Level of Service: WB US-54

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
W. 167TH ST.	12	41.9	61.4	0.3	18
S. 183RD ST.	9	64.4	126.9	1.0	28
	51	10.8	24.7	0.2	27
	33	4.3	10.2	0.1	28
BARBER ST.	20	12.7	30.5	0.2	28
	47	5.6	16.5	0.1	32
CASADO RD.	39	2.4	8.9	0.1	38
S. 199TH ST.	6	56.7	74.2	0.2	12
N. CEDAR ST.	18	7.7	16.4	0.1	26
N. MAIN ST.	15	2.2	8.3	0.1	37
S. 215TH ST.	3	8.0	54.8	0.8	51
Total		216.8	432.8	3.3	27

Appendix E – Capacity Analysis Reports

See attached reports.

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	19	513	25	25	272	8	6	13	49	22	14	14
Future Vol, veh/h	19	513	25	25	272	8	6	13	49	22	14	14
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	425	-	900	380	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15	15	15	15	15	15	15
Mvmt Flow	21	558	27	27	296	9	7	14	53	24	15	15

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	304	0	0	558	0	0	809	958	279	681	953	152
Stage 1	-	-	-	-	-	-	599	599	-	354	354	-
Stage 2	-	-	-	-	-	-	210	359	-	327	599	-
Critical Hdwy	4.4	-	-	4.4	-	-	7.8	6.8	7.2	7.8	6.8	7.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.8	5.8	-	6.8	5.8	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.8	5.8	-	6.8	5.8	-
Follow-up Hdwy	2.35	-	-	2.35	-	-	3.65	4.15	3.45	3.65	4.15	3.45
Pot Cap-1 Maneuver	1165	-	-	924	-	-	250	235	681	312	236	827
Stage 1	-	-	-	-	-	-	424	458	-	601	597	-
Stage 2	-	-	-	-	-	-	736	594	-	625	458	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1165	-	-	924	-	-	224	224	681	264	225	827
Mov Cap-2 Maneuver	-	-	-	-	-	-	224	224	-	264	225	-
Stage 1	-	-	-	-	-	-	416	450	-	590	580	-
Stage 2	-	-	-	-	-	-	683	577	-	548	450	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.7	15	19.2
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	434	1165	-	-	924	-	-	308
HCM Lane V/C Ratio	0.17	0.018	-	-	0.029	-	-	0.176
HCM Control Delay (s)	15	8.1	-	-	9	-	-	19.2
HCM Lane LOS	C	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.6	0.1	-	-	0.1	-	-	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	726	41	110	512	19	30	45	162	53	82	53
Future Volume (veh/h)	32	726	41	110	512	19	30	45	162	53	82	53
Number	1	6	16	5	2	12	7	4	14	3	8	18
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	1652	1652	1652	1652	1652	1652	1900	1652	1652	1900	1652	1652
Adj Flow Rate, veh/h	35	789	45	120	557	21	33	49	176	58	89	58
Adj No. of Lanes	1	2	1	1	2	1	0	1	1	0	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	15	15	15	15	15	15	15	15	15	15	15	15
Cap, veh/h	102	1315	588	166	1443	646	56	55	391	56	56	391
Arrive On Green	0.06	0.42	0.42	0.11	0.46	0.46	0.28	0.28	0.28	0.28	0.28	0.28
Sat Flow, veh/h	1573	3139	1404	1573	3139	1404	0	196	1404	0	202	1404
Grp Volume(v), veh/h	35	789	45	120	557	21	82	0	176	147	0	58
Grp Sat Flow(s),veh/h/ln	1573	1570	1404	1573	1570	1404	196	0	1404	202	0	1404
Q Serve(g_s), s	1.9	17.5	1.7	6.6	10.5	0.7	0.0	0.0	9.3	0.0	0.0	2.8
Cycle Q Clear(g_c), s	1.9	17.5	1.7	6.6	10.5	0.7	25.0	0.0	9.3	25.0	0.0	2.8
Prop In Lane	1.00		1.00	1.00		1.00	0.40		1.00	0.39		1.00
Lane Grp Cap(c), veh/h	102	1315	588	166	1443	646	111	0	391	112	0	391
V/C Ratio(X)	0.34	0.60	0.08	0.72	0.39	0.03	0.74	0.00	0.45	1.31	0.00	0.15
Avail Cap(c_a), veh/h	263	1398	625	263	1443	646	111	0	391	112	0	391
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	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	40.2	20.3	15.7	38.9	15.9	13.3	29.3	0.0	26.7	33.1	0.0	24.4
Incr Delay (d2), s/veh	2.0	0.6	0.1	5.8	0.8	0.1	23.0	0.0	0.8	189.4	0.0	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	0.9	7.7	0.7	3.1	4.6	0.3	2.7	0.0	3.7	8.6	0.0	1.1
LnGrp Delay(d),s/veh	42.2	20.9	15.7	44.7	16.7	13.4	52.3	0.0	27.6	222.5	0.0	24.6
LnGrp LOS	D	C	B	D	B	B	D		C	F		C
Approach Vol, veh/h		869			698			258			205	
Approach Delay, s/veh		21.5			21.4			35.4			166.5	
Approach LOS		C			C			D			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.3	47.6		31.9	14.0	43.9		31.9
Change Period (Y+Rc), s	4.5	* 6.3		6.9	4.5	* 6.3		6.9
Max Green Setting (Gmax), s	15.0	* 40		25.0	15.0	* 40		25.0
Max Q Clear Time (g_c+I1), s	3.9	12.5		27.0	8.6	19.5		27.0
Green Ext Time (p_c), s	0.1	25.1		0.0	0.2	18.1		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	37.9
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	896	30	121	563	73	20	47	65	191	89	45
Future Volume (veh/h)	31	896	30	121	563	73	20	47	65	191	89	45
Number	1	6	16	5	2	12	7	4	14	3	8	18
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	1652	1652	1652	1652	1652	1652	1652	1652	1900	1900	1652	1900
Adj Flow Rate, veh/h	34	974	33	132	612	79	22	51	71	208	97	49
Adj No. of Lanes	1	2	1	1	2	1	1	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	15	15	15	15	15	15	15	15	15	15	15	15
Cap, veh/h	49	983	440	156	1196	535	542	288	400	247	97	49
Arrive On Green	0.03	0.31	0.31	0.10	0.38	0.38	0.13	0.46	0.46	0.28	0.28	0.28
Sat Flow, veh/h	1573	3139	1404	1573	3139	1404	1573	626	872	745	348	176
Grp Volume(v), veh/h	34	974	33	132	612	79	22	0	122	354	0	0
Grp Sat Flow(s),veh/h/ln	1573	1570	1404	1573	1570	1404	1573	0	1498	1268	0	0
Q Serve(g_s), s	3.1	44.4	2.4	11.9	21.5	5.3	1.2	0.0	6.9	40.0	0.0	0.0
Cycle Q Clear(g_c), s	3.1	44.4	2.4	11.9	21.5	5.3	1.2	0.0	6.9	40.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.58	0.59		0.14
Lane Grp Cap(c), veh/h	49	983	440	156	1196	535	542	0	688	393	0	0
V/C Ratio(X)	0.70	0.99	0.08	0.85	0.51	0.15	0.04	0.00	0.18	0.90	0.00	0.00
Avail Cap(c_a), veh/h	219	983	440	274	1196	535	542	0	688	393	0	0
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	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	69.0	49.2	34.7	63.7	34.2	29.2	24.1	0.0	22.9	51.9	0.0	0.0
Incr Delay (d2), s/veh	16.4	26.4	0.1	11.9	0.4	0.1	0.1	0.0	0.6	26.3	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	22.8	0.9	5.7	9.4	2.1	0.5	0.0	3.0	16.8	0.0	0.0
LnGrp Delay(d),s/veh	85.3	75.6	34.8	75.5	34.6	29.3	24.3	0.0	23.4	78.2	0.0	0.0
LnGrp LOS	F	E	C	E	C	C	C		C	E		
Approach Vol, veh/h		1041			823			144			354	
Approach Delay, s/veh		74.6			40.6			23.6			78.2	
Approach LOS		E			D			C			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.0	61.8		73.0	18.7	52.0	26.0	47.0
Change Period (Y+Rc), s	4.5	7.0		7.0	4.5	7.0	7.0	7.0
Max Green Setting (Gmax), s	20.0	45.0		28.0	25.0	45.0	19.0	40.0
Max Q Clear Time (g_c+I1), s	5.1	23.5		8.9	13.9	46.4	3.2	42.0
Green Ext Time (p_c), s	0.1	20.5		2.7	0.4	0.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	60.2
HCM 2010 LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	117	1034	1	3	669	206	2	32	10	130	15	86
Future Volume (veh/h)	117	1034	1	3	669	206	2	32	10	130	15	86
Number	5	2	12	1	6	16	7	4	14	3	8	18
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	1652	1652	1652	1652	1652	1652	1900	1652	1900	1900	1652	1900
Adj Flow Rate, veh/h	127	1124	1	3	727	224	2	35	11	141	16	93
Adj No. of Lanes	1	2	1	1	2	1	0	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	15	15	15	15	15	15	15	15	15	15	15	15
Cap, veh/h	158	1940	868	13	1650	738	40	236	71	196	21	96
Arrive On Green	0.10	0.62	0.62	0.01	0.53	0.53	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	1573	3139	1404	1573	3139	1404	16	1216	366	728	108	496
Grp Volume(v), veh/h	127	1124	1	3	727	224	48	0	0	250	0	0
Grp Sat Flow(s),veh/h/ln	1573	1570	1404	1573	1570	1404	1598	0	0	1332	0	0
Q Serve(g_s), s	8.1	21.9	0.0	0.2	14.7	9.3	0.0	0.0	0.0	16.5	0.0	0.0
Cycle Q Clear(g_c), s	8.1	21.9	0.0	0.2	14.7	9.3	2.6	0.0	0.0	19.1	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.04		0.23	0.56		0.37
Lane Grp Cap(c), veh/h	158	1940	868	13	1650	738	347	0	0	314	0	0
V/C Ratio(X)	0.80	0.58	0.00	0.24	0.44	0.30	0.14	0.00	0.00	0.80	0.00	0.00
Avail Cap(c_a), veh/h	459	1940	868	459	1830	819	347	0	0	314	0	0
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	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	45.3	11.7	7.5	50.7	15.1	13.8	34.5	0.0	0.0	40.9	0.0	0.0
Incr Delay (d2), s/veh	9.2	1.3	0.0	9.4	0.2	0.2	0.2	0.0	0.0	13.4	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	9.7	0.0	0.1	6.4	3.6	1.2	0.0	0.0	8.2	0.0	0.0
LnGrp Delay(d),s/veh	54.5	13.0	7.5	60.2	15.3	14.0	34.6	0.0	0.0	54.3	0.0	0.0
LnGrp LOS	D	B	A	E	B	B	C			D		
Approach Vol, veh/h		1252			954			48			250	
Approach Delay, s/veh		17.2			15.1			34.6			54.3	
Approach LOS		B			B			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.3	70.6		27.0	14.8	61.1		27.0
Change Period (Y+Rc), s	4.5	7.0		7.0	4.5	7.0		7.0
Max Green Setting (Gmax), s	30.0	60.0		20.0	30.0	60.0		20.0
Max Q Clear Time (g_c+I1), s	2.2	23.9		4.6	10.1	16.7		21.1
Green Ext Time (p_c), s	0.0	35.0		1.3	0.5	37.4		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	20.4
HCM 2010 LOS	C

Intersection												
Int Delay, s/veh	5.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	696	22	130	407	46	14	4	117	26	13	19
Future Vol, veh/h	7	696	22	130	407	46	14	4	117	26	13	19
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	220	-	1000	250	-	220	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15	15	15	15	15	15	15
Mvmt Flow	8	757	24	141	442	50	15	4	127	28	14	21

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	442	0	0	757	0	0	1283	1497	378	1121	1497	221
Stage 1	-	-	-	-	-	-	772	772	-	725	725	-
Stage 2	-	-	-	-	-	-	511	725	-	396	772	-
Critical Hdwy	4.4	-	-	4.4	-	-	7.8	6.8	7.2	7.8	6.8	7.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.8	5.8	-	6.8	5.8	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.8	5.8	-	6.8	5.8	-
Follow-up Hdwy	2.35	-	-	2.35	-	-	3.65	4.15	3.45	3.65	4.15	3.45
Pot Cap-1 Maneuver	1027	-	-	770	-	-	109	108	584	145	108	744
Stage 1	-	-	-	-	-	-	331	378	-	354	398	-
Stage 2	-	-	-	-	-	-	481	398	-	567	378	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1027	-	-	770	-	-	80	88	584	93	88	744
Mov Cap-2 Maneuver	-	-	-	-	-	-	80	88	-	93	88	-
Stage 1	-	-	-	-	-	-	328	375	-	351	325	-
Stage 2	-	-	-	-	-	-	365	325	-	435	375	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	2.4	25.3	57.8
HCM LOS			D	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	321	1027	-	-	770	-	-	128
HCM Lane V/C Ratio	0.457	0.007	-	-	0.184	-	-	0.493
HCM Control Delay (s)	25.3	8.5	-	-	10.7	-	-	57.8
HCM Lane LOS	D	A	-	-	B	-	-	F
HCM 95th %tile Q(veh)	2.3	0	-	-	0.7	-	-	2.3

Intersection							
Int Delay, s/veh	0.7						
Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Vol, veh/h	0	785	54	29	566	17	14
Future Vol, veh/h	0	785	54	29	566	17	14
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	None	-	None
Storage Length	220	-	0	400	-	0	-
Veh in Median Storage, #	-	0	-	-	0	0	-
Grade, %	-	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15	15
Mvmt Flow	0	853	59	32	615	18	15

Major/Minor	Major1			Major2		Minor1	
Conflicting Flow All	449	0	0	853	0	1224	427
Stage 1	-	-	-	-	-	853	-
Stage 2	-	-	-	-	-	371	-
Critical Hdwy	6.7	-	-	4.4	-	7.1	7.2
Critical Hdwy Stg 1	-	-	-	-	-	6.1	-
Critical Hdwy Stg 2	-	-	-	-	-	6.1	-
Follow-up Hdwy	2.65	-	-	2.35	-	3.65	3.45
Pot Cap-1 Maneuver	692	-	-	704	-	154	541
Stage 1	-	-	-	-	-	347	-
Stage 2	-	-	-	-	-	631	-
Platoon blocked, %		-	-		-		
Mov Cap-1 Maneuver	692	-	-	704	-	147	541
Mov Cap-2 Maneuver	-	-	-	-	-	147	-
Stage 1	-	-	-	-	-	347	-
Stage 2	-	-	-	-	-	602	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	24.4
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBU	EBT	EBR	WBL	WBT
Capacity (veh/h)	219	692	-	-	704	-
HCM Lane V/C Ratio	0.154	-	-	-	0.045	-
HCM Control Delay (s)	24.4	0	-	-	10.4	-
HCM Lane LOS	C	A	-	-	B	-
HCM 95th %tile Q(veh)	0.5	0	-	-	0.1	-

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		Y	
Traffic Vol, veh/h	10	931	618	10	26	23
Future Vol, veh/h	10	931	618	10	26	23
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, %	15	15	15	15	15	15
Mvmt Flow	11	1012	672	11	28	25

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	683	0	-	0	1205	341
Stage 1	-	-	-	-	677	-
Stage 2	-	-	-	-	528	-
Critical Hdwy	4.1	-	-	-	7.1	7.2
Critical Hdwy Stg 1	-	-	-	-	6.1	-
Critical Hdwy Stg 2	-	-	-	-	6.1	-
Follow-up Hdwy	2.35	-	-	-	3.65	3.45
Pot Cap-1 Maneuver	824	-	-	-	159	618
Stage 1	-	-	-	-	433	-
Stage 2	-	-	-	-	521	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	824	-	-	-	154	618
Mov Cap-2 Maneuver	-	-	-	-	154	-
Stage 1	-	-	-	-	433	-
Stage 2	-	-	-	-	505	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	24.4
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	824	-	-	-	238
HCM Lane V/C Ratio	0.013	-	-	-	0.224
HCM Control Delay (s)	9.4	0.1	-	-	24.4
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.8

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			↑	↑	
Traffic Vol, veh/h	10	14	8	143	311	6
Future Vol, veh/h	10	14	8	143	311	6
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	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15
Mvmt Flow	11	15	9	155	338	7

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	514	341	345	0	-	0
Stage 1	341	-	-	-	-	-
Stage 2	173	-	-	-	-	-
Critical Hdwy	6.55	6.35	4.25	-	-	-
Critical Hdwy Stg 1	5.55	-	-	-	-	-
Critical Hdwy Stg 2	5.55	-	-	-	-	-
Follow-up Hdwy	3.635	3.435	2.335	-	-	-
Pot Cap-1 Maneuver	498	673	1145	-	-	-
Stage 1	692	-	-	-	-	-
Stage 2	827	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	494	673	1145	-	-	-
Mov Cap-2 Maneuver	494	-	-	-	-	-
Stage 1	692	-	-	-	-	-
Stage 2	820	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.4	0.4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1145	-	585	-	-
HCM Lane V/C Ratio	0.008	-	0.045	-	-
HCM Control Delay (s)	8.2	0	11.4	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

22: S. 199TH ST. & W. KELLOGG DR.

Intersection	
Int Delay, s/veh	3.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	20	16	39	5	7	1	21	65	10	9	144	10
Future Vol, veh/h	20	16	39	5	7	1	21	65	10	9	144	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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15	15	15	15	15	15	15
Mvmt Flow	22	17	42	5	8	1	23	71	11	10	157	11

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	308	309	162	333	309	76	167	0	0	82	0	0
Stage 1	182	182	-	122	122	-	-	-	-	-	-	-
Stage 2	126	127	-	211	187	-	-	-	-	-	-	-
Critical Hdwy	7.25	6.65	6.35	7.25	6.65	6.35	4.25	-	-	4.25	-	-
Critical Hdwy Stg 1	6.25	5.65	-	6.25	5.65	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.25	5.65	-	6.25	5.65	-	-	-	-	-	-	-
Follow-up Hdwy	3.635	4.135	3.435	3.635	4.135	3.435	2.335	-	-	2.335	-	-
Pot Cap-1 Maneuver	620	584	850	596	584	950	1336	-	-	1437	-	-
Stage 1	790	725	-	852	770	-	-	-	-	-	-	-
Stage 2	847	767	-	762	721	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	601	569	850	542	569	950	1336	-	-	1437	-	-
Mov Cap-2 Maneuver	601	569	-	542	569	-	-	-	-	-	-	-
Stage 1	776	719	-	837	756	-	-	-	-	-	-	-
Stage 2	822	753	-	701	715	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.8	11.4	1.7	0.4
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1336	-	-	699	576	1437	-	-
HCM Lane V/C Ratio	0.017	-	-	0.117	0.025	0.007	-	-
HCM Control Delay (s)	7.7	0	-	10.8	11.4	7.5	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.4	0.1	0	-	-

23: N. MAIN ST. & W. KELLOGG DR.

Intersection	
Int Delay, s/veh	6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	22	13	3	22	19	30	25	2	35	42	0
Future Vol, veh/h	0	22	13	3	22	19	30	25	2	35	42	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15	15	15	15	15	15	15
Mvmt Flow	0	24	14	3	24	21	33	27	2	38	46	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	238	217	46	234	215	28	46	0	0	29	0	0
Stage 1	122	122	-	93	93	-	-	-	-	-	-	-
Stage 2	116	95	-	141	122	-	-	-	-	-	-	-
Critical Hdwy	7.25	6.65	6.35	7.25	6.65	6.35	4.25	-	-	4.25	-	-
Critical Hdwy Stg 1	6.25	5.65	-	6.25	5.65	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.25	5.65	-	6.25	5.65	-	-	-	-	-	-	-
Follow-up Hdwy	3.635	4.135	3.435	3.635	4.135	3.435	2.335	-	-	2.335	-	-
Pot Cap-1 Maneuver	690	659	988	694	660	1011	1482	-	-	1504	-	-
Stage 1	852	770	-	883	793	-	-	-	-	-	-	-
Stage 2	858	792	-	832	770	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	632	627	988	640	628	1011	1482	-	-	1504	-	-
Mov Cap-2 Maneuver	632	627	-	640	628	-	-	-	-	-	-	-
Stage 1	832	750	-	863	775	-	-	-	-	-	-	-
Stage 2	796	774	-	773	750	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.2	10.1	3.9	3.4
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1482	-	-	725	752	1504	-	-
HCM Lane V/C Ratio	0.022	-	-	0.052	0.064	0.025	-	-
HCM Control Delay (s)	7.5	0	-	10.2	10.1	7.5	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0.2	0.1	-	-

24: BARBER ST. & W. KELLOGG DR.

Intersection	
Int Delay, s/veh	8.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	1	12	5	43	19	0	10	3	7	2	1	0
Future Vol, veh/h	1	12	5	43	19	0	10	3	7	2	1	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15	15	15	15	15	15	15
Mvmt Flow	1	13	5	47	21	0	11	3	8	2	1	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	44	38	1	44	34	7	1	0	0	11	0	0
Stage 1	5	5	-	29	29	-	-	-	-	-	-	-
Stage 2	39	33	-	15	5	-	-	-	-	-	-	-
Critical Hdwy	7.25	6.65	6.35	7.25	6.65	6.35	4.25	-	-	4.25	-	-
Critical Hdwy Stg 1	6.25	5.65	-	6.25	5.65	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.25	5.65	-	6.25	5.65	-	-	-	-	-	-	-
Follow-up Hdwy	3.635	4.135	3.435	3.635	4.135	3.435	2.335	-	-	2.335	-	-
Pot Cap-1 Maneuver	927	829	1047	927	834	1039	1540	-	-	1527	-	-
Stage 1	984	866	-	956	846	-	-	-	-	-	-	-
Stage 2	944	842	-	972	866	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	904	822	1047	905	827	1039	1540	-	-	1527	-	-
Mov Cap-2 Maneuver	904	822	-	905	827	-	-	-	-	-	-	-
Stage 1	977	865	-	949	840	-	-	-	-	-	-	-
Stage 2	914	836	-	951	865	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.2	9.4	3.7	4.9
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1540	-	-	879	880	1527	-	-
HCM Lane V/C Ratio	0.007	-	-	0.022	0.077	0.001	-	-
HCM Control Delay (s)	7.4	0	-	9.2	9.4	7.4	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.2	0	-	-

28: S. 183RD ST. & E. KELLOGG DR.

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	3	2	130	238	2
Future Vol, veh/h	2	3	2	130	238	2
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	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15
Mvmt Flow	2	3	2	141	259	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	406	260	261	0	-	0
Stage 1	260	-	-	-	-	-
Stage 2	146	-	-	-	-	-
Critical Hdwy	6.55	6.35	4.25	-	-	-
Critical Hdwy Stg 1	5.55	-	-	-	-	-
Critical Hdwy Stg 2	5.55	-	-	-	-	-
Follow-up Hdwy	3.635	3.435	2.335	-	-	-
Pot Cap-1 Maneuver	577	748	1232	-	-	-
Stage 1	754	-	-	-	-	-
Stage 2	850	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	576	748	1232	-	-	-
Mov Cap-2 Maneuver	624	-	-	-	-	-
Stage 1	754	-	-	-	-	-
Stage 2	848	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.2	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1232	-	693	-	-
HCM Lane V/C Ratio	0.002	-	0.008	-	-
HCM Control Delay (s)	7.9	0	10.2	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	4	8	0	4	1	0
Future Vol, veh/h	4	8	0	4	1	0
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, %	15	15	15	15	15	15
Mvmt Flow	4	9	0	4	1	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	13	0	13	9
Stage 1	-	-	-	-	9	-
Stage 2	-	-	-	-	4	-
Critical Hdwy	-	-	4.25	-	6.55	6.35
Critical Hdwy Stg 1	-	-	-	-	5.55	-
Critical Hdwy Stg 2	-	-	-	-	5.55	-
Follow-up Hdwy	-	-	2.335	-	3.635	3.435
Pot Cap-1 Maneuver	-	-	1525	-	974	1036
Stage 1	-	-	-	-	981	-
Stage 2	-	-	-	-	986	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1525	-	974	1036
Mov Cap-2 Maneuver	-	-	-	-	974	-
Stage 1	-	-	-	-	981	-
Stage 2	-	-	-	-	986	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	8.7
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	974	-	-	1525	-
HCM Lane V/C Ratio	0.001	-	-	-	-
HCM Control Delay (s)	8.7	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	409	8	47	615	24	11	16	27	10	9	9
Future Vol, veh/h	9	409	8	47	615	24	11	16	27	10	9	9
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	425	-	900	380	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15	15	15	15	15	15	15
Mvmt Flow	10	445	9	51	668	26	12	17	29	11	10	10

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	695	0	0	445	0	0	905	1261	222	1035	1248	347
Stage 1	-	-	-	-	-	-	464	464	-	784	784	-
Stage 2	-	-	-	-	-	-	441	797	-	251	464	-
Critical Hdwy	4.4	-	-	4.4	-	-	7.8	6.8	7.2	7.8	6.8	7.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.8	5.8	-	6.8	5.8	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.8	5.8	-	6.8	5.8	-
Follow-up Hdwy	2.35	-	-	2.35	-	-	3.65	4.15	3.45	3.65	4.15	3.45
Pot Cap-1 Maneuver	815	-	-	1025	-	-	212	152	743	169	155	613
Stage 1	-	-	-	-	-	-	515	530	-	325	373	-
Stage 2	-	-	-	-	-	-	532	367	-	695	530	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	815	-	-	1025	-	-	189	143	743	140	145	613
Mov Cap-2 Maneuver	-	-	-	-	-	-	189	143	-	140	145	-
Stage 1	-	-	-	-	-	-	509	523	-	321	354	-
Stage 2	-	-	-	-	-	-	484	349	-	637	523	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.6	22.7	27.7
HCM LOS			C	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	262	815	-	-	1025	-	-	189
HCM Lane V/C Ratio	0.224	0.012	-	-	0.05	-	-	0.161
HCM Control Delay (s)	22.7	9.5	-	-	8.7	-	-	27.7
HCM Lane LOS	C	A	-	-	A	-	-	D
HCM 95th %tile Q(veh)	0.8	0	-	-	0.2	-	-	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	57	532	23	121	765	49	50	89	124	43	68	63
Future Volume (veh/h)	57	532	23	121	765	49	50	89	124	43	68	63
Number	1	6	16	5	2	12	7	4	14	3	8	18
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	1652	1652	1652	1652	1652	1652	1900	1652	1652	1900	1652	1652
Adj Flow Rate, veh/h	62	578	25	132	832	53	54	97	135	47	74	68
Adj No. of Lanes	1	2	1	1	2	1	0	1	1	0	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	15	15	15	15	15	15	15	15	15	15	15	15
Cap, veh/h	137	1326	593	167	1386	620	54	65	388	55	57	388
Arrive On Green	0.09	0.42	0.42	0.11	0.44	0.44	0.28	0.28	0.28	0.28	0.28	0.28
Sat Flow, veh/h	1573	3139	1404	1573	3139	1404	0	236	1404	0	208	1404
Grp Volume(v), veh/h	62	578	25	132	832	53	151	0	135	121	0	68
Grp Sat Flow(s),veh/h/ln	1573	1570	1404	1573	1570	1404	236	0	1404	208	0	1404
Q Serve(g_s), s	3.4	11.8	0.9	7.4	18.2	2.0	0.0	0.0	7.0	0.0	0.0	3.3
Cycle Q Clear(g_c), s	3.4	11.8	0.9	7.4	18.2	2.0	25.0	0.0	7.0	25.0	0.0	3.3
Prop In Lane	1.00		1.00	1.00		1.00	0.36		1.00	0.39		1.00
Lane Grp Cap(c), veh/h	137	1326	593	167	1386	620	119	0	388	112	0	388
V/C Ratio(X)	0.45	0.44	0.04	0.79	0.60	0.09	1.27	0.00	0.35	1.08	0.00	0.18
Avail Cap(c_a), veh/h	261	1386	620	261	1386	620	119	0	388	112	0	388
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	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	39.3	18.5	15.4	39.5	19.2	14.7	32.6	0.0	26.3	33.4	0.0	25.0
Incr Delay (d2), s/veh	2.3	0.2	0.0	8.3	1.9	0.3	170.5	0.0	2.5	106.7	0.0	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	0.1	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	5.1	0.4	3.6	8.2	0.8	8.6	0.0	3.0	6.1	0.0	1.3
LnGrp Delay(d),s/veh	41.6	18.8	15.4	47.8	21.2	15.0	203.1	0.0	28.7	140.2	0.0	25.2
LnGrp LOS	D	B	B	D	C	B	F		C	F		C
Approach Vol, veh/h		665			1017			286			189	
Approach Delay, s/veh		20.8			24.3			120.8			98.8	
Approach LOS		C			C			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.4	46.3		31.9	14.1	44.6		31.9
Change Period (Y+Rc), s	4.5	* 6.3		6.9	4.5	* 6.3		6.9
Max Green Setting (Gmax), s	15.0	* 40		25.0	15.0	* 40		25.0
Max Q Clear Time (g_c+I1), s	5.4	20.2		27.0	9.4	13.8		27.0
Green Ext Time (p_c), s	0.1	18.6		0.0	0.2	24.3		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	42.5
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	598	54	92	823	152	63	78	52	80	65	40
Future Volume (veh/h)	42	598	54	92	823	152	63	78	52	80	65	40
Number	1	6	16	5	2	12	7	4	14	3	8	18
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	1652	1652	1652	1652	1652	1652	1652	1652	1900	1900	1652	1900
Adj Flow Rate, veh/h	46	650	59	100	895	165	68	85	57	87	71	43
Adj No. of Lanes	1	2	1	1	2	1	1	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	15	15	15	15	15	15	15	15	15	15	15	15
Cap, veh/h	99	1074	481	123	1122	502	494	401	269	208	163	90
Arrive On Green	0.06	0.34	0.34	0.08	0.36	0.36	0.07	0.43	0.43	0.31	0.31	0.31
Sat Flow, veh/h	1573	3139	1404	1573	3139	1404	1573	924	619	533	517	286
Grp Volume(v), veh/h	46	650	59	100	895	165	68	0	142	201	0	0
Grp Sat Flow(s),veh/h/ln	1573	1570	1404	1573	1570	1404	1573	0	1543	1335	0	0
Q Serve(g_s), s	3.6	21.8	3.7	7.9	32.6	10.9	3.4	0.0	7.3	12.4	0.0	0.0
Cycle Q Clear(g_c), s	3.6	21.8	3.7	7.9	32.6	10.9	3.4	0.0	7.3	15.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.40	0.43		0.21
Lane Grp Cap(c), veh/h	99	1074	481	123	1122	502	494	0	669	461	0	0
V/C Ratio(X)	0.46	0.60	0.12	0.81	0.80	0.33	0.14	0.00	0.21	0.44	0.00	0.00
Avail Cap(c_a), veh/h	248	1112	498	310	1122	502	629	0	669	461	0	0
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	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	57.4	34.6	28.7	57.6	36.7	29.7	23.7	0.0	22.4	34.8	0.0	0.0
Incr Delay (d2), s/veh	3.3	0.9	0.1	11.9	4.1	0.4	0.1	0.0	0.7	3.0	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	9.6	1.4	3.9	14.7	4.3	1.5	0.0	3.3	6.0	0.0	0.0
LnGrp Delay(d),s/veh	60.7	35.5	28.8	69.5	40.8	30.1	23.8	0.0	23.1	37.8	0.0	0.0
LnGrp LOS	E	D	C	E	D	C	C		C	D		
Approach Vol, veh/h		755			1160			210			201	
Approach Delay, s/veh		36.5			41.8			23.4			37.8	
Approach LOS		D			D			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.5	52.4		62.1	14.4	50.5	15.1	47.0
Change Period (Y+Rc), s	4.5	7.0		7.0	4.5	7.0	6.0	7.0
Max Green Setting (Gmax), s	20.0	45.0		28.0	25.0	45.0	20.0	40.0
Max Q Clear Time (g_c+I1), s	5.6	34.6		9.3	9.9	23.8	5.4	17.0
Green Ext Time (p_c), s	0.1	10.2		1.8	0.3	19.7	0.2	1.9

Intersection Summary	
HCM 2010 Ctrl Delay	38.1
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	37	686	7	19	999	105	6	8	11	55	14	62
Future Volume (veh/h)	37	686	7	19	999	105	6	8	11	55	14	62
Number	5	2	12	1	6	16	7	4	14	3	8	18
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	1652	1652	1652	1652	1652	1652	1900	1652	1900	1900	1652	1900
Adj Flow Rate, veh/h	40	746	8	21	1086	114	7	9	12	60	15	67
Adj No. of Lanes	1	2	1	1	2	1	0	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	15	15	15	15	15	15	15	15	15	15	15	15
Cap, veh/h	104	1838	822	69	1768	791	94	113	122	144	45	124
Arrive On Green	0.07	0.59	0.59	0.04	0.56	0.56	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	1573	3139	1404	1573	3139	1404	262	585	635	491	232	646
Grp Volume(v), veh/h	40	746	8	21	1086	114	28	0	0	142	0	0
Grp Sat Flow(s),veh/h/ln	1573	1570	1404	1573	1570	1404	1482	0	0	1369	0	0
Q Serve(g_s), s	2.5	13.4	0.2	1.3	24.0	4.0	0.0	0.0	0.0	6.8	0.0	0.0
Cycle Q Clear(g_c), s	2.5	13.4	0.2	1.3	24.0	4.0	1.6	0.0	0.0	9.5	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.25		0.43	0.42		0.47
Lane Grp Cap(c), veh/h	104	1838	822	69	1768	791	329	0	0	313	0	0
V/C Ratio(X)	0.39	0.41	0.01	0.31	0.61	0.14	0.09	0.00	0.00	0.45	0.00	0.00
Avail Cap(c_a), veh/h	455	1838	822	455	1814	812	329	0	0	313	0	0
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	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	46.5	11.7	9.0	48.1	15.1	10.8	34.5	0.0	0.0	37.5	0.0	0.0
Incr Delay (d2), s/veh	2.3	0.7	0.0	2.5	0.6	0.1	0.5	0.0	0.0	1.0	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	6.0	0.1	0.6	10.4	1.6	0.7	0.0	0.0	3.8	0.0	0.0
LnGrp Delay(d),s/veh	48.8	12.4	9.0	50.6	15.7	10.9	35.0	0.0	0.0	38.6	0.0	0.0
LnGrp LOS	D	B	A	D	B	B	C			D		
Approach Vol, veh/h		794			1221			28			142	
Approach Delay, s/veh		14.2			15.9			35.0			38.6	
Approach LOS		B			B			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.0	67.8		27.0	11.3	65.5		27.0
Change Period (Y+Rc), s	4.5	7.0		7.0	4.5	7.0		7.0
Max Green Setting (Gmax), s	30.0	60.0		20.0	30.0	60.0		20.0
Max Q Clear Time (g_c+I1), s	3.3	15.4		3.6	4.5	26.0		11.5
Green Ext Time (p_c), s	0.0	42.8		0.7	0.1	32.5		0.5

Intersection Summary	
HCM 2010 Ctrl Delay	17.0
HCM 2010 LOS	B

Intersection	
Int Delay, s/veh	4.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	518	15	64	712	95	9	7	75	30	10	49
Future Vol, veh/h	6	518	15	64	712	95	9	7	75	30	10	49
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	220	-	1000	250	-	220	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15	15	15	15	15	15	15
Mvmt Flow	7	563	16	70	774	103	10	8	82	33	11	53

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	774	0	0	563	0	0	1108	1489	282	1211	1489	387
Stage 1	-	-	-	-	-	-	576	576	-	913	913	-
Stage 2	-	-	-	-	-	-	532	913	-	298	576	-
Critical Hdwy	4.4	-	-	4.4	-	-	7.8	6.8	7.2	7.8	6.8	7.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.8	5.8	-	6.8	5.8	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.8	5.8	-	6.8	5.8	-
Follow-up Hdwy	2.35	-	-	2.35	-	-	3.65	4.15	3.45	3.65	4.15	3.45
Pot Cap-1 Maneuver	758	-	-	920	-	-	149	109	677	124	109	576
Stage 1	-	-	-	-	-	-	439	469	-	270	322	-
Stage 2	-	-	-	-	-	-	467	322	-	651	469	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	758	-	-	920	-	-	116	100	677	96	100	576
Mov Cap-2 Maneuver	-	-	-	-	-	-	116	100	-	96	100	-
Stage 1	-	-	-	-	-	-	435	465	-	268	298	-
Stage 2	-	-	-	-	-	-	377	298	-	558	465	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.7	19.2	46.5
HCM LOS			C	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	352	758	-	-	920	-	-	179
HCM Lane V/C Ratio	0.281	0.009	-	-	0.076	-	-	0.54
HCM Control Delay (s)	19.2	9.8	-	-	9.2	-	-	46.5
HCM Lane LOS	C	A	-	-	A	-	-	E
HCM 95th %tile Q(veh)	1.1	0	-	-	0.2	-	-	2.8

Intersection	
Int Delay, s/veh	0.6

Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations		↑↑			↑↑		
Traffic Vol, veh/h	0	587	36	23	855	16	25
Future Vol, veh/h	0	587	36	23	855	16	25
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	None	-	None
Storage Length	220	-	0	400	-	0	-
Veh in Median Storage, #	-	0	-	-	0	0	-
Grade, %	-	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15	15
Mvmt Flow	0	638	39	25	929	17	27

Major/Minor	Major1			Major2		Minor1	
Conflicting Flow All	678	0	0	638	0	1153	319
Stage 1	-	-	-	-	-	638	-
Stage 2	-	-	-	-	-	515	-
Critical Hdwy	6.7	-	-	4.4	-	7.1	7.2
Critical Hdwy Stg 1	-	-	-	-	-	6.1	-
Critical Hdwy Stg 2	-	-	-	-	-	6.1	-
Follow-up Hdwy	2.65	-	-	2.35	-	3.65	3.45
Pot Cap-1 Maneuver	489	-	-	859	-	172	640
Stage 1	-	-	-	-	-	454	-
Stage 2	-	-	-	-	-	529	-
Platoon blocked, %		-	-		-		
Mov Cap-1 Maneuver	489	-	-	859	-	167	640
Mov Cap-2 Maneuver	-	-	-	-	-	167	-
Stage 1	-	-	-	-	-	454	-
Stage 2	-	-	-	-	-	514	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	18.9
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBU	EBT	EBR	WBL	WBT
Capacity (veh/h)	304	489	-	-	859	-
HCM Lane V/C Ratio	0.147	-	-	-	0.029	-
HCM Control Delay (s)	18.9	0	-	-	9.3	-
HCM Lane LOS	C	A	-	-	A	-
HCM 95th %tile Q(veh)	0.5	0	-	-	0.1	-

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			
Traffic Vol, veh/h	25	674	920	6	20	15
Future Vol, veh/h	25	674	920	6	20	15
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, %	15	15	15	15	15	15
Mvmt Flow	27	733	1000	7	22	16

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1007	0	-	0	1424	503
Stage 1	-	-	-	-	1003	-
Stage 2	-	-	-	-	421	-
Critical Hdwy	4.4	-	-	-	7.8	7.2
Critical Hdwy Stg 1	-	-	-	-	6.8	-
Critical Hdwy Stg 2	-	-	-	-	6.8	-
Follow-up Hdwy	2.35	-	-	-	3.65	3.45
Pot Cap-1 Maneuver	610	-	-	-	85	481
Stage 1	-	-	-	-	236	-
Stage 2	-	-	-	-	547	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	610	-	-	-	80	481
Mov Cap-2 Maneuver	-	-	-	-	80	-
Stage 1	-	-	-	-	218	-
Stage 2	-	-	-	-	506	-

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	46.4
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	610	-	-	-	124
HCM Lane V/C Ratio	0.045	-	-	-	0.307
HCM Control Delay (s)	11.2	0.4	-	-	46.4
HCM Lane LOS	B	A	-	-	E
HCM 95th %tile Q(veh)	0.1	-	-	-	1.2

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	14	13	30	242	172	8
Future Vol, veh/h	14	13	30	242	172	8
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	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15
Mvmt Flow	15	14	33	263	187	9

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	519	191	196	0	-	0
Stage 1	191	-	-	-	-	-
Stage 2	328	-	-	-	-	-
Critical Hdwy	6.55	6.35	4.25	-	-	-
Critical Hdwy Stg 1	5.55	-	-	-	-	-
Critical Hdwy Stg 2	5.55	-	-	-	-	-
Follow-up Hdwy	3.635	3.435	2.335	-	-	-
Pot Cap-1 Maneuver	495	819	1303	-	-	-
Stage 1	811	-	-	-	-	-
Stage 2	702	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	480	819	1303	-	-	-
Mov Cap-2 Maneuver	480	-	-	-	-	-
Stage 1	811	-	-	-	-	-
Stage 2	681	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.3	0.9	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1303	-	599	-	-
HCM Lane V/C Ratio	0.025	-	0.049	-	-
HCM Control Delay (s)	7.8	0	11.3	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-

Intersection	
Int Delay, s/veh	5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	24	26	33	29	20	8	64	109	22	0	112	0
Future Vol, veh/h	24	26	33	29	20	8	64	109	22	0	112	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15	15	15	15	15	15	15
Mvmt Flow	26	28	36	32	22	9	70	118	24	0	122	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	407	404	122	424	392	130	122	0	0	142	0	0
Stage 1	122	122	-	270	270	-	-	-	-	-	-	-
Stage 2	285	282	-	154	122	-	-	-	-	-	-	-
Critical Hdwy	7.25	6.65	6.35	7.25	6.65	6.35	4.25	-	-	4.25	-	-
Critical Hdwy Stg 1	6.25	5.65	-	6.25	5.65	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.25	5.65	-	6.25	5.65	-	-	-	-	-	-	-
Follow-up Hdwy	3.635	4.135	3.435	3.635	4.135	3.435	2.335	-	-	2.335	-	-
Pot Cap-1 Maneuver	532	516	895	518	524	886	1388	-	-	1365	-	-
Stage 1	852	770	-	708	663	-	-	-	-	-	-	-
Stage 2	695	655	-	818	770	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	488	488	895	455	495	886	1388	-	-	1365	-	-
Mov Cap-2 Maneuver	488	488	-	455	495	-	-	-	-	-	-	-
Stage 1	805	770	-	669	627	-	-	-	-	-	-	-
Stage 2	628	619	-	756	770	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.1	13.1	2.5	0
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1388	-	-	596	504	1365	-	-
HCM Lane V/C Ratio	0.05	-	-	0.151	0.123	-	-	-
HCM Control Delay (s)	7.7	0	-	12.1	13.1	0	-	-
HCM Lane LOS	A	A	-	B	B	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	0.5	0.4	0	-	-

Intersection													
Int Delay, s/veh	6.6												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	28	8	19	49	22	55	46	7	33	62	1
Future Vol, veh/h	1	28	8	19	49	22	55	46	7	33	62	1
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15	15	15	15	15	15	15
Mvmt Flow	1	30	9	21	53	24	60	50	8	36	67	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	352	317	68	332	313	54	68	0	0	58	0	0
Stage 1	140	140	-	173	173	-	-	-	-	-	-	-
Stage 2	212	177	-	159	140	-	-	-	-	-	-	-
Critical Hdwy	7.25	6.65	6.35	7.25	6.65	6.35	4.25	-	-	4.25	-	-
Critical Hdwy Stg 1	6.25	5.65	-	6.25	5.65	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.25	5.65	-	6.25	5.65	-	-	-	-	-	-	-
Follow-up Hdwy	3.635	4.135	3.435	3.635	4.135	3.435	2.335	-	-	2.335	-	-
Pot Cap-1 Maneuver	579	578	960	597	581	978	1454	-	-	1467	-	-
Stage 1	833	757	-	799	732	-	-	-	-	-	-	-
Stage 2	761	729	-	813	757	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	496	539	960	537	542	978	1454	-	-	1467	-	-
Mov Cap-2 Maneuver	496	539	-	537	542	-	-	-	-	-	-	-
Stage 1	797	737	-	765	701	-	-	-	-	-	-	-
Stage 2	656	698	-	752	737	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.5	12.1	3.9	2.6
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1454	-	-	594	607	1467	-	-
HCM Lane V/C Ratio	0.041	-	-	0.068	0.161	0.024	-	-
HCM Control Delay (s)	7.6	0	-	11.5	12.1	7.5	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0.6	0.1	-	-

Intersection													
Int Delay, s/veh	7.5												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	39	17	16	19	1	9	1	21	1	2	0
Future Vol, veh/h	0	39	17	16	19	1	9	1	21	1	2	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15	15	15	15	15	15	15
Mvmt Flow	0	42	18	17	21	1	10	1	23	1	2	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	47	47	2	67	36	13	2	0	0	24	0	0
Stage 1	4	4	-	32	32	-	-	-	-	-	-	-
Stage 2	43	43	-	35	4	-	-	-	-	-	-	-
Critical Hdwy	7.25	6.65	6.35	7.25	6.65	6.35	4.25	-	-	4.25	-	-
Critical Hdwy Stg 1	6.25	5.65	-	6.25	5.65	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.25	5.65	-	6.25	5.65	-	-	-	-	-	-	-
Follow-up Hdwy	3.635	4.135	3.435	3.635	4.135	3.435	2.335	-	-	2.335	-	-
Pot Cap-1 Maneuver	922	820	1045	895	832	1031	1539	-	-	1510	-	-
Stage 1	986	867	-	952	843	-	-	-	-	-	-	-
Stage 2	939	834	-	949	867	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	898	813	1045	839	825	1031	1539	-	-	1510	-	-
Mov Cap-2 Maneuver	898	813	-	839	825	-	-	-	-	-	-	-
Stage 1	979	866	-	945	837	-	-	-	-	-	-	-
Stage 2	908	828	-	886	866	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.4	9.5	2.1	2.5
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1539	-	-	872	836	1510	-	-
HCM Lane V/C Ratio	0.006	-	-	0.07	0.047	0.001	-	-
HCM Control Delay (s)	7.4	0	-	9.4	9.5	7.4	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.1	0	-	-

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	9	2	0	184	209	2
Future Vol, veh/h	9	2	0	184	209	2
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	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15
Mvmt Flow	10	2	0	200	227	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	428	228	229	0	-	0
Stage 1	228	-	-	-	-	-
Stage 2	200	-	-	-	-	-
Critical Hdwy	6.55	6.35	4.25	-	-	-
Critical Hdwy Stg 1	5.55	-	-	-	-	-
Critical Hdwy Stg 2	5.55	-	-	-	-	-
Follow-up Hdwy	3.635	3.435	2.335	-	-	-
Pot Cap-1 Maneuver	560	780	1266	-	-	-
Stage 1	780	-	-	-	-	-
Stage 2	804	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	560	780	1266	-	-	-
Mov Cap-2 Maneuver	617	-	-	-	-	-
Stage 1	780	-	-	-	-	-
Stage 2	804	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.7	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1266	-	641	-	-
HCM Lane V/C Ratio	-	-	0.019	-	-
HCM Control Delay (s)	0	-	10.7	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	4.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	10	23	2	0	39	1
Future Vol, veh/h	10	23	2	0	39	1
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, %	15	15	15	15	15	15
Mvmt Flow	11	25	2	0	42	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	36	0	27	23
Stage 1	-	-	-	-	23	-
Stage 2	-	-	-	-	4	-
Critical Hdwy	-	-	4.25	-	6.55	6.35
Critical Hdwy Stg 1	-	-	-	-	5.55	-
Critical Hdwy Stg 2	-	-	-	-	5.55	-
Follow-up Hdwy	-	-	2.335	-	3.635	3.435
Pot Cap-1 Maneuver	-	-	1495	-	956	1017
Stage 1	-	-	-	-	967	-
Stage 2	-	-	-	-	986	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1495	-	955	1017
Mov Cap-2 Maneuver	-	-	-	-	955	-
Stage 1	-	-	-	-	967	-
Stage 2	-	-	-	-	985	-

Approach	EB	WB	NB
HCM Control Delay, s	0	7.4	8.9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	956	-	-	1495	-
HCM Lane V/C Ratio	0.045	-	-	0.001	-
HCM Control Delay (s)	8.9	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	19	627	25	25	322	8	6	13	49	22	14	14
Future Vol, veh/h	19	627	25	25	322	8	6	13	49	22	14	14
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	425	-	900	380	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15	15	15	15	15	15	15
Mvmt Flow	21	682	27	27	350	9	7	14	53	24	15	15

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	359	0	0	682	0	0	960	1136	341	798	1132	179
Stage 1	-	-	-	-	-	-	723	723	-	409	409	-
Stage 2	-	-	-	-	-	-	237	413	-	389	723	-
Critical Hdwy	4.4	-	-	4.4	-	-	7.8	6.8	7.2	7.8	6.8	7.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.8	5.8	-	6.8	5.8	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.8	5.8	-	6.8	5.8	-
Follow-up Hdwy	2.35	-	-	2.35	-	-	3.65	4.15	3.45	3.65	4.15	3.45
Pot Cap-1 Maneuver	1108	-	-	825	-	-	193	182	618	255	183	794
Stage 1	-	-	-	-	-	-	355	399	-	556	563	-
Stage 2	-	-	-	-	-	-	709	560	-	572	399	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1108	-	-	825	-	-	170	173	618	210	174	794
Mov Cap-2 Maneuver	-	-	-	-	-	-	170	173	-	210	174	-
Stage 1	-	-	-	-	-	-	348	391	-	545	545	-
Stage 2	-	-	-	-	-	-	654	542	-	494	391	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.7	17.7	23.7
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	358	1108	-	-	825	-	-	246
HCM Lane V/C Ratio	0.206	0.019	-	-	0.033	-	-	0.221
HCM Control Delay (s)	17.7	8.3	-	-	9.5	-	-	23.7
HCM Lane LOS	C	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.8	0.1	-	-	0.1	-	-	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	733	162	117	512	19	92	48	162	53	86	53
Future Volume (veh/h)	32	733	162	117	512	19	92	48	162	53	86	53
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	1652	1652	1652	1652	1652	1652	1900	1652	1652	1900	1652	1652
Adj Flow Rate, veh/h	35	797	176	127	557	21	100	52	176	58	93	58
Adj No. of Lanes	1	2	1	1	2	1	0	1	1	0	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	15	15	15	15	15	15	15	15	15	15	15	15
Cap, veh/h	94	1417	634	155	1538	688	55	16	380	46	49	380
Arrive On Green	0.06	0.45	0.45	0.10	0.49	0.49	0.27	0.27	0.27	0.27	0.27	0.27
Sat Flow, veh/h	1573	3139	1404	1573	3139	1404	0	58	1404	0	179	1404
Grp Volume(v), veh/h	35	797	176	127	557	21	152	0	176	151	0	58
Grp Sat Flow(s),veh/h/ln	1573	1570	1404	1573	1570	1404	58	0	1404	179	0	1404
Q Serve(g_s), s	2.3	20.3	8.6	8.6	12.0	0.8	0.0	0.0	11.4	0.0	0.0	3.4
Cycle Q Clear(g_c), s	2.3	20.3	8.6	8.6	12.0	0.8	29.5	0.0	11.4	29.5	0.0	3.4
Prop In Lane	1.00		1.00	1.00		1.00	0.66		1.00	0.38		1.00
Lane Grp Cap(c), veh/h	94	1417	634	155	1538	688	71	0	380	94	0	380
V/C Ratio(X)	0.37	0.56	0.28	0.82	0.36	0.03	2.15	0.00	0.46	1.60	0.00	0.15
Avail Cap(c_a), veh/h	181	1427	638	311	1686	754	71	0	380	94	0	380
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	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	49.2	22.0	18.7	48.1	17.2	14.4	48.0	0.0	33.1	40.1	0.0	30.2
Incr Delay (d2), s/veh	2.4	0.5	0.2	10.1	0.1	0.0	563.0	0.0	4.0	313.8	0.0	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	1.1	8.8	3.4	4.2	5.2	0.3	13.2	0.0	4.8	11.1	0.0	1.3
LnGrp Delay(d),s/veh	51.6	22.5	19.0	58.2	17.4	14.4	611.0	0.0	37.1	353.9	0.0	30.4
LnGrp LOS	D	C	B	E	B	B	F		D	F		C
Approach Vol, veh/h		1008			705			328			209	
Approach Delay, s/veh		22.9			24.6			303.0			264.1	
Approach LOS		C			C			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		36.0	17.2	55.7		36.0	13.0	59.9
Change Period (Y+Rc), s		6.5	6.5	6.5		6.5	6.5	6.5
Max Green Setting (Gmax), s		29.5	21.5	49.5		29.5	12.5	58.5
Max Q Clear Time (g_c+I1), s		31.5	10.6	22.3		31.5	4.3	14.0
Green Ext Time (p_c), s		0.0	0.3	25.0		0.0	0.0	39.4

Intersection Summary	
HCM 2010 Ctrl Delay	86.7
HCM 2010 LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	896	37	309	570	73	20	64	274	191	107	45
Future Volume (veh/h)	31	896	37	309	570	73	20	64	274	191	107	45
Number	5	2	12	1	6	16	3	8	18	7	4	14
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	1652	1652	1652	1652	1652	1652	1652	1652	1900	1900	1652	1900
Adj Flow Rate, veh/h	34	974	40	336	620	79	22	70	298	208	116	49
Adj No. of Lanes	1	2	1	1	2	1	1	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	15	15	15	15	15	15	15	15	15	15	15	15
Cap, veh/h	89	1026	459	144	1134	507	440	115	490	183	77	32
Arrive On Green	0.06	0.33	0.33	0.09	0.36	0.36	0.04	0.42	0.42	0.32	0.32	0.32
Sat Flow, veh/h	1573	3139	1404	1573	3139	1404	1573	275	1171	423	240	100
Grp Volume(v), veh/h	34	974	40	336	620	79	22	0	368	373	0	0
Grp Sat Flow(s),veh/h/ln	1573	1570	1404	1573	1570	1404	1573	0	1446	764	0	0
Q Serve(g_s), s	2.5	36.2	2.4	10.9	18.8	4.5	1.0	0.0	23.7	26.3	0.0	0.0
Cycle Q Clear(g_c), s	2.5	36.2	2.4	10.9	18.8	4.5	1.0	0.0	23.7	38.3	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.81	0.56		0.13
Lane Grp Cap(c), veh/h	89	1026	459	144	1134	507	440	0	605	292	0	0
V/C Ratio(X)	0.38	0.95	0.09	2.34	0.55	0.16	0.05	0.00	0.61	1.28	0.00	0.00
Avail Cap(c_a), veh/h	132	1041	466	144	1134	507	503	0	605	292	0	0
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	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	54.3	39.2	27.9	54.3	30.3	25.8	23.2	0.0	27.1	48.5	0.0	0.0
Incr Delay (d2), s/veh	2.7	17.0	0.1	623.9	0.6	0.1	0.0	0.0	4.5	148.7	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	18.1	0.9	29.6	8.2	1.8	0.5	0.0	10.2	21.6	0.0	0.0
LnGrp Delay(d),s/veh	57.0	56.2	27.9	678.2	30.9	25.9	23.2	0.0	31.6	197.3	0.0	0.0
LnGrp LOS	E	E	C	F	C	C	C		C	F		
Approach Vol, veh/h		1048			1035			390			373	
Approach Delay, s/veh		55.2			240.6			31.1			197.3	
Approach LOS		E			F			C			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6		8
Phs Duration (G+Y+Rc), s	17.4	45.5	11.7	44.8	13.3	49.7		56.5
Change Period (Y+Rc), s	6.5	6.5	6.5	6.5	6.5	6.5		6.5
Max Green Setting (Gmax), s	10.9	39.6	10.0	33.5	10.0	40.5		50.0
Max Q Clear Time (g_c+I1), s	12.9	38.2	3.0	40.3	4.5	20.8		25.7
Green Ext Time (p_c), s	0.0	0.8	0.0	0.0	0.0	19.0		5.2

Intersection Summary	
HCM 2010 Ctrl Delay	138.0
HCM 2010 LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	123	1234	3	3	849	206	6	32	10	130	15	97
Future Volume (veh/h)	123	1234	3	3	849	206	6	32	10	130	15	97
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	1652	1652	1652	1652	1652	1652	1900	1652	1900	1652	1652	1900
Adj Flow Rate, veh/h	134	1341	3	3	923	224	7	35	11	141	16	105
Adj No. of Lanes	1	2	1	1	2	1	0	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	15	15	15	15	15	15	15	15	15	15	15	15
Cap, veh/h	161	1641	734	13	1345	602	74	321	94	427	56	366
Arrive On Green	0.10	0.52	0.52	0.01	0.43	0.43	0.29	0.29	0.29	0.29	0.29	0.29
Sat Flow, veh/h	1573	3139	1404	1573	3139	1404	127	1090	319	1201	189	1243
Grp Volume(v), veh/h	134	1341	3	3	923	224	53	0	0	141	0	121
Grp Sat Flow(s),veh/h/ln	1573	1570	1404	1573	1570	1404	1536	0	0	1201	0	1433
Q Serve(g_s), s	9.3	39.7	0.1	0.2	26.6	12.1	0.0	0.0	0.0	6.8	0.0	7.3
Cycle Q Clear(g_c), s	9.3	39.7	0.1	0.2	26.6	12.1	2.7	0.0	0.0	9.5	0.0	7.3
Prop In Lane	1.00		1.00	1.00		1.00	0.13		0.21	1.00		0.87
Lane Grp Cap(c), veh/h	161	1641	734	13	1345	602	489	0	0	427	0	422
V/C Ratio(X)	0.83	0.82	0.00	0.24	0.69	0.37	0.11	0.00	0.00	0.33	0.00	0.29
Avail Cap(c_a), veh/h	262	1641	734	142	1378	616	489	0	0	427	0	422
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	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	49.2	22.2	12.7	55.0	25.8	21.7	28.7	0.0	0.0	30.9	0.0	30.3
Incr Delay (d2), s/veh	11.3	3.4	0.0	9.5	1.4	0.4	0.4	0.0	0.0	0.4	0.0	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	4.6	17.9	0.0	0.1	11.8	4.7	1.3	0.0	0.0	3.5	0.0	2.9
LnGrp Delay(d),s/veh	60.5	25.6	12.7	64.6	27.2	22.1	29.2	0.0	0.0	31.4	0.0	30.7
LnGrp LOS	E	C	B	E	C	C	C			C		C
Approach Vol, veh/h		1478			1150			53			262	
Approach Delay, s/veh		28.7			26.3			29.2			31.1	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		39.4	7.4	64.9		39.4	17.9	54.3
Change Period (Y+Rc), s		6.5	6.5	6.5		6.5	6.5	6.5
Max Green Setting (Gmax), s		32.9	10.1	57.5		32.9	18.6	49.0
Max Q Clear Time (g_c+I1), s		4.7	2.2	41.7		11.5	11.3	28.6
Green Ext Time (p_c), s		1.7	0.0	15.7		1.6	0.3	19.3

Intersection Summary	
HCM 2010 Ctrl Delay	28.0
HCM 2010 LOS	C

Intersection	
Int Delay, s/veh	8.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	810	22	139	457	50	14	4	128	30	13	19
Future Vol, veh/h	7	810	22	139	457	50	14	4	128	30	13	19
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	220	-	1000	250	-	220	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15	15	15	15	15	15	15
Mvmt Flow	8	880	24	151	497	54	15	4	139	33	14	21

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	497	0	0	880	0	0	1454	1695	440	1257	1695	248
Stage 1	-	-	-	-	-	-	896	896	-	799	799	-
Stage 2	-	-	-	-	-	-	558	799	-	458	896	-
Critical Hdwy	4.4	-	-	4.4	-	-	7.8	6.8	7.2	7.8	6.8	7.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.8	5.8	-	6.8	5.8	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.8	5.8	-	6.8	5.8	-
Follow-up Hdwy	2.35	-	-	2.35	-	-	3.65	4.15	3.45	3.65	4.15	3.45
Pot Cap-1 Maneuver	977	-	-	687	-	-	81	80	530	115	80	714
Stage 1	-	-	-	-	-	-	276	328	-	318	366	-
Stage 2	-	-	-	-	-	-	450	366	-	519	328	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	977	-	-	687	-	-	54	62	530	66	62	714
Mov Cap-2 Maneuver	-	-	-	-	-	-	54	62	-	66	62	-
Stage 1	-	-	-	-	-	-	274	325	-	315	286	-
Stage 2	-	-	-	-	-	-	324	286	-	375	325	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	2.5	38.9	117.6
HCM LOS			E	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	258	977	-	-	687	-	-	90
HCM Lane V/C Ratio	0.615	0.008	-	-	0.22	-	-	0.749
HCM Control Delay (s)	38.9	8.7	-	-	11.7	-	-	117.6
HCM Lane LOS	E	A	-	-	B	-	-	F
HCM 95th %tile Q(veh)	3.7	0	-	-	0.8	-	-	3.8

Intersection	
Int Delay, s/veh	0.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	914	54	29	628	17	14
Future Vol, veh/h	914	54	29	628	17	14
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	400	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15
Mvmt Flow	993	59	32	683	18	15

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	993	0	1397	497
Stage 1	-	-	-	-	993	-
Stage 2	-	-	-	-	404	-
Critical Hdwy	-	-	4.4	-	7.1	7.2
Critical Hdwy Stg 1	-	-	-	-	6.1	-
Critical Hdwy Stg 2	-	-	-	-	6.1	-
Follow-up Hdwy	-	-	2.35	-	3.65	3.45
Pot Cap-1 Maneuver	-	-	618	-	117	485
Stage 1	-	-	-	-	291	-
Stage 2	-	-	-	-	606	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	618	-	111	485
Mov Cap-2 Maneuver	-	-	-	-	111	-
Stage 1	-	-	-	-	291	-
Stage 2	-	-	-	-	575	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	31.3
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	170	-	-	618	-
HCM Lane V/C Ratio	0.198	-	-	0.051	-
HCM Control Delay (s)	31.3	-	-	11.1	-
HCM Lane LOS	D	-	-	B	-
HCM 95th %tile Q(veh)	0.7	-	-	0.2	-

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↾	
Traffic Vol, veh/h	10	938	625	10	26	23
Future Vol, veh/h	10	938	625	10	26	23
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, %	15	15	15	15	15	15
Mvmt Flow	11	1020	679	11	28	25

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	690	0	-	0	1217	345
Stage 1	-	-	-	-	685	-
Stage 2	-	-	-	-	532	-
Critical Hdwy	4.4	-	-	-	7.1	7.2
Critical Hdwy Stg 1	-	-	-	-	6.1	-
Critical Hdwy Stg 2	-	-	-	-	6.1	-
Follow-up Hdwy	2.35	-	-	-	3.65	3.45
Pot Cap-1 Maneuver	819	-	-	-	156	615
Stage 1	-	-	-	-	429	-
Stage 2	-	-	-	-	518	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	819	-	-	-	151	615
Mov Cap-2 Maneuver	-	-	-	-	151	-
Stage 1	-	-	-	-	429	-
Stage 2	-	-	-	-	502	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	24.9
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	819	-	-	-	234
HCM Lane V/C Ratio	0.013	-	-	-	0.228
HCM Control Delay (s)	9.5	0.1	-	-	24.9
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.9

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↾			↕	↕	
Traffic Vol, veh/h	10	14	8	160	329	6
Future Vol, veh/h	10	14	8	160	329	6
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	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15
Mvmt Flow	11	15	9	174	358	7

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	552	361	364	0	-	0
Stage 1	361	-	-	-	-	-
Stage 2	191	-	-	-	-	-
Critical Hdwy	7.25	6.35	4.25	-	-	-
Critical Hdwy Stg 1	6.25	-	-	-	-	-
Critical Hdwy Stg 2	6.25	-	-	-	-	-
Follow-up Hdwy	3.635	3.435	2.335	-	-	-
Pot Cap-1 Maneuver	425	655	1126	-	-	-
Stage 1	631	-	-	-	-	-
Stage 2	782	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	422	655	1126	-	-	-
Mov Cap-2 Maneuver	422	-	-	-	-	-
Stage 1	625	-	-	-	-	-
Stage 2	775	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.1	0.4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1126	-	532	-	-
HCM Lane V/C Ratio	0.008	-	0.049	-	-
HCM Control Delay (s)	8.2	0	12.1	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Intersection	
Int Delay, s/veh	3.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	20	16	39	5	7	1	21	68	10	9	148	10
Future Vol, veh/h	20	16	39	5	7	1	21	68	10	9	148	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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15	15	15	15	15	15	15
Mvmt Flow	22	17	42	5	8	1	23	74	11	10	161	11

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	315	316	166	341	316	79	172	0	0	85	0	0
Stage 1	186	186	-	125	125	-	-	-	-	-	-	-
Stage 2	129	130	-	216	191	-	-	-	-	-	-	-
Critical Hdwy	7.25	6.65	6.35	7.25	6.65	6.35	4.25	-	-	4.25	-	-
Critical Hdwy Stg 1	6.25	5.65	-	6.25	5.65	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.25	5.65	-	6.25	5.65	-	-	-	-	-	-	-
Follow-up Hdwy	3.635	4.135	3.435	3.635	4.135	3.435	2.335	-	-	2.335	-	-
Pot Cap-1 Maneuver	613	579	846	589	579	947	1330	-	-	1433	-	-
Stage 1	787	722	-	849	768	-	-	-	-	-	-	-
Stage 2	844	764	-	758	718	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	594	564	846	536	564	947	1330	-	-	1433	-	-
Mov Cap-2 Maneuver	594	564	-	536	564	-	-	-	-	-	-	-
Stage 1	773	716	-	834	754	-	-	-	-	-	-	-
Stage 2	820	750	-	697	712	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.9	11.5	1.6	0.4
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1330	-	-	694	570	1433	-	-
HCM Lane V/C Ratio	0.017	-	-	0.117	0.025	0.007	-	-
HCM Control Delay (s)	7.8	0	-	10.9	11.5	7.5	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.4	0.1	0	-	-

Intersection	
Int Delay, s/veh	5.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	22	13	3	22	19	30	29	2	35	46	0
Future Vol, veh/h	0	22	13	3	22	19	30	29	2	35	46	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15	15	15	15	15	15	15
Mvmt Flow	0	24	14	3	24	21	33	32	2	38	50	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	246	225	50	243	224	33	50	0	0	34	0	0
Stage 1	126	126	-	98	98	-	-	-	-	-	-	-
Stage 2	120	99	-	145	126	-	-	-	-	-	-	-
Critical Hdwy	7.25	6.65	6.35	7.25	6.65	6.35	4.25	-	-	4.25	-	-
Critical Hdwy Stg 1	6.25	5.65	-	6.25	5.65	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.25	5.65	-	6.25	5.65	-	-	-	-	-	-	-
Follow-up Hdwy	3.635	4.135	3.435	3.635	4.135	3.435	2.335	-	-	2.335	-	-
Pot Cap-1 Maneuver	681	652	983	685	653	1004	1477	-	-	1497	-	-
Stage 1	847	767	-	877	789	-	-	-	-	-	-	-
Stage 2	854	789	-	828	767	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	624	620	983	631	621	1004	1477	-	-	1497	-	-
Mov Cap-2 Maneuver	624	620	-	631	621	-	-	-	-	-	-	-
Stage 1	828	747	-	857	771	-	-	-	-	-	-	-
Stage 2	792	771	-	769	747	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.3	10.2	3.7	3.2
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1477	-	-	719	744	1497	-	-
HCM Lane V/C Ratio	0.022	-	-	0.053	0.064	0.025	-	-
HCM Control Delay (s)	7.5	0	-	10.3	10.2	7.5	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0.2	0.1	-	-

Intersection	
Int Delay, s/veh	8.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	1	12	5	43	19	0	10	3	7	2	1	0
Future Vol, veh/h	1	12	5	43	19	0	10	3	7	2	1	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15	15	15	15	15	15	15
Mvmt Flow	1	13	5	47	21	0	11	3	8	2	1	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	44	38	1	44	34	7	1	0	0	11	0	0
Stage 1	5	5	-	29	29	-	-	-	-	-	-	-
Stage 2	39	33	-	15	5	-	-	-	-	-	-	-
Critical Hdwy	7.25	6.65	6.35	7.25	6.65	6.35	4.25	-	-	4.25	-	-
Critical Hdwy Stg 1	6.25	5.65	-	6.25	5.65	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.25	5.65	-	6.25	5.65	-	-	-	-	-	-	-
Follow-up Hdwy	3.635	4.135	3.435	3.635	4.135	3.435	2.335	-	-	2.335	-	-
Pot Cap-1 Maneuver	927	829	1047	927	834	1039	1540	-	-	1527	-	-
Stage 1	984	866	-	956	846	-	-	-	-	-	-	-
Stage 2	944	842	-	972	866	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	904	822	1047	905	827	1039	1540	-	-	1527	-	-
Mov Cap-2 Maneuver	904	822	-	905	827	-	-	-	-	-	-	-
Stage 1	977	865	-	949	840	-	-	-	-	-	-	-
Stage 2	914	836	-	951	865	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.2	9.4	3.7	4.9
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1540	-	-	879	880	1527	-	-
HCM Lane V/C Ratio	0.007	-	-	0.022	0.077	0.001	-	-
HCM Control Delay (s)	7.4	0	-	9.2	9.4	7.4	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.2	0	-	-

Intersection	
Int Delay, s/veh	4.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	227	9	6	130	238	215
Future Vol, veh/h	227	9	6	130	238	215
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	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15
Mvmt Flow	247	10	7	141	259	234

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	530	376	492	0	-	0
Stage 1	376	-	-	-	-	-
Stage 2	154	-	-	-	-	-
Critical Hdwy	6.55	6.35	4.25	-	-	-
Critical Hdwy Stg 1	5.55	-	-	-	-	-
Critical Hdwy Stg 2	5.55	-	-	-	-	-
Follow-up Hdwy	3.635	3.435	2.335	-	-	-
Pot Cap-1 Maneuver	488	643	1007	-	-	-
Stage 1	667	-	-	-	-	-
Stage 2	843	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	484	643	1007	-	-	-
Mov Cap-2 Maneuver	552	-	-	-	-	-
Stage 1	667	-	-	-	-	-
Stage 2	836	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	16.9	0.4	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1007	-	555	-	-
HCM Lane V/C Ratio	0.006	-	0.462	-	-
HCM Control Delay (s)	8.6	0	16.9	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	2.4	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	236	8	0	221	1	1
Future Vol, veh/h	236	8	0	221	1	1
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, %	15	15	15	15	15	15
Mvmt Flow	257	9	0	240	1	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	265	0	501	261
Stage 1	-	-	-	-	261	-
Stage 2	-	-	-	-	240	-
Critical Hdwy	-	-	4.25	-	7.25	6.35
Critical Hdwy Stg 1	-	-	-	-	6.25	-
Critical Hdwy Stg 2	-	-	-	-	6.25	-
Follow-up Hdwy	-	-	2.335	-	3.635	3.435
Pot Cap-1 Maneuver	-	-	1227	-	460	747
Stage 1	-	-	-	-	716	-
Stage 2	-	-	-	-	735	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1227	-	460	747
Mov Cap-2 Maneuver	-	-	-	-	460	-
Stage 1	-	-	-	-	716	-
Stage 2	-	-	-	-	735	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	11.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	569	-	-	1227	-
HCM Lane V/C Ratio	0.004	-	-	-	-
HCM Control Delay (s)	11.4	-	-	0	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	532	8	47	767	24	11	16	27	10	9	9
Future Vol, veh/h	9	532	8	47	767	24	11	16	27	10	9	9
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	425	-	900	380	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15	15	15	15	15	15	15
Mvmt Flow	10	578	9	51	834	26	12	17	29	11	10	10

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	860	0	0	578	0	0	1122	1560	289	1266	1547	430
Stage 1	-	-	-	-	-	-	598	598	-	949	949	-
Stage 2	-	-	-	-	-	-	524	962	-	317	598	-
Critical Hdwy	4.4	-	-	4.4	-	-	7.8	6.8	7.2	7.8	6.8	7.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.8	5.8	-	6.8	5.8	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.8	5.8	-	6.8	5.8	-
Follow-up Hdwy	2.35	-	-	2.35	-	-	3.65	4.15	3.45	3.65	4.15	3.45
Pot Cap-1 Maneuver	700	-	-	907	-	-	145	98	670	113	100	539
Stage 1	-	-	-	-	-	-	425	458	-	256	309	-
Stage 2	-	-	-	-	-	-	473	305	-	634	458	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	700	-	-	907	-	-	124	91	670	87	93	539
Mov Cap-2 Maneuver	-	-	-	-	-	-	124	91	-	87	93	-
Stage 1	-	-	-	-	-	-	419	451	-	252	292	-
Stage 2	-	-	-	-	-	-	424	288	-	575	451	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.5	35.1	43.6
HCM LOS			E	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	177	700	-	-	907	-	-	123
HCM Lane V/C Ratio	0.332	0.014	-	-	0.056	-	-	0.247
HCM Control Delay (s)	35.1	10.2	-	-	9.2	-	-	43.6
HCM Lane LOS	E	B	-	-	A	-	-	E
HCM 95th %tile Q(veh)	1.4	0	-	-	0.2	-	-	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	57	544	157	132	765	49	219	93	124	43	74	63
Future Volume (veh/h)	57	544	157	132	765	49	219	93	124	43	74	63
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	1652	1652	1652	1652	1652	1652	1900	1652	1652	1900	1652	1652
Adj Flow Rate, veh/h	62	591	171	143	832	53	238	101	135	47	80	68
Adj No. of Lanes	1	2	1	1	2	1	0	1	1	0	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	15	15	15	15	15	15	15	15	15	15	15	15
Cap, veh/h	118	1015	454	171	1119	501	54	0	559	43	49	559
Arrive On Green	0.08	0.32	0.32	0.11	0.36	0.36	0.40	0.40	0.40	0.40	0.40	0.40
Sat Flow, veh/h	1573	3139	1404	1573	3139	1404	0	0	1404	0	124	1404
Grp Volume(v), veh/h	62	591	171	143	832	53	339	0	135	127	0	68
Grp Sat Flow(s),veh/h/ln	1573	1570	1404	1573	1570	1404	0	0	1404	124	0	1404
Q Serve(g_s), s	4.3	18.0	10.7	10.2	26.5	2.9	0.0	0.0	7.3	0.0	0.0	3.5
Cycle Q Clear(g_c), s	4.3	18.0	10.7	10.2	26.5	2.9	45.5	0.0	7.3	45.5	0.0	3.5
Prop In Lane	1.00		1.00	1.00		1.00	0.70		1.00	0.37		1.00
Lane Grp Cap(c), veh/h	118	1015	454	171	1119	501	54	0	559	92	0	559
V/C Ratio(X)	0.52	0.58	0.38	0.84	0.74	0.11	6.33	0.00	0.24	1.38	0.00	0.12
Avail Cap(c_a), veh/h	158	1015	454	282	1194	534	54	0	559	92	0	559
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	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	50.9	32.3	29.8	50.0	32.2	24.6	57.2	0.0	23.0	33.9	0.0	21.8
Incr Delay (d2), s/veh	3.6	0.8	0.5	10.8	2.4	0.1	2437.1	0.0	1.0	223.3	0.0	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	2.0	7.9	4.2	5.0	11.8	1.1	37.9	0.0	3.0	8.6	0.0	1.4
LnGrp Delay(d),s/veh	54.5	33.1	30.3	60.8	34.6	24.7	2494.3	0.0	24.0	257.2	0.0	21.9
LnGrp LOS	D	C	C	E	C	C	F		C	F		C
Approach Vol, veh/h		824			1028			474			195	
Approach Delay, s/veh		34.1			37.8			1790.7			175.2	
Approach LOS		C			D			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		52.0	18.9	43.5		52.0	15.1	47.3
Change Period (Y+Rc), s		6.5	6.5	6.5		6.5	6.5	6.5
Max Green Setting (Gmax), s		45.5	20.5	34.5		45.5	11.5	43.5
Max Q Clear Time (g_c+I1), s		47.5	12.2	20.0		47.5	6.3	28.5
Green Ext Time (p_c), s		0.0	0.3	14.0		0.0	0.1	12.2

Intersection Summary	
HCM 2010 Ctrl Delay	376.8
HCM 2010 LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	599	65	428	834	152	63	103	250	80	93	40
Future Volume (veh/h)	42	599	65	428	834	152	63	103	250	80	93	40
Number	5	2	12	1	6	16	3	8	18	7	4	14
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	1652	1652	1652	1652	1652	1652	1652	1652	1900	1900	1652	1900
Adj Flow Rate, veh/h	46	651	71	465	907	165	68	112	272	87	101	43
Adj No. of Lanes	1	2	1	1	2	1	1	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	15	15	15	15	15	15	15	15	15	15	15	15
Cap, veh/h	104	1008	451	145	1090	488	413	181	439	141	152	57
Arrive On Green	0.07	0.32	0.32	0.09	0.35	0.35	0.08	0.42	0.42	0.29	0.29	0.29
Sat Flow, veh/h	1573	3139	1404	1573	3139	1404	1573	428	1040	341	520	197
Grp Volume(v), veh/h	46	651	71	465	907	165	68	0	384	231	0	0
Grp Sat Flow(s),veh/h/ln	1573	1570	1404	1573	1570	1404	1573	0	1469	1058	0	0
Q Serve(g_s), s	3.3	21.0	4.3	10.9	31.4	10.3	3.3	0.0	24.2	16.4	0.0	0.0
Cycle Q Clear(g_c), s	3.3	21.0	4.3	10.9	31.4	10.3	3.3	0.0	24.2	25.2	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.71	0.38		0.19
Lane Grp Cap(c), veh/h	104	1008	451	145	1090	488	413	0	620	351	0	0
V/C Ratio(X)	0.44	0.65	0.16	3.21	0.83	0.34	0.16	0.00	0.62	0.66	0.00	0.00
Avail Cap(c_a), veh/h	133	1050	470	145	1090	488	428	0	620	351	0	0
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	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	53.2	34.4	28.7	53.8	35.5	28.6	23.5	0.0	26.8	39.7	0.0	0.0
Incr Delay (d2), s/veh	3.0	1.3	0.2	1012.8	5.6	0.4	0.2	0.0	4.6	9.3	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	9.3	1.7	45.4	14.5	4.0	1.4	0.0	10.6	7.8	0.0	0.0
LnGrp Delay(d),s/veh	56.2	35.7	28.9	1066.5	41.1	29.0	23.7	0.0	31.4	49.0	0.0	0.0
LnGrp LOS	E	D	C	F	D	C	C		C	D		
Approach Vol, veh/h		768			1537			452			231	
Approach Delay, s/veh		36.3			350.0			30.2			49.0	
Approach LOS		D			F			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6		8
Phs Duration (G+Y+Rc), s	17.4	44.5	15.4	41.1	14.3	47.6		56.5
Change Period (Y+Rc), s	6.5	6.5	6.5	6.5	6.5	6.5		6.5
Max Green Setting (Gmax), s	10.9	39.6	10.0	33.5	10.0	40.5		50.0
Max Q Clear Time (g_c+I1), s	12.9	23.0	5.3	27.2	5.3	33.4		26.2
Green Ext Time (p_c), s	0.0	15.0	0.1	2.0	0.0	6.9		3.9

Intersection Summary	
HCM 2010 Ctrl Delay	197.7
HCM 2010 LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	873	15	19	1324	105	12	8	11	55	14	78
Future Volume (veh/h)	41	873	15	19	1324	105	12	8	11	55	14	78
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	1652	1652	1652	1652	1652	1652	1900	1652	1900	1652	1652	1900
Adj Flow Rate, veh/h	45	949	16	21	1439	114	13	9	12	60	15	85
Adj No. of Lanes	1	2	1	1	2	1	0	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	15	15	15	15	15	15	15	15	15	15	15	15
Cap, veh/h	162	2027	907	313	2027	907	139	94	105	352	53	300
Arrive On Green	0.65	0.65	0.65	0.65	0.65	0.65	0.25	0.25	0.25	0.25	0.25	0.25
Sat Flow, veh/h	294	3139	1404	514	3139	1404	395	384	425	1229	216	1221
Grp Volume(v), veh/h	45	949	16	21	1439	114	34	0	0	60	0	100
Grp Sat Flow(s),veh/h/ln	294	1570	1404	514	1570	1404	1204	0	0	1229	0	1437
Q Serve(g_s), s	14.2	18.4	0.5	2.6	36.0	3.8	0.1	0.0	0.0	0.0	0.0	6.8
Cycle Q Clear(g_c), s	50.2	18.4	0.5	21.0	36.0	3.8	6.9	0.0	0.0	5.5	0.0	6.8
Prop In Lane	1.00		1.00	1.00		1.00	0.38		0.35	1.00		0.85
Lane Grp Cap(c), veh/h	162	2027	907	313	2027	907	338	0	0	352	0	353
V/C Ratio(X)	0.28	0.47	0.02	0.07	0.71	0.13	0.10	0.00	0.00	0.17	0.00	0.28
Avail Cap(c_a), veh/h	162	2029	908	313	2029	908	338	0	0	352	0	353
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	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	30.3	10.8	7.6	16.1	13.9	8.2	34.9	0.0	0.0	36.1	0.0	36.6
Incr Delay (d2), s/veh	0.9	0.2	0.0	0.1	1.2	0.1	0.6	0.0	0.0	0.2	0.0	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	1.2	8.0	0.2	0.4	15.7	1.5	0.9	0.0	0.0	1.6	0.0	2.7
LnGrp Delay(d),s/veh	31.2	11.0	7.6	16.2	15.1	8.3	35.5	0.0	0.0	36.4	0.0	37.1
LnGrp LOS	C	B	A	B	B	A	D			D		D
Approach Vol, veh/h		1010			1574			34			160	
Approach Delay, s/veh		11.8			14.6			35.5			36.8	
Approach LOS		B			B			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		36.0		83.9		36.0		83.9
Change Period (Y+Rc), s		6.5		6.5		6.5		6.5
Max Green Setting (Gmax), s		29.5		77.5		29.5		77.5
Max Q Clear Time (g_c+I1), s		8.9		52.2		8.8		38.0
Green Ext Time (p_c), s		0.9		25.2		0.9		39.3

Intersection Summary	
HCM 2010 Ctrl Delay	15.1
HCM 2010 LOS	B

Intersection	
Int Delay, s/veh	10.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	641	15	77	864	98	9	7	92	36	10	49
Future Vol, veh/h	6	641	15	77	864	98	9	7	92	36	10	49
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	220	-	1000	250	-	220	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15	15	15	15	15	15	15
Mvmt Flow	7	697	16	84	939	107	10	8	100	39	11	53

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	939	0	0	697	0	0	1352	1817	348	1472	1817	470
Stage 1	-	-	-	-	-	-	710	710	-	1107	1107	-
Stage 2	-	-	-	-	-	-	642	1107	-	365	710	-
Critical Hdwy	4.4	-	-	4.4	-	-	7.8	6.8	7.2	7.8	6.8	7.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.8	5.8	-	6.8	5.8	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.8	5.8	-	6.8	5.8	-
Follow-up Hdwy	2.35	-	-	2.35	-	-	3.65	4.15	3.45	3.65	4.15	3.45
Pot Cap-1 Maneuver	650	-	-	813	-	-	97	67	612	78	67	506
Stage 1	-	-	-	-	-	-	362	405	-	203	258	-
Stage 2	-	-	-	-	-	-	399	258	-	592	405	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	650	-	-	813	-	-	68	59	612	54	59	506
Mov Cap-2 Maneuver	-	-	-	-	-	-	68	59	-	54	59	-
Stage 1	-	-	-	-	-	-	358	401	-	201	231	-
Stage 2	-	-	-	-	-	-	305	231	-	481	401	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.7	28.4	169.9
HCM LOS			D	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	269	650	-	-	813	-	-	102
HCM Lane V/C Ratio	0.436	0.01	-	-	0.103	-	-	1.012
HCM Control Delay (s)	28.4	10.6	-	-	9.9	-	-	169.9
HCM Lane LOS	D	B	-	-	A	-	-	F
HCM 95th %tile Q(veh)	2.1	0	-	-	0.3	-	-	6.3

Intersection	
Int Delay, s/veh	0.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↱	↰	↑↑	⋎	
Traffic Vol, veh/h	733	36	23	1024	16	25
Future Vol, veh/h	733	36	23	1024	16	25
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	400	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15
Mvmt Flow	797	39	25	1113	17	27

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	797	0	1404	398
Stage 1	-	-	-	-	797	-
Stage 2	-	-	-	-	607	-
Critical Hdwy	-	-	4.4	-	7.1	7.2
Critical Hdwy Stg 1	-	-	-	-	6.1	-
Critical Hdwy Stg 2	-	-	-	-	6.1	-
Follow-up Hdwy	-	-	2.35	-	3.65	3.45
Pot Cap-1 Maneuver	-	-	742	-	116	566
Stage 1	-	-	-	-	373	-
Stage 2	-	-	-	-	472	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	742	-	112	566
Mov Cap-2 Maneuver	-	-	-	-	112	-
Stage 1	-	-	-	-	373	-
Stage 2	-	-	-	-	456	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	25.6
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	219	-	-	742	-
HCM Lane V/C Ratio	0.203	-	-	0.034	-
HCM Control Delay (s)	25.6	-	-	10	-
HCM Lane LOS	D	-	-	B	-
HCM 95th %tile Q(veh)	0.7	-	-	0.1	-

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↓↑	↑↱		⋎	
Traffic Vol, veh/h	25	686	931	6	20	15
Future Vol, veh/h	25	686	931	6	20	15
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, %	15	15	15	15	15	15
Mvmt Flow	27	746	1012	7	22	16

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1018	0	-	0	1442	509
Stage 1	-	-	-	-	1015	-
Stage 2	-	-	-	-	427	-
Critical Hdwy	4.4	-	-	-	7.1	7.2
Critical Hdwy Stg 1	-	-	-	-	6.1	-
Critical Hdwy Stg 2	-	-	-	-	6.1	-
Follow-up Hdwy	2.35	-	-	-	3.65	3.45
Pot Cap-1 Maneuver	604	-	-	-	109	476
Stage 1	-	-	-	-	283	-
Stage 2	-	-	-	-	589	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	604	-	-	-	101	476
Mov Cap-2 Maneuver	-	-	-	-	101	-
Stage 1	-	-	-	-	283	-
Stage 2	-	-	-	-	544	-

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	36.4
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	604	-	-	-	152
HCM Lane V/C Ratio	0.045	-	-	-	0.25
HCM Control Delay (s)	11.2	0.4	-	-	36.4
HCM Lane LOS	B	A	-	-	E
HCM 95th %tile Q(veh)	0.1	-	-	-	0.9

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	14	13	30	267	200	8
Future Vol, veh/h	14	13	30	267	200	8
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	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15
Mvmt Flow	15	14	33	290	217	9

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	577	222	226	0	-	0
Stage 1	222	-	-	-	-	-
Stage 2	355	-	-	-	-	-
Critical Hdwy	6.55	6.35	4.25	-	-	-
Critical Hdwy Stg 1	5.55	-	-	-	-	-
Critical Hdwy Stg 2	5.55	-	-	-	-	-
Follow-up Hdwy	3.635	3.435	2.335	-	-	-
Pot Cap-1 Maneuver	457	786	1269	-	-	-
Stage 1	785	-	-	-	-	-
Stage 2	682	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	443	786	1269	-	-	-
Mov Cap-2 Maneuver	443	-	-	-	-	-
Stage 1	785	-	-	-	-	-
Stage 2	661	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.8	0.8	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1269	-	561	-	-
HCM Lane V/C Ratio	0.026	-	0.052	-	-
HCM Control Delay (s)	7.9	0	11.8	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-

Intersection	
Int Delay, s/veh	5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	24	26	33	29	20	8	64	113	22	0	118	0
Future Vol, veh/h	24	26	33	29	20	8	64	113	22	0	118	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15	15	15	15	15	15	15
Mvmt Flow	26	28	36	32	22	9	70	123	24	0	128	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	417	414	128	434	402	135	128	0	0	147	0	0
Stage 1	128	128	-	274	274	-	-	-	-	-	-	-
Stage 2	289	286	-	160	128	-	-	-	-	-	-	-
Critical Hdwy	7.25	6.65	6.35	7.25	6.65	6.35	4.25	-	-	4.25	-	-
Critical Hdwy Stg 1	6.25	5.65	-	6.25	5.65	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.25	5.65	-	6.25	5.65	-	-	-	-	-	-	-
Follow-up Hdwy	3.635	4.135	3.435	3.635	4.135	3.435	2.335	-	-	2.335	-	-
Pot Cap-1 Maneuver	524	509	888	510	517	880	1381	-	-	1359	-	-
Stage 1	845	766	-	705	660	-	-	-	-	-	-	-
Stage 2	691	652	-	812	766	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	480	481	888	448	489	880	1381	-	-	1359	-	-
Mov Cap-2 Maneuver	480	481	-	448	489	-	-	-	-	-	-	-
Stage 1	799	766	-	666	624	-	-	-	-	-	-	-
Stage 2	624	616	-	750	706	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.2	13.3	2.5	0
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1381	-	-	588	497	1359	-	-
HCM Lane V/C Ratio	0.05	-	-	0.153	0.125	-	-	-
HCM Control Delay (s)	7.7	0	-	12.2	13.3	0	-	-
HCM Lane LOS	A	A	-	B	B	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	0.5	0.4	0	-	-

Intersection	
Int Delay, s/veh	6.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	28	8	19	49	22	55	49	7	33	68	1
Future Vol, veh/h	1	28	8	19	49	22	55	49	7	33	68	1
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15	15	15	15	15	15	15
Mvmt Flow	1	30	9	21	53	24	60	53	8	36	74	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	361	326	74	343	324	57	75	0	0	61	0	0
Stage 1	146	146	-	177	177	-	-	-	-	-	-	-
Stage 2	215	180	-	166	147	-	-	-	-	-	-	-
Critical Hdwy	7.25	6.65	6.35	7.25	6.65	6.35	4.25	-	-	4.25	-	-
Critical Hdwy Stg 1	6.25	5.65	-	6.25	5.65	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.25	5.65	-	6.25	5.65	-	-	-	-	-	-	-
Follow-up Hdwy	3.635	4.135	3.435	3.635	4.135	3.435	2.335	-	-	2.335	-	-
Pot Cap-1 Maneuver	571	572	953	587	573	974	1446	-	-	1463	-	-
Stage 1	827	752	-	795	729	-	-	-	-	-	-	-
Stage 2	759	727	-	806	751	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	488	533	953	528	534	974	1446	-	-	1463	-	-
Mov Cap-2 Maneuver	488	533	-	528	534	-	-	-	-	-	-	-
Stage 1	791	732	-	761	698	-	-	-	-	-	-	-
Stage 2	654	696	-	746	731	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.6	12.2	3.8	2.4
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1446	-	-	588	599	1463	-	-
HCM Lane V/C Ratio	0.041	-	-	0.068	0.163	0.025	-	-
HCM Control Delay (s)	7.6	0	-	11.6	12.2	7.5	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0.6	0.1	-	-

Intersection	
Int Delay, s/veh	7.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	39	17	16	19	1	9	1	21	1	2	0
Future Vol, veh/h	0	39	17	16	19	1	9	1	21	1	2	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15	15	15	15	15	15	15
Mvmt Flow	0	42	18	17	21	1	10	1	23	1	2	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	47	47	2	67	36	13	2	0	0	24	0	0
Stage 1	4	4	-	32	32	-	-	-	-	-	-	-
Stage 2	43	43	-	35	4	-	-	-	-	-	-	-
Critical Hdwy	7.25	6.65	6.35	7.25	6.65	6.35	4.25	-	-	4.25	-	-
Critical Hdwy Stg 1	6.25	5.65	-	6.25	5.65	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.25	5.65	-	6.25	5.65	-	-	-	-	-	-	-
Follow-up Hdwy	3.635	4.135	3.435	3.635	4.135	3.435	2.335	-	-	2.335	-	-
Pot Cap-1 Maneuver	922	820	1045	895	832	1031	1539	-	-	1510	-	-
Stage 1	986	867	-	952	843	-	-	-	-	-	-	-
Stage 2	939	834	-	949	867	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	898	813	1045	839	825	1031	1539	-	-	1510	-	-
Mov Cap-2 Maneuver	898	813	-	839	825	-	-	-	-	-	-	-
Stage 1	979	866	-	945	837	-	-	-	-	-	-	-
Stage 2	908	828	-	886	866	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.4	9.5	2.1	2.5
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1539	-	-	872	836	1510	-	-
HCM Lane V/C Ratio	0.006	-	-	0.07	0.047	0.001	-	-
HCM Control Delay (s)	7.4	0	-	9.4	9.5	7.4	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.1	0	-	-

Intersection	
Int Delay, s/veh	4.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	233	6	6	184	209	377
Future Vol, veh/h	233	6	6	184	209	377
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	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15
Mvmt Flow	253	7	7	200	227	410

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	645	432	637	0	-	0
Stage 1	432	-	-	-	-	-
Stage 2	213	-	-	-	-	-
Critical Hdwy	6.55	6.35	4.25	-	-	-
Critical Hdwy Stg 1	5.55	-	-	-	-	-
Critical Hdwy Stg 2	5.55	-	-	-	-	-
Follow-up Hdwy	3.635	3.435	2.335	-	-	-
Pot Cap-1 Maneuver	417	597	887	-	-	-
Stage 1	628	-	-	-	-	-
Stage 2	793	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	413	597	887	-	-	-
Mov Cap-2 Maneuver	501	-	-	-	-	-
Stage 1	628	-	-	-	-	-
Stage 2	786	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	19.6	0.3	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	887	-	503	-	-
HCM Lane V/C Ratio	0.007	-	0.516	-	-
HCM Control Delay (s)	9.1	0	19.6	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	2.9	-	-

Intersection	
Int Delay, s/veh	1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	238	23	2	381	39	1
Future Vol, veh/h	238	23	2	381	39	1
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, %	15	15	15	15	15	15
Mvmt Flow	259	25	2	414	42	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	284	0	689	271
Stage 1	-	-	-	-	271	-
Stage 2	-	-	-	-	418	-
Critical Hdwy	-	-	4.25	-	7.25	6.35
Critical Hdwy Stg 1	-	-	-	-	6.25	-
Critical Hdwy Stg 2	-	-	-	-	6.25	-
Follow-up Hdwy	-	-	2.335	-	3.635	3.435
Pot Cap-1 Maneuver	-	-	1207	-	343	737
Stage 1	-	-	-	-	707	-
Stage 2	-	-	-	-	588	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1207	-	342	737
Mov Cap-2 Maneuver	-	-	-	-	342	-
Stage 1	-	-	-	-	707	-
Stage 2	-	-	-	-	587	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	16.9
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	347	-	-	1207	-
HCM Lane V/C Ratio	0.125	-	-	0.002	-
HCM Control Delay (s)	16.9	-	-	8	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.4	-	-	0	-

Intersection													
Int Delay, s/veh	2.4												
Movement	EBL	EBT	EBR		WBL	WBT	WBR		NBL	NBT	NBR		SBL	SBT	SBR
Lane Configurations															
Traffic Vol, veh/h	19	627	25		25	322	8		6	13	49		22	14	14
Future Vol, veh/h	19	627	25		25	322	8		6	13	49		22	14	14
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	425	-	900		380	-	-		-	-	-		-	-	-
Veh in Median Storage, #	-	0	-		-	0	-		-	0	-		-	0	-
Grade, %	-	0	-		-	0	-		-	0	-		-	0	-
Peak Hour Factor	92	92	92		92	92	92		92	92	92		92	92	92
Heavy Vehicles, %	15	15	15		15	15	15		15	15	15		15	15	15
Mvmt Flow	21	682	27		27	350	9		7	14	53		24	15	15

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	359	0	0	682	0	0	960	1136	341	798	1132	179
Stage 1	-	-	-	-	-	-	723	723	-	409	409	-
Stage 2	-	-	-	-	-	-	237	413	-	389	723	-
Critical Hdwy	4.4	-	-	4.4	-	-	7.8	6.8	7.2	7.8	6.8	7.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.8	5.8	-	6.8	5.8	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.8	5.8	-	6.8	5.8	-
Follow-up Hdwy	2.35	-	-	2.35	-	-	3.65	4.15	3.45	3.65	4.15	3.45
Pot Cap-1 Maneuver	1108	-	-	825	-	-	193	182	618	255	183	794
Stage 1	-	-	-	-	-	-	355	399	-	556	563	-
Stage 2	-	-	-	-	-	-	709	560	-	572	399	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1108	-	-	825	-	-	170	173	618	210	174	794
Mov Cap-2 Maneuver	-	-	-	-	-	-	170	173	-	210	174	-
Stage 1	-	-	-	-	-	-	348	391	-	545	545	-
Stage 2	-	-	-	-	-	-	654	542	-	494	391	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.7	17.7	23.7
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	358	1108	-	-	825	-	-	246
HCM Lane V/C Ratio	0.206	0.019	-	-	0.033	-	-	0.221
HCM Control Delay (s)	17.7	8.3	-	-	9.5	-	-	23.7
HCM Lane LOS	C	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.8	0.1	-	-	0.1	-	-	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	847	48	133	574	23	30	44	168	59	80	53
Future Volume (veh/h)	32	847	48	133	574	23	30	44	168	59	80	53
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	1652	1652	1652	1652	1652	1652	1900	1652	1652	1900	1652	1652
Adj Flow Rate, veh/h	35	921	52	145	624	25	33	48	183	64	87	58
Adj No. of Lanes	1	2	1	1	2	1	0	1	1	0	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	15	15	15	15	15	15	15	15	15	15	15	15
Cap, veh/h	80	1504	673	167	1676	750	97	141	206	74	101	152
Arrive On Green	0.05	0.48	0.48	0.11	0.53	0.53	0.15	0.15	0.15	0.11	0.11	0.11
Sat Flow, veh/h	1573	3139	1404	1573	3139	1404	660	960	1404	686	932	1404
Grp Volume(v), veh/h	35	921	52	145	624	25	81	0	183	151	0	58
Grp Sat Flow(s),veh/h/ln	1573	1570	1404	1573	1570	1404	1619	0	1404	1618	0	1404
Q Serve(g_s), s	3.2	32.4	3.0	13.6	17.3	1.3	6.7	0.0	19.2	13.8	0.0	5.8
Cycle Q Clear(g_c), s	3.2	32.4	3.0	13.6	17.3	1.3	6.7	0.0	19.2	13.8	0.0	5.8
Prop In Lane	1.00		1.00	1.00		1.00	0.41		1.00	0.42		1.00
Lane Grp Cap(c), veh/h	80	1504	673	167	1676	750	237	0	206	175	0	152
V/C Ratio(X)	0.43	0.61	0.08	0.87	0.37	0.03	0.34	0.00	0.89	0.86	0.00	0.38
Avail Cap(c_a), veh/h	115	1504	673	241	1676	750	237	0	206	237	0	206
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	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	69.1	28.8	21.1	66.0	20.3	16.6	57.5	0.0	62.8	65.8	0.0	62.2
Incr Delay (d2), s/veh	3.7	1.9	0.2	20.1	0.6	0.1	3.9	0.0	39.1	20.7	0.0	1.6
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	1.5	14.5	1.2	6.9	7.7	0.5	3.3	0.0	9.7	7.2	0.0	2.3
LnGrp Delay(d),s/veh	72.7	30.7	21.4	86.1	21.0	16.7	61.4	0.0	101.9	86.4	0.0	63.8
LnGrp LOS	E	C	C	F	C	B	E		F	F		E
Approach Vol, veh/h		1008			794			264			209	
Approach Delay, s/veh		31.7			32.7			89.5			80.1	
Approach LOS		C			C			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		28.0	21.9	77.9		22.2	13.7	86.1
Change Period (Y+Rc), s		6.0	6.0	6.0		6.0	6.0	6.0
Max Green Setting (Gmax), s		22.0	23.0	59.0		22.0	11.0	71.0
Max Q Clear Time (g_c+I1), s		21.2	15.6	34.4		15.8	5.2	19.3
Green Ext Time (p_c), s		0.1	0.3	23.4		0.5	0.0	47.2

Intersection Summary	
HCM 2010 Ctrl Delay	43.2
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	1072	40	121	758	73	24	63	73	217	89	63
Future Volume (veh/h)	31	1072	40	121	758	73	24	63	73	217	89	63
Number	5	2	12	1	6	16	3	8	18	7	4	14
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	1652	1652	1652	1652	1652	1652	1652	1652	1652	1652	1652	1652
Adj Flow Rate, veh/h	34	1165	43	132	824	79	26	68	79	236	97	68
Adj No. of Lanes	1	2	1	1	2	1	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	15	15	15	15	15	15	15	15	15	15	15	15
Cap, veh/h	72	1381	618	126	1490	666	126	132	112	378	397	337
Arrive On Green	0.01	0.15	0.15	0.08	0.47	0.47	0.08	0.08	0.08	0.24	0.24	0.24
Sat Flow, veh/h	1573	3139	1404	1573	3139	1404	1573	1652	1404	1573	1652	1404
Grp Volume(v), veh/h	34	1165	43	132	824	79	26	68	79	236	97	68
Grp Sat Flow(s),veh/h/ln	1573	1570	1404	1573	1570	1404	1573	1652	1404	1573	1652	1404
Q Serve(g_s), s	3.2	54.2	4.0	12.0	28.1	4.7	2.3	5.9	8.2	20.1	7.1	5.8
Cycle Q Clear(g_c), s	3.2	54.2	4.0	12.0	28.1	4.7	2.3	5.9	8.2	20.1	7.1	5.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	72	1381	618	126	1490	666	126	132	112	378	397	337
V/C Ratio(X)	0.48	0.84	0.07	1.05	0.55	0.12	0.21	0.51	0.70	0.62	0.24	0.20
Avail Cap(c_a), veh/h	94	1381	618	126	1490	666	126	132	112	378	397	337
HCM Platoon Ratio	0.33	0.33	0.33	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	0.82	0.82	0.82	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	72.1	59.1	37.6	69.0	28.1	21.9	64.5	66.2	67.3	51.0	46.0	45.5
Incr Delay (d2), s/veh	4.8	6.4	0.2	86.1	1.2	0.3	3.7	13.6	30.8	7.6	1.5	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	24.9	1.6	8.2	12.4	1.9	1.1	3.2	4.2	9.5	3.4	2.4
LnGrp Delay(d),s/veh	76.9	65.5	37.8	155.5	29.3	22.2	68.2	79.8	98.1	58.6	47.5	46.9
LnGrp LOS	E	E	D	F	C	C	E	E	F	E	D	D
Approach Vol, veh/h		1242			1035			173			401	
Approach Delay, s/veh		64.9			44.8			86.4			53.9	
Approach LOS		E			D			F			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	18.0	72.0		42.0	12.8	77.2		18.0
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0
Max Green Setting (Gmax), s	12.0	66.0		36.0	9.0	69.0		12.0
Max Q Clear Time (g_c+I1), s	10.0	56.2		22.1	5.2	30.1		10.2
Green Ext Time (p_c), s	0.0	9.1		1.8	0.0	25.2		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	57.4
HCM 2010 LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	123	1235	4	3	849	206	6	32	10	130	15	97
Future Volume (veh/h)	123	1235	4	3	849	206	6	32	10	130	15	97
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	1652	1652	1652	1652	1652	1652	1900	1652	1900	1652	1652	1900
Adj Flow Rate, veh/h	134	1342	4	3	923	224	7	35	11	141	16	105
Adj No. of Lanes	1	2	1	1	2	1	0	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	15	15	15	15	15	15	15	15	15	15	15	15
Cap, veh/h	156	1800	805	157	1802	806	13	63	20	168	20	133
Arrive On Green	0.10	0.57	0.57	0.10	0.57	0.57	0.06	0.06	0.06	0.11	0.11	0.11
Sat Flow, veh/h	1573	3139	1404	1573	3139	1404	209	1046	329	1573	189	1243
Grp Volume(v), veh/h	134	1342	4	3	923	224	53	0	0	141	0	121
Grp Sat Flow(s),veh/h/ln	1573	1570	1404	1573	1570	1404	1584	0	0	1573	0	1433
Q Serve(g_s), s	12.6	47.8	0.2	0.3	26.6	12.1	4.9	0.0	0.0	13.2	0.0	12.4
Cycle Q Clear(g_c), s	12.6	47.8	0.2	0.3	26.6	12.1	4.9	0.0	0.0	13.2	0.0	12.4
Prop In Lane	1.00		1.00	1.00		1.00	0.13		0.21	1.00		0.87
Lane Grp Cap(c), veh/h	156	1800	805	157	1802	806	95	0	0	168	0	153
V/C Ratio(X)	0.86	0.75	0.00	0.02	0.51	0.28	0.56	0.00	0.00	0.84	0.00	0.79
Avail Cap(c_a), veh/h	252	1800	805	157	1802	806	95	0	0	262	0	239
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)	0.53	0.53	0.53	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	66.5	23.8	13.7	60.9	19.3	16.2	68.6	0.0	0.0	65.7	0.0	65.3
Incr Delay (d2), s/veh	8.8	1.5	0.0	0.0	1.0	0.9	21.6	0.0	0.0	13.0	0.0	9.2
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	5.9	21.1	0.1	0.1	11.8	4.9	2.7	0.0	0.0	6.4	0.0	5.3
LnGrp Delay(d),s/veh	75.4	25.4	13.7	60.9	20.3	17.0	90.1	0.0	0.0	78.7	0.0	74.5
LnGrp LOS	E	C	B	E	C	B	F			E		E
Approach Vol, veh/h		1480			1150			53			262	
Approach Delay, s/veh		29.9			19.8			90.1			76.8	
Approach LOS		C			B			F			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		15.0	21.0	92.0		22.0	20.9	92.1
Change Period (Y+Rc), s		6.0	6.0	6.0		6.0	6.0	6.0
Max Green Setting (Gmax), s		9.0	6.0	86.0		25.0	24.0	68.0
Max Q Clear Time (g_c+I1), s		6.9	2.3	49.8		15.2	14.6	28.6
Green Ext Time (p_c), s		0.0	0.0	32.4		0.8	0.3	28.2

Intersection Summary	
HCM 2010 Ctrl Delay	31.2
HCM 2010 LOS	C

Intersection	
Int Delay, s/veh	8.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	810	22	139	458	49	14	4	128	30	13	19
Future Vol, veh/h	7	810	22	139	458	49	14	4	128	30	13	19
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	220	-	1000	250	-	220	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15	15	15	15	15	15	15
Mvmt Flow	8	880	24	151	498	53	15	4	139	33	14	21

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	498	0	0	880	0	0	1454	1696	440	1258	1696	249
Stage 1	-	-	-	-	-	-	896	896	-	800	800	-
Stage 2	-	-	-	-	-	-	558	800	-	458	896	-
Critical Hdwy	4.4	-	-	4.4	-	-	7.8	6.8	7.2	7.8	6.8	7.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.8	5.8	-	6.8	5.8	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.8	5.8	-	6.8	5.8	-
Follow-up Hdwy	2.35	-	-	2.35	-	-	3.65	4.15	3.45	3.65	4.15	3.45
Pot Cap-1 Maneuver	976	-	-	687	-	-	81	80	530	114	80	713
Stage 1	-	-	-	-	-	-	276	328	-	318	366	-
Stage 2	-	-	-	-	-	-	450	366	-	519	328	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	976	-	-	687	-	-	54	62	530	66	62	713
Mov Cap-2 Maneuver	-	-	-	-	-	-	54	62	-	66	62	-
Stage 1	-	-	-	-	-	-	274	325	-	315	286	-
Stage 2	-	-	-	-	-	-	324	286	-	375	325	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	2.5	38.9	117.6
HCM LOS			E	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	258	976	-	-	687	-	-	90
HCM Lane V/C Ratio	0.615	0.008	-	-	0.22	-	-	0.749
HCM Control Delay (s)	38.9	8.7	-	-	11.7	-	-	117.6
HCM Lane LOS	E	A	-	-	B	-	-	F
HCM 95th %tile Q(veh)	3.7	0	-	-	0.8	-	-	3.8

Intersection	
Int Delay, s/veh	0.8

Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Vol, veh/h	0	914	54	29	628	17	14
Future Vol, veh/h	0	914	54	29	628	17	14
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	None	-	None
Storage Length	220	-	0	400	-	0	-
Veh in Median Storage, #	-	0	-	-	0	0	-
Grade, %	-	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15	15
Mvmt Flow	0	993	59	32	683	18	15

Major/Minor	Major1			Major2		Minor1	
Conflicting Flow All	498	0	0	993	0	1397	497
Stage 1	-	-	-	-	-	993	-
Stage 2	-	-	-	-	-	404	-
Critical Hdwy	6.7	-	-	4.4	-	7.1	7.2
Critical Hdwy Stg 1	-	-	-	-	-	6.1	-
Critical Hdwy Stg 2	-	-	-	-	-	6.1	-
Follow-up Hdwy	2.65	-	-	2.35	-	3.65	3.45
Pot Cap-1 Maneuver	642	-	-	618	-	117	485
Stage 1	-	-	-	-	-	291	-
Stage 2	-	-	-	-	-	606	-
Platoon blocked, %		-	-		-		
Mov Cap-1 Maneuver	642	-	-	618	-	111	485
Mov Cap-2 Maneuver	-	-	-	-	-	111	-
Stage 1	-	-	-	-	-	291	-
Stage 2	-	-	-	-	-	575	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	31.3
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBU	EBT	EBR	WBL	WBT
Capacity (veh/h)	170	642	-	-	618	-
HCM Lane V/C Ratio	0.198	-	-	-	0.051	-
HCM Control Delay (s)	31.3	0	-	-	11.1	-
HCM Lane LOS	D	A	-	-	B	-
HCM 95th %tile Q(veh)	0.7	0	-	-	0.2	-

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	10	40	8	159	329	6
Future Vol, veh/h	10	40	8	159	329	6
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	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15
Mvmt Flow	11	43	9	173	358	7

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	551	182	364	0	-	0
Stage 1	361	-	-	-	-	-
Stage 2	190	-	-	-	-	-
Critical Hdwy	6.275	7.325	5.525	-	-	-
Critical Hdwy Stg 1	6.825	-	-	-	-	-
Critical Hdwy Stg 2	5.625	-	-	-	-	-
Follow-up Hdwy	3.7925	4.0425	3.2425	-	-	-
Pot Cap-1 Maneuver	479	680	745	-	-	-
Stage 1	576	-	-	-	-	-
Stage 2	778	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	473	680	745	-	-	-
Mov Cap-2 Maneuver	473	-	-	-	-	-
Stage 1	576	-	-	-	-	-
Stage 2	768	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.3	0.5	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	745	-	625	-	-
HCM Lane V/C Ratio	0.012	-	0.087	-	-
HCM Control Delay (s)	9.9	0	11.3	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

Intersection	
Int Delay, s/veh	3.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	16	39	5	7	1	21	68	10	9	148	10
Future Vol, veh/h	20	16	39	5	7	1	21	68	10	9	148	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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15	15	15	15	15	15	15
Mvmt Flow	22	17	42	5	8	1	23	74	11	10	161	11

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	315	316	166	341	316	79	172	0	0	85	0	0
Stage 1	186	186	-	125	125	-	-	-	-	-	-	-
Stage 2	129	130	-	216	191	-	-	-	-	-	-	-
Critical Hdwy	7.25	6.65	6.35	7.25	6.65	6.35	4.25	-	-	4.25	-	-
Critical Hdwy Stg 1	6.25	5.65	-	6.25	5.65	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.25	5.65	-	6.25	5.65	-	-	-	-	-	-	-
Follow-up Hdwy	3.635	4.135	3.435	3.635	4.135	3.435	2.335	-	-	2.335	-	-
Pot Cap-1 Maneuver	613	579	846	589	579	947	1330	-	-	1433	-	-
Stage 1	787	722	-	849	768	-	-	-	-	-	-	-
Stage 2	844	764	-	758	718	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	594	564	846	536	564	947	1330	-	-	1433	-	-
Mov Cap-2 Maneuver	594	564	-	536	564	-	-	-	-	-	-	-
Stage 1	773	716	-	834	754	-	-	-	-	-	-	-
Stage 2	820	750	-	697	712	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.9	11.5	1.6	0.4
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1330	-	-	694	570	1433	-	-
HCM Lane V/C Ratio	0.017	-	-	0.117	0.025	0.007	-	-
HCM Control Delay (s)	7.8	0	-	10.9	11.5	7.5	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.4	0.1	0	-	-

23: N. MAIN ST./N . MAIN ST. & W. KELLOGG DR.

Intersection	
Int Delay, s/veh	5.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	22	13	3	22	19	30	28	2	35	46	0
Future Vol, veh/h	0	22	13	3	22	19	30	28	2	35	46	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15	15	15	15	15	15	15
Mvmt Flow	0	24	14	3	24	21	33	30	2	38	50	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	245	224	50	242	223	32	50	0	0	33	0	0
Stage 1	126	126	-	97	97	-	-	-	-	-	-	-
Stage 2	119	98	-	145	126	-	-	-	-	-	-	-
Critical Hdwy	7.25	6.65	6.35	7.25	6.65	6.35	4.25	-	-	4.25	-	-
Critical Hdwy Stg 1	6.25	5.65	-	6.25	5.65	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.25	5.65	-	6.25	5.65	-	-	-	-	-	-	-
Follow-up Hdwy	3.635	4.135	3.435	3.635	4.135	3.435	2.335	-	-	2.335	-	-
Pot Cap-1 Maneuver	683	653	983	686	654	1006	1477	-	-	1499	-	-
Stage 1	847	767	-	879	790	-	-	-	-	-	-	-
Stage 2	855	789	-	828	767	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	625	621	983	632	622	1006	1477	-	-	1499	-	-
Mov Cap-2 Maneuver	625	621	-	632	622	-	-	-	-	-	-	-
Stage 1	828	747	-	859	772	-	-	-	-	-	-	-
Stage 2	793	771	-	769	747	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.3	10.2	3.7	3.2
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1477	-	-	719	746	1499	-	-
HCM Lane V/C Ratio	0.022	-	-	0.053	0.064	0.025	-	-
HCM Control Delay (s)	7.5	0	-	10.3	10.2	7.5	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0.2	0.1	-	-

24: BARBER ST. & W. KELLOGG DR.

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↱			↱		↱			↱	
Traffic Vol, veh/h	0	0	18	0	0	0	0	3	22	0	3	0
Future Vol, veh/h	0	0	18	0	0	0	0	3	22	0	3	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15	15	15	15	15	15	15
Mvmt Flow	0	0	20	0	0	0	0	3	24	0	3	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	3	-	-	15	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.35	-	-	6.35	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.435	-	-	3.435	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	1044	0	0	1028	0	-	-	0	-	-
Stage 1	0	0	-	0	0	-	0	-	-	0	-	-
Stage 2	0	0	-	0	0	-	0	-	-	0	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	1044	-	-	1028	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT	SBR
Capacity (veh/h)	-	-	1044	-	-	-
HCM Lane V/C Ratio	-	-	0.019	-	-	-
HCM Control Delay (s)	-	-	8.5	0	-	-
HCM Lane LOS	-	-	A	A	-	-
HCM 95th %tile Q(veh)	-	-	0.1	-	-	-

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕↕			↕	
Traffic Vol, veh/h	56	2	17	4	3	3	13	183	21	20	228	14
Future Vol, veh/h	56	2	17	4	3	3	13	183	21	20	228	14
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	-	-	-	-	-	-	-	-	230	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15	15	15	15	15	15	15
Mvmt Flow	61	2	18	4	3	3	14	199	23	22	248	15

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	428	549	255	548	546	111	263	0	0	222	0	0
Stage 1	299	299	-	239	239	-	-	-	-	-	-	-
Stage 2	129	250	-	309	307	-	-	-	-	-	-	-
Critical Hdwy	7.525	6.725	6.425	7.525	6.725	7.125	4.325	-	-	4.325	-	-
Critical Hdwy Stg 1	6.325	5.725	-	6.725	5.725	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.725	5.725	-	6.325	5.725	-	-	-	-	-	-	-
Follow-up Hdwy	3.6425	4.1425	3.4425	3.6425	4.1425	3.4425	2.3425	-	-	2.3425	-	-
Pot Cap-1 Maneuver	498	420	748	410	422	885	1219	-	-	1264	-	-
Stage 1	677	638	-	712	680	-	-	-	-	-	-	-
Stage 2	828	672	-	669	633	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	481	406	748	388	408	885	1219	-	-	1264	-	-
Mov Cap-2 Maneuver	481	406	-	388	408	-	-	-	-	-	-	-
Stage 1	668	625	-	703	671	-	-	-	-	-	-	-
Stage 2	810	663	-	637	620	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13.2	12.8	0.5	0.6
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1219	-	-	521	475	1264	-	-
HCM Lane V/C Ratio	0.012	-	-	0.156	0.023	0.017	-	-
HCM Control Delay (s)	8	0	-	13.2	12.8	7.9	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.6	0.1	0.1	-	-

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↙			↑	↱	
Traffic Vol, veh/h	26	6	2	134	240	10
Future Vol, veh/h	26	6	2	134	240	10
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	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15
Mvmt Flow	28	7	2	146	261	11

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	416	266	272	0	-	0
Stage 1	266	-	-	-	-	-
Stage 2	150	-	-	-	-	-
Critical Hdwy	6.55	6.35	4.25	-	-	-
Critical Hdwy Stg 1	5.55	-	-	-	-	-
Critical Hdwy Stg 2	5.55	-	-	-	-	-
Follow-up Hdwy	3.635	3.435	2.335	-	-	-
Pot Cap-1 Maneuver	569	742	1220	-	-	-
Stage 1	749	-	-	-	-	-
Stage 2	847	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	568	742	1220	-	-	-
Mov Cap-2 Maneuver	618	-	-	-	-	-
Stage 1	749	-	-	-	-	-
Stage 2	845	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1220	-	638	-	-
HCM Lane V/C Ratio	0.002	-	0.055	-	-
HCM Control Delay (s)	8	0	11	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	0	9	2	21	0	10	0	3	80	0
Future Vol, veh/h	0	0	0	9	2	21	0	10	0	3	80	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15	15	15	15	15	15	15
Mvmt Flow	0	0	0	10	2	23	0	11	0	3	87	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	116	104	87	104	104	11	87	0	0	11	0	0
Stage 1	93	93	-	11	11	-	-	-	-	-	-	-
Stage 2	23	11	-	93	93	-	-	-	-	-	-	-
Critical Hdwy	7.25	6.65	6.35	7.25	6.65	6.35	4.25	-	-	4.25	-	-
Critical Hdwy Stg 1	6.25	5.65	-	6.25	5.65	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.25	5.65	-	6.25	5.65	-	-	-	-	-	-	-
Follow-up Hdwy	3.635	4.135	3.435	3.635	4.135	3.435	2.335	-	-	2.335	-	-
Pot Cap-1 Maneuver	831	762	937	846	762	1033	1431	-	-	1527	-	-
Stage 1	883	793	-	977	861	-	-	-	-	-	-	-
Stage 2	963	861	-	883	793	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	810	760	937	845	760	1033	1431	-	-	1527	-	-
Mov Cap-2 Maneuver	810	760	-	845	760	-	-	-	-	-	-	-
Stage 1	883	791	-	977	861	-	-	-	-	-	-	-
Stage 2	939	861	-	881	791	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	8.9	0	0.3
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1431	-	-	-	952	1527	-	-
HCM Lane V/C Ratio	-	-	-	-	0.037	0.002	-	-
HCM Control Delay (s)	0	-	-	0	8.9	7.4	0	-
HCM Lane LOS	A	-	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	-	0.1	0	-	-

Intersection	
Int Delay, s/veh	1.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↱			↰	Y	
Traffic Vol, veh/h	31	0	8	4	1	1
Future Vol, veh/h	31	0	8	4	1	1
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, %	15	15	15	15	15	15
Mvmt Flow	34	0	9	4	1	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	34	0	56	34
Stage 1	-	-	-	-	34	-
Stage 2	-	-	-	-	22	-
Critical Hdwy	-	-	4.25	-	6.55	6.35
Critical Hdwy Stg 1	-	-	-	-	5.55	-
Critical Hdwy Stg 2	-	-	-	-	5.55	-
Follow-up Hdwy	-	-	2.335	-	3.635	3.435
Pot Cap-1 Maneuver	-	-	1497	-	920	1003
Stage 1	-	-	-	-	956	-
Stage 2	-	-	-	-	968	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1497	-	914	1003
Mov Cap-2 Maneuver	-	-	-	-	914	-
Stage 1	-	-	-	-	956	-
Stage 2	-	-	-	-	962	-

Approach	EB	WB	NB
HCM Control Delay, s	0	4.9	8.8
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	956	-	-	1497	-
HCM Lane V/C Ratio	0.002	-	-	0.006	-
HCM Control Delay (s)	8.8	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	33	0	0	5	0	281	31	0	335	0
Future Vol, veh/h	0	0	33	0	0	5	0	281	31	0	335	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	230	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15	15	15	15	15	15	15
Mvmt Flow	0	0	36	0	0	5	0	305	34	0	364	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	182	-	-	170	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.2	-	-	7.2	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.45	-	-	3.45	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	790	0	0	805	0	-	-	0	-	-
Stage 1	0	0	-	0	0	-	0	-	-	0	-	-
Stage 2	0	0	-	0	0	-	0	-	-	0	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	790	-	-	805	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.8	9.5	0	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT	SBR
Capacity (veh/h)	-	-	790	805	-	-
HCM Lane V/C Ratio	-	-	0.045	0.007	-	-
HCM Control Delay (s)	-	-	9.8	9.5	-	-
HCM Lane LOS	-	-	A	A	-	-
HCM 95th %tile Q(veh)	-	-	0.1	0	-	-

Intersection	
Int Delay, s/veh	8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	22	0	0	14	86	0
Future Vol, veh/h	22	0	0	14	86	0
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, %	15	15	15	15	15	15
Mvmt Flow	24	0	0	15	93	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	15	0	-	0	56	8
Stage 1	-	-	-	-	8	-
Stage 2	-	-	-	-	48	-
Critical Hdwy	4.25	-	-	-	6.55	6.35
Critical Hdwy Stg 1	-	-	-	-	5.55	-
Critical Hdwy Stg 2	-	-	-	-	5.55	-
Follow-up Hdwy	2.335	-	-	-	3.635	3.435
Pot Cap-1 Maneuver	1522	-	-	-	920	1037
Stage 1	-	-	-	-	982	-
Stage 2	-	-	-	-	942	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1522	-	-	-	905	1037
Mov Cap-2 Maneuver	-	-	-	-	905	-
Stage 1	-	-	-	-	982	-
Stage 2	-	-	-	-	927	-

Approach	EB	WB	SB
HCM Control Delay, s	7.4	0	9.4
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1522	-	-	-	905
HCM Lane V/C Ratio	0.016	-	-	-	0.103
HCM Control Delay (s)	7.4	0	-	-	9.4
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.3

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	532	8	47	767	24	11	16	27	10	9	9
Future Vol, veh/h	9	532	8	47	767	24	11	16	27	10	9	9
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	425	-	900	380	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15	15	15	15	15	15	15
Mvmt Flow	10	578	9	51	834	26	12	17	29	11	10	10

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	860	0	0	578	0	0	1122	1560	289	1266	1547	430
Stage 1	-	-	-	-	-	-	598	598	-	949	949	-
Stage 2	-	-	-	-	-	-	524	962	-	317	598	-
Critical Hdwy	4.4	-	-	4.4	-	-	7.8	6.8	7.2	7.8	6.8	7.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.8	5.8	-	6.8	5.8	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.8	5.8	-	6.8	5.8	-
Follow-up Hdwy	2.35	-	-	2.35	-	-	3.65	4.15	3.45	3.65	4.15	3.45
Pot Cap-1 Maneuver	700	-	-	907	-	-	145	98	670	113	100	539
Stage 1	-	-	-	-	-	-	425	458	-	256	309	-
Stage 2	-	-	-	-	-	-	473	305	-	634	458	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	700	-	-	907	-	-	124	91	670	87	93	539
Mov Cap-2 Maneuver	-	-	-	-	-	-	124	91	-	87	93	-
Stage 1	-	-	-	-	-	-	419	451	-	252	292	-
Stage 2	-	-	-	-	-	-	424	288	-	575	451	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.5	35.1	43.6
HCM LOS			E	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	177	700	-	-	907	-	-	123
HCM Lane V/C Ratio	0.332	0.014	-	-	0.056	-	-	0.247
HCM Control Delay (s)	35.1	10.2	-	-	9.2	-	-	43.6
HCM Lane LOS	E	B	-	-	A	-	-	E
HCM 95th %tile Q(veh)	1.4	0	-	-	0.2	-	-	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	57	664	36	161	941	63	50	89	140	60	57	63
Future Volume (veh/h)	57	664	36	161	941	63	50	89	140	60	57	63
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	1652	1652	1652	1652	1652	1652	1900	1652	1652	1900	1652	1652
Adj Flow Rate, veh/h	62	722	39	175	1023	68	54	97	152	65	62	68
Adj No. of Lanes	1	2	1	1	2	1	0	1	1	0	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	15	15	15	15	15	15	15	15	15	15	15	15
Cap, veh/h	76	1516	678	195	1752	784	81	146	197	77	73	131
Arrive On Green	0.05	0.48	0.48	0.12	0.56	0.56	0.14	0.14	0.14	0.09	0.09	0.09
Sat Flow, veh/h	1573	3139	1404	1573	3139	1404	580	1043	1404	825	786	1404
Grp Volume(v), veh/h	62	722	39	175	1023	68	151	0	152	127	0	68
Grp Sat Flow(s),veh/h/ln	1573	1570	1404	1573	1570	1404	1623	0	1404	1611	0	1404
Q Serve(g_s), s	5.9	23.2	2.2	16.4	32.0	3.4	13.2	0.0	15.7	11.6	0.0	6.9
Cycle Q Clear(g_c), s	5.9	23.2	2.2	16.4	32.0	3.4	13.2	0.0	15.7	11.6	0.0	6.9
Prop In Lane	1.00		1.00	1.00		1.00	0.36		1.00	0.51		1.00
Lane Grp Cap(c), veh/h	76	1516	678	195	1752	784	227	0	197	150	0	131
V/C Ratio(X)	0.81	0.48	0.06	0.90	0.58	0.09	0.66	0.00	0.77	0.84	0.00	0.52
Avail Cap(c_a), veh/h	105	1516	678	210	1752	784	227	0	197	226	0	197
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	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	70.7	26.0	20.6	64.8	21.7	15.4	61.2	0.0	62.2	66.9	0.0	64.8
Incr Delay (d2), s/veh	27.4	1.1	0.2	34.7	1.4	0.2	14.3	0.0	25.0	16.6	0.0	3.2
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	3.1	10.3	0.9	9.0	14.1	1.4	6.9	0.0	7.4	5.9	0.0	2.8
LnGrp Delay(d),s/veh	98.1	27.1	20.8	99.5	23.2	15.6	75.5	0.0	87.3	83.5	0.0	67.9
LnGrp LOS	F	C	C	F	C	B	E		F	F		E
Approach Vol, veh/h		823			1266			303			195	
Approach Delay, s/veh		32.2			33.3			81.4			78.1	
Approach LOS		C			C			F			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		27.0	24.5	78.5		20.0	13.3	89.7
Change Period (Y+Rc), s		6.0	6.0	6.0		6.0	6.0	6.0
Max Green Setting (Gmax), s		21.0	20.0	64.0		21.0	10.0	74.0
Max Q Clear Time (g_c+I1), s		17.7	18.4	25.2		13.6	7.9	34.0
Green Ext Time (p_c), s		0.4	0.1	37.4		0.4	0.0	38.4

Intersection Summary	
HCM 2010 Ctrl Delay	41.9
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	776	79	92	1170	153	69	103	57	96	65	68
Future Volume (veh/h)	45	776	79	92	1170	153	69	103	57	96	65	68
Number	5	2	12	1	6	16	3	8	18	7	4	14
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	1652	1652	1652	1652	1652	1652	1652	1652	1652	1652	1652	1652
Adj Flow Rate, veh/h	49	843	86	100	1272	166	75	112	62	104	71	74
Adj No. of Lanes	1	2	1	1	2	1	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	15	15	15	15	15	15	15	15	15	15	15	15
Cap, veh/h	87	1465	655	168	1627	728	220	231	197	199	209	178
Arrive On Green	0.02	0.15	0.15	0.11	0.52	0.52	0.14	0.14	0.14	0.13	0.13	0.13
Sat Flow, veh/h	1573	3139	1404	1573	3139	1404	1573	1652	1404	1573	1652	1404
Grp Volume(v), veh/h	49	843	86	100	1272	166	75	112	62	104	71	74
Grp Sat Flow(s),veh/h/ln	1573	1570	1404	1573	1570	1404	1573	1652	1404	1573	1652	1404
Q Serve(g_s), s	4.6	37.4	7.9	9.1	49.2	9.7	6.5	9.4	6.0	9.3	5.9	7.3
Cycle Q Clear(g_c), s	4.6	37.4	7.9	9.1	49.2	9.7	6.5	9.4	6.0	9.3	5.9	7.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	87	1465	655	168	1627	728	220	231	197	199	209	178
V/C Ratio(X)	0.57	0.58	0.13	0.60	0.78	0.23	0.34	0.48	0.32	0.52	0.34	0.42
Avail Cap(c_a), veh/h	105	1465	655	168	1627	728	220	231	197	199	209	178
HCM Platoon Ratio	0.33	0.33	0.33	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	0.54	0.54	0.54	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	71.9	49.7	37.2	63.9	29.3	19.7	58.2	59.5	58.0	61.3	59.8	60.4
Incr Delay (d2), s/veh	5.7	1.7	0.4	3.1	2.1	0.4	4.2	7.1	4.2	9.4	4.4	7.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	16.6	3.2	4.1	21.7	3.8	3.1	4.7	2.5	4.6	2.9	3.2
LnGrp Delay(d),s/veh	77.5	51.3	37.6	67.0	31.4	20.1	62.4	66.6	62.2	70.7	64.1	67.4
LnGrp LOS	E	D	D	E	C	C	E	E	E	E	E	E
Approach Vol, veh/h		978			1538			249			249	
Approach Delay, s/veh		51.4			32.5			64.2			67.8	
Approach LOS		D			C			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	22.0	76.0		25.0	14.3	83.7		27.0
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0
Max Green Setting (Gmax), s	16.0	70.0		19.0	10.0	76.0		21.0
Max Q Clear Time (g_c+I1), s	11.6	39.4		11.3	6.6	51.2		11.4
Green Ext Time (p_c), s	3.5	21.8		0.7	0.0	22.8		0.8

Intersection Summary	
HCM 2010 Ctrl Delay	44.2
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	872	11	19	1324	105	12	8	11	55	14	79
Future Volume (veh/h)	45	872	11	19	1324	105	12	8	11	55	14	79
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	1652	1652	1652	1652	1652	1652	1900	1652	1900	1652	1652	1900
Adj Flow Rate, veh/h	49	948	12	21	1439	114	13	9	12	60	15	86
Adj No. of Lanes	1	2	1	1	2	1	0	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	15	15	15	15	15	15	15	15	15	15	15	15
Cap, veh/h	156	2009	899	89	1876	839	35	24	32	132	18	102
Arrive On Green	0.10	0.64	0.64	0.06	0.60	0.60	0.06	0.06	0.06	0.08	0.08	0.08
Sat Flow, veh/h	1573	3139	1404	1573	3139	1404	584	404	539	1573	213	1223
Grp Volume(v), veh/h	49	948	12	21	1439	114	34	0	0	60	0	101
Grp Sat Flow(s),veh/h/ln	1573	1570	1404	1573	1570	1404	1528	0	0	1573	0	1436
Q Serve(g_s), s	4.3	23.4	0.5	1.9	51.1	5.3	3.2	0.0	0.0	5.4	0.0	10.4
Cycle Q Clear(g_c), s	4.3	23.4	0.5	1.9	51.1	5.3	3.2	0.0	0.0	5.4	0.0	10.4
Prop In Lane	1.00		1.00	1.00		1.00	0.38		0.35	1.00		0.85
Lane Grp Cap(c), veh/h	156	2009	899	89	1876	839	92	0	0	132	0	120
V/C Ratio(X)	0.32	0.47	0.01	0.24	0.77	0.14	0.37	0.00	0.00	0.46	0.00	0.84
Avail Cap(c_a), veh/h	156	2009	899	89	1876	839	92	0	0	157	0	144
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)	0.82	0.82	0.82	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	62.9	13.9	9.8	67.7	22.4	13.2	67.8	0.0	0.0	65.5	0.0	67.8
Incr Delay (d2), s/veh	0.9	0.7	0.0	1.4	2.0	0.1	11.1	0.0	0.0	2.5	0.0	29.9
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	10.2	0.2	0.9	22.5	2.1	1.6	0.0	0.0	2.5	0.0	5.1
LnGrp Delay(d),s/veh	63.8	14.6	9.8	69.0	24.4	13.3	78.9	0.0	0.0	67.9	0.0	97.7
LnGrp LOS	E	B	A	E	C	B	E			E		F
Approach Vol, veh/h		1009			1574			34			161	
Approach Delay, s/veh		16.9			24.2			78.9			86.6	
Approach LOS		B			C			E			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		15.0	14.5	102.0		18.5	20.8	95.6
Change Period (Y+Rc), s		6.0	6.0	6.0		6.0	6.0	6.0
Max Green Setting (Gmax), s		9.0	6.0	96.0		15.0	13.0	89.0
Max Q Clear Time (g_c+I1), s		5.2	3.9	25.4		12.4	6.3	53.1
Green Ext Time (p_c), s		0.0	0.0	40.9		0.2	0.1	33.3

Intersection Summary	
HCM 2010 Ctrl Delay	25.8
HCM 2010 LOS	C

Intersection	
Int Delay, s/veh	10.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	641	15	78	869	100	9	7	92	36	10	49
Future Vol, veh/h	6	641	15	78	869	100	9	7	92	36	10	49
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	220	-	1000	250	-	220	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15	15	15	15	15	15	15
Mvmt Flow	7	697	16	85	945	109	10	8	100	39	11	53

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	945	0	0	697	0	0	1357	1824	348	1479	1824	472
Stage 1	-	-	-	-	-	-	710	710	-	1114	1114	-
Stage 2	-	-	-	-	-	-	647	1114	-	365	710	-
Critical Hdwy	4.4	-	-	4.4	-	-	7.8	6.8	7.2	7.8	6.8	7.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.8	5.8	-	6.8	5.8	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.8	5.8	-	6.8	5.8	-
Follow-up Hdwy	2.35	-	-	2.35	-	-	3.65	4.15	3.45	3.65	4.15	3.45
Pot Cap-1 Maneuver	647	-	-	813	-	-	96	66	612	77	66	505
Stage 1	-	-	-	-	-	-	362	405	-	201	256	-
Stage 2	-	-	-	-	-	-	396	256	-	592	405	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	647	-	-	813	-	-	67	58	612	53	58	505
Mov Cap-2 Maneuver	-	-	-	-	-	-	67	58	-	53	58	-
Stage 1	-	-	-	-	-	-	358	401	-	199	229	-
Stage 2	-	-	-	-	-	-	302	229	-	481	401	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.7	28.8	177.9
HCM LOS			D	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	266	647	-	-	813	-	-	100
HCM Lane V/C Ratio	0.441	0.01	-	-	0.104	-	-	1.033
HCM Control Delay (s)	28.8	10.6	-	-	9.9	-	-	177.9
HCM Lane LOS	D	B	-	-	A	-	-	F
HCM 95th %tile Q(veh)	2.1	0	-	-	0.3	-	-	6.4

Intersection	
Int Delay, s/veh	0.7

Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Vol, veh/h	0	733	36	23	1031	17	24
Future Vol, veh/h	0	733	36	23	1031	17	24
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	None	-	None
Storage Length	220	-	0	400	-	0	-
Veh in Median Storage, #	-	0	-	-	0	0	-
Grade, %	-	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15	15
Mvmt Flow	0	797	39	25	1121	18	26

Major/Minor	Major1			Major2		Minor1	
Conflicting Flow All	818	0	0	797	0	1407	398
Stage 1	-	-	-	-	-	797	-
Stage 2	-	-	-	-	-	610	-
Critical Hdwy	6.7	-	-	4.4	-	7.1	7.2
Critical Hdwy Stg 1	-	-	-	-	-	6.1	-
Critical Hdwy Stg 2	-	-	-	-	-	6.1	-
Follow-up Hdwy	2.65	-	-	2.35	-	3.65	3.45
Pot Cap-1 Maneuver	395	-	-	742	-	115	566
Stage 1	-	-	-	-	-	373	-
Stage 2	-	-	-	-	-	470	-
Platoon blocked, %		-	-		-		
Mov Cap-1 Maneuver	395	-	-	742	-	111	566
Mov Cap-2 Maneuver	-	-	-	-	-	111	-
Stage 1	-	-	-	-	-	373	-
Stage 2	-	-	-	-	-	454	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	26.7
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBU	EBT	EBR	WBL	WBT
Capacity (veh/h)	210	395	-	-	742	-
HCM Lane V/C Ratio	0.212	-	-	-	0.034	-
HCM Control Delay (s)	26.7	0	-	-	10	-
HCM Lane LOS	D	A	-	-	B	-
HCM 95th %tile Q(veh)	0.8	0	-	-	0.1	-

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	14	29	33	268	200	8
Future Vol, veh/h	14	29	33	268	200	8
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	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15
Mvmt Flow	15	32	36	291	217	9

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	585	113	226	0	-	0
Stage 1	222	-	-	-	-	-
Stage 2	363	-	-	-	-	-
Critical Hdwy	6.275	7.325	5.525	-	-	-
Critical Hdwy Stg 1	6.825	-	-	-	-	-
Critical Hdwy Stg 2	5.625	-	-	-	-	-
Follow-up Hdwy	3.7925	4.0425	3.2425	-	-	-
Pot Cap-1 Maneuver	459	753	867	-	-	-
Stage 1	699	-	-	-	-	-
Stage 2	648	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	436	753	867	-	-	-
Mov Cap-2 Maneuver	436	-	-	-	-	-
Stage 1	699	-	-	-	-	-
Stage 2	616	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.4	1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	867	-	609	-	-
HCM Lane V/C Ratio	0.041	-	0.077	-	-
HCM Control Delay (s)	9.3	0	11.4	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-

Intersection	
Int Delay, s/veh	4.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	24	26	33	29	20	8	64	123	22	0	118	0
Future Vol, veh/h	24	26	33	29	20	8	64	123	22	0	118	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15	15	15	15	15	15	15
Mvmt Flow	26	28	36	32	22	9	70	134	24	0	128	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	428	425	128	445	413	146	128	0	0	158	0	0
Stage 1	128	128	-	285	285	-	-	-	-	-	-	-
Stage 2	300	297	-	160	128	-	-	-	-	-	-	-
Critical Hdwy	7.25	6.65	6.35	7.25	6.65	6.35	4.25	-	-	4.25	-	-
Critical Hdwy Stg 1	6.25	5.65	-	6.25	5.65	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.25	5.65	-	6.25	5.65	-	-	-	-	-	-	-
Follow-up Hdwy	3.635	4.135	3.435	3.635	4.135	3.435	2.335	-	-	2.335	-	-
Pot Cap-1 Maneuver	515	502	888	502	510	868	1381	-	-	1346	-	-
Stage 1	845	766	-	695	653	-	-	-	-	-	-	-
Stage 2	682	645	-	812	766	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	471	474	888	440	481	868	1381	-	-	1346	-	-
Mov Cap-2 Maneuver	471	474	-	440	481	-	-	-	-	-	-	-
Stage 1	798	766	-	656	616	-	-	-	-	-	-	-
Stage 2	615	609	-	750	766	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.3	13.4	2.4	0
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1381	-	-	581	488	1346	-	-
HCM Lane V/C Ratio	0.05	-	-	0.155	0.127	-	-	-
HCM Control Delay (s)	7.7	0	-	12.3	13.4	0	-	-
HCM Lane LOS	A	A	-	B	B	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	0.5	0.4	0	-	-

23: N. MAIN ST. & W. KELLOGG DR.

Intersection													
Int Delay, s/veh	6.4												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	28	8	19	49	22	55	51	7	33	68	1
Future Vol, veh/h	1	28	8	19	49	22	55	51	7	33	68	1
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15	15	15	15	15	15	15
Mvmt Flow	1	30	9	21	53	24	60	55	8	36	74	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	363	329	74	345	326	59	75	0	0	63	0	0
Stage 1	146	146	-	179	179	-	-	-	-	-	-	-
Stage 2	217	183	-	166	147	-	-	-	-	-	-	-
Critical Hdwy	7.25	6.65	6.35	7.25	6.65	6.35	4.25	-	-	4.25	-	-
Critical Hdwy Stg 1	6.25	5.65	-	6.25	5.65	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.25	5.65	-	6.25	5.65	-	-	-	-	-	-	-
Follow-up Hdwy	3.635	4.135	3.435	3.635	4.135	3.435	2.335	-	-	2.335	-	-
Pot Cap-1 Maneuver	569	569	953	585	572	971	1446	-	-	1461	-	-
Stage 1	827	752	-	793	727	-	-	-	-	-	-	-
Stage 2	757	724	-	806	751	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	486	530	953	526	533	971	1446	-	-	1461	-	-
Mov Cap-2 Maneuver	486	530	-	526	533	-	-	-	-	-	-	-
Stage 1	791	732	-	759	696	-	-	-	-	-	-	-
Stage 2	653	693	-	746	731	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.6	12.2	3.7	2.4
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1446	-	-	585	597	1461	-	-
HCM Lane V/C Ratio	0.041	-	-	0.069	0.164	0.025	-	-
HCM Control Delay (s)	7.6	0	-	11.6	12.2	7.5	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0.6	0.1	-	-

24: BARBER ST. & W. KELLOGG DR.

Intersection													
Int Delay, s/veh	4												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↱			↱		↱			↱	
Traffic Vol, veh/h	0	0	56	0	0	1	0	1	64	0	3	0
Future Vol, veh/h	0	0	56	0	0	1	0	1	64	0	3	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15	15	15	15	15	15	15
Mvmt Flow	0	0	61	0	0	1	0	1	70	0	3	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	3	-	-	36	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.35	-	-	6.35	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.435	-	-	3.435	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	1044	0	0	1001	0	-	-	0	-	-
Stage 1	0	0	-	0	0	-	0	-	-	0	-	-
Stage 2	0	0	-	0	0	-	0	-	-	0	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	1044	-	-	1001	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.7	8.6	0	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT	SBR
Capacity (veh/h)	-	-	1044	1001	-	-
HCM Lane V/C Ratio	-	-	0.058	0.001	-	-
HCM Control Delay (s)	-	-	8.7	8.6	-	-
HCM Lane LOS	-	-	A	A	-	-
HCM 95th %tile Q(veh)	-	-	0.2	0	-	-

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↑↑	↱		↔	
Traffic Vol, veh/h	44	0	9	0	0	0	8	235	28	22	180	52
Future Vol, veh/h	44	0	9	0	0	0	8	235	28	22	180	52
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	-	-	-	-	-	-	-	-	230	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15	15	15	15	15	15	15
Mvmt Flow	48	0	10	0	0	0	9	255	30	24	196	57

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	417	575	224	565	588	143	252	0	0	286	0	0
Stage 1	272	272	-	288	288	-	-	-	-	-	-	-
Stage 2	145	303	-	277	300	-	-	-	-	-	-	-
Critical Hdwy	7.525	6.725	6.425	7.525	6.725	7.125	4.325	-	-	4.325	-	-
Critical Hdwy Stg 1	6.325	5.725	-	6.725	5.725	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.725	5.725	-	6.325	5.725	-	-	-	-	-	-	-
Follow-up Hdwy	3.6425	4.1425	3.4425	3.6425	4.1425	3.4425	2.3425	-	-	2.3425	-	-
Pot Cap-1 Maneuver	507	406	779	398	399	843	1231	-	-	1194	-	-
Stage 1	701	657	-	665	646	-	-	-	-	-	-	-
Stage 2	810	636	-	697	638	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	494	393	779	383	386	843	1231	-	-	1194	-	-
Mov Cap-2 Maneuver	494	393	-	383	386	-	-	-	-	-	-	-
Stage 1	695	641	-	659	640	-	-	-	-	-	-	-
Stage 2	803	630	-	672	623	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.7	0	0.2	0.7
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1231	-	-	527	-	1194	-	-
HCM Lane V/C Ratio	0.007	-	-	0.109	-	0.02	-	-
HCM Control Delay (s)	7.9	-	-	12.7	0	8.1	0	-
HCM Lane LOS	A	-	-	B	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.4	-	0.1	-	-

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰			↑	↱	
Traffic Vol, veh/h	39	4	0	190	211	25
Future Vol, veh/h	39	4	0	190	211	25
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	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15
Mvmt Flow	42	4	0	207	229	27

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	450	243	257	0	-	0
Stage 1	243	-	-	-	-	-
Stage 2	207	-	-	-	-	-
Critical Hdwy	6.55	6.35	4.25	-	-	-
Critical Hdwy Stg 1	5.55	-	-	-	-	-
Critical Hdwy Stg 2	5.55	-	-	-	-	-
Follow-up Hdwy	3.635	3.435	2.335	-	-	-
Pot Cap-1 Maneuver	543	765	1236	-	-	-
Stage 1	768	-	-	-	-	-
Stage 2	798	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	543	765	1236	-	-	-
Mov Cap-2 Maneuver	605	-	-	-	-	-
Stage 1	768	-	-	-	-	-
Stage 2	798	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.3	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1236	-	617	-	-
HCM Lane V/C Ratio	-	-	0.076	-	-
HCM Control Delay (s)	0	-	11.3	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	0	9	6	18	0	23	0	0	59	0
Future Vol, veh/h	0	0	0	9	6	18	0	23	0	0	59	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15	15	15	15	15	15	15
Mvmt Flow	0	0	0	10	7	20	0	25	0	0	64	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	102	89	64	89	89	25	64	0	0	25	0	0
Stage 1	64	64	-	25	25	-	-	-	-	-	-	-
Stage 2	38	25	-	64	64	-	-	-	-	-	-	-
Critical Hdwy	7.25	6.65	6.35	7.25	6.65	6.35	4.25	-	-	4.25	-	-
Critical Hdwy Stg 1	6.25	5.65	-	6.25	5.65	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.25	5.65	-	6.25	5.65	-	-	-	-	-	-	-
Follow-up Hdwy	3.635	4.135	3.435	3.635	4.135	3.435	2.335	-	-	2.335	-	-
Pot Cap-1 Maneuver	849	777	965	866	777	1015	1459	-	-	1509	-	-
Stage 1	915	817	-	960	849	-	-	-	-	-	-	-
Stage 2	945	849	-	915	817	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	827	777	965	866	777	1015	1459	-	-	1509	-	-
Mov Cap-2 Maneuver	827	777	-	866	777	-	-	-	-	-	-	-
Stage 1	915	817	-	960	849	-	-	-	-	-	-	-
Stage 2	920	849	-	915	817	-	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1459	-	-	-	921	1509	-	-
HCM Lane V/C Ratio	-	-	-	-	0.039	-	-	-
HCM Control Delay (s)	0	-	-	0	9.1	0	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	0.1	0	-	-

Intersection	
Int Delay, s/veh	5.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↑	
Traffic Vol, veh/h	42	0	25	0	39	1
Future Vol, veh/h	42	0	25	0	39	1
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, %	15	15	15	15	15	15
Mvmt Flow	46	0	27	0	42	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	46	0	100	46
Stage 1	-	-	-	-	46	-
Stage 2	-	-	-	-	54	-
Critical Hdwy	-	-	4.25	-	6.55	6.35
Critical Hdwy Stg 1	-	-	-	-	5.55	-
Critical Hdwy Stg 2	-	-	-	-	5.55	-
Follow-up Hdwy	-	-	2.335	-	3.635	3.435
Pot Cap-1 Maneuver	-	-	1482	-	868	988
Stage 1	-	-	-	-	944	-
Stage 2	-	-	-	-	936	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1482	-	852	988
Mov Cap-2 Maneuver	-	-	-	-	852	-
Stage 1	-	-	-	-	944	-
Stage 2	-	-	-	-	919	-

Approach	EB	WB	NB
HCM Control Delay, s	0	7.5	9.4
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	855	-	-	1482	-
HCM Lane V/C Ratio	0.051	-	-	0.018	-
HCM Control Delay (s)	9.4	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	50	0	0	39	0	379	42	0	510	0
Future Vol, veh/h	0	0	50	0	0	39	0	379	42	0	510	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15	15	15	15	15	15	15
Mvmt Flow	0	0	54	0	0	42	0	412	46	0	554	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	277	-	-	229	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.2	-	-	7.2	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.45	-	-	3.45	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	683	0	0	735	0	-	-	0	-	-
Stage 1	0	0	-	0	0	-	0	-	-	0	-	-
Stage 2	0	0	-	0	0	-	0	-	-	0	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	683	-	-	735	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.7	10.2	0	0
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT	SBR
Capacity (veh/h)	-	-	683	735	-	-
HCM Lane V/C Ratio	-	-	0.08	0.058	-	-
HCM Control Delay (s)	-	-	10.7	10.2	-	-
HCM Lane LOS	-	-	B	B	-	-
HCM 95th %tile Q(veh)	-	-	0.3	0.2	-	-

Intersection	
Int Delay, s/veh	6.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	64	0	0	41	62	1
Future Vol, veh/h	64	0	0	41	62	1
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, %	15	15	15	15	15	15
Mvmt Flow	70	0	0	45	67	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	45	0	-	0	161	22
Stage 1	-	-	-	-	22	-
Stage 2	-	-	-	-	139	-
Critical Hdwy	4.25	-	-	-	6.55	6.35
Critical Hdwy Stg 1	-	-	-	-	5.55	-
Critical Hdwy Stg 2	-	-	-	-	5.55	-
Follow-up Hdwy	2.335	-	-	-	3.635	3.435
Pot Cap-1 Maneuver	1483	-	-	-	801	1019
Stage 1	-	-	-	-	968	-
Stage 2	-	-	-	-	857	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1483	-	-	-	763	1019
Mov Cap-2 Maneuver	-	-	-	-	763	-
Stage 1	-	-	-	-	968	-
Stage 2	-	-	-	-	817	-

Approach	EB	WB	SB
HCM Control Delay, s	7.5	0	10.2
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1483	-	-	-	766
HCM Lane V/C Ratio	0.047	-	-	-	0.089
HCM Control Delay (s)	7.5	0	-	-	10.2
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.3

Intersection	
Int Delay, s/veh	174.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	27	848	36	68	802	25	15	32	119	64	40	40
Future Vol, veh/h	27	848	36	68	802	25	15	32	119	64	40	40
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	425	-	900	380	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15	15	15	15	15	15	15
Mvmt Flow	29	922	39	74	872	27	16	35	129	70	43	43

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	899	0	0	922	0	0	1585	2027	461	1570	2013	449
Stage 1	-	-	-	-	-	-	980	980	-	1033	1033	-
Stage 2	-	-	-	-	-	-	605	1047	-	537	980	-
Critical Hdwy	4.4	-	-	4.4	-	-	7.8	6.8	7.2	7.8	6.8	7.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.8	5.8	-	6.8	5.8	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.8	5.8	-	6.8	5.8	-
Follow-up Hdwy	2.35	-	-	2.35	-	-	3.65	4.15	3.45	3.65	4.15	3.45
Pot Cap-1 Maneuver	675	-	-	661	-	-	64	49	513	~ 66	50	523
Stage 1	-	-	-	-	-	-	244	299	-	226	281	-
Stage 2	-	-	-	-	-	-	421	277	-	464	299	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	675	-	-	661	-	-	-	42	513	~ 14	~ 42	523
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	42	-	~ 14	~ 42	-
Stage 1	-	-	-	-	-	-	234	286	-	216	250	-
Stage 2	-	-	-	-	-	-	283	246	-	292	286	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.8		$ 2557.9
HCM LOS			-	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	675	-	-	661	-	-	26
HCM Lane V/C Ratio	-	0.043	-	-	0.112	-	-	6.02
HCM Control Delay (s)	-	10.6	-	-	11.1	-	-	$ 2557.9
HCM Lane LOS	-	B	-	-	B	-	-	F
HCM 95th %tile Q(veh)	-	0.1	-	-	0.4	-	-	19.3

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	52	1295	71	214	918	36	94	141	549	142	194	125
Future Volume (veh/h)	52	1295	71	214	918	36	94	141	549	142	194	125
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	1652	1652	1652	1652	1652	1652	1652	1652	1652	1652	1652	1652
Adj Flow Rate, veh/h	57	1408	77	233	998	39	102	153	597	154	211	136
Adj No. of Lanes	1	2	1	1	2	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	15	15	15	15	15	15	15	15	15	15	15	15
Cap, veh/h	95	1277	571	210	1505	673	325	649	290	147	293	131
Arrive On Green	0.06	0.41	0.41	0.13	0.48	0.48	0.21	0.21	0.21	0.09	0.09	0.09
Sat Flow, veh/h	1573	3139	1404	1573	3139	1404	1573	3139	1404	1573	3139	1404
Grp Volume(v), veh/h	57	1408	77	233	998	39	102	153	597	154	211	136
Grp Sat Flow(s),veh/h/ln	1573	1570	1404	1573	1570	1404	1573	1570	1404	1573	1570	1404
Q Serve(g_s), s	5.3	61.0	5.2	20.0	36.4	2.2	8.2	6.1	31.0	14.0	9.8	14.0
Cycle Q Clear(g_c), s	5.3	61.0	5.2	20.0	36.4	2.2	8.2	6.1	31.0	14.0	9.8	14.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	95	1277	571	210	1505	673	325	649	290	147	293	131
V/C Ratio(X)	0.60	1.10	0.13	1.11	0.66	0.06	0.31	0.24	2.06	1.05	0.72	1.04
Avail Cap(c_a), veh/h	122	1277	571	210	1505	673	325	649	290	147	293	131
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	68.7	44.5	27.9	65.0	29.8	20.9	50.5	49.6	59.5	68.0	66.1	68.0
Incr Delay (d2), s/veh	5.9	58.3	0.5	94.9	2.3	0.2	2.5	0.9	487.4	87.8	8.3	89.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.4
%ile BackOfQ(50%),veh/ln	2.5	36.8	2.1	14.2	16.3	0.9	3.8	2.7	51.3	9.7	4.6	8.7
LnGrp Delay(d),s/veh	74.6	102.8	28.4	159.9	32.1	21.1	53.0	50.5	546.9	155.9	74.4	157.4
LnGrp LOS	E	F	C	F	C	C	D	D	F	F	E	F
Approach Vol, veh/h		1542			1270			852			501	
Approach Delay, s/veh		98.1			55.2			398.6			122.0	
Approach LOS		F			E			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		37.0	26.0	67.0		20.0	15.1	77.9
Change Period (Y+Rc), s		6.0	6.0	6.0		6.0	6.0	6.0
Max Green Setting (Gmax), s		31.0	20.0	61.0		14.0	11.6	69.4
Max Q Clear Time (g_c+I1), s		33.0	22.0	63.0		16.0	7.3	38.4
Green Ext Time (p_c), s		0.0	0.0	0.0		0.0	0.0	25.4

Intersection Summary	
HCM 2010 Ctrl Delay	149.4
HCM 2010 LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	54	1882	92	187	1062	117	68	169	216	470	190	116
Future Volume (veh/h)	54	1882	92	187	1062	117	68	169	216	470	190	116
Number	5	2	12	1	6	16	3	8	18	7	4	14
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	1652	1652	1652	1652	1652	1652	1652	1652	1652	1652	1652	1652
Adj Flow Rate, veh/h	59	2046	100	203	1154	127	74	184	235	511	207	126
Adj No. of Lanes	1	2	1	1	2	1	2	2	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	15	15	15	15	15	15	15	15	15	15	15	15
Cap, veh/h	86	1653	740	178	1837	822	183	188	84	427	439	197
Arrive On Green	0.04	0.35	0.35	0.11	0.59	0.59	0.06	0.06	0.06	0.14	0.14	0.14
Sat Flow, veh/h	1573	3139	1404	1573	3139	1404	3053	3139	1404	3053	3139	1404
Grp Volume(v), veh/h	59	2046	100	203	1154	127	74	184	235	511	207	126
Grp Sat Flow(s),veh/h/ln	1573	1570	1404	1573	1570	1404	1526	1570	1404	1526	1570	1404
Q Serve(g_s), s	5.6	79.0	7.3	17.0	36.2	6.2	3.5	8.8	9.0	21.0	9.1	12.7
Cycle Q Clear(g_c), s	5.6	79.0	7.3	17.0	36.2	6.2	3.5	8.8	9.0	21.0	9.1	12.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	86	1653	740	178	1837	822	183	188	84	427	439	197
V/C Ratio(X)	0.68	1.24	0.14	1.14	0.63	0.15	0.40	0.98	2.79	1.20	0.47	0.64
Avail Cap(c_a), veh/h	115	1653	740	178	1837	822	183	188	84	427	439	197
HCM Platoon Ratio	0.67	0.67	0.67	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	0.27	0.27	0.27	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	71.0	48.5	25.3	66.5	20.4	14.2	67.9	70.4	70.5	64.5	59.4	60.9
Incr Delay (d2), s/veh	9.8	112.3	0.4	79.6	0.4	0.1	6.5	59.8	837.1	108.9	3.6	15.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	60.1	2.9	11.3	15.7	2.4	1.6	5.4	23.1	15.3	4.2	5.8
LnGrp Delay(d),s/veh	80.8	160.8	25.7	146.1	20.9	14.3	74.4	130.2	907.6	173.4	63.0	75.9
LnGrp LOS	F	F	C	F	C	B	E	F	F	F	E	E
Approach Vol, veh/h		2205			1484			493			844	
Approach Delay, s/veh		152.6			37.4			492.4			131.8	
Approach LOS		F			D			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	23.0	85.0		27.0	14.2	93.8		15.0
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0
Max Green Setting (Gmax), s	17.0	79.0		21.0	11.0	85.0		9.0
Max Q Clear Time (g_c+I1), s	19.0	81.0		23.0	7.6	38.2		11.0
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	38.6		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	148.4
HCM 2010 LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	242	2323	3	4	1083	278	13	138	43	391	45	270
Future Volume (veh/h)	242	2323	3	4	1083	278	13	138	43	391	45	270
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	1652	1652	1652	1652	1652	1652	1900	1652	1900	1652	1652	1900
Adj Flow Rate, veh/h	263	2525	3	4	1177	302	14	150	47	425	49	293
Adj No. of Lanes	1	2	1	1	2	1	0	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	15	15	15	15	15	15	15	15	15	15	15	15
Cap, veh/h	252	1653	740	63	1277	571	8	90	28	304	40	238
Arrive On Green	0.16	0.53	0.53	0.04	0.41	0.41	0.08	0.08	0.08	0.19	0.19	0.19
Sat Flow, veh/h	1573	3139	1404	1573	3139	1404	105	1127	353	1573	206	1230
Grp Volume(v), veh/h	263	2525	3	4	1177	302	211	0	0	425	0	342
Grp Sat Flow(s),veh/h/ln	1573	1570	1404	1573	1570	1404	1585	0	0	1573	0	1435
Q Serve(g_s), s	24.0	79.0	0.2	0.4	53.4	24.4	12.0	0.0	0.0	29.0	0.0	29.0
Cycle Q Clear(g_c), s	24.0	79.0	0.2	0.4	53.4	24.4	12.0	0.0	0.0	29.0	0.0	29.0
Prop In Lane	1.00		1.00	1.00		1.00	0.07		0.22	1.00		0.86
Lane Grp Cap(c), veh/h	252	1653	740	63	1277	571	127	0	0	304	0	277
V/C Ratio(X)	1.04	1.53	0.00	0.06	0.92	0.53	1.66	0.00	0.00	1.40	0.00	1.23
Avail Cap(c_a), veh/h	252	1653	740	63	1277	571	127	0	0	304	0	277
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)	0.09	0.09	0.09	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	63.0	35.5	16.8	69.3	42.2	33.6	69.0	0.0	0.0	60.5	0.0	60.5
Incr Delay (d2), s/veh	30.1	237.6	0.0	0.4	12.3	3.5	331.1	0.0	0.0	197.5	0.0	131.9
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	12.5	88.5	0.1	0.2	25.2	10.0	16.9	0.0	0.0	29.3	0.0	21.7
LnGrp Delay(d),s/veh	93.1	273.1	16.8	69.7	54.6	37.1	400.1	0.0	0.0	258.0	0.0	192.4
LnGrp LOS	F	F	B	E	D	D	F			F		F
Approach Vol, veh/h		2791			1483			211			767	
Approach Delay, s/veh		255.8			51.1			400.1			228.8	
Approach LOS		F			D			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		18.0	12.0	85.0		35.0	30.0	67.0
Change Period (Y+Rc), s		6.0	6.0	6.0		6.0	6.0	6.0
Max Green Setting (Gmax), s		12.0	6.0	79.0		29.0	24.0	61.0
Max Q Clear Time (g_c+I1), s		14.0	2.4	81.0		31.0	26.0	55.4
Green Ext Time (p_c), s		0.0	3.5	0.0		0.0	0.0	5.4

Intersection Summary	
HCM 2010 Ctrl Delay	199.9
HCM 2010 LOS	F

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	994	28	246	803	89	45	13	390	67	31	47
Future Vol, veh/h	9	994	28	246	803	89	45	13	390	67	31	47
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	220	-	1000	250	-	220	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15	15	15	15	15	15	15
Mvmt Flow	10	1080	30	267	873	97	49	14	424	73	34	51

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	873	0	0	1080	0	0	2088	2508	540	1975	2508	436
Stage 1	-	-	-	-	-	-	1100	1100	-	1408	1408	-
Stage 2	-	-	-	-	-	-	988	1408	-	567	1100	-
Critical Hdwy	4.4	-	-	4.4	-	-	7.8	6.8	7.2	7.8	6.8	7.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.8	5.8	-	6.8	5.8	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.8	5.8	-	6.8	5.8	-
Follow-up Hdwy	2.35	-	-	2.35	-	-	3.65	4.15	3.45	3.65	4.15	3.45
Pot Cap-1 Maneuver	691	-	-	570	-	-	~ 26	23	454	~ 32	~ 23	534
Stage 1	-	-	-	-	-	-	205	260	-	130	181	-
Stage 2	-	-	-	-	-	-	242	181	-	444	260	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	691	-	-	570	-	-	-	~ 12	454	-	~ 12	534
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	~ 12	-	-	~ 12	-
Stage 1	-	-	-	-	-	-	202	256	-	128	96	-
Stage 2	-	-	-	-	-	-	76	96	-	~ 27	256	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	3.6		
HCM LOS			-	-

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	691	-	-	570	-	-	-
HCM Lane V/C Ratio	-	0.014	-	-	0.469	-	-	-
HCM Control Delay (s)	-	10.3	-	-	16.8	-	-	-
HCM Lane LOS	-	B	-	-	C	-	-	-
HCM 95th %tile Q(veh)	-	0	-	-	2.5	-	-	-

Notes

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

Intersection	
Int Delay, s/veh	30.9

Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Vol, veh/h	0	1372	79	54	1083	55	47
Future Vol, veh/h	0	1372	79	54	1083	55	47
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	None	-	None
Storage Length	220	-	0	400	-	0	-
Veh in Median Storage, #	-	0	-	-	0	0	-
Grade, %	-	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15	15
Mvmt Flow	0	1491	86	59	1177	60	51

Major/Minor	Major1			Major2		Minor1	
Conflicting Flow All	859	0	0	1491	0	2197	746
Stage 1	-	-	-	-	-	1491	-
Stage 2	-	-	-	-	-	706	-
Critical Hdwy	6.7	-	-	4.4	-	7.1	7.2
Critical Hdwy Stg 1	-	-	-	-	-	6.1	-
Critical Hdwy Stg 2	-	-	-	-	-	6.1	-
Follow-up Hdwy	2.65	-	-	2.35	-	3.65	3.45
Pot Cap-1 Maneuver	371	-	-	387	-	~ 32	329
Stage 1	-	-	-	-	-	153	-
Stage 2	-	-	-	-	-	418	-
Platoon blocked, %		-	-		-		
Mov Cap-1 Maneuver	371	-	-	387	-	~ 27	329
Mov Cap-2 Maneuver	-	-	-	-	-	~ 27	-
Stage 1	-	-	-	-	-	153	-
Stage 2	-	-	-	-	-	354	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.8	$ 805.4
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBU	EBT	EBR	WBL	WBT
Capacity (veh/h)	47	371	-	-	387	-
HCM Lane V/C Ratio	2.359	-	-	-	0.152	-
HCM Control Delay (s)	$ 805.4	0	-	-	16	-
HCM Lane LOS	F	A	-	-	C	-
HCM 95th %tile Q(veh)	11.6	0	-	-	0.5	-

Notes

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

Intersection	
Int Delay, s/veh	7.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	53	32	7	53	46	57	51	3	85	106	0
Future Vol, veh/h	2	53	32	7	53	46	57	51	3	85	106	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15	15	15	15	15	15	15
Mvmt Flow	2	58	35	8	58	50	62	55	3	92	115	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	535	483	115	527	481	57	115	0	0	59	0	0
Stage 1	300	300	-	181	181	-	-	-	-	-	-	-
Stage 2	235	183	-	346	300	-	-	-	-	-	-	-
Critical Hdwy	7.25	6.65	6.35	7.25	6.65	6.35	4.25	-	-	4.25	-	-
Critical Hdwy Stg 1	6.25	5.65	-	6.25	5.65	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.25	5.65	-	6.25	5.65	-	-	-	-	-	-	-
Follow-up Hdwy	3.635	4.135	3.435	3.635	4.135	3.435	2.335	-	-	2.335	-	-
Pot Cap-1 Maneuver	436	465	903	442	466	974	1397	-	-	1466	-	-
Stage 1	682	643	-	791	726	-	-	-	-	-	-	-
Stage 2	740	724	-	644	643	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	339	414	903	348	415	974	1397	-	-	1466	-	-
Mov Cap-2 Maneuver	339	414	-	348	415	-	-	-	-	-	-	-
Stage 1	651	600	-	755	693	-	-	-	-	-	-	-
Stage 2	614	691	-	522	600	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13.6	13.4	4	3.4
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1397	-	-	514	543	1466	-	-
HCM Lane V/C Ratio	0.044	-	-	0.184	0.212	0.063	-	-
HCM Control Delay (s)	7.7	0	-	13.6	13.4	7.6	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.7	0.8	0.2	-	-

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↱			↱		↱			↱	
Traffic Vol, veh/h	0	0	39	0	0	0	0	9	67	0	6	0
Future Vol, veh/h	0	0	39	0	0	0	0	9	67	0	6	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15	15	15	15	15	15	15
Mvmt Flow	0	0	42	0	0	0	0	10	73	0	7	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	7	-	-	46	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.35	-	-	6.35	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.435	-	-	3.435	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	1039	0	0	988	0	-	-	0	-	-
Stage 1	0	0	-	0	0	-	0	-	-	0	-	-
Stage 2	0	0	-	0	0	-	0	-	-	0	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	1039	-	-	988	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.6	0	0	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT	SBR
Capacity (veh/h)	-	-	1039	-	-	-
HCM Lane V/C Ratio	-	-	0.041	-	-	-
HCM Control Delay (s)	-	-	8.6	0	-	-
HCM Lane LOS	-	-	A	A	-	-
HCM 95th %tile Q(veh)	-	-	0.1	-	-	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	28	6	6	425	450	19
Future Vol, veh/h	28	6	6	425	450	19
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	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15
Mvmt Flow	30	7	7	462	489	21

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	743	255	510	0	-	0
Stage 1	499	-	-	-	-	-
Stage 2	244	-	-	-	-	-
Critical Hdwy	7.1	7.2	4.4	-	-	-
Critical Hdwy Stg 1	6.1	-	-	-	-	-
Critical Hdwy Stg 2	6.1	-	-	-	-	-
Follow-up Hdwy	3.65	3.45	2.35	-	-	-
Pot Cap-1 Maneuver	324	706	966	-	-	-
Stage 1	540	-	-	-	-	-
Stage 2	736	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	321	706	966	-	-	-
Mov Cap-2 Maneuver	423	-	-	-	-	-
Stage 1	540	-	-	-	-	-
Stage 2	729	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.6	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	966	-	455	-	-
HCM Lane V/C Ratio	0.007	-	0.081	-	-
HCM Control Delay (s)	8.8	0	13.6	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

Intersection	
Int Delay, s/veh	3.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	1	1	29	6	68	1	32	2	5	128	0
Future Vol, veh/h	2	1	1	29	6	68	1	32	2	5	128	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15	15	15	15	15	15	15
Mvmt Flow	2	1	1	32	7	74	1	35	2	5	139	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	228	189	139	189	188	36	139	0	0	37	0	0
Stage 1	150	150	-	38	38	-	-	-	-	-	-	-
Stage 2	78	39	-	151	150	-	-	-	-	-	-	-
Critical Hdwy	7.25	6.65	6.35	7.25	6.65	6.35	4.25	-	-	4.25	-	-
Critical Hdwy Stg 1	6.25	5.65	-	6.25	5.65	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.25	5.65	-	6.25	5.65	-	-	-	-	-	-	-
Follow-up Hdwy	3.635	4.135	3.435	3.635	4.135	3.435	2.335	-	-	2.335	-	-
Pot Cap-1 Maneuver	701	683	876	743	684	1001	1368	-	-	1494	-	-
Stage 1	823	749	-	945	838	-	-	-	-	-	-	-
Stage 2	899	837	-	822	749	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	642	680	876	738	681	1001	1368	-	-	1494	-	-
Mov Cap-2 Maneuver	642	680	-	738	681	-	-	-	-	-	-	-
Stage 1	822	746	-	944	837	-	-	-	-	-	-	-
Stage 2	825	836	-	817	746	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.2	9.6	0.2	0.3
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1368	-	-	698	888	1494	-	-
HCM Lane V/C Ratio	0.001	-	-	0.006	0.126	0.004	-	-
HCM Control Delay (s)	7.6	0	-	10.2	9.6	7.4	0	-
HCM Lane LOS	A	A	-	B	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.4	0	-	-

Intersection	
Int Delay, s/veh	2.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	31	0	17	8	3	3
Future Vol, veh/h	31	0	17	8	3	3
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, %	15	15	15	15	15	15
Mvmt Flow	34	0	18	9	3	3

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	34	0	80	34
Stage 1	-	-	-	-	34	-
Stage 2	-	-	-	-	46	-
Critical Hdwy	-	-	4.25	-	6.55	6.35
Critical Hdwy Stg 1	-	-	-	-	5.55	-
Critical Hdwy Stg 2	-	-	-	-	5.55	-
Follow-up Hdwy	-	-	2.335	-	3.635	3.435
Pot Cap-1 Maneuver	-	-	1497	-	891	1003
Stage 1	-	-	-	-	956	-
Stage 2	-	-	-	-	944	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1497	-	880	1003
Mov Cap-2 Maneuver	-	-	-	-	880	-
Stage 1	-	-	-	-	956	-
Stage 2	-	-	-	-	933	-

Approach	EB	WB	NB
HCM Control Delay, s	0	5.1	8.9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	937	-	-	1497	-
HCM Lane V/C Ratio	0.007	-	-	0.012	-
HCM Control Delay (s)	8.9	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	33	0	0	16	0	281	31	0	334	0
Future Vol, veh/h	0	0	33	0	0	16	0	281	31	0	334	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15	15	15	15	15	15	15
Mvmt Flow	0	0	36	0	0	17	0	305	34	0	363	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	182	-	-	170	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.2	-	-	7.2	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.45	-	-	3.45	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	790	0	0	805	0	-	-	0	-	-
Stage 1	0	0	-	0	0	-	0	-	-	0	-	-
Stage 2	0	0	-	0	0	-	0	-	-	0	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	790	-	-	805	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.8	9.6	0	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT	SBR
Capacity (veh/h)	-	-	790	805	-	-
HCM Lane V/C Ratio	-	-	0.045	0.022	-	-
HCM Control Delay (s)	-	-	9.8	9.6	-	-
HCM Lane LOS	-	-	A	A	-	-
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-	-

Intersection	
Int Delay, s/veh	9.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	67	0	0	29	186	0
Future Vol, veh/h	67	0	0	29	186	0
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, %	15	15	15	15	15	15
Mvmt Flow	73	0	0	32	202	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	32	0	-	0	162	16
Stage 1	-	-	-	-	16	-
Stage 2	-	-	-	-	146	-
Critical Hdwy	4.25	-	-	-	6.55	6.35
Critical Hdwy Stg 1	-	-	-	-	5.55	-
Critical Hdwy Stg 2	-	-	-	-	5.55	-
Follow-up Hdwy	2.335	-	-	-	3.635	3.435
Pot Cap-1 Maneuver	1500	-	-	-	800	1027
Stage 1	-	-	-	-	974	-
Stage 2	-	-	-	-	850	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1500	-	-	-	761	1027
Mov Cap-2 Maneuver	-	-	-	-	761	-
Stage 1	-	-	-	-	974	-
Stage 2	-	-	-	-	808	-

Approach	EB	WB	SB
HCM Control Delay, s	7.5	0	11.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1500	-	-	-	761
HCM Lane V/C Ratio	0.049	-	-	-	0.266
HCM Control Delay (s)	7.5	0	-	-	11.4
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.2	-	-	-	1.1

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	13	708	11	98	1415	42	27	39	66	29	26	26
Future Vol, veh/h	13	708	11	98	1415	42	27	39	66	29	26	26
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	425	-	900	380	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15	15	15	15	15	15	15
Mvmt Flow	14	770	12	107	1538	46	29	42	72	32	28	28

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1584	0	0	770	0	0	1794	2595	385	2208	2572	792
Stage 1	-	-	-	-	-	-	798	798	-	1774	1774	-
Stage 2	-	-	-	-	-	-	996	1797	-	434	798	-
Critical Hdwy	4.4	-	-	4.4	-	-	7.8	6.8	7.2	7.8	6.8	7.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.8	5.8	-	6.8	5.8	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.8	5.8	-	6.8	5.8	-
Follow-up Hdwy	2.35	-	-	2.35	-	-	3.65	4.15	3.45	3.65	4.15	3.45
Pot Cap-1 Maneuver	355	-	-	761	-	-	44	~ 20	578	~ 21	~ 21	305
Stage 1	-	-	-	-	-	-	319	367	-	75	117	-
Stage 2	-	-	-	-	-	-	239	114	-	537	367	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	355	-	-	761	-	-	-	~ 17	578	-	~ 17	305
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	~ 17	-	-	~ 17	-
Stage 1	-	-	-	-	-	-	306	353	-	72	101	-
Stage 2	-	-	-	-	-	-	134	98	-	398	353	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.7		
HCM LOS			-	-

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	355	-	-	761	-	-	-
HCM Lane V/C Ratio	-	0.04	-	-	0.14	-	-	-
HCM Control Delay (s)	-	15.6	-	-	10.5	-	-	-
HCM Lane LOS	-	C	-	-	B	-	-	-
HCM 95th %tile Q(veh)	-	0.1	-	-	0.5	-	-	-

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	89	993	57	249	1372	96	163	289	452	143	133	152
Future Volume (veh/h)	89	993	57	249	1372	96	163	289	452	143	133	152
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	1652	1652	1652	1652	1652	1652	1652	1652	1652	1652	1652	1652
Adj Flow Rate, veh/h	97	1079	62	271	1491	104	177	314	491	155	145	165
Adj No. of Lanes	1	2	1	1	2	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	15	15	15	15	15	15	15	15	15	15	15	15
Cap, veh/h	116	1109	496	278	1432	640	283	565	253	205	408	183
Arrive On Green	0.07	0.35	0.35	0.18	0.46	0.46	0.18	0.18	0.18	0.13	0.13	0.13
Sat Flow, veh/h	1573	3139	1404	1573	3139	1404	1573	3139	1404	1573	3139	1404
Grp Volume(v), veh/h	97	1079	62	271	1491	104	177	314	491	155	145	165
Grp Sat Flow(s),veh/h/ln	1573	1570	1404	1573	1570	1404	1573	1570	1404	1573	1570	1404
Q Serve(g_s), s	9.1	50.8	4.5	25.7	68.4	6.5	15.6	13.7	27.0	14.3	6.3	17.4
Cycle Q Clear(g_c), s	9.1	50.8	4.5	25.7	68.4	6.5	15.6	13.7	27.0	14.3	6.3	17.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	116	1109	496	278	1432	640	283	565	253	205	408	183
V/C Ratio(X)	0.83	0.97	0.12	0.98	1.04	0.16	0.62	0.56	1.94	0.76	0.36	0.90
Avail Cap(c_a), veh/h	178	1109	496	278	1432	640	283	565	253	210	419	187
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	68.6	47.8	32.8	61.4	40.8	24.0	56.8	56.0	61.5	63.0	59.5	64.3
Incr Delay (d2), s/veh	18.0	21.2	0.5	47.0	35.3	0.5	10.0	3.9	438.3	14.3	0.5	39.3
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	4.6	25.3	1.8	14.8	36.7	2.6	7.6	6.2	41.2	7.0	2.8	8.8
LnGrp Delay(d),s/veh	86.5	69.0	33.3	108.5	76.1	24.5	66.8	59.9	499.8	77.3	60.0	103.6
LnGrp LOS	F	E	C	F	F	C	E	E	F	E	E	F
Approach Vol, veh/h		1238			1866			982			465	
Approach Delay, s/veh		68.6			77.9			281.1			81.2	
Approach LOS		E			E			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		33.0	32.5	59.0		25.5	17.1	74.4
Change Period (Y+Rc), s		6.0	6.0	6.0		6.0	6.0	6.0
Max Green Setting (Gmax), s		27.0	26.0	53.0		20.0	17.0	62.0
Max Q Clear Time (g_c+I1), s		29.0	27.7	52.8		19.4	11.1	70.4
Green Ext Time (p_c), s		0.0	0.0	0.2		0.1	0.1	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	119.6
HCM 2010 LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	87	1390	159	140	1550	219	210	277	156	208	139	115
Future Volume (veh/h)	87	1390	159	140	1550	219	210	277	156	208	139	115
Number	5	2	12	1	6	16	3	8	18	7	4	14
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	1652	1652	1652	1652	1652	1652	1652	1652	1652	1652	1652	1652
Adj Flow Rate, veh/h	95	1511	173	152	1685	238	228	301	170	226	151	125
Adj No. of Lanes	1	2	1	1	2	1	2	2	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	15	15	15	15	15	15	15	15	15	15	15	15
Cap, veh/h	94	1360	609	199	1570	702	549	565	253	305	314	140
Arrive On Green	0.02	0.14	0.14	0.13	0.50	0.50	0.18	0.18	0.18	0.10	0.10	0.10
Sat Flow, veh/h	1573	3139	1404	1573	3139	1404	3053	3139	1404	3053	3139	1404
Grp Volume(v), veh/h	95	1511	173	152	1685	238	228	301	170	226	151	125
Grp Sat Flow(s),veh/h/ln	1573	1570	1404	1573	1570	1404	1526	1570	1404	1526	1570	1404
Q Serve(g_s), s	9.0	65.0	16.5	14.0	75.0	15.3	9.9	13.0	16.9	10.8	6.8	13.2
Cycle Q Clear(g_c), s	9.0	65.0	16.5	14.0	75.0	15.3	9.9	13.0	16.9	10.8	6.8	13.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	94	1360	609	199	1570	702	549	565	253	305	314	140
V/C Ratio(X)	1.01	1.11	0.28	0.76	1.07	0.34	0.41	0.53	0.67	0.74	0.48	0.89
Avail Cap(c_a), veh/h	94	1360	609	199	1570	702	549	565	253	305	314	140
HCM Platoon Ratio	0.33	0.33	0.33	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	0.09	0.09	0.09	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	73.5	64.3	43.5	63.3	37.5	22.6	54.5	55.8	57.4	65.6	63.8	66.7
Incr Delay (d2), s/veh	94.3	60.7	1.2	1.6	34.5	0.1	2.3	3.6	13.4	14.9	5.2	51.1
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	6.4	39.8	6.6	6.2	39.8	6.0	4.4	5.9	7.5	5.2	3.2	7.1
LnGrp Delay(d),s/veh	167.9	125.0	44.7	64.9	72.0	22.7	56.8	59.3	70.8	80.5	69.0	117.8
LnGrp LOS	F	F	D	E	F	C	E	E	E	F	E	F
Approach Vol, veh/h		1779			2075			699			502	
Approach Delay, s/veh		119.5			65.9			61.3			86.3	
Approach LOS		F			E			E			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	25.0	71.0		21.0	15.0	81.0		33.0
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0
Max Green Setting (Gmax), s	19.0	65.0		15.0	9.0	75.0		27.0
Max Q Clear Time (g_c+I1), s	11.0	67.0		15.2	11.0	77.0		18.9
Green Ext Time (p_c), s	3.0	0.0		0.0	0.0	0.0		2.6

Intersection Summary	
HCM 2010 Ctrl Delay	86.1
HCM 2010 LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	86	1648	19	26	1674	142	32	35	48	166	42	204
Future Volume (veh/h)	86	1648	19	26	1674	142	32	35	48	166	42	204
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	1652	1652	1652	1652	1652	1652	1900	1652	1900	1652	1652	1900
Adj Flow Rate, veh/h	93	1791	21	28	1820	154	35	38	52	180	46	222
Adj No. of Lanes	1	2	1	1	2	1	0	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	15	15	15	15	15	15	15	15	15	15	15	15
Cap, veh/h	144	1946	871	63	1785	799	26	28	38	189	30	143
Arrive On Green	0.09	0.62	0.62	0.04	0.57	0.57	0.06	0.06	0.06	0.12	0.12	0.12
Sat Flow, veh/h	1573	3139	1404	1573	3139	1404	425	462	632	1573	247	1194
Grp Volume(v), veh/h	93	1791	21	28	1820	154	125	0	0	180	0	268
Grp Sat Flow(s),veh/h/ln	1573	1570	1404	1573	1570	1404	1519	0	0	1573	0	1441
Q Serve(g_s), s	8.6	75.7	0.9	2.6	85.3	8.0	9.0	0.0	0.0	17.1	0.0	18.0
Cycle Q Clear(g_c), s	8.6	75.7	0.9	2.6	85.3	8.0	9.0	0.0	0.0	17.1	0.0	18.0
Prop In Lane	1.00		1.00	1.00		1.00	0.28		0.42	1.00		0.83
Lane Grp Cap(c), veh/h	144	1946	871	63	1785	799	91	0	0	189	0	173
V/C Ratio(X)	0.65	0.92	0.02	0.44	1.02	0.19	1.37	0.00	0.00	0.95	0.00	1.55
Avail Cap(c_a), veh/h	168	1946	871	63	1785	799	91	0	0	189	0	173
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)	0.09	0.09	0.09	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	65.8	25.2	11.0	70.4	32.4	15.7	70.5	0.0	0.0	65.6	0.0	66.0
Incr Delay (d2), s/veh	0.6	0.9	0.0	4.9	26.4	0.1	221.9	0.0	0.0	51.9	0.0	273.7
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	3.7	32.8	0.3	1.2	43.2	3.1	9.4	0.0	0.0	10.1	0.0	20.3
LnGrp Delay(d),s/veh	66.4	26.2	11.0	75.2	58.7	15.8	292.4	0.0	0.0	117.5	0.0	339.7
LnGrp LOS	E	C	B	E	F	B	F			F		F
Approach Vol, veh/h		1905			2002			125			448	
Approach Delay, s/veh		28.0			55.6			292.4			250.4	
Approach LOS		C			E			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		15.0	12.0	99.0		24.0	19.7	91.3
Change Period (Y+Rc), s		6.0	6.0	6.0		6.0	6.0	6.0
Max Green Setting (Gmax), s		9.0	6.0	93.0		18.0	16.0	83.0
Max Q Clear Time (g_c+I1), s		11.0	4.6	77.7		20.0	10.6	87.3
Green Ext Time (p_c), s		0.0	0.0	15.1		0.0	0.1	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	70.0
HCM 2010 LOS	E

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	776	20	117	1407	166	29	23	260	79	24	119
Future Vol, veh/h	7	776	20	117	1407	166	29	23	260	79	24	119
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	220	-	1000	250	-	220	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15	15	15	15	15	15	15
Mvmt Flow	8	843	22	127	1529	180	32	25	283	86	26	129

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1529	0	0	843	0	0	1891	2643	422	2233	2643	765
Stage 1	-	-	-	-	-	-	859	859	-	1784	1784	-
Stage 2	-	-	-	-	-	-	1032	1784	-	449	859	-
Critical Hdwy	4.4	-	-	4.4	-	-	7.8	6.8	7.2	7.8	6.8	7.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.8	5.8	-	6.8	5.8	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.8	5.8	-	6.8	5.8	-
Follow-up Hdwy	2.35	-	-	2.35	-	-	3.65	4.15	3.45	3.65	4.15	3.45
Pot Cap-1 Maneuver	374	-	-	711	-	-	37	~ 19	546	~ 20	~ 19	319
Stage 1	-	-	-	-	-	-	292	342	-	~ 73	115	-
Stage 2	-	-	-	-	-	-	226	115	-	526	342	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	374	-	-	711	-	-	-	~ 15	546	-	~ 15	319
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	~ 15	-	-	~ 15	-
Stage 1	-	-	-	-	-	-	286	335	-	~ 71	94	-
Stage 2	-	-	-	-	-	-	80	94	-	230	335	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.8		
HCM LOS			-	-

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	374	-	-	711	-	-	-
HCM Lane V/C Ratio	-	0.02	-	-	0.179	-	-	-
HCM Control Delay (s)	-	14.8	-	-	11.2	-	-	-
HCM Lane LOS	-	B	-	-	B	-	-	-
HCM 95th %tile Q(veh)	-	0.1	-	-	0.6	-	-	-

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

Intersection	
Int Delay, s/veh	28.7

Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations		↑↑	↱	↰	↑↑		
Traffic Vol, veh/h	0	1057	58	50	1637	53	82
Future Vol, veh/h	0	1057	58	50	1637	53	82
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	None	-	None
Storage Length	220	-	0	400	-	0	-
Veh in Median Storage, #	-	0	-	-	0	0	-
Grade, %	-	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15	15
Mvmt Flow	0	1149	63	54	1779	58	89

Major/Minor	Major1			Major2		Minor1	
Conflicting Flow All	1299	0	0	1149	0	2147	574
Stage 1	-	-	-	-	-	1149	-
Stage 2	-	-	-	-	-	998	-
Critical Hdwy	6.7	-	-	4.4	-	7.1	7.2
Critical Hdwy Stg 1	-	-	-	-	-	6.1	-
Critical Hdwy Stg 2	-	-	-	-	-	6.1	-
Follow-up Hdwy	2.65	-	-	2.35	-	3.65	3.45
Pot Cap-1 Maneuver	188	-	-	535	-	~ 35	430
Stage 1	-	-	-	-	-	238	-
Stage 2	-	-	-	-	-	289	-
Platoon blocked, %		-	-		-		
Mov Cap-1 Maneuver	188	-	-	535	-	~ 31	430
Mov Cap-2 Maneuver	-	-	-	-	-	~ 31	-
Stage 1	-	-	-	-	-	238	-
Stage 2	-	-	-	-	-	260	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	$ 619.4
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBU	EBT	EBR	WBL	WBT
Capacity (veh/h)	71	188	-	-	535	-
HCM Lane V/C Ratio	2.067	-	-	-	0.102	-
HCM Control Delay (s)	$ 619.4	0	-	-	12.5	-
HCM Lane LOS	F	A	-	-	B	-
HCM 95th %tile Q(veh)	13.5	0	-	-	0.3	-

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

Intersection	
Int Delay, s/veh	14.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	4	68	19	46	119	53	96	87	13	80	157	2
Future Vol, veh/h	4	68	19	46	119	53	96	87	13	80	157	2
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15	15	15	15	15	15	15
Mvmt Flow	4	74	21	50	129	58	104	95	14	87	171	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	750	663	172	703	657	102	173	0	0	109	0	0
Stage 1	346	346	-	310	310	-	-	-	-	-	-	-
Stage 2	404	317	-	393	347	-	-	-	-	-	-	-
Critical Hdwy	7.25	6.65	6.35	7.25	6.65	6.35	4.25	-	-	4.25	-	-
Critical Hdwy Stg 1	6.25	5.65	-	6.25	5.65	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.25	5.65	-	6.25	5.65	-	-	-	-	-	-	-
Follow-up Hdwy	3.635	4.135	3.435	3.635	4.135	3.435	2.335	-	-	2.335	-	-
Pot Cap-1 Maneuver	312	365	839	336	368	919	1329	-	-	1404	-	-
Stage 1	644	613	-	673	636	-	-	-	-	-	-	-
Stage 2	598	632	-	606	612	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	178	312	839	239	314	919	1329	-	-	1404	-	-
Mov Cap-2 Maneuver	178	312	-	239	314	-	-	-	-	-	-	-
Stage 1	591	571	-	617	583	-	-	-	-	-	-	-
Stage 2	400	580	-	479	570	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	19.5	35	3.9	2.6
HCM LOS	C	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1329	-	-	346	347	1404	-	-
HCM Lane V/C Ratio	0.079	-	-	0.286	0.683	0.062	-	-
HCM Control Delay (s)	7.9	0	-	19.5	35	7.7	0	-
HCM Lane LOS	A	A	-	C	E	A	A	-
HCM 95th %tile Q(veh)	0.3	-	-	1.2	4.8	0.2	-	-

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	33	0	0	0	0	3	135	0	6	0
Future Vol, veh/h	0	0	33	0	0	0	0	3	135	0	6	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15	15	15	15	15	15	15
Mvmt Flow	0	0	36	0	0	0	0	3	147	0	7	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	7	-	-	77	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.35	-	-	6.35	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.435	-	-	3.435	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	1039	0	0	949	0	-	-	0	-	-
Stage 1	0	0	-	0	0	-	0	-	-	0	-	-
Stage 2	0	0	-	0	0	-	0	-	-	0	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	1039	-	-	949	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.6	0	0	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT	SBR
Capacity (veh/h)	-	-	1039	-	-	-
HCM Lane V/C Ratio	-	-	0.035	-	-	-
HCM Control Delay (s)	-	-	8.6	0	-	-
HCM Lane LOS	-	-	A	A	-	-
HCM 95th %tile Q(veh)	-	-	0.1	-	-	-

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	41	4	0	602	390	48
Future Vol, veh/h	41	4	0	602	390	48
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	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15
Mvmt Flow	45	4	0	654	424	52

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	777	238	476	0	-	0
Stage 1	450	-	-	-	-	-
Stage 2	327	-	-	-	-	-
Critical Hdwy	7.8	7.2	4.4	-	-	-
Critical Hdwy Stg 1	6.8	-	-	-	-	-
Critical Hdwy Stg 2	6.8	-	-	-	-	-
Follow-up Hdwy	3.65	3.45	2.35	-	-	-
Pot Cap-1 Maneuver	265	725	996	-	-	-
Stage 1	525	-	-	-	-	-
Stage 2	625	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	265	725	996	-	-	-
Mov Cap-2 Maneuver	380	-	-	-	-	-
Stage 1	525	-	-	-	-	-
Stage 2	625	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15.3	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	996	-	397	-	-
HCM Lane V/C Ratio	-	-	0.123	-	-
HCM Control Delay (s)	0	-	15.3	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.4	-	-

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	2	1	1	29	19	58	1	75	2	0	108	0
Future Vol, veh/h	2	1	1	29	19	58	1	75	2	0	108	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15	15	15	15	15	15	15
Mvmt Flow	2	1	1	32	21	63	1	82	2	0	117	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	244	203	117	203	202	83	117	0	0	84	0	0
Stage 1	117	117	-	85	85	-	-	-	-	-	-	-
Stage 2	127	86	-	118	117	-	-	-	-	-	-	-
Critical Hdwy	7.25	6.65	6.35	7.25	6.65	6.35	4.25	-	-	4.25	-	-
Critical Hdwy Stg 1	6.25	5.65	-	6.25	5.65	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.25	5.65	-	6.25	5.65	-	-	-	-	-	-	-
Follow-up Hdwy	3.635	4.135	3.435	3.635	4.135	3.435	2.335	-	-	2.335	-	-
Pot Cap-1 Maneuver	684	671	901	728	672	942	1394	-	-	1435	-	-
Stage 1	857	774	-	892	800	-	-	-	-	-	-	-
Stage 2	846	799	-	856	774	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	623	670	901	726	671	942	1394	-	-	1435	-	-
Mov Cap-2 Maneuver	623	670	-	726	671	-	-	-	-	-	-	-
Stage 1	856	774	-	891	799	-	-	-	-	-	-	-
Stage 2	768	798	-	854	774	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.3	10.1	0.1	0
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1394	-	-	688	816	1435	-	-
HCM Lane V/C Ratio	0.001	-	-	0.006	0.141	-	-	-
HCM Control Delay (s)	7.6	0	-	10.3	10.1	0	-	-
HCM Lane LOS	A	A	-	B	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.5	0	-	-

Intersection	
Int Delay, s/veh	7.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↑	
Traffic Vol, veh/h	42	0	48	0	126	3
Future Vol, veh/h	42	0	48	0	126	3
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, %	15	15	15	15	15	15
Mvmt Flow	46	0	52	0	137	3

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	46	0	150	46
Stage 1	-	-	-	-	46	-
Stage 2	-	-	-	-	104	-
Critical Hdwy	-	-	4.25	-	6.55	6.35
Critical Hdwy Stg 1	-	-	-	-	5.55	-
Critical Hdwy Stg 2	-	-	-	-	5.55	-
Follow-up Hdwy	-	-	2.335	-	3.635	3.435
Pot Cap-1 Maneuver	-	-	1482	-	812	988
Stage 1	-	-	-	-	944	-
Stage 2	-	-	-	-	889	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1482	-	784	988
Mov Cap-2 Maneuver	-	-	-	-	784	-
Stage 1	-	-	-	-	944	-
Stage 2	-	-	-	-	858	-

Approach	EB	WB	NB
HCM Control Delay, s	0	7.5	10.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	788	-	-	1482	-
HCM Lane V/C Ratio	0.178	-	-	0.035	-
HCM Control Delay (s)	10.6	-	-	7.5	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.6	-	-	0.1	-

32: BARBER ST. & E. KELLOGG DR.

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	50	0	0	126	0	380	42	0	510	0
Future Vol, veh/h	0	0	50	0	0	126	0	380	42	0	510	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15	15	15	15	15	15	15
Mvmt Flow	0	0	54	0	0	137	0	413	46	0	554	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	277	-	-	229	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.2	-	-	7.2	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.45	-	-	3.45	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	683	0	0	735	0	-	-	0	-	-
Stage 1	0	0	-	0	0	-	0	-	-	0	-	-
Stage 2	0	0	-	0	0	-	0	-	-	0	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	683	-	-	735	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.7	11	0	0
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT	SBR
Capacity (veh/h)	-	-	683	735	-	-
HCM Lane V/C Ratio	-	-	0.08	0.186	-	-
HCM Control Delay (s)	-	-	10.7	11	-	-
HCM Lane LOS	-	-	B	B	-	-
HCM 95th %tile Q(veh)	-	-	0.3	0.7	-	-

34: W. KELLOGG DR. & SEASONS ST.

Intersection	
Int Delay, s/veh	8.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	135	0	0	78	134	0
Future Vol, veh/h	135	0	0	78	134	0
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, %	15	15	15	15	15	15
Mvmt Flow	147	0	0	85	146	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	85	0	-	0	335	42
Stage 1	-	-	-	-	42	-
Stage 2	-	-	-	-	293	-
Critical Hdwy	4.25	-	-	-	6.55	6.35
Critical Hdwy Stg 1	-	-	-	-	5.55	-
Critical Hdwy Stg 2	-	-	-	-	5.55	-
Follow-up Hdwy	2.335	-	-	-	3.635	3.435
Pot Cap-1 Maneuver	1433	-	-	-	635	993
Stage 1	-	-	-	-	948	-
Stage 2	-	-	-	-	728	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1433	-	-	-	570	993
Mov Cap-2 Maneuver	-	-	-	-	570	-
Stage 1	-	-	-	-	948	-
Stage 2	-	-	-	-	653	-

Approach	EB	WB	SB
HCM Control Delay, s	7.8	0	13.5
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1433	-	-	-	570
HCM Lane V/C Ratio	0.102	-	-	-	0.256
HCM Control Delay (s)	7.8	0	-	-	13.5
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.3	-	-	-	1