
Summit Orchards North
Traffic Impact Study
Lee's Summit, Missouri

December 1st, 2023



Prepared by:



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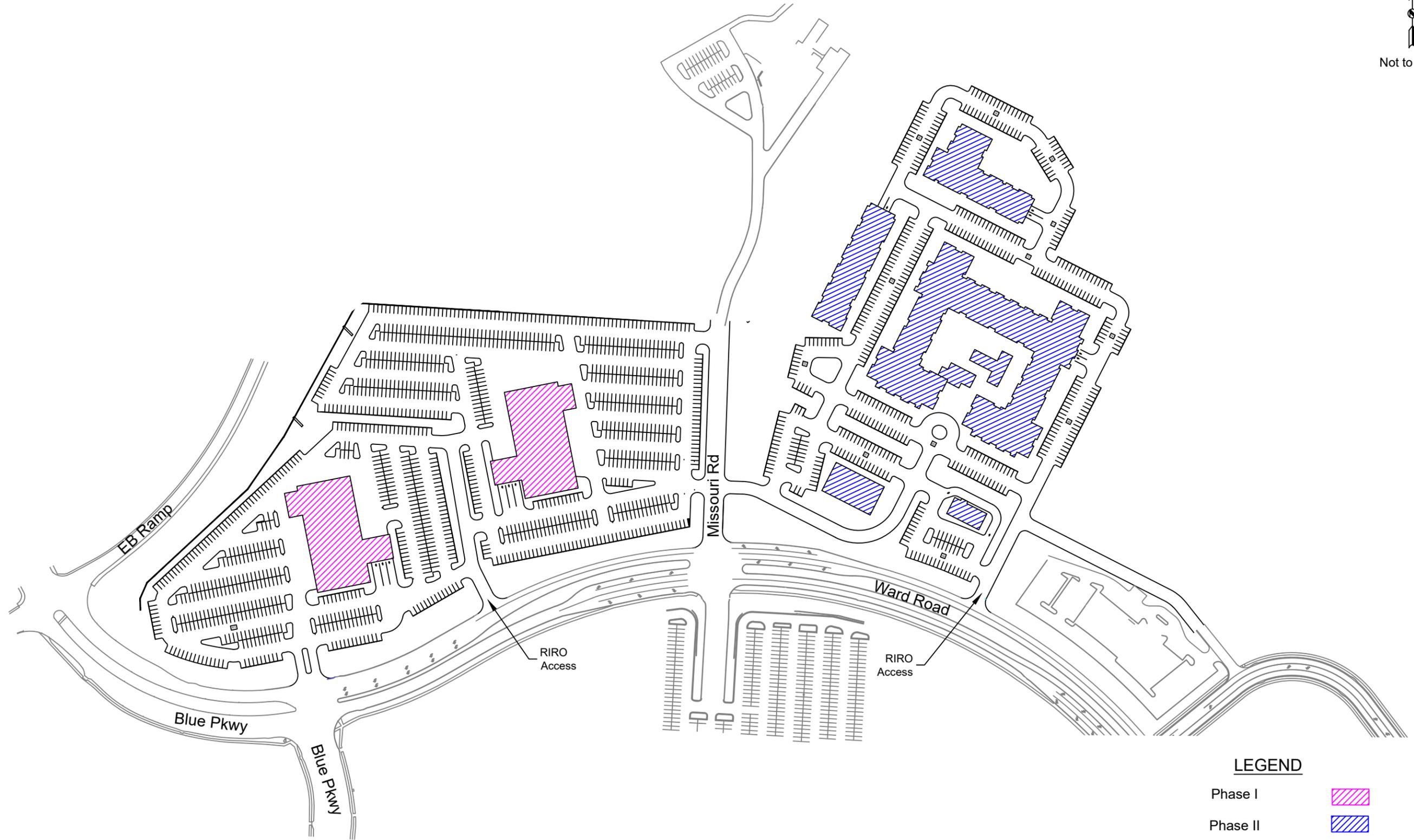
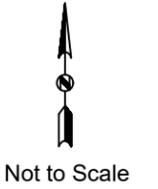
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INTRODUCTION

The purpose of this traffic impact study is to assess the potential impact on traffic with the Summit Orchards North development on the northeast corner of the intersection of Ward Road and Blue Parkway in Lee’s Summit, Missouri. The location of the development in relation to the street network is shown in Figure 1. The site plan for the development is shown in Figure 2.



Figure 1 – Development Location



LEGEND

- Phase I 
- Phase II 

Figure 2 - Site Plan

EXISTING CONDITIONS

The site is in Lee's Summit, Missouri, in the northeast quadrant of the intersection of Blue Parkway and Ward Road. The current land use of the planned development is undeveloped. The land use of the surrounding areas is undeveloped to the north with the exception of a utility facility, commercial/retail/light industrial to the south, highway right-of-way to the west, and undeveloped to the east.

Street Network and Traffic Control

The development is bordered on the south by Ward Road and on the west by the eastbound I-470 ramp.

Blue Parkway is a four-lane north-south median divided major arterial with a posted speed limit of 35 miles per hour (mph) that becomes Ward Road at the signalized intersection southwest of the eastbound I-470 ramp. The roadway continues as Ward Road to the east and south. The south leg of the signalized intersection is Blue Parkway and is also a four-lane median divided roadway.

The I-470 westbound and eastbound ramps provide access to Pryor Road to the west and to I-470. The intersections of the ramps with Blue Parkway are signalized with right and left-turn lanes in all directions.

Missouri Road is located within the development site and is a north-south local roadway north of Ward Road and provides access to the former Cerner building south of Ward Road. The intersection of Missouri Road with Ward Road is stop-controlled with Missouri Road stopping. There are existing east and westbound right and left-turn lanes at the intersection.

Outerview Road is located south of the development site and is a two-lane unmarked north-south private drive with no posted speed limit. The intersection of Outerview Road and Ward Road is stop-controlled, with Outerview Road stopping and aligning with Innovation Parkway on the east side of Ward Road.

Tudor Road is a four-lane east-west median divided minor arterial roadway. There is a posted speed limit of 35 mph. The intersection of Tudor Road and Ward Road is a signalized T-intersection with a proposed west leg of the intersection expected with construction of the Summit Orchard West development.

North, Midway, and South Access along Blue Parkway provide access to the Summit Fair shopping center to the west of Blue Parkway and the former Cerner buildings to the east. All three intersections are signalized.

Traffic Volumes

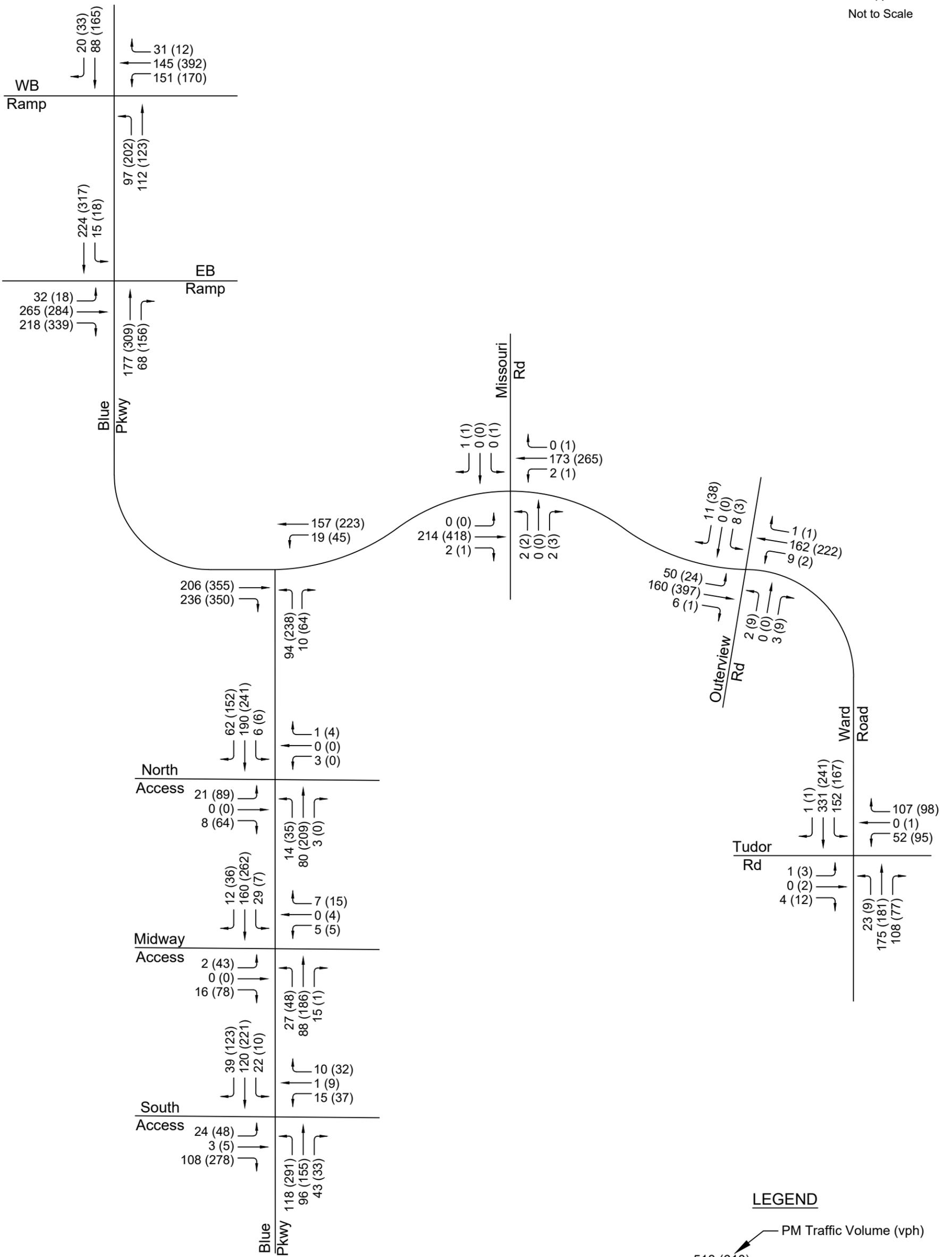
Intersections counted for analysis in this study were:

- Blue Parkway and WB I-470 Ramp
- Blue Parkway and EB I-470 Ramp
- Blue Parkway and Ward Road
- Blue Parkway and North Access
- Blue Parkway and Center/Midway Access
- Blue Parkway and South Access
- Ward Road and Missouri Road
- Ward Road and Outerview Road
- Ward Road and Tudor Road

The turning movement traffic counts were completed on Wednesday, August 23rd, 2023, Tuesday, August 29th, 2023, and Wednesday, August 30th, 2023, for the peak volume time periods. Morning traffic counts were conducted from 7:00 AM until 9:00 AM and afternoon traffic counts were from 4:00 PM until 6:00 PM. The morning peak period was determined to be from 8:00 AM until 9:00 AM and the afternoon peak period was determined to be from 5:00 PM until 6:00 PM.

For both the Ward Road and Outerview Road intersection and the Ward Road and Tudor Road intersection, traffic volumes were used from the *Summit Orchard West* traffic impact study (McCurdy Engineers, *Summit Orchards West Traffic Impact Study*, September 2022). These volumes included traffic generated from adjacent developments as part of the 2016 McClure and 2018 Olsson traffic impact studies (McClure Engineering Co, *Summit Orchards Traffic Impact Study*, March 2016 and Olsson Engineers, *Tudor Road Development Traffic Impact Study*, July 2021).

The generated existing traffic volumes are shown on Figure 3. The July 2022 counts and the previous study traffic/trip generation volumes are included in the Appendix.



LEGEND

- 518 (610) — PM Traffic Volume (vph)
- AM Traffic Volume (vph)
- Vehicle Movement

Figure 3 - Existing Volumes

PROPOSED CONDITIONS

Summit Orchards North is expected to be constructed in two phases. The first phase will be west of Missouri Road and will include two car dealerships. The second phase will be on the east side of Missouri Road and will include a fast-food restaurant with drive-through window, a sit-down restaurant, and a residential multi-family housing complex with 350 units.

Access Plan

The site will be accessed from the south from Ward Road) via four accesses and from the east via one access from Outerview Road. Missouri Road will provide interconnectivity between the sites.

The three westmost accesses from Ward Road will be constructed during Phase I of the development. These will consist of a north leg of the existing Ward Road and Blue Parkway signalized intersection, a reconstruction of the north leg of Missouri Road, and a right-in/right-out (RIRO) access point centered between Blue Parkway and Missouri Road.

Access for Phase II of the development will consist of an additional RIRO centered between Missouri Road and Outerview Road and an extension of the Holiday Inn access from Outerview Road.

Sight Distance

Sight distance was measured at the proposed accesses using the methodology recommending by the American Association of State Highway and Transportation Engineers (AASHTO) for the 35 mph speed limits on Ward Road and 25 mph on Outerview Road as City code states that a speed limit of 25 mph governs areas with no posted speed limit.

For 35 mph, AASHTO requires a minimum intersection sight distance of 390 feet and a stopping sight distance of 250 feet. The AASHTO required intersection site distance at 25 mph is 280 feet and 155 feet for stopping sight distance.

Ward Road and Blue Parkway/West Car Dealership Access

No sight distance was measured as this is an existing intersection.

Ward Road and Car Dealership RIRO Access

Based on field measurements, the available sight distance is approximately 420 feet and is adequate for the speed limit.

Ward Road and Missouri Road

No sight distance was measured as this is an existing intersection.

Ward Road and Commercial RIRO Access

The available sight distance, based on field measurements, is greater than 400 feet and is adequate for the 35 mph speed limit.

Outerview Road and Holiday Inn Access

No sight distance was measured as this is an existing signalized intersection.

Crash Analysis

Crashes at the study intersections were analyzed over a three-year period (September 2020 to September 2023) from City of Lee's Summit Police Department data to identify existing crash patterns. There were a total of 71 crashes reported during the crash study time period, and no fatal crashes within the study area.

The Ward Road and Missouri Road intersection had no crashes reported during the study period.

Blue Parkway and WB I-470 Ramp

There were 14 reported crashes at the intersection during the study period—averaging approximately five crashes a year.

Based on the analysis of the crashes, a majority were angle crashes (10) and the remaining were rear-end crashes. The crashes were almost evenly divided between injury (6) and property damage only (PDO). Primarily, the cause for the crashes were red light running and inattentive drivers.

Blue Parkway and EB I-470 Ramp

There were 15 reported crashes at the intersection which averages to five crashes a year.

The crashes varied between angle, rear-end, sideswipe, and fixed object with the crashes caused by inattentive drivers and red light running. Six of the crashes resulted in injuries and nine were PDO.

Ward Road and Blue Parkway

There were 11 reported crashes at the intersection during the study period—averaging almost four crashes a year.

Based on the analysis of the 11 crashes, there were two rear-end, three sideswipe, four angle, and two fixed object crashes. The crashes were all PDO crashes and were the result of weather conditions, inattentive driving, red light running, DWI, and reckless driving.

Blue Parkway and North Access

There were six reported crashes at the intersection during the study period which averages to two crashes per study year.

A majority of the crashes (5) were angle crashes and one was a rear end crash—only one crash resulted in injuries. The cause of a majority of the crashes was attributed to inattentive driving and red light running.

Blue Parkway and Center/Midway Access

There were four reported crashes at Midway Access and Blue Parkway during the crash study period.

The crashes were equally divided between rear-end and angle crashes with inattentive drivers being the primary cause of the crashes.

Blue Parkway and South Access

There were 15 reported crashes at the intersection during the study period—five crashes a year.

Based on the analysis of the crashes, there were four angle, eight rear-end, two rear-end, three sideswipe, and one fixed object crashes. There were no reported injury crashes during the study period.

Ward Road and Outerview Road

The through movements of Ward Road are not stop-controlled and are therefore operating in a free-flow condition. The through and turning movements on Outerview Road operate at LOS B or better and the intersection has sufficient capacity for queuing vehicles.

Ward Road and Tudor Road

There were five reported crashes at the intersection during the study period—four fixed object crashes and two angle crashes with one injury.

Crashes at the study intersections could be reduced by:

- I-470 Ramps and Blue Parkway - Switch the existing 5-section signal heads with flashing yellow signal heads to reduce confusion when the turning movement is protected versus permitted.
- Blue Parkway and Ward Road – Install white skip lane pavement markings for the dual right turns to guide vehicles within their lanes.
- At all signalized intersections – Increase yellow change interval to allow vehicles more time to travel through intersection.

Detailed crash summaries are included in the Appendix.

Throat Length Analysis

The throat lengths for the proposed entrances into the site from Ward Road were compared to City of Lee’s Summit *Access Management Code*, March 2018 requirements for drives adjacent to arterial roadways based on vehicles per hour. As Outerview Road is a private roadway, there is no specific guidance provided for throat lengths. However, this drive will have at least a 50-foot throat which exceeds the expected queue.

Throat lengths for entrances from Ward Road are provided in Table 1.

Table 1 – Ward Road Driveway Throat Lengths		
Intersection	Recommended Throat Length (feet)	Site Plan Measured Throat Length (feet)
Ward Road and Blue Parkway/West Car Dealership Access	125	80
Ward Road and Car Dealership RIRO	125	75
Ward Road and Missouri Road	125	115
Ward Road and Commercial RIRO	125	75

While the accesses onto Ward Road are less than the required length, the longest expected queue length for southbound traffic is 30 feet, which is less than the storage provided by a minimum 75-foot throat and will be sufficient to prevent vehicles interfering with circulation or parking areas within the site.

Trip Generation

The expected trip generation for the development was estimated using the 11th Edition of the Trip Generation Handbook published by the Institute of Transportation Engineers. The trip generation was based on Peak Hour of Adjacent Street Traffic, One Hour Between 7 and 9 AM along with Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 PM criteria.

Estimates for the expected trips generated by the development are provided in Table 2.

Table 2 – Trip Generation					
ITE Land Use Code	Units	A.M.		P.M.	
		Trips In (vph)	Trips Out (vph)	Trips In (vph)	Trips Out (vph)
840 – Automobile Sales (New)	70,000 sq ft	95	35	59	89
Phase I Total		95	35	59	89
840 - Multifamily Housing (Low-Rise)	350 dwelling units	31	100	108	63
932- High-Turnover (Sit-Down) Restaurant	8,400 sq ft	54	44	35	22
934- Fast-Food Restaurant with Drive-Through Window	3,300 sq ft	75	72	57	52
Full Build Out Total		160	216	200	137

Trip Distribution

The trip distribution pattern was determined for the site based on the existing directional traffic pattern of the peak period and based on a general analysis of the surrounding area. The detailed distribution patterns can be found in the appendix. Based on the existing traffic patterns, the type of development, location of nearby schools, and the metropolitan population centers, the new trips were assigned onto the roadway network, as shown below for the morning and afternoon periods.

Trip distribution during the morning peak period:

- 15% to/10% from the north
- 25% to/60% from I-470
- 35% to/10% from the south (Blue Parkway)
- 15% to/10% from the south (Ward Road)
- 10% to/10% from the east (Tudor Road)

Trip distribution during the afternoon peak period:

- 10% to/10% from the north
- 40% to/55% from I-470
- 25% to/15% from the south (Blue Parkway)
- 15% to/10% from the south (Ward Road)
- 10% to/10% from the east (Tudor Road)

Existing Plus Site Traffic Volumes

The expected development site-generated traffic volumes were added to the existing plus approved traffic scenario. The volumes are shown on Figures 4, 5, 6, and 7.

Future Traffic Volumes

Future traffic volumes were generated at a rate of 2% annual growth over a twenty-year period. The calculated traffic volumes were added to the existing plus site traffic. The volumes for the future morning and afternoon peak hours are shown on Figure 8.

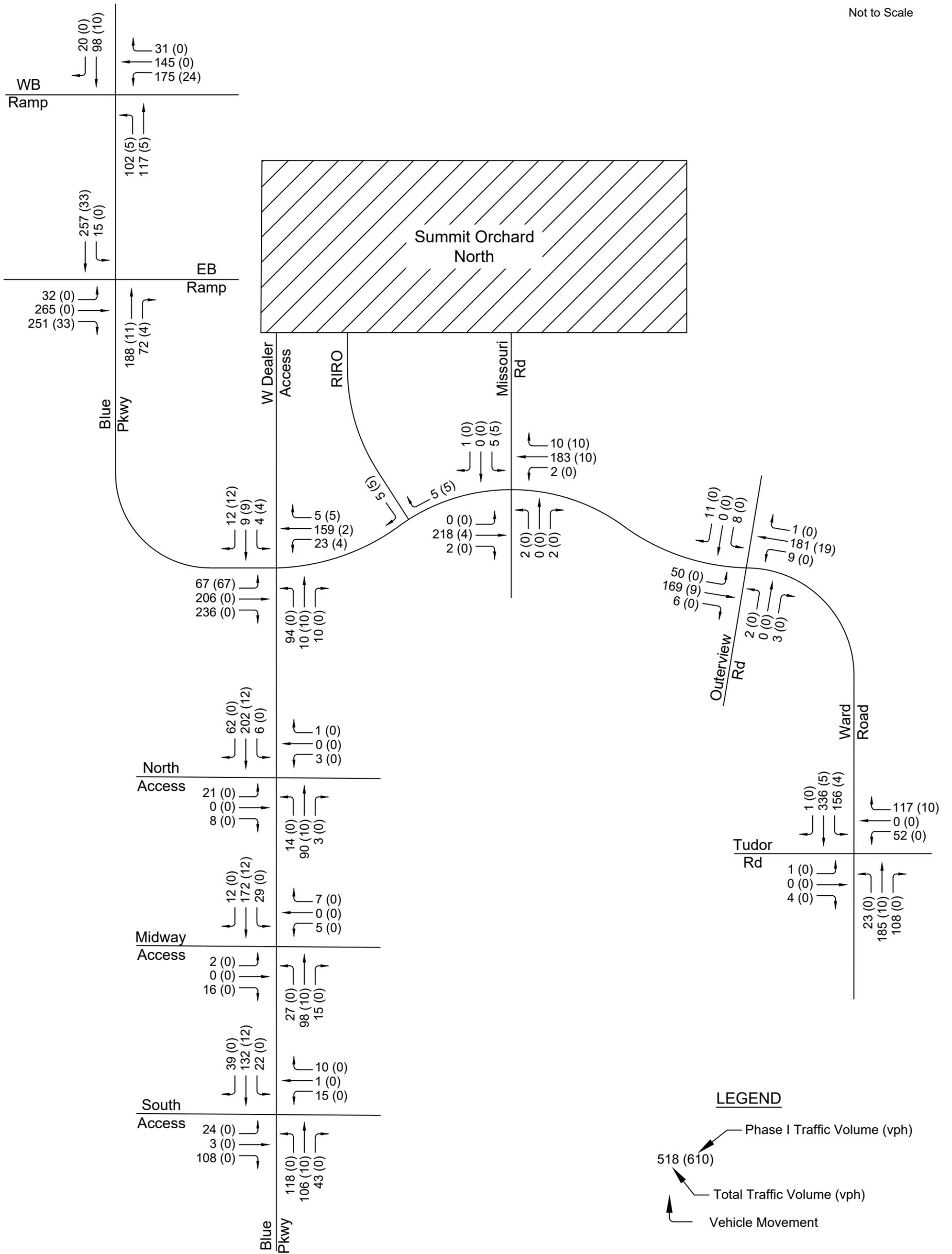
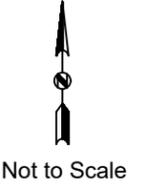


Figure 4 - Existing plus Site AM (Phase I) Volumes

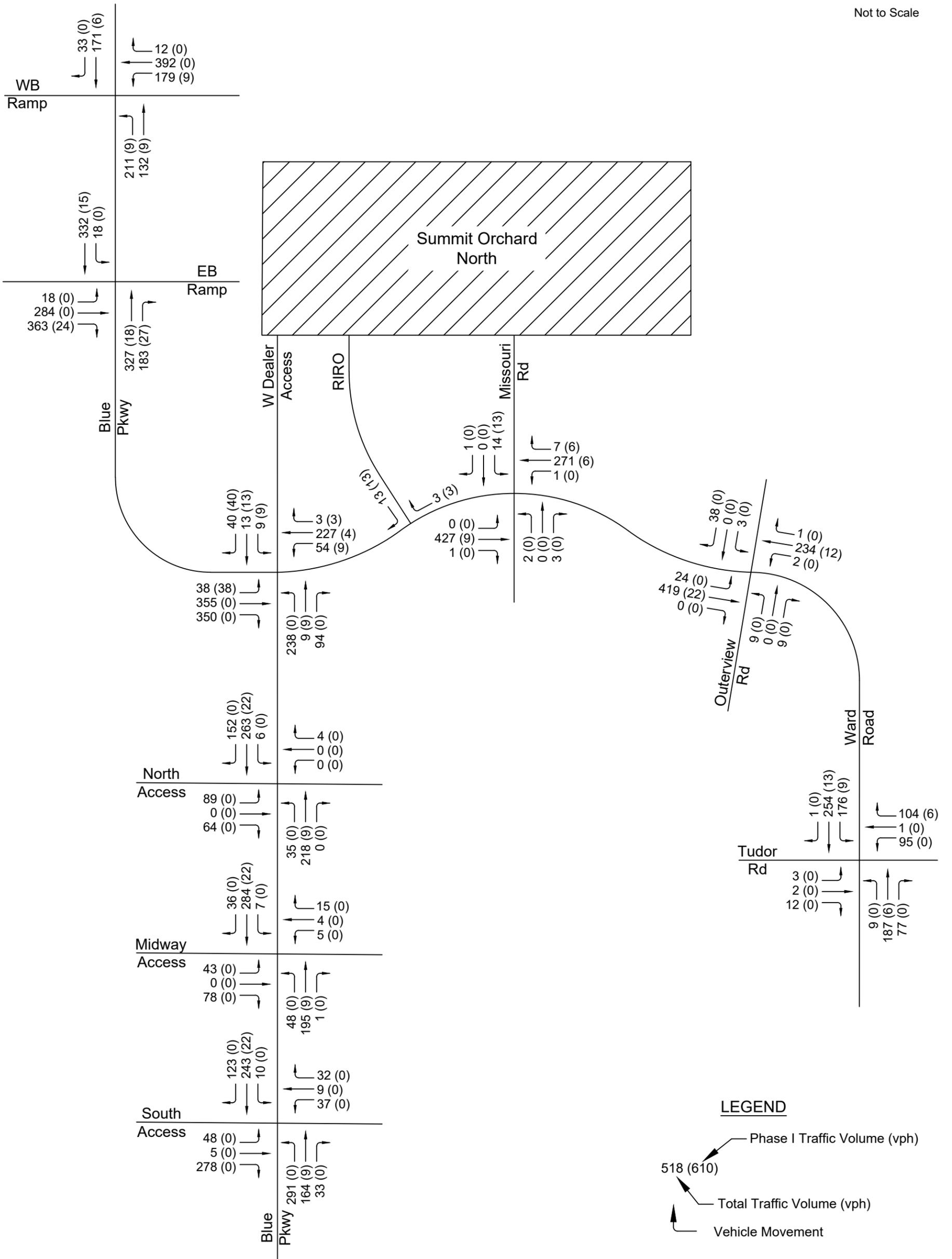
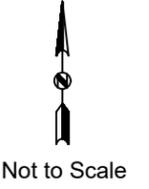


Figure 5 - Existing plus Site PM (Phase I) Volumes

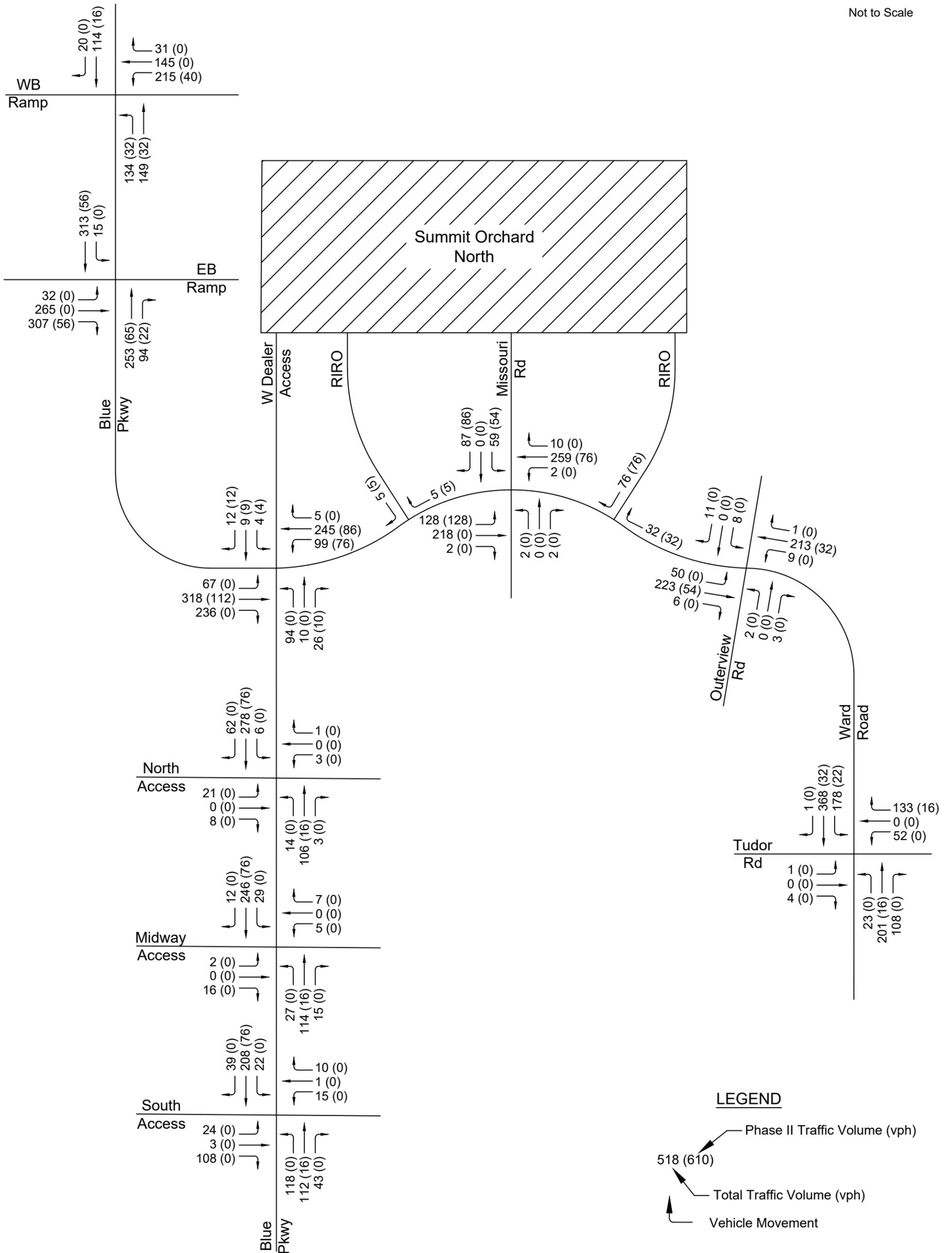


Figure 6 - Existing plus Site AM (Phase I & II) Volumes

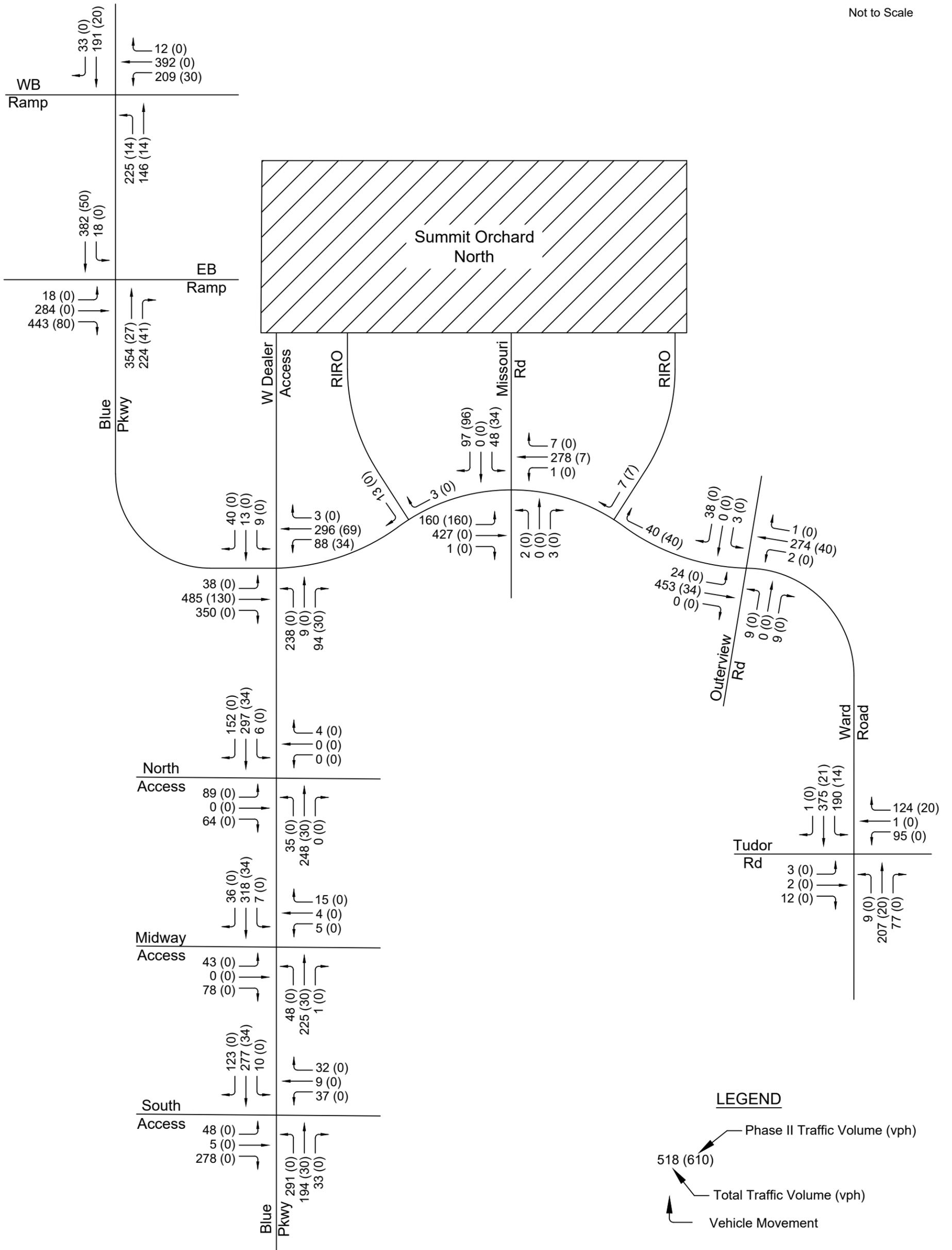
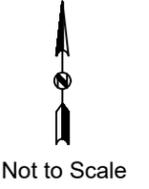


Figure 7 - Existing plus Site PM (Phase I & II) Volumes

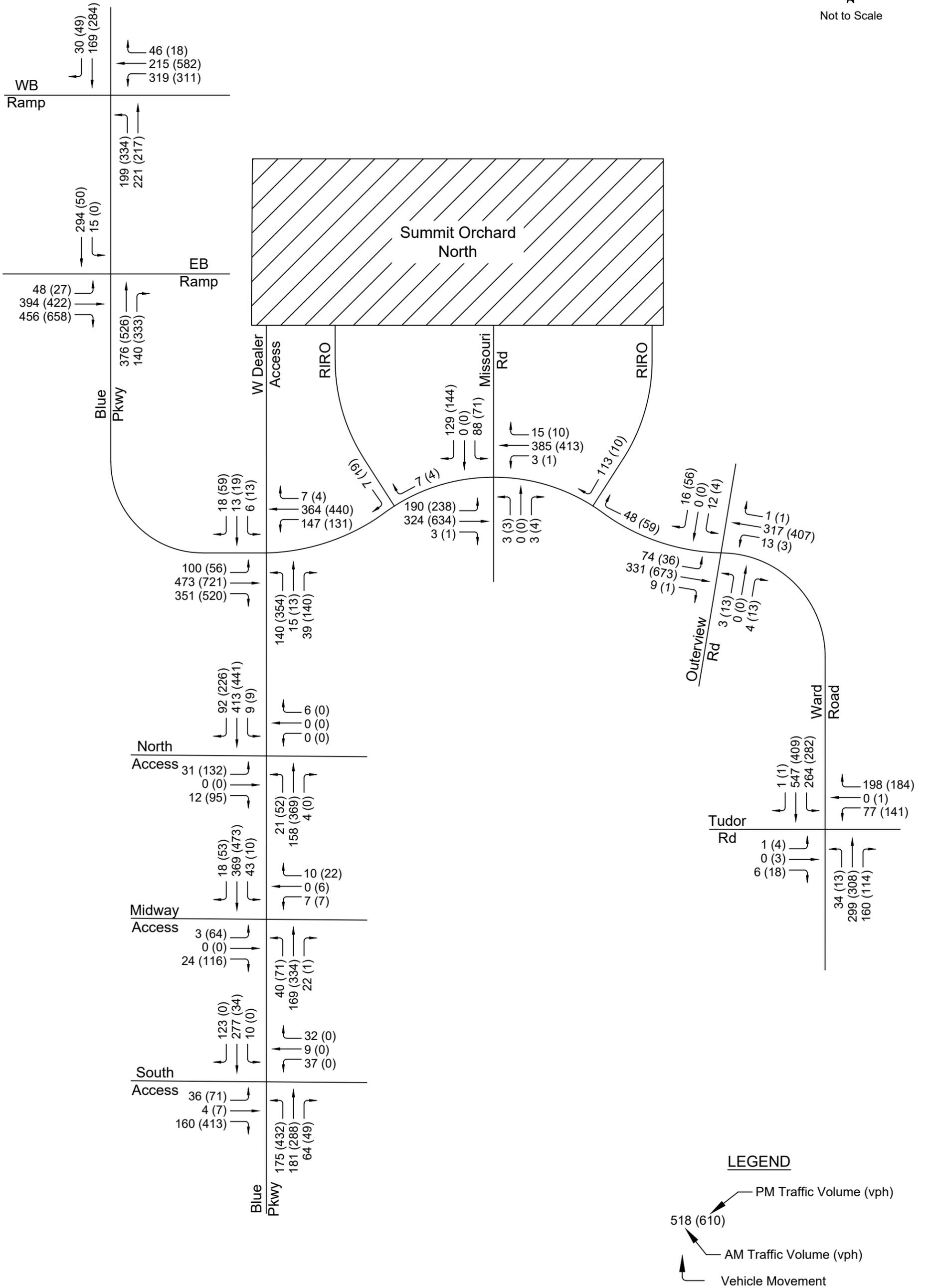
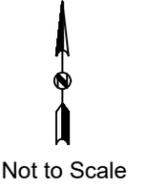


Figure 8 - Future Peak Hour Volumes

Signal Warrant Study

It may be considered justified to install a traffic signal at a location if one or more of the traffic signal warrants listed in the 2009 MUTCD is met. The traffic signal warrants are:

- Warrant 1: Eight-Hour Vehicular Volume
- Warrant 2: Four-Hour Vehicular Volume
- Warrant 3: Peak Hour
- Warrant 4: Pedestrian Volume
- Warrant 5: School Crossing
- Warrant 6: Coordinated Signal System
- Warrant 7: Crash Experience
- Warrant 8: Roadway Network
- Warrant 9: Intersection Near at Grade Crossing

Warrant 3 was evaluated at Ward Road and Outerview Road and at Ward Road and Missouri Road as part of this study for the existing plus site (Phase I & II) and future conditions.

Warrant 3: Peak Hour

The peak hour warrant is satisfied if either of the two following conditions are met:

A: This condition is satisfied if any of the following conditions are met for a period of one hour during an average day:

1. The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a stop sign equals or exceeds: 4 vehicles-hours for a one-lane approach or five vehicle hours for a two-land approach and
2. The volume on the same minor-street approach (one directions only) equals or exceeds 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes and
3. The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.

(Condition A is not being examined in this study)

B: The peak hour warrant is satisfied if the vehicles per hour on both approaches of the major street and the vehicles on the higher volume approach of the minor street for one hour fall above the 2009 MUTCD Warrant 3 curve.

Warrant Analysis

The traffic volumes are not expected to warrant a traffic signal at the Ward Road and Outerview Road or at Ward Road and Missouri Road intersections for the existing plus site conditions, however, the traffic volumes approach the signal warrant criteria for the future condition at Ward Road and Missouri Road. The raw data and curves from the 2009 MUTCD are included in the Appendix.

Right-Turn and Left-Turn Lane Warrants

The need for right and left-turn lanes at the site entrances was evaluated using the City of Lee's Summit *Access Management Code*, March 2018 turning lane guidelines as part of this study for the existing plus site (Phase I & II) condition.

Left-Turn Warrant

Left-turn lane guidelines per City of Lee's Summit *Access Management Code*:

16.1.E. Left-turn lanes shall be provided at all median openings on roadways with medians.

16.1.H. The minimum length of left-turn lane should be 250 feet plus taper on an arterial street intersecting another arterial street and 200 feet plus taper on an arterial street at other locations. The minimum length of left-turn lane on collectors should be 150 feet plus taper. The minimum length of left-turn lane on connectors should meet the driveway throat length requirements.

Left-turn lanes will be required eastbound on Ward Road and Blue Parkway as Ward Road is a median divided arterial roadway. A left-turn lane for the eastbound movement at Ward Road and Missouri Road has already been constructed.

Right-Turn Warrant

Right-turn lane guidelines per City of Lee's Summit *Access Management Code*:

16.2.A. Required on arterial streets at each intersecting street or driveway where the right-turn volume on the major arterial street is or is projected to be at least 30 vehicles in any hour, or the right-turn volume on the minor arterial street is or is projected to be at least 60 vehicles in any hour. Minimum length should be 250 feet plus the taper on a major arterial at the intersection of another arterial street or 200 feet plus the taper on a minor arterial at the intersection with another arterial street or on a major arterial at the intersection of a collector and 150 feet plus the taper at other locations along arterial streets.

The traffic volumes are expected to meet the right-turning volume criteria at the Commercial Access (east RIRO) and Ward Road.

The raw analysis data is included in the Appendix.

CAPACITY

The capacity analysis for the study intersections was completed using the methodology outlined in the Highway Capacity Manual, 6th Edition. The volume and capacity analysis was completed using Trafficware SYNCHRO software (latest version). The criteria for determining Level of Service (LOS) for signalized and unsignalized study intersections and access points are based on the average vehicle delay and is outlined in Table 3 below. Level of Service is defined as the measure of the quality of traffic flow and is graded from “A” to “F”—with “A” being the best situation and “F” being the worst.

Table 3 – Intersection Level of Service		
Level of Service (LOS)	Average Control Delay (sec/veh)	
	Unsignalized	Signalized
A	< 10	< 10
B	< 15	< 20
C	< 25	< 35
D	< 35	< 55
E	< 50	< 80
F	≥ 50	≥ 80

Existing Conditions

Blue Parkway and WB I-470 Ramp

All approaches operate at a LOS D or better for the morning and afternoon peak periods and the intersection has sufficient capacity for queuing vehicles. The overall LOS for the signal is a LOS C during the morning and afternoon peak periods.

Blue Parkway and EB I-470 Ramp

All approaches operate at a LOS C or better for the morning and afternoon peak periods and the intersection has sufficient capacity for queuing vehicles. The overall LOS for the signal is a LOS B during the morning and afternoon peak periods.

Ward Road and Blue Parkway

All approaches operate at a LOS C or better for the morning and afternoon peak periods and the intersection has sufficient capacity for queuing vehicles. The overall LOS for the signal is a LOS B during the morning and afternoon peak periods.

Blue Parkway and North Access

All approaches operate at a LOS D or better for the morning and afternoon peak periods and the intersection has sufficient capacity for queuing vehicles. The overall LOS for the signal is a LOS A during the morning and a LOS B during the afternoon peak period.

Blue Parkway and Center/Midway Access

All approaches operate at a LOS D or better for the morning and afternoon peak periods and the intersection has sufficient capacity for queuing vehicles. The overall LOS for the signal is a LOS B during the morning and afternoon peak periods.

Blue Parkway and South Access

All approaches operate at a LOS D or better for the morning and afternoon peak periods and the intersection has sufficient capacity for queuing vehicles. The overall LOS for the signal is a LOS B during the morning and a LOS C during the afternoon peak period.

Ward Road and Missouri Road

The through movements of Ward Road are not stop-controlled and are therefore operating in a free-flow condition. The northbound and southbound movements operate at a LOS B and have sufficient capacity for queuing vehicles.

Outerview Road and Holiday Inn Access

No detailed analysis of this intersection is included in the study as traffic volumes are expected to be low.

Ward Road and Outerview Road

The through movements of Ward Road are not stop-controlled and are therefore operating in a free-flow condition. The through and turning movements on Outerview Road operate at LOS B or better and the intersection has sufficient capacity for queuing vehicles.

Ward Road and Tudor Road

All approaches operate at a LOS C or above for the morning and afternoon peak periods and the intersection has sufficient capacity for queuing vehicles. The overall LOS for the signal is a LOS B during the morning and afternoon peak periods.

The results of the capacity analysis for the existing morning and afternoon peak hour conditions along with lane configuration and queue lengths are shown on Figures 9 and 10.

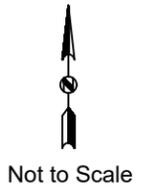
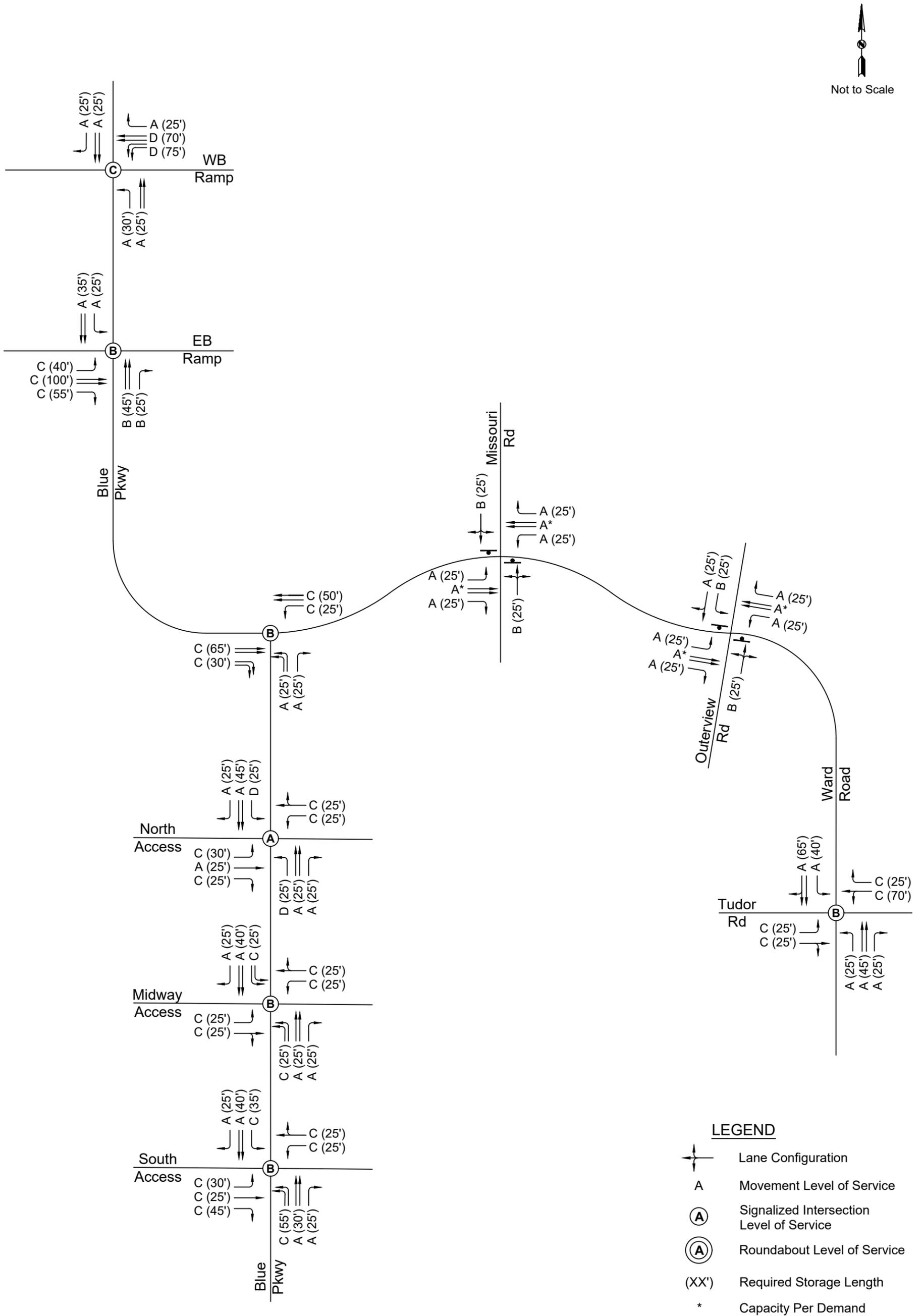


Figure 9 - Existing AM Level of Service

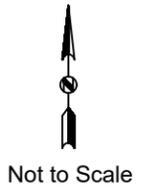
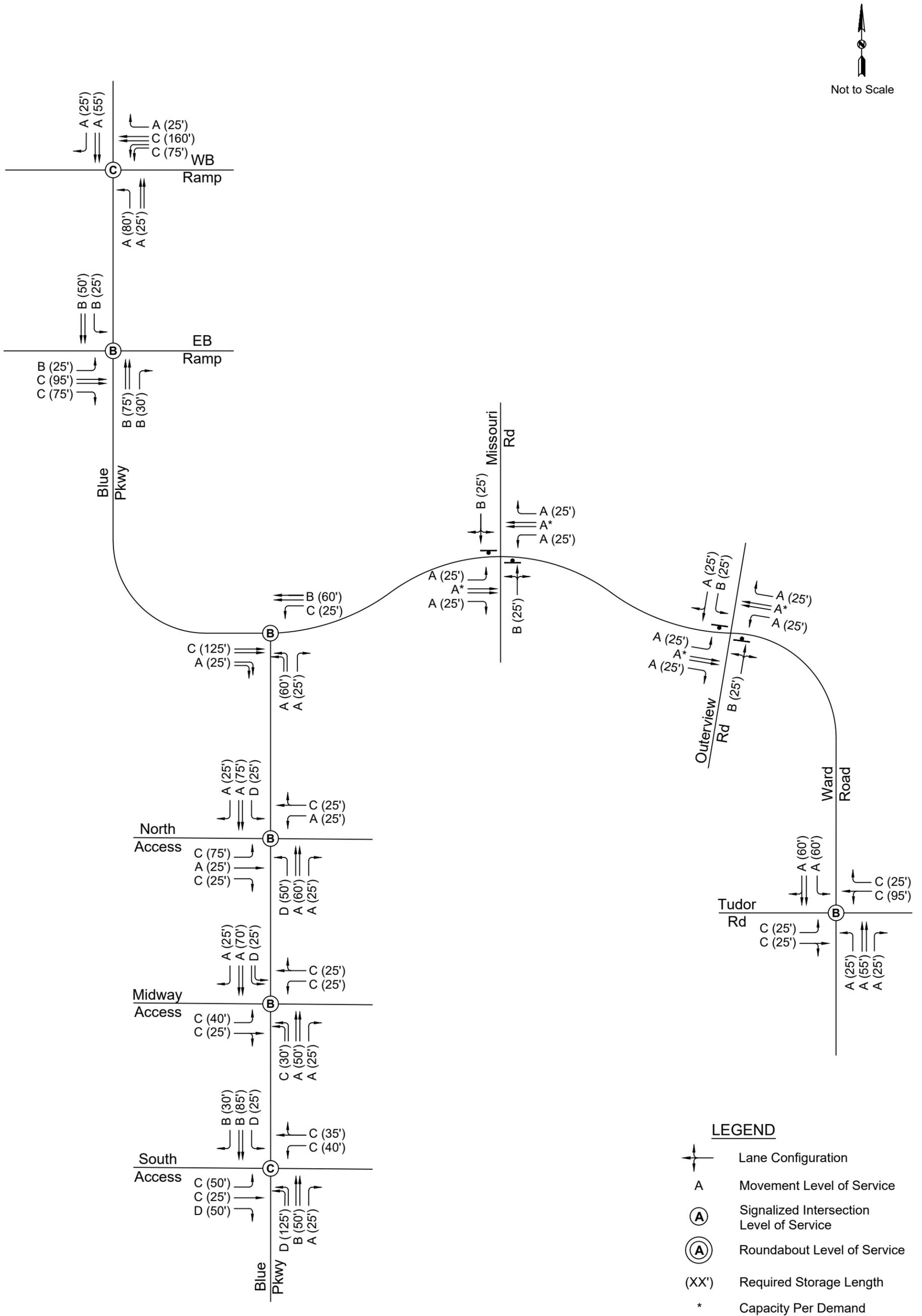


Figure 10 - Existing PM Level of Service

Existing Plus Phase I Site Conditions

Signal timings were optimized to account for the additional traffic.

Blue Parkway and WB I-470 Ramp

There is no significant change in the operations of this intersection from the existing conditions. All approaches continue to operate at a LOS D or better for the morning and afternoon peak periods and the intersection has sufficient capacity for queuing vehicles.

Blue Parkway and EB I-470 Ramp

There is no significant change in the operations of this intersection from the existing conditions. All approaches continue to operate at a LOS C or better for the morning and afternoon peak periods and the intersection has sufficient capacity for queuing vehicles.

Ward Road and Blue Parkway/West Car Dealership Access

The intersection was analyzed with a southbound lane configuration of shared/right and a left-turn lane, an eastbound left-turn lane, and restriping the northbound dual left-turn lanes to a left-turn lane and a through lane.

The additional traffic causes the eastbound left-turn, westbound left-turn, and eastbound dual right-turns to operate at a LOS D for the afternoon peak period. All other approaches operate at a LOS C or better for the morning and afternoon peak periods and the intersection has sufficient capacity for queuing vehicles. The overall LOS for the signal is a LOS C during the morning and afternoon peak periods.

Blue Parkway and North Access

There is no significant change in the operations of this intersection from the existing conditions. All approaches continue to operate at a LOS D or better for the morning and afternoon peak periods and the intersection has sufficient capacity for queuing vehicles.

Blue Parkway and Center/Midway Access

There is no significant change in the operations of this intersection from the existing conditions. All approaches continue to operate at a LOS D or better for the morning and afternoon peak periods and the intersection has sufficient capacity for queuing vehicles.

Blue Parkway and South Access

There is no significant change in the operations of this intersection from the existing conditions. All approaches continue to operate at a LOS D or better for the morning and afternoon peak periods and the intersection has sufficient capacity for queuing vehicles.

Ward Road and Car Dealership RIRO Access

The through movements of Ward Road are not stop-controlled and are therefore operating in a free-flow condition. The southbound right-turn lane operates at a LOS A and has sufficient capacity for queuing vehicles.

Ward Road and Missouri Road

There is no significant change in the operations of this intersection from the existing conditions. All approaches continue to operate at a LOS B or better for the morning and afternoon peak periods and the intersection has sufficient capacity for queuing vehicles.

Outerview Road and Holiday Inn Access

No detailed analysis of this intersection is included in the study as traffic volumes are expected to be low.

Ward Road and Outerview Road

There is no significant change in the operations of this intersection from the existing conditions. All approaches continue to operate at a LOS B or better for the morning and afternoon peak periods and the intersection has sufficient capacity for queuing vehicles.

Ward Road and Tudor Road

There is no significant change in the operations of this intersection from the existing conditions. All approaches continue to operate at a LOS C or better for the morning and afternoon peak periods and the intersection has sufficient capacity for queuing vehicles.

The results of the capacity analysis for the existing plus phase I morning and afternoon peak hour conditions along with lane configuration and queue lengths are shown on Figures 11 and 12.

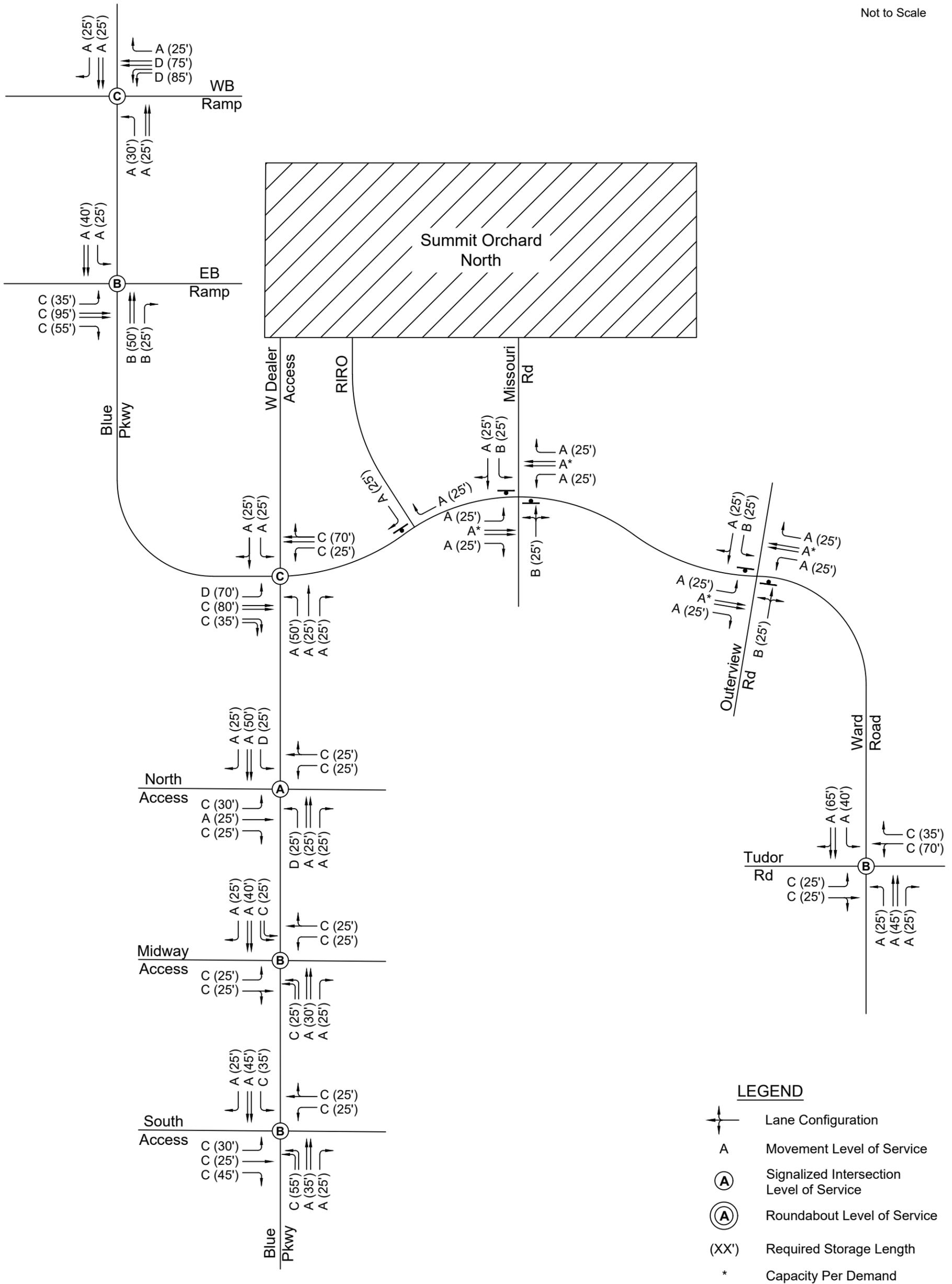
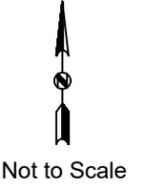


Figure 11 - Existing plus Site AM (Phase I) Level of Service

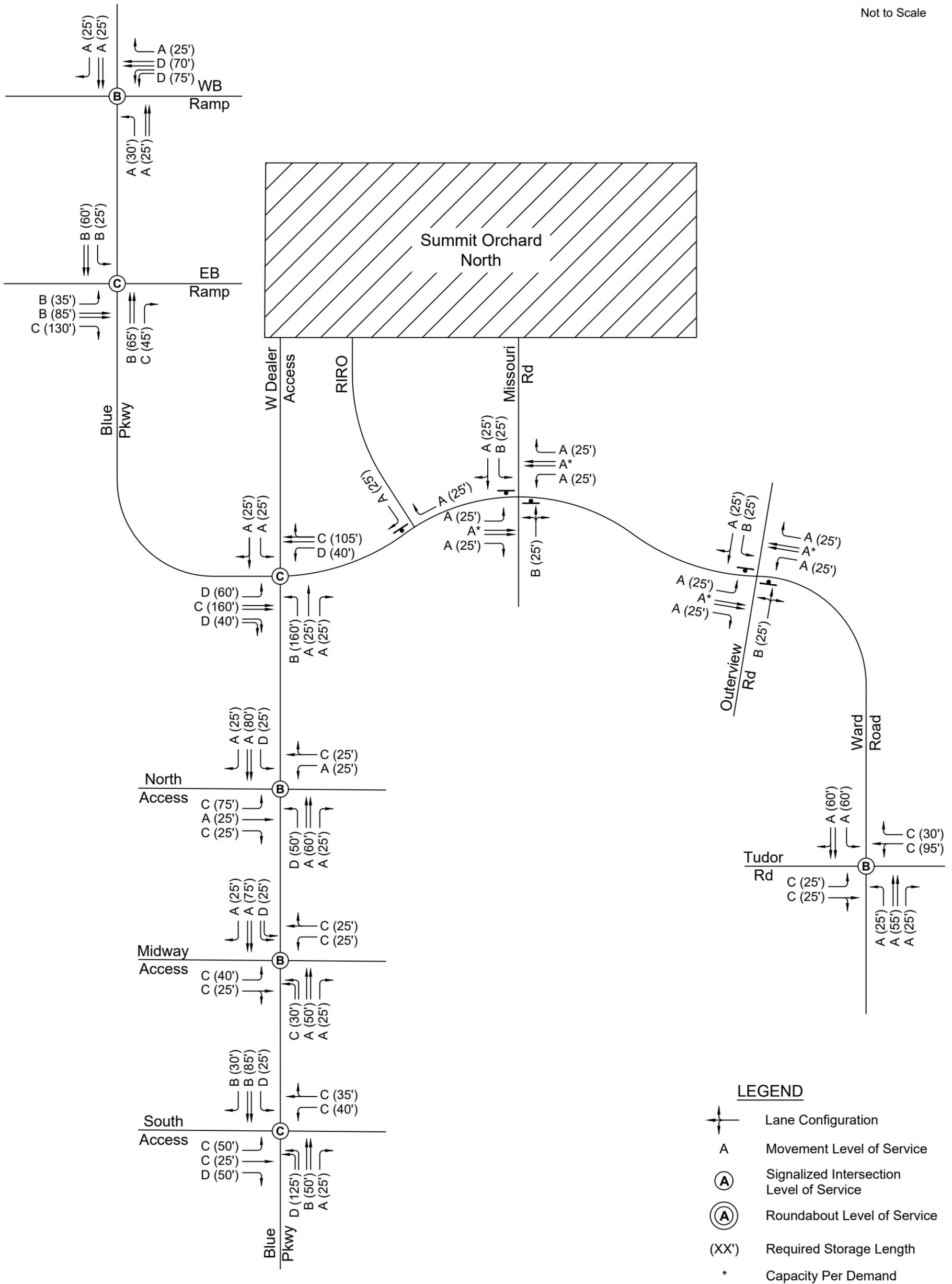
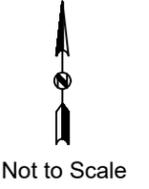


Figure 12 - Existing plus Site PM (Phase I) Level of Service

Existing Plus Phase I & II Site Conditions

Signal timings were optimized to account for the additional traffic.

Blue Parkway and WB I-470 Ramp

There is no significant change in the operations of this intersection from the existing or existing plus phase I conditions. All approaches continue to operate at a LOS D or better for the morning and afternoon peak periods and the intersection has sufficient capacity for queuing vehicles.

Blue Parkway and EB I-470 Ramp

There is no significant change in the operations of this intersection from the existing or existing plus phase I conditions. All approaches continue to operate at a LOS C or better for the morning and afternoon peak periods and the intersection has sufficient capacity for queuing vehicles.

Ward Road and Blue Parkway/West Car Dealership Access

There is no significant change in the operations of this intersection from the existing or existing plus phase I conditions. All approaches continue to operate at a LOS D or better for the morning and afternoon peak periods and the intersection has sufficient capacity for queuing vehicles.

Blue Parkway and North Access

There is no significant change in the operations of this intersection from the existing or existing plus phase I conditions. All approaches continue to operate at a LOS D or better for the morning and afternoon peak periods and the intersection has sufficient capacity for queuing vehicles.

Blue Parkway and Center/Midway Access

There is no significant change in the operations of this intersection from the existing or existing plus phase I conditions. All approaches continue to operate at a LOS D or better for the morning and afternoon peak periods and the intersection has sufficient capacity for queuing vehicles.

Blue Parkway and South Access

There is no significant change in the operations of this intersection from the existing or existing plus phase I conditions. All approaches continue to operate at a LOS D or better for the morning and afternoon peak periods and the intersection has sufficient capacity for queuing vehicles.

Ward Road and Car Dealership RIRO Access

The southbound right-turn lane continues to operate at a LOS A during the morning peak period and drops to a LOS B during the afternoon peak period. The intersection has sufficient capacity for queuing vehicles.

Ward Road and Missouri Road

The southbound and northbound movements drop to a LOS C or better for the morning peak period and a LOS D or better for the afternoon peak period with the additional traffic. The intersection has sufficient capacity for queuing vehicles.

Ward Road and Commercial RIRO Access

The through movements of Ward Road are not stop-controlled and are therefore operating in a free-flow condition. The southbound right-turn lane operates at a LOS A and has sufficient capacity for queuing vehicles.

Outerview Road and Holiday Inn Access

No detailed analysis of this intersection is included in the study as traffic volumes are expected to be low.

Ward Road and Outerview Road

There is no significant change in the operations of this intersection from the existing or existing plus phase I conditions. All approaches continue to operate at a LOS B or better for the morning and afternoon peak periods and the intersection has sufficient capacity for queuing vehicles.

Ward Road and Tudor Road

There is no significant change in the operations of this intersection from the existing or existing plus phase I conditions. All approaches continue to operate at a LOS C or better for the morning and afternoon peak periods and the intersection has sufficient capacity for queuing vehicles.

The results of the capacity analysis for the existing plus phase I & II morning and afternoon peak hour conditions along with lane configuration and queue lengths are shown on Figures 13 and 14.

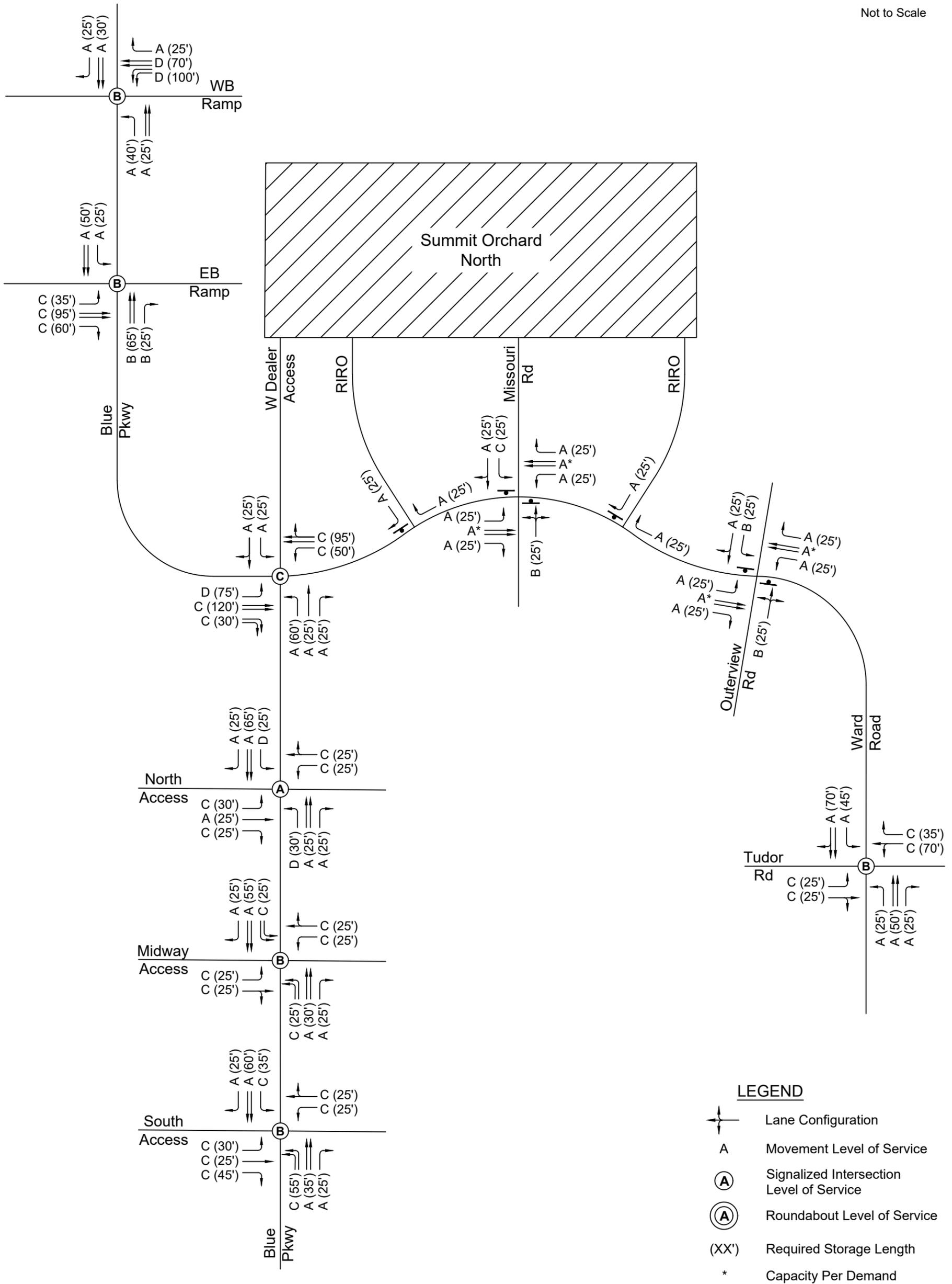


Figure 13 - Existing plus Site AM (Phase I & II) Level of Service

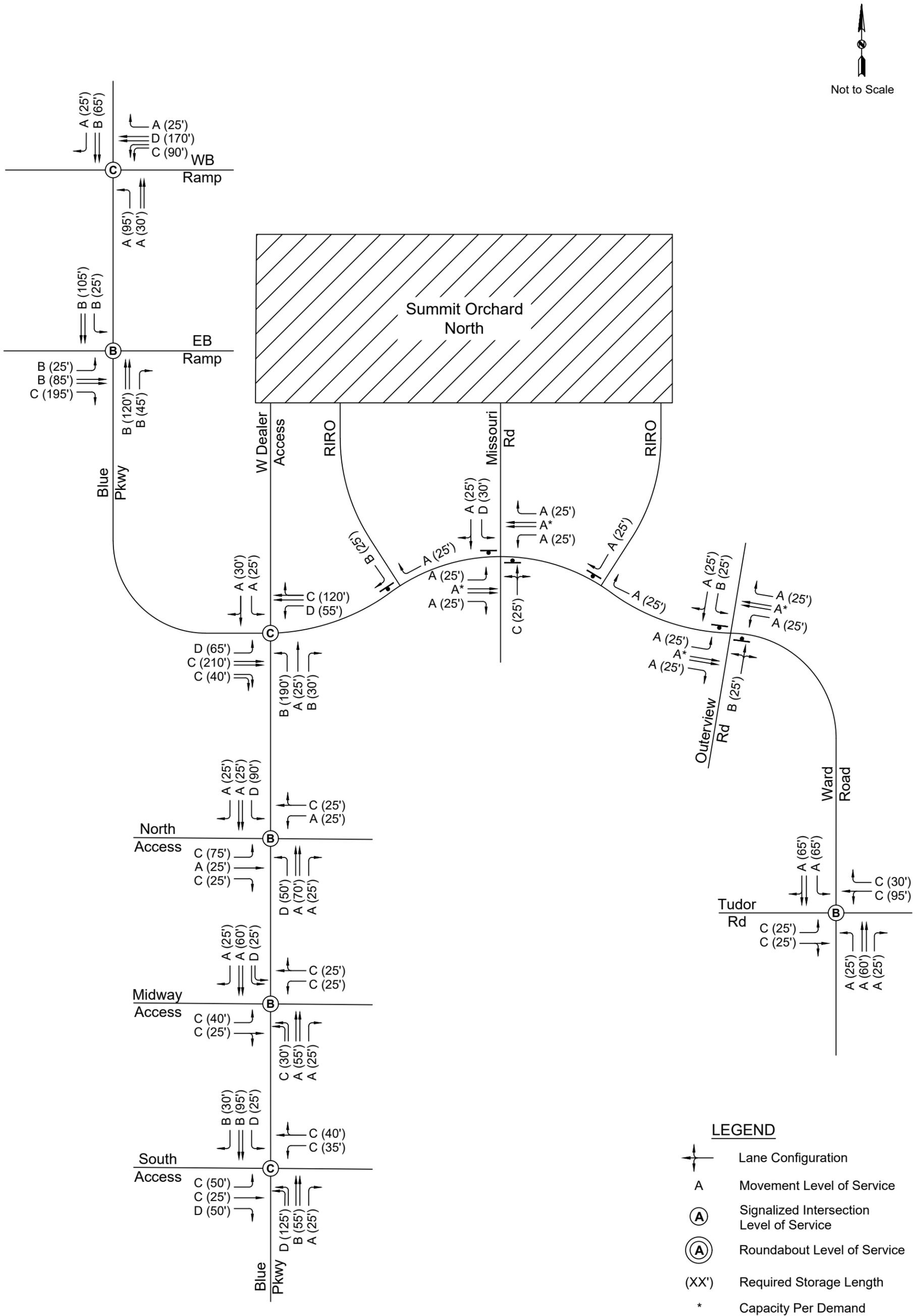


Figure 14 - Existing plus Site PM (Phase I & II) Level of Service

Future Conditions

Future analysis is intended to provide a high-level overview of increases in trips as other development occurs and to provide recommendations for reserving right-of-way for future expansion. Signal timings of intersection movements were optimized to account for the additional traffic.

Blue Parkway and WB I-470 Ramp

All approaches are expected to operate at a LOS D or better for the morning and afternoon peak periods and the intersection has sufficient capacity for queuing vehicles.

Blue Parkway and EB I-470 Ramp

All approaches are expected to operate at a LOS D or better for the morning and afternoon peak periods and the intersection has sufficient capacity for queuing vehicles.

Ward Road and Blue Parkway/West Car Dealership Access

All approaches are expected to operate at a LOS D or better for the morning and afternoon peak periods and the intersection has sufficient capacity for queuing vehicles.

Blue Parkway and North Access

All approaches are expected to operate at a LOS D or better for the morning and afternoon peak periods and the intersection has sufficient capacity for queuing vehicles.

Blue Parkway and Center/Midway Access

All approaches are expected to operate at a LOS D or better for the morning and afternoon peak periods and the intersection has sufficient capacity for queuing vehicles.

Blue Parkway and South Access

All approaches are expected to operate at a LOS D or better for the morning and afternoon peak periods and the intersection has sufficient capacity for queuing vehicles.

Ward Road and Car Dealership RIRO Access

The southbound right-turn lane is expected to operate at a LOS B during the morning and afternoon peak period. The intersection has sufficient capacity for queuing vehicles.

Ward Road and Missouri Road

As a stop-controlled intersection: The southbound left-turn movement operates at a LOS F and the northbound movement a LOS E.

As a signalized intersection: All approaches operate at a LOS D or better, and the intersection has sufficient capacity for queuing vehicles.

Ward Road and Commercial RIRO Access

The southbound right-turn lane operates at a LOS B and has sufficient capacity for queuing vehicles.

Outerview Road and Holiday Inn Access

No detailed analysis of this intersection is included in the study as traffic volumes are expected to be low.

Ward Road and Outerview Road

All approaches operate at a LOS C or better for the morning and afternoon peak periods and the intersection has sufficient capacity for queuing vehicles.

Ward Road and Tudor Road

All approaches operate at a LOS D or better for the morning and afternoon peak periods and the intersection has sufficient capacity for queuing vehicles.

The results of the capacity analysis for the future morning and afternoon peak hour conditions along with lane configuration and queue lengths are shown on Figures 15 and 16.

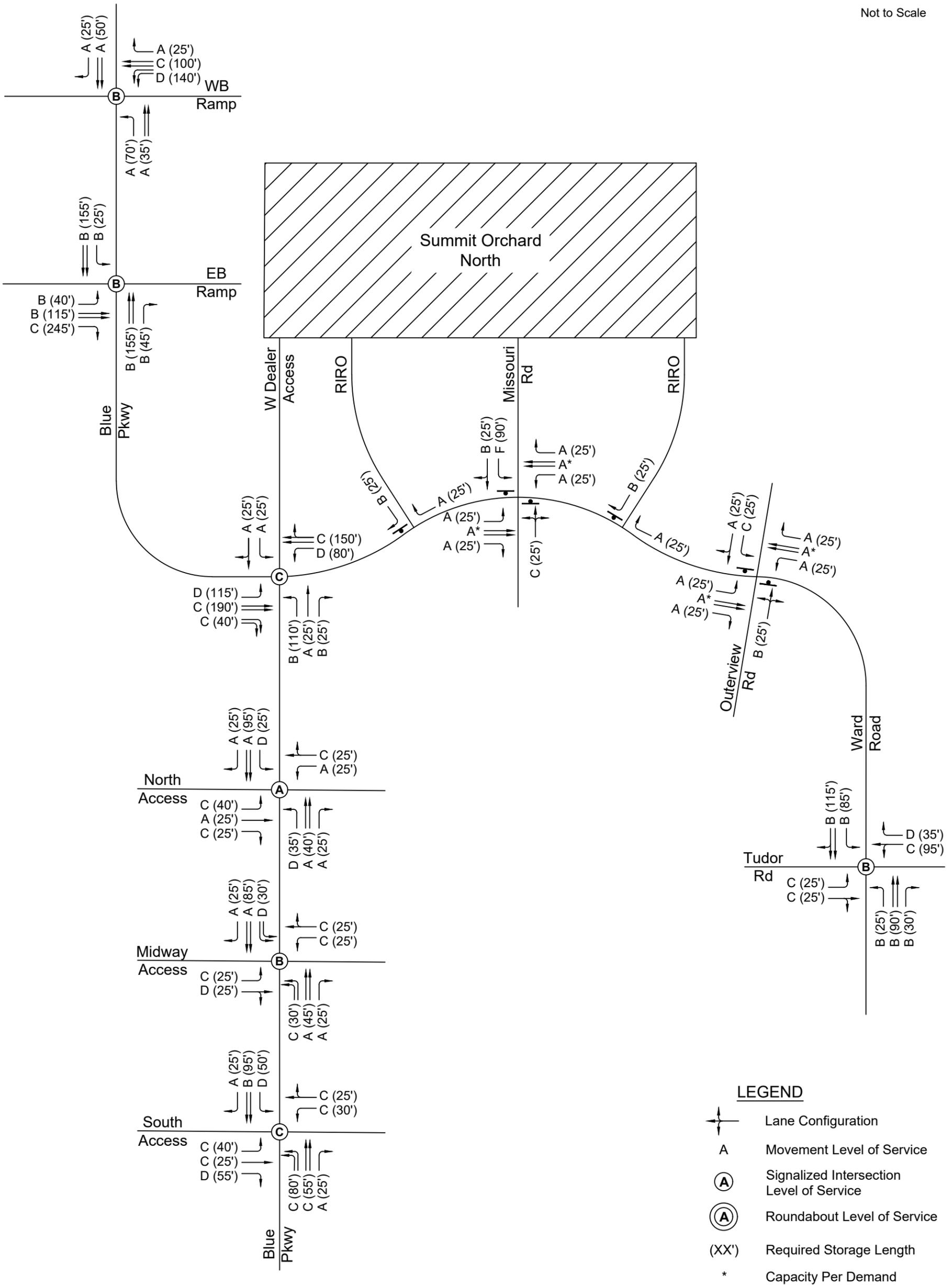
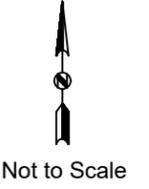


Figure 15 - Future AM Level of Service

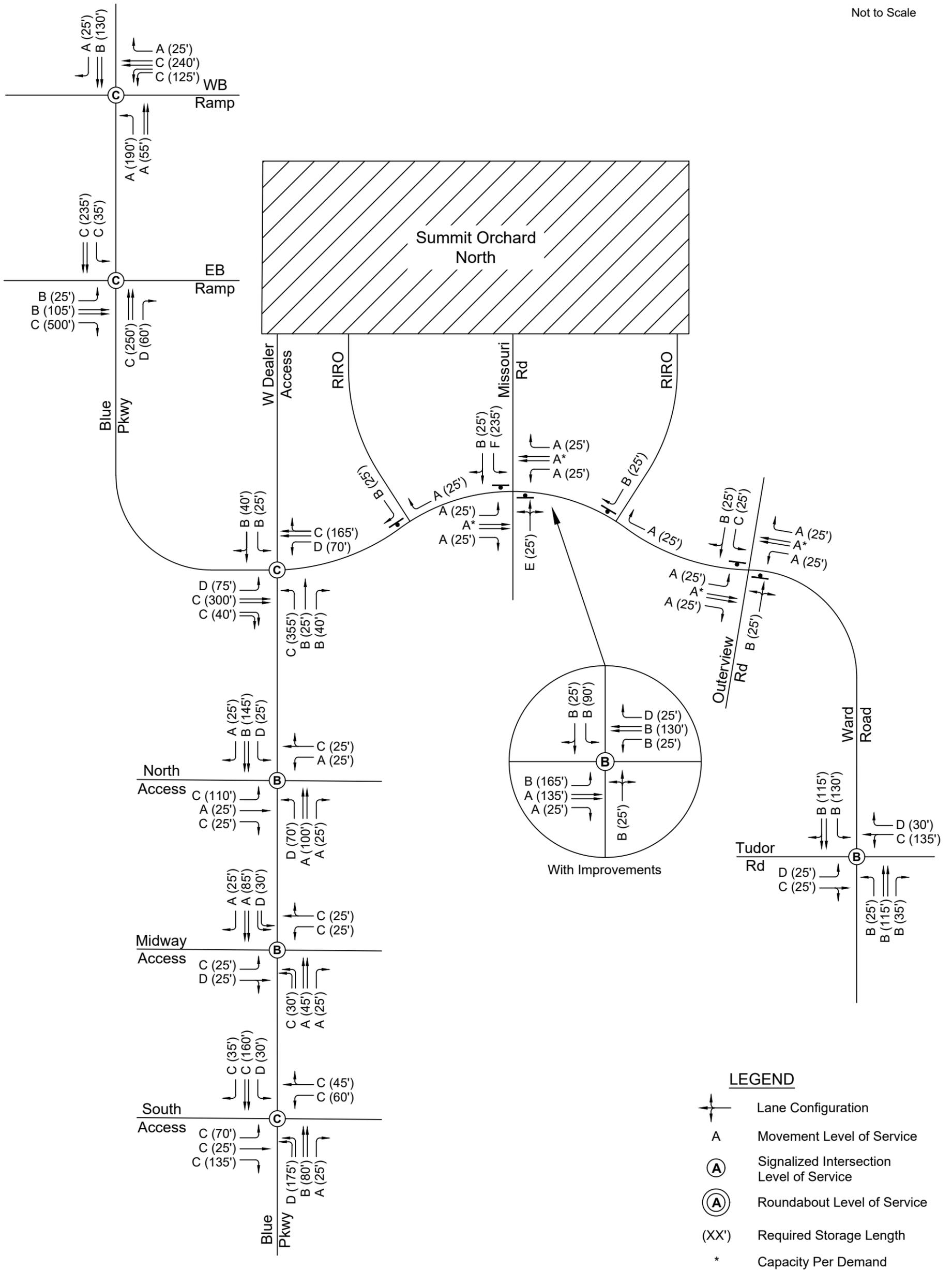
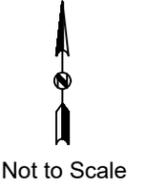


Figure 16 - Future PM Level of Service

RECOMMENDATIONS

This study documents the findings of the traffic analysis of the expected traffic for the Summit Orchards North development in Lee's Summit, Missouri. The study includes an analysis of the existing, existing plus Phase I site, existing plus Phase I & II site, and future conditions.

Based on the results of the SYNCHRO analysis, observations from the field, and engineering judgment, the following recommendations are made:

- Discuss signal and pavement marking improvements related to crash history with City and MoDOT staff.

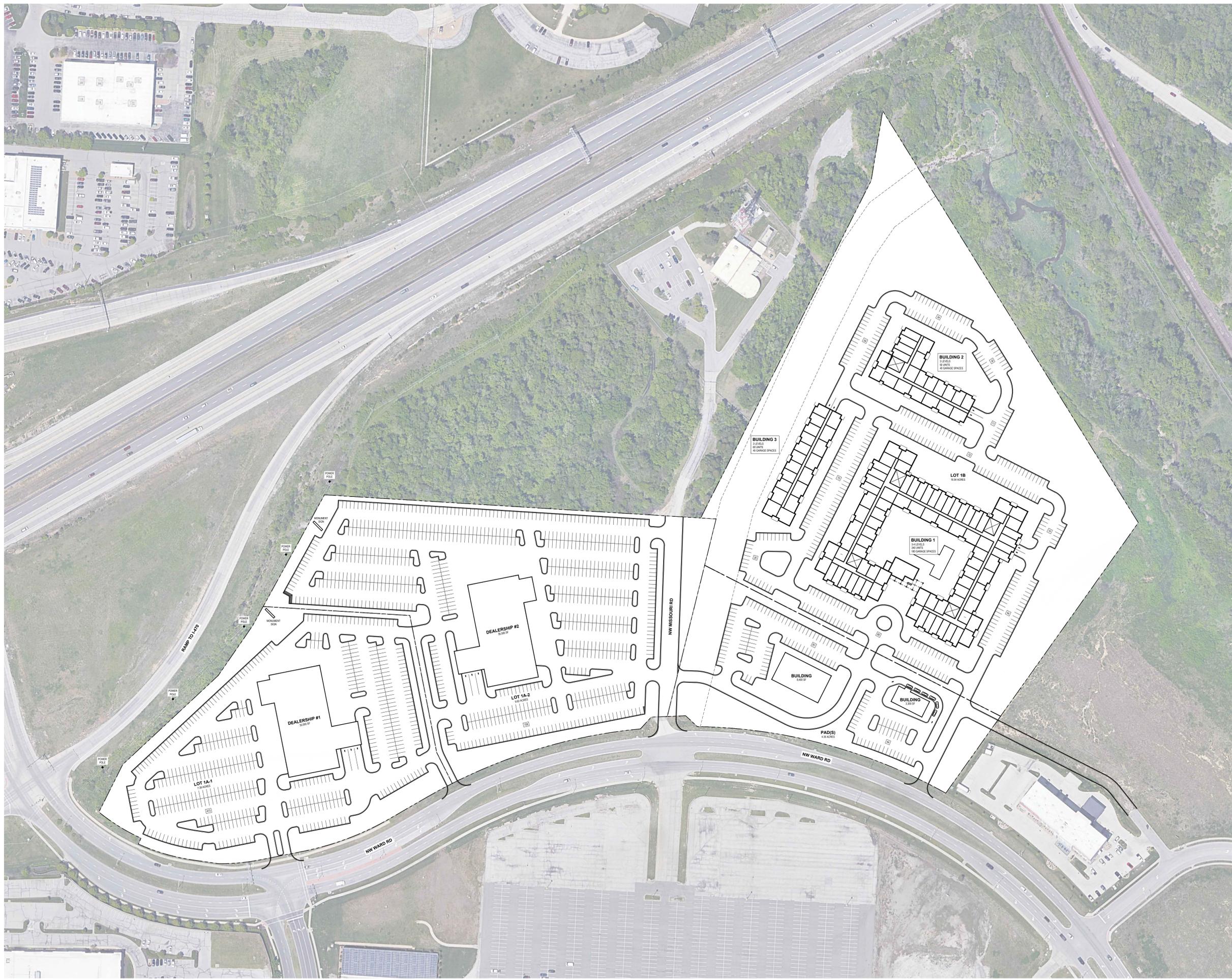
When the Phase I development is constructed:

- Construct an eastbound left-turn lane (200 feet plus taper) at the intersection of Ward Road and Blue Parkway.
- Install the southbound signal mast arm and pole with pedestrian equipment and optimize/adjust signal timings as necessary at Ward Road and Blue Parkway. Reconfigure northbound leg of intersection to a left-turn, through, and right-turn lane configuration. The southbound leg of the intersection should be a left-turn lane (150 feet plus taper) and a shared through/right-turn lane.
- Optimize signal timings at all study intersections.
- Reconstruct the southbound Missouri Road and Ward Road intersection to consist of a left-turn lane and a shared through/right-turn lane.

When the Phase II development is constructed:

- Construct a westbound right-turn lane (200 feet plus taper) at the intersection of Commercial Access and Ward Road.
- The need for future roadway improvements should be reevaluated as additional development occurs.

APPENDIX



Summit Orchards North

Lot 1B

NW Ward Rd & NW Missouri Rd
 Lee's Summit, MO 64086

Project #: 180902-13

Preliminary Design

September 20, 2023

Site Plan

7/12/2022
Chipman & Ward Rd
AM

Time	Eastbound				Westbound				Northbound				Southbound				Int. Total
	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	
7:00	3	13	1	17	7	17	6	30	1	6	8	15	3	6	1	10	72
7:15	7	15	2	24	8	29	12	49	6	20	8	34	7	5	2	14	121
7:30	5	26	4	35	4	25	9	38	3	18	7	28	5	7	7	19	120
7:45	5	29	2	36	12	31	7	50	3	22	15	40	9	10	2	21	147
8:00	9	34	4	47	7	27	5	39	6	24	9	39	2	7	6	15	140
8:15	5	38	0	43	11	33	8	52	8	23	18	49	6	12	5	23	167
8:30	4	27	4	35	5	35	9	49	4	17	18	39	4	16	8	28	151
8:45	14	39	1	54	10	30	4	44	5	18	12	35	6	10	6	22	155
Total	52	221	18	291	64	227	60	351	36	148	95	279	42	73	37	152	1073

Time	PHF																				Int. Total
	EB Left	EB Thru	EB Right	EB Total	PHF	WB Left	WB Thru	WB Right	WB Total	PHF	NB Left	NB Thru	NB Right	NB Total	PHF	SB Left	SB Thru	SB Right	SB Total	PHF	
8:00	9	34	4	47	0.83	7	27	5	39	0.88	6	24	9	39	0.83	2	7	6	15	0.79	140
8:15	5	38	0	43		11	33	8	52		8	23	18	49		6	12	5	23		167
8:30	4	27	4	35		5	35	9	49		4	17	18	39		4	16	8	28		151
8:45	14	39	1	54		10	30	4	44		5	18	12	35		6	10	6	22		155
Total	32	138	9	179		33	125	26	184		23	82	57	162		18	45	25	88		613

Chipman & Donovan Rd
AM

Time	Eastbound				Westbound				Northbound				Southbound				Int. Total
	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	
7:00	1	26	5	32	4	28	8	40	1	3	6	10	2	12	2	16	98
7:15	3	28	1	32	6	43	2	51	1	3	11	15	4	2	2	8	106
7:30	3	32	0	35	9	36	3	48	2	3	10	15	8	2	1	11	109
7:45	1	56	0	57	16	43	3	62	2	6	18	26	3	3	1	7	152
8:00	5	38	0	43	9	44	9	62	2	6	8	16	4	2	1	7	128
8:15	4	52	1	57	7	48	6	61	1	2	12	15	7	5	2	14	147
8:30	2	50	1	53	9	55	5	69	0	2	8	10	7	4	0	11	143
8:45	2	54	4	60	20	45	6	71	0	3	13	16	2	0	2	4	151
Total	21	336	12	369	80	342	42	464	9	28	86	123	37	30	11	78	1034

Time	PHF																				Int. Total
	EB Left	EB Thru	EB Right	EB Total	PHF	WB Left	WB Thru	WB Right	WB Total	PHF	NB Left	NB Thru	NB Right	NB Total	PHF	SB Left	SB Thru	SB Right	SB Total	PHF	
8:00	5	38	0	43	0.89	9	44	9	62	0.93	2	6	8	16	0.89	4	2	1	7	0.64	128
8:15	4	52	1	57		7	48	6	61		1	2	12	15		7	5	2	14		147
8:30	2	50	1	53		9	55	5	69		0	2	8	10		7	4	0	11		143
8:45	2	54	4	60		20	45	6	71		0	3	13	16		2	0	2	4		151
Total	13	194	6	213		45	192	26	263		3	13	41	57		20	11	5	36		569

Ward & Tudor Rd
AM

Time	Eastbound				Westbound				Northbound				Southbound				Int. Total
	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	
7:00	0	0	0	0	4	0	19	23	0	16	9	25	23	13	0	36	84
7:15	0	0	0	0	7	0	31	38	0	30	13	43	30	23	0	53	134
7:30	0	0	0	0	8	0	43	51	0	34	9	43	16	21	0	37	131
7:45	0	0	0	0	13	0	22	35	0	32	12	44	37	20	0	57	136
8:00	0	0	0	0	6	0	20	26	0	32	19	51	22	17	0	39	116
8:15	0	0	0	0	8	0	24	32	0	32	32	64	29	11	0	40	136
8:30	0	0	0	0	16	0	25	41	0	26	20	46	26	10	0	36	123
8:45	0	0	0	0	18	0	29	47	0	24	19	43	38	28	0	66	156
Total	0	0	0	0	80	0	213	293	0	226	133	359	221	143	0	364	1016

Time	Eastbound				PHF	Westbound				PHF	Northbound				PHF	Southbound				PHF	Int. Total
	EB Left	EB Thru	EB Right	EB Total		WB Left	WB Thru	WB Right	WB Total		NB Left	NB Thru	NB Right	NB Total		SB Left	SB Thru	SB Right	SB Total		
8:00	0	0	0	0	#DIV/0!	6	0	20	26	0.78	0	32	19	51	0.8	22	17	0	39	0.69	116
8:15	0	0	0	0		8	0	24	32		0	32	32	64		29	11	0	40		136
8:30	0	0	0	0		16	0	25	41		0	26	20	46		26	10	0	36		123
8:45	0	0	0	0		18	0	29	47		0	24	19	43		38	28	0	66		156
Total	0	0	0	0		48	0	98	146		0	114	90	204		115	66	0	181		531

Ward & Outview Rd
AM

Time	Eastbound				Westbound				Northbound				Southbound				Int. Total
	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	
7:00	0	0	2	2	1	0	3	4	2	34	0	36	1	31	2	34	76
7:15	0	0	1	1	2	0	2	4	4	57	0	61	3	52	4	59	125
7:30	0	0	1	1	1	0	2	3	4	71	2	77	6	37	3	46	127
7:45	0	0	0	0	1	0	4	5	1	50	0	51	19	54	5	78	134
8:00	1	0	1	2	2	0	2	4	3	50	0	53	19	34	4	57	116
8:15	0	0	0	0	1	0	5	6	2	52	1	55	12	36	1	49	110
8:30	0	0	1	1	3	0	2	5	2	47	0	49	11	34	1	46	101
8:45	1	0	1	2	2	0	2	4	2	50	0	52	8	61	0	69	127
Total	2	0	7	9	13	0	22	35	20	411	3	434	79	339	20	438	916

Time	Eastbound				PHF	Westbound				PHF	Northbound				PHF	Southbound				PHF	Int. Total
	EB Left	EB Thru	EB Right	EB Total		WB Left	WB Thru	WB Right	WB Total		NB Left	NB Thru	NB Right	NB Total		SB Left	SB Thru	SB Right	SB Total		
8:00	1	0	1	2	0.63	2	0	2	4	0.79	3	50	0	53	0.95	19	34	4	57	0.80	116
8:15	0	0	0	0		1	0	5	6		2	52	1	55		12	36	1	49		110
8:30	0	0	1	1		3	0	2	5		2	47	0	49		11	34	1	46		101
8:45	1	0	1	2		2	0	2	4		2	50	0	52		8	61	0	69		127
Total	2	0	3	5		8	0	11	19		9	199	1	209		50	165	6	221		454

Donovan & Ward Rd
AM

Time	Eastbound				Westbound				Northbound				Southbound				Int. Total
	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	
7:00	0	0	0	0	0	0	17	17	0	0	1	1	6	0	0	6	24
7:15	0	0	0	0	0	0	11	11	0	0	2	2	7	0	0	7	20
7:30	0	0	0	0	0	0	24	24	1	0	1	2	9	0	0	9	35
7:45	0	0	0	0	4	0	15	19	0	0	3	3	6	0	0	6	28
8:00	0	0	0	0	4	0	15	19	0	0	0	0	1	0	0	1	20
8:15	0	0	0	0	5	0	11	16	0	0	0	0	3	0	0	3	19
8:30	0	0	0	0	2	0	15	17	0	0	3	3	6	0	0	6	26
8:45	0	0	0	0	1	0	1	2	0	0	1	1	8	0	0	8	11
Total	0	0	0	0	16	0	109	125	1	0	11	12	46	0	0	46	183

Time	PHF																				Int. Total
	EB Left	EB Thru	EB Right	EB Total	PHF	WB Left	WB Thru	WB Right	WB Total	PHF	NB Left	NB Thru	NB Right	NB Total	PHF	SB Left	SB Thru	SB Right	SB Total	PHF	
8:00	0	0	0	0	#DIV/0!	4	0	15	19	0.71	0	0	0	0	0.33	1	0	0	1	0.56	20
8:15	0	0	0	0		5	0	11	16		0	0	0	0		3	0	0	3		19
8:30	0	0	0	0		2	0	15	17		0	0	3	3		6	0	0	6		26
8:45	0	0	0	0		1	0	1	2		0	0	1	1		8	0	0	8		11
Total	0	0	0	0		12	0	42	54		0	0	4	4		18	0	0	18		76

Chipman & Outerview Rd
AM

Time	Eastbound				Westbound				Northbound				Southbound				Int. Total
	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	
7:00	0	0	0	0	0	0	6	6	0	0	0	0	0	0	0	0	6
7:15	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1
7:30	0	0	0	0	0	0	2	2	0	0	0	0	0	0	1	1	3
7:45	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1
8:00	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1
8:15	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1	1	2
8:30	0	0	0	0	0	0	3	3	0	0	0	0	0	0	1	1	4
8:45	0	0	0	0	0	0	3	3	0	0	0	0	0	0	0	0	3
Total	0	0	0	0	0	0	18	18	0	0	0	0	0	0	3	3	21

Time	PHF																				Int. Total
	EB Left	EB Thru	EB Right	EB Total	PHF	WB Left	WB Thru	WB Right	WB Total	PHF	NB Left	NB Thru	NB Right	NB Total	PHF	SB Left	SB Thru	SB Right	SB Total	PHF	
8:00	0	0	0	0	#DIV/0!	0	0	1	1	0.67	0	0	0	0	#DIV/0!	0	0	0	0	0.50	1
8:15	0	0	0	0		0	0	1	1		0	0	0	0		0	0	1	1		2
8:30	0	0	0	0		0	0	3	3		0	0	0	0		0	0	1	1		4
8:45	0	0	0	0		0	0	3	3		0	0	0	0		0	0	0	0		3
Total	0	0	0	0		0	0	8	8		0	0	0	0		0	0	2	2		10

Ward & Aldi Entrance
AM

Time	Eastbound				Westbound				Northbound				Southbound				Int. Total	
	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total		
7:00	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	2
7:15	0	0	2	2	0	0	2	2	0	0	3	3	1	0	0	1	8	
7:30	0	0	3	3	0	0	3	3	0	0	1	1	1	0	0	1	8	
7:45	0	0	1	1	0	0	1	1	0	0	1	1	2	0	0	2	5	
8:00	0	0	4	4	0	0	4	4	0	0	2	2	5	0	0	5	15	
8:15	0	0	2	2	0	0	2	2	0	0	3	3	0	0	0	0	7	
8:30	0	0	4	4	0	0	4	4	0	0	7	7	1	0	0	1	16	
8:45	0	0	3	3	0	0	3	3	0	0	6	6	1	0	0	1	13	
Total	0	0	20	20	0	0	20	20	0	0	23	23	11	0	0	11	74	

Time	Eastbound				PHF	Westbound				PHF	Northbound				PHF	Southbound				PHF	Int. Total
	EB Left	EB Thru	EB Right	EB Total		WB Left	WB Thru	WB Right	WB Total		NB Left	NB Thru	NB Right	NB Total		SB Left	SB Thru	SB Right	SB Total		
8:00	0	0	4	4	0.81	0	0	4	4	0.81	0	0	2	2	0.64	5	0	0	5	0.35	15
8:15	0	0	2	2		0	0	2	2		0	0	3	3		0	0	0	0		7
8:30	0	0	4	4		0	0	4	4		0	0	7	7		1	0	0	1		16
8:45	0	0	3	3		0	0	3	3		0	0	6	6		1	0	0	1		13
Total	0	0	13	13		0	0	13	13		0	0	18	18		7	0	0	7		51

Outview Rd & South Entrance
AM

Time	Eastbound				Westbound				Northbound				Southbound				Int. Total
	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	
7:00	2	0	0	2	0	0	0	0	0	0	0	0	0	0	1	1	3
7:15	1	0	0	1	0	0	0	0	1	0	0	1	0	0	0	0	2
7:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2
7:45	0	0	1	1	0	0	0	0	1	0	0	1	0	0	0	0	2
8:00	2	0	0	2	0	0	0	0	0	0	0	0	0	0	2	2	4
8:15	0	0	1	1	0	0	0	0	3	0	0	3	0	0	1	1	5
8:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2
8:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	5	0	2	7	0	0	0	0	5	0	0	5	0	0	8	8	20

Time	Eastbound				PHF	Westbound				PHF	Northbound				PHF	Southbound				PHF	Int. Total
	EB Left	EB Thru	EB Right	EB Total		WB Left	WB Thru	WB Right	WB Total		NB Left	NB Thru	NB Right	NB Total		SB Left	SB Thru	SB Right	SB Total		
8:00	2	0	0	2	0.38	0	0	0	0	#DIV/0!	0	0	0	0	0.25	0	0	2	2	0.63	4
8:15	0	0	1	1		0	0	0	0		3	0	0	3		0	0	1	1		5
8:30	0	0	0	0		0	0	0	0		0	0	0	0		0	0	2	2		2
8:45	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		0
Total	2	0	1	3		0	0	0	0		3	0	0	3		0	0	5	5		11

Outerview Rd & North Entrance
AM

Time	Eastbound				Westbound				Northbound				Southbound				Int. Total
	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	
7:00	1	0	1	2	0	0	0	0	0	0	0	0	0	0	1	1	3
7:15	0	0	1	1	0	0	0	0	1	0	0	1	0	0	0	0	2
7:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45	0	0	1	1	0	0	0	0	1	0	0	1	0	0	1	1	3
8:00	1	0	0	1	0	0	0	0	1	0	0	1	0	0	1	1	3
8:15	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	2
8:30	1	0	2	3	0	0	0	0	1	0	0	1	0	0	1	1	5
8:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2
Total	3	0	5	8	0	0	0	0	6	0	0	6	0	0	6	6	20

Time	PHF																				Int. Total
	EB Left	EB Thru	EB Right	EB Total	PHF	WB Left	WB Thru	WB Right	WB Total	PHF	NB Left	NB Thru	NB Right	NB Total	PHF	SB Left	SB Thru	SB Right	SB Total	PHF	
8:00	1	0	0	1	0.33	0	0	0	0	#DIV/0!	1	0	0	1	0.5	0	0	1	1	0.50	3
8:15	0	0	0	0		0	0	0	0		2	0	0	2		0	0	0	0		2
8:30	1	0	2	3		0	0	0	0		1	0	0	1		0	0	1	1		5
8:45	0	0	0	0		0	0	0	0		0	0	0	0		0	0	2	2		2
Total	2	0	2	4		0	0	0	0		4	0	0	4		0	0	4	4		12

Blue Parkway and Ward/Blue Parkway (north intersection)
AM

Time	Eastbound				Westbound				Northbound				Southbound				Int. Total
	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	
7:00	0	50	30	80	7	49	0	56	12	0	1	13	0	0	0	0	149
7:15	1	42	44	87	4	42	0	46	29	0	4	33	0	0	0	0	166
7:30	0	62	51	113	4	54	0	58	25	0	6	31	0	0	0	0	202
7:45	0	54	74	128	5	47	0	52	24	0	2	26	0	0	0	0	206
8:00	0	47	51	98	4	51	0	55	29	0	0	29	0	0	0	0	182
8:15	2	58	53	113	1	40	0	41	20	0	1	21	0	0	0	0	175
8:30	0	52	55	107	7	34	0	41	29	0	4	33	0	0	0	0	181
8:45	0	45	77	122	7	31	0	38	16	0	5	21	0	0	0	0	181
Total	3	410	435	848	39	348	0	387	184	0	23	207	0	0	0	0	1442

Time	PHF																				Int. Total
	EB Left	EB Thru	EB Right	EB Total	PHF	WB Left	WB Thru	WB Right	WB Total	PHF	NB Left	NB Thru	NB Right	NB Total	PHF	SB Left	SB Thru	SB Right	SB Total	PHF	
8:00	0	47	51	98	0.9	4	51	0	55	0.8	29	0	0	29	0.79	0	0	0	0	#DIV/0!	182
8:15	2	58	53	113		1	40	0	41		20	0	1	21		0	0	0	0		175
8:30	0	52	55	107		7	34	0	41		29	0	4	33		0	0	0	0		181
8:45	0	45	77	122		7	31	0	38		16	0	5	21		0	0	0	0		181
Total	2	202	236	440		19	156	0	175		94	0	10	104		0	0	0	0		719

**Blue Parkway & Mid/Center Access
AM**

Time	Eastbound				Westbound				Northbound				Southbound				Int. Total
	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	
7:00	0	0	4	4	1	0	4	5	1	12	1	14	6	37	0	43	66
7:15	0	0	7	7	1	1	1	3	4	29	4	37	4	25	1	30	77
7:30	0	0	1	1	0	0	1	1	4	18	2	24	10	43	5	58	84
7:45	0	1	0	1	0	0	3	3	4	15	2	21	14	55	3	72	97
8:00	0	0	2	2	0	0	0	0	6	25	1	32	5	29	0	34	68
8:15	1	0	2	3	1	0	3	4	5	16	4	25	8	33	1	42	74
8:30	0	0	8	8	2	0	2	4	9	20	7	36	6	30	4	40	88
8:45	1	0	4	5	2	0	1	3	7	27	3	37	10	38	7	55	100
Total	2	1	28	31	7	1	15	23	40	162	24	226	63	290	21	374	654

Time	Eastbound				PHF	Westbound				PHF	Northbound				PHF	Southbound				PHF	Int. Total
	EB Left	EB Thru	EB Right	EB Total		WB Left	WB Thru	WB Right	WB Total		NB Left	NB Thru	NB Right	NB Total		SB Left	SB Thru	SB Right	SB Total		
8:00	0	0	2	2	0.56	0	0	0	0	0.69	6	25	1	32	0.88	5	29	0	34	0.78	68
8:15	1	0	2	3		1	0	3	4		5	16	4	25		8	33	1	42		74
8:30	0	0	8	8		2	0	2	4		9	20	7	36		6	30	4	40		88
8:45	1	0	4	5		2	0	1	3		7	27	3	37		10	38	7	55		100
Total	2	0	16	18		5	0	6	11		27	88	15	130		29	130	12	171		330

**Blue Parkway & North Access
AM**

Time	Eastbound				Westbound				Northbound				Southbound				Int. Total
	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	
7:00	3	0	2	5	0	0	0	0	1	11	0	12	2	29	3	34	51
7:15	12	0	1	13	0	0	0	0	0	20	0	20	0	34	15	49	82
7:30	2	0	0	2	0	0	0	0	1	30	1	32	0	47	9	56	90
7:45	6	0	6	12	0	0	1	1	4	18	1	23	4	59	9	72	108
8:00	3	0	1	4	1	0	0	1	2	27	1	30	1	45	10	56	91
8:15	1	0	2	3	1	0	0	1	1	19	1	21	0	44	11	55	80
8:30	14	0	3	17	1	0	1	2	1	18	1	20	0	43	17	60	99
8:45	4	0	2	6	0	0	0	0	10	16	0	26	2	58	24	84	116
Total	45	0	17	62	3	0	2	5	20	159	5	184	9	359	98	466	717

Time	Eastbound				PHF	Westbound				PHF	Northbound				PHF	Southbound				PHF	Int. Total
	EB Left	EB Thru	EB Right	EB Total		WB Left	WB Thru	WB Right	WB Total		NB Left	NB Thru	NB Right	NB Total		SB Left	SB Thru	SB Right	SB Total		
8:00	3	0	1	4	0.44	1	0	0	1	0.5	2	27	1	30	0.81	1	45	10	56	0.76	91
8:15	1	0	2	3		1	0	0	1		1	19	1	21		0	44	11	55		80
8:30	14	0	3	17		1	0	1	2		1	18	1	20		0	43	17	60		99
8:45	4	0	2	6		0	0	0	0		10	16	0	26		2	58	24	84		116
Total	22	0	8	30		3	0	1	4		14	80	3	97		3	190	62	255		386

Blue Parkway & South Access
AM

Time	Eastbound				Westbound				Northbound				Southbound				Int. Total
	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	
7:00	5	2	14	21	4	1	1	6	11	8	8	27	16	13	9	38	92
7:15	4	1	13	18	1	1	0	2	15	30	8	53	6	19	8	33	106
7:30	3	0	21	24	1	0	1	2	22	18	11	51	11	30	4	45	122
7:45	5	0	22	27	5	1	1	7	29	17	12	58	9	37	7	53	145
8:00	9	1	29	39	3	1	3	7	34	22	13	69	6	19	10	35	150
8:15	6	0	33	39	3	0	3	6	31	16	9	56	7	22	7	36	137
8:30	8	1	27	36	4	0	2	6	22	25	9	56	4	26	9	39	137
8:45	3	1	19	23	5	0	2	7	31	33	12	76	5	25	13	43	149
Total	43	6	178	227	26	4	13	43	195	169	82	446	64	191	67	322	1038

PHF																					Int. Total
Time	EB Left	EB Thru	EB Right	EB Total	PHF	WB Left	WB Thru	WB Right	WB Total	PHF	NB Left	NB Thru	NB Right	NB Total	PHF	SB Left	SB Thru	SB Right	SB Total	PHF	
8:00	9	1	29	39	0.88	3	1	3	7	0.93	34	22	13	69	0.85	6	19	10	35	0.89	150
8:15	6	0	33	39		3	0	3	6		31	16	9	56		7	22	7	36		137
8:30	8	1	27	36		4	0	2	6		22	25	9	56		4	26	9	39		137
8:45	3	1	19	23		5	0	2	7		31	33	12	76		5	25	13	43		149
Total	26	3	108	137		15	1	10	26		118	96	43	257		22	92	39	153		573

Blue Parkway & Hwy 50 WB Ramp
AM

Time	Eastbound				Westbound				Northbound				Southbound				Int. Total
	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	
7:00	0	0	0	0	21	31	5	57	26	19	0	45	0	19	2	21	123
7:15	0	0	0	0	32	28	3	63	40	35	0	75	0	19	6	25	163
7:30	0	0	0	0	53	63	17	133	33	32	0	65	0	17	10	27	225
7:45	0	0	0	0	40	56	12	108	24	35	0	59	0	25	7	32	199
8:00	0	0	0	0	33	27	9	69	29	34	0	63	0	12	4	16	148
8:15	0	0	0	0	44	33	7	84	22	26	0	48	0	22	6	28	160
8:30	0	0	0	0	32	38	3	73	29	29	0	58	0	23	6	29	160
8:45	0	0	0	0	40	47	12	99	16	23	0	39	0	27	4	31	169
Total	0	0	0	0	295	323	68	686	219	233	0	452	0	164	45	209	1347

PHF																					Int. Total
Time	EB Left	EB Thru	EB Right	EB Total	PHF	WB Left	WB Thru	WB Right	WB Total	PHF	NB Left	NB Thru	NB Right	NB Total	PHF	SB Left	SB Thru	SB Right	SB Total	PHF	
8:00	0	0	0	0	#DIV/0!	33	27	9	69	0.82	29	34	0	63	0.83	0	12	4	16	0.84	148
8:15	0	0	0	0		44	33	7	84		22	26	0	48		0	22	6	28		160
8:30	0	0	0	0		32	38	3	73		29	29	0	58		0	23	6	29		160
8:45	0	0	0	0		40	47	12	99		16	23	0	39		0	27	4	31		169
Total	0	0	0	0		149	145	31	325		96	112	0	208		0	84	20	104		637

**Blue Parkway & Hwy 50 EB Ramp
AM**

Time	Eastbound				Westbound				Northbound				Southbound				Int. Total
	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	
7:00	3	49	30	82	0	0	0	0	0	42	7	49	2	37	0	39	170
7:15	11	70	35	116	0	0	0	0	0	63	19	82	1	50	0	51	249
7:30	5	80	49	134	0	0	0	0	0	57	16	73	5	66	0	71	278
7:45	12	89	54	155	0	0	0	0	0	50	17	67	5	63	0	68	290
8:00	5	69	36	110	0	0	0	0	0	55	16	71	1	43	0	44	225
8:15	10	67	58	135	0	0	0	0	0	38	14	52	4	64	0	68	255
8:30	5	54	49	108	0	0	0	0	0	54	17	71	5	52	0	57	236
8:45	12	75	54	141	0	0	0	0	0	29	21	50	5	63	0	68	259
Total	63	553	365	981	0	0	0	0	0	388	127	515	28	438	0	466	1962

Time	PHF																				Int. Total
	EB Left	EB Thru	EB Right	EB Total	PHF	WB Left	WB Thru	WB Right	WB Total	PHF	NB Left	NB Thru	NB Right	NB Total	PHF	SB Left	SB Thru	SB Right	SB Total	PHF	
8:00	5	69	36	110	0.88	0	0	0	0	#DIV/0!	0	55	16	71	0.86	1	43	0	44	0.87	225
8:15	10	67	58	135		0	0	0	0		0	38	14	52		4	64	0	68		255
8:30	5	54	49	108		0	0	0	0		0	54	17	71		5	52	0	57		236
8:45	12	75	54	141		0	0	0	0		0	29	21	50		5	63	0	68		259
Total	32	265	197	494		0	0	0	0		0	176	68	244		15	222	0	237		975

7/12/2022
Chipman & Ward Rd
PM

Time	Eastbound				Westbound				Northbound				Southbound				Int. Total
	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	
19:00	14	60	2	76	14	66	11	91	9	9	13	31	10	13	7	30	228
19:15	15	46	7	68	13	44	9	66	4	16	19	39	14	16	6	36	209
19:30	13	64	3	80	13	59	3	75	13	27	17	57	20	25	7	52	264
19:45	24	74	9	107	19	44	10	73	7	12	17	36	26	35	6	67	283
20:00	17	61	4	82	16	47	9	72	4	27	16	47	11	33	7	51	252
20:15	8	59	0	67	18	59	7	84	5	13	14	32	15	29	2	46	229
20:30	15	75	6	96	11	38	11	60	9	23	10	42	18	24	6	48	246
20:45	15	48	3	66	11	42	12	65	3	16	14	33	17	27	4	48	212
Total	121	487	34	642	115	399	72	586	54	143	120	317	131	202	45	378	1923

Time	Eastbound				PHF	Westbound				PHF	Northbound				PHF	Southbound				PHF	Int. Total
	EB Left	EB Thru	EB Right	EB Total		WB Left	WB Thru	WB Right	WB Total		NB Left	NB Thru	NB Right	NB Total		SB Left	SB Thru	SB Right	SB Total		
20:00	17	61	4	82	0.81	16	47	9	72	0.84	4	27	16	47	0.82	11	33	7	51	0.95	252
20:15	8	59	0	67		18	59	7	84		5	13	14	32		15	29	2	46		229
20:30	15	75	6	96		11	38	11	60		9	23	10	42		18	24	6	48		246
20:45	15	48	3	66		11	42	12	65		3	16	14	33		17	27	4	48		212
Total	55	243	13	311		56	186	39	281		21	79	54	154		61	113	19	193		939

Chipman & Donovan Rd
PM

Time	Eastbound				Westbound				Northbound				Southbound				Int. Total
	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	
19:00	4	82	3	89	20	87	11	118	1	4	17	22	19	8	1	28	257
19:15	6	77	2	85	12	56	23	91	3	3	6	12	17	6	3	26	214
19:30	5	85	6	96	15	71	11	97	1	2	10	13	15	4	1	20	226
19:45	4	98	3	105	11	75	17	103	0	4	15	19	16	6	3	25	252
20:00	4	89	3	96	22	79	18	119	2	5	11	18	24	4	1	29	262
20:15	6	80	4	90	18	84	15	117	1	5	13	19	20	4	2	26	252
20:30	5	91	1	97	12	52	13	77	0	3	10	13	11	7	5	23	210
20:45	5	72	3	80	16	67	17	100	0	3	11	14	15	7	2	24	218
Total	39	674	25	738	126	571	125	822	8	29	93	130	137	46	18	201	1891

Time	Eastbound				PHF	Westbound				PHF	Northbound				PHF	Southbound				PHF	Int. Total
	EB Left	EB Thru	EB Right	EB Total		WB Left	WB Thru	WB Right	WB Total		NB Left	NB Thru	NB Right	NB Total		SB Left	SB Thru	SB Right	SB Total		
20:00	4	89	3	96	0.94	22	79	18	119	0.87	2	5	11	18	0.84	24	4	1	29	0.88	262
20:15	6	80	4	90		18	84	15	117		1	5	13	19		20	4	2	26		252
20:30	5	91	1	97		12	52	13	77		0	3	10	13		11	7	5	23		210
20:45	5	72	3	80		16	67	17	100		0	3	11	14		15	7	2	24		218
Total	20	332	11	363		68	282	63	413		3	16	45	64		70	22	10	102		942

Ward & Tudor Rd
PM

Time	Eastbound				Westbound				Northbound				Southbound				Int. Total
	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	
19:00	0	0	0	0	19	0	48	67	0	35	24	59	60	38	0	98	224
19:15	0	0	0	0	28	0	40	68	0	26	16	42	57	42	0	99	209
19:30	0	0	0	0	26	0	51	77	0	51	29	80	49	56	0	105	262
19:45	0	0	0	0	24	0	46	70	0	41	28	69	59	66	0	125	264
20:00	0	0	0	0	20	0	55	75	0	45	21	66	77	63	0	140	281
20:15	0	0	0	0	28	0	61	89	1	36	14	51	58	63	0	121	261
20:30	0	0	0	0	17	0	48	65	2	45	21	68	47	57	0	104	237
20:45	0	0	0	0	12	0	34	46	2	43	16	61	54	47	0	101	208
Total	0	0	0	0	174	0	383	557	5	322	169	496	461	432	0	893	1946

Time	PHF																				Int. Total
	EB Left	EB Thru	EB Right	EB Total	PHF	WB Left	WB Thru	WB Right	WB Total	PHF	NB Left	NB Thru	NB Right	NB Total	PHF	SB Left	SB Thru	SB Right	SB Total	PHF	
20:00	0	0	0	0	#DIV/0!	20	0	55	75	0.77	0	45	21	66	0.9	77	63	0	140	0.83	281
20:15	0	0	0	0		28	0	61	89		1	36	14	51		58	63	0	121		261
20:30	0	0	0	0		17	0	48	65		2	45	21	68		47	57	0	104		237
20:45	0	0	0	0		12	0	34	46		2	43	16	61		54	47	0	101		208
Total	0	0	0	0		77	0	198	275		5	169	72	246		236	230	0	466		987

Ward & Outview Rd
PM

Time	Eastbound				Westbound				Northbound				Southbound				Int. Total
	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	
19:00	4	0	2	6	0	0	8	8	0	81	2	83	3	100	0	103	200
19:15	1	0	3	4	0	0	3	3	1	63	1	65	4	88	1	93	165
19:30	6	0	4	10	1	0	2	3	0	100	3	103	8	96	0	104	220
19:45	4	1	6	11	0	0	3	3	1	85	0	86	5	126	0	131	231
20:00	3	0	4	7	1	0	6	7	1	97	1	99	3	126	0	129	242
20:15	2	0	3	5	2	0	20	22	1	96	1	98	7	113	1	121	246
20:30	2	0	2	4	0	0	9	9	0	89	2	91	2	109	0	111	215
20:45	0	0	0	0	0	0	3	3	0	76	1	77	12	97	0	109	189
Total	22	1	24	47	4	0	54	58	4	687	11	702	44	855	2	901	1708

Time	PHF																				Int. Total
	EB Left	EB Thru	EB Right	EB Total	PHF	WB Left	WB Thru	WB Right	WB Total	PHF	NB Left	NB Thru	NB Right	NB Total	PHF	SB Left	SB Thru	SB Right	SB Total	PHF	
20:00	3	0	4	7	0.57	1	0	6	7	0.47	1	97	1	99	0.92	3	126	0	129	0.91	242
20:15	2	0	3	5		2	0	20	22		1	96	1	98		7	113	1	121		246
20:30	2	0	2	4		0	0	9	9		0	89	2	91		2	109	0	111		215
20:45	0	0	0	0		0	0	3	3		0	76	1	77		12	97	0	109		189
Total	7	0	9	16		3	0	38	41		2	358	5	365		24	445	1	470		892

Donovan & Ward Rd
PM

Time	Eastbound				Westbound				Northbound				Southbound				Int. Total
	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	
19:00	0	0	0	0	4	0	18	22	0	0	4	4	28	0	0	28	54
19:15	0	0	0	0	7	0	25	32	0	0	2	2	20	0	1	21	55
19:30	0	0	0	0	7	0	18	25	0	1	2	3	31	0	0	31	59
19:45	0	0	0	0	10	0	22	32	0	0	3	3	33	0	0	33	68
20:00	0	1	0	1	3	0	23	26	0	0	0	0	35	0	0	35	62
20:15	0	0	0	0	6	0	20	26	0	0	1	1	36	0	0	36	63
20:30	0	0	0	0	7	0	19	26	0	0	0	0	28	0	0	28	54
20:45	0	0	0	0	2	0	7	9	0	0	3	3	11	0	0	11	23
Total	0	1	0	1	46	0	152	198	0	1	15	16	222	0	1	223	438

Time	PHF																				Int. Total
	EB Left	EB Thru	EB Right	EB Total	PHF	WB Left	WB Thru	WB Right	WB Total	PHF	NB Left	NB Thru	NB Right	NB Total	PHF	SB Left	SB Thru	SB Right	SB Total	PHF	
20:00	0	1	0	1	0.25	3	0	23	26	0.84	0	0	0	0	0.33	35	0	0	35	0.76	62
20:15	0	0	0	0		6	0	20	26		0	0	1	1		36	0	0	36		63
20:30	0	0	0	0		7	0	19	26		0	0	0	0		28	0	0	28		54
20:45	0	0	0	0		2	0	7	9		0	0	3	3		11	0	0	11		23
Total	0	1	0	1		18	0	69	87		0	0	4	4		110	0	0	110		202

Chipman & Outerview Rd
PM

Time	Eastbound				Westbound				Northbound				Southbound				Int. Total
	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	
19:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19:15	0	0	0	0	0	0	1	1	0	0	0	0	0	0	3	3	4
19:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	7	7
19:45	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1	1	2
20:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20:45	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	0	3	3	0	0	0	0	0	0	11	11	14

Time	PHF																				Int. Total
	EB Left	EB Thru	EB Right	EB Total	PHF	WB Left	WB Thru	WB Right	WB Total	PHF	NB Left	NB Thru	NB Right	NB Total	PHF	SB Left	SB Thru	SB Right	SB Total	PHF	
20:00	0	0	0	0	#DIV/0!	0	0	0	0	0.25	0	0	0	0	#DIV/0!	0	0	0	0	#DIV/0!	0
20:15	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		0
20:30	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		0
20:45	0	0	0	0		0	0	1	1		0	0	0	0		0	0	0	0		1
Total	0	0	0	0		0	0	1	1		0	0	0	0		0	0	0	0		1

Ward & Aldi Entrance
PM

Time	Eastbound				Westbound				Northbound				Southbound				Int. Total
	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	
19:00	0	0	7	7	0	0	7	7	0	0	5	5	1	0	0	1	20
19:15	0	0	9	9	0	0	9	9	0	0	7	7	3	0	0	3	28
19:30	0	0	7	7	0	0	7	7	0	0	11	11	0	0	0	0	25
19:45	0	0	13	13	0	0	13	13	0	0	16	16	2	0	0	2	44
20:00	0	0	16	16	0	0	16	16	0	0	14	14	4	0	0	4	50
20:15	0	0	10	10	0	0	10	10	0	0	12	12	3	0	0	3	35
20:30	0	0	18	18	0	0	18	18	0	0	22	22	6	0	0	6	64
20:45	0	0	9	9	0	0	9	9	0	0	9	9	4	0	0	4	31
Total	0	0	89	89	0	0	89	89	0	0	96	96	23	0	0	23	297

Time	Eastbound				PHF	Westbound				PHF	Northbound				PHF	Southbound				PHF	Int. Total
	EB Left	EB Thru	EB Right	EB Total		WB Left	WB Thru	WB Right	WB Total		NB Left	NB Thru	NB Right	NB Total		SB Left	SB Thru	SB Right	SB Total		
20:00	0	0	16	16	0.74	0	0	16	16	0.74	0	0	14	14	0.65	4	0	0	4	0.71	50
20:15	0	0	10	10		0	0	10	10		0	0	12	12		3	0	0	3		35
20:30	0	0	18	18		0	0	18	18		0	0	22	22		6	0	0	6		64
20:45	0	0	9	9		0	0	9	9		0	0	9	9		4	0	0	4		31
Total	0	0	53	53		0	0	53	53		0	0	57	57		17	0	0	17		180

Outview Rd & South Entrance
PM

Time	Eastbound				Westbound				Northbound				Southbound				Int. Total
	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	
19:00	2	0	0	2	0	0	0	0	2	0	0	2	0	0	0	0	4
19:15	3	0	3	6	0	0	0	0	0	0	0	0	0	0	2	2	8
19:30	4	0	1	5	0	0	0	0	4	0	0	4	0	0	1	1	10
19:45	5	0	2	7	0	0	0	0	2	0	0	2	0	0	0	0	9
20:00	2	0	4	6	0	0	0	0	1	0	0	1	0	0	0	0	7
20:15	3	0	0	3	0	0	0	0	1	0	0	1	0	0	3	3	7
20:30	1	0	0	1	0	0	0	0	3	0	0	3	0	0	1	1	5
20:45	0	0	2	2	0	0	0	0	1	0	0	1	0	0	2	2	5
Total	20	0	12	32	0	0	0	0	14	0	0	14	0	0	9	9	55

Time	Eastbound				PHF	Westbound				PHF	Northbound				PHF	Southbound				PHF	Int. Total
	EB Left	EB Thru	EB Right	EB Total		WB Left	WB Thru	WB Right	WB Total		NB Left	NB Thru	NB Right	NB Total		SB Left	SB Thru	SB Right	SB Total		
20:00	2	0	4	6	0.5	0	0	0	0	#DIV/0!	1	0	0	1	0.5	0	0	0	0	0.50	7
20:15	3	0	0	3		0	0	0	0		1	0	0	1		0	0	3	3		7
20:30	1	0	0	1		0	0	0	0		3	0	0	3		0	0	1	1		5
20:45	0	0	2	2		0	0	0	0		1	0	0	1		0	0	2	2		5
Total	6	0	6	12		0	0	0	0		6	0	0	6		0	0	6	6		24

**Outerview Rd & North Entrance
PM**

Time	Eastbound				Westbound				Northbound				Southbound				Int. Total
	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	
19:00	1	0	0	1	0	0	0	0	3	0	0	3	0	0	2	2	6
19:15	0	0	2	2	0	0	0	0	0	0	0	0	0	0	2	2	4
19:30	2	0	2	4	0	0	0	0	1	0	0	1	0	0	0	0	5
19:45	0	0	1	1	0	0	0	0	0	0	0	0	0	0	2	2	3
20:00	1	0	3	4	0	0	0	0	0	0	0	0	0	0	1	1	5
20:15	1	0	0	1	0	0	0	0	1	0	0	1	0	0	2	2	4
20:30	2	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	3
20:45	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	2
Total	7	0	9	16	0	0	0	0	6	0	0	6	0	0	10	10	32

Time	PHF																				Int. Total
	EB Left	EB Thru	EB Right	EB Total	PHF	WB Left	WB Thru	WB Right	WB Total	PHF	NB Left	NB Thru	NB Right	NB Total	PHF	SB Left	SB Thru	SB Right	SB Total	PHF	
20:00	1	0	3	4	0.5	0	0	0	0	#DIV/0!	0	0	0	0	0.5	0	0	1	1	0.50	5
20:15	1	0	0	1		0	0	0	0		1	0	0	1		0	0	2	2		4
20:30	2	0	1	3		0	0	0	0		0	0	0	0		0	0	0	0		3
20:45	0	0	0	0		0	0	0	0		1	0	0	1		0	0	1	1		2
Total	4	0	4	8		0	0	0	0		2	0	0	2		0	0	4	4		14

**Blue Parkway and Ward/Blue Parkway (north intersection)
PM**

Time	Eastbound				Westbound				Northbound				Southbound				Int. Total
	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	
19:00		54	76	130	12	56	0	68	103	0	12	115	0	0	0	0	313
19:15	1	62	61	124	10	36	0	46	57	0	10	67	0	0	0	0	237
19:30	0	76	75	151	9	62	0	71	65	0	9	74	0	0	0	0	296
19:45	0	88	73	161	8	48	0	56	59	0	12	71	0	0	0	0	288
20:00	0	78	94	172	12	39	0	51	64	0	19	83	0	0	0	0	306
20:15	0	68	100	168	11	50	0	61	61	0	18	79	0	0	0	0	308
20:30	0	89	72	161	12	42	0	54	62	0	12	74	0	0	0	0	289
20:45	1	108	84	193	10	77	0	87	51	0	15	66	0	0	0	0	346
Total	2	623	635	1260	84	410	0	494	522	0	107	629	0	0	0	0	2383

Time	PHF																				Int. Total
	EB Left	EB Thru	EB Right	EB Total	PHF	WB Left	WB Thru	WB Right	WB Total	PHF	NB Left	NB Thru	NB Right	NB Total	PHF	SB Left	SB Thru	SB Right	SB Total	PHF	
20:00	0	78	94	172	0.9	12	39	0	51	0.73	64	0	19	83	0.91	0	0	0	0	#DIV/0!	306
20:15	0	68	100	168		11	50	0	61		61	0	18	79		0	0	0	0		308
20:30	0	89	72	161		12	42	0	54		62	0	12	74		0	0	0	0		289
20:45	1	108	84	193		10	77	0	87		51	0	15	66		0	0	0	0		346
Total	1	343	350	694		45	208	0	253		238	0	64	302		0	0	0	0		1249

**Blue Parkway & Mid/Center Access
PM**

Time	Eastbound				Westbound				Northbound				Southbound				Int. Total
	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	
19:00	9	0	22	31	5	0	22	27	14	52	0	66	8	66	5	79	203
19:15	7	0	14	21	8	1	6	15	16	29	0	45	0	59	7	66	147
19:30	5	0	19	24	7	0	15	22	14	46	1	61	4	36	6	46	153
19:45	10	1	19	30	0	1	4	5	19	43	1	63	0	69	8	77	175
20:00	3	0	18	21	0	2	5	7	10	47	1	58	4	64	7	75	161
20:15	9	0	15	24	4	0	1	5	15	41	0	56	2	67	10	79	164
20:30	12	0	20	32	0	2	7	9	10	37	0	47	0	64	12	76	164
20:45	19	0	25	44	1	0	2	3	13	31	0	44	1	53	7	61	152
Total	74	1	152	227	25	6	62	93	111	326	3	440	19	478	62	559	1319

Time	Eastbound				PHF	Westbound				PHF	Northbound				PHF	Southbound				PHF	Int. Total
	EB Left	EB Thru	EB Right	EB Total		WB Left	WB Thru	WB Right	WB Total		NB Left	NB Thru	NB Right	NB Total		SB Left	SB Thru	SB Right	SB Total		
20:00	3	0	18	21	0.69	0	2	5	7	0.67	10	47	1	58	0.88	4	64	7	75	0.92	161
20:15	9	0	15	24		4	0	1	5		15	41	0	56		2	67	10	79		164
20:30	12	0	20	32		0	2	7	9		10	37	0	47		0	64	12	76		164
20:45	19	0	25	44		1	0	2	3		13	31	0	44		1	53	7	61		152
Total	43	0	78	121		5	4	15	24		48	156	1	205		7	248	36	291		641

**Blue Parkway & North Access
PM**

Time	Eastbound				Westbound				Northbound				Southbound				Int. Total
	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	
19:00	23	0	13	36	0	0	2	2	9	88	0	97	0	54	35	89	224
19:15	22	0	11	33	1	0	3	4	5	43	0	48	0	47	25	72	157
19:30	21	0	16	37	1	0	1	2	7	59	0	66	0	56	26	82	187
19:45	14	0	12	26	0	0	2	2	4	53	0	57	0	58	23	81	166
20:00	25	0	14	39	0	0	2	2	9	61	0	70	0	71	35	106	217
20:15	31	0	18	49	0	0	0	0	11	52	0	63	0	70	41	111	223
20:30	17	0	18	35	0	0	1	1	9	52	0	61	1	48	34	83	180
20:45	16	0	14	30	0	0	1	1	6	48	0	54	1	54	42	97	182
Total	169	0	116	285	2	0	12	14	60	456	0	516	2	458	261	721	1536

Time	Eastbound				PHF	Westbound				PHF	Northbound				PHF	Southbound				PHF	Int. Total
	EB Left	EB Thru	EB Right	EB Total		WB Left	WB Thru	WB Right	WB Total		NB Left	NB Thru	NB Right	NB Total		SB Left	SB Thru	SB Right	SB Total		
20:00	25	0	14	39	0.78	0	0	2	2	0.5	9	61	0	70	0.89	0	71	35	106	0.89	217
20:15	31	0	18	49		0	0	0	0		11	52	0	63		0	70	41	111		223
20:30	17	0	18	35		0	0	1	1		9	52	0	61		1	48	34	83		180
20:45	16	0	14	30		0	0	1	1		6	48	0	54		1	54	42	97		182
Total	89	0	64	153		0	0	4	4		35	213	0	248		2	243	152	397		802

Blue Parkway & South Access
PM

Time	Eastbound				Westbound				Northbound				Southbound				Int. Total
	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	
19:00	6	0	52	58	16	0	23	39	53	35	10	98	6	59	22	87	282
19:15	13	0	58	71	12	1	4	17	54	29	6	89	0	63	27	90	267
19:30	11	0	51	62	10	4	9	23	51	42	7	100	3	49	16	68	253
19:45	11	0	79	90	5	1	4	10	80	47	7	134	5	50	28	83	317
20:00	9	2	65	76	14	0	10	24	49	36	10	95	4	52	26	82	277
20:15	12	1	66	79	9	5	7	21	78	41	6	125	0	70	25	95	320
20:30	19	1	81	101	6	2	6	14	82	24	4	110	1	50	37	88	313
20:45	8	1	66	75	8	2	9	19	82	26	13	121	1	49	35	85	300
Total	89	5	518	612	80	15	72	167	529	280	63	872	20	442	216	678	2329

Time	PHF																				Int. Total
	EB Left	EB Thru	EB Right	EB Total	PHF	WB Left	WB Thru	WB Right	WB Total	PHF	NB Left	NB Thru	NB Right	NB Total	PHF	SB Left	SB Thru	SB Right	SB Total	PHF	
20:00	9	2	65	76	0.82	14	0	10	24	0.81	49	36	10	95	0.9	4	52	26	82	0.92	277
20:15	12	1	66	79		9	5	7	21		78	41	6	125		0	70	25	95		320
20:30	19	1	81	101		6	2	6	14		82	24	4	110		1	50	37	88		313
20:45	8	1	66	75		8	2	9	19		82	26	13	121		1	49	35	85		300
Total	48	5	278	331		37	9	32	78		291	127	33	451		6	221	123	350		1210

Blue Parkway & Hwy 50 WB Ramp
PM

Time	Eastbound				Westbound				Northbound				Southbound				Int. Total
	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	
19:00	0	0	0	0	41	75	5	121	48	36	0	84	0	35	8	43	248
7:15	0	0	0	0	41	77	5	123	41	33	0	74	0	26	9	35	232
7:30	0	0	0	0	36	83	2	121	55	42	0	97	0	49	15	64	282
7:45	0	0	0	0	40	96	2	138	37	35	0	72	0	27	9	36	246
8:00	0	0	0	0	44	97	4	145	46	39	0	85	0	50	11	61	291
8:15	0	0	0	0	47	112	1	160	31	29	0	60	0	38	9	47	267
8:30	0	0	0	0	37	103	3	143	52	22	0	74	0	36	5	41	258
8:45	0	0	0	0	37	80	4	121	65	33	0	98	0	39	8	47	266
Total	0	0	0	0	323	723	26	1072	375	269	0	644	0	300	74	374	2090

Time	PHF																				Int. Total
	EB Left	EB Thru	EB Right	EB Total	PHF	WB Left	WB Thru	WB Right	WB Total	PHF	NB Left	NB Thru	NB Right	NB Total	PHF	SB Left	SB Thru	SB Right	SB Total	PHF	
8:00	0	0	0	0	#DIV/0!	44	97	4	145	0.89	46	39	0	85	0.81	0	50	11	61	0.80	291
8:15	0	0	0	0		47	112	1	160		31	29	0	60		0	38	9	47		267
8:30	0	0	0	0		37	103	3	143		52	22	0	74		0	36	5	41		258
8:45	0	0	0	0		37	80	4	121		65	33	0	98		0	39	8	47		266
Total	0	0	0	0		165	392	12	569		194	123	0	317		0	163	33	196		1082

Blue Parkway & Hwy 50 EB Ramp
PM

Time	Eastbound				Westbound				Northbound				Southbound				Int. Total
	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	
7:00	10	79	56	145	0	0	0	0	0	80	56	136	12	67	0	79	360
7:15	7	70	59	136	0	0	0	0	0	73	28	101	7	68	0	75	312
7:30	10	83	58	151	0	0	0	0	0	78	56	134	10	77	0	87	372
7:45	11	76	79	166	0	0	0	0	1	65	34	100	1	75	0	76	342
8:00	9	73	80	162	0	0	0	0	0	73	43	116	8	85	0	93	371
8:15	2	68	89	159	0	0	0	0	0	56	44	100	2	81	0	83	342
8:30	2	66	81	149	0	0	0	0	0	77	37	114	4	77	0	81	344
8:45	5	77	84	166	0	0	0	0	0	96	32	128	4	72	0	76	370
Total	56	592	586	1234	0	0	0	0	1	598	330	929	48	602	0	650	2813

Time	PHF																				Int. Total
	EB Left	EB Thru	EB Right	EB Total	PHF	WB Left	WB Thru	WB Right	WB Total	PHF	NB Left	NB Thru	NB Right	NB Total	PHF	SB Left	SB Thru	SB Right	SB Total	PHF	
8:00	9	73	80	162	0.96	0	0	0	0	#DIV/0!	0	73	43	116	0.89	8	85	0	93	0.90	371
8:15	2	68	89	159		0	0	0	0		0	56	44	100		2	81	0	83		342
8:30	2	66	81	149		0	0	0	0		0	77	37	114		4	77	0	81		344
8:45	5	77	84	166		0	0	0	0		0	96	32	128		4	72	0	76		370
Total	18	284	334	636		0	0	0	0		0	302	156	458		18	315	0	333		1427

Summit Orchard North TIS

ITE Trip Generation Manual - 11th Edition

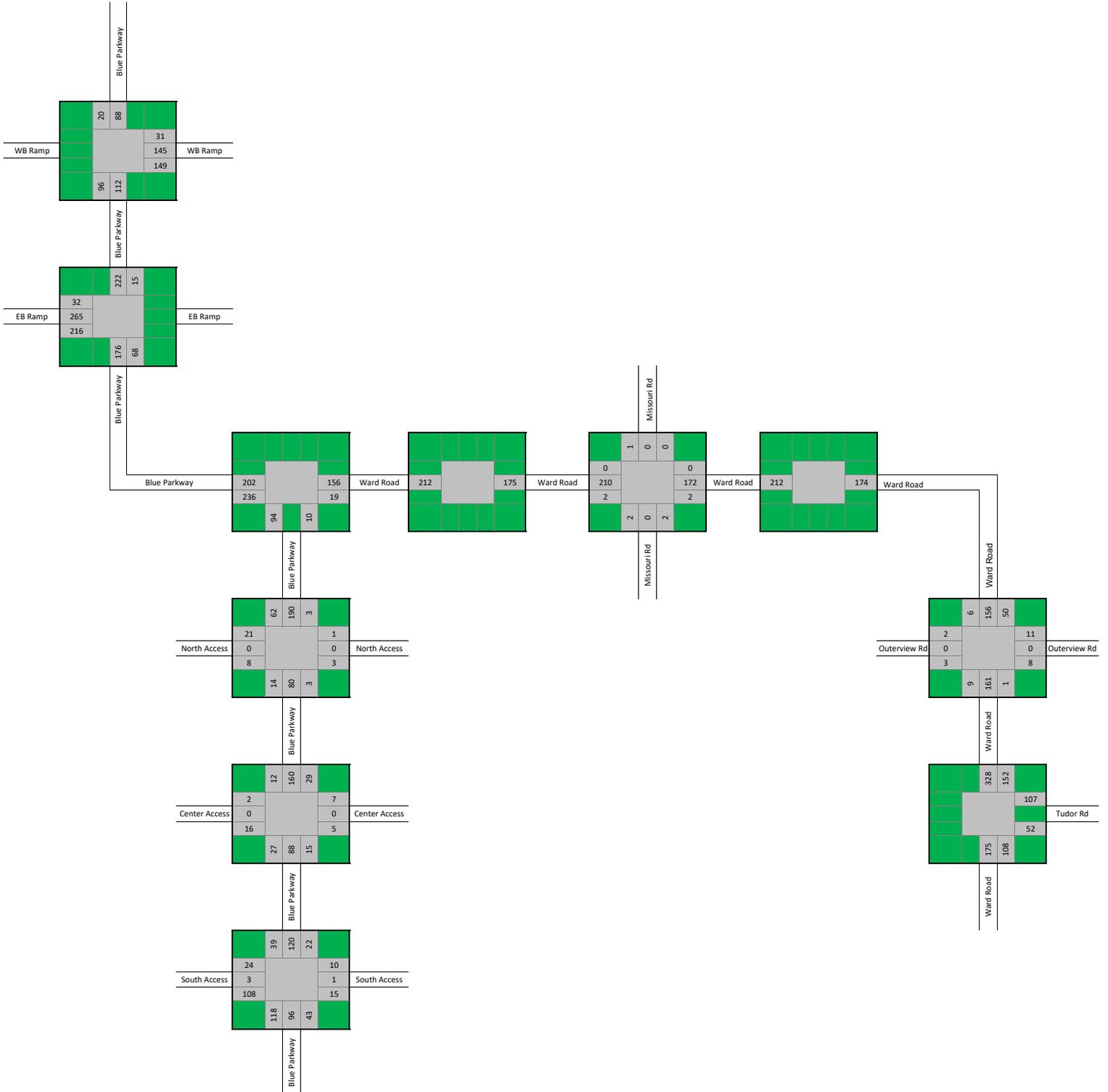
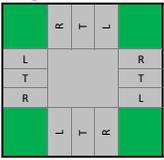
Highlighted text indicates trips used in Synchro and Warrant Analysis

Land Use	ITE Code	Size	Units	Equation	Trips (Eq.)	Av. Rate	Trips (Av. Rate)	In%	Out%	Trips In	Trips Out
PHASE I											
Automobile Sales (New) (Weekday)	840	70	1000 SF GFA	$T=28.65(X)-29.45$	1976	27.84	1949	50%	50%	988	988
Automobile Sales (New) (AM)	840	70	1000 SF GFA	n/a	n/a	1.86	130	73%	27%	95	35
Automobile Sales (New) (PM)	840	70	1000 SF GFA	$T=1.81(X)+20.91$	148	2.42	169	40%	60%	59	89
PHASE II											
Multifamily Housing (Low-Rise) (Weekday)	220	350	Dwelling Units	$T=6.41(X)+75.31$	2319	6.74	2359	50%	50%	1160	1159
High-Turnover (Sit-Down) Restaurant	932	8.4	1000 Sq Ft	n/a	n/a	107.2	900	50%	50%	450	450
Fast-Food Restaurant with Drive-Through Window	934	3.3	1000 Sq Ft	n/a	n/a	467.48	1543	50%	50%	772	771
										2382	2380
Multifamily Housing (Low-Rise) (AM)	220	350	Dwelling Units	$T=0.31(X)+22.85$	131	0.4	140	24%	76%	31	100
High-Turnover (Sit-Down) Restaurant	932	8.4	1000 Sq Ft	n/a	n/a	11.61	98	55%	45%	54	44
Fast-Food Restaurant with Drive-Through Window	934	3.3	1000 Sq Ft	n/a	n/a	44.61	147	51%	49%	75	72
										160	216
Multifamily Housing (Low-Rise) (PM)	220	350	Dwelling Units	$T=0.43(X)+20.55$	171	0.51	179	63%	37%	108	63
High-Turnover (Sit-Down) Restaurant	932	8.4	1000 Sq Ft	n/a	n/a	6.81	57	61%	39%	35	22
Fast-Food Restaurant with Drive-Through Window	934	3.3	1000 Sq Ft	n/a	n/a	33.03	109	52%	48%	57	52
										200	137

Existing AM Peak Hour Counts

Notes - Ward & Outview and Ward & Tudor counts from Summit Orchards West TIS (2022) which include Lees Summit Logistics and Summit Orchard counts. 2022 trips were done when Chipman and Hwy 50 intersection was closed so the previous trips were balanced with the new (2023) trips at other study intersections.

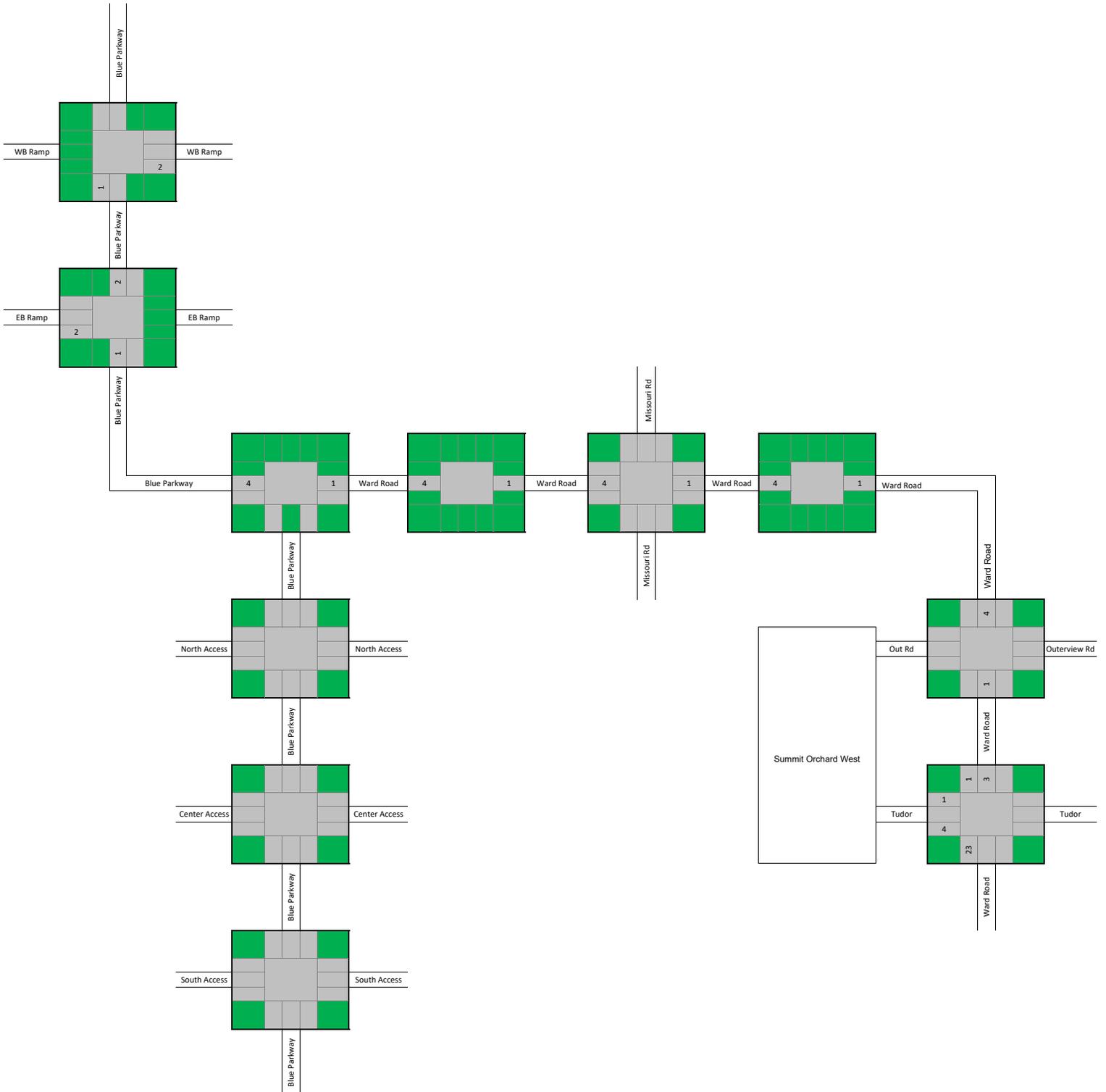
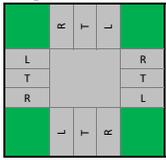
Legend



AM Approved Trips from Summit Orchard West TIS (2022)

Notes - these trips were from phase I & II of the Summit Orchard West TIS and were distributed through the network

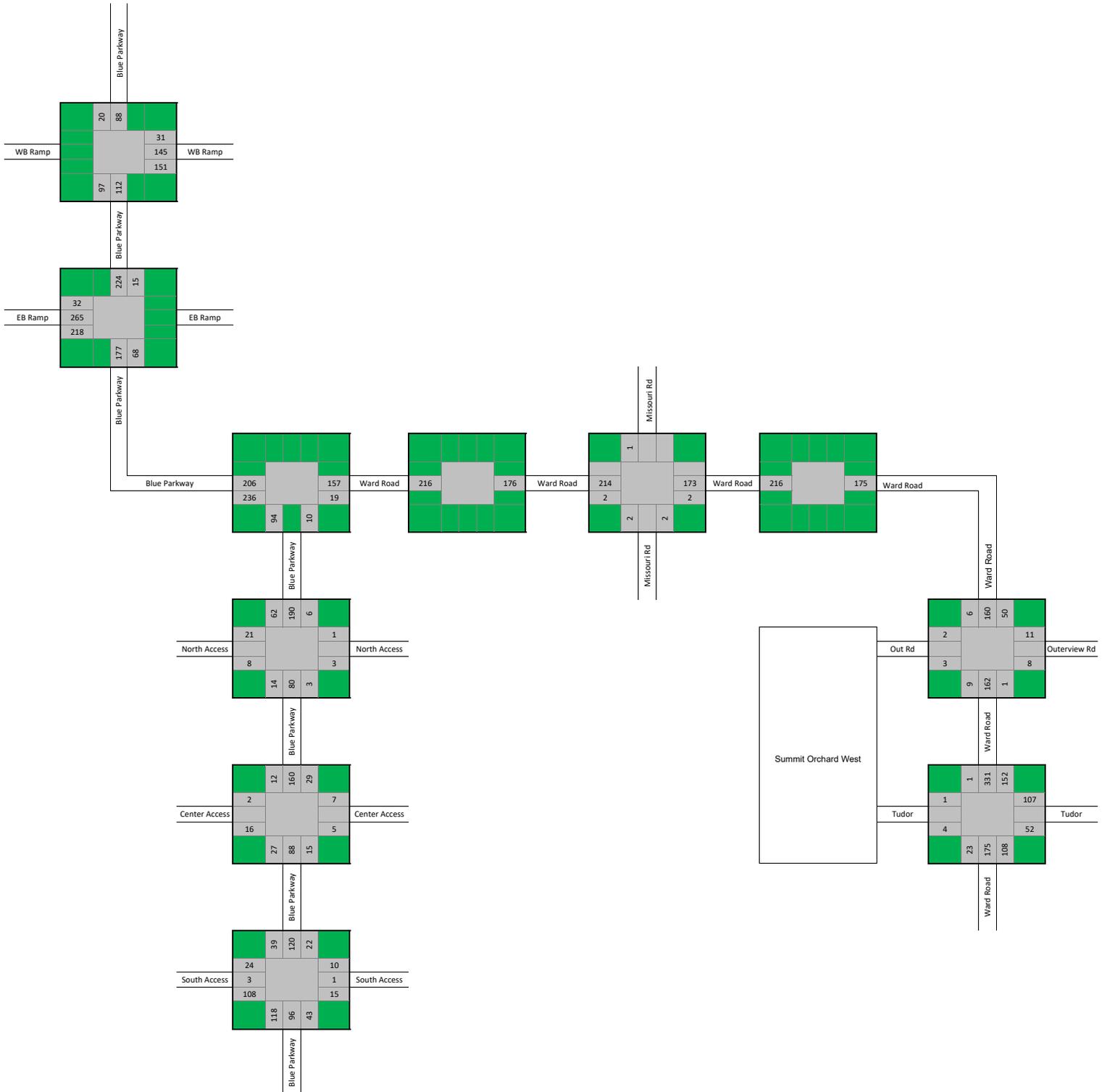
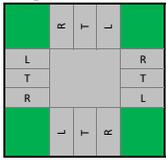
Legend



AM Existing Peak Hour Traffic

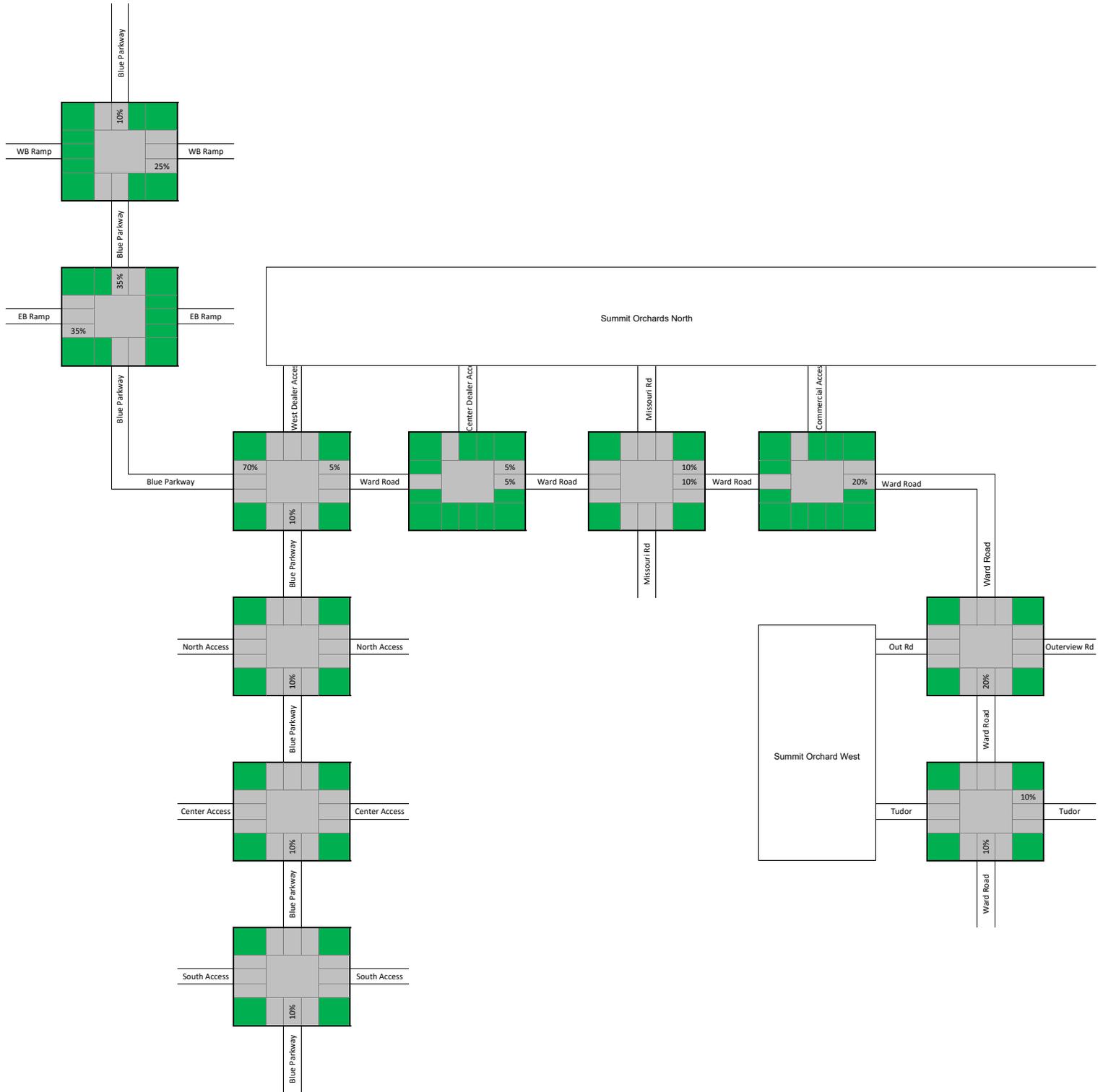
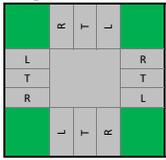
Notes - Includes balanced counts and approved trips

Legend



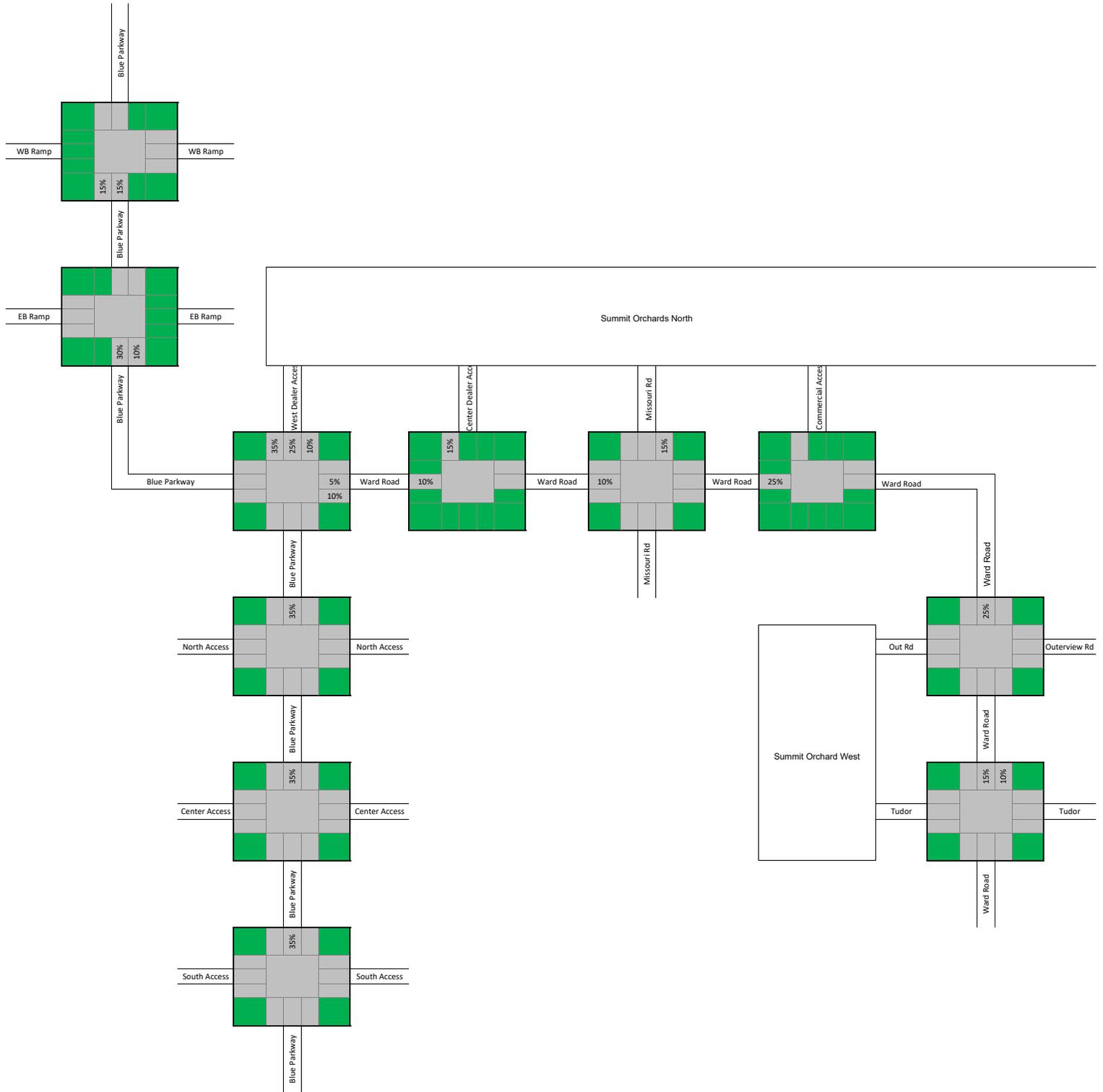
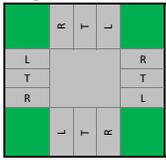
AM Distribution In - Phase I

Legend



AM Distribution Out - Phase I

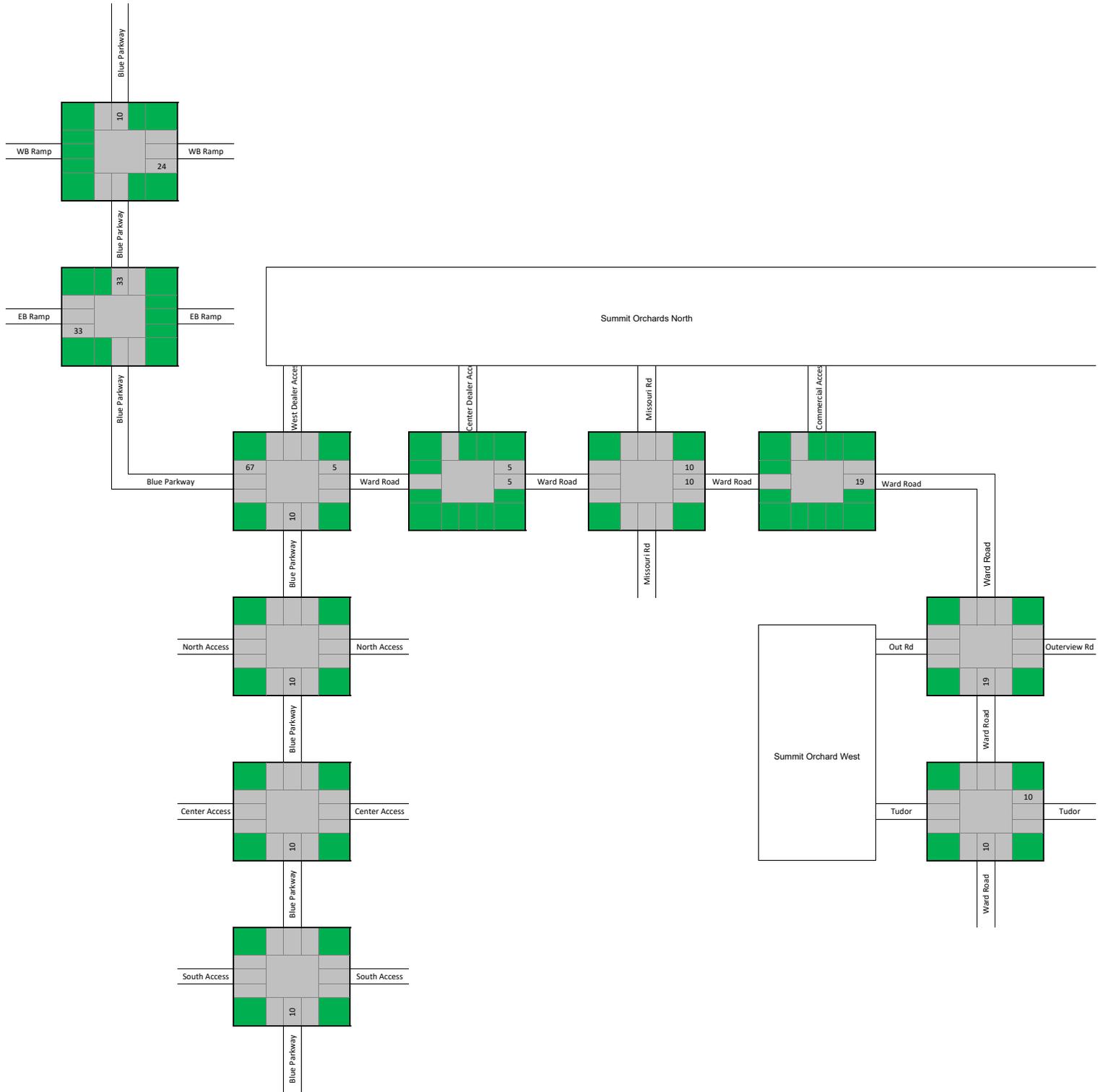
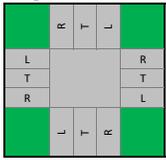
Legend



AM Trips In - Phase I

Trips
95

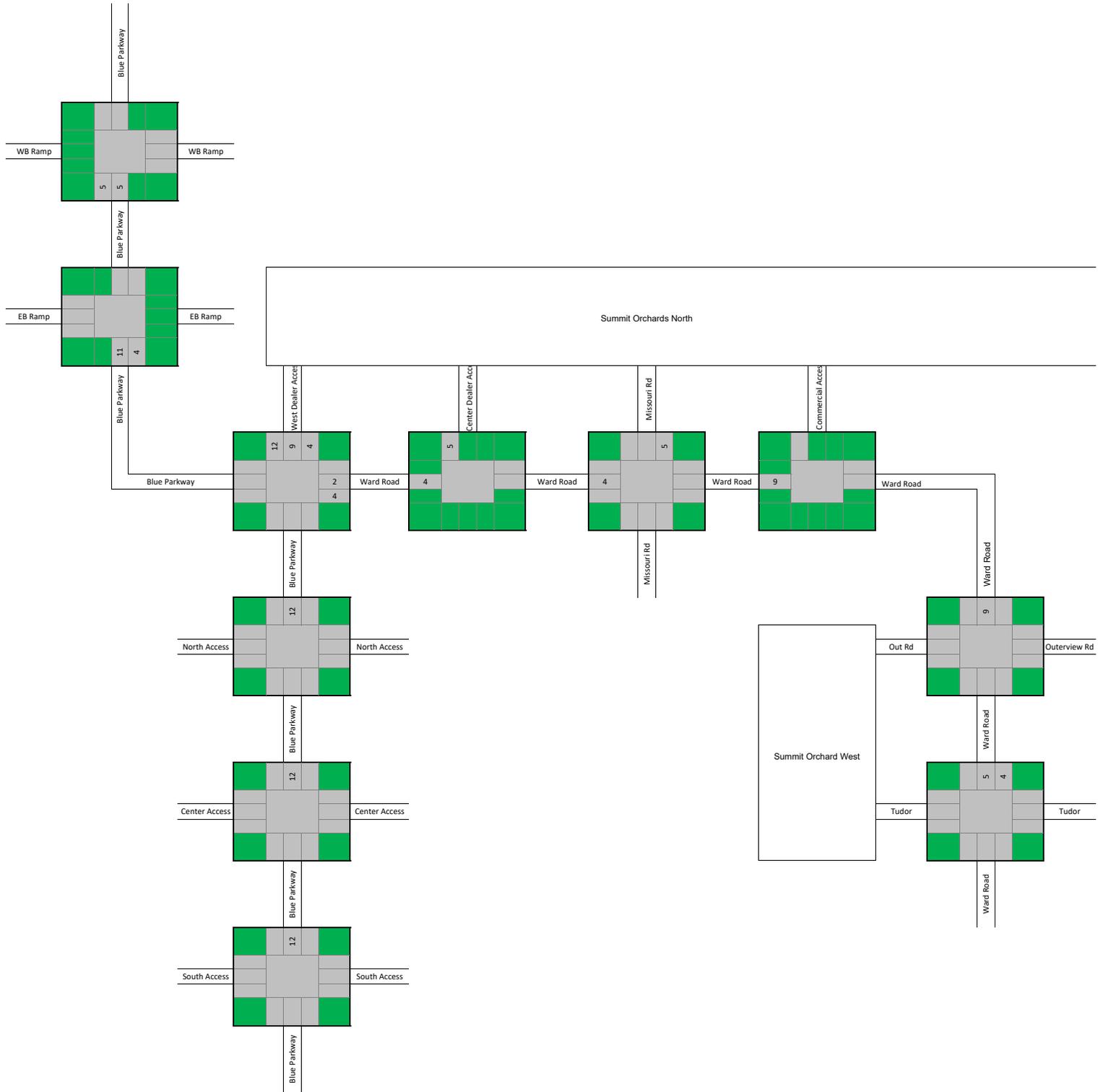
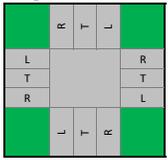
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AM Trips Out - Phase I

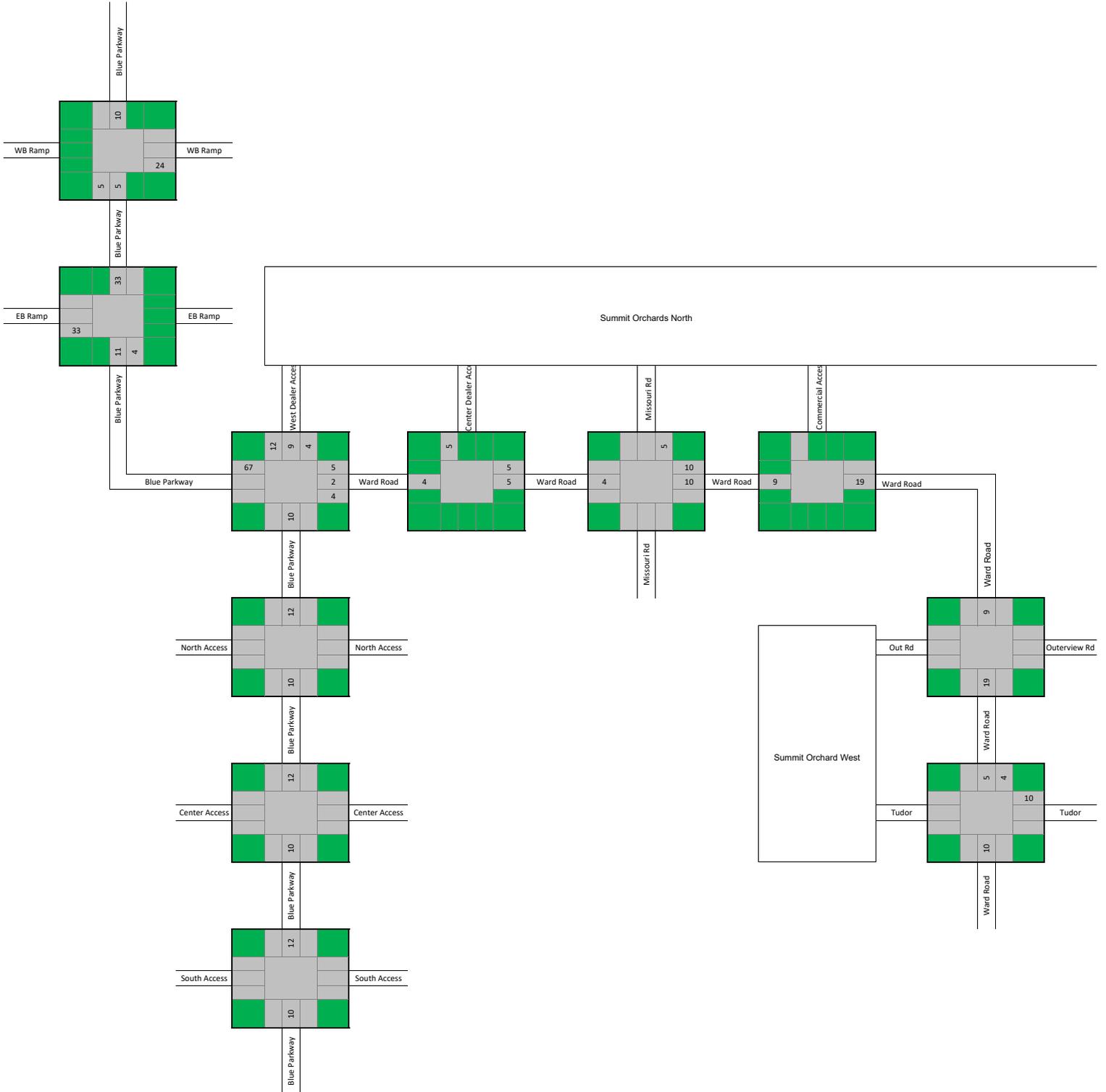
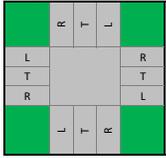
Trips
35

Legend



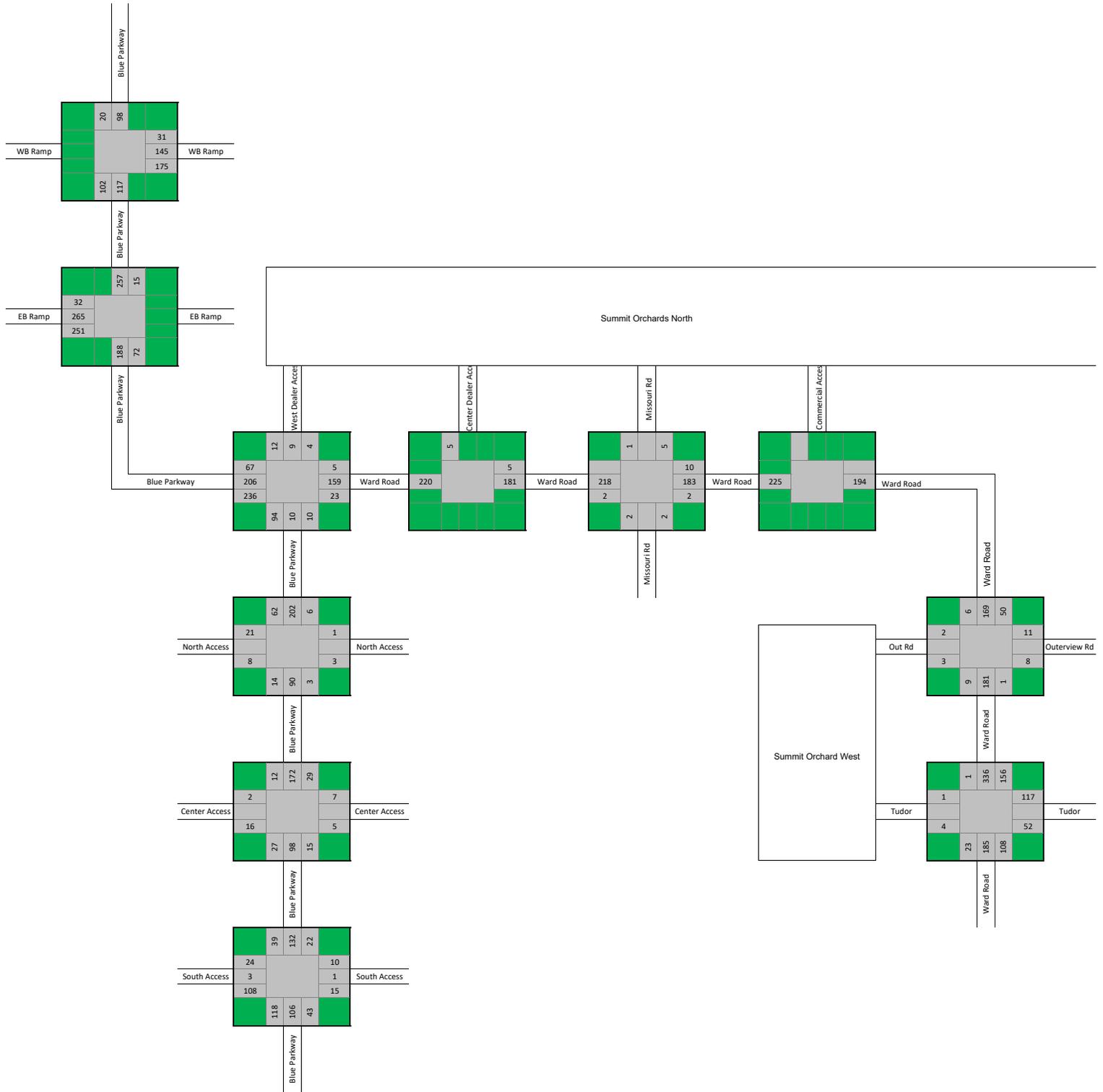
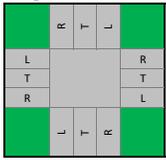
AM Trips - Phase I

Legend



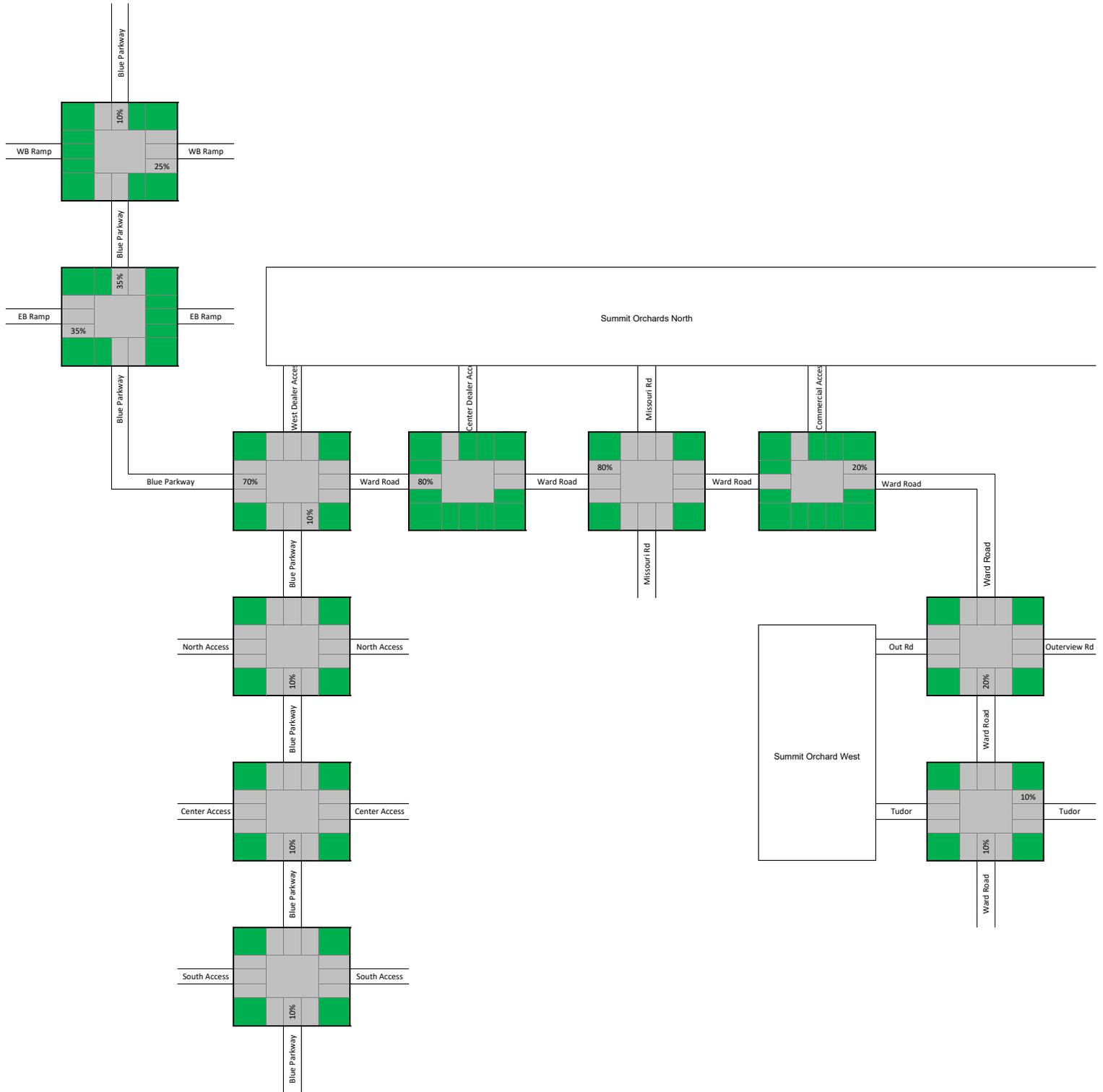
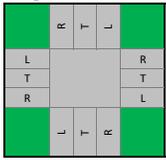
Existing Traffic plus AM Trips - Phase I

Legend



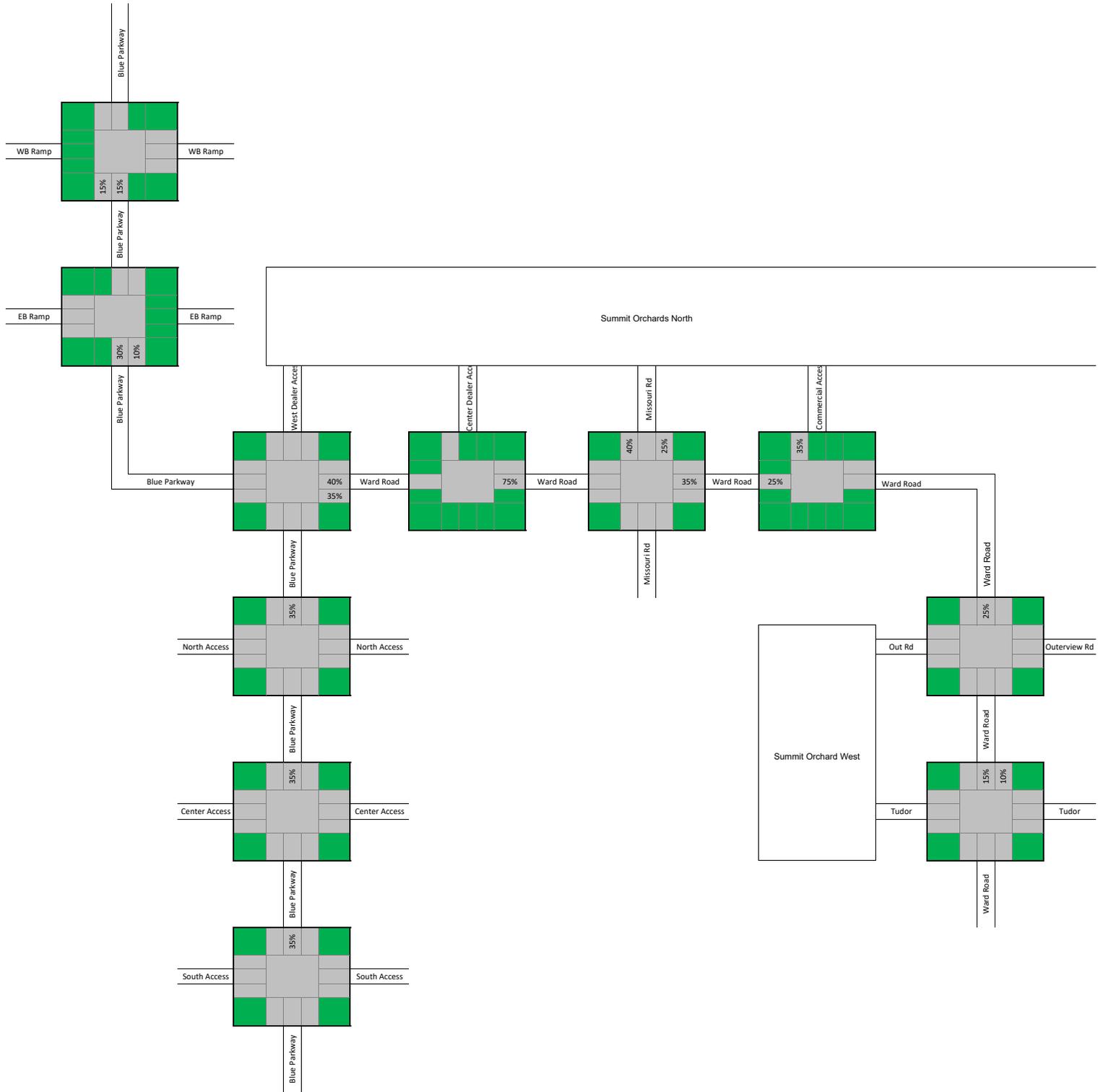
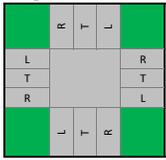
AM Distribution In - Phase 2

Legend



AM Distribution Out - Phase 2

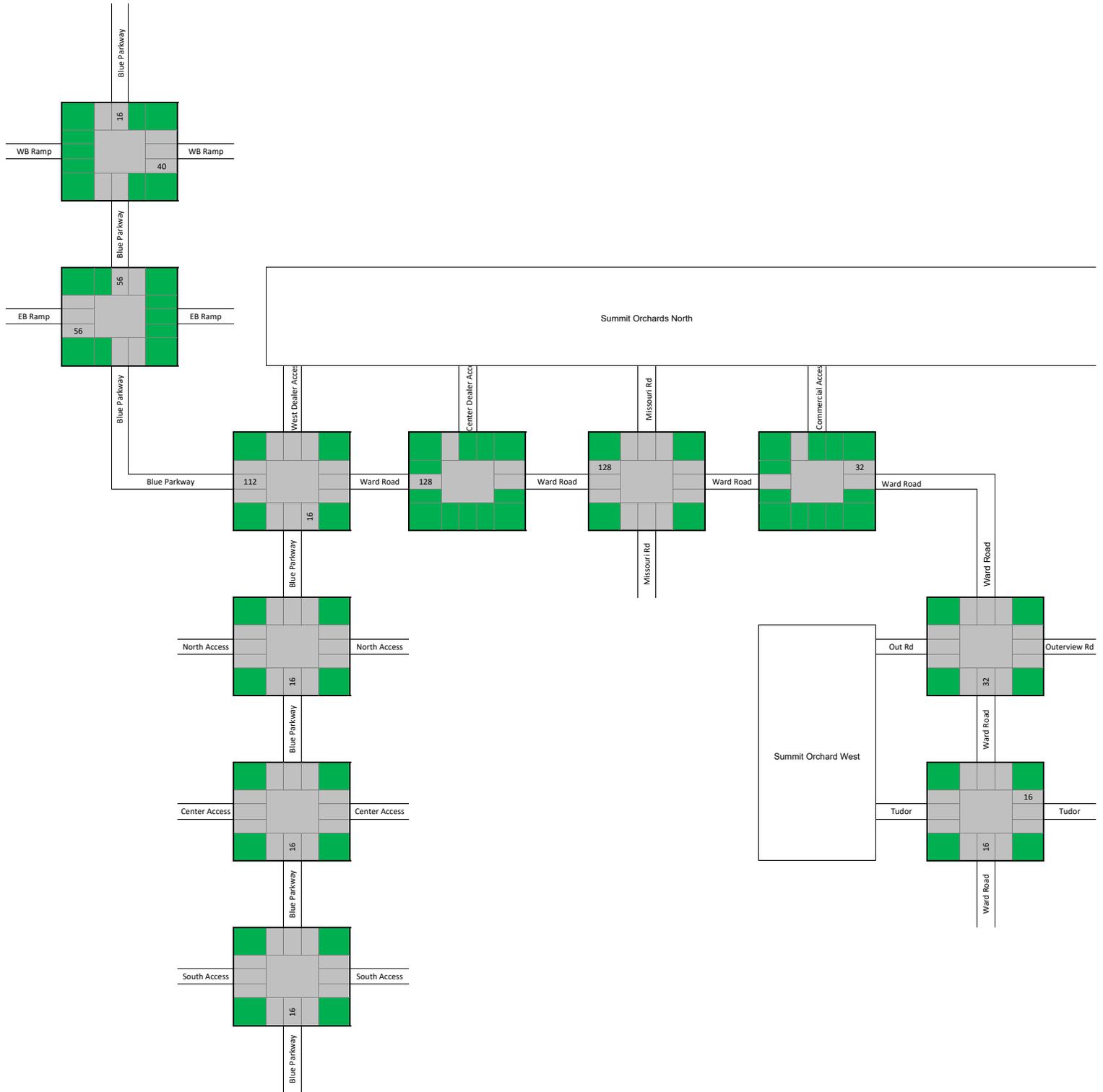
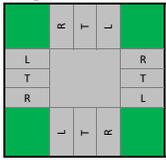
Legend



AM Trips In - Phase 2

Trips
160

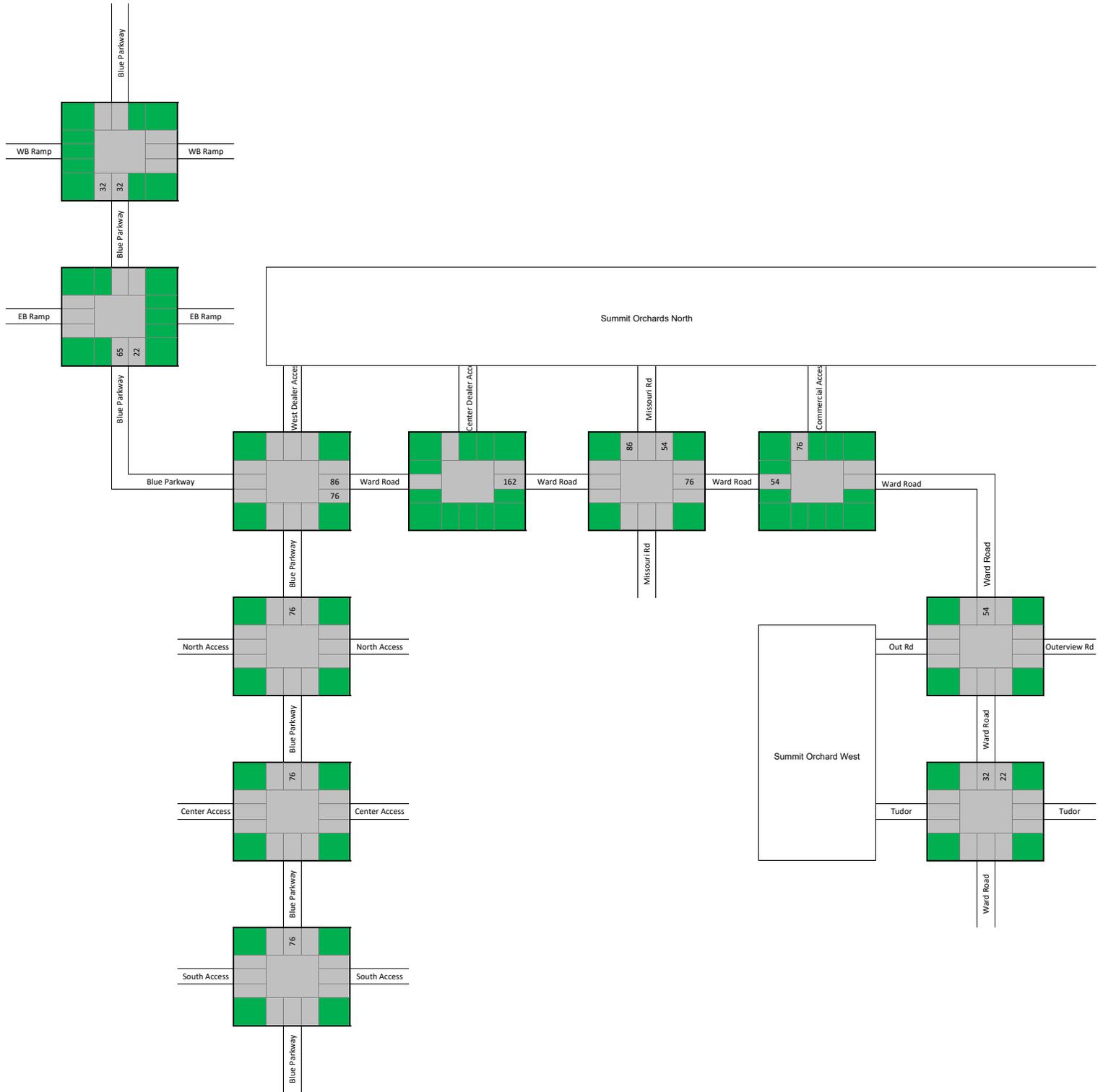
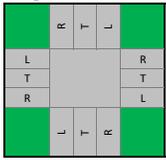
Legend



AM Trips Out - Phase 2

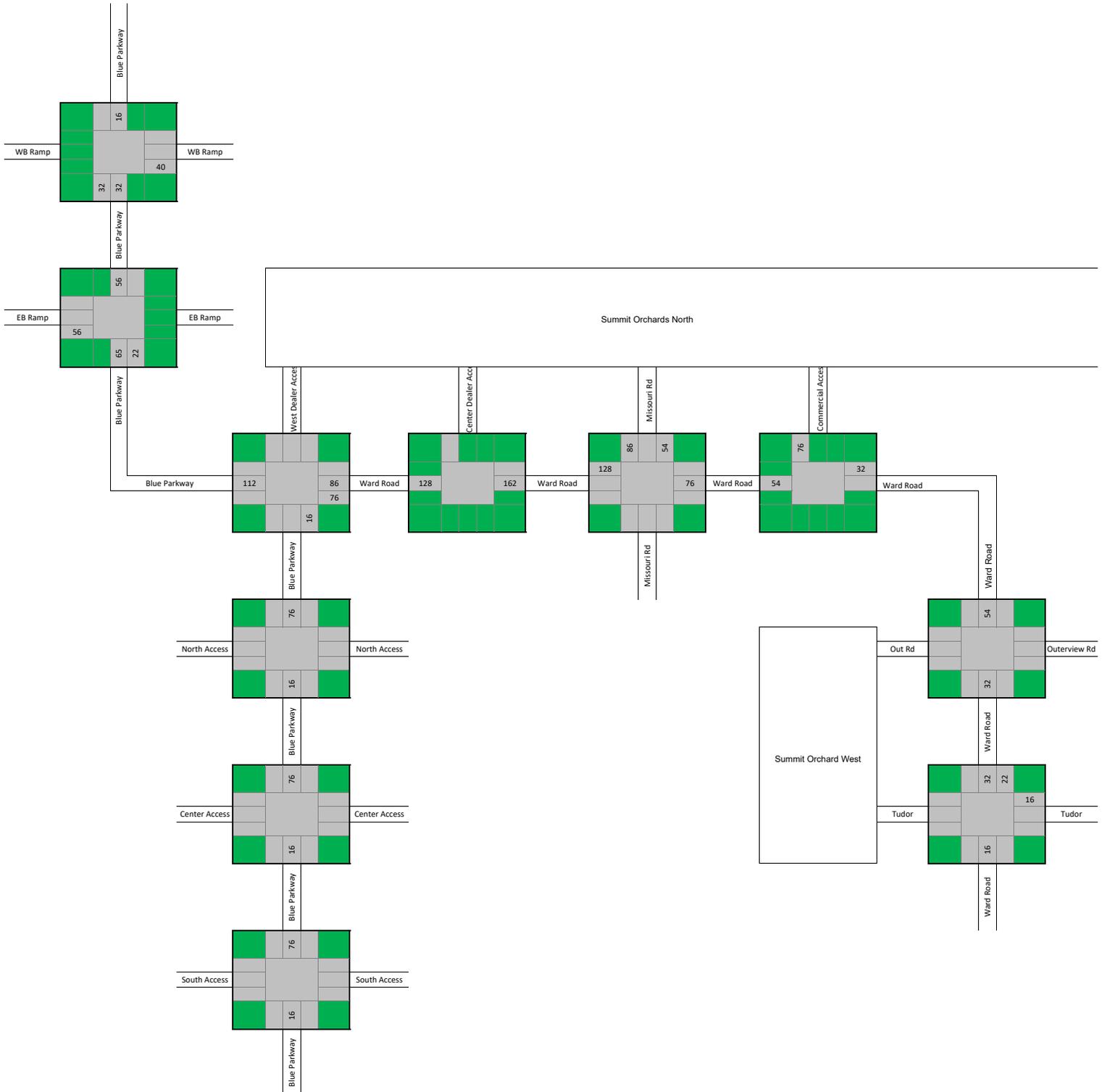
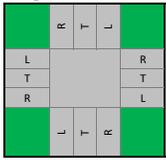
Trips
216

Legend



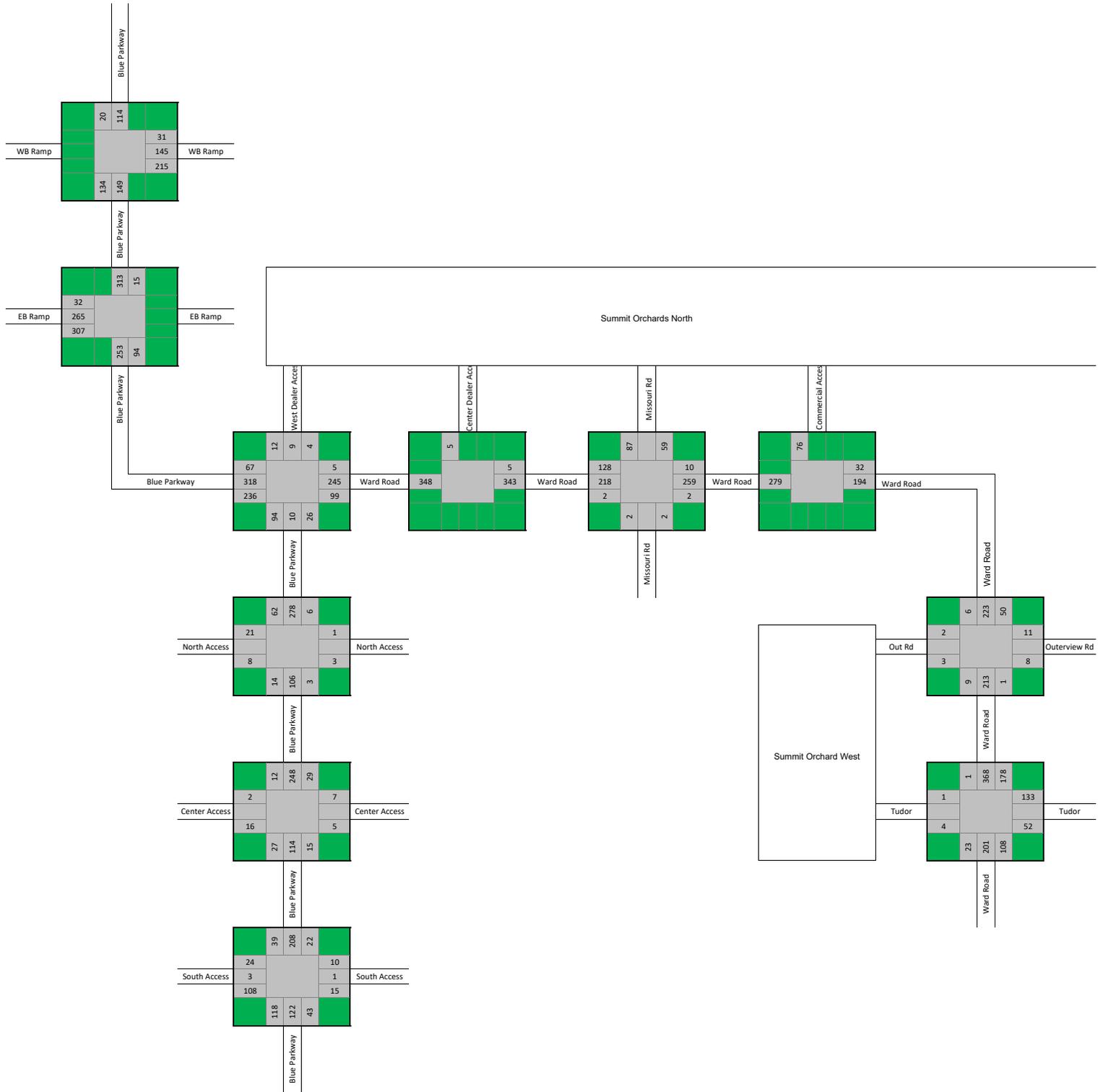
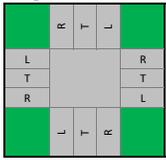
AM Trips - Phase 2

Legend



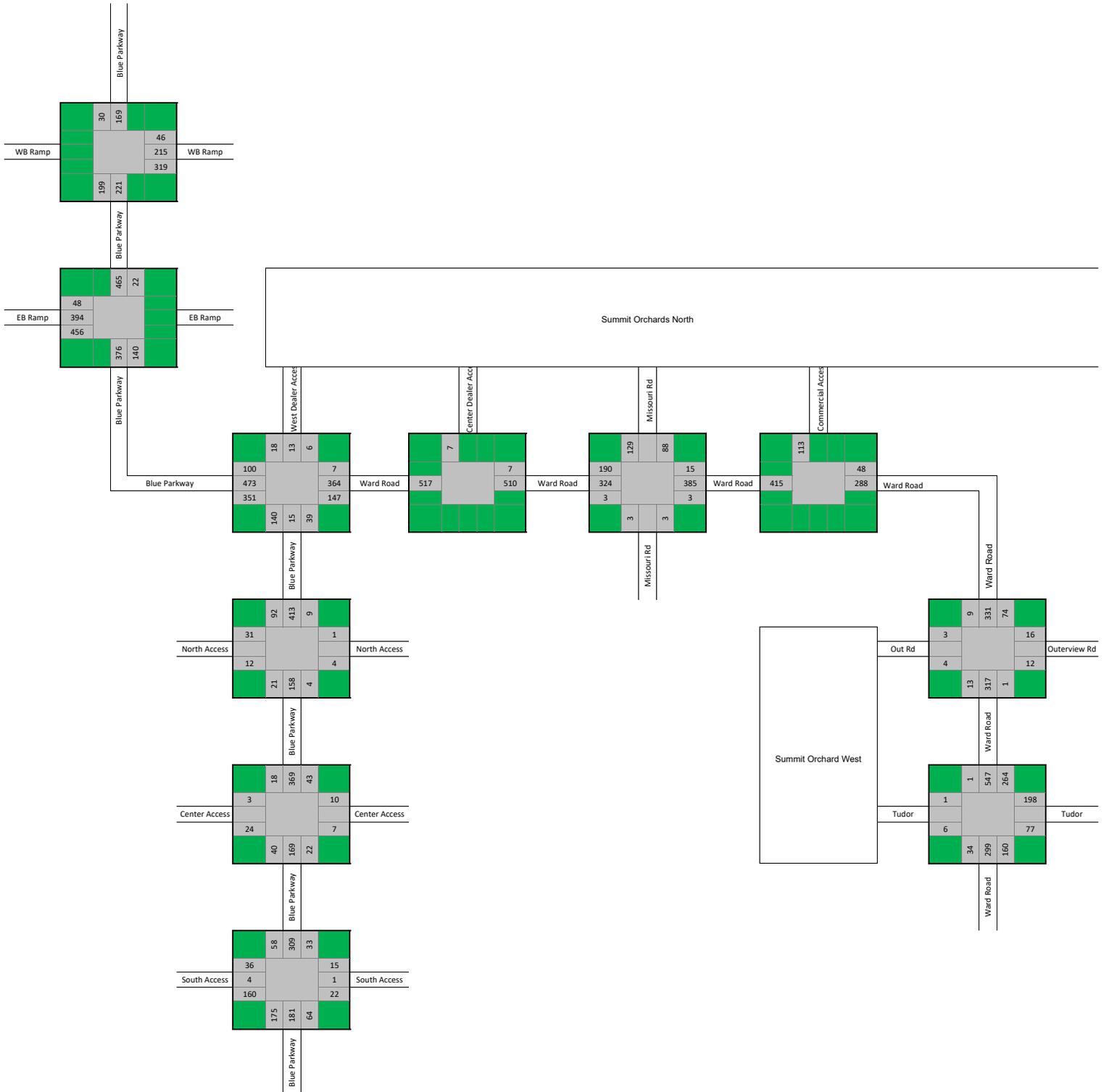
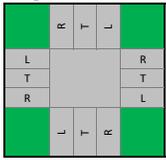
Existing Traffic plus AM Trips - Phase 1 and 2

Legend



AM Future Traffic

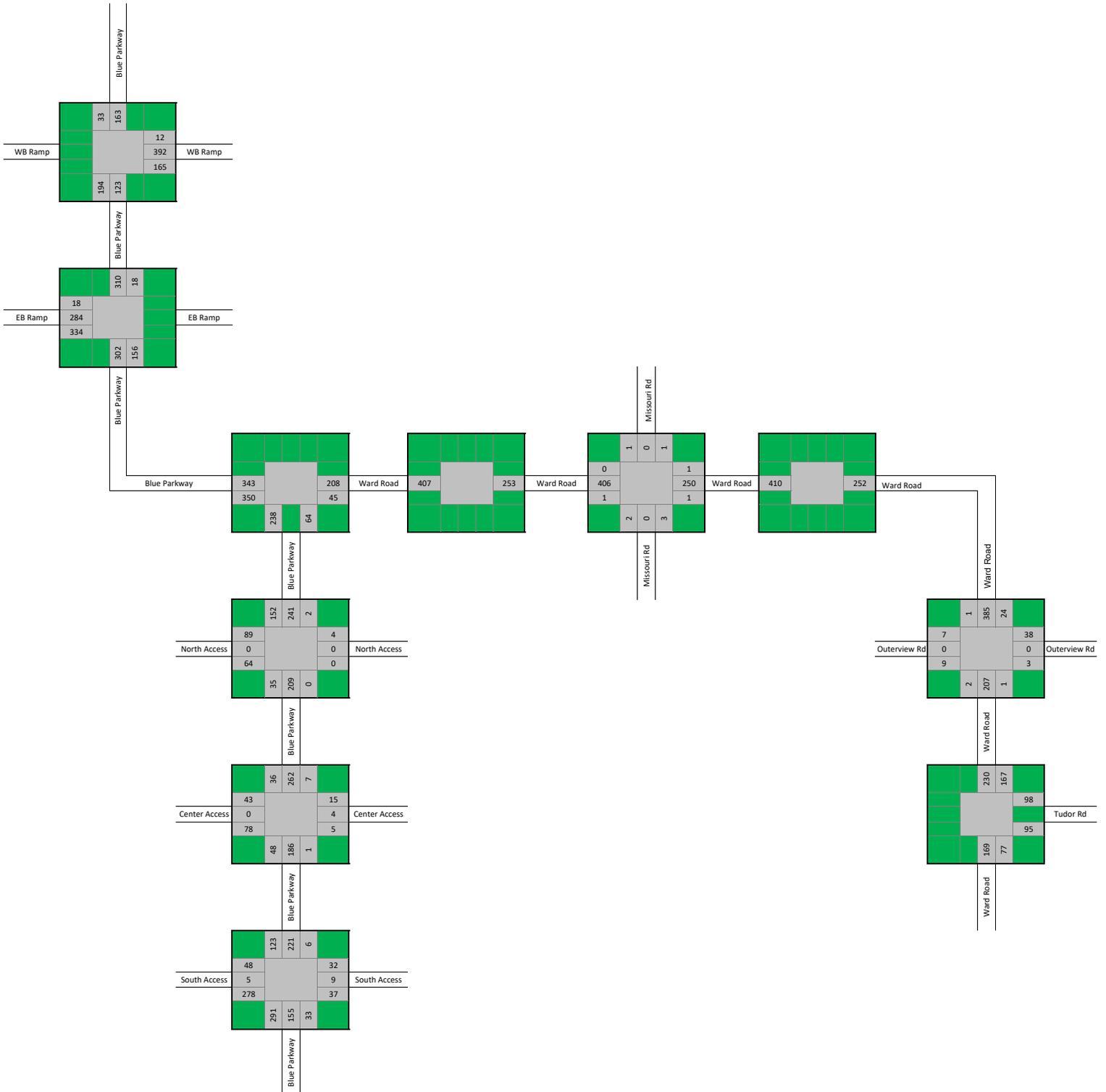
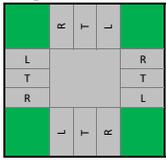
Legend



Existing PM Peak Hour Counts

Notes - Ward & Outview and Ward & Tudor counts from Summit Orchards West TIS (2022) which include Lees Summit Logistics and Summit Orchard counts. 2022 trips were done when Chipman and Hwy 50 intersection was closed so the previous trips were balanced with the new (2023) trips at other study intersections.

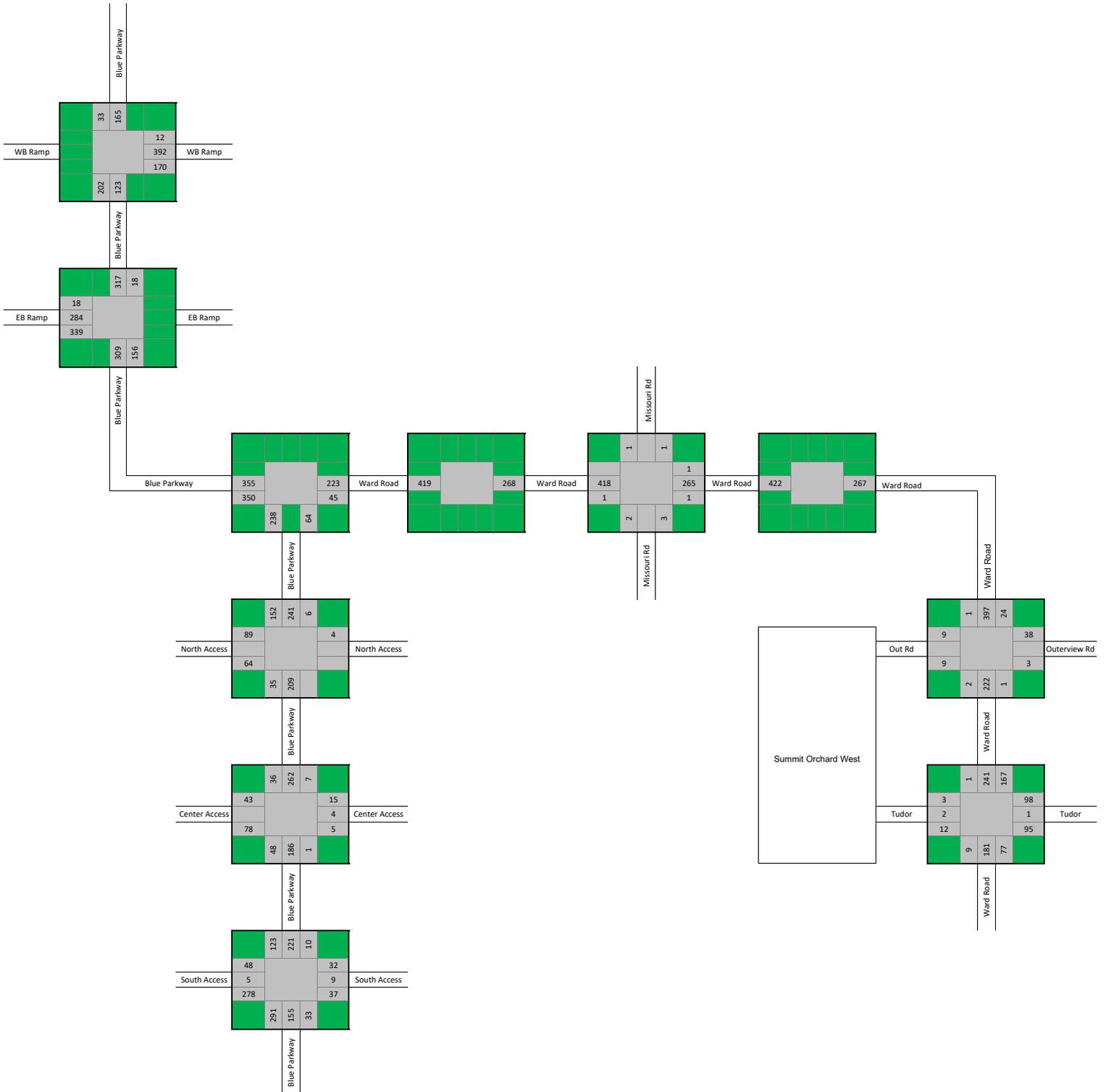
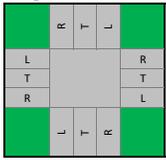
Legend



PM Existing Peak Hour Traffic

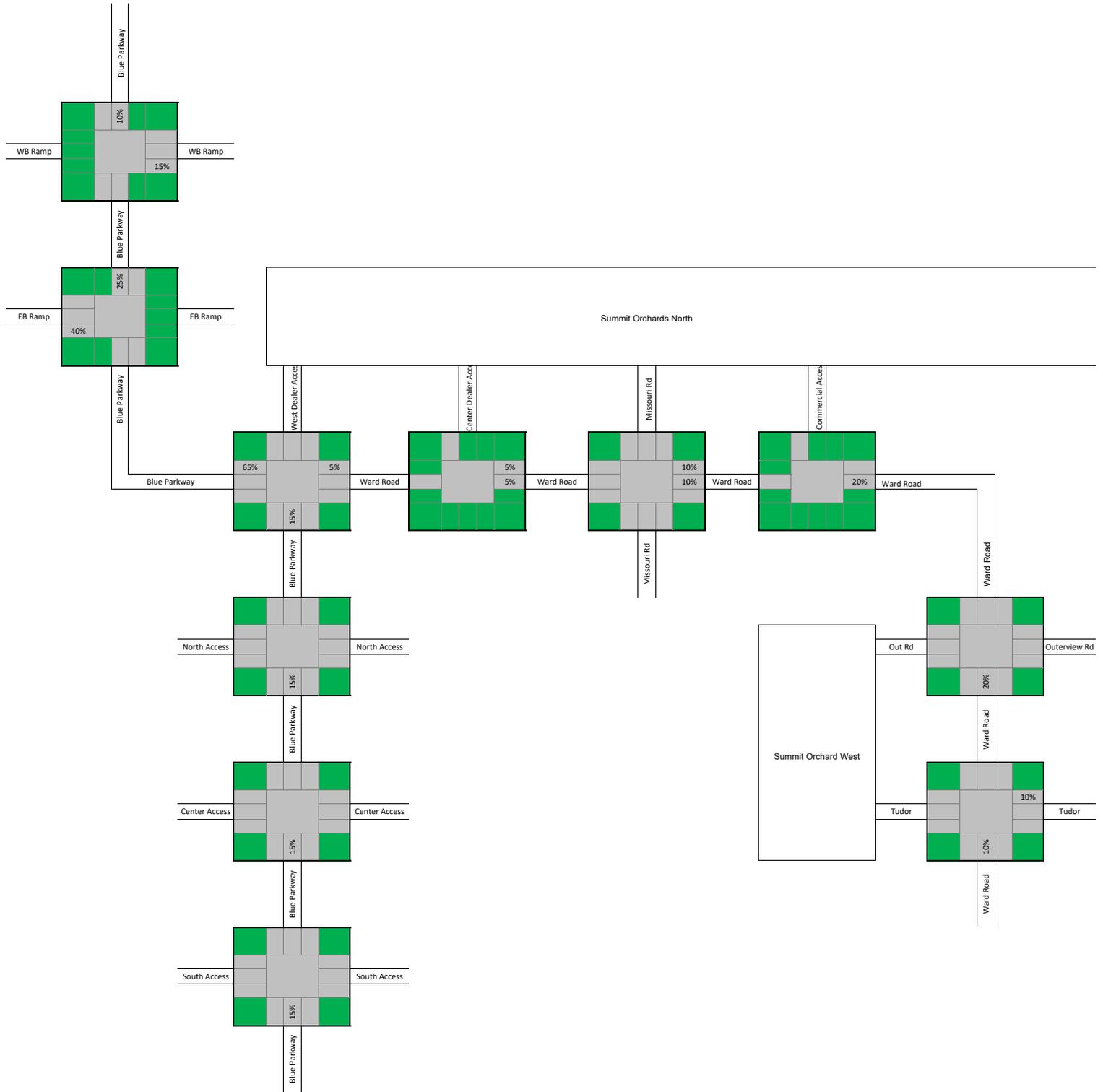
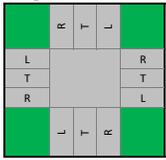
Notes - Includes balanced counts and approved trips

Legend



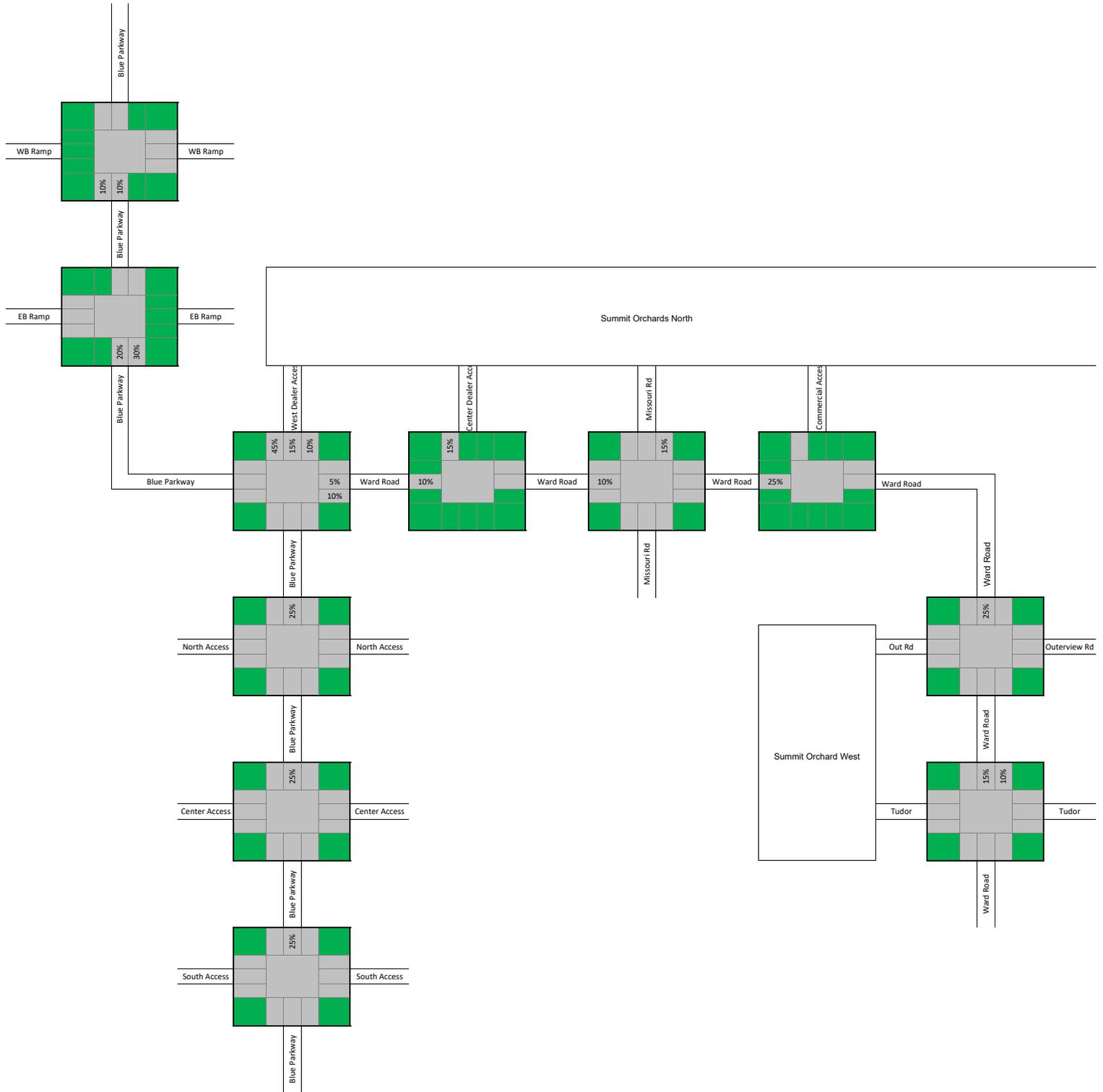
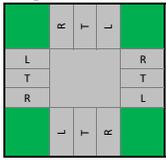
PM Distribution In - Phase I

Legend



PM Distribution Out - Phase I

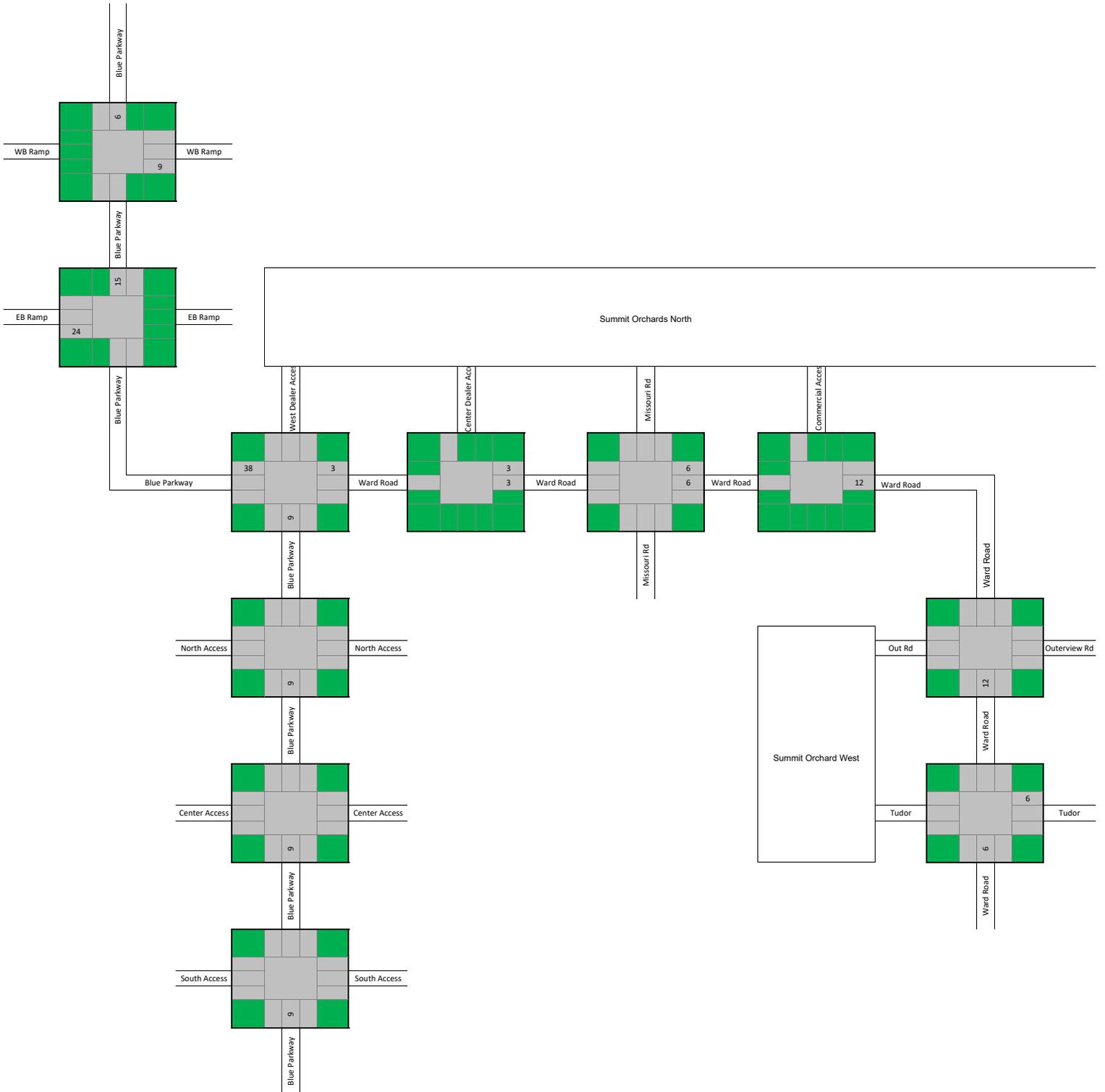
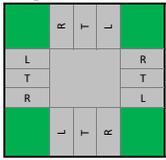
Legend



PM Trips In - Phase I

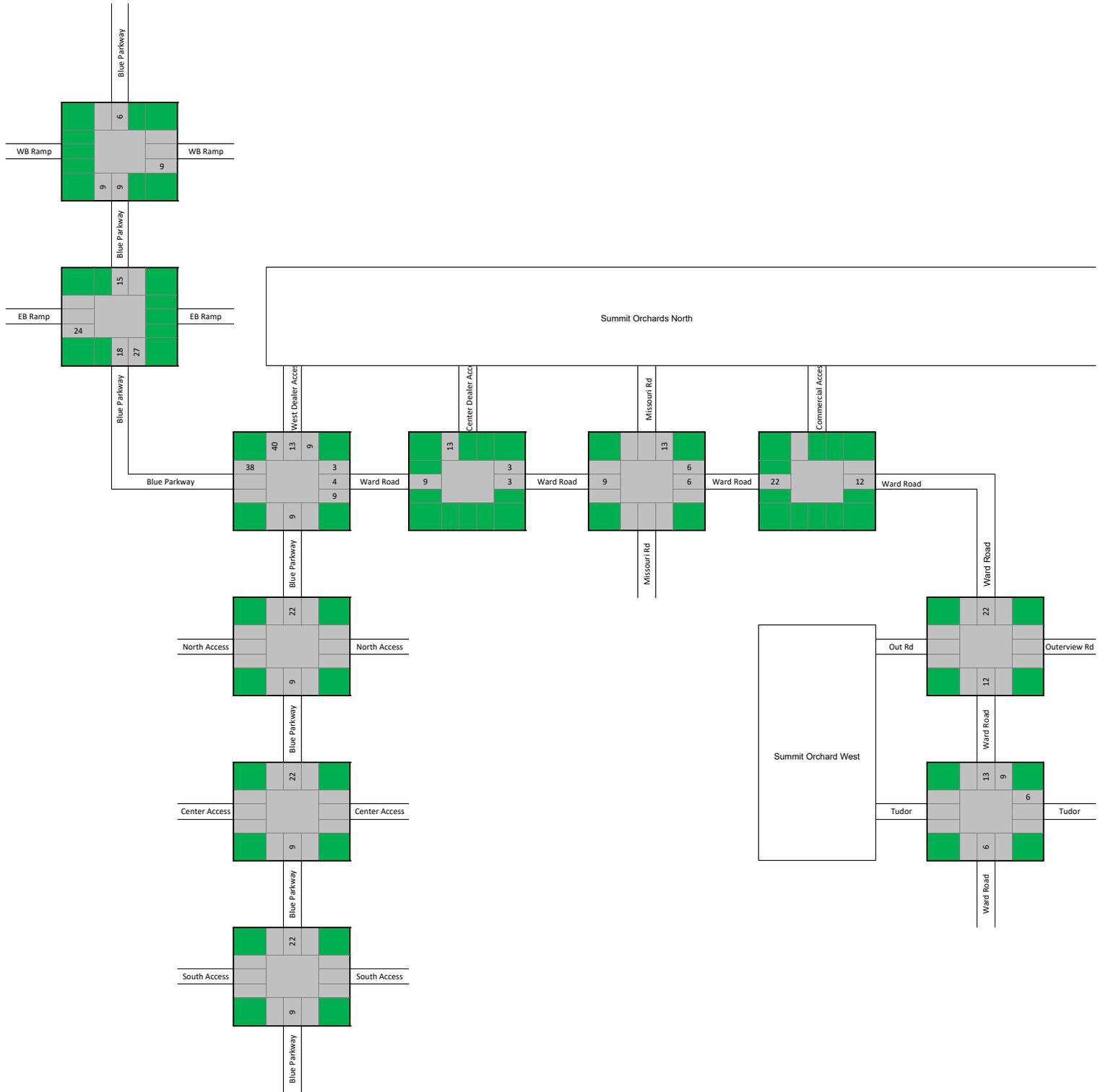
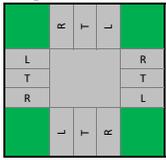
Trips
59

Legend



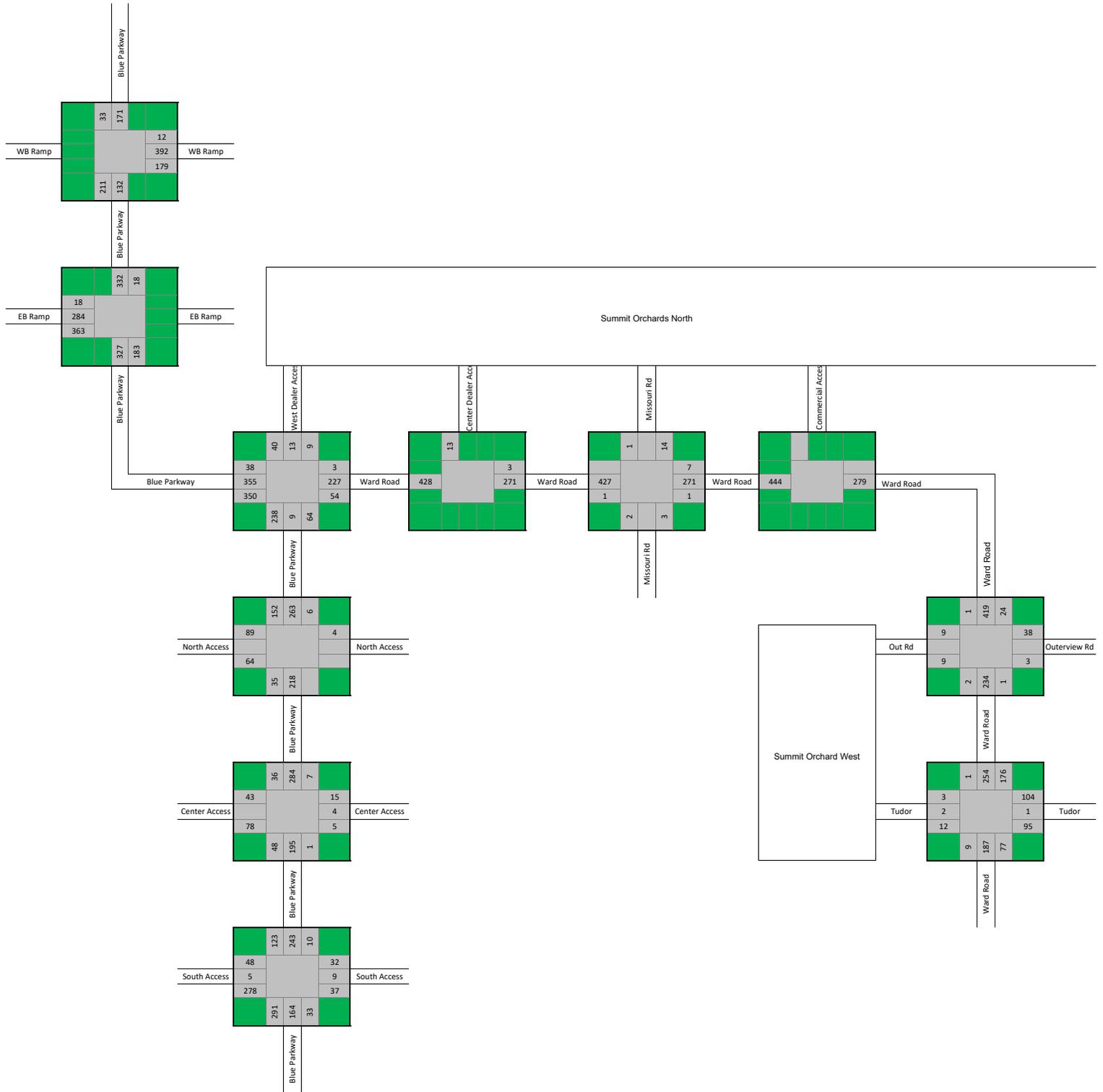
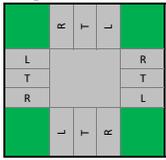
PM Trips - Phase I

Legend



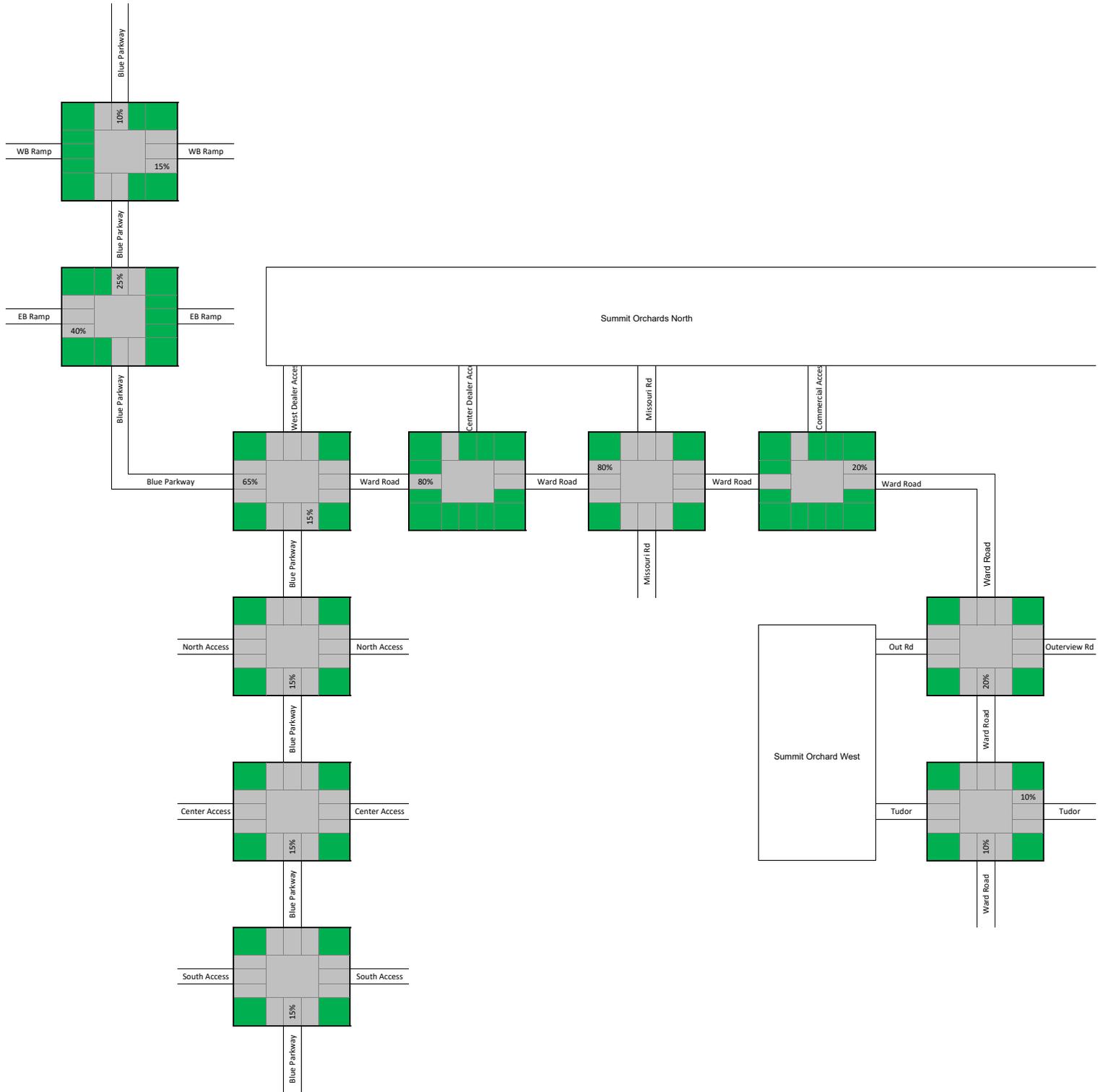
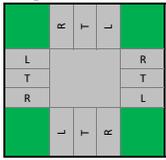
Existing Traffic plus PM Trips - Phase I

Legend



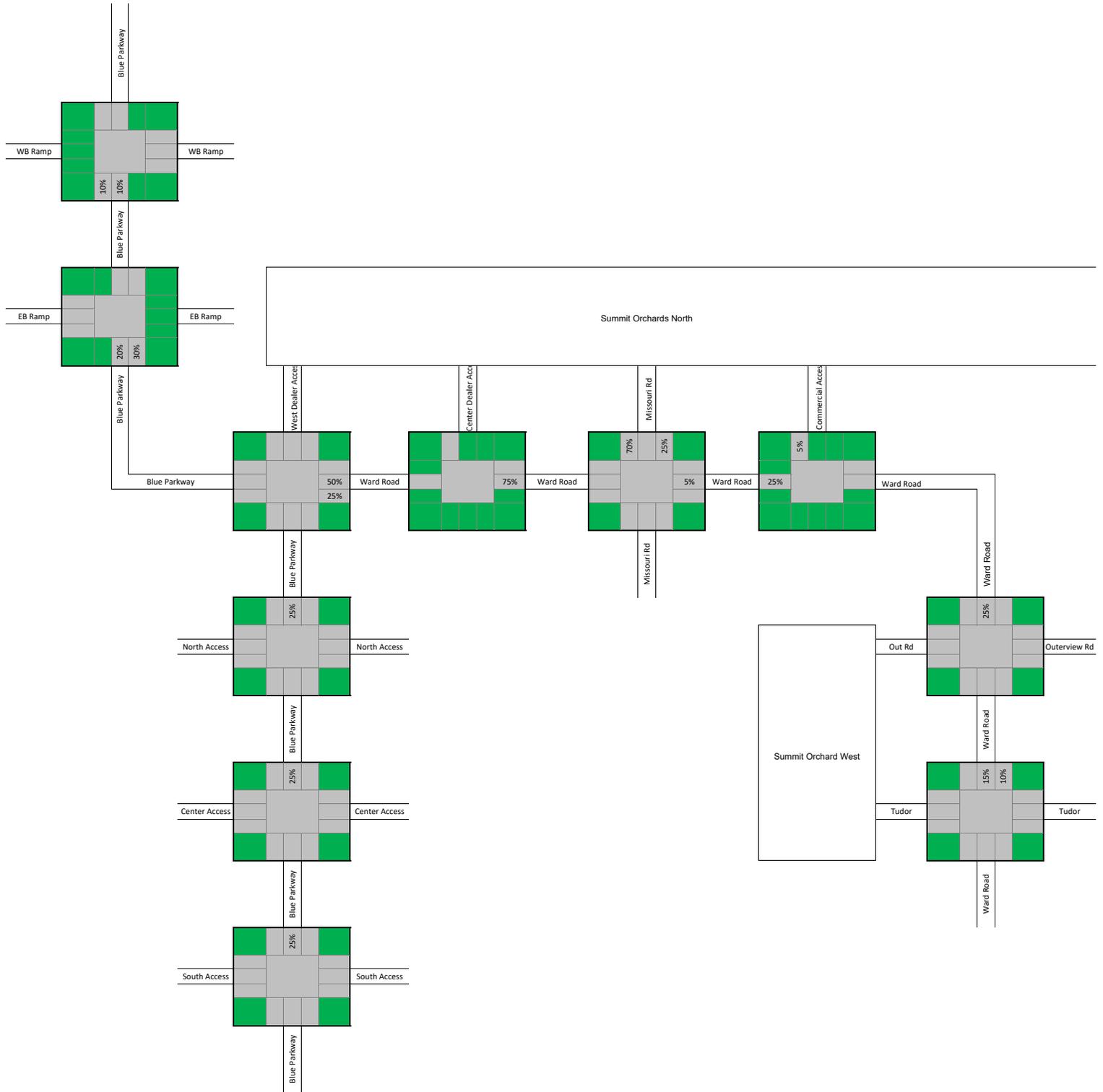
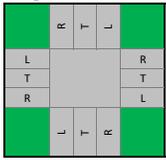
PM Distribution In - Phase 2

Legend



PM Distribution Out - Phase 2

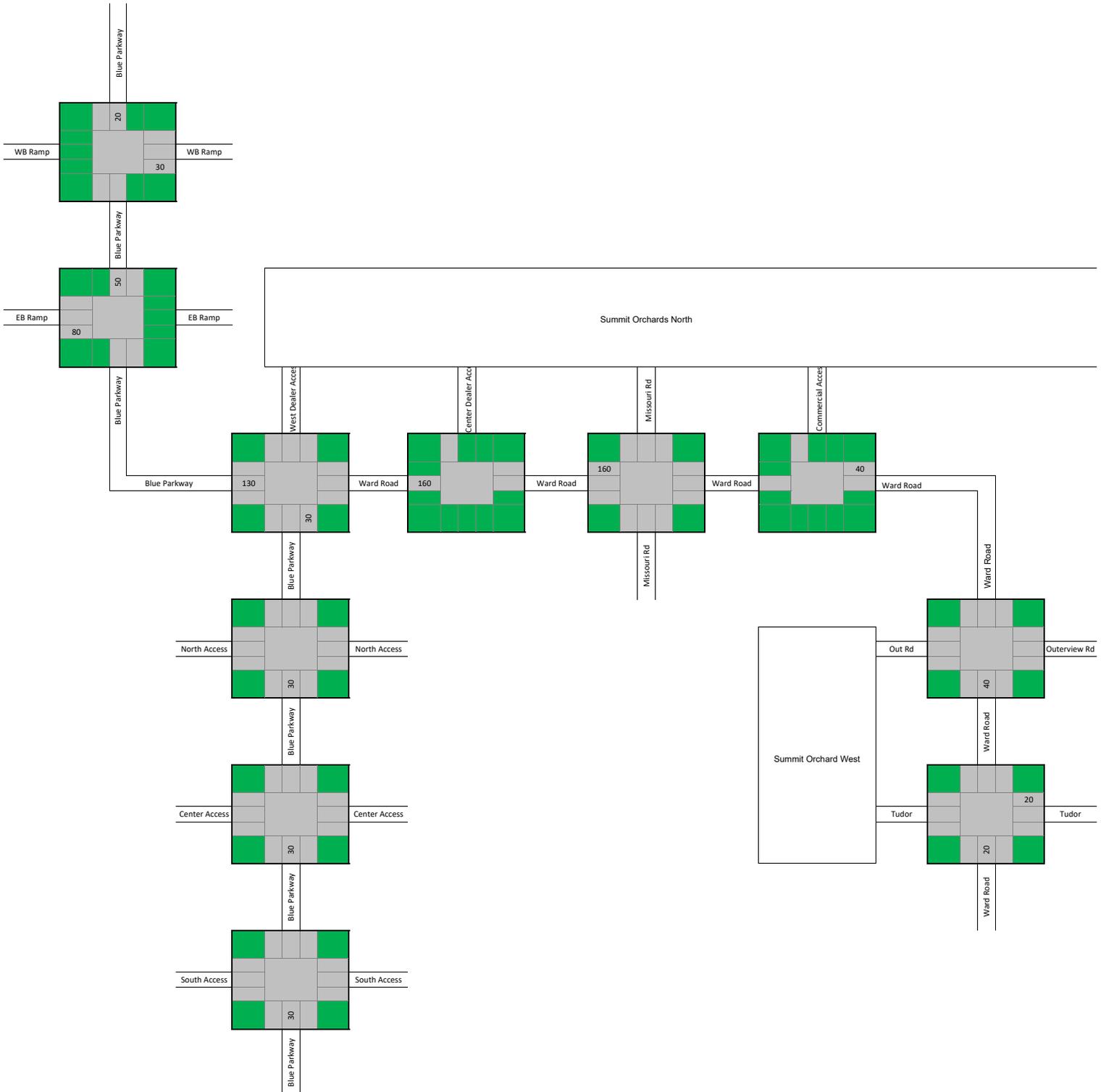
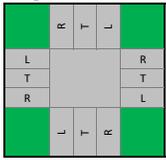
Legend



PM Trips In - Phase 2

Trips
200

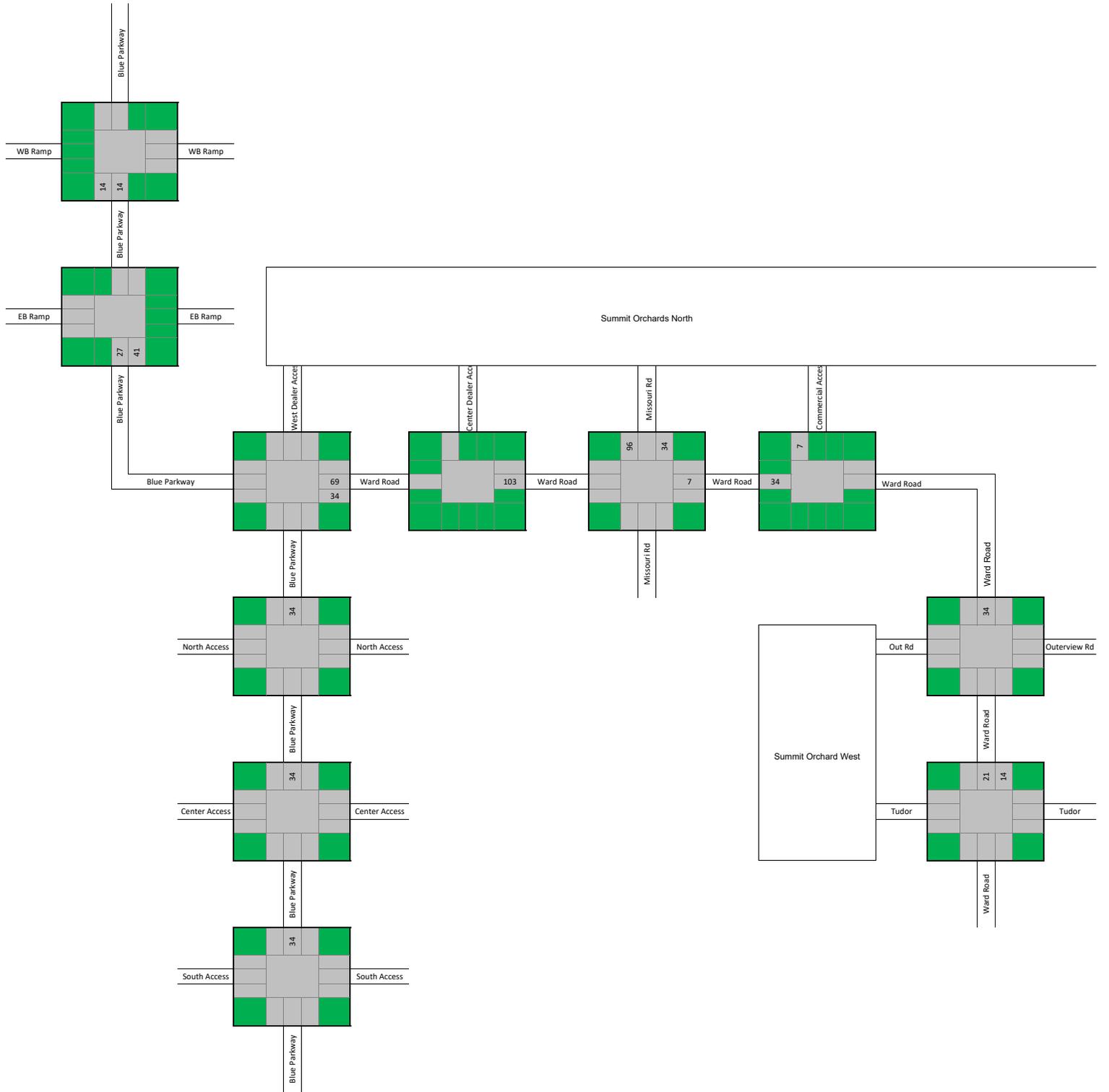
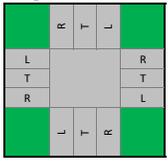
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PM Trips Out - Phase 2

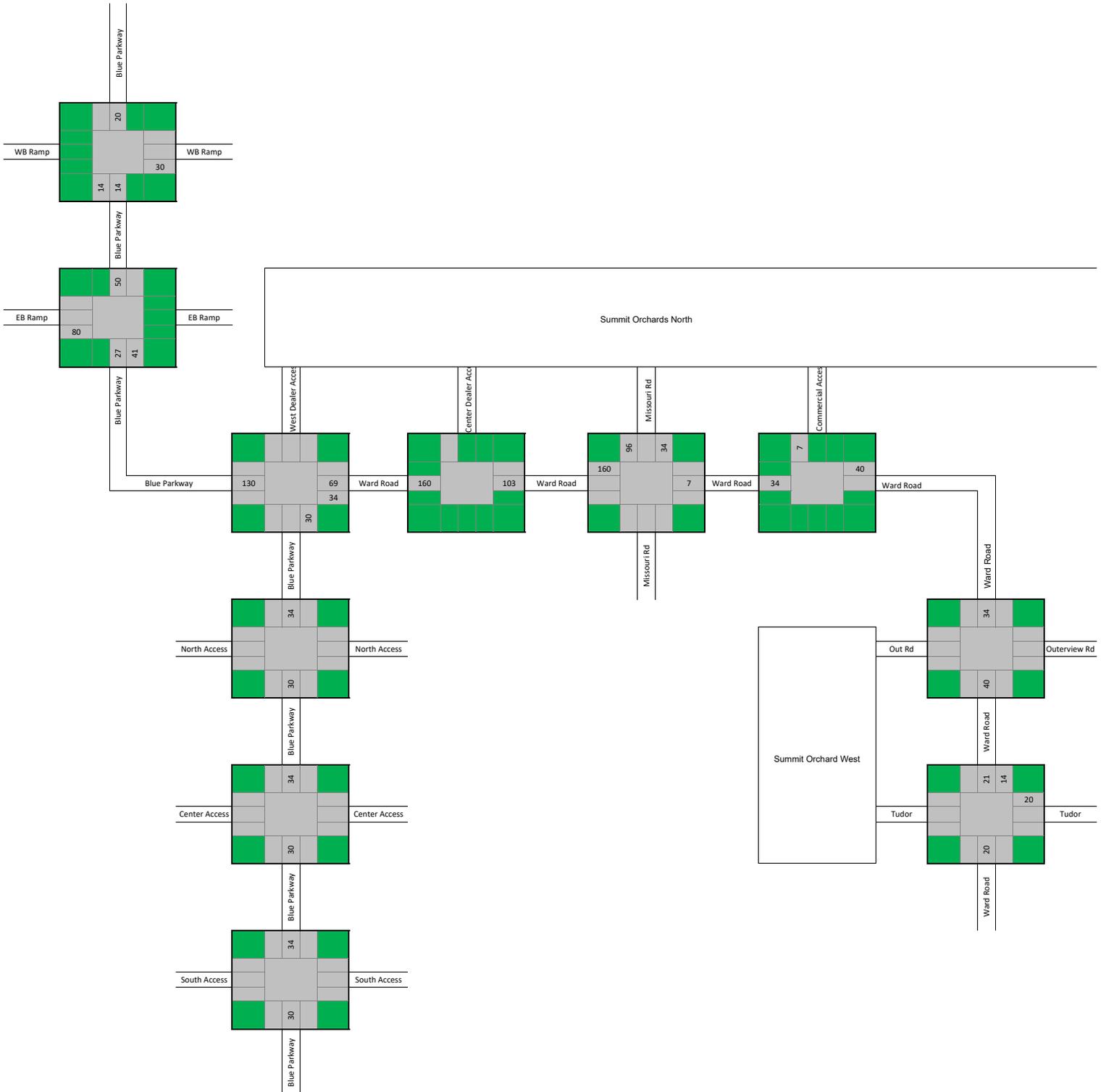
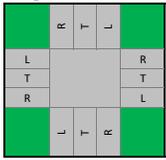
Trips
137

Legend



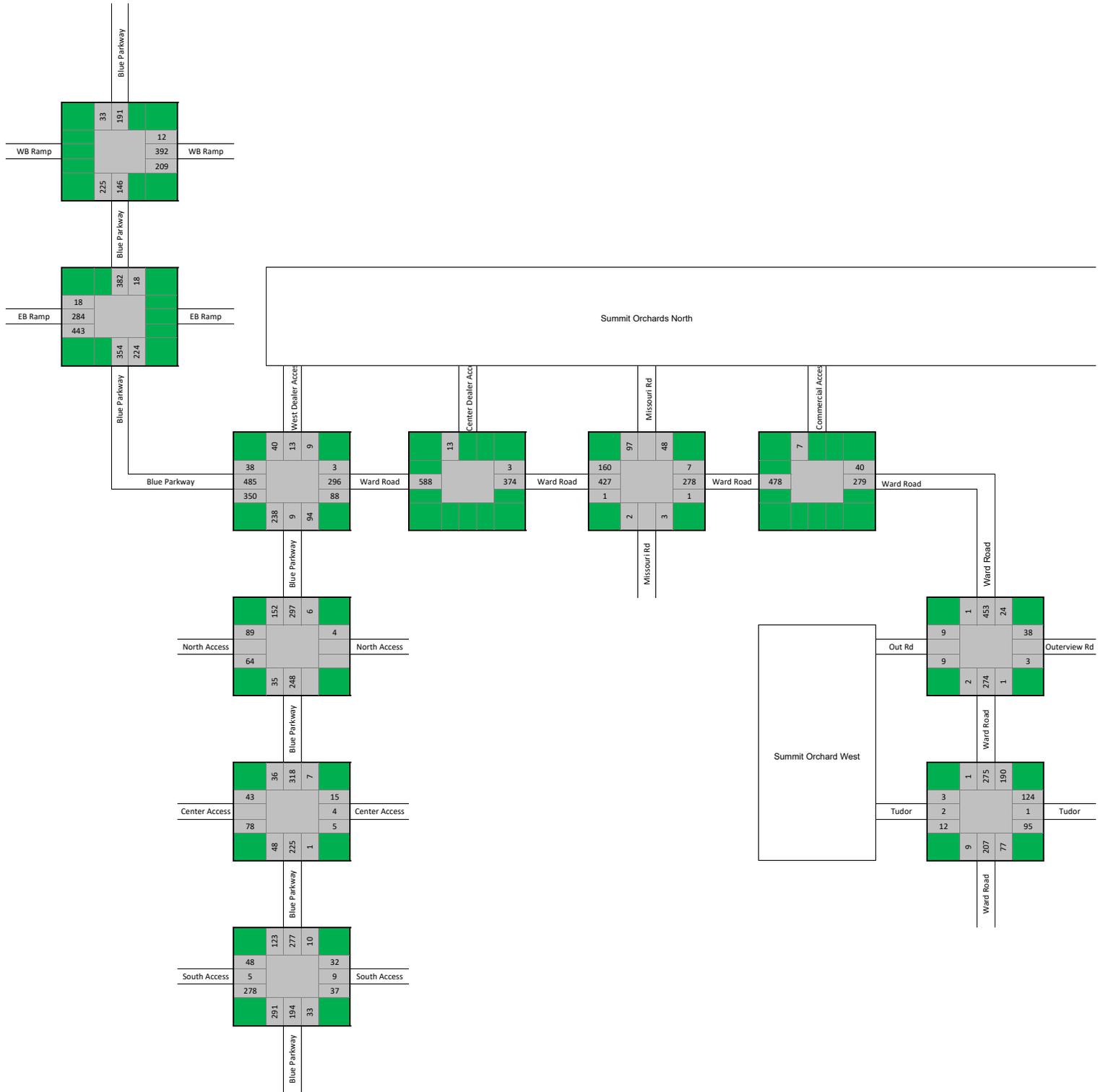
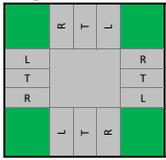
PM Trips - Phase 2

Legend



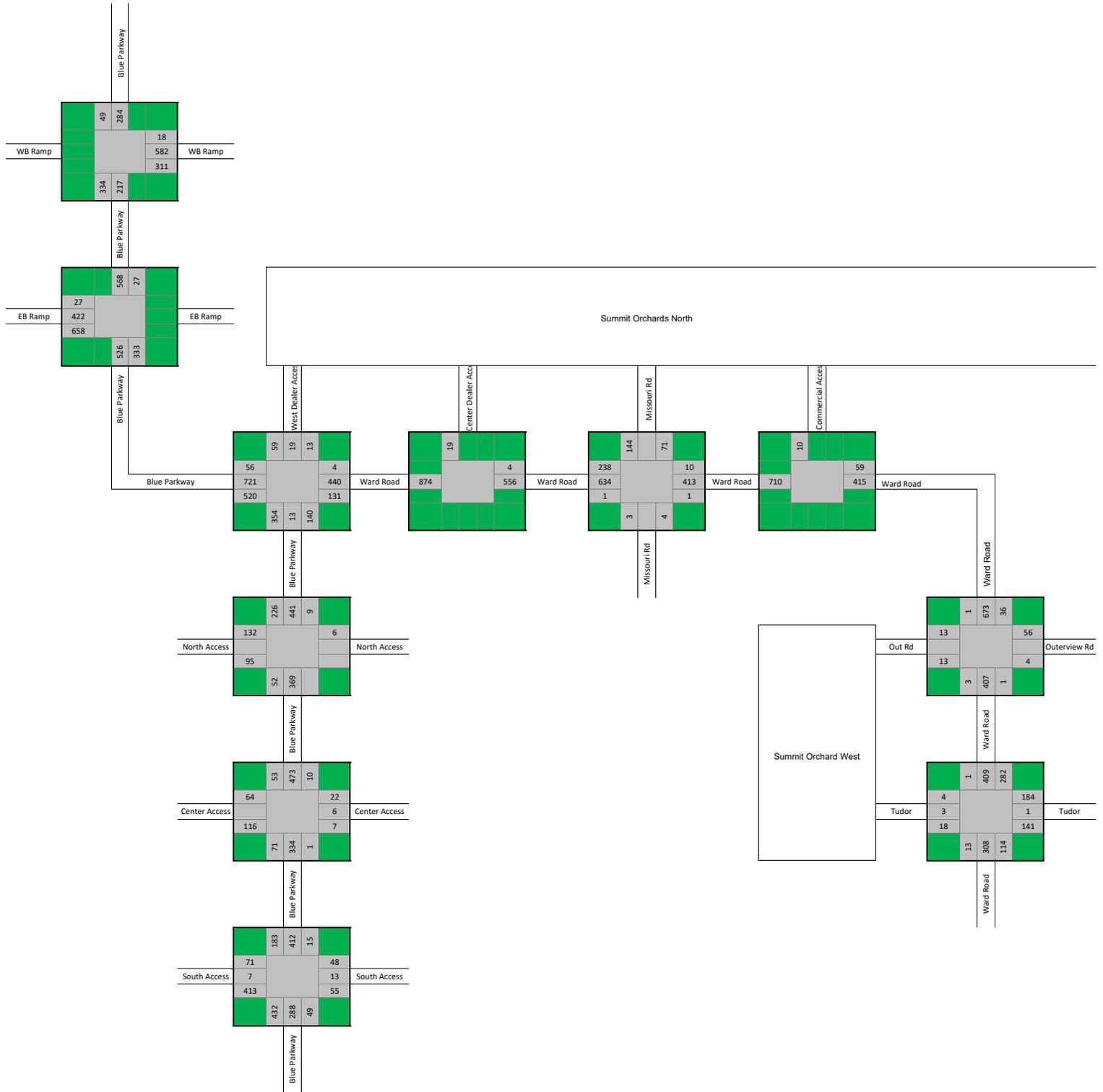
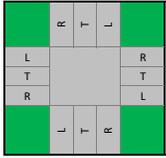
Existing Traffic plus PM Trips - Phase 1 and 2

Legend



PM Future Traffic

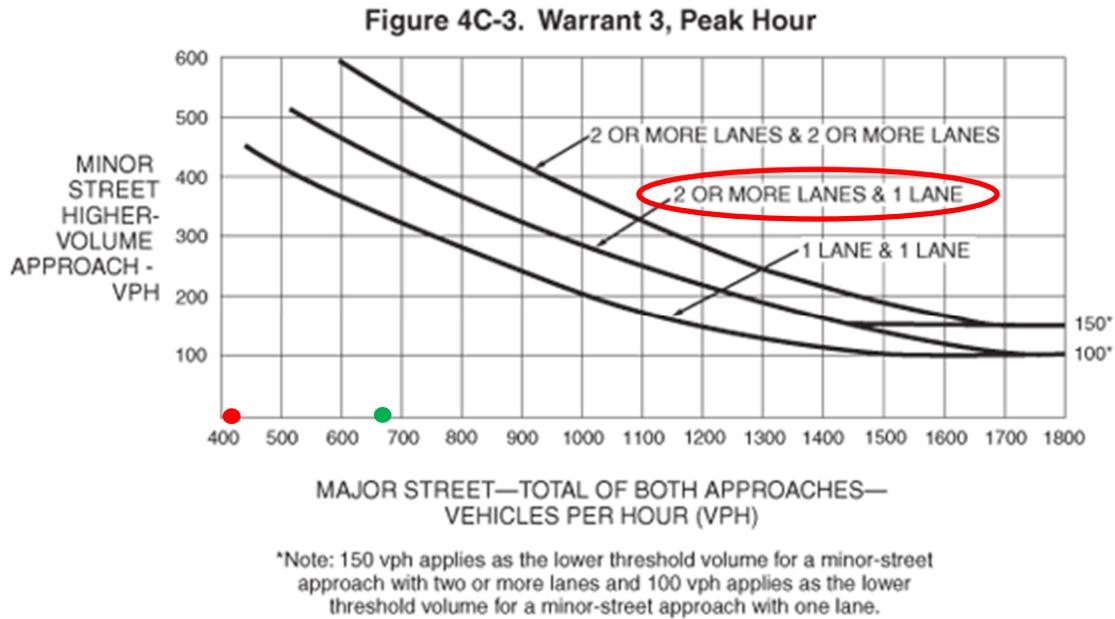
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EXISTING

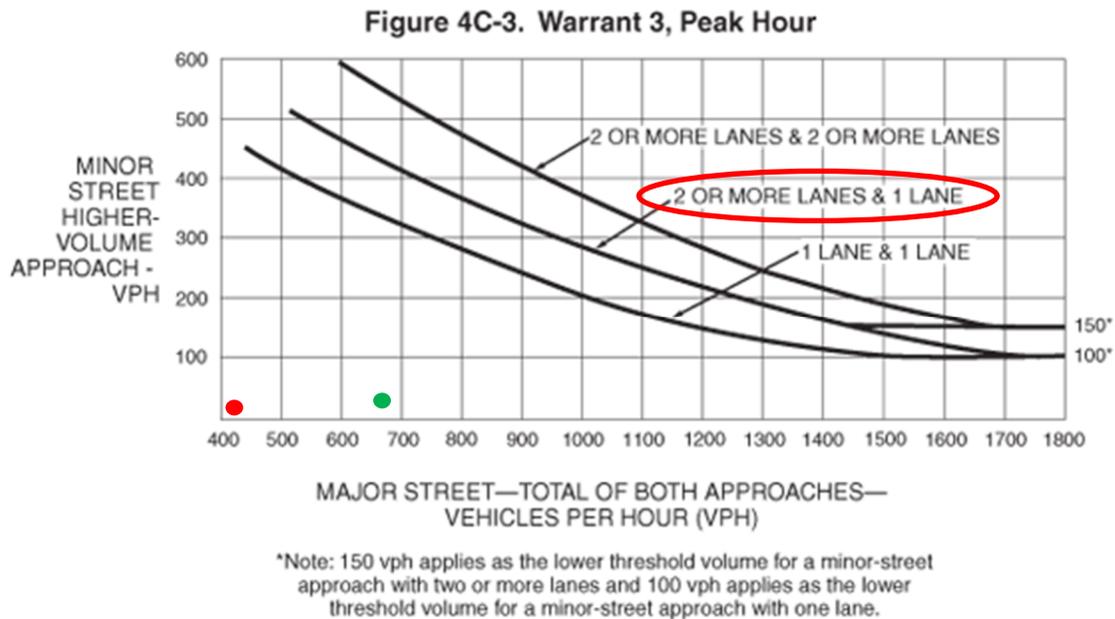
Ward Road and Missouri Road – AM & PM

Not Warranted



Ward Road and Outerview Road – AM & PM

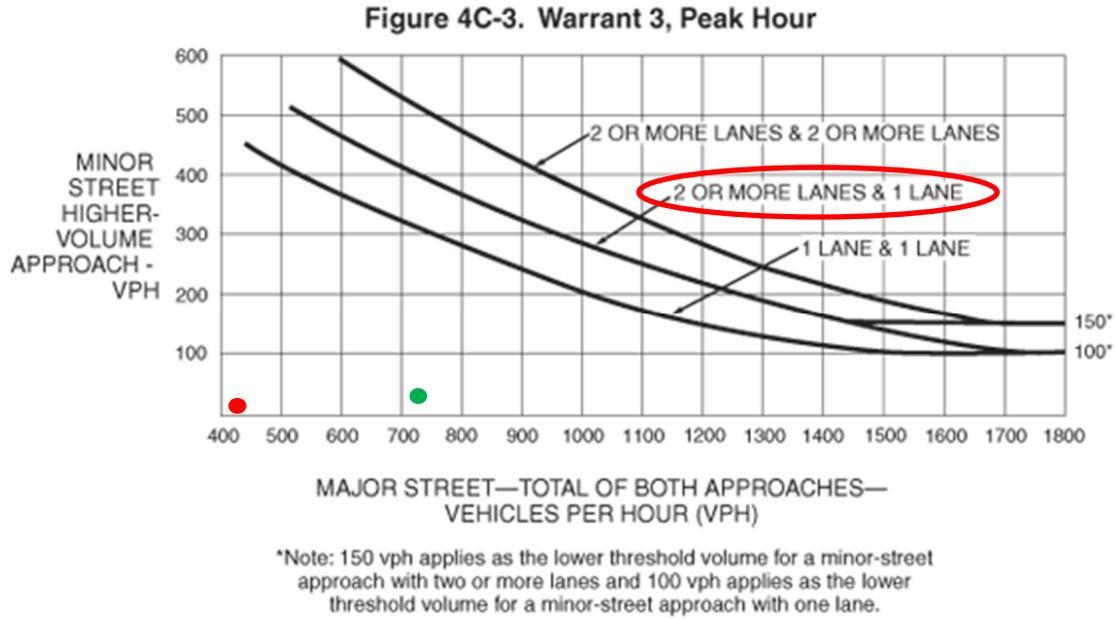
Not Warranted



EXISTING PLUS SITE (PHASE I)

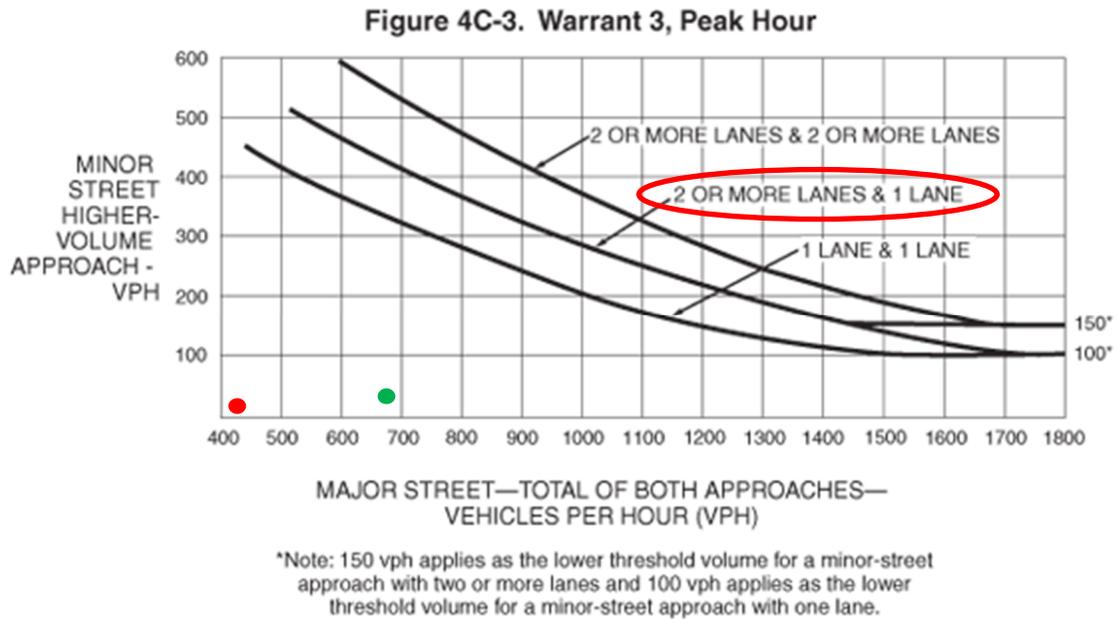
Ward Road and Missouri Road – AM & PM

Not Warranted



Ward Road and Outerview Road – AM & PM

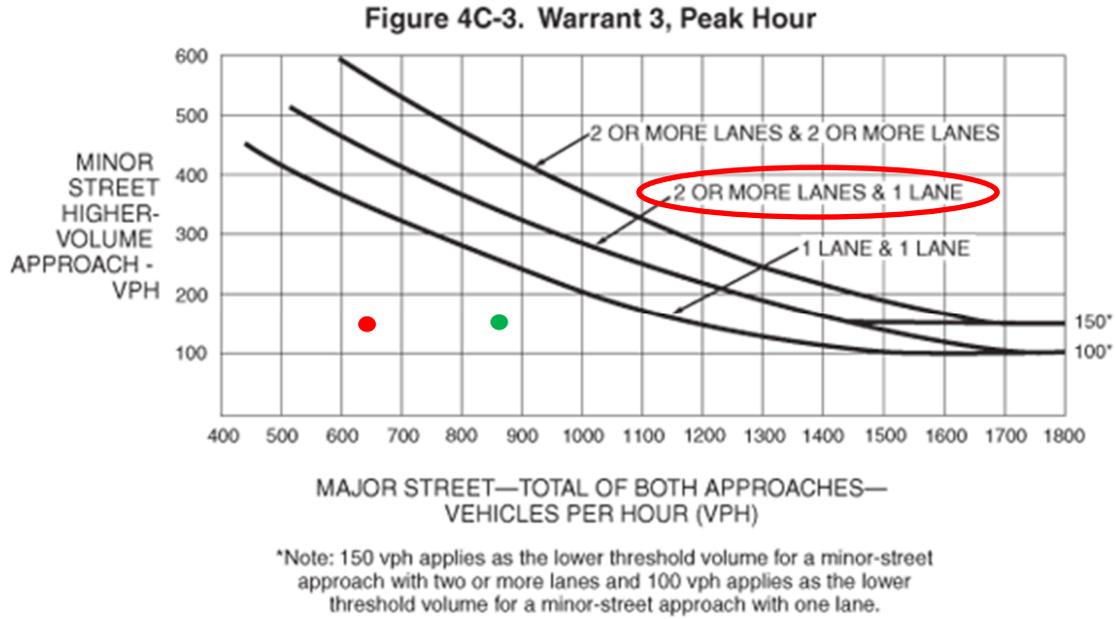
Not Warranted



EXISTING PLUS SITE (PHASE I & II)

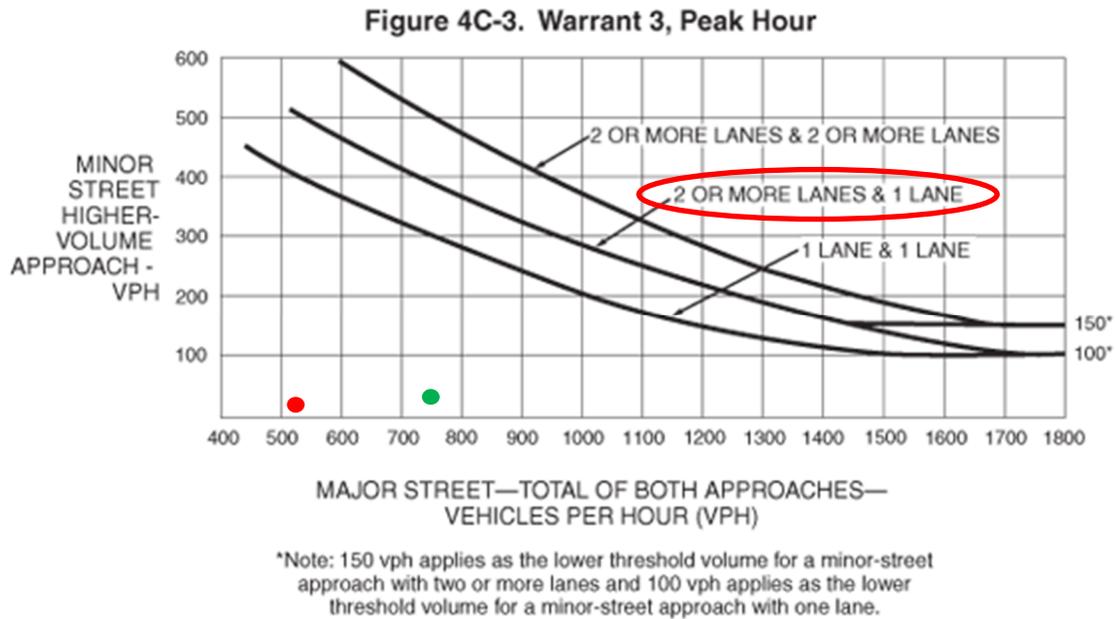
Ward Road and Missouri Road - AM & PM

Not Warranted



Ward Road and Outerview Road - AM & PM

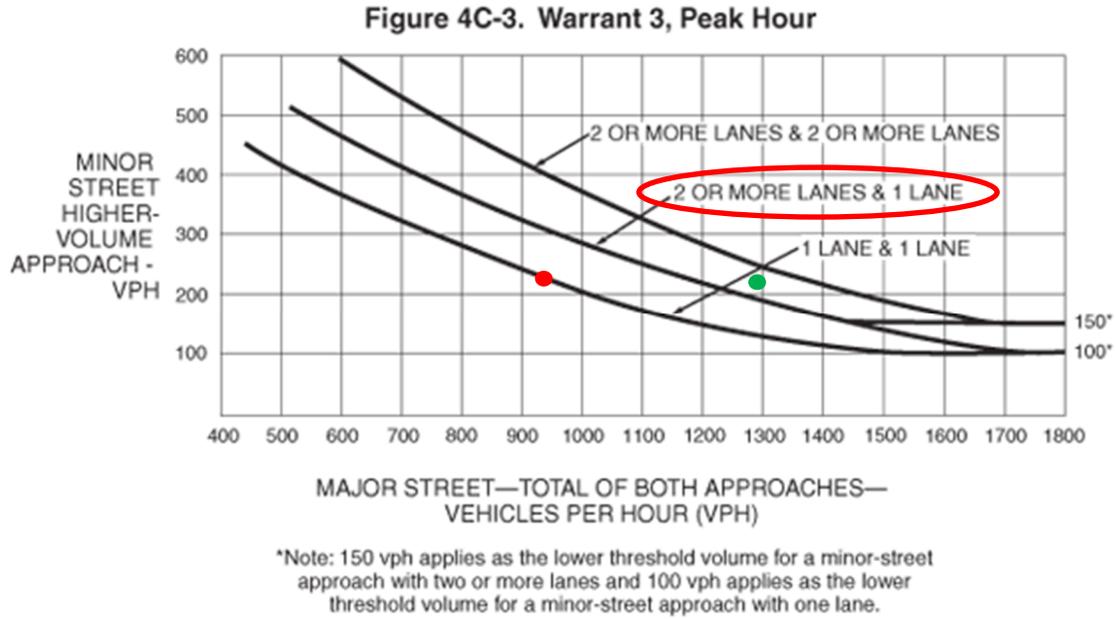
Not Warranted



FUTURE

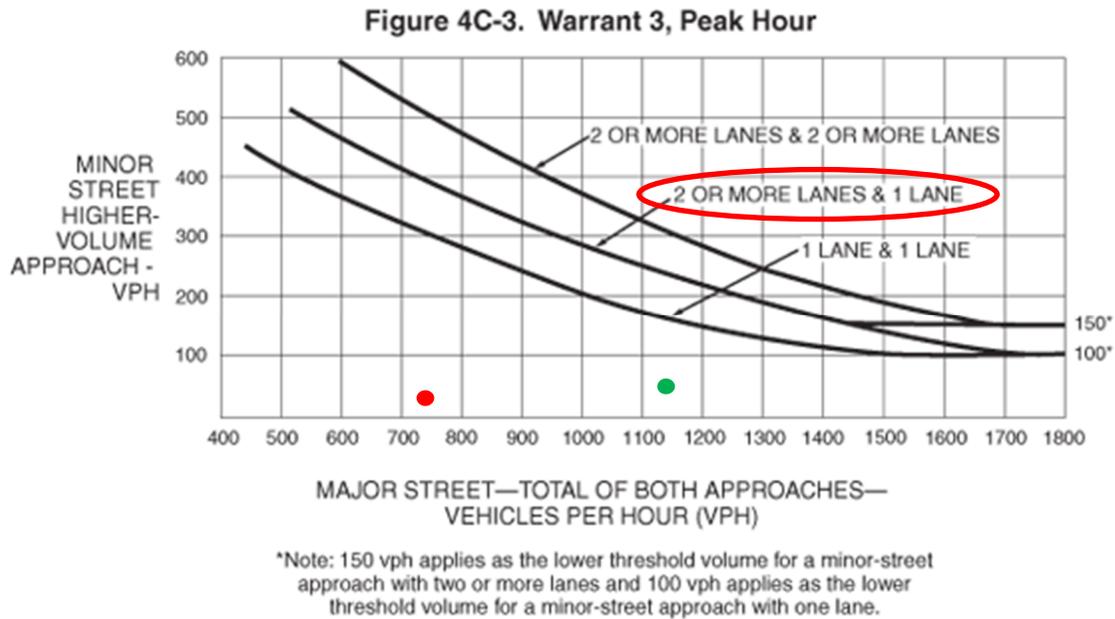
Ward Road and Missouri Road - AM & PM

Warranted



Ward Road and Outerview Road - AM & PM

Not Warranted



Crash Summaries (Previous 3 Years)				
ID	Year	PDO/Injury/Fatality	Type of Crash	Intersection
9702	2022	PDO	Rear End	Blue/Ward and Blue
8677	2022	PDO	Sideswipe	Blue/Ward and Blue
7095	2022	PDO	Angle	Blue/Ward and Blue
5093	2022	PDO	Angle	Blue/Ward and Blue
3340	2022	PDO	Sideswipe	Blue/Ward and Blue
3171	2022	PDO	Rear End	Blue/Ward and Blue
1141	2022	PDO	Angle	Blue/Ward and Blue
3139	2021	PDO	Sideswipe	Blue/Ward and Blue
831	2021	PDO	Fixed Object	Blue/Ward and Blue
332	2021	PDO	Fixed Object	Blue/Ward and Blue
9911	2020	PDO	Angle	Blue/Ward and Blue
5015	2023	Injury	Angle	I-470 EB Ramp and Blue
3491	2023	PDO	Angle	I-470 EB Ramp and Blue
2640	2023	Injury	Angle	I-470 EB Ramp and Blue
1185	2023	PDO	Sideswipe	I-470 EB Ramp and Blue
9076	2023	PDO	Rear End	I-470 EB Ramp and Blue
7108	2022	PDO	Angle	I-470 EB Ramp and Blue
6801	2022	Injury	Fixed Object	I-470 EB Ramp and Blue
6801	2022	Injury	Fixed Object	I-470 EB Ramp and Blue
5987	2022	PDO	Angle	I-470 EB Ramp and Blue
5275	2022	PDO	Rear End	I-470 EB Ramp and Blue
3004	2022	Injury	Angle	I-470 EB Ramp and Blue
2736	2022	PDO	Sideswipe	I-470 EB Ramp and Blue
841	2022	PDO	Angle	I-470 EB Ramp and Blue
6849	2021	PDO	Rear End	I-470 EB Ramp and Blue
3102	2021	Injury	Angle	I-470 EB Ramp and Blue
7071	2022	PDO	Angle	I-470 WB Ramp and Blue
6873	2022	Injury	Rear End	I-470 WB Ramp and Blue
6873	2022	Injury	Rear End	I-470 WB Ramp and Blue
6640	2022	PDO	Angle	I-470 WB Ramp and Blue
6616	2022	PDO	Angle	I-470 WB Ramp and Blue
5598	2022	Injury	Angle	I-470 WB Ramp and Blue
5562	2022	PDO	Angle	I-470 WB Ramp and Blue
4286	2022	Injury	Angle	I-470 WB Ramp and Blue
4194	2022	PDO	Rear End	I-470 WB Ramp and Blue
3572	2022	PDO	Angle	I-470 WB Ramp and Blue
3277	2022	PDO	Rear End	I-470 WB Ramp and Blue
3143	2022	PDO	Angle	I-470 WB Ramp and Blue
6067	2021	Injury	Angle	I-470 WB Ramp and Blue
5857	2021	Injury	Angle	I-470 WB Ramp and Blue
6196	2023	Injury	Angle	Midway and Blue
1081	2023	PDO	Angle	Midway and Blue
826	2022	PDO	Rear End	Midway and Blue
2090	2021	PDO	Rear End	Midway and Blue
1953	2023	PDO	Angle	Northern and Blue

1718	2023	PDO	Angle	Northern and Blue
6549	2022	PDO	Angle	Northern and Blue
2751	2022	Injury	Angle	Northern and Blue
7131	2021	PDO	Angle	Northern and Blue
5149	2021	PDO	Rear End	Northern and Blue
5871	2023	PDO	Angle	Southern and Blue
3458	2023	PDO	Angle	Southern and Blue
2335	2023	PDO	Rear End	Southern and Blue
748	2023	PDO	Sideswipe	Southern and Blue
126	2023	PDO	Rear End	Southern and Blue
8735	2022	PDO	Rear End	Southern and Blue
7733	2022	PDO	Sideswipe	Southern and Blue
6355	2022	PDO	Angle	Southern and Blue
5565	2022	PDO	Rear End	Southern and Blue
8738	2021	PDO	Sideswipe	Southern and Blue
8208	2021	PDO	Rear End	Southern and Blue
7690	2021	PDO	Angle	Southern and Blue
2009	2021	PDO	Rear End	Southern and Blue
1640	2021	PDO	Rear End	Southern and Blue
1357	2021	PDO	Fixed Object	Southern and Blue
7331	2023	PDO	Fixed Object	Tudor and Main
8952	2023	PDO	Fixed Object	Tudor and Ward
7077	2022	PDO	Angle	Tudor and Ward
5743	2021	PDO	Fixed Object	Tudor and Ward
9396	2020	PDO	Angle	Tudor and Ward
5907	2020	Injury	Fixed Object	Tudor and Ward

HCM 6th TWSC
1: Missouri Rd & Ward Rd

AM Existing

Intersection												
Int Delay, s/veh	0.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑	↗		↔			↔	
Traffic Vol, veh/h	0	214	2	2	173	0	2	0	2	0	0	1
Future Vol, veh/h	0	214	2	2	173	0	2	0	2	0	0	1
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									
Storage Length	210	-	160	215	-	215	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	80	80	80	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	238	2	3	216	0	2	0	2	0	0	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	216	0	0	240	0	0	352	460	119	341	462	108
Stage 1	-	-	-	-	-	-	238	238	-	222	222	-
Stage 2	-	-	-	-	-	-	114	222	-	119	240	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1351	-	-	1324	-	-	578	497	910	589	495	925
Stage 1	-	-	-	-	-	-	744	707	-	760	718	-
Stage 2	-	-	-	-	-	-	879	718	-	873	706	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1351	-	-	1324	-	-	576	496	910	587	494	925
Mov Cap-2 Maneuver	-	-	-	-	-	-	576	496	-	587	494	-
Stage 1	-	-	-	-	-	-	744	707	-	760	717	-
Stage 2	-	-	-	-	-	-	876	717	-	871	706	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.1			10.1			8.9		
HCM LOS							B			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	705	1351	-	-	1324	-	-	925
HCM Lane V/C Ratio	0.006	-	-	-	0.002	-	-	0.001
HCM Control Delay (s)	10.1	0	-	-	7.7	-	-	8.9
HCM Lane LOS		B	A	-	-	A	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0

Queues

15: Ward Rd & Tudor Rd

AM Existing



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	1	4	68	137	25	219	135	220	481
v/c Ratio	0.01	0.01	0.35	0.38	0.04	0.12	0.15	0.27	0.19
Control Delay	26.0	0.0	33.0	8.1	3.8	9.9	2.2	4.7	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.0	0.0	33.0	8.1	3.8	9.9	2.2	4.7	6.2
Queue Length 50th (ft)	0	0	24	0	2	23	0	23	27
Queue Length 95th (ft)	4	0	66	24	9	42	15	39	61
Internal Link Dist (ft)		394	448			689			1243
Turn Bay Length (ft)					200		90	150	
Base Capacity (vph)	533	890	522	704	676	1804	881	1043	2475
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.00	0.13	0.19	0.04	0.12	0.15	0.21	0.19

Intersection Summary

HCM 6th Signalized Intersection Summary

15: Ward Rd & Tudor Rd

AM Existing

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	0	4	52	1	107	23	175	108	152	331	1
Future Volume (veh/h)	1	0	4	52	1	107	23	175	108	152	331	1
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1	0	4	67	1	137	25	219	135	220	480	1
Peak Hour Factor	0.92	0.92	0.92	0.78	0.92	0.78	0.92	0.80	0.80	0.69	0.69	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	293	0	190	270	3	190	632	1854	827	816	2272	5
Arrive On Green	0.12	0.00	0.12	0.12	0.12	0.12	0.03	0.52	0.52	0.12	0.62	0.62
Sat Flow, veh/h	1416	0	1585	1371	27	1585	1781	3554	1585	1781	3638	8
Grp Volume(v), veh/h	1	0	4	68	0	137	25	219	135	220	234	247
Grp Sat Flow(s),veh/h/ln	1416	0	1585	1398	0	1585	1781	1777	1585	1781	1777	1869
Q Serve(g_s), s	0.0	0.0	0.2	3.0	0.0	5.7	0.4	2.1	3.0	3.5	3.9	3.9
Cycle Q Clear(g_c), s	0.0	0.0	0.2	3.1	0.0	5.7	0.4	2.1	3.0	3.5	3.9	3.9
Prop In Lane	1.00		1.00	0.99		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	293	0	190	273	0	190	632	1854	827	816	1110	1167
V/C Ratio(X)	0.00	0.00	0.02	0.25	0.00	0.72	0.04	0.12	0.16	0.27	0.21	0.21
Avail Cap(c_a), veh/h	653	0	594	613	0	571	779	1854	827	1146	1110	1167
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.4	0.0	26.4	27.8	0.0	28.8	7.0	8.3	8.5	5.1	5.5	5.5
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.5	0.0	5.0	0.0	0.1	0.4	0.2	0.4	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.1	1.0	0.0	2.3	0.1	0.8	1.0	1.0	1.2	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.4	0.0	26.5	28.2	0.0	33.9	7.0	8.4	8.9	5.3	6.0	5.9
LnGrp LOS	C	A	C	C	A	C	A	A	A	A	A	A
Approach Vol, veh/h		5			205			379			701	
Approach Delay, s/veh		26.4			32.0			8.5			5.8	
Approach LOS		C			C			A			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	13.4	41.0		13.7	6.4	48.0		13.7				
Change Period (Y+Rc), s	5.5	5.5		* 5.5	4.5	5.5		5.5				
Max Green Setting (Gmax), s	20.5	28.5		* 26	7.5	42.5		24.5				
Max Q Clear Time (g_c+I1), s	5.5	5.0		2.2	2.4	5.9		7.7				
Green Ext Time (p_c), s	0.5	1.8		0.0	0.0	3.0		0.7				
Intersection Summary												
HCM 6th Ctrl Delay				10.8								
HCM 6th LOS				B								
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 6th TWSC
19: Ward Rd & Outerview

AM Existing

Intersection												
Int Delay, s/veh	1.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕		↕	↕	↕	↕	↕	↕
Traffic Vol, veh/h	2	0	3	8	0	11	9	162	1	50	160	6
Future Vol, veh/h	2	0	3	8	0	11	9	162	1	50	160	6
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									
Storage Length	-	-	-	25	-	-	200	-	145	190	-	190
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	63	63	92	79	79	92	95	95	95	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	0	3	10	0	12	9	171	1	63	200	8

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	430	516	100	415	523	86	208	0	0	172	0	0
Stage 1	326	326	-	189	189	-	-	-	-	-	-	-
Stage 2	104	190	-	226	334	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	509	461	936	522	457	956	1360	-	-	1402	-	-
Stage 1	661	647	-	795	743	-	-	-	-	-	-	-
Stage 2	890	742	-	756	642	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	483	437	936	500	433	956	1360	-	-	1402	-	-
Mov Cap-2 Maneuver	483	437	-	500	433	-	-	-	-	-	-	-
Stage 1	656	618	-	789	738	-	-	-	-	-	-	-
Stage 2	873	737	-	720	613	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	10.7		10.4		0.4		1.8	
HCM LOS	B		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1360	-	-	640	500	956	1402	-	-
HCM Lane V/C Ratio	0.007	-	-	0.01	0.02	0.013	0.045	-	-
HCM Control Delay (s)	7.7	-	-	10.7	12.3	8.8	7.7	-	-
HCM Lane LOS	A	-	-	B	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	0.1	-	-

Queues

38: Blue Pkwy & I-470 WB Ramp

AM Existing



Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	184	177	38	117	135	105	24
v/c Ratio	0.46	0.43	0.15	0.13	0.05	0.05	0.02
Control Delay	38.6	37.9	2.5	3.3	2.9	7.2	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.6	37.9	2.5	3.3	2.9	7.2	0.1
Queue Length 50th (ft)	47	46	0	13	7	10	0
Queue Length 95th (ft)	71	70	1	26	14	21	0
Internal Link Dist (ft)		962			586	245	
Turn Bay Length (ft)	425		310	480			135
Base Capacity (vph)	1247	1285	626	1090	2673	2249	1035
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.14	0.06	0.11	0.05	0.05	0.02

Intersection Summary

HCM 6th Signalized Intersection Summary
 38: Blue Pkwy & I-470 WB Ramp

AM Existing

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	151	145	31	97	112	0	0	88	20
Future Volume (veh/h)	0	0	0	151	145	31	97	112	0	0	88	20
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No			No		
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				184	177	0	117	135	0	0	105	0
Peak Hour Factor				0.82	0.82	0.82	0.83	0.83	0.83	0.84	0.84	0.84
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				333	342		1020	2745	0	0	2254	
Arrive On Green				0.10	0.10	0.00	0.07	0.77	0.00	0.00	0.63	0.00
Sat Flow, veh/h				3456	3554	1585	1781	3647	0	0	3647	1585
Grp Volume(v), veh/h				184	177	0	117	135	0	0	105	0
Grp Sat Flow(s),veh/h/ln				1728	1777	1585	1781	1777	0	0	1777	1585
Q Serve(g_s), s				4.2	3.9	0.0	1.6	0.7	0.0	0.0	0.9	0.0
Cycle Q Clear(g_c), s				4.2	3.9	0.0	1.6	0.7	0.0	0.0	0.9	0.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				333	342		1020	2745	0	0	2254	
V/C Ratio(X)				0.55	0.52		0.11	0.05	0.00	0.00	0.05	
Avail Cap(c_a), veh/h				1284	1321		1531	2745	0	0	2254	
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				35.5	35.4	0.0	3.2	2.2	0.0	0.0	5.7	0.0
Incr Delay (d2), s/veh				1.4	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.8	1.7	0.0	0.4	0.2	0.0	0.0	0.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				36.9	36.6	0.0	3.3	2.2	0.0	0.0	5.7	0.0
LnGrp LOS				D	D		A	A	A	A	A	
Approach Vol, veh/h					361			252			105	
Approach Delay, s/veh					36.8			2.7			5.7	
Approach LOS					D			A			A	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		69.0			11.4	57.6		13.3				
Change Period (Y+Rc), s		* 5.4			* 5.4	* 5.4		5.4				
Max Green Setting (Gmax), s		* 64			* 30	* 29		30.6				
Max Q Clear Time (g_c+I1), s		2.7			3.6	2.9		6.2				
Green Ext Time (p_c), s		0.9			0.3	0.6		1.7				
Intersection Summary												
HCM 6th Ctrl Delay				20.3								
HCM 6th LOS				C								
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												
Unsignalized Delay for [EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.												

Queues

43: Blue Pkwy & I-470 EB Ramp

AM Existing



Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	36	301	248	206	79	17	257
v/c Ratio	0.12	0.50	0.52	0.09	0.08	0.02	0.11
Control Delay	25.5	29.7	8.1	6.5	2.5	4.8	4.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.5	29.7	8.1	6.5	2.5	4.8	4.6
Queue Length 50th (ft)	14	64	0	13	0	2	17
Queue Length 95th (ft)	36	97	51	42	17	9	34
Internal Link Dist (ft)		816		542			586
Turn Bay Length (ft)	230		230		280	780	
Base Capacity (vph)	1121	2241	1093	2281	1050	818	2389
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.13	0.23	0.09	0.08	0.02	0.11
Intersection Summary							

HCM 6th Signalized Intersection Summary

43: Blue Pkwy & I-470 EB Ramp

AM Existing



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗					↑↑	↗	↘	↑↑	
Traffic Volume (veh/h)	32	265	218	0	0	0	0	177	68	15	224	0
Future Volume (veh/h)	32	265	218	0	0	0	0	177	68	15	224	0
Initial Q (Qb), veh	0	0	0					0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	36	301	248				0	206	79	17	257	0
Peak Hour Factor	0.88	0.88	0.88				0.86	0.86	0.86	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	380	758	338				0	1936	863	745	2279	0
Arrive On Green	0.21	0.21	0.21				0.00	0.54	0.54	0.02	0.64	0.00
Sat Flow, veh/h	1781	3554	1585				0	3647	1585	1781	3647	0
Grp Volume(v), veh/h	36	301	248				0	206	79	17	257	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585				0	1777	1585	1781	1777	0
Q Serve(g_s), s	1.2	5.5	11.0				0.0	2.1	1.8	0.3	2.1	0.0
Cycle Q Clear(g_c), s	1.2	5.5	11.0				0.0	2.1	1.8	0.3	2.1	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	380	758	338				0	1936	863	745	2279	0
V/C Ratio(X)	0.09	0.40	0.73				0.00	0.11	0.09	0.02	0.11	0.00
Avail Cap(c_a), veh/h	1072	2138	954				0	1936	863	974	2279	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	23.9	25.6	27.7				0.0	8.3	8.3	6.4	5.2	0.0
Incr Delay (d2), s/veh	0.1	0.3	3.1				0.0	0.1	0.2	0.0	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	2.3	4.3				0.0	0.8	0.6	0.1	0.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.0	25.9	30.8				0.0	8.4	8.5	6.4	5.3	0.0
LnGrp LOS	C	C	C				A	A	A	A	A	A
Approach Vol, veh/h		585						285			274	
Approach Delay, s/veh		27.9						8.4			5.4	
Approach LOS		C						A			A	
Timer - Assigned Phs	1	2		4				6				
Phs Duration (G+Y+Rc), s	7.3	46.7		21.6				54.0				
Change Period (Y+Rc), s	5.5	5.5		5.5				5.5				
Max Green Setting (Gmax), s	11.5	31.5		45.5				48.5				
Max Q Clear Time (g_c+I1), s	2.3	4.1		13.0				4.1				
Green Ext Time (p_c), s	0.0	1.6		3.1				1.8				
Intersection Summary												
HCM 6th Ctrl Delay			17.7									
HCM 6th LOS			B									

Queues

46: Blue Pkwy & Ward Rd

AM Existing



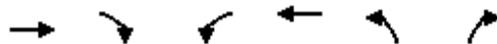
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	229	262	24	196	119	13
v/c Ratio	0.39	0.38	0.07	0.33	0.05	0.01
Control Delay	23.2	5.1	20.1	22.5	4.0	2.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.2	5.1	20.1	22.5	4.0	2.4
Queue Length 50th (ft)	37	0	3	32	6	0
Queue Length 95th (ft)	65	27	10	50	12	4
Internal Link Dist (ft)	383			624	526	
Turn Bay Length (ft)		360	325			210
Base Capacity (vph)	3462	2732	2153	3462	2261	1047
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.10	0.01	0.06	0.05	0.01

Intersection Summary

HCM 6th Signalized Intersection Summary

46: Blue Pkwy & Ward Rd

AM Existing



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑↑	↑↑	↑↑	↑↑	↑
Traffic Volume (veh/h)	206	236	19	157	94	10
Future Volume (veh/h)	206	236	19	157	94	10
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	229	262	24	196	119	13
Peak Hour Factor	0.90	0.90	0.80	0.80	0.79	0.79
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	599	470	498	599	2275	1043
Arrive On Green	0.17	0.17	0.17	0.17	0.66	0.66
Sat Flow, veh/h	3647	2790	2234	3647	3456	1585
Grp Volume(v), veh/h	229	262	24	196	119	13
Grp Sat Flow(s),veh/h/ln	1777	1395	1117	1777	1728	1585
Q Serve(g_s), s	3.3	5.0	0.6	2.8	0.7	0.2
Cycle Q Clear(g_c), s	3.3	5.0	3.9	2.8	0.7	0.2
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	599	470	498	599	2275	1043
V/C Ratio(X)	0.38	0.56	0.05	0.33	0.05	0.01
Avail Cap(c_a), veh/h	3509	2755	2328	3509	2275	1043
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.3	22.0	23.0	21.1	3.5	3.4
Incr Delay (d2), s/veh	0.4	1.0	0.0	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	1.6	0.1	1.1	0.2	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	21.7	23.1	23.1	21.4	3.5	3.4
LnGrp LOS	C	C	C	C	A	A
Approach Vol, veh/h	491			220	132	
Approach Delay, s/veh	22.4			21.6	3.5	
Approach LOS	C			C	A	
Timer - Assigned Phs		2		4		8
Phs Duration (G+Y+Rc), s		43.0		14.7		14.7
Change Period (Y+Rc), s		5.0		5.0		5.0
Max Green Setting (Gmax), s		38.0		57.0		57.0
Max Q Clear Time (g_c+I1), s		2.7		7.0		5.9
Green Ext Time (p_c), s		0.4		2.7		1.5
Intersection Summary						
HCM 6th Ctrl Delay			19.3			
HCM 6th LOS			B			

Queues

48: Blue Pkwy & North Access

AM Existing



Lane Group	EBL	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	23	9	3	1	15	87	3	7	207	67
v/c Ratio	0.11	0.01	0.01	0.00	0.08	0.03	0.00	0.04	0.08	0.05
Control Delay	23.1	0.0	21.7	0.0	27.5	5.3	0.0	27.5	5.0	1.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.1	0.0	21.7	0.0	27.5	5.3	0.0	27.5	5.0	1.1
Queue Length 50th (ft)	8	0	1	0	5	3	0	2	7	0
Queue Length 95th (ft)	26	0	7	0	23	21	0	15	44	12
Internal Link Dist (ft)				394		623			526	
Turn Bay Length (ft)	110				290		210	290		155
Base Capacity (vph)	511	1092	391	1130	392	2625	1500	363	2619	1515
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.01	0.01	0.00	0.04	0.03	0.00	0.02	0.08	0.04

Intersection Summary

HCM 6th Signalized Intersection Summary

48: Blue Pkwy & North Access

AM Existing

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	0	8	3	0	1	14	80	3	6	190	62
Future Volume (veh/h)	21	0	8	3	0	1	14	80	3	6	190	62
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	23	0	9	3	0	1	15	87	3	7	207	67
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	208	87	74	160	0	31	40	2231	1003	20	2191	1028
Arrive On Green	0.03	0.00	0.05	0.00	0.00	0.02	0.02	0.63	0.63	0.01	0.62	0.62
Sat Flow, veh/h	1781	1870	1585	1781	0	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	23	0	9	3	0	1	15	87	3	7	207	67
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	0.7	0.0	0.3	0.1	0.0	0.0	0.5	0.5	0.0	0.2	1.4	0.9
Cycle Q Clear(g_c), s	0.7	0.0	0.3	0.1	0.0	0.0	0.5	0.5	0.0	0.2	1.4	0.9
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	208	87	74	160	0	31	40	2231	1003	20	2191	1028
V/C Ratio(X)	0.11	0.00	0.12	0.02	0.00	0.03	0.38	0.04	0.00	0.36	0.09	0.07
Avail Cap(c_a), veh/h	687	820	695	535	0	559	414	2231	1003	383	2191	1028
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.5	0.0	26.6	27.7	0.0	28.0	28.0	4.1	3.9	28.5	4.5	3.7
Incr Delay (d2), s/veh	0.2	0.0	0.7	0.0	0.0	0.4	5.9	0.0	0.0	10.6	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.1	0.0	0.0	0.0	0.3	0.1	0.0	0.1	0.4	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.7	0.0	27.3	27.8	0.0	28.4	33.9	4.2	3.9	39.1	4.6	3.9
LnGrp LOS	C	A	C	C	A	C	C	A	A	D	A	A
Approach Vol, veh/h		32			4			105			281	
Approach Delay, s/veh		26.9			27.9			8.4			5.3	
Approach LOS		C			C			A			A	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.1	41.0	4.8	7.2	5.8	40.4	6.4	5.6				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	12.5	36.5	12.5	25.5	13.5	35.5	17.5	20.5				
Max Q Clear Time (g_c+I1), s	2.2	2.5	2.1	2.3	2.5	3.4	2.7	2.0				
Green Ext Time (p_c), s	0.0	0.5	0.0	0.0	0.0	1.6	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			7.9									
HCM 6th LOS			A									

Queues

51: Blue Pkwy & Midway Access

AM Existing



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	4	29	7	10	31	100	17	37	205	15
v/c Ratio	0.02	0.03	0.03	0.01	0.09	0.04	0.01	0.10	0.07	0.01
Control Delay	22.0	0.1	22.0	0.0	29.1	7.3	0.0	28.9	6.7	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.0	0.1	22.0	0.0	29.1	7.3	0.0	28.9	6.7	0.0
Queue Length 50th (ft)	1	0	2	0	4	0	0	4	0	0
Queue Length 95th (ft)	5	0	9	0	19	24	0	18	38	0
Internal Link Dist (ft)		404		466		564			623	
Turn Bay Length (ft)					240		170	240		300
Base Capacity (vph)	449	1052	452	1142	807	2792	1281	807	2796	1283
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.03	0.02	0.01	0.04	0.04	0.01	0.05	0.07	0.01

Intersection Summary

HCM 6th Signalized Intersection Summary

51: Blue Pkwy & Midway Access

AM Existing



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖↗	↕	↖	↖↗	↕	↖
Traffic Volume (veh/h)	2	0	16	5	0	7	27	88	15	29	160	12
Future Volume (veh/h)	2	0	16	5	0	7	27	88	15	29	160	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.99
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	4	0	29	7	0	10	31	100	17	37	205	15
Peak Hour Factor	0.56	0.56	0.56	0.69	0.69	0.69	0.88	0.88	0.88	0.78	0.78	0.78
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	197	0	79	182	0	86	139	2019	907	158	2038	908
Arrive On Green	0.01	0.00	0.05	0.01	0.00	0.06	0.04	0.57	0.57	0.05	0.57	0.57
Sat Flow, veh/h	1781	0	1562	1781	0	1562	3456	3554	1565	3456	3554	1565
Grp Volume(v), veh/h	4	0	29	7	0	10	31	100	17	37	205	15
Grp Sat Flow(s),veh/h/ln	1781	0	1562	1781	0	1562	1728	1777	1565	1728	1777	1565
Q Serve(g_s), s	0.1	0.0	1.1	0.2	0.0	0.4	0.5	0.8	0.3	0.6	1.6	0.3
Cycle Q Clear(g_c), s	0.1	0.0	1.1	0.2	0.0	0.4	0.5	0.8	0.3	0.6	1.6	0.3
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	197	0	79	182	0	86	139	2019	907	158	2038	908
V/C Ratio(X)	0.02	0.00	0.37	0.04	0.00	0.12	0.22	0.05	0.02	0.23	0.10	0.02
Avail Cap(c_a), veh/h	591	0	558	567	0	558	785	2019	907	785	2038	908
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.4	0.0	28.3	27.2	0.0	27.7	28.6	5.9	5.5	28.4	5.9	5.5
Incr Delay (d2), s/veh	0.0	0.0	2.8	0.1	0.0	0.6	0.8	0.0	0.0	0.8	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.5	0.1	0.0	0.1	0.2	0.2	0.1	0.3	0.5	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.5	0.0	31.1	27.3	0.0	28.3	29.5	6.0	5.6	29.1	6.0	5.5
LnGrp LOS	C	A	C	C	A	C	C	A	A	C	A	A
Approach Vol, veh/h		33			17			148			257	
Approach Delay, s/veh		30.7			27.9			10.8			9.3	
Approach LOS		C			C			B			A	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.8	40.0	5.7	8.1	7.5	40.3	5.4	8.4				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	14.0	35.0	14.0	22.0	14.0	35.0	14.0	22.0				
Max Q Clear Time (g_c+I1), s	2.6	2.8	2.2	3.1	2.5	3.6	2.1	2.4				
Green Ext Time (p_c), s	0.0	0.7	0.0	0.1	0.0	1.4	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay				12.1								
HCM 6th LOS				B								

Queues

54: Blue Pkwy & South Access

AM Existing



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	27	3	123	16	12	139	113	51	25	135	44
v/c Ratio	0.09	0.02	0.45	0.08	0.07	0.34	0.05	0.04	0.15	0.08	0.04
Control Delay	21.6	30.0	12.4	26.3	19.0	31.2	9.8	1.2	32.8	12.7	1.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.6	30.0	12.4	26.3	19.0	31.2	9.8	1.2	32.8	12.7	1.0
Queue Length 50th (ft)	9	1	0	6	0	28	8	0	10	17	0
Queue Length 95th (ft)	27	8	42	20	16	54	29	7	33	37	6
Internal Link Dist (ft)		380			478		1188			564	
Turn Bay Length (ft)						170		260	310		325
Base Capacity (vph)	404	820	767	299	643	806	2096	1299	311	1647	1216
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.00	0.16	0.05	0.02	0.17	0.05	0.04	0.08	0.08	0.04

Intersection Summary

HCM 6th Signalized Intersection Summary
54: Blue Pkwy & South Access

AM Existing

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	3	108	15	1	10	118	96	43	22	120	39
Future Volume (veh/h)	24	3	108	15	1	10	118	96	43	22	120	39
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	27	3	123	16	1	11	139	113	51	25	135	44
Peak Hour Factor	0.88	0.88	0.88	0.93	0.93	0.93	0.85	0.85	0.85	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	299	199	169	288	13	138	299	1851	863	60	1664	799
Arrive On Green	0.04	0.11	0.11	0.02	0.09	0.09	0.09	0.52	0.52	0.03	0.47	0.47
Sat Flow, veh/h	1781	1870	1585	1781	134	1472	3456	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	27	3	123	16	0	12	139	113	51	25	135	44
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1605	1728	1777	1585	1781	1777	1585
Q Serve(g_s), s	0.8	0.1	4.8	0.5	0.0	0.4	2.4	1.0	1.0	0.9	1.3	0.9
Cycle Q Clear(g_c), s	0.8	0.1	4.8	0.5	0.0	0.4	2.4	1.0	1.0	0.9	1.3	0.9
Prop In Lane	1.00		1.00	1.00		0.92	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	299	199	169	288	0	150	299	1851	863	60	1664	799
V/C Ratio(X)	0.09	0.02	0.73	0.06	0.00	0.08	0.46	0.06	0.06	0.42	0.08	0.06
Avail Cap(c_a), veh/h	601	886	751	527	0	684	873	1851	863	337	1664	799
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.4	25.3	27.4	24.9	0.0	26.2	27.5	7.5	6.8	30.0	9.3	8.0
Incr Delay (d2), s/veh	0.1	0.0	5.9	0.1	0.0	0.2	1.1	0.1	0.1	4.5	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	2.0	0.2	0.0	0.2	1.0	0.3	0.3	0.4	0.5	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.5	25.4	33.4	25.0	0.0	26.4	28.7	7.6	6.9	34.5	9.4	8.1
LnGrp LOS	C	C	C	C	A	C	C	A	A	C	A	A
Approach Vol, veh/h		153			28			303			204	
Approach Delay, s/veh		31.6			25.6			17.1			12.2	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.1	38.0	6.5	11.7	10.5	34.7	7.3	10.9				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	12.0	33.0	10.0	30.0	16.0	29.0	13.0	27.0				
Max Q Clear Time (g_c+I1), s	2.9	3.0	2.5	6.8	4.4	3.3	2.8	2.4				
Green Ext Time (p_c), s	0.0	0.8	0.0	0.4	0.3	0.9	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			19.2									
HCM 6th LOS			B									

HCM 6th TWSC
1: Missouri Rd & Ward Rd

PM Existing

Intersection												
Int Delay, s/veh	0.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑	↗		↔			↔	
Traffic Vol, veh/h	0	418	1	1	265	1	2	0	3	1	0	1
Future Vol, veh/h	0	418	1	1	265	1	2	0	3	1	0	1
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									
Storage Length	210	-	160	215	-	215	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	464	1	1	294	1	2	0	4	1	0	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	295	0	0	465	0	0	613	761	232	528	761	147
Stage 1	-	-	-	-	-	-	464	464	-	296	296	-
Stage 2	-	-	-	-	-	-	149	297	-	232	465	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1263	-	-	1093	-	-	377	334	770	433	334	873
Stage 1	-	-	-	-	-	-	548	562	-	688	667	-
Stage 2	-	-	-	-	-	-	838	666	-	750	561	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1263	-	-	1093	-	-	376	334	770	431	334	873
Mov Cap-2 Maneuver	-	-	-	-	-	-	376	334	-	431	334	-
Stage 1	-	-	-	-	-	-	548	562	-	688	666	-
Stage 2	-	-	-	-	-	-	836	665	-	747	561	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0			11.7			11.3		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	543	1263	-	-	1093	-	-	577
HCM Lane V/C Ratio	0.011	-	-	-	0.001	-	-	0.004
HCM Control Delay (s)	11.7	0	-	-	8.3	-	-	11.3
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0

Queues

15: Ward Rd & Tudor Rd

PM Existing



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	3	15	124	127	13	201	86	201	291
v/c Ratio	0.01	0.05	0.54	0.33	0.02	0.12	0.11	0.26	0.13
Control Delay	24.7	14.8	36.3	7.3	4.4	12.0	1.1	6.0	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.7	14.8	36.3	7.3	4.4	12.0	1.1	6.0	6.2
Queue Length 50th (ft)	1	1	47	0	1	23	0	26	18
Queue Length 95th (ft)	8	16	91	24	6	52	9	57	54
Internal Link Dist (ft)		394	448			689			1243
Turn Bay Length (ft)					200		90	150	
Base Capacity (vph)	575	746	609	796	812	1623	800	986	2278
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.02	0.20	0.16	0.02	0.12	0.11	0.20	0.13

Intersection Summary

HCM 6th Signalized Intersection Summary
 15: Ward Rd & Tudor Rd

PM Existing

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	2	12	95	1	98	9	181	77	167	241	1
Future Volume (veh/h)	3	2	12	95	1	98	9	181	77	167	241	1
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	3	2	13	123	1	127	13	201	86	201	290	1
Peak Hour Factor	0.92	0.92	0.92	0.77	0.77	0.77	0.70	0.90	0.90	0.83	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	155	29	189	278	1	214	781	1850	825	837	2287	8
Arrive On Green	0.13	0.13	0.13	0.13	0.13	0.13	0.02	0.52	0.52	0.11	0.63	0.63
Sat Flow, veh/h	1262	216	1402	1307	11	1585	1781	3554	1585	1781	3632	13
Grp Volume(v), veh/h	3	0	15	124	0	127	13	201	86	201	142	149
Grp Sat Flow(s),veh/h/ln	1262	0	1618	1317	0	1585	1781	1777	1585	1781	1777	1868
Q Serve(g_s), s	0.2	0.0	0.6	6.0	0.0	5.3	0.2	2.0	1.9	3.3	2.3	2.3
Cycle Q Clear(g_c), s	6.7	0.0	0.6	6.6	0.0	5.3	0.2	2.0	1.9	3.3	2.3	2.3
Prop In Lane	1.00		0.87	0.99		1.00	1.00		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	155	0	218	279	0	214	781	1850	825	837	1119	1176
V/C Ratio(X)	0.02	0.00	0.07	0.44	0.00	0.59	0.02	0.11	0.10	0.24	0.13	0.13
Avail Cap(c_a), veh/h	547	0	721	715	0	707	966	1850	825	1231	1119	1176
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.5	0.0	26.7	29.5	0.0	28.7	4.5	8.6	8.6	5.4	5.3	5.3
Incr Delay (d2), s/veh	0.0	0.0	0.1	1.1	0.0	2.6	0.0	0.1	0.3	0.1	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.2	2.0	0.0	2.1	0.1	0.7	0.7	1.0	0.7	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.5	0.0	26.8	30.7	0.0	31.4	4.5	8.7	8.8	5.6	5.5	5.5
LnGrp LOS	C	A	C	C	A	C	A	A	A	A	A	A
Approach Vol, veh/h		18			251			300			492	
Approach Delay, s/veh		27.8			31.0			8.6			5.5	
Approach LOS		C			C			A			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	13.3	42.3		15.0	5.6	50.0		15.0				
Change Period (Y+Rc), s	5.5	5.5		5.5	4.5	5.5		5.5				
Max Green Setting (Gmax), s	23.5	28.5		31.5	8.5	44.5		31.5				
Max Q Clear Time (g_c+I1), s	5.3	4.0		8.7	2.2	4.3		8.6				
Green Ext Time (p_c), s	0.5	1.5		0.0	0.0	1.7		1.0				
Intersection Summary												
HCM 6th Ctrl Delay				12.8								
HCM 6th LOS				B								

HCM 6th TWSC
19: Ward Rd & Outerview

PM Existing

Intersection												
Int Delay, s/veh	1.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↵	↵		↵	↑↑	↵	↵	↑↑	↵
Traffic Vol, veh/h	9	0	9	3	0	38	2	222	1	24	397	1
Future Vol, veh/h	9	0	9	3	0	38	2	222	1	24	397	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									
Storage Length	-	-	-	25	-	-	200	-	145	190	-	190
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	57	57	92	47	47	92	92	92	92	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	16	0	10	6	0	41	2	241	1	26	436	1

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	613	734	218	515	734	121	437	0	0	242	0	0
Stage 1	488	488	-	245	245	-	-	-	-	-	-	-
Stage 2	125	246	-	270	489	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	377	346	786	443	346	908	1119	-	-	1322	-	-
Stage 1	530	548	-	737	702	-	-	-	-	-	-	-
Stage 2	866	701	-	713	548	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	354	338	786	430	338	908	1119	-	-	1322	-	-
Mov Cap-2 Maneuver	354	338	-	430	338	-	-	-	-	-	-	-
Stage 1	529	537	-	736	701	-	-	-	-	-	-	-
Stage 2	825	700	-	690	537	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	13.5		9.8		0.1		0.4	
HCM LOS	B		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1119	-	-	448	430	908	1322	-	-
HCM Lane V/C Ratio	0.002	-	-	0.057	0.015	0.045	0.02	-	-
HCM Control Delay (s)	8.2	-	-	13.5	13.5	9.2	7.8	-	-
HCM Lane LOS	A	-	-	B	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0	0.1	0.1	-	-

Queues

38: Blue Pkwy & I-470 WB Ramp

PM Existing



Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	207	478	15	243	148	196	39
v/c Ratio	0.30	0.67	0.04	0.31	0.06	0.11	0.05
Control Delay	30.4	37.0	0.2	7.0	5.4	13.1	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.4	37.0	0.2	7.0	5.4	13.1	0.8
Queue Length 50th (ft)	50	128	0	44	12	28	0
Queue Length 95th (ft)	72	159	0	80	24	53	3
Internal Link Dist (ft)		962			586	245	
Turn Bay Length (ft)	425		310	480			135
Base Capacity (vph)	1407	1450	694	931	2396	1770	831
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.33	0.02	0.26	0.06	0.11	0.05

Intersection Summary

HCM 6th Signalized Intersection Summary
 38: Blue Pkwy & I-470 WB Ramp

PM Existing

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	170	392	12	202	123	0	0	165	33
Future Volume (veh/h)	0	0	0	170	392	12	202	123	0	0	165	33
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No			No		
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				207	478	0	243	148	0	0	196	0
Peak Hour Factor				0.82	0.82	0.82	0.83	0.83	0.83	0.84	0.84	0.84
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				674	693		841	2424	0	0	1902	
Arrive On Green				0.19	0.19	0.00	0.09	0.68	0.00	0.00	0.54	0.00
Sat Flow, veh/h				3456	3554	1585	1781	3647	0	0	3647	1585
Grp Volume(v), veh/h				207	478	0	243	148	0	0	196	0
Grp Sat Flow(s),veh/h/ln				1728	1777	1585	1781	1777	0	0	1777	1585
Q Serve(g_s), s				4.4	10.8	0.0	4.8	1.2	0.0	0.0	2.3	0.0
Cycle Q Clear(g_c), s				4.4	10.8	0.0	4.8	1.2	0.0	0.0	2.3	0.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				674	693		841	2424	0	0	1902	
V/C Ratio(X)				0.31	0.69		0.29	0.06	0.00	0.00	0.10	
Avail Cap(c_a), veh/h				1427	1468		1240	2424	0	0	1902	
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				29.7	32.3	0.0	6.4	4.5	0.0	0.0	9.9	0.0
Incr Delay (d2), s/veh				0.3	1.2	0.0	0.2	0.0	0.0	0.0	0.1	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.8	4.6	0.0	1.6	0.4	0.0	0.0	0.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				30.0	33.5	0.0	6.6	4.6	0.0	0.0	10.0	0.0
LnGrp LOS				C	C		A	A	A	A	A	
Approach Vol, veh/h					685			391			196	
Approach Delay, s/veh					32.4			5.9			10.0	
Approach LOS					C			A			A	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		64.0			12.7	51.3		22.2				
Change Period (Y+Rc), s		* 5.2			* 5.2	* 5.2		5.4				
Max Green Setting (Gmax), s		* 59			* 27	* 27		35.6				
Max Q Clear Time (g_c+I1), s		3.2			6.8	4.3		12.8				
Green Ext Time (p_c), s		1.0			0.7	1.2		4.0				
Intersection Summary												
HCM 6th Ctrl Delay				20.8								
HCM 6th LOS				C								
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												
Unsignalized Delay for [EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.												

Queues

43: Blue Pkwy & I-470 EB Ramp

PM Existing



Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	20	323	385	359	181	21	364
v/c Ratio	0.09	0.47	0.65	0.16	0.17	0.03	0.16
Control Delay	25.2	26.0	9.6	7.1	2.3	5.2	5.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.2	26.0	9.6	7.1	2.3	5.2	5.3
Queue Length 50th (ft)	8	62	11	25	0	3	25
Queue Length 95th (ft)	22	94	71	72	28	11	50
Internal Link Dist (ft)		816		542			586
Turn Bay Length (ft)	230		230		280	780	
Base Capacity (vph)	1351	2666	1279	2203	1054	705	2309
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.12	0.30	0.16	0.17	0.03	0.16

Intersection Summary

HCM 6th Signalized Intersection Summary

43: Blue Pkwy & I-470 EB Ramp

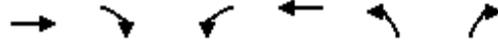
PM Existing

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	284	339	0	0	0	0	309	156	18	317	0
Future Volume (veh/h)	18	284	339	0	0	0	0	309	156	18	317	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	20	323	385				0	359	181	21	364	0
Peak Hour Factor	0.88	0.88	0.88				0.86	0.86	0.86	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	536	1069	477				0	1751	781	513	2044	0
Arrive On Green	0.30	0.30	0.30				0.00	0.49	0.49	0.02	0.58	0.00
Sat Flow, veh/h	1781	3554	1585				0	3647	1585	1781	3647	0
Grp Volume(v), veh/h	20	323	385				0	359	181	21	364	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585				0	1777	1585	1781	1777	0
Q Serve(g_s), s	0.6	5.3	17.2				0.0	4.4	5.0	0.4	3.7	0.0
Cycle Q Clear(g_c), s	0.6	5.3	17.2				0.0	4.4	5.0	0.4	3.7	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	536	1069	477				0	1751	781	513	2044	0
V/C Ratio(X)	0.04	0.30	0.81				0.00	0.21	0.23	0.04	0.18	0.00
Avail Cap(c_a), veh/h	1199	2392	1067				0	1751	781	669	2044	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	18.9	20.6	24.7				0.0	11.0	11.1	8.4	7.7	0.0
Incr Delay (d2), s/veh	0.0	0.2	3.3				0.0	0.3	0.7	0.0	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	2.1	6.5				0.0	1.6	1.8	0.1	1.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.9	20.7	28.0				0.0	11.2	11.8	8.4	7.9	0.0
LnGrp LOS	B	C	C				A	B	B	A	A	A
Approach Vol, veh/h		728						540			385	
Approach Delay, s/veh		24.5						11.4			7.9	
Approach LOS		C						B			A	
Timer - Assigned Phs	1	2		4				6				
Phs Duration (G+Y+Rc), s	6.3	42.7		27.5				49.0				
Change Period (Y+Rc), s	4.5	5.0		4.5				5.0				
Max Green Setting (Gmax), s	8.5	31.0		51.5				44.0				
Max Q Clear Time (g_c+I1), s	2.4	7.0		19.2				5.7				
Green Ext Time (p_c), s	0.0	3.0		3.8				2.6				
Intersection Summary												
HCM 6th Ctrl Delay			16.4									
HCM 6th LOS			B									

Queues

46: Blue Pkwy & Ward Rd

PM Existing



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	394	389	62	305	262	70
v/c Ratio	0.56	0.16	0.17	0.29	0.14	0.08
Control Delay	27.9	0.4	30.6	17.2	9.5	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.9	0.4	30.6	17.2	9.5	3.4
Queue Length 50th (ft)	82	0	12	47	28	0
Queue Length 95th (ft)	125	8	25	58	56	20
Internal Link Dist (ft)	383			624	526	
Turn Bay Length (ft)		360	325			210
Base Capacity (vph)	2201	2442	800	3180	1868	893
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.16	0.08	0.10	0.14	0.08

Intersection Summary

HCM 6th Signalized Intersection Summary

46: Blue Pkwy & Ward Rd

PM Existing



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑↑	↑↑	↑↑	↑↑	↑
Traffic Volume (veh/h)	355	350	45	223	238	64
Future Volume (veh/h)	355	350	45	223	238	64
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	394	389	62	305	262	70
Peak Hour Factor	0.90	0.90	0.73	0.73	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	704	1999	211	1184	1792	822
Arrive On Green	0.20	0.20	0.06	0.33	0.52	0.52
Sat Flow, veh/h	3647	2790	3456	3647	3456	1585
Grp Volume(v), veh/h	394	389	62	305	262	70
Grp Sat Flow(s),veh/h/ln	1777	1395	1728	1777	1728	1585
Q Serve(g_s), s	6.7	3.1	1.2	4.2	2.7	1.5
Cycle Q Clear(g_c), s	6.7	3.1	1.2	4.2	2.7	1.5
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	704	1999	211	1184	1792	822
V/C Ratio(X)	0.56	0.19	0.29	0.26	0.15	0.09
Avail Cap(c_a), veh/h	2106	3100	768	3159	1792	822
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.4	3.1	30.3	16.4	8.5	8.2
Incr Delay (d2), s/veh	0.7	0.0	0.8	0.1	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	2.8	0.5	1.6	0.9	0.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	25.1	3.2	31.1	16.5	8.6	8.4
LnGrp LOS	C	A	C	B	A	A
Approach Vol, veh/h	783			367	332	
Approach Delay, s/veh	14.2			19.0	8.6	
Approach LOS	B			B	A	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		40.0	9.1	18.4		27.5
Change Period (Y+Rc), s		5.0	5.0	5.0		5.0
Max Green Setting (Gmax), s		35.0	15.0	40.0		60.0
Max Q Clear Time (g_c+I1), s		4.7	3.2	8.7		6.2
Green Ext Time (p_c), s		1.2	0.1	4.6		2.2
Intersection Summary						
HCM 6th Ctrl Delay			14.1			
HCM 6th LOS			B			

Queues

48: Blue Pkwy & North Access

PM Existing



Lane Group	EBL	EBR	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	114	82	8	39	235	7	271	171
v/c Ratio	0.38	0.11	0.01	0.20	0.11	0.04	0.13	0.12
Control Delay	25.9	0.3	0.0	30.9	7.4	31.5	9.4	1.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.9	0.3	0.0	30.9	7.4	31.5	9.4	1.2
Queue Length 50th (ft)	33	0	0	12	12	2	14	0
Queue Length 95th (ft)	71	0	0	47	60	16	73	20
Internal Link Dist (ft)			394		623		526	
Turn Bay Length (ft)	110			290		290		155
Base Capacity (vph)	587	1133	933	368	2201	282	2042	1458
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.07	0.01	0.11	0.11	0.02	0.13	0.12

Intersection Summary

HCM 6th Signalized Intersection Summary

48: Blue Pkwy & North Access

PM Existing

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	89	0	64	0	0	4	35	209	0	6	241	152
Future Volume (veh/h)	89	0	64	0	0	4	35	209	0	6	241	152
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	114	0	82	0	0	8	39	235	0	7	271	171
Peak Hour Factor	0.78	0.78	0.78	0.50	0.50	0.50	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	346	431	366	207	0	116	83	1861	706	19	1735	900
Arrive On Green	0.08	0.00	0.23	0.00	0.00	0.07	0.05	0.52	0.00	0.01	0.49	0.49
Sat Flow, veh/h	1781	1870	1585	1781	0	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	114	0	82	0	0	8	39	235	0	7	271	171
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	3.7	0.0	2.8	0.0	0.0	0.3	1.4	2.2	5.2	0.3	2.8	3.5
Cycle Q Clear(g_c), s	3.7	0.0	2.8	0.0	0.0	0.3	1.4	2.2	5.2	0.3	2.8	3.5
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	346	431	366	207	0	116	83	1861	706	19	1735	900
V/C Ratio(X)	0.33	0.00	0.22	0.00	0.00	0.07	0.47	0.13	0.00	0.36	0.16	0.19
Avail Cap(c_a), veh/h	735	946	801	365	0	472	343	1861	706	263	1735	900
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	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.8	0.0	20.7	0.0	0.0	28.7	30.9	8.1	0.0	32.6	9.4	7.0
Incr Delay (d2), s/veh	0.6	0.0	0.3	0.0	0.0	0.2	4.1	0.1	0.0	10.8	0.2	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.0	1.0	0.0	0.0	0.1	0.7	0.8	0.0	0.2	1.0	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.3	0.0	21.0	0.0	0.0	28.9	35.0	8.2	0.0	43.4	9.6	7.4
LnGrp LOS	C	A	C	A	A	C	D	A	A	D	A	A
Approach Vol, veh/h		196			8			274			449	
Approach Delay, s/veh		23.0			28.9			12.0			9.3	
Approach LOS		C			C			B			A	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.9	40.0	0.0	20.5	8.3	37.6	10.5	10.1				
Change Period (Y+Rc), s	* 5.2	* 5.2	* 5.2	* 5.2	* 5.2	* 5.2	* 5.2	* 5.2				
Max Green Setting (Gmax), s	* 9.8	* 35	* 6	* 34	* 13	* 32	* 20	* 20				
Max Q Clear Time (g_c+I1), s	2.3	7.2	0.0	4.8	3.4	5.5	5.7	2.3				
Green Ext Time (p_c), s	0.0	1.5	0.0	0.2	0.0	2.4	0.2	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			13.2									
HCM 6th LOS			B									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Queues

51: Blue Pkwy & Midway Access

PM Existing



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	62	113	7	28	55	211	1	8	285	39
v/c Ratio	0.24	0.15	0.03	0.16	0.16	0.08	0.00	0.03	0.13	0.03
Control Delay	25.3	0.4	22.8	19.7	32.0	6.3	0.0	33.3	8.9	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.3	0.4	22.8	19.7	32.0	6.3	0.0	33.3	8.9	0.8
Queue Length 50th (ft)	22	0	3	2	10	8	0	1	24	0
Queue Length 95th (ft)	40	0	9	17	29	47	0	8	66	6
Internal Link Dist (ft)		404		466		564			623	
Turn Bay Length (ft)					240		170	240		300
Base Capacity (vph)	421	1022	348	599	702	2523	1415	494	2276	1363
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.11	0.02	0.05	0.08	0.08	0.00	0.02	0.13	0.03

Intersection Summary

HCM 6th Signalized Intersection Summary

51: Blue Pkwy & Midway Access

PM Existing



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖↗	↕	↖	↖↗	↕	↖
Traffic Volume (veh/h)	43	0	78	5	4	15	48	186	1	7	262	36
Future Volume (veh/h)	43	0	78	5	4	15	48	186	1	7	262	36
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	62	0	113	7	6	22	55	211	1	8	285	39
Peak Hour Factor	0.69	0.69	0.69	0.67	0.67	0.67	0.88	0.88	0.88	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	275	0	179	182	25	91	166	2119	959	36	1985	967
Arrive On Green	0.05	0.00	0.11	0.01	0.07	0.07	0.05	0.60	0.60	0.01	0.56	0.56
Sat Flow, veh/h	1781	0	1585	1781	351	1287	3456	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	62	0	113	7	0	28	55	211	1	8	285	39
Grp Sat Flow(s),veh/h/ln	1781	0	1585	1781	0	1639	1728	1777	1585	1728	1777	1585
Q Serve(g_s), s	2.1	0.0	4.5	0.2	0.0	1.1	1.0	1.7	0.0	0.2	2.6	0.7
Cycle Q Clear(g_c), s	2.1	0.0	4.5	0.2	0.0	1.1	1.0	1.7	0.0	0.2	2.6	0.7
Prop In Lane	1.00		1.00	1.00		0.79	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	275	0	179	182	0	116	166	2119	959	36	1985	967
V/C Ratio(X)	0.23	0.00	0.63	0.04	0.00	0.24	0.33	0.10	0.00	0.22	0.14	0.04
Avail Cap(c_a), veh/h	574	0	658	448	0	581	704	2119	959	495	1985	967
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.2	0.0	28.1	28.2	0.0	29.1	30.5	5.7	5.2	32.5	7.0	5.2
Incr Delay (d2), s/veh	0.4	0.0	3.7	0.1	0.0	1.1	1.2	0.1	0.0	3.1	0.2	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	0.9	0.0	1.8	0.1	0.0	0.4	0.4	0.5	0.0	0.1	0.9	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.6	0.0	31.7	28.3	0.0	30.2	31.7	5.8	5.2	35.6	7.2	5.2
LnGrp LOS	C	A	C	C	A	C	C	A	A	D	A	A
Approach Vol, veh/h		175			35			267			332	
Approach Delay, s/veh		29.9			29.8			11.2			7.6	
Approach LOS		C			C			B			A	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.2	44.0	5.1	12.0	7.7	41.5	7.9	9.2				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	9.5	39.5	10.5	27.5	13.5	35.5	14.5	23.5				
Max Q Clear Time (g_c+I1), s	2.2	3.7	2.2	6.5	3.0	4.6	4.1	3.1				
Green Ext Time (p_c), s	0.0	1.4	0.0	0.6	0.1	2.1	0.1	0.1				
Intersection Summary												
HCM 6th Ctrl Delay			14.6									
HCM 6th LOS			B									

Queues

54: Blue Pkwy & South Access

PM Existing



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	59	6	339	46	51	323	172	37	11	240	134
v/c Ratio	0.19	0.03	0.70	0.18	0.24	0.56	0.08	0.03	0.07	0.17	0.13
Control Delay	22.1	29.2	12.2	23.1	17.2	31.8	8.3	1.0	35.1	16.4	2.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.1	29.2	12.2	23.1	17.2	31.8	8.3	1.0	35.1	16.4	2.5
Queue Length 50th (ft)	19	2	0	15	4	64	13	0	4	34	0
Queue Length 95th (ft)	47	12	48	38	31	123	45	6	22	74	26
Internal Link Dist (ft)		380			478		1188			564	
Turn Bay Length (ft)						170		260	310		325
Base Capacity (vph)	356	912	948	261	754	1078	2132	1223	168	1390	1032
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.01	0.36	0.18	0.07	0.30	0.08	0.03	0.07	0.17	0.13

Intersection Summary

HCM 6th Signalized Intersection Summary
54: Blue Pkwy & South Access

PM Existing

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	48	5	278	37	9	32	291	155	33	10	221	123
Future Volume (veh/h)	48	5	278	37	9	32	291	155	33	10	221	123
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	59	6	339	46	11	40	323	172	37	11	240	134
Peak Hour Factor	0.82	0.82	0.82	0.81	0.81	0.81	0.90	0.90	0.90	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	455	454	385	403	84	305	432	1733	835	24	1337	667
Arrive On Green	0.04	0.24	0.24	0.04	0.24	0.24	0.13	0.49	0.49	0.01	0.38	0.38
Sat Flow, veh/h	1781	1870	1585	1781	354	1285	3456	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	59	6	339	46	0	51	323	172	37	11	240	134
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1639	1728	1777	1585	1781	1777	1585
Q Serve(g_s), s	2.0	0.2	17.1	1.6	0.0	2.0	7.5	2.2	0.9	0.5	3.8	4.4
Cycle Q Clear(g_c), s	2.0	0.2	17.1	1.6	0.0	2.0	7.5	2.2	0.9	0.5	3.8	4.4
Prop In Lane	1.00		1.00	1.00		0.78	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	455	454	385	403	0	389	432	1733	835	24	1337	667
V/C Ratio(X)	0.13	0.01	0.88	0.11	0.00	0.13	0.75	0.10	0.04	0.46	0.18	0.20
Avail Cap(c_a), veh/h	579	754	639	472	0	602	895	1733	835	139	1337	667
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.2	23.9	30.3	22.3	0.0	24.9	35.1	11.5	9.5	40.7	17.3	15.2
Incr Delay (d2), s/veh	0.1	0.0	7.9	0.1	0.0	0.2	2.6	0.1	0.1	13.0	0.3	0.7
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	0.8	0.1	7.1	0.7	0.0	0.8	3.2	0.8	0.3	0.3	1.5	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.3	23.9	38.2	22.4	0.0	25.1	37.7	11.6	9.6	53.6	17.6	15.9
LnGrp LOS	C	C	D	C	A	C	D	B	A	D	B	B
Approach Vol, veh/h		404			97			532			385	
Approach Delay, s/veh		35.7			23.8			27.3			18.0	
Approach LOS		D			C			C			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.6	45.0	7.8	24.7	14.9	35.7	8.2	24.2				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	6.5	40.5	6.5	33.5	21.5	25.5	9.5	30.5				
Max Q Clear Time (g_c+I1), s	2.5	4.2	3.6	19.1	9.5	6.4	4.0	4.0				
Green Ext Time (p_c), s	0.0	1.3	0.0	1.1	0.9	1.8	0.0	0.2				
Intersection Summary												
HCM 6th Ctrl Delay			26.9									
HCM 6th LOS			C									

HCM 6th TWSC
1: Missouri Rd & Ward Rd

AM Existing plus Site (Phase I)

Intersection												
Int Delay, s/veh	0.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↑↑	↗	↙	↑↑	↗		↔		↙	↗	
Traffic Vol, veh/h	0	218	2	2	183	10	2	0	2	5	0	1
Future Vol, veh/h	0	218	2	2	183	10	2	0	2	5	0	1
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									
Storage Length	210	-	160	215	-	215	-	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	80	80	80	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	242	2	3	229	13	2	0	2	5	0	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	242	0	0	244	0	0	363	490	121	356	479	115
Stage 1	-	-	-	-	-	-	242	242	-	235	235	-
Stage 2	-	-	-	-	-	-	121	248	-	121	244	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1322	-	-	1319	-	-	568	477	908	575	484	916
Stage 1	-	-	-	-	-	-	740	704	-	747	709	-
Stage 2	-	-	-	-	-	-	870	700	-	870	703	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1322	-	-	1319	-	-	566	476	908	573	483	916
Mov Cap-2 Maneuver	-	-	-	-	-	-	566	476	-	573	483	-
Stage 1	-	-	-	-	-	-	740	704	-	747	708	-
Stage 2	-	-	-	-	-	-	867	699	-	868	703	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.1			10.2			10.9		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	697	1322	-	-	1319	-	-	573	916
HCM Lane V/C Ratio	0.006	-	-	-	0.002	-	-	0.009	0.001
HCM Control Delay (s)	10.2	0	-	-	7.7	-	-	11.3	8.9
HCM Lane LOS	B	A	-	-	A	-	-	B	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0	0

HCM 6th TWSC
4: Ward Rd & Dealership RIRO Access

AM Existing plus Site (Phase I)

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↑
Traffic Vol, veh/h	0	220	181	5	0	5
Future Vol, veh/h	0	220	181	5	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	239	197	5	0	5

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	-	0	- 0 - 101
Stage 1	-	-	- - -
Stage 2	-	-	- - -
Critical Hdwy	-	-	- - 6.94
Critical Hdwy Stg 1	-	-	- - -
Critical Hdwy Stg 2	-	-	- - -
Follow-up Hdwy	-	-	- - 3.32
Pot Cap-1 Maneuver	0	-	- 0 935
Stage 1	0	-	- 0 -
Stage 2	0	-	- 0 -
Platoon blocked, %	-	-	- - -
Mov Cap-1 Maneuver	-	-	- - 935
Mov Cap-2 Maneuver	-	-	- - -
Stage 1	-	-	- - -
Stage 2	-	-	- - -

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

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	935
HCM Lane V/C Ratio	-	-	-	0.006
HCM Control Delay (s)	-	-	-	8.9
HCM Lane LOS	-	-	-	A
HCM 95th %tile Q(veh)	-	-	-	0

HCM 6th TWSC
 9: Ward Rd & Commercial RIRO

AM Existing plus Site (Phase I)

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↑		↑
Traffic Vol, veh/h	0	225	194	0	0	0
Future Vol, veh/h	0	225	194	0	0	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	-	-	-	200	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	245	211	0	0	0

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	-	0	-	0	- 106
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	-	-	-	- 6.94
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	- 3.32
Pot Cap-1 Maneuver	0	-	-	-	0 928
Stage 1	0	-	-	-	0 -
Stage 2	0	-	-	-	0 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	- 928
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

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

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s)	-	-	-	0
HCM Lane LOS	-	-	-	A
HCM 95th %tile Q(veh)	-	-	-	-

Queues

15: Ward Rd & Tudor Rd

AM Existing plus Site (Phase I)



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	1	4	68	150	25	231	135	226	488
v/c Ratio	0.00	0.01	0.36	0.43	0.04	0.14	0.16	0.29	0.22
Control Delay	26.0	0.0	33.5	9.6	3.9	10.3	2.2	5.0	6.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.0	0.0	33.5	9.6	3.9	10.3	2.2	5.0	6.5
Queue Length 50th (ft)	0	0	24	0	2	24	0	24	27
Queue Length 95th (ft)	4	0	66	31	9	44	15	40	62
Internal Link Dist (ft)		394	448			689			1243
Turn Bay Length (ft)					200		90	150	
Base Capacity (vph)	508	865	497	678	635	1695	837	983	2256
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.00	0.14	0.22	0.04	0.14	0.16	0.23	0.22

Intersection Summary

HCM 6th Signalized Intersection Summary
 15: Ward Rd & Tudor Rd

AM Existing plus Site (Phase I)

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	0	4	52	1	117	23	185	108	156	336	1
Future Volume (veh/h)	1	0	4	52	1	117	23	185	108	156	336	1
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1	0	4	67	1	150	25	231	135	226	487	1
Peak Hour Factor	0.92	0.92	0.92	0.78	0.92	0.78	0.92	0.80	0.80	0.69	0.69	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	303	0	204	280	3	204	623	1836	819	800	2250	5
Arrive On Green	0.13	0.00	0.13	0.13	0.13	0.13	0.03	0.52	0.52	0.11	0.62	0.62
Sat Flow, veh/h	1416	0	1585	1373	27	1585	1781	3554	1585	1781	3638	7
Grp Volume(v), veh/h	1	0	4	68	0	150	25	231	135	226	238	250
Grp Sat Flow(s),veh/h/ln	1416	0	1585	1400	0	1585	1781	1777	1585	1781	1777	1869
Q Serve(g_s), s	0.0	0.0	0.2	3.0	0.0	6.3	0.4	2.3	3.1	3.7	4.1	4.1
Cycle Q Clear(g_c), s	0.0	0.0	0.2	3.1	0.0	6.3	0.4	2.3	3.1	3.7	4.1	4.1
Prop In Lane	1.00		1.00	0.99		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	303	0	204	284	0	204	623	1836	819	800	1099	1156
V/C Ratio(X)	0.00	0.00	0.02	0.24	0.00	0.74	0.04	0.13	0.16	0.28	0.22	0.22
Avail Cap(c_a), veh/h	647	0	588	607	0	565	768	1836	819	1127	1099	1156
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.1	0.0	26.2	27.5	0.0	28.8	7.2	8.6	8.8	5.4	5.8	5.8
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.4	0.0	5.1	0.0	0.1	0.4	0.2	0.5	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	0.0	0.0	0.1	1.0	0.0	2.5	0.2	0.8	1.0	1.0	1.3	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.1	0.0	26.2	27.9	0.0	33.9	7.3	8.7	9.2	5.6	6.2	6.2
LnGrp LOS	C	A	C	C	A	C	A	A	A	A	A	A
Approach Vol, veh/h		5			218			391			714	
Approach Delay, s/veh		26.2			32.1			8.8			6.0	
Approach LOS		C			C			A			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	13.4	41.0		14.3	6.4	48.0		14.3				
Change Period (Y+Rc), s	5.5	5.5		* 5.5	4.5	5.5		5.5				
Max Green Setting (Gmax), s	20.5	28.5		* 26	7.5	42.5		24.5				
Max Q Clear Time (g_c+I1), s	5.7	5.1		2.2	2.4	6.1		8.3				
Green Ext Time (p_c), s	0.5	1.9		0.0	0.0	3.0		0.7				
Intersection Summary												
HCM 6th Ctrl Delay				11.2								
HCM 6th LOS				B								
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 6th TWSC
19: Ward Rd & Outerview

AM Existing plus Site (Phase I)

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	2	0	3	8	0	11	9	181	1	50	169	6
Future Vol, veh/h	2	0	3	8	0	11	9	181	1	50	169	6
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									
Storage Length	-	-	-	25	-	-	200	-	145	190	-	190
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	63	63	92	79	79	92	95	95	95	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	0	3	10	0	12	9	191	1	63	211	8

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	451	547	106	441	554	96	219	0	0	192	0	0
Stage 1	337	337	-	209	209	-	-	-	-	-	-	-
Stage 2	114	210	-	232	345	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	492	443	928	500	439	942	1348	-	-	1379	-	-
Stage 1	651	640	-	774	728	-	-	-	-	-	-	-
Stage 2	879	727	-	750	635	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	466	420	928	479	416	942	1348	-	-	1379	-	-
Mov Cap-2 Maneuver	466	420	-	479	416	-	-	-	-	-	-	-
Stage 1	646	611	-	769	723	-	-	-	-	-	-	-
Stage 2	862	722	-	713	606	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	10.8		10.6		0.4		1.7	
HCM LOS	B		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1348	-	-	623	479	942	1379	-	-
HCM Lane V/C Ratio	0.007	-	-	0.01	0.021	0.013	0.045	-	-
HCM Control Delay (s)	7.7	-	-	10.8	12.7	8.9	7.7	-	-
HCM Lane LOS	A	-	-	B	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	0.1	-	-

Queues

38: Blue Pkwy & I-470 WB Ramp

AM Existing plus Site (Phase I)



Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	213	177	38	123	141	117	24
v/c Ratio	0.50	0.41	0.14	0.12	0.05	0.07	0.03
Control Delay	39.5	37.6	2.2	3.5	3.1	9.0	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.5	37.6	2.2	3.5	3.1	9.0	0.1
Queue Length 50th (ft)	56	47	0	14	8	12	0
Queue Length 95th (ft)	81	71	1	28	15	24	0
Internal Link Dist (ft)		962			586	567	
Turn Bay Length (ft)	425		310	480			135
Base Capacity (vph)	1181	1217	597	1118	2657	1941	904
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.15	0.06	0.11	0.05	0.06	0.03

Intersection Summary

HCM 6th Signalized Intersection Summary

38: Blue Pkwy & I-470 WB Ramp

AM Existing plus Site (Phase I)

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				 	 			 			 	
Traffic Volume (veh/h)	0	0	0	175	145	31	102	117	0	0	98	20
Future Volume (veh/h)	0	0	0	175	145	31	102	117	0	0	98	20
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No			No		
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				213	177	0	123	141	0	0	117	0
Peak Hour Factor				0.82	0.82	0.82	0.83	0.83	0.83	0.84	0.84	0.84
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				360	371		1002	2727	0	0	2246	
Arrive On Green				0.10	0.10	0.00	0.07	0.77	0.00	0.00	0.63	0.00
Sat Flow, veh/h				3456	3554	1585	1781	3647	0	0	3647	1585
Grp Volume(v), veh/h				213	177	0	123	141	0	0	117	0
Grp Sat Flow(s),veh/h/ln				1728	1777	1585	1781	1777	0	0	1777	1585
Q Serve(g_s), s				5.0	4.0	0.0	1.7	0.8	0.0	0.0	1.1	0.0
Cycle Q Clear(g_c), s				5.0	4.0	0.0	1.7	0.8	0.0	0.0	1.1	0.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				360	371		1002	2727	0	0	2246	
V/C Ratio(X)				0.59	0.48		0.12	0.05	0.00	0.00	0.05	
Avail Cap(c_a), veh/h				1215	1250		1502	2727	0	0	2246	
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				36.0	35.5	0.0	3.4	2.4	0.0	0.0	5.9	0.0
Incr Delay (d2), s/veh				1.5	1.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.1	1.7	0.0	0.5	0.2	0.0	0.0	0.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				37.5	36.5	0.0	3.5	2.4	0.0	0.0	5.9	0.0
LnGrp LOS				D	D		A	A	A	A	A	
Approach Vol, veh/h					390			264			117	
Approach Delay, s/veh					37.1			2.9			5.9	
Approach LOS					D			A			A	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		70.0			11.4	58.6		14.2				
Change Period (Y+Rc), s		* 5.4			* 5.4	* 5.4		5.4				
Max Green Setting (Gmax), s		* 65			* 30	* 30		29.6				
Max Q Clear Time (g_c+I1), s		2.8			3.7	3.1		7.0				
Green Ext Time (p_c), s		1.0			0.3	0.7		1.8				
Intersection Summary												
HCM 6th Ctrl Delay				20.6								
HCM 6th LOS				C								
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												
Unsignalized Delay for [EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.												

Queues

43: Blue Pkwy & I-470 EB Ramp

AM Existing plus Site (Phase I)



Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	36	301	285	219	84	17	295
v/c Ratio	0.11	0.48	0.55	0.10	0.08	0.02	0.13
Control Delay	24.3	28.2	7.9	6.8	2.8	5.1	4.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.3	28.2	7.9	6.8	2.8	5.1	4.9
Queue Length 50th (ft)	13	62	0	14	0	2	20
Queue Length 95th (ft)	35	94	53	46	20	9	40
Internal Link Dist (ft)		816		542			586
Turn Bay Length (ft)	230		230		280	780	
Base Capacity (vph)	1200	2400	1165	2238	1032	788	2349
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.13	0.24	0.10	0.08	0.02	0.13

Intersection Summary

HCM 6th Signalized Intersection Summary

43: Blue Pkwy & I-470 EB Ramp

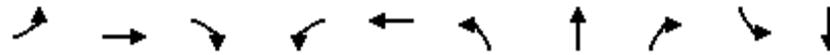
AM Existing plus Site (Phase I)

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 						 			 	
Traffic Volume (veh/h)	32	265	251	0	0	0	0	188	72	15	257	0
Future Volume (veh/h)	32	265	251	0	0	0	0	188	72	15	257	0
Initial Q (Qb), veh	0	0	0					0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	36	301	285				0	219	84	17	295	0
Peak Hour Factor	0.88	0.88	0.88				0.86	0.86	0.86	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	422	842	376				0	1849	824	706	2193	0
Arrive On Green	0.24	0.24	0.24				0.00	0.52	0.52	0.02	0.62	0.00
Sat Flow, veh/h	1781	3554	1585				0	3647	1585	1781	3647	0
Grp Volume(v), veh/h	36	301	285				0	219	84	17	295	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585				0	1777	1585	1781	1777	0
Q Serve(g_s), s	1.2	5.3	12.6				0.0	2.4	2.0	0.3	2.6	0.0
Cycle Q Clear(g_c), s	1.2	5.3	12.6				0.0	2.4	2.0	0.3	2.6	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	422	842	376				0	1849	824	706	2193	0
V/C Ratio(X)	0.09	0.36	0.76				0.00	0.12	0.10	0.02	0.13	0.00
Avail Cap(c_a), veh/h	1123	2240	999				0	1849	824	912	2193	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	22.4	24.0	26.7				0.0	9.2	9.2	7.1	6.0	0.0
Incr Delay (d2), s/veh	0.1	0.3	3.2				0.0	0.1	0.2	0.0	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	2.2	4.9				0.0	0.9	0.7	0.1	0.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.5	24.2	29.9				0.0	9.4	9.4	7.2	6.2	0.0
LnGrp LOS	C	C	C				A	A	A	A	A	A
Approach Vol, veh/h		622						303			312	
Approach Delay, s/veh		26.7						9.4			6.2	
Approach LOS		C						A			A	
Timer - Assigned Phs	1	2		4				6				
Phs Duration (G+Y+Rc), s	7.3	44.7		23.4				52.0				
Change Period (Y+Rc), s	5.5	5.5		5.5				5.5				
Max Green Setting (Gmax), s	10.5	30.5		47.5				46.5				
Max Q Clear Time (g_c+I1), s	2.3	4.4		14.6				4.6				
Green Ext Time (p_c), s	0.0	1.7		3.3				2.1				
Intersection Summary												
HCM 6th Ctrl Delay			17.3									
HCM 6th LOS			B									

Queues

46: Blue Pkwy & Ward Rd & West Dealership Access

AM Existing plus Site (Phase I)



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	73	229	262	29	204	119	11	13	4	23
v/c Ratio	0.35	0.29	0.32	0.10	0.42	0.15	0.01	0.01	0.00	0.02
Control Delay	34.1	24.1	5.0	32.0	31.1	9.6	8.7	0.0	8.5	5.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.1	24.1	5.0	32.0	31.1	9.6	8.7	0.0	8.5	5.8
Queue Length 50th (ft)	30	38	0	6	43	24	2	0	1	2
Queue Length 95th (ft)	69	80	31	17	67	49	10	0	5	13
Internal Link Dist (ft)		383			346		526			358
Turn Bay Length (ft)	200		360	325				210	150	
Base Capacity (vph)	581	2066	1736	576	1493	786	1060	950	805	988
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.11	0.15	0.05	0.14	0.15	0.01	0.01	0.00	0.02

Intersection Summary

HCM 6th Signalized Intersection Summary

46: Blue Pkwy & Ward Rd & West Dealership Access

AM Existing plus Site (Phase I)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	67	206	236	23	159	5	94	10	10	4	9	12
Future Volume (veh/h)	67	206	236	23	159	5	94	10	10	4	9	12
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	73	229	262	29	199	5	119	11	13	4	10	13
Peak Hour Factor	0.92	0.90	0.90	0.80	0.80	0.92	0.79	0.92	0.79	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	99	560	439	108	471	12	924	1110	941	938	438	569
Arrive On Green	0.06	0.16	0.16	0.03	0.13	0.13	0.59	0.59	0.59	0.59	0.59	0.59
Sat Flow, veh/h	1781	3554	2790	3456	3542	89	1388	1870	1585	1404	738	960
Grp Volume(v), veh/h	73	229	262	29	100	104	119	11	13	4	0	23
Grp Sat Flow(s),veh/h/ln	1781	1777	1395	1728	1777	1854	1388	1870	1585	1404	0	1698
Q Serve(g_s), s	2.7	3.9	5.8	0.5	3.4	3.4	2.6	0.2	0.2	0.1	0.0	0.4
Cycle Q Clear(g_c), s	2.7	3.9	5.8	0.5	3.4	3.4	2.9	0.2	0.2	0.2	0.0	0.4
Prop In Lane	1.00		1.00	1.00		0.05	1.00		1.00	1.00		0.57
Lane Grp Cap(c), veh/h	99	560	439	108	236	247	924	1110	941	938	0	1007
V/C Ratio(X)	0.74	0.41	0.60	0.27	0.42	0.42	0.13	0.01	0.01	0.00	0.00	0.02
Avail Cap(c_a), veh/h	602	2136	1676	597	774	808	924	1110	941	938	0	1007
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	0.00	1.00
Uniform Delay (d), s/veh	30.9	25.2	26.1	31.5	26.5	26.5	6.2	5.5	5.5	5.6	0.0	5.6
Incr Delay (d2), s/veh	10.1	0.5	1.3	1.3	1.2	1.2	0.3	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	1.6	1.9	0.2	1.5	1.5	0.7	0.1	0.1	0.0	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.1	25.7	27.4	32.8	27.7	27.7	6.5	5.5	5.6	5.6	0.0	5.6
LnGrp LOS	D	C	C	C	C	C	A	A	A	A	A	A
Approach Vol, veh/h		564			233			143				27
Approach Delay, s/veh		28.5			28.3			6.3				5.6
Approach LOS		C			C			A				A
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		44.5	6.6	15.5		44.5	8.2	13.9				
Change Period (Y+Rc), s		5.0	4.5	5.0		* 5	4.5	5.0				
Max Green Setting (Gmax), s		39.0	11.5	40.0		* 40	22.5	29.0				
Max Q Clear Time (g_c+I1), s		4.9	2.5	7.8		2.4	4.7	5.4				
Green Ext Time (p_c), s		0.4	0.0	2.7		0.1	0.1	1.1				
Intersection Summary												
HCM 6th Ctrl Delay			24.5									
HCM 6th LOS			C									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Queues

48: Blue Pkwy & North Access

AM Existing plus Site (Phase I)



Lane Group	EBL	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	23	9	3	1	15	98	3	7	220	67
v/c Ratio	0.12	0.01	0.02	0.00	0.09	0.04	0.00	0.04	0.08	0.05
Control Delay	26.3	0.0	24.7	0.0	30.7	4.9	0.0	30.7	4.6	1.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.3	0.0	24.7	0.0	30.7	4.9	0.0	30.7	4.6	1.0
Queue Length 50th (ft)	9	0	1	0	6	3	0	3	7	0
Queue Length 95th (ft)	28	0	8	0	25	23	0	15	46	11
Internal Link Dist (ft)				394		623			526	
Turn Bay Length (ft)	110				290		210	290		155
Base Capacity (vph)	372	1003	331	1088	329	2700	1499	303	2693	1504
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.01	0.01	0.00	0.05	0.04	0.00	0.02	0.08	0.04

Intersection Summary

HCM 6th Signalized Intersection Summary

48: Blue Pkwy & North Access

AM Existing plus Site (Phase I)

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	0	8	3	0	1	14	90	3	6	202	62
Future Volume (veh/h)	21	0	8	3	0	1	14	90	3	6	202	62
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	23	0	9	3	0	1	15	98	3	7	220	67
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	194	86	73	148	0	31	39	2342	1052	20	2303	1077
Arrive On Green	0.03	0.00	0.05	0.00	0.00	0.02	0.02	0.66	0.66	0.01	0.65	0.65
Sat Flow, veh/h	1781	1870	1585	1781	0	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	23	0	9	3	0	1	15	98	3	7	220	67
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	0.8	0.0	0.4	0.1	0.0	0.0	0.5	0.6	0.0	0.3	1.5	0.9
Cycle Q Clear(g_c), s	0.8	0.0	0.4	0.1	0.0	0.0	0.5	0.6	0.0	0.3	1.5	0.9
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	194	86	73	148	0	31	39	2342	1052	20	2303	1077
V/C Ratio(X)	0.12	0.00	0.12	0.02	0.00	0.03	0.38	0.04	0.00	0.36	0.10	0.06
Avail Cap(c_a), veh/h	511	624	529	457	0	479	345	2342	1052	318	2303	1077
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.4	0.0	29.5	30.8	0.0	31.0	31.1	3.9	3.6	31.7	4.3	3.5
Incr Delay (d2), s/veh	0.3	0.0	0.8	0.1	0.0	0.4	6.1	0.0	0.0	10.7	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.1	0.0	0.0	0.0	0.3	0.2	0.0	0.2	0.4	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.7	0.0	30.3	30.8	0.0	31.5	37.2	3.9	3.7	42.4	4.3	3.6
LnGrp LOS	C	A	C	C	A	C	D	A	A	D	A	A
Approach Vol, veh/h		32			4			116			294	
Approach Delay, s/veh		29.9			31.0			8.2			5.1	
Approach LOS		C			C			A			A	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.2	47.0	4.8	7.5	5.9	46.3	6.5	5.7				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	11.5	42.5	11.5	21.5	12.5	41.5	13.5	19.5				
Max Q Clear Time (g_c+I1), s	2.3	2.6	2.1	2.4	2.5	3.5	2.8	2.0				
Green Ext Time (p_c), s	0.0	0.6	0.0	0.0	0.0	1.7	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			7.9									
HCM 6th LOS			A									

Queues

51: Blue Pkwy & Midway Access

AM Existing plus Site (Phase I)



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	4	29	7	10	31	111	17	37	221	15
v/c Ratio	0.02	0.04	0.03	0.01	0.09	0.04	0.01	0.11	0.08	0.01
Control Delay	24.0	0.1	24.0	0.0	31.0	6.8	0.0	30.9	6.3	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.0	0.1	24.0	0.0	31.0	6.8	0.0	30.9	6.3	0.0
Queue Length 50th (ft)	1	0	2	0	4	0	0	5	0	0
Queue Length 95th (ft)	6	0	10	0	19	26	0	19	40	0
Internal Link Dist (ft)		404		466		564			623	
Turn Bay Length (ft)					240		170	240		300
Base Capacity (vph)	384	1004	386	1103	700	2829	1281	700	2832	1282
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.03	0.02	0.01	0.04	0.04	0.01	0.05	0.08	0.01

Intersection Summary

HCM 6th Signalized Intersection Summary

51: Blue Pkwy & Midway Access

AM Existing plus Site (Phase I)

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	0	16	5	0	7	27	98	15	29	172	12
Future Volume (veh/h)	2	0	16	5	0	7	27	98	15	29	172	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.99
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	4	0	29	7	0	10	31	111	17	37	221	15
Peak Hour Factor	0.56	0.56	0.56	0.69	0.69	0.69	0.88	0.88	0.88	0.78	0.78	0.78
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	188	0	77	172	0	85	136	2102	943	155	2121	944
Arrive On Green	0.01	0.00	0.05	0.01	0.00	0.05	0.04	0.59	0.59	0.04	0.60	0.60
Sat Flow, veh/h	1781	0	1562	1781	0	1562	3456	3554	1565	3456	3554	1565
Grp Volume(v), veh/h	4	0	29	7	0	10	31	111	17	37	221	15
Grp Sat Flow(s),veh/h/ln	1781	0	1562	1781	0	1562	1728	1777	1565	1728	1777	1565
Q Serve(g_s), s	0.1	0.0	1.2	0.2	0.0	0.4	0.6	0.9	0.3	0.7	1.8	0.3
Cycle Q Clear(g_c), s	0.1	0.0	1.2	0.2	0.0	0.4	0.6	0.9	0.3	0.7	1.8	0.3
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	188	0	77	172	0	85	136	2102	943	155	2121	944
V/C Ratio(X)	0.02	0.00	0.37	0.04	0.00	0.12	0.23	0.05	0.02	0.24	0.10	0.02
Avail Cap(c_a), veh/h	501	0	497	477	0	497	681	2102	943	681	2121	944
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.4	0.0	30.3	29.2	0.0	29.7	30.7	5.7	5.3	30.4	5.7	5.2
Incr Delay (d2), s/veh	0.0	0.0	3.0	0.1	0.0	0.6	0.8	0.0	0.0	0.8	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.5	0.1	0.0	0.2	0.2	0.3	0.1	0.3	0.6	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.5	0.0	33.3	29.3	0.0	30.3	31.5	5.7	5.3	31.2	5.8	5.3
LnGrp LOS	C	A	C	C	A	C	C	A	A	C	A	A
Approach Vol, veh/h		33			17			159			273	
Approach Delay, s/veh		32.9			29.9			10.7			9.2	
Approach LOS		C			C			B			A	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.0	44.0	5.7	8.3	7.6	44.4	5.4	8.6				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	13.0	39.0	12.0	21.0	13.0	39.0	12.0	21.0				
Max Q Clear Time (g_c+I1), s	2.7	2.9	2.2	3.2	2.6	3.8	2.1	2.4				
Green Ext Time (p_c), s	0.0	0.8	0.0	0.1	0.0	1.5	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			12.1									
HCM 6th LOS			B									

Queues

54: Blue Pkwy & South Access

AM Existing plus Site (Phase I)



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	27	3	123	16	12	139	125	51	25	148	44
v/c Ratio	0.09	0.02	0.45	0.08	0.07	0.34	0.06	0.04	0.15	0.09	0.04
Control Delay	21.6	30.0	12.4	26.3	19.0	31.2	9.7	1.2	32.8	12.6	1.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.6	30.0	12.4	26.3	19.0	31.2	9.7	1.2	32.8	12.6	1.0
Queue Length 50th (ft)	9	1	0	6	0	28	10	0	10	19	0
Queue Length 95th (ft)	27	8	42	20	16	54	32	7	33	41	6
Internal Link Dist (ft)		380			478		1188			564	
Turn Bay Length (ft)						170		260	310		325
Base Capacity (vph)	404	820	767	299	643	806	2096	1299	311	1647	1216
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.00	0.16	0.05	0.02	0.17	0.06	0.04	0.08	0.09	0.04

Intersection Summary

HCM 6th Signalized Intersection Summary

54: Blue Pkwy & South Access

AM Existing plus Site (Phase I)

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	3	108	15	1	10	118	106	43	22	132	39
Future Volume (veh/h)	24	3	108	15	1	10	118	106	43	22	132	39
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	27	3	123	16	1	11	139	125	51	25	148	44
Peak Hour Factor	0.88	0.88	0.88	0.93	0.93	0.93	0.85	0.85	0.85	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	299	199	169	288	13	138	299	1851	863	60	1664	799
Arrive On Green	0.04	0.11	0.11	0.02	0.09	0.09	0.09	0.52	0.52	0.03	0.47	0.47
Sat Flow, veh/h	1781	1870	1585	1781	134	1472	3456	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	27	3	123	16	0	12	139	125	51	25	148	44
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1605	1728	1777	1585	1781	1777	1585
Q Serve(g_s), s	0.8	0.1	4.8	0.5	0.0	0.4	2.4	1.1	1.0	0.9	1.5	0.9
Cycle Q Clear(g_c), s	0.8	0.1	4.8	0.5	0.0	0.4	2.4	1.1	1.0	0.9	1.5	0.9
Prop In Lane	1.00		1.00	1.00		0.92	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	299	199	169	288	0	150	299	1851	863	60	1664	799
V/C Ratio(X)	0.09	0.02	0.73	0.06	0.00	0.08	0.46	0.07	0.06	0.42	0.09	0.06
Avail Cap(c_a), veh/h	601	886	751	527	0	684	873	1851	863	337	1664	799
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.4	25.3	27.4	24.9	0.0	26.2	27.5	7.5	6.8	30.0	9.3	8.0
Incr Delay (d2), s/veh	0.1	0.0	5.9	0.1	0.0	0.2	1.1	0.1	0.1	4.5	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	2.0	0.2	0.0	0.2	1.0	0.4	0.3	0.4	0.5	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.5	25.4	33.4	25.0	0.0	26.4	28.7	7.6	6.9	34.5	9.5	8.1
LnGrp LOS	C	C	C	C	A	C	C	A	A	C	A	A
Approach Vol, veh/h		153			28			315			217	
Approach Delay, s/veh		31.6			25.6			16.8			12.1	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.1	38.0	6.5	11.7	10.5	34.7	7.3	10.9				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	12.0	33.0	10.0	30.0	16.0	29.0	13.0	27.0				
Max Q Clear Time (g_c+I1), s	2.9	3.1	2.5	6.8	4.4	3.5	2.8	2.4				
Green Ext Time (p_c), s	0.0	0.9	0.0	0.4	0.3	1.0	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			18.9									
HCM 6th LOS			B									

HCM 6th TWSC
1: Missouri Rd & Ward Rd

PM Existing plus Site (Phase I)

Intersection												
Int Delay, s/veh	0.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↑↑	↗	↙	↑↑	↗		↔		↙	↗	
Traffic Vol, veh/h	0	427	1	1	271	7	2	0	3	14	0	1
Future Vol, veh/h	0	427	1	1	271	7	2	0	3	14	0	1
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									
Storage Length	210	-	160	215	-	215	-	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	474	1	1	301	8	2	0	4	16	0	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	309	0	0	475	0	0	627	785	237	540	778	151
Stage 1	-	-	-	-	-	-	474	474	-	303	303	-
Stage 2	-	-	-	-	-	-	153	311	-	237	475	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1248	-	-	1083	-	-	368	323	764	425	326	868
Stage 1	-	-	-	-	-	-	540	556	-	681	662	-
Stage 2	-	-	-	-	-	-	834	657	-	745	556	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1248	-	-	1083	-	-	367	323	764	423	326	868
Mov Cap-2 Maneuver	-	-	-	-	-	-	367	323	-	423	326	-
Stage 1	-	-	-	-	-	-	540	556	-	681	661	-
Stage 2	-	-	-	-	-	-	832	656	-	742	556	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0			11.8			13.6		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	533	1248	-	-	1083	-	-	423	868
HCM Lane V/C Ratio	0.011	-	-	-	0.001	-	-	0.039	0.001
HCM Control Delay (s)	11.8	0	-	-	8.3	-	-	13.9	9.2
HCM Lane LOS	B	A	-	-	A	-	-	B	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.1	0

HCM 6th TWSC
 4: Ward Rd & Dealership RIRO Access

PM Existing plus Site (Phase I)

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↑
Traffic Vol, veh/h	0	428	271	3	0	13
Future Vol, veh/h	0	428	271	3	0	13
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	90	90	73	73	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	476	371	4	0	14
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	-	0	-	0	-	188
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	-	0	822
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	822
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	WB	SB			
HCM Control Delay, s	0	0	9.5			
HCM LOS						A
Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1		
Capacity (veh/h)	-	-	-	822		
HCM Lane V/C Ratio	-	-	-	0.017		
HCM Control Delay (s)	-	-	-	9.5		
HCM Lane LOS	-	-	-	A		
HCM 95th %tile Q(veh)	-	-	-	0.1		

HCM 6th TWSC
 9: Ward Rd & Commercial RIRO

PM Existing plus Site (Phase I)

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↑		↑
Traffic Vol, veh/h	0	444	279	0	0	0
Future Vol, veh/h	0	444	279	0	0	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	-	-	-	200	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	73	73	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	493	382	0	0	0
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	-	0	-	0	-	191
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	-	0	818
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	818
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	WB	SB			
HCM Control Delay, s	0	0	0			
HCM LOS						A
Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1		
Capacity (veh/h)	-	-	-	-		
HCM Lane V/C Ratio	-	-	-	-		
HCM Control Delay (s)	-	-	-	0		
HCM Lane LOS	-	-	-	A		
HCM 95th %tile Q(veh)	-	-	-	-		

Queues

15: Ward Rd & Tudor Rd

PM Existing plus Site (Phase I)



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	3	15	124	135	13	208	86	212	307
v/c Ratio	0.01	0.05	0.55	0.35	0.02	0.13	0.11	0.28	0.13
Control Delay	25.3	15.0	37.0	8.2	4.4	12.0	1.1	6.1	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.3	15.0	37.0	8.2	4.4	12.0	1.1	6.1	6.2
Queue Length 50th (ft)	1	1	48	0	1	24	0	28	20
Queue Length 95th (ft)	8	16	92	28	6	53	9	60	57
Internal Link Dist (ft)		394	448			689			1243
Turn Bay Length (ft)					200		90	150	
Base Capacity (vph)	548	711	580	765	805	1641	807	993	2295
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.02	0.21	0.18	0.02	0.13	0.11	0.21	0.13

Intersection Summary

HCM 6th Signalized Intersection Summary
 15: Ward Rd & Tudor Rd

PM Existing plus Site (Phase I)

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	2	12	95	1	104	9	187	77	176	254	1
Future Volume (veh/h)	3	2	12	95	1	104	9	187	77	176	254	1
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	3	2	13	123	1	135	13	208	86	212	306	1
Peak Hour Factor	0.92	0.92	0.92	0.77	0.77	0.77	0.70	0.90	0.90	0.83	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	153	29	189	276	1	213	772	1868	833	834	2302	8
Arrive On Green	0.13	0.13	0.13	0.13	0.13	0.13	0.02	0.53	0.53	0.11	0.63	0.63
Sat Flow, veh/h	1253	216	1402	1306	11	1585	1781	3554	1585	1781	3633	12
Grp Volume(v), veh/h	3	0	15	124	0	135	13	208	86	212	150	157
Grp Sat Flow(s),veh/h/ln	1253	0	1618	1317	0	1585	1781	1777	1585	1781	1777	1868
Q Serve(g_s), s	0.2	0.0	0.6	6.1	0.0	5.8	0.2	2.1	2.0	3.5	2.4	2.4
Cycle Q Clear(g_c), s	6.8	0.0	0.6	6.7	0.0	5.8	0.2	2.1	2.0	3.5	2.4	2.4
Prop In Lane	1.00		0.87	0.99		1.00	1.00		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	153	0	218	277	0	213	772	1868	833	834	1126	1184
V/C Ratio(X)	0.02	0.00	0.07	0.45	0.00	0.63	0.02	0.11	0.10	0.25	0.13	0.13
Avail Cap(c_a), veh/h	516	0	687	684	0	673	954	1868	833	1247	1126	1184
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.0	0.0	27.1	30.1	0.0	29.4	4.5	8.6	8.5	5.5	5.3	5.3
Incr Delay (d2), s/veh	0.1	0.0	0.1	1.1	0.0	3.1	0.0	0.1	0.2	0.2	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.2	2.0	0.0	2.3	0.1	0.8	0.7	1.0	0.8	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.1	0.0	27.3	31.2	0.0	32.5	4.5	8.7	8.8	5.6	5.5	5.5
LnGrp LOS	C	A	C	C	A	C	A	A	A	A	A	A
Approach Vol, veh/h		18			259			307			519	
Approach Delay, s/veh		28.2			31.8			8.5			5.5	
Approach LOS		C			C			A			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	13.4	43.3		15.2	5.6	51.0		15.2				
Change Period (Y+Rc), s	5.5	5.5		5.5	4.5	5.5		5.5				
Max Green Setting (Gmax), s	24.5	28.5		30.5	8.5	45.5		30.5				
Max Q Clear Time (g_c+I1), s	5.5	4.1		8.8	2.2	4.4		8.7				
Green Ext Time (p_c), s	0.5	1.6		0.0	0.0	1.8		1.0				
Intersection Summary												
HCM 6th Ctrl Delay				12.9								
HCM 6th LOS				B								

HCM 6th TWSC
19: Ward Rd & Outerview

PM Existing plus Site (Phase I)

Intersection												
Int Delay, s/veh	1.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕		↕	↕	↕	↕	↕	↕
Traffic Vol, veh/h	9	0	9	3	0	38	2	234	1	24	419	1
Future Vol, veh/h	9	0	9	3	0	38	2	234	1	24	419	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									
Storage Length	-	-	-	25	-	-	200	-	145	190	-	190
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	57	57	92	47	47	92	92	92	92	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	16	0	10	6	0	41	2	254	1	26	460	1

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	643	771	230	540	771	127	461	0	0	255	0	0
Stage 1	512	512	-	258	258	-	-	-	-	-	-	-
Stage 2	131	259	-	282	513	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	358	329	772	425	329	900	1096	-	-	1307	-	-
Stage 1	513	535	-	724	693	-	-	-	-	-	-	-
Stage 2	859	692	-	701	534	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	336	322	772	413	322	900	1096	-	-	1307	-	-
Mov Cap-2 Maneuver	336	322	-	413	322	-	-	-	-	-	-	-
Stage 1	512	524	-	723	692	-	-	-	-	-	-	-
Stage 2	818	691	-	678	523	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	13.9		9.8		0.1		0.4	
HCM LOS	B		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1096	-	-	429	413	900	1307	-	-
HCM Lane V/C Ratio	0.002	-	-	0.06	0.015	0.046	0.02	-	-
HCM Control Delay (s)	8.3	-	-	13.9	13.9	9.2	7.8	-	-
HCM Lane LOS	A	-	-	B	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0	0.1	0.1	-	-

Queues

38: Blue Pkwy & I-470 WB Ramp

PM Existing plus Site (Phase I)



Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	199	177	38	136	255	114	24
v/c Ratio	0.48	0.41	0.15	0.15	0.10	0.05	0.02
Control Delay	38.1	36.8	3.0	3.4	3.1	7.5	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.1	36.8	3.0	3.4	3.1	7.5	0.1
Queue Length 50th (ft)	51	45	0	15	14	11	0
Queue Length 95th (ft)	75	69	3	30	25	23	0
Internal Link Dist (ft)		962			586	567	
Turn Bay Length (ft)	425		310	480			135
Base Capacity (vph)	1298	1338	646	1062	2660	2131	984
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.13	0.06	0.13	0.10	0.05	0.02

Intersection Summary

HCM 6th Signalized Intersection Summary

38: Blue Pkwy & I-470 WB Ramp

PM Existing plus Site (Phase I)

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	163	145	31	113	212	0	0	96	20
Future Volume (veh/h)	0	0	0	163	145	31	113	212	0	0	96	20
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No				No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				199	177	0	136	255	0	0	114	0
Peak Hour Factor				0.82	0.82	0.82	0.83	0.83	0.83	0.84	0.84	0.84
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				351	361		1009	2732	0	0	2256	
Arrive On Green				0.10	0.10	0.00	0.07	0.77	0.00	0.00	0.63	0.00
Sat Flow, veh/h				3456	3554	1585	1781	3647	0	0	3647	1585
Grp Volume(v), veh/h				199	177	0	136	255	0	0	114	0
Grp Sat Flow(s),veh/h/ln				1728	1777	1585	1781	1777	0	0	1777	1585
Q Serve(g_s), s				4.5	3.8	0.0	1.8	1.5	0.0	0.0	1.0	0.0
Cycle Q Clear(g_c), s				4.5	3.8	0.0	1.8	1.5	0.0	0.0	1.0	0.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				351	361		1009	2732	0	0	2256	
V/C Ratio(X)				0.57	0.49		0.13	0.09	0.00	0.00	0.05	
Avail Cap(c_a), veh/h				1337	1375		1469	2732	0	0	2256	
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				35.0	34.7	0.0	3.3	2.4	0.0	0.0	5.6	0.0
Incr Delay (d2), s/veh				1.4	1.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.9	1.7	0.0	0.5	0.3	0.0	0.0	0.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				36.4	35.7	0.0	3.4	2.4	0.0	0.0	5.7	0.0
LnGrp LOS				D	D		A	A	A	A	A	
Approach Vol, veh/h					376			391			114	
Approach Delay, s/veh					36.1			2.7			5.7	
Approach LOS					D			A			A	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		68.0			10.9	57.1		13.7				
Change Period (Y+Rc), s		* 5.2			* 5.2	* 5.2		5.4				
Max Green Setting (Gmax), s		* 63			* 27	* 31		31.6				
Max Q Clear Time (g_c+I1), s		3.5			3.8	3.0		6.5				
Green Ext Time (p_c), s		1.8			0.3	0.7		1.8				
Intersection Summary												
HCM 6th Ctrl Delay				17.4								
HCM 6th LOS				B								
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												
Unsignalized Delay for [EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.												

Queues

43: Blue Pkwy & I-470 EB Ramp

PM Existing plus Site (Phase I)



Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	36	301	568	234	345	17	280
v/c Ratio	0.11	0.36	0.78	0.11	0.32	0.02	0.13
Control Delay	21.6	23.2	13.5	9.1	2.7	7.9	7.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.6	23.2	13.5	9.1	2.7	7.9	7.2
Queue Length 50th (ft)	14	57	38	16	0	2	20
Queue Length 95th (ft)	31	85	126	63	42	13	58
Internal Link Dist (ft)		816		542			586
Turn Bay Length (ft)	230		230		280	780	
Base Capacity (vph)	1286	2537	1265	2115	1085	699	2197
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.12	0.45	0.11	0.32	0.02	0.13

Intersection Summary

HCM 6th Signalized Intersection Summary

43: Blue Pkwy & I-470 EB Ramp

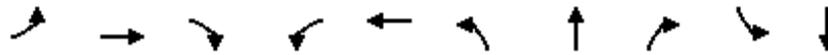
PM Existing plus Site (Phase I)

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 						 			 	
Traffic Volume (veh/h)	32	265	500	0	0	0	0	201	297	15	244	0
Future Volume (veh/h)	32	265	500	0	0	0	0	201	297	15	244	0
Initial Q (Qb), veh	0	0	0					0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	36	301	568				0	234	345	17	280	0
Peak Hour Factor	0.88	0.88	0.88				0.86	0.86	0.86	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	719	1433	639				0	1497	668	432	1744	0
Arrive On Green	0.40	0.40	0.40				0.00	0.42	0.42	0.02	0.49	0.00
Sat Flow, veh/h	1781	3554	1585				0	3647	1585	1781	3647	0
Grp Volume(v), veh/h	36	301	568				0	234	345	17	280	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585				0	1777	1585	1781	1777	0
Q Serve(g_s), s	1.1	5.0	29.9				0.0	3.7	14.4	0.5	3.9	0.0
Cycle Q Clear(g_c), s	1.1	5.0	29.9				0.0	3.7	14.4	0.5	3.9	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	719	1433	639				0	1497	668	432	1744	0
V/C Ratio(X)	0.05	0.21	0.89				0.00	0.16	0.52	0.04	0.16	0.00
Avail Cap(c_a), veh/h	1023	2041	910				0	1497	668	507	1744	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	16.3	17.4	24.9				0.0	16.1	19.2	13.2	12.6	0.0
Incr Delay (d2), s/veh	0.0	0.1	7.9				0.0	0.2	2.8	0.0	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	2.0	12.0				0.0	1.5	5.6	0.2	1.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.3	17.5	32.8				0.0	16.3	22.0	13.3	12.8	0.0
LnGrp LOS	B	B	C				A	B	C	B	B	A
Approach Vol, veh/h		905						579			297	
Approach Delay, s/veh		27.1						19.7			12.8	
Approach LOS		C						B			B	
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	6.2	42.8	40.7	49.0								
Change Period (Y+Rc), s	4.5	5.0	4.5	5.0								
Max Green Setting (Gmax), s	5.5	34.0	51.5	44.0								
Max Q Clear Time (g_c+I1), s	2.5	16.4	31.9	5.9								
Green Ext Time (p_c), s	0.0	2.6	4.3	2.0								
Intersection Summary												
HCM 6th Ctrl Delay			22.3									
HCM 6th LOS			C									

Queues

46: Blue Pkwy & Ward Rd & West Dealership Access

PM Existing plus Site (Phase I)



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	41	394	389	74	314	262	10	70	10	57
v/c Ratio	0.28	0.57	0.45	0.26	0.40	0.34	0.01	0.07	0.01	0.06
Control Delay	45.9	36.5	5.1	43.7	32.2	13.4	11.1	3.1	10.9	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.9	36.5	5.1	43.7	32.2	13.4	11.1	3.1	10.9	5.0
Queue Length 50th (ft)	23	111	0	21	85	78	2	0	2	3
Queue Length 95th (ft)	59	160	39	36	102	159	11	20	11	23
Internal Link Dist (ft)		383			346		526			358
Turn Bay Length (ft)	200		360	325				210	150	
Base Capacity (vph)	228	1109	1140	384	1070	780	1084	952	822	988
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.36	0.34	0.19	0.29	0.34	0.01	0.07	0.01	0.06

Intersection Summary

HCM 6th Signalized Intersection Summary

46: Blue Pkwy & Ward Rd & West Dealership Access

PM Existing plus Site (Phase I)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷	↷	↶	↷		↶	↷	↷	↶	↷	↷
Traffic Volume (veh/h)	38	355	350	54	227	3	238	9	64	9	13	40
Future Volume (veh/h)	38	355	350	54	227	3	238	9	64	9	13	40
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	41	394	389	74	311	3	262	10	70	10	14	43
Peak Hour Factor	0.92	0.90	0.90	0.73	0.73	0.92	0.91	0.91	0.91	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	63	689	541	194	793	8	845	1091	925	846	236	725
Arrive On Green	0.04	0.19	0.19	0.06	0.22	0.22	0.58	0.58	0.58	0.58	0.58	0.58
Sat Flow, veh/h	1781	3554	2790	3456	3606	35	1346	1870	1585	1319	404	1242
Grp Volume(v), veh/h	41	394	389	74	153	161	262	10	70	10	0	57
Grp Sat Flow(s),veh/h/ln	1781	1777	1395	1728	1777	1864	1346	1870	1585	1319	0	1647
Q Serve(g_s), s	2.0	9.0	11.8	1.9	6.6	6.6	9.4	0.2	1.7	0.3	0.0	1.3
Cycle Q Clear(g_c), s	2.0	9.0	11.8	1.9	6.6	6.6	10.7	0.2	1.7	0.5	0.0	1.3
Prop In Lane	1.00		1.00	1.00		0.02	1.00		1.00	1.00		0.75
Lane Grp Cap(c), veh/h	63	689	541	194	391	410	845	1091	925	846	0	961
V/C Ratio(X)	0.65	0.57	0.72	0.38	0.39	0.39	0.31	0.01	0.08	0.01	0.00	0.06
Avail Cap(c_a), veh/h	228	1106	868	384	533	559	845	1091	925	846	0	961
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	0.00	1.00
Uniform Delay (d), s/veh	42.8	32.9	34.0	41.0	30.0	30.0	10.4	7.9	8.2	8.0	0.0	8.1
Incr Delay (d2), s/veh	10.5	0.8	1.8	1.2	0.6	0.6	1.0	0.0	0.2	0.0	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	1.1	3.9	4.0	0.8	2.9	3.0	2.8	0.1	0.6	0.1	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.3	33.6	35.8	42.2	30.6	30.6	11.4	7.9	8.3	8.0	0.0	8.2
LnGrp LOS	D	C	D	D	C	C	B	A	A	A	A	A
Approach Vol, veh/h		824			388			342				67
Approach Delay, s/veh		35.6			32.8			10.6				8.2
Approach LOS		D			C			B				A
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		57.5	10.1	22.4		57.5	7.7	24.8				
Change Period (Y+Rc), s		5.0	5.0	5.0		* 5	4.5	5.0				
Max Green Setting (Gmax), s		52.0	10.0	28.0		* 53	11.5	27.0				
Max Q Clear Time (g_c+I1), s		12.7	3.9	13.8		3.3	4.0	8.6				
Green Ext Time (p_c), s		1.1	0.1	3.7		0.4	0.0	1.6				
Intersection Summary												
HCM 6th Ctrl Delay				28.6								
HCM 6th LOS				C								
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Queues

48: Blue Pkwy & North Access

PM Existing plus Site (Phase I)



Lane Group	EBL	EBR	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	114	82	8	39	245	7	296	171
v/c Ratio	0.38	0.11	0.01	0.20	0.11	0.04	0.14	0.12
Control Delay	26.5	0.3	0.0	31.5	7.3	32.0	9.3	1.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.5	0.3	0.0	31.5	7.3	32.0	9.3	1.1
Queue Length 50th (ft)	34	0	0	12	13	2	16	0
Queue Length 95th (ft)	72	0	0	47	63	16	79	20
Internal Link Dist (ft)			394		623		526	
Turn Bay Length (ft)	110			290		290		155
Base Capacity (vph)	551	1097	921	362	2219	277	2063	1451
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.07	0.01	0.11	0.11	0.03	0.14	0.12

Intersection Summary

HCM 6th Signalized Intersection Summary

48: Blue Pkwy & North Access

PM Existing plus Site (Phase I)

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	89	0	64	0	0	4	35	218	0	6	263	152
Future Volume (veh/h)	89	0	64	0	0	4	35	218	0	6	263	152
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	114	0	82	0	0	8	39	245	0	7	296	171
Peak Hour Factor	0.78	0.78	0.78	0.50	0.50	0.50	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	342	426	361	205	0	115	82	1884	718	19	1759	909
Arrive On Green	0.08	0.00	0.23	0.00	0.00	0.07	0.05	0.53	0.00	0.01	0.50	0.50
Sat Flow, veh/h	1781	1870	1585	1781	0	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	114	0	82	0	0	8	39	245	0	7	296	171
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	3.8	0.0	2.8	0.0	0.0	0.3	1.4	2.3	5.2	0.3	3.1	3.5
Cycle Q Clear(g_c), s	3.8	0.0	2.8	0.0	0.0	0.3	1.4	2.3	5.2	0.3	3.1	3.5
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	342	426	361	205	0	115	82	1884	718	19	1759	909
V/C Ratio(X)	0.33	0.00	0.23	0.00	0.00	0.07	0.47	0.13	0.00	0.36	0.17	0.19
Avail Cap(c_a), veh/h	698	903	765	360	0	465	338	1884	718	259	1759	909
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	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.3	0.0	21.2	0.0	0.0	29.2	31.4	8.0	0.0	33.2	9.4	6.9
Incr Delay (d2), s/veh	0.6	0.0	0.3	0.0	0.0	0.3	4.2	0.1	0.0	10.8	0.2	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.0	1.0	0.0	0.0	0.1	0.7	0.8	0.0	0.2	1.1	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.8	0.0	21.5	0.0	0.0	29.4	35.6	8.1	0.0	44.0	9.6	7.3
LnGrp LOS	C	A	C	A	A	C	D	A	A	D	A	A
Approach Vol, veh/h		196			8			284			474	
Approach Delay, s/veh		23.5			29.4			11.9			9.3	
Approach LOS		C			C			B			A	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.9	41.0	0.0	20.6	8.3	38.6	10.5	10.1				
Change Period (Y+Rc), s	* 5.2	* 5.2	* 5.2	* 5.2	* 5.2	* 5.2	* 5.2	* 5.2				
Max Green Setting (Gmax), s	* 9.8	* 36	* 6	* 33	* 13	* 33	* 19	* 20				
Max Q Clear Time (g_c+I1), s	2.3	7.2	0.0	4.8	3.4	5.5	5.8	2.3				
Green Ext Time (p_c), s	0.0	1.6	0.0	0.2	0.0	2.6	0.2	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			13.1									
HCM 6th LOS			B									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Queues

51: Blue Pkwy & Midway Access

PM Existing plus Site (Phase I)



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	62	113	7	28	55	222	1	8	309	39
v/c Ratio	0.24	0.15	0.03	0.16	0.16	0.09	0.00	0.03	0.14	0.03
Control Delay	25.5	0.4	23.0	19.8	32.3	6.3	0.0	33.6	8.9	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.5	0.4	23.0	19.8	32.3	6.3	0.0	33.6	8.9	0.8
Queue Length 50th (ft)	22	0	3	2	10	9	0	1	26	0
Queue Length 95th (ft)	40	0	9	17	29	49	0	8	71	6
Internal Link Dist (ft)		404		466		564			623	
Turn Bay Length (ft)					240		170	240		300
Base Capacity (vph)	419	1009	346	596	646	2529	1415	491	2285	1364
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.11	0.02	0.05	0.09	0.09	0.00	0.02	0.14	0.03

Intersection Summary

HCM 6th Signalized Intersection Summary

51: Blue Pkwy & Midway Access

PM Existing plus Site (Phase I)

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	43	0	78	5	4	15	48	195	1	7	284	36
Future Volume (veh/h)	43	0	78	5	4	15	48	195	1	7	284	36
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	62	0	113	7	6	22	55	222	1	8	309	39
Peak Hour Factor	0.69	0.69	0.69	0.67	0.67	0.67	0.88	0.88	0.88	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	275	0	179	182	25	91	166	2119	959	36	1985	967
Arrive On Green	0.05	0.00	0.11	0.01	0.07	0.07	0.05	0.60	0.60	0.01	0.56	0.56
Sat Flow, veh/h	1781	0	1585	1781	351	1287	3456	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	62	0	113	7	0	28	55	222	1	8	309	39
Grp Sat Flow(s),veh/h/ln	1781	0	1585	1781	0	1639	1728	1777	1585	1728	1777	1585
Q Serve(g_s), s	2.1	0.0	4.5	0.2	0.0	1.1	1.0	1.8	0.0	0.2	2.8	0.7
Cycle Q Clear(g_c), s	2.1	0.0	4.5	0.2	0.0	1.1	1.0	1.8	0.0	0.2	2.8	0.7
Prop In Lane	1.00		1.00	1.00		0.79	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	275	0	179	182	0	116	166	2119	959	36	1985	967
V/C Ratio(X)	0.23	0.00	0.63	0.04	0.00	0.24	0.33	0.10	0.00	0.22	0.16	0.04
Avail Cap(c_a), veh/h	574	0	658	448	0	581	652	2119	959	495	1985	967
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.2	0.0	28.1	28.2	0.0	29.1	30.5	5.8	5.2	32.5	7.1	5.2
Incr Delay (d2), s/veh	0.4	0.0	3.7	0.1	0.0	1.1	1.2	0.1	0.0	3.1	0.2	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	0.9	0.0	1.8	0.1	0.0	0.4	0.4	0.6	0.0	0.1	0.9	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.6	0.0	31.7	28.3	0.0	30.2	31.7	5.9	5.2	35.6	7.2	5.2
LnGrp LOS	C	A	C	C	A	C	C	A	A	D	A	A
Approach Vol, veh/h		175			35			278			356	
Approach Delay, s/veh		29.9			29.8			11.0			7.7	
Approach LOS		C			C			B			A	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.2	44.0	5.1	12.0	7.7	41.5	7.9	9.2				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	9.5	39.5	10.5	27.5	12.5	36.5	14.5	23.5				
Max Q Clear Time (g_c+I1), s	2.2	3.8	2.2	6.5	3.0	4.8	4.1	3.1				
Green Ext Time (p_c), s	0.0	1.5	0.0	0.6	0.1	2.3	0.1	0.1				
Intersection Summary												
HCM 6th Ctrl Delay			14.3									
HCM 6th LOS			B									

Queues

54: Blue Pkwy & South Access

PM Existing plus Site (Phase I)



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	59	6	339	46	51	323	182	37	11	264	134
v/c Ratio	0.19	0.03	0.70	0.18	0.24	0.56	0.09	0.03	0.07	0.19	0.13
Control Delay	22.1	29.2	12.2	23.1	17.2	31.8	8.2	1.0	35.1	16.5	2.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.1	29.2	12.2	23.1	17.2	31.8	8.2	1.0	35.1	16.5	2.5
Queue Length 50th (ft)	19	2	0	15	4	64	14	0	4	38	0
Queue Length 95th (ft)	47	12	48	38	31	123	47	6	22	81	26
Internal Link Dist (ft)		380			478		1188			564	
Turn Bay Length (ft)						170		260	310		325
Base Capacity (vph)	356	912	948	261	754	1078	2132	1223	168	1390	1032
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.01	0.36	0.18	0.07	0.30	0.09	0.03	0.07	0.19	0.13

Intersection Summary

HCM 6th Signalized Intersection Summary

54: Blue Pkwy & South Access

PM Existing plus Site (Phase I)

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	48	5	278	37	9	32	291	164	33	10	243	123
Future Volume (veh/h)	48	5	278	37	9	32	291	164	33	10	243	123
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	59	6	339	46	11	40	323	182	37	11	264	134
Peak Hour Factor	0.82	0.82	0.82	0.81	0.81	0.81	0.90	0.90	0.90	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	455	454	385	403	84	305	432	1733	835	24	1337	667
Arrive On Green	0.04	0.24	0.24	0.04	0.24	0.24	0.13	0.49	0.49	0.01	0.38	0.38
Sat Flow, veh/h	1781	1870	1585	1781	354	1285	3456	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	59	6	339	46	0	51	323	182	37	11	264	134
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1639	1728	1777	1585	1781	1777	1585
Q Serve(g_s), s	2.0	0.2	17.1	1.6	0.0	2.0	7.5	2.3	0.9	0.5	4.2	4.4
Cycle Q Clear(g_c), s	2.0	0.2	17.1	1.6	0.0	2.0	7.5	2.3	0.9	0.5	4.2	4.4
Prop In Lane	1.00		1.00	1.00		0.78	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	455	454	385	403	0	389	432	1733	835	24	1337	667
V/C Ratio(X)	0.13	0.01	0.88	0.11	0.00	0.13	0.75	0.11	0.04	0.46	0.20	0.20
Avail Cap(c_a), veh/h	579	754	639	472	0	602	895	1733	835	139	1337	667
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.2	23.9	30.3	22.3	0.0	24.9	35.1	11.5	9.5	40.7	17.5	15.2
Incr Delay (d2), s/veh	0.1	0.0	7.9	0.1	0.0	0.2	2.6	0.1	0.1	13.0	0.3	0.7
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	0.8	0.1	7.1	0.7	0.0	0.8	3.2	0.9	0.3	0.3	1.7	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.3	23.9	38.2	22.4	0.0	25.1	37.7	11.6	9.6	53.6	17.8	15.9
LnGrp LOS	C	C	D	C	A	C	D	B	A	D	B	B
Approach Vol, veh/h		404			97			542			409	
Approach Delay, s/veh		35.7			23.8			27.0			18.1	
Approach LOS		D			C			C			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.6	45.0	7.8	24.7	14.9	35.7	8.2	24.2				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	6.5	40.5	6.5	33.5	21.5	25.5	9.5	30.5				
Max Q Clear Time (g_c+I1), s	2.5	4.3	3.6	19.1	9.5	6.4	4.0	4.0				
Green Ext Time (p_c), s	0.0	1.3	0.0	1.1	0.9	2.0	0.0	0.2				
Intersection Summary												
HCM 6th Ctrl Delay			26.7									
HCM 6th LOS			C									

HCM 6th TWSC
1: Missouri Rd & Ward Rd

AM Existing plus Site (Phase I & II)

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	128	218	2	2	259	10	2	0	2	59	0	87
Future Vol, veh/h	128	218	2	2	259	10	2	0	2	59	0	87
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									
Storage Length	210	-	160	215	-	215	-	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	80	80	80	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	142	242	2	3	324	13	2	0	2	64	0	95

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	337	0	0	244	0	0	694	869	121	735	858	162
Stage 1	-	-	-	-	-	-	526	526	-	330	330	-
Stage 2	-	-	-	-	-	-	168	343	-	405	528	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1219	-	-	1319	-	-	329	289	908	308	293	854
Stage 1	-	-	-	-	-	-	503	527	-	657	644	-
Stage 2	-	-	-	-	-	-	817	636	-	593	526	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1219	-	-	1319	-	-	266	255	908	279	258	854
Mov Cap-2 Maneuver	-	-	-	-	-	-	266	255	-	279	258	-
Stage 1	-	-	-	-	-	-	445	466	-	581	643	-
Stage 2	-	-	-	-	-	-	725	635	-	523	465	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	3.1			0.1			13.9			14.5		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	411	1219	-	-	1319	-	-	279	854
HCM Lane V/C Ratio	0.011	0.117	-	-	0.002	-	-	0.23	0.111
HCM Control Delay (s)	13.9	8.3	-	-	7.7	-	-	21.7	9.7
HCM Lane LOS	B	A	-	-	A	-	-	C	A
HCM 95th %tile Q(veh)	0	0.4	-	-	0	-	-	0.9	0.4

HCM 6th TWSC
 4: Ward Rd & Dealership RIRO Access

AM Existing plus Site (Phase I & II)

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↑
Traffic Vol, veh/h	0	348	343	5	0	5
Future Vol, veh/h	0	348	343	5	0	5
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	90	90	80	80	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	387	429	6	0	5

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	-	0	-	0	- 218
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	-	-	-	- 6.94
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	- 3.32
Pot Cap-1 Maneuver	0	-	-	-	0 786
Stage 1	0	-	-	-	0 -
Stage 2	0	-	-	-	0 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	- 786
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

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

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	786
HCM Lane V/C Ratio	-	-	-	0.007
HCM Control Delay (s)	-	-	-	9.6
HCM Lane LOS	-	-	-	A
HCM 95th %tile Q(veh)	-	-	-	0

HCM 6th TWSC
 9: Ward Rd & Commercial RIRO

AM Existing plus Site (Phase I & II)

Intersection						
Int Delay, s/veh	1.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↑		↑
Traffic Vol, veh/h	0	279	194	32	0	76
Future Vol, veh/h	0	279	194	32	0	76
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	200	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	80	80	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	310	243	40	0	83
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	-	0	-	0	-	122
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	-	0	906
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	906
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	WB	SB			
HCM Control Delay, s	0	0	9.4			
HCM LOS						A
Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1		
Capacity (veh/h)	-	-	-	906		
HCM Lane V/C Ratio	-	-	-	0.091		
HCM Control Delay (s)	-	-	-	9.4		
HCM Lane LOS	-	-	-	A		
HCM 95th %tile Q(veh)	-	-	-	0.3		

Queues

15: Ward Rd & Tudor Rd

AM Existing plus Site (Phase I & II)



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	1	4	68	171	25	251	135	258	534
v/c Ratio	0.00	0.01	0.36	0.46	0.04	0.15	0.16	0.33	0.24
Control Delay	26.0	0.0	33.5	9.8	4.0	10.7	2.3	5.3	6.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.0	0.0	33.5	9.8	4.0	10.7	2.3	5.3	6.6
Queue Length 50th (ft)	0	0	24	0	2	27	0	28	31
Queue Length 95th (ft)	4	0	66	33	9	48	15	45	68
Internal Link Dist (ft)		394	448			689			1243
Turn Bay Length (ft)					200		90	150	
Base Capacity (vph)	508	847	497	689	612	1678	830	994	2256
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.00	0.14	0.25	0.04	0.15	0.16	0.26	0.24

Intersection Summary

HCM 6th Signalized Intersection Summary

15: Ward Rd & Tudor Rd

AM Existing plus Site (Phase I & II)

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	0	4	52	1	133	23	201	108	178	368	1
Future Volume (veh/h)	1	0	4	52	1	133	23	201	108	178	368	1
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1	0	4	67	1	171	25	251	135	258	533	1
Peak Hour Factor	0.92	0.92	0.92	0.78	0.92	0.78	0.92	0.80	0.80	0.69	0.69	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	321	0	225	298	4	225	594	1805	805	775	2215	4
Arrive On Green	0.14	0.00	0.14	0.14	0.14	0.14	0.03	0.51	0.51	0.11	0.61	0.61
Sat Flow, veh/h	1416	0	1585	1375	26	1585	1781	3554	1585	1781	3639	7
Grp Volume(v), veh/h	1	0	4	68	0	171	25	251	135	258	260	274
Grp Sat Flow(s),veh/h/ln	1416	0	1585	1401	0	1585	1781	1777	1585	1781	1777	1869
Q Serve(g_s), s	0.0	0.0	0.2	3.0	0.0	7.2	0.5	2.6	3.2	4.5	4.7	4.7
Cycle Q Clear(g_c), s	0.0	0.0	0.2	3.1	0.0	7.2	0.5	2.6	3.2	4.5	4.7	4.7
Prop In Lane	1.00		1.00	0.99		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	321	0	225	301	0	225	594	1805	805	775	1081	1138
V/C Ratio(X)	0.00	0.00	0.02	0.23	0.00	0.76	0.04	0.14	0.17	0.33	0.24	0.24
Avail Cap(c_a), veh/h	637	0	579	597	0	556	737	1805	805	1146	1081	1138
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.7	0.0	25.8	27.1	0.0	28.8	7.6	9.1	9.2	5.9	6.3	6.3
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.4	0.0	5.2	0.0	0.2	0.4	0.3	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.1	1.0	0.0	2.9	0.2	0.9	1.1	1.3	1.5	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.7	0.0	25.8	27.5	0.0	34.0	7.7	9.3	9.7	6.2	6.8	6.8
LnGrp LOS	C	A	C	C	A	C	A	A	A	A	A	A
Approach Vol, veh/h		5			239			411			792	
Approach Delay, s/veh		25.8			32.2			9.3			6.6	
Approach LOS		C			C			A			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	13.4	41.0		15.4	6.4	48.0		15.4				
Change Period (Y+Rc), s	5.5	5.5		* 5.5	4.5	5.5		5.5				
Max Green Setting (Gmax), s	22.5	26.5		* 26	7.5	42.5		24.5				
Max Q Clear Time (g_c+I1), s	6.5	5.2		2.2	2.5	6.7		9.2				
Green Ext Time (p_c), s	0.6	2.0		0.0	0.0	3.3		0.8				
Intersection Summary												
HCM 6th Ctrl Delay				11.6								
HCM 6th LOS				B								
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 6th TWSC
19: Ward Rd & Outerview

AM Existing plus Site (Phase I & II)

Intersection												
Int Delay, s/veh	1.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↵	↶		↵	↑↑	↶	↵	↑↑	↶
Traffic Vol, veh/h	2	0	3	8	0	11	9	213	1	50	223	6
Future Vol, veh/h	2	0	3	8	0	11	9	213	1	50	223	6
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									
Storage Length	-	-	-	25	-	-	200	-	145	190	-	190
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	63	63	92	79	79	92	95	95	95	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	0	3	10	0	12	9	224	1	63	279	8

Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	535	648	140	508	655	112	287	0	0	225	0	0
Stage 1	405	405	-	242	242	-	-	-	-	-	-	-
Stage 2	130	243	-	266	413	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	428	388	882	448	384	920	1272	-	-	1341	-	-
Stage 1	593	597	-	740	704	-	-	-	-	-	-	-
Stage 2	860	703	-	716	592	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	405	367	882	428	363	920	1272	-	-	1341	-	-
Mov Cap-2 Maneuver	405	367	-	428	363	-	-	-	-	-	-	-
Stage 1	589	569	-	735	699	-	-	-	-	-	-	-
Stage 2	843	698	-	680	564	-	-	-	-	-	-	-

Approach	EB		WB			NB			SB		
HCM Control Delay, s	11.5		11.1			0.3			1.4		
HCM LOS	B		B								

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1272	-	-	558	428	920	1341	-	-
HCM Lane V/C Ratio	0.007	-	-	0.012	0.024	0.013	0.047	-	-
HCM Control Delay (s)	7.9	-	-	11.5	13.6	9	7.8	-	-
HCM Lane LOS	A	-	-	B	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	0.1	-	-

Queues

38: Blue Pkwy & I-470 WB Ramp

AM Existing plus Site (Phase I & II)



Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	262	177	38	161	180	136	24
v/c Ratio	0.56	0.37	0.13	0.17	0.07	0.08	0.03
Control Delay	39.5	35.9	2.0	4.0	3.5	10.3	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.5	35.9	2.0	4.0	3.5	10.3	0.1
Queue Length 50th (ft)	69	46	0	20	11	15	0
Queue Length 95th (ft)	96	70	1	39	21	29	0
Internal Link Dist (ft)		962			586	567	
Turn Bay Length (ft)	425		310	480			135
Base Capacity (vph)	1218	1256	614	1100	2611	1861	870
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.14	0.06	0.15	0.07	0.07	0.03

Intersection Summary

HCM 6th Signalized Intersection Summary

38: Blue Pkwy & I-470 WB Ramp

AM Existing plus Site (Phase I & II)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↔↔	↑↑	↗	↖	↑↑			↑↑	↗
Traffic Volume (veh/h)	0	0	0	215	145	31	134	149	0	0	114	20
Future Volume (veh/h)	0	0	0	215	145	31	134	149	0	0	114	20
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No			No		
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				262	177	0	161	180	0	0	136	0
Peak Hour Factor				0.82	0.82	0.82	0.83	0.83	0.83	0.84	0.84	0.84
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				414	426		967	2674	0	0	2195	
Arrive On Green				0.12	0.12	0.00	0.07	0.75	0.00	0.00	0.62	0.00
Sat Flow, veh/h				3456	3554	1585	1781	3647	0	0	3647	1585
Grp Volume(v), veh/h				262	177	0	161	180	0	0	136	0
Grp Sat Flow(s),veh/h/ln				1728	1777	1585	1781	1777	0	0	1777	1585
Q Serve(g_s), s				6.1	3.9	0.0	2.4	1.1	0.0	0.0	1.3	0.0
Cycle Q Clear(g_c), s				6.1	3.9	0.0	2.4	1.1	0.0	0.0	1.3	0.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				414	426		967	2674	0	0	2195	
V/C Ratio(X)				0.63	0.42		0.17	0.07	0.00	0.00	0.06	
Avail Cap(c_a), veh/h				1251	1287		1485	2674	0	0	2195	
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				35.4	34.5	0.0	3.9	2.7	0.0	0.0	6.4	0.0
Incr Delay (d2), s/veh				1.6	0.6	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.6	1.7	0.0	0.7	0.3	0.0	0.0	0.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				37.0	35.1	0.0	4.0	2.8	0.0	0.0	6.4	0.0
LnGrp LOS				D	D		A	A	A	A	A	
Approach Vol, veh/h					439			341			136	
Approach Delay, s/veh					36.3			3.4			6.4	
Approach LOS					D			A			A	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		69.0			11.4	57.6		15.5				
Change Period (Y+Rc), s		* 5.4			* 5.4	* 5.4		5.4				
Max Green Setting (Gmax), s		* 64			* 31	* 28		30.6				
Max Q Clear Time (g_c+I1), s		3.1			4.4	3.3		8.1				
Green Ext Time (p_c), s		1.3			0.4	0.8		2.0				

Intersection Summary

HCM 6th Ctrl Delay	19.6
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Queues

43: Blue Pkwy & I-470 EB Ramp

AM Existing plus Site (Phase I & II)



Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	36	301	349	294	109	17	360
v/c Ratio	0.11	0.46	0.60	0.13	0.11	0.02	0.16
Control Delay	23.5	27.2	7.9	7.2	2.7	5.4	5.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.5	27.2	7.9	7.2	2.7	5.4	5.3
Queue Length 50th (ft)	13	60	0	21	0	2	26
Queue Length 95th (ft)	34	92	56	61	23	9	50
Internal Link Dist (ft)		816		542			586
Turn Bay Length (ft)	230		230		280	780	
Base Capacity (vph)	1235	2470	1210	2206	1028	732	2317
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.12	0.29	0.13	0.11	0.02	0.16
Intersection Summary							

HCM 6th Signalized Intersection Summary

43: Blue Pkwy & I-470 EB Ramp

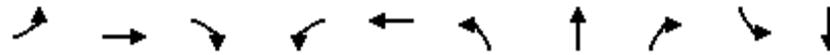
AM Existing plus Site (Phase I & II)

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 						 			 	
Traffic Volume (veh/h)	32	265	307	0	0	0	0	253	94	15	313	0
Future Volume (veh/h)	32	265	307	0	0	0	0	253	94	15	313	0
Initial Q (Qb), veh	0	0	0					0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	36	301	349				0	294	109	17	360	0
Peak Hour Factor	0.88	0.88	0.88				0.86	0.86	0.86	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	491	979	437				0	1739	775	616	2074	0
Arrive On Green	0.28	0.28	0.28				0.00	0.49	0.49	0.02	0.58	0.00
Sat Flow, veh/h	1781	3554	1585				0	3647	1585	1781	3647	0
Grp Volume(v), veh/h	36	301	349				0	294	109	17	360	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585				0	1777	1585	1781	1777	0
Q Serve(g_s), s	1.2	5.2	16.0				0.0	3.6	2.9	0.3	3.7	0.0
Cycle Q Clear(g_c), s	1.2	5.2	16.0				0.0	3.6	2.9	0.3	3.7	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	491	979	437				0	1739	775	616	2074	0
V/C Ratio(X)	0.07	0.31	0.80				0.00	0.17	0.14	0.03	0.17	0.00
Avail Cap(c_a), veh/h	1108	2210	986				0	1739	775	790	2074	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	20.9	22.4	26.2				0.0	11.1	10.9	8.6	7.5	0.0
Incr Delay (d2), s/veh	0.1	0.2	3.4				0.0	0.2	0.4	0.0	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	2.1	6.2				0.0	1.4	1.0	0.1	1.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.0	22.5	29.7				0.0	11.3	11.3	8.6	7.7	0.0
LnGrp LOS	C	C	C				A	B	B	A	A	A
Approach Vol, veh/h		686						403			377	
Approach Delay, s/veh		26.1						11.3			7.7	
Approach LOS		C						B			A	
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	7.3	43.7	27.0	51.0								
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5								
Max Green Setting (Gmax), s	9.5	30.5	48.5	45.5								
Max Q Clear Time (g_c+I1), s	2.3	5.6	18.0	5.7								
Green Ext Time (p_c), s	0.0	2.3	3.5	2.6								
Intersection Summary												
HCM 6th Ctrl Delay			17.3									
HCM 6th LOS			B									

Queues

46: Blue Pkwy & Ward Rd & West Dealership Access

AM Existing plus Site (Phase I & II)



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	73	353	262	124	311	119	11	33	4	23
v/c Ratio	0.35	0.51	0.35	0.32	0.47	0.17	0.01	0.04	0.01	0.03
Control Delay	35.0	28.7	5.1	32.7	28.4	12.1	11.1	1.1	11.0	7.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.0	28.7	5.1	32.7	28.4	12.1	11.1	1.1	11.0	7.4
Queue Length 50th (ft)	30	75	0	26	65	27	2	0	1	2
Queue Length 95th (ft)	71	117	30	47	92	58	12	2	6	15
Internal Link Dist (ft)		383			346		526			358
Turn Bay Length (ft)	200		360	325				210	150	
Base Capacity (vph)	550	1841	1576	918	1686	719	969	856	737	905
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.19	0.17	0.14	0.18	0.17	0.01	0.04	0.01	0.03

Intersection Summary

HCM 6th Signalized Intersection Summary

46: Blue Pkwy & Ward Rd & West Dealership Access

AM Existing plus Site (Phase I & II)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	67	318	236	99	245	5	94	10	26	4	9	12
Future Volume (veh/h)	67	318	236	99	245	5	94	10	26	4	9	12
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	73	353	262	124	306	5	119	11	33	4	10	13
Peak Hour Factor	0.92	0.90	0.90	0.80	0.80	0.92	0.79	0.92	0.79	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	99	618	485	232	665	11	853	1016	861	866	401	521
Arrive On Green	0.06	0.17	0.17	0.07	0.19	0.19	0.54	0.54	0.54	0.54	0.54	0.54
Sat Flow, veh/h	1781	3554	2790	3456	3578	58	1388	1870	1585	1404	738	960
Grp Volume(v), veh/h	73	353	262	124	152	159	119	11	33	4	0	23
Grp Sat Flow(s),veh/h/ln	1781	1777	1395	1728	1777	1860	1388	1870	1585	1404	0	1698
Q Serve(g_s), s	2.7	6.1	5.8	2.3	5.1	5.1	2.9	0.2	0.7	0.1	0.0	0.4
Cycle Q Clear(g_c), s	2.7	6.1	5.8	2.3	5.1	5.1	3.3	0.2	0.7	0.3	0.0	0.4
Prop In Lane	1.00		1.00	1.00		0.03	1.00		1.00	1.00		0.57
Lane Grp Cap(c), veh/h	99	618	485	232	330	345	853	1016	861	866	0	922
V/C Ratio(X)	0.74	0.57	0.54	0.54	0.46	0.46	0.14	0.01	0.04	0.00	0.00	0.02
Avail Cap(c_a), veh/h	570	1904	1494	951	873	913	853	1016	861	866	0	922
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	0.00	1.00
Uniform Delay (d), s/veh	31.3	25.5	25.3	30.3	24.4	24.4	7.9	7.1	7.2	7.1	0.0	7.1
Incr Delay (d2), s/veh	10.3	0.8	0.9	1.9	1.0	1.0	0.3	0.0	0.1	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	2.5	1.9	1.0	2.1	2.2	0.8	0.1	0.2	0.0	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.6	26.3	26.2	32.2	25.4	25.3	8.2	7.1	7.2	7.1	0.0	7.2
LnGrp LOS	D	C	C	C	C	C	A	A	A	A	A	A
Approach Vol, veh/h		688			435			163				27
Approach Delay, s/veh		27.9			27.3			7.9				7.2
Approach LOS		C			C			A				A
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		41.5	9.0	16.7		41.5	8.2	17.5				
Change Period (Y+Rc), s		5.0	4.5	5.0		* 5	4.5	5.0				
Max Green Setting (Gmax), s		36.0	18.5	36.0		* 37	21.5	33.0				
Max Q Clear Time (g_c+I1), s		5.3	4.3	8.1		2.4	4.7	7.1				
Green Ext Time (p_c), s		0.5	0.3	3.6		0.1	0.1	1.8				
Intersection Summary												
HCM 6th Ctrl Delay			24.8									
HCM 6th LOS			C									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Queues

48: Blue Pkwy & North Access

AM Existing plus Site (Phase I & II)



Lane Group	EBL	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	23	9	3	1	15	115	3	7	302	67
v/c Ratio	0.12	0.01	0.02	0.00	0.09	0.04	0.00	0.04	0.11	0.05
Control Delay	26.3	0.0	24.7	0.0	30.7	4.8	0.0	30.7	4.6	1.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.3	0.0	24.7	0.0	30.7	4.8	0.0	30.7	4.6	1.0
Queue Length 50th (ft)	9	0	1	0	6	4	0	3	11	0
Queue Length 95th (ft)	28	0	8	0	25	26	0	15	61	11
Internal Link Dist (ft)				394		623			526	
Turn Bay Length (ft)	110				290		210	290		155
Base Capacity (vph)	372	947	331	1069	329	2700	1499	303	2693	1504
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.01	0.01	0.00	0.05	0.04	0.00	0.02	0.11	0.04

Intersection Summary

HCM 6th Signalized Intersection Summary

48: Blue Pkwy & North Access

AM Existing plus Site (Phase I & II)

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	0	8	3	0	1	14	106	3	6	278	62
Future Volume (veh/h)	21	0	8	3	0	1	14	106	3	6	278	62
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	23	0	9	3	0	1	15	115	3	7	302	67
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	194	86	73	148	0	31	39	2342	1052	20	2303	1077
Arrive On Green	0.03	0.00	0.05	0.00	0.00	0.02	0.02	0.66	0.66	0.01	0.65	0.65
Sat Flow, veh/h	1781	1870	1585	1781	0	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	23	0	9	3	0	1	15	115	3	7	302	67
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	0.8	0.0	0.4	0.1	0.0	0.0	0.5	0.7	0.0	0.3	2.1	0.9
Cycle Q Clear(g_c), s	0.8	0.0	0.4	0.1	0.0	0.0	0.5	0.7	0.0	0.3	2.1	0.9
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	194	86	73	148	0	31	39	2342	1052	20	2303	1077
V/C Ratio(X)	0.12	0.00	0.12	0.02	0.00	0.03	0.38	0.05	0.00	0.36	0.13	0.06
Avail Cap(c_a), veh/h	511	624	529	457	0	479	345	2342	1052	318	2303	1077
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.4	0.0	29.5	30.8	0.0	31.0	31.1	3.9	3.6	31.7	4.4	3.5
Incr Delay (d2), s/veh	0.3	0.0	0.8	0.1	0.0	0.4	6.1	0.0	0.0	10.7	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.1	0.0	0.0	0.0	0.3	0.2	0.0	0.2	0.6	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.7	0.0	30.3	30.8	0.0	31.5	37.2	3.9	3.7	42.4	4.5	3.6
LnGrp LOS	C	A	C	C	A	C	D	A	A	D	A	A
Approach Vol, veh/h		32			4			133			376	
Approach Delay, s/veh		29.9			31.0			7.7			5.0	
Approach LOS		C			C			A			A	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.2	47.0	4.8	7.5	5.9	46.3	6.5	5.7				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	11.5	42.5	11.5	21.5	12.5	41.5	13.5	19.5				
Max Q Clear Time (g_c+I1), s	2.3	2.7	2.1	2.4	2.5	4.1	2.8	2.0				
Green Ext Time (p_c), s	0.0	0.7	0.0	0.0	0.0	2.3	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			7.3									
HCM 6th LOS			A									

Queues

51: Blue Pkwy & Midway Access

AM Existing plus Site (Phase I & II)



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	4	29	7	10	31	130	17	37	318	15
v/c Ratio	0.02	0.04	0.03	0.01	0.09	0.05	0.01	0.11	0.11	0.01
Control Delay	24.0	0.1	24.0	0.0	31.0	6.7	0.0	30.9	6.2	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.0	0.1	24.0	0.0	31.0	6.7	0.0	30.9	6.2	0.0
Queue Length 50th (ft)	1	0	2	0	4	0	0	5	0	0
Queue Length 95th (ft)	6	0	10	0	19	30	0	19	55	0
Internal Link Dist (ft)		404		466		564			623	
Turn Bay Length (ft)					240		170	240		300
Base Capacity (vph)	384	944	386	1083	700	2829	1281	700	2832	1282
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.03	0.02	0.01	0.04	0.05	0.01	0.05	0.11	0.01

Intersection Summary

HCM 6th Signalized Intersection Summary

51: Blue Pkwy & Midway Access

AM Existing plus Site (Phase I & II)

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	0	16	5	0	7	27	114	15	29	248	12
Future Volume (veh/h)	2	0	16	5	0	7	27	114	15	29	248	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.99
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	4	0	29	7	0	10	31	130	17	37	318	15
Peak Hour Factor	0.56	0.56	0.56	0.69	0.69	0.69	0.88	0.88	0.88	0.78	0.78	0.78
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	188	0	77	172	0	85	136	2102	943	155	2121	944
Arrive On Green	0.01	0.00	0.05	0.01	0.00	0.05	0.04	0.59	0.59	0.04	0.60	0.60
Sat Flow, veh/h	1781	0	1562	1781	0	1562	3456	3554	1565	3456	3554	1565
Grp Volume(v), veh/h	4	0	29	7	0	10	31	130	17	37	318	15
Grp Sat Flow(s),veh/h/ln	1781	0	1562	1781	0	1562	1728	1777	1565	1728	1777	1565
Q Serve(g_s), s	0.1	0.0	1.2	0.2	0.0	0.4	0.6	1.0	0.3	0.7	2.6	0.3
Cycle Q Clear(g_c), s	0.1	0.0	1.2	0.2	0.0	0.4	0.6	1.0	0.3	0.7	2.6	0.3
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	188	0	77	172	0	85	136	2102	943	155	2121	944
V/C Ratio(X)	0.02	0.00	0.37	0.04	0.00	0.12	0.23	0.06	0.02	0.24	0.15	0.02
Avail Cap(c_a), veh/h	501	0	497	477	0	497	681	2102	943	681	2121	944
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.4	0.0	30.3	29.2	0.0	29.7	30.7	5.7	5.3	30.4	5.9	5.2
Incr Delay (d2), s/veh	0.0	0.0	3.0	0.1	0.0	0.6	0.8	0.1	0.0	0.8	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.5	0.1	0.0	0.2	0.2	0.3	0.1	0.3	0.8	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.5	0.0	33.3	29.3	0.0	30.3	31.5	5.8	5.3	31.2	6.0	5.3
LnGrp LOS	C	A	C	C	A	C	C	A	A	C	A	A
Approach Vol, veh/h		33			17			178			370	
Approach Delay, s/veh		32.9			29.9			10.2			8.5	
Approach LOS		C			C			B			A	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.0	44.0	5.7	8.3	7.6	44.4	5.4	8.6				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	13.0	39.0	12.0	21.0	13.0	39.0	12.0	21.0				
Max Q Clear Time (g_c+I1), s	2.7	3.0	2.2	3.2	2.6	4.6	2.1	2.4				
Green Ext Time (p_c), s	0.0	0.9	0.0	0.1	0.0	2.3	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			11.0									
HCM 6th LOS			B									

Queues

54: Blue Pkwy & South Access

AM Existing plus Site (Phase I & II)



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	27	3	123	16	12	139	144	51	25	234	44
v/c Ratio	0.09	0.02	0.45	0.08	0.07	0.34	0.07	0.04	0.15	0.14	0.04
Control Delay	21.6	30.0	12.4	26.3	19.0	31.2	9.6	1.2	32.8	12.7	1.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.6	30.0	12.4	26.3	19.0	31.2	9.6	1.2	32.8	12.7	1.0
Queue Length 50th (ft)	9	1	0	6	0	28	11	0	10	31	0
Queue Length 95th (ft)	27	8	42	20	16	54	35	7	33	60	6
Internal Link Dist (ft)		380			478		1188			564	
Turn Bay Length (ft)						170		260	310		325
Base Capacity (vph)	404	820	767	299	643	806	2096	1299	311	1647	1216
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.00	0.16	0.05	0.02	0.17	0.07	0.04	0.08	0.14	0.04

Intersection Summary

HCM 6th Signalized Intersection Summary
 54: Blue Pkwy & South Access

AM Existing plus Site (Phase I & II)

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	3	108	15	1	10	118	122	43	22	208	39
Future Volume (veh/h)	24	3	108	15	1	10	118	122	43	22	208	39
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	27	3	123	16	1	11	139	144	51	25	234	44
Peak Hour Factor	0.88	0.88	0.88	0.93	0.93	0.93	0.85	0.85	0.85	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	299	199	169	288	13	138	299	1851	863	60	1664	799
Arrive On Green	0.04	0.11	0.11	0.02	0.09	0.09	0.09	0.52	0.52	0.03	0.47	0.47
Sat Flow, veh/h	1781	1870	1585	1781	134	1472	3456	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	27	3	123	16	0	12	139	144	51	25	234	44
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1605	1728	1777	1585	1781	1777	1585
Q Serve(g_s), s	0.8	0.1	4.8	0.5	0.0	0.4	2.4	1.3	1.0	0.9	2.4	0.9
Cycle Q Clear(g_c), s	0.8	0.1	4.8	0.5	0.0	0.4	2.4	1.3	1.0	0.9	2.4	0.9
Prop In Lane	1.00		1.00	1.00		0.92	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	299	199	169	288	0	150	299	1851	863	60	1664	799
V/C Ratio(X)	0.09	0.02	0.73	0.06	0.00	0.08	0.46	0.08	0.06	0.42	0.14	0.06
Avail Cap(c_a), veh/h	601	886	751	527	0	684	873	1851	863	337	1664	799
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.4	25.3	27.4	24.9	0.0	26.2	27.5	7.6	6.8	30.0	9.6	8.0
Incr Delay (d2), s/veh	0.1	0.0	5.9	0.1	0.0	0.2	1.1	0.1	0.1	4.5	0.2	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	0.3	0.0	2.0	0.2	0.0	0.2	1.0	0.4	0.3	0.4	0.9	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.5	25.4	33.4	25.0	0.0	26.4	28.7	7.7	6.9	34.5	9.8	8.1
LnGrp LOS	C	C	C	C	A	C	C	A	A	C	A	A
Approach Vol, veh/h		153			28			334			303	
Approach Delay, s/veh		31.6			25.6			16.3			11.6	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.1	38.0	6.5	11.7	10.5	34.7	7.3	10.9				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	12.0	33.0	10.0	30.0	16.0	29.0	13.0	27.0				
Max Q Clear Time (g_c+I1), s	2.9	3.3	2.5	6.8	4.4	4.4	2.8	2.4				
Green Ext Time (p_c), s	0.0	1.1	0.0	0.4	0.3	1.6	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			17.7									
HCM 6th LOS			B									

HCM 6th TWSC
1: Missouri Rd & Ward Rd

PM Existing plus Site (Phase I & II)

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	160	427	1	1	278	7	2	0	3	48	0	97
Future Vol, veh/h	160	427	1	1	278	7	2	0	3	48	0	97
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									
Storage Length	210	-	160	215	-	215	-	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	178	474	1	1	309	8	2	0	4	56	0	114

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	317	0	0	475	0	0	987	1149	237	904	1142	155
Stage 1	-	-	-	-	-	-	830	830	-	311	311	-
Stage 2	-	-	-	-	-	-	157	319	-	593	831	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1240	-	-	1083	-	-	202	197	764	232	199	863
Stage 1	-	-	-	-	-	-	331	383	-	674	657	-
Stage 2	-	-	-	-	-	-	829	652	-	459	383	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1240	-	-	1083	-	-	156	168	764	205	170	863
Mov Cap-2 Maneuver	-	-	-	-	-	-	156	168	-	205	170	-
Stage 1	-	-	-	-	-	-	283	328	-	577	656	-
Stage 2	-	-	-	-	-	-	719	651	-	391	328	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	2.3			0			17.3			16.2		
HCM LOS							C			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	299	1240	-	-	1083	-	-	205	863
HCM Lane V/C Ratio	0.02	0.143	-	-	0.001	-	-	0.275	0.132
HCM Control Delay (s)	17.3	8.4	-	-	8.3	-	-	29.1	9.8
HCM Lane LOS	C	A	-	-	A	-	-	D	A
HCM 95th %tile Q(veh)	0.1	0.5	-	-	0	-	-	1.1	0.5

HCM 6th TWSC
 4: Ward Rd & Dealership RIRO Access

PM Existing plus Site (Phase I & II)

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↑
Traffic Vol, veh/h	0	588	374	3	0	13
Future Vol, veh/h	0	588	374	3	0	13
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	90	90	73	73	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	653	512	4	0	14
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	-	0	-	0	-	258
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	-	0	741
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	741
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	WB	SB			
HCM Control Delay, s	0	0	10			
HCM LOS				B		
Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1		
Capacity (veh/h)	-	-	-	741		
HCM Lane V/C Ratio	-	-	-	0.019		
HCM Control Delay (s)	-	-	-	10		
HCM Lane LOS	-	-	-	B		
HCM 95th %tile Q(veh)	-	-	-	0.1		

HCM 6th TWSC
 9: Ward Rd & Commercial RIRO

PM Existing plus Site (Phase I & II)

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↑		↑
Traffic Vol, veh/h	0	478	297	40	0	7
Future Vol, veh/h	0	478	297	40	0	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	200	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	73	73	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	531	407	55	0	8
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	-	0	-	0	-	204
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	-	0	803
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	803
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	WB	SB			
HCM Control Delay, s	0	0	9.5			
HCM LOS						A
Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1		
Capacity (veh/h)	-	-	-	803		
HCM Lane V/C Ratio	-	-	-	0.009		
HCM Control Delay (s)	-	-	-	9.5		
HCM Lane LOS	-	-	-	A		
HCM 95th %tile Q(veh)	-	-	-	0		

Queues

15: Ward Rd & Tudor Rd

PM Existing plus Site (Phase I & II)



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	3	15	124	161	13	230	86	229	332
v/c Ratio	0.01	0.05	0.55	0.40	0.02	0.14	0.11	0.30	0.14
Control Delay	25.7	15.2	37.8	8.3	4.4	12.1	1.1	6.2	6.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.7	15.2	37.8	8.3	4.4	12.1	1.1	6.2	6.1
Queue Length 50th (ft)	1	1	49	0	1	27	0	30	22
Queue Length 95th (ft)	8	16	93	30	6	60	9	65	62
Internal Link Dist (ft)		394	448			689			1243
Turn Bay Length (ft)					200		90	150	
Base Capacity (vph)	522	679	553	750	793	1654	812	995	2310
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.02	0.22	0.21	0.02	0.14	0.11	0.23	0.14

Intersection Summary

HCM 6th Signalized Intersection Summary

15: Ward Rd & Tudor Rd

PM Existing plus Site (Phase I & II)

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	2	12	95	1	124	9	207	77	190	275	1
Future Volume (veh/h)	3	2	12	95	1	124	9	207	77	190	275	1
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	3	2	13	123	1	161	13	230	86	229	331	1
Peak Hour Factor	0.92	0.92	0.92	0.77	0.77	0.77	0.70	0.90	0.90	0.83	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	156	30	196	280	1	221	752	1876	837	817	2302	7
Arrive On Green	0.14	0.14	0.14	0.14	0.14	0.14	0.02	0.53	0.53	0.11	0.63	0.63
Sat Flow, veh/h	1224	216	1402	1310	11	1585	1781	3554	1585	1781	3634	11
Grp Volume(v), veh/h	3	0	15	124	0	161	13	230	86	229	162	170
Grp Sat Flow(s),veh/h/ln	1224	0	1618	1320	0	1585	1781	1777	1585	1781	1777	1868
Q Serve(g_s), s	0.2	0.0	0.6	6.2	0.0	7.1	0.2	2.4	2.0	3.9	2.7	2.7
Cycle Q Clear(g_c), s	7.0	0.0	0.6	6.8	0.0	7.1	0.2	2.4	2.0	3.9	2.7	2.7
Prop In Lane	1.00		0.87	0.99		1.00	1.00		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	156	0	226	282	0	221	752	1876	837	817	1126	1184
V/C Ratio(X)	0.02	0.00	0.07	0.44	0.00	0.73	0.02	0.12	0.10	0.28	0.14	0.14
Avail Cap(c_a), veh/h	477	0	650	650	0	637	930	1876	837	1244	1126	1184
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.4	0.0	27.4	30.4	0.0	30.3	4.6	8.7	8.7	5.6	5.4	5.4
Incr Delay (d2), s/veh	0.0	0.0	0.1	1.1	0.0	4.6	0.0	0.1	0.2	0.2	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.2	2.1	0.0	2.9	0.1	0.9	0.7	1.2	0.9	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.5	0.0	27.6	31.5	0.0	34.8	4.6	8.9	8.9	5.8	5.7	5.7
LnGrp LOS	C	A	C	C	A	C	A	A	A	A	A	A
Approach Vol, veh/h		18			285			329			561	
Approach Delay, s/veh		28.5			33.3			8.7			5.7	
Approach LOS		C			C			A			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	13.4	44.2		15.7	5.7	52.0		15.7				
Change Period (Y+Rc), s	5.5	5.5		5.5	4.5	5.5		5.5				
Max Green Setting (Gmax), s	25.5	28.5		29.5	8.5	46.5		29.5				
Max Q Clear Time (g_c+I1), s	5.9	4.4		9.0	2.2	4.7		9.1				
Green Ext Time (p_c), s	0.6	1.7		0.0	0.0	2.0		1.1				
Intersection Summary												
HCM 6th Ctrl Delay				13.5								
HCM 6th LOS				B								

HCM 6th TWSC
19: Ward Rd & Outerview

PM Existing plus Site (Phase I & II)

Intersection												
Int Delay, s/veh	1.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↵	↵		↵	↑↑	↵	↵	↑↑	↵
Traffic Vol, veh/h	9	0	9	3	0	38	2	274	1	24	453	1
Future Vol, veh/h	9	0	9	3	0	38	2	274	1	24	453	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									
Storage Length	-	-	-	25	-	-	200	-	145	190	-	190
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	57	57	92	47	47	92	92	92	92	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	16	0	10	6	0	41	2	298	1	26	498	1

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	703	853	249	603	853	149	499	0	0	299	0	0
Stage 1	550	550	-	302	302	-	-	-	-	-	-	-
Stage 2	153	303	-	301	551	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	324	295	751	383	295	871	1061	-	-	1259	-	-
Stage 1	487	514	-	682	663	-	-	-	-	-	-	-
Stage 2	834	662	-	683	514	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	303	288	751	372	288	871	1061	-	-	1259	-	-
Mov Cap-2 Maneuver	303	288	-	372	288	-	-	-	-	-	-	-
Stage 1	486	503	-	681	662	-	-	-	-	-	-	-
Stage 2	793	661	-	660	503	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	14.8		10		0.1		0.4	
HCM LOS	B		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1061	-	-	393	372	871	1259	-	-
HCM Lane V/C Ratio	0.002	-	-	0.065	0.017	0.047	0.021	-	-
HCM Control Delay (s)	8.4	-	-	14.8	14.8	9.3	7.9	-	-
HCM Lane LOS	A	-	-	B	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.1	0.1	0.1	-	-

Queues

38: Blue Pkwy & I-470 WB Ramp

PM Existing plus Site (Phase I & II)



Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	255	478	15	271	176	227	39
v/c Ratio	0.38	0.68	0.04	0.34	0.07	0.13	0.05
Control Delay	33.2	39.4	0.2	7.2	5.4	13.4	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.2	39.4	0.2	7.2	5.4	13.4	0.8
Queue Length 50th (ft)	66	136	0	51	15	34	0
Queue Length 95th (ft)	90	167	0	91	28	63	2
Internal Link Dist (ft)		962			586	567	
Turn Bay Length (ft)	425		310	480			135
Base Capacity (vph)	1186	1222	597	937	2430	1806	846
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.39	0.03	0.29	0.07	0.13	0.05

Intersection Summary

HCM 6th Signalized Intersection Summary

38: Blue Pkwy & I-470 WB Ramp

PM Existing plus Site (Phase I & II)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↔↔	↑↑	↗	↖	↑↑			↑↑	↗
Traffic Volume (veh/h)	0	0	0	209	392	12	225	146	0	0	191	33
Future Volume (veh/h)	0	0	0	209	392	12	225	146	0	0	191	33
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No			No		
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				255	478	0	271	176	0	0	227	0
Peak Hour Factor				0.82	0.82	0.82	0.83	0.83	0.83	0.84	0.84	0.84
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				660	679		833	2459	0	0	1929	
Arrive On Green				0.19	0.19	0.00	0.09	0.69	0.00	0.00	0.54	0.00
Sat Flow, veh/h				3456	3554	1585	1781	3647	0	0	3647	1585
Grp Volume(v), veh/h				255	478	0	271	176	0	0	227	0
Grp Sat Flow(s),veh/h/ln				1728	1777	1585	1781	1777	0	0	1777	1585
Q Serve(g_s), s				5.8	11.4	0.0	5.6	1.5	0.0	0.0	2.8	0.0
Cycle Q Clear(g_c), s				5.8	11.4	0.0	5.6	1.5	0.0	0.0	2.8	0.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				660	679		833	2459	0	0	1929	
V/C Ratio(X)				0.39	0.70		0.33	0.07	0.00	0.00	0.12	
Avail Cap(c_a), veh/h				1203	1238		1235	2459	0	0	1929	
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				32.1	34.3	0.0	6.5	4.5	0.0	0.0	10.1	0.0
Incr Delay (d2), s/veh				0.4	1.3	0.0	0.2	0.1	0.0	0.0	0.1	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.4	5.0	0.0	1.9	0.5	0.0	0.0	1.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				32.4	35.6	0.0	6.7	4.6	0.0	0.0	10.3	0.0
LnGrp LOS				C	D		A	A	A	A	B	
Approach Vol, veh/h					733			447			227	
Approach Delay, s/veh					34.5			5.9			10.3	
Approach LOS					C			A			B	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		68.0			13.5	54.5		22.7				
Change Period (Y+Rc), s		* 5.2			* 5.2	* 5.2		5.4				
Max Green Setting (Gmax), s		* 63			* 29	* 29		31.6				
Max Q Clear Time (g_c+I1), s		3.5			7.6	4.8		13.4				
Green Ext Time (p_c), s		1.2			0.8	1.4		3.9				

Intersection Summary

HCM 6th Ctrl Delay	21.5
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Queues

43: Blue Pkwy & I-470 EB Ramp

PM Existing plus Site (Phase I & II)



Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	20	323	503	412	260	21	439
v/c Ratio	0.07	0.32	0.79	0.23	0.28	0.04	0.22
Control Delay	24.1	20.1	20.7	13.6	3.6	10.2	9.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.1	20.1	20.7	13.6	3.6	10.2	9.7
Queue Length 50th (ft)	8	58	100	42	0	4	46
Queue Length 95th (ft)	19	85	195	118	42	17	101
Internal Link Dist (ft)		816		542			586
Turn Bay Length (ft)	230		230		280	780	
Base Capacity (vph)	1339	2643	1246	1828	943	569	2014
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.12	0.40	0.23	0.28	0.04	0.22

Intersection Summary

HCM 6th Signalized Intersection Summary

43: Blue Pkwy & I-470 EB Ramp

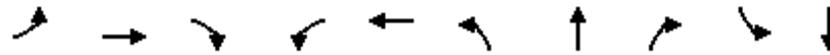
PM Existing plus Site (Phase I & II)

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 						 			 	
Traffic Volume (veh/h)	18	284	443	0	0	0	0	354	224	18	382	0
Future Volume (veh/h)	18	284	443	0	0	0	0	354	224	18	382	0
Initial Q (Qb), veh	0	0	0					0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	20	323	503				0	412	260	21	439	0
Peak Hour Factor	0.88	0.88	0.88				0.86	0.86	0.86	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	662	1321	589				0	1531	683	404	1812	0
Arrive On Green	0.37	0.37	0.37				0.00	0.43	0.43	0.02	0.51	0.00
Sat Flow, veh/h	1781	3554	1585				0	3647	1585	1781	3647	0
Grp Volume(v), veh/h	20	323	503				0	412	260	21	439	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585				0	1777	1585	1781	1777	0
Q Serve(g_s), s	0.6	5.0	23.5				0.0	6.0	9.0	0.5	5.6	0.0
Cycle Q Clear(g_c), s	0.6	5.0	23.5				0.0	6.0	9.0	0.5	5.6	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	662	1321	589				0	1531	683	404	1812	0
V/C Ratio(X)	0.03	0.24	0.85				0.00	0.27	0.38	0.05	0.24	0.00
Avail Cap(c_a), veh/h	1208	2409	1075				0	1531	683	506	1812	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	16.0	17.4	23.2				0.0	14.7	15.6	11.5	11.0	0.0
Incr Delay (d2), s/veh	0.0	0.1	3.6				0.0	0.4	1.6	0.1	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	2.0	8.8				0.0	2.4	3.4	0.2	2.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.1	17.5	26.9				0.0	15.2	17.2	11.5	11.3	0.0
LnGrp LOS	B	B	C				A	B	B	B	B	A
Approach Vol, veh/h		846						672			460	
Approach Delay, s/veh		23.1						16.0			11.3	
Approach LOS		C						B			B	
Timer - Assigned Phs	1	2		4				6				
Phs Duration (G+Y+Rc), s	6.4	39.6		34.4				46.0				
Change Period (Y+Rc), s	4.5	5.0		4.5				5.0				
Max Green Setting (Gmax), s	6.5	30.0		54.5				41.0				
Max Q Clear Time (g_c+I1), s	2.5	11.0		25.5				7.6				
Green Ext Time (p_c), s	0.0	3.5		4.4				3.2				
Intersection Summary												
HCM 6th Ctrl Delay			17.9									
HCM 6th LOS			B									

Queues

46: Blue Pkwy & Ward Rd & West Dealership Access

PM Existing plus Site (Phase I & II)



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	41	539	389	121	408	262	10	103	10	57
v/c Ratio	0.29	0.63	0.40	0.38	0.37	0.39	0.01	0.12	0.01	0.07
Control Delay	47.5	34.6	4.2	44.2	26.8	18.3	14.9	3.8	14.7	6.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.5	34.6	4.2	44.2	26.8	18.3	14.9	3.8	14.7	6.7
Queue Length 50th (ft)	23	147	0	35	104	91	3	0	3	4
Queue Length 95th (ft)	61	207	36	54	117	190	14	30	14	28
Internal Link Dist (ft)		383			346		526			358
Turn Bay Length (ft)	200		360	325				210	150	
Base Capacity (vph)	182	1231	1223	448	1346	671	932	843	707	856
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.44	0.32	0.27	0.30	0.39	0.01	0.12	0.01	0.07

Intersection Summary

HCM 6th Signalized Intersection Summary

46: Blue Pkwy & Ward Rd & West Dealership Access

PM Existing plus Site (Phase I & II)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	38	485	350	88	296	3	238	9	94	9	13	40
Future Volume (veh/h)	38	485	350	88	296	3	238	9	94	9	13	40
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	41	539	389	121	405	3	262	10	103	10	14	43
Peak Hour Factor	0.92	0.90	0.90	0.73	0.73	0.92	0.91	0.91	0.91	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	65	787	618	227	928	7	787	1008	854	770	218	670
Arrive On Green	0.04	0.22	0.22	0.07	0.26	0.26	0.54	0.54	0.54	0.54	0.54	0.54
Sat Flow, veh/h	1781	3554	2790	3456	3616	27	1346	1870	1585	1280	404	1242
Grp Volume(v), veh/h	41	539	389	121	199	209	262	10	103	10	0	57
Grp Sat Flow(s),veh/h/ln	1781	1777	1395	1728	1777	1866	1346	1870	1585	1280	0	1647
Q Serve(g_s), s	2.0	12.0	10.9	2.9	8.1	8.1	10.0	0.2	2.8	0.3	0.0	1.4
Cycle Q Clear(g_c), s	2.0	12.0	10.9	2.9	8.1	8.1	11.4	0.2	2.8	0.5	0.0	1.4
Prop In Lane	1.00		1.00	1.00		0.01	1.00		1.00	1.00		0.75
Lane Grp Cap(c), veh/h	65	787	618	227	456	479	787	1008	854	770	0	888
V/C Ratio(X)	0.63	0.69	0.63	0.53	0.44	0.44	0.33	0.01	0.12	0.01	0.00	0.06
Avail Cap(c_a), veh/h	196	1318	1035	481	721	757	787	1008	854	770	0	888
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	0.00	1.00
Uniform Delay (d), s/veh	41.0	30.8	30.4	39.0	26.8	26.8	12.2	9.2	9.8	9.3	0.0	9.5
Incr Delay (d2), s/veh	9.9	1.1	1.1	1.9	0.7	0.6	1.1	0.0	0.3	0.0	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	1.0	5.1	3.7	1.3	3.4	3.6	3.0	0.1	1.0	0.1	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.9	31.9	31.5	41.0	27.5	27.5	13.3	9.2	10.1	9.4	0.0	9.6
LnGrp LOS	D	C	C	D	C	C	B	A	B	A	A	A
Approach Vol, veh/h		969			529			375				67
Approach Delay, s/veh		32.5			30.6			12.3				9.6
Approach LOS		C			C			B				A
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		51.5	10.7	24.1		51.5	7.6	27.1				
Change Period (Y+Rc), s		5.0	5.0	5.0		* 5	4.5	5.0				
Max Green Setting (Gmax), s		46.0	12.0	32.0		* 47	9.5	35.0				
Max Q Clear Time (g_c+I1), s		13.4	4.9	14.0		3.4	4.0	10.1				
Green Ext Time (p_c), s		1.2	0.2	5.1		0.4	0.0	2.4				
Intersection Summary												
HCM 6th Ctrl Delay			27.3									
HCM 6th LOS			C									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Queues

48: Blue Pkwy & North Access

PM Existing plus Site (Phase I & II)



Lane Group	EBL	EBR	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	114	82	8	39	279	7	334	171
v/c Ratio	0.38	0.11	0.01	0.20	0.12	0.04	0.16	0.12
Control Delay	27.1	0.3	0.0	32.1	7.2	32.7	9.3	1.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.1	0.3	0.0	32.1	7.2	32.7	9.3	1.1
Queue Length 50th (ft)	35	0	0	12	15	2	18	0
Queue Length 95th (ft)	73	0	0	48	70	16	88	20
Internal Link Dist (ft)			394		623		526	
Turn Bay Length (ft)	110			290		290		155
Base Capacity (vph)	517	1058	894	355	2238	272	2083	1445
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.08	0.01	0.11	0.12	0.03	0.16	0.12

Intersection Summary

HCM 6th Signalized Intersection Summary

48: Blue Pkwy & North Access

PM Existing plus Site (Phase I & II)

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	89	0	64	0	0	4	35	248	0	6	297	152
Future Volume (veh/h)	89	0	64	0	0	4	35	248	0	6	297	152
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	114	0	82	0	0	8	39	279	0	7	334	171
Peak Hour Factor	0.78	0.78	0.78	0.50	0.50	0.50	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	338	422	358	202	0	114	82	1905	730	19	1781	918
Arrive On Green	0.08	0.00	0.23	0.00	0.00	0.07	0.05	0.54	0.00	0.01	0.50	0.50
Sat Flow, veh/h	1781	1870	1585	1781	0	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	114	0	82	0	0	8	39	279	0	7	334	171
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	3.9	0.0	2.9	0.0	0.0	0.3	1.5	2.7	5.2	0.3	3.6	3.5
Cycle Q Clear(g_c), s	3.9	0.0	2.9	0.0	0.0	0.3	1.5	2.7	5.2	0.3	3.6	3.5
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	338	422	358	202	0	114	82	1905	730	19	1781	918
V/C Ratio(X)	0.34	0.00	0.23	0.00	0.00	0.07	0.48	0.15	0.00	0.36	0.19	0.19
Avail Cap(c_a), veh/h	661	861	730	355	0	457	332	1905	730	254	1781	918
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	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.8	0.0	21.7	0.0	0.0	29.7	31.9	8.0	0.0	33.7	9.4	6.8
Incr Delay (d2), s/veh	0.6	0.0	0.3	0.0	0.0	0.3	4.3	0.2	0.0	10.8	0.2	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.0	1.1	0.0	0.0	0.1	0.7	0.9	0.0	0.2	1.3	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.3	0.0	22.0	0.0	0.0	30.0	36.2	8.2	0.0	44.5	9.7	7.3
LnGrp LOS	C	A	C	A	A	C	D	A	A	D	A	A
Approach Vol, veh/h		196			8			318			512	
Approach Delay, s/veh		24.0			30.0			11.6			9.3	
Approach LOS		C			C			B			A	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.9	42.0	0.0	20.7	8.3	39.6	10.6	10.1				
Change Period (Y+Rc), s	* 5.2	* 5.2	* 5.2	* 5.2	* 5.2	* 5.2	* 5.2	* 5.2				
Max Green Setting (Gmax), s	* 9.8	* 37	* 6	* 32	* 13	* 34	* 18	* 20				
Max Q Clear Time (g_c+I1), s	2.3	7.2	0.0	4.9	3.5	5.6	5.9	2.3				
Green Ext Time (p_c), s	0.0	1.9	0.0	0.2	0.0	2.9	0.2	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			13.0									
HCM 6th LOS			B									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Queues

51: Blue Pkwy & Midway Access

PM Existing plus Site (Phase I & II)



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	62	113	7	28	55	256	1	8	237	39
v/c Ratio	0.24	0.14	0.03	0.16	0.16	0.10	0.00	0.03	0.10	0.03
Control Delay	24.8	0.4	22.2	19.4	31.5	6.3	0.0	32.7	9.0	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.8	0.4	22.2	19.4	31.5	6.3	0.0	32.7	9.0	0.8
Queue Length 50th (ft)	22	0	2	2	9	10	0	1	20	0
Queue Length 95th (ft)	40	0	9	17	29	55	0	8	56	6
Internal Link Dist (ft)		404		466		564			623	
Turn Bay Length (ft)					240		170	240		300
Base Capacity (vph)	449	1069	353	608	714	2510	1419	502	2260	1374
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.11	0.02	0.05	0.08	0.10	0.00	0.02	0.10	0.03

Intersection Summary

HCM 6th Signalized Intersection Summary

51: Blue Pkwy & Midway Access

PM Existing plus Site (Phase I & II)

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	43	0	78	5	4	15	48	225	1	7	218	36
Future Volume (veh/h)	43	0	78	5	4	15	48	225	1	7	218	36
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	62	0	113	7	6	22	55	256	1	8	237	39
Peak Hour Factor	0.69	0.69	0.69	0.67	0.67	0.67	0.88	0.88	0.88	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	279	0	181	186	25	92	167	2098	950	36	1963	958
Arrive On Green	0.05	0.00	0.11	0.01	0.07	0.07	0.05	0.59	0.59	0.01	0.55	0.55
Sat Flow, veh/h	1781	0	1585	1781	351	1287	3456	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	62	0	113	7	0	28	55	256	1	8	237	39
Grp Sat Flow(s),veh/h/ln	1781	0	1585	1781	0	1639	1728	1777	1585	1728	1777	1585
Q Serve(g_s), s	2.1	0.0	4.4	0.2	0.0	1.1	1.0	2.1	0.0	0.1	2.1	0.7
Cycle Q Clear(g_c), s	2.1	0.0	4.4	0.2	0.0	1.1	1.0	2.1	0.0	0.1	2.1	0.7
Prop In Lane	1.00		1.00	1.00		0.79	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	279	0	181	186	0	117	167	2098	950	36	1963	958
V/C Ratio(X)	0.22	0.00	0.63	0.04	0.00	0.24	0.33	0.12	0.00	0.22	0.12	0.04
Avail Cap(c_a), veh/h	610	0	693	456	0	591	715	2098	950	503	1963	958
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.7	0.0	27.6	27.7	0.0	28.6	30.0	5.9	5.2	32.0	7.0	5.2
Incr Delay (d2), s/veh	0.4	0.0	3.5	0.1	0.0	1.0	1.1	0.1	0.0	3.1	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	1.8	0.1	0.0	0.4	0.4	0.7	0.0	0.1	0.7	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.1	0.0	31.1	27.8	0.0	29.6	31.1	6.0	5.2	35.1	7.1	5.3
LnGrp LOS	C	A	C	C	A	C	C	A	A	D	A	A
Approach Vol, veh/h		175			35			312			284	
Approach Delay, s/veh		29.3			29.3			10.4			7.7	
Approach LOS		C			C			B			A	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.2	43.0	5.1	11.9	7.7	40.5	7.9	9.2				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	9.5	38.5	10.5	28.5	13.5	34.5	15.5	23.5				
Max Q Clear Time (g_c+I1), s	2.1	4.1	2.2	6.4	3.0	4.1	4.1	3.1				
Green Ext Time (p_c), s	0.0	1.8	0.0	0.6	0.1	1.7	0.1	0.1				
Intersection Summary												
HCM 6th Ctrl Delay			14.4									
HCM 6th LOS			B									

Queues

54: Blue Pkwy & South Access

PM Existing plus Site (Phase I & II)



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	59	6	339	46	51	323	216	37	11	301	134
v/c Ratio	0.19	0.03	0.70	0.18	0.24	0.56	0.10	0.03	0.07	0.22	0.13
Control Delay	22.1	29.2	12.2	23.1	17.2	31.8	8.2	1.0	35.1	16.6	2.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.1	29.2	12.2	23.1	17.2	31.8	8.2	1.0	35.1	16.6	2.5
Queue Length 50th (ft)	19	2	0	15	4	64	17	0	4	44	0
Queue Length 95th (ft)	47	12	48	38	31	123	54	6	22	92	26
Internal Link Dist (ft)		380			478		1188			564	
Turn Bay Length (ft)						170		260	310		325
Base Capacity (vph)	356	912	948	261	754	1078	2132	1223	168	1390	1032
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.01	0.36	0.18	0.07	0.30	0.10	0.03	0.07	0.22	0.13

Intersection Summary

HCM 6th Signalized Intersection Summary

54: Blue Pkwy & South Access

PM Existing plus Site (Phase I & II)

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	48	5	278	37	9	32	291	194	33	10	277	123
Future Volume (veh/h)	48	5	278	37	9	32	291	194	33	10	277	123
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	59	6	339	46	11	40	323	216	37	11	301	134
Peak Hour Factor	0.82	0.82	0.82	0.81	0.81	0.81	0.90	0.90	0.90	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	455	454	385	403	84	305	432	1733	835	24	1337	667
Arrive On Green	0.04	0.24	0.24	0.04	0.24	0.24	0.13	0.49	0.49	0.01	0.38	0.38
Sat Flow, veh/h	1781	1870	1585	1781	354	1285	3456	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	59	6	339	46	0	51	323	216	37	11	301	134
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1639	1728	1777	1585	1781	1777	1585
Q Serve(g_s), s	2.0	0.2	17.1	1.6	0.0	2.0	7.5	2.8	0.9	0.5	4.8	4.4
Cycle Q Clear(g_c), s	2.0	0.2	17.1	1.6	0.0	2.0	7.5	2.8	0.9	0.5	4.8	4.4
Prop In Lane	1.00		1.00	1.00		0.78	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	455	454	385	403	0	389	432	1733	835	24	1337	667
V/C Ratio(X)	0.13	0.01	0.88	0.11	0.00	0.13	0.75	0.12	0.04	0.46	0.23	0.20
Avail Cap(c_a), veh/h	579	754	639	472	0	602	895	1733	835	139	1337	667
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.2	23.9	30.3	22.3	0.0	24.9	35.1	11.6	9.5	40.7	17.7	15.2
Incr Delay (d2), s/veh	0.1	0.0	7.9	0.1	0.0	0.2	2.6	0.1	0.1	13.0	0.4	0.7
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	0.8	0.1	7.1	0.7	0.0	0.8	3.2	1.1	0.3	0.3	2.0	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.3	23.9	38.2	22.4	0.0	25.1	37.7	11.8	9.6	53.6	18.0	15.9
LnGrp LOS	C	C	D	C	A	C	D	B	A	D	B	B
Approach Vol, veh/h		404			97			576			446	
Approach Delay, s/veh		35.7			23.8			26.2			18.3	
Approach LOS		D			C			C			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.6	45.0	7.8	24.7	14.9	35.7	8.2	24.2				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	6.5	40.5	6.5	33.5	21.5	25.5	9.5	30.5				
Max Q Clear Time (g_c+I1), s	2.5	4.8	3.6	19.1	9.5	6.8	4.0	4.0				
Green Ext Time (p_c), s	0.0	1.6	0.0	1.1	0.9	2.2	0.0	0.2				
Intersection Summary												
HCM 6th Ctrl Delay			26.2									
HCM 6th LOS			C									

HCM 6th TWSC
1: Missouri Rd & Ward Rd

AM Future

Intersection												
Int Delay, s/veh	7.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	190	324	3	3	385	15	3	0	3	88	0	129
Future Vol, veh/h	190	324	3	3	385	15	3	0	3	88	0	129
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									
Storage Length	210	-	160	215	-	215	-	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	80	80	80	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	211	360	3	4	481	19	3	0	3	96	0	140

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	500	0	0	363	0	0	1031	1290	180	1091	1274	241
Stage 1	-	-	-	-	-	-	782	782	-	489	489	-
Stage 2	-	-	-	-	-	-	249	508	-	602	785	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1060	-	-	1192	-	-	187	162	832	169	166	760
Stage 1	-	-	-	-	-	-	353	403	-	529	548	-
Stage 2	-	-	-	-	-	-	733	537	-	453	402	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1060	-	-	1192	-	-	129	129	832	142	133	760
Mov Cap-2 Maneuver	-	-	-	-	-	-	129	129	-	142	133	-
Stage 1	-	-	-	-	-	-	283	323	-	424	546	-
Stage 2	-	-	-	-	-	-	596	535	-	361	322	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	3.4			0.1			21.6			35.3		
HCM LOS							C			E		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	223	1060	-	-	1192	-	-	142	760
HCM Lane V/C Ratio	0.029	0.199	-	-	0.003	-	-	0.674	0.184
HCM Control Delay (s)	21.6	9.2	-	-	8	-	-	71.3	10.8
HCM Lane LOS	C	A	-	-	A	-	-	F	B
HCM 95th %tile Q(veh)	0.1	0.7	-	-	0	-	-	3.8	0.7

HCM 6th TWSC
4: Ward Rd & Dealership RIRO Access

AM Future

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↑
Traffic Vol, veh/h	0	517	510	7	0	7
Future Vol, veh/h	0	517	510	7	0	7
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	90	90	80	80	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	574	638	9	0	8
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	-	0	-	0	-	324
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	-	0	672
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	672
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	WB	SB			
HCM Control Delay, s	0	0	10.4			
HCM LOS						B
Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1		
Capacity (veh/h)	-	-	-	672		
HCM Lane V/C Ratio	-	-	-	0.011		
HCM Control Delay (s)	-	-	-	10.4		
HCM Lane LOS	-	-	-	B		
HCM 95th %tile Q(veh)	-	-	-	0		

HCM 6th TWSC
9: Ward Rd & Commercial RIRO

AM Future

Intersection						
Int Delay, s/veh	1.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↑		↑
Traffic Vol, veh/h	0	415	288	48	0	113
Future Vol, veh/h	0	415	288	48	0	113
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	200	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	80	80	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	461	360	60	0	123

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	-	0	-	0	180
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	-	832
Stage 1	0	-	-	-	-
Stage 2	0	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	832
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

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

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	832
HCM Lane V/C Ratio	-	-	-	0.148
HCM Control Delay (s)	-	-	-	10.1
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.5

Queues

15: Ward Rd & Tudor Rd

AM Future



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	1	7	100	254	37	374	200	383	794
v/c Ratio	0.00	0.01	0.49	0.56	0.08	0.23	0.24	0.52	0.36
Control Delay	27.0	0.0	38.7	9.4	5.7	13.6	3.4	7.7	8.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.0	0.0	38.7	9.4	5.7	13.6	3.4	7.7	8.6
Queue Length 50th (ft)	0	0	46	0	4	51	0	55	97
Queue Length 95th (ft)	5	0	92	35	14	89	28	83	113
Internal Link Dist (ft)		394	448			689			1243
Turn Bay Length (ft)					200		90	150	
Base Capacity (vph)	407	675	408	656	444	1647	843	970	2215
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.01	0.25	0.39	0.08	0.23	0.24	0.39	0.36

Intersection Summary

HCM 6th Signalized Intersection Summary

15: Ward Rd & Tudor Rd

AM Future

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	0	6	77	1	198	34	299	160	264	547	1
Future Volume (veh/h)	1	0	6	77	1	198	34	299	160	264	547	1
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1	0	7	99	1	254	37	374	200	383	793	1
Peak Hour Factor	0.92	0.92	0.92	0.78	0.92	0.78	0.92	0.80	0.80	0.69	0.69	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	383	0	302	351	3	302	465	1623	724	681	2115	3
Arrive On Green	0.19	0.00	0.19	0.19	0.19	0.19	0.04	0.46	0.46	0.15	0.58	0.58
Sat Flow, veh/h	1416	0	1585	1372	16	1585	1781	3554	1585	1781	3642	5
Grp Volume(v), veh/h	1	0	7	100	0	254	37	374	200	383	387	407
Grp Sat Flow(s),veh/h/ln	1416	0	1585	1388	0	1585	1781	1777	1585	1781	1777	1870
Q Serve(g_s), s	0.0	0.0	0.3	4.9	0.0	12.4	0.9	5.1	6.3	8.7	9.3	9.3
Cycle Q Clear(g_c), s	0.0	0.0	0.3	5.2	0.0	12.4	0.9	5.1	6.3	8.7	9.3	9.3
Prop In Lane	1.00		1.00	0.99		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	383	0	302	354	0	302	465	1623	724	681	1032	1086
V/C Ratio(X)	0.00	0.00	0.02	0.28	0.00	0.84	0.08	0.23	0.28	0.56	0.37	0.37
Avail Cap(c_a), veh/h	530	0	465	482	0	446	525	1623	724	1009	1032	1086
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.2	0.0	26.3	28.5	0.0	31.2	10.6	13.2	13.5	8.3	9.0	9.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.4	0.0	9.1	0.1	0.3	0.9	0.7	1.0	1.0
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	0.0	0.0	0.1	1.7	0.0	5.3	0.3	2.0	2.3	2.9	3.4	3.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.2	0.0	26.4	28.9	0.0	40.4	10.6	13.5	14.5	9.1	10.0	10.0
LnGrp LOS	C	A	C	C	A	D	B	B	B	A	B	A
Approach Vol, veh/h		8			354			611			1177	
Approach Delay, s/veh		26.4			37.1			13.7			9.7	
Approach LOS		C			D			B			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	17.2	42.1		20.7	7.3	52.0		20.7				
Change Period (Y+Rc), s	5.5	5.5		* 5.5	4.5	5.5		5.5				
Max Green Setting (Gmax), s	26.5	24.5		* 24	5.5	46.5		22.5				
Max Q Clear Time (g_c+I1), s	10.7	8.3		2.3	2.9	11.3		14.4				
Green Ext Time (p_c), s	1.0	2.9		0.0	0.0	5.4		0.9				

Intersection Summary

HCM 6th Ctrl Delay	15.4
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th TWSC
19: Ward Rd & Outerview

AM Future

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	3	0	4	12	0	16	13	317	1	74	331	3
Future Vol, veh/h	3	0	4	12	0	16	13	317	1	74	331	3
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									
Storage Length	-	-	-	25	-	-	200	-	145	190	-	190
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	63	63	92	79	79	92	95	95	95	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	0	4	15	0	17	14	334	1	93	414	4

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	795	963	207	755	966	167	418	0	0	335	0	0
Stage 1	600	600	-	362	362	-	-	-	-	-	-	-
Stage 2	195	363	-	393	604	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	278	254	799	298	253	848	1138	-	-	1221	-	-
Stage 1	455	488	-	629	624	-	-	-	-	-	-	-
Stage 2	788	623	-	603	486	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	254	232	799	277	231	848	1138	-	-	1221	-	-
Mov Cap-2 Maneuver	254	232	-	277	231	-	-	-	-	-	-	-
Stage 1	450	451	-	621	617	-	-	-	-	-	-	-
Stage 2	762	616	-	554	449	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	14.8		13.7		0.3		1.5	
HCM LOS	B		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1138	-	-	377	277	848	1221	-	-
HCM Lane V/C Ratio	0.012	-	-	0.024	0.055	0.021	0.076	-	-
HCM Control Delay (s)	8.2	-	-	14.8	18.7	9.3	8.2	-	-
HCM Lane LOS	A	-	-	B	C	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.2	0.1	0.2	-	-

Queues

38: Blue Pkwy & I-470 WB Ramp

AM Future



Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	389	262	56	240	266	201	36
v/c Ratio	0.66	0.43	0.17	0.29	0.11	0.11	0.04
Control Delay	40.1	35.0	4.7	5.8	4.6	11.3	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.1	35.0	4.7	5.8	4.6	11.3	0.3
Queue Length 50th (ft)	105	69	0	38	21	27	0
Queue Length 95th (ft)	136	96	13	69	35	49	0
Internal Link Dist (ft)		962			586	567	
Turn Bay Length (ft)	425		310	480			135
Base Capacity (vph)	1225	1262	617	973	2501	1897	886
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.32	0.21	0.09	0.25	0.11	0.11	0.04

Intersection Summary

HCM 6th Signalized Intersection Summary

38: Blue Pkwy & I-470 WB Ramp

AM Future

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	319	215	46	199	221	0	0	169	30
Future Volume (veh/h)	0	0	0	319	215	46	199	221	0	0	169	30
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No			No		
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				389	262	0	240	266	0	0	201	0
Peak Hour Factor				0.82	0.82	0.82	0.83	0.83	0.83	0.84	0.84	0.84
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				566	582		870	2535	0	0	2028	
Arrive On Green				0.16	0.16	0.00	0.08	0.71	0.00	0.00	0.57	0.00
Sat Flow, veh/h				3456	3554	1585	1781	3647	0	0	3647	1585
Grp Volume(v), veh/h				389	262	0	240	266	0	0	201	0
Grp Sat Flow(s),veh/h/ln				1728	1777	1585	1781	1777	0	0	1777	1585
Q Serve(g_s), s				9.3	5.8	0.0	4.4	2.0	0.0	0.0	2.3	0.0
Cycle Q Clear(g_c), s				9.3	5.8	0.0	4.4	2.0	0.0	0.0	2.3	0.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				566	582		870	2535	0	0	2028	
V/C Ratio(X)				0.69	0.45		0.28	0.10	0.00	0.00	0.10	
Avail Cap(c_a), veh/h				1244	1280		1306	2535	0	0	2028	
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				34.6	33.1	0.0	5.5	3.9	0.0	0.0	8.6	0.0
Incr Delay (d2), s/veh				1.5	0.5	0.0	0.2	0.1	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				3.9	2.5	0.0	1.4	0.6	0.0	0.0	0.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				36.1	33.7	0.0	5.7	4.0	0.0	0.0	8.6	0.0
LnGrp LOS				D	C		A	A	A	A	A	
Approach Vol, veh/h					651			506			201	
Approach Delay, s/veh					35.1			4.8			8.6	
Approach LOS					D			A			A	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		68.0			12.5	55.5		19.8				
Change Period (Y+Rc), s		* 5.4			* 5.4	* 5.4		5.4				
Max Green Setting (Gmax), s		* 63			* 29	* 29		31.6				
Max Q Clear Time (g_c+I1), s		4.0			6.4	4.3		11.3				
Green Ext Time (p_c), s		1.9			0.7	1.2		3.1				
Intersection Summary												
HCM 6th Ctrl Delay				19.9								
HCM 6th LOS				B								
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												
Unsignalized Delay for [EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.												

Queues

43: Blue Pkwy & I-470 EB Ramp

AM Future



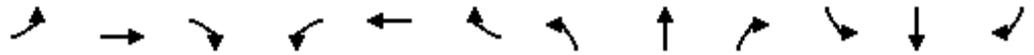
Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	55	448	518	437	163	25	534
v/c Ratio	0.09	0.36	0.78	0.27	0.20	0.05	0.29
Control Delay	16.2	19.4	22.8	18.4	5.0	14.1	13.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.2	19.4	22.8	18.4	5.0	14.1	13.9
Queue Length 50th (ft)	18	85	149	59	0	6	75
Queue Length 95th (ft)	39	115	245	155	41	24	153
Internal Link Dist (ft)		816		542			586
Turn Bay Length (ft)	230		230		280	780	
Base Capacity (vph)	1198	2395	1129	1621	813	492	1813
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.19	0.46	0.27	0.20	0.05	0.29

Intersection Summary

HCM 6th Signalized Intersection Summary

43: Blue Pkwy & I-470 EB Ramp

AM Future

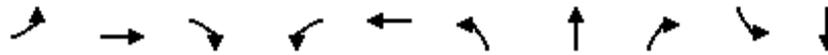


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	48	394	456	0	0	0	0	376	140	22	465	0
Future Volume (veh/h)	48	394	456	0	0	0	0	376	140	22	465	0
Initial Q (Qb), veh	0	0	0					0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00					1.00	1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00					1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	55	448	518				0	437	163	25	534	0
Peak Hour Factor	0.88	0.88	0.88				0.86	0.86	0.86	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	691	1378	614				0	1367	610	426	1711	0
Arrive On Green	0.39	0.39	0.39				0.00	0.38	0.38	0.03	0.48	0.00
Sat Flow, veh/h	1781	3554	1585				0	3647	1585	1781	3647	0
Grp Volume(v), veh/h	55	448	518				0	437	163	25	534	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585				0	1777	1585	1781	1777	0
Q Serve(g_s), s	1.6	7.4	25.0				0.0	7.3	5.9	0.7	7.7	0.0
Cycle Q Clear(g_c), s	1.6	7.4	25.0				0.0	7.3	5.9	0.7	7.7	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	691	1378	614				0	1367	610	426	1711	0
V/C Ratio(X)	0.08	0.33	0.84				0.00	0.32	0.27	0.06	0.31	0.00
Avail Cap(c_a), veh/h	1133	2260	1008				0	1367	610	528	1711	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	16.3	18.0	23.4				0.0	18.2	17.8	13.9	13.3	0.0
Incr Delay (d2), s/veh	0.0	0.1	3.6				0.0	0.6	1.1	0.1	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	3.0	9.4				0.0	3.0	2.3	0.3	3.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.3	18.2	27.0				0.0	18.8	18.8	14.0	13.8	0.0
LnGrp LOS	B	B	C				A	B	B	B	B	A
Approach Vol, veh/h		1021						600			559	
Approach Delay, s/veh		22.5						18.8			13.8	
Approach LOS		C						B			B	
Timer - Assigned Phs	1	2		4				6				
Phs Duration (G+Y+Rc), s	8.2	37.8		38.1				46.0				
Change Period (Y+Rc), s	5.5	5.5		5.5				5.5				
Max Green Setting (Gmax), s	7.5	27.5		53.5				40.5				
Max Q Clear Time (g_c+I1), s	2.7	9.3		27.0				9.7				
Green Ext Time (p_c), s	0.0	3.3		5.6				3.9				
Intersection Summary												
HCM 6th Ctrl Delay			19.3									
HCM 6th LOS			B									

Queues

46: Blue Pkwy & Ward Rd & West Dealership Access

AM Future



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	109	526	390	184	463	177	16	49	7	34
v/c Ratio	0.50	0.60	0.40	0.46	0.49	0.28	0.02	0.06	0.01	0.04
Control Delay	43.6	31.2	4.0	39.8	29.0	17.5	15.5	2.9	15.5	9.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.6	31.2	4.0	39.8	29.0	17.5	15.5	2.9	15.5	9.4
Queue Length 50th (ft)	55	129	0	47	112	56	4	0	2	4
Queue Length 95th (ft)	113	187	35	76	146	107	18	9	11	24
Internal Link Dist (ft)		383			346		526			358
Turn Bay Length (ft)	200		360	325				210	150	
Base Capacity (vph)	431	1471	1386	672	1300	633	862	769	652	807
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.36	0.28	0.27	0.36	0.28	0.02	0.06	0.01	0.04

Intersection Summary

HCM 6th Signalized Intersection Summary

46: Blue Pkwy & Ward Rd & West Dealership Access

AM Future



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	473	351	147	364	7	140	15	39	6	13	18
Future Volume (veh/h)	100	473	351	147	364	7	140	15	39	6	13	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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	109	526	390	184	455	8	177	16	49	7	14	20
Peak Hour Factor	0.92	0.90	0.90	0.80	0.80	0.92	0.79	0.92	0.79	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	142	812	638	280	821	14	772	945	801	792	352	502
Arrive On Green	0.08	0.23	0.23	0.08	0.23	0.23	0.51	0.51	0.51	0.51	0.51	0.51
Sat Flow, veh/h	1781	3554	2790	3456	3573	63	1375	1870	1585	1397	696	995
Grp Volume(v), veh/h	109	526	390	184	226	237	177	16	49	7	0	34
Grp Sat Flow(s),veh/h/ln	1781	1777	1395	1728	1777	1859	1375	1870	1585	1397	0	1691
Q Serve(g_s), s	4.7	10.5	9.8	4.0	8.8	8.8	5.8	0.3	1.2	0.2	0.0	0.8
Cycle Q Clear(g_c), s	4.7	10.5	9.8	4.0	8.8	8.8	6.6	0.3	1.2	0.5	0.0	0.8
Prop In Lane	1.00		1.00	1.00		0.03	1.00		1.00	1.00		0.59
Lane Grp Cap(c), veh/h	142	812	638	280	408	427	772	945	801	792	0	854
V/C Ratio(X)	0.77	0.65	0.61	0.66	0.55	0.55	0.23	0.02	0.06	0.01	0.00	0.04
Avail Cap(c_a), veh/h	467	1590	1249	729	704	737	772	945	801	792	0	854
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	0.00	1.00
Uniform Delay (d), s/veh	35.3	27.3	27.1	34.9	26.6	26.6	11.4	9.7	9.9	9.8	0.0	9.8
Incr Delay (d2), s/veh	8.3	0.9	1.0	2.6	1.2	1.1	0.7	0.0	0.1	0.0	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	2.3	4.4	3.2	1.8	3.7	3.9	1.8	0.1	0.4	0.1	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.6	28.2	28.0	37.5	27.8	27.7	12.1	9.7	10.0	9.8	0.0	9.9
LnGrp LOS	D	C	C	D	C	C	B	A	B	A	A	A
Approach Vol, veh/h		1025			647			242				41
Approach Delay, s/veh		29.8			30.5			11.6				9.9
Approach LOS		C			C			B				A
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		44.5	10.8	22.9		44.5	10.7	23.0				
Change Period (Y+Rc), s		5.0	4.5	5.0		* 5	4.5	5.0				
Max Green Setting (Gmax), s		39.0	16.5	35.0		* 40	20.5	31.0				
Max Q Clear Time (g_c+I1), s		8.6	6.0	12.5		2.8	6.7	10.8				
Green Ext Time (p_c), s		0.8	0.4	5.4		0.2	0.2	2.7				

Intersection Summary

HCM 6th Ctrl Delay	27.3
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Queues

48: Blue Pkwy & North Access

AM Future



Lane Group	EBL	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	34	13	4	1	23	172	4	10	449	100
v/c Ratio	0.16	0.02	0.02	0.00	0.13	0.06	0.00	0.06	0.17	0.07
Control Delay	27.0	0.1	25.2	0.0	31.1	4.7	0.0	31.1	4.9	0.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.0	0.1	25.2	0.0	31.1	4.7	0.0	31.1	4.9	0.9
Queue Length 50th (ft)	12	0	1	0	8	6	0	3	17	0
Queue Length 95th (ft)	37	0	9	0	34	37	0	20	93	14
Internal Link Dist (ft)				394		623			526	
Turn Bay Length (ft)	110				290		210	290		155
Base Capacity (vph)	375	892	278	1003	330	2680	1464	278	2670	1502
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.01	0.01	0.00	0.07	0.06	0.00	0.04	0.17	0.07

Intersection Summary

HCM 6th Signalized Intersection Summary

48: Blue Pkwy & North Access

AM Future

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	0	12	4	0	1	21	158	4	9	413	92
Future Volume (veh/h)	31	0	12	4	0	1	21	158	4	9	413	92
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	34	0	13	4	0	1	23	172	4	10	449	100
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	217	114	97	155	0	40	56	2306	1039	27	2249	1070
Arrive On Green	0.04	0.00	0.06	0.01	0.00	0.03	0.03	0.65	0.65	0.02	0.63	0.63
Sat Flow, veh/h	1781	1870	1585	1781	0	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	34	0	13	4	0	1	23	172	4	10	449	100
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	1.2	0.0	0.5	0.1	0.0	0.0	0.8	1.2	0.1	0.4	3.6	1.5
Cycle Q Clear(g_c), s	1.2	0.0	0.5	0.1	0.0	0.0	0.8	1.2	0.1	0.4	3.6	1.5
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	217	114	97	155	0	40	56	2306	1039	27	2249	1070
V/C Ratio(X)	0.16	0.00	0.13	0.03	0.00	0.02	0.41	0.07	0.00	0.37	0.20	0.09
Avail Cap(c_a), veh/h	501	656	556	396	0	461	332	2306	1039	279	2249	1070
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.7	0.0	29.8	31.5	0.0	31.9	31.9	4.3	4.0	32.7	5.2	3.8
Incr Delay (d2), s/veh	0.3	0.0	0.6	0.1	0.0	0.2	4.9	0.1	0.0	8.2	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.2	0.1	0.0	0.0	0.4	0.3	0.0	0.2	1.1	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.0	0.0	30.4	31.6	0.0	32.1	36.7	4.4	4.0	40.9	5.4	4.0
LnGrp LOS	C	A	C	C	A	C	D	A	A	D	A	A
Approach Vol, veh/h		47			5			199			559	
Approach Delay, s/veh		30.2			31.7			8.1			5.8	
Approach LOS		C			C			A			A	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.5	48.0	4.9	8.6	6.6	46.9	7.3	6.2				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	10.5	43.5	9.5	23.5	12.5	41.5	13.5	19.5				
Max Q Clear Time (g_c+I1), s	2.4	3.2	2.1	2.5	2.8	5.6	3.2	2.0				
Green Ext Time (p_c), s	0.0	1.2	0.0	0.0	0.0	3.6	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			7.9									
HCM 6th LOS			A									

Queues

51: Blue Pkwy & Midway Access

AM Future



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	5	43	10	14	45	192	25	55	473	23
v/c Ratio	0.02	0.07	0.04	0.02	0.14	0.08	0.02	0.17	0.19	0.02
Control Delay	25.7	0.2	29.0	0.0	35.0	8.4	0.0	35.0	8.4	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.7	0.2	29.0	0.0	35.0	8.4	0.0	35.0	8.4	0.1
Queue Length 50th (ft)	2	0	4	0	11	24	0	13	64	0
Queue Length 95th (ft)	7	0	12	0	26	42	0	26	82	0
Internal Link Dist (ft)		404		466		564			623	
Turn Bay Length (ft)					240		170	240		300
Base Capacity (vph)	318	834	301	996	522	2504	1192	569	2512	1222
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.05	0.03	0.01	0.09	0.08	0.02	0.10	0.19	0.02

Intersection Summary

HCM 6th Signalized Intersection Summary

51: Blue Pkwy & Midway Access

AM Future



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖↗	↕	↖	↖↗	↕	↖
Traffic Volume (veh/h)	3	0	24	7	0	10	40	169	22	43	369	18
Future Volume (veh/h)	3	0	24	7	0	10	40	169	22	43	369	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.99
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	5	0	43	10	0	14	45	192	25	55	473	23
Peak Hour Factor	0.56	0.56	0.56	0.69	0.69	0.69	0.88	0.88	0.88	0.78	0.78	0.78
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	198	0	93	174	0	104	172	2085	943	194	2107	941
Arrive On Green	0.01	0.00	0.06	0.02	0.00	0.07	0.05	0.59	0.59	0.06	0.59	0.59
Sat Flow, veh/h	1781	0	1562	1781	0	1562	3456	3554	1565	3456	3554	1565
Grp Volume(v), veh/h	5	0	43	10	0	14	45	192	25	55	473	23
Grp Sat Flow(s),veh/h/ln	1781	0	1562	1781	0	1562	1728	1777	1565	1728	1777	1565
Q Serve(g_s), s	0.2	0.0	1.9	0.4	0.0	0.6	0.9	1.7	0.5	1.1	4.4	0.4
Cycle Q Clear(g_c), s	0.2	0.0	1.9	0.4	0.0	0.6	0.9	1.7	0.5	1.1	4.4	0.4
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	198	0	93	174	0	104	172	2085	943	194	2107	941
V/C Ratio(X)	0.03	0.00	0.46	0.06	0.00	0.13	0.26	0.09	0.03	0.28	0.22	0.02
Avail Cap(c_a), veh/h	435	0	485	398	0	485	537	2085	943	586	2107	941
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.9	0.0	32.2	30.5	0.0	31.1	32.4	6.4	5.7	32.1	6.8	5.7
Incr Delay (d2), s/veh	0.1	0.0	3.5	0.1	0.0	0.6	0.8	0.1	0.1	0.8	0.2	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	0.1	0.0	0.8	0.2	0.0	0.2	0.4	0.6	0.1	0.5	1.5	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.9	0.0	35.7	30.6	0.0	31.7	33.2	6.5	5.8	32.9	7.0	5.8
LnGrp LOS	C	A	D	C	A	C	C	A	A	C	A	A
Approach Vol, veh/h		48			24			262			551	
Approach Delay, s/veh		35.2			31.3			11.0			9.5	
Approach LOS		D			C			B			A	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.0	46.6	6.1	9.2	8.5	47.0	5.6	9.7				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	12.0	41.0	10.0	22.0	11.0	42.0	10.0	22.0				
Max Q Clear Time (g_c+I1), s	3.1	3.7	2.4	3.9	2.9	6.4	2.2	2.6				
Green Ext Time (p_c), s	0.1	1.4	0.0	0.1	0.0	3.6	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			12.0									
HCM 6th LOS			B									

Queues

54: Blue Pkwy & South Access

AM Future



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	41	5	182	24	17	205	213	75	37	347	65
v/c Ratio	0.12	0.03	0.57	0.12	0.10	0.45	0.11	0.06	0.21	0.22	0.06
Control Delay	23.8	32.8	13.3	29.4	18.6	34.6	11.3	2.1	36.7	14.7	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.8	32.8	13.3	29.4	18.6	34.6	11.3	2.1	36.7	14.7	0.3
Queue Length 50th (ft)	16	2	0	11	0	47	27	0	17	51	0
Queue Length 95th (ft)	39	12	53	27	19	79	53	15	47	94	2
Internal Link Dist (ft)		380			478		1188			564	
Turn Bay Length (ft)						170		260	310		325
Base Capacity (vph)	391	768	759	241	603	802	1927	1165	243	1561	1171
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.01	0.24	0.10	0.03	0.26	0.11	0.06	0.15	0.22	0.06

Intersection Summary

HCM 6th Signalized Intersection Summary
54: Blue Pkwy & South Access

AM Future

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	36	4	160	22	1	15	174	181	64	33	309	58
Future Volume (veh/h)	36	4	160	22	1	15	174	181	64	33	309	58
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	41	5	182	24	1	16	205	213	75	37	347	65
Peak Hour Factor	0.88	0.88	0.88	0.93	0.93	0.93	0.85	0.85	0.85	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	350	271	230	339	12	196	311	1799	853	77	1634	802
Arrive On Green	0.05	0.14	0.14	0.03	0.13	0.13	0.09	0.51	0.51	0.04	0.46	0.46
Sat Flow, veh/h	1781	1870	1585	1781	94	1505	3456	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	41	5	182	24	0	17	205	213	75	37	347	65
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1599	1728	1777	1585	1781	1777	1585
Q Serve(g_s), s	1.4	0.2	8.1	0.8	0.0	0.7	4.2	2.3	1.7	1.5	4.3	1.5
Cycle Q Clear(g_c), s	1.4	0.2	8.1	0.8	0.0	0.7	4.2	2.3	1.7	1.5	4.3	1.5
Prop In Lane	1.00		1.00	1.00		0.94	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	350	271	230	339	0	208	311	1799	853	77	1634	802
V/C Ratio(X)	0.12	0.02	0.79	0.07	0.00	0.08	0.66	0.12	0.09	0.48	0.21	0.08
Avail Cap(c_a), veh/h	535	768	651	477	0	591	804	1799	853	244	1634	802
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.4	26.8	30.2	26.0	0.0	27.9	32.2	9.5	8.2	34.1	11.8	9.3
Incr Delay (d2), s/veh	0.1	0.0	6.1	0.1	0.0	0.2	2.4	0.1	0.2	4.5	0.3	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	0.6	0.1	3.4	0.4	0.0	0.3	1.8	0.8	0.6	0.7	1.6	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.5	26.8	36.2	26.1	0.0	28.1	34.6	9.6	8.4	38.7	12.1	9.5
LnGrp LOS	C	C	D	C	A	C	C	A	A	D	B	A
Approach Vol, veh/h		228			41			493			449	
Approach Delay, s/veh		34.1			26.9			19.8			13.9	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.2	42.0	7.3	15.6	11.6	38.6	8.4	14.5				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	10.0	37.0	8.0	30.0	17.0	30.0	11.0	27.0				
Max Q Clear Time (g_c+I1), s	3.5	4.3	2.8	10.1	6.2	6.3	3.4	2.7				
Green Ext Time (p_c), s	0.0	1.7	0.0	0.6	0.5	2.5	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			20.6									
HCM 6th LOS			C									

HCM 6th TWSC
1: Missouri Rd & Ward Rd

PM Future

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	238	634	1	1	413	10	3	0	4	70	0	144
Future Vol, veh/h	238	634	1	1	413	10	3	0	4	70	0	144
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									
Storage Length	210	-	160	215	-	215	-	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	264	704	1	1	459	11	4	0	5	82	0	169

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	470	0	0	705	0	0	1464	1704	352	1341	1694	230
Stage 1	-	-	-	-	-	-	1232	1232	-	461	461	-
Stage 2	-	-	-	-	-	-	232	472	-	880	1233	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1088	-	-	889	-	-	90	91	644	111	92	772
Stage 1	-	-	-	-	-	-	188	248	-	550	564	-
Stage 2	-	-	-	-	-	-	750	557	-	308	247	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1088	-	-	889	-	-	57	69	644	89	70	772
Mov Cap-2 Maneuver	-	-	-	-	-	-	57	69	-	89	70	-
Stage 1	-	-	-	-	-	-	142	188	-	416	563	-
Stage 2	-	-	-	-	-	-	585	556	-	232	187	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	2.6			0			37.5			59.6		
HCM LOS							E			F		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	119	1088	-	-	889	-	-	89	772
HCM Lane V/C Ratio	0.069	0.243	-	-	0.001	-	-	0.925	0.219
HCM Control Delay (s)	37.5	9.4	-	-	9.1	-	-	159.5	11
HCM Lane LOS		E	A	-	-	A	-	F	B
HCM 95th %tile Q(veh)	0.2	1	-	-	0	-	-	5.2	0.8

HCM 6th TWSC
4: Ward Rd & Dealership RIRO Access

PM Future

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↑
Traffic Vol, veh/h	0	874	556	4	0	19
Future Vol, veh/h	0	874	556	4	0	19
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	90	90	73	73	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	971	762	5	0	21

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	-	0	-	0	384
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	-	0 614
Stage 1	0	-	-	-	0 -
Stage 2	0	-	-	-	0 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	614
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

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

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	614
HCM Lane V/C Ratio	-	-	-	0.034
HCM Control Delay (s)	-	-	-	11.1
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.1

HCM 6th TWSC
9: Ward Rd & Commercial RIRO

PM Future

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↑		↑
Traffic Vol, veh/h	0	710	415	59	0	10
Future Vol, veh/h	0	710	415	59	0	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	200	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	73	73	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	789	568	81	0	11

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	-	0	-	0	284
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	-	0 713
Stage 1	0	-	-	-	0 -
Stage 2	0	-	-	-	0 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	713
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

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

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	713
HCM Lane V/C Ratio	-	-	-	0.015
HCM Control Delay (s)	-	-	-	10.1
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0

Queues

15: Ward Rd & Tudor Rd

PM Future



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	4	23	184	239	19	342	127	341	494
v/c Ratio	0.02	0.07	0.67	0.46	0.03	0.23	0.17	0.48	0.23
Control Delay	25.8	13.1	42.2	7.0	6.2	17.2	4.0	9.6	9.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.8	13.1	42.2	7.0	6.2	17.2	4.0	9.6	9.5
Queue Length 50th (ft)	1	1	78	0	3	52	0	60	42
Queue Length 95th (ft)	10	20	134	30	10	113	34	127	111
Internal Link Dist (ft)		394	448			689			1243
Turn Bay Length (ft)					200		90	150	
Base Capacity (vph)	408	643	515	762	639	1496	748	927	2145
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.04	0.36	0.31	0.03	0.23	0.17	0.37	0.23

Intersection Summary

HCM 6th Signalized Intersection Summary

15: Ward Rd & Tudor Rd

PM Future

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	3	18	141	1	184	13	308	114	283	409	1
Future Volume (veh/h)	4	3	18	141	1	184	13	308	114	283	409	1
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	4	3	20	183	1	239	19	342	127	341	493	1
Peak Hour Factor	0.92	0.92	0.92	0.77	0.77	0.77	0.70	0.90	0.90	0.83	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	150	40	267	336	1	301	608	1681	750	708	2164	4
Arrive On Green	0.19	0.19	0.19	0.19	0.19	0.19	0.02	0.47	0.47	0.13	0.59	0.59
Sat Flow, veh/h	1140	211	1406	1298	7	1585	1781	3554	1585	1781	3638	7
Grp Volume(v), veh/h	4	0	23	184	0	239	19	342	127	341	241	253
Grp Sat Flow(s),veh/h/ln	1140	0	1617	1305	0	1585	1781	1777	1585	1781	1777	1869
Q Serve(g_s), s	0.3	0.0	0.9	10.0	0.0	11.5	0.3	4.5	3.7	7.5	5.1	5.1
Cycle Q Clear(g_c), s	11.2	0.0	0.9	10.9	0.0	11.5	0.3	4.5	3.7	7.5	5.1	5.1
Prop In Lane	1.00		0.87	0.99		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	150	0	307	338	0	301	608	1681	750	708	1057	1111
V/C Ratio(X)	0.03	0.00	0.07	0.55	0.00	0.79	0.03	0.20	0.17	0.48	0.23	0.23
Avail Cap(c_a), veh/h	369	0	617	604	0	605	715	1681	750	1089	1057	1111
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.0	0.0	26.6	31.1	0.0	30.9	6.1	12.3	12.1	8.0	7.6	7.6
Incr Delay (d2), s/veh	0.1	0.0	0.1	1.4	0.0	4.8	0.0	0.3	0.5	0.5	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.4	3.3	0.0	4.6	0.1	1.7	1.3	2.5	1.8	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.0	0.0	26.7	32.5	0.0	35.6	6.1	12.5	12.5	8.5	8.1	8.1
LnGrp LOS	D	A	C	C	A	D	A	B	B	A	A	A
Approach Vol, veh/h		27			423			488			835	
Approach Delay, s/veh		28.1			34.2			12.3			8.2	
Approach LOS		C			C			B			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	15.9	43.3		20.7	6.2	53.0		20.7				
Change Period (Y+Rc), s	5.5	5.5		5.5	4.5	5.5		5.5				
Max Green Setting (Gmax), s	27.5	25.5		30.5	6.5	47.5		30.5				
Max Q Clear Time (g_c+I1), s	9.5	6.5		13.2	2.3	7.1		13.5				
Green Ext Time (p_c), s	0.9	2.5		0.1	0.0	3.1		1.7				
Intersection Summary												
HCM 6th Ctrl Delay				15.9								
HCM 6th LOS				B								

HCM 6th TWSC
19: Ward Rd & Outerview

PM Future

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	13	0	13	4	0	56	3	407	1	36	673	1
Future Vol, veh/h	13	0	13	4	0	56	3	407	1	36	673	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									
Storage Length	-	-	-	25	-	-	200	-	145	190	-	190
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	57	57	92	47	47	92	92	92	92	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	23	0	14	9	0	61	3	442	1	40	740	1

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1047	1269	370	898	1269	221	741	0	0	443	0	0
Stage 1	820	820	-	448	448	-	-	-	-	-	-	-
Stage 2	227	449	-	450	821	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	182	167	627	234	167	783	862	-	-	1113	-	-
Stage 1	335	387	-	560	571	-	-	-	-	-	-	-
Stage 2	755	571	-	558	387	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	163	160	627	222	160	783	862	-	-	1113	-	-
Mov Cap-2 Maneuver	163	160	-	222	160	-	-	-	-	-	-	-
Stage 1	334	373	-	558	569	-	-	-	-	-	-	-
Stage 2	694	569	-	526	373	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	23.9		11.5		0.1		0.4	
HCM LOS	C		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	862	-	-	227	222	783	1113	-	-
HCM Lane V/C Ratio	0.004	-	-	0.163	0.038	0.078	0.036	-	-
HCM Control Delay (s)	9.2	-	-	23.9	21.9	10	8.4	-	-
HCM Lane LOS	A	-	-	C	C	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.6	0.1	0.3	0.1	-	-

Queues

38: Blue Pkwy & I-470 WB Ramp

PM Future



Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	379	710	22	402	261	338	58
v/c Ratio	0.41	0.74	0.05	0.58	0.12	0.24	0.09
Control Delay	30.0	37.3	0.2	13.7	8.5	23.0	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.0	37.3	0.2	13.7	8.5	23.0	4.0
Queue Length 50th (ft)	98	208	0	110	31	70	0
Queue Length 95th (ft)	124	240	0	186	54	126	16
Internal Link Dist (ft)		962			586	567	
Turn Bay Length (ft)	425		310	480			135
Base Capacity (vph)	1232	1269	617	835	2194	1386	668
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.56	0.04	0.48	0.12	0.24	0.09

Intersection Summary

HCM 6th Signalized Intersection Summary

38: Blue Pkwy & I-470 WB Ramp

PM Future

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	311	582	18	334	217	0	0	284	49
Future Volume (veh/h)	0	0	0	311	582	18	334	217	0	0	284	49
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No			No		
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				379	710	0	402	261	0	0	338	0
Peak Hour Factor				0.82	0.82	0.82	0.83	0.83	0.83	0.84	0.84	0.84
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				911	937		719	2223	0	0	1488	
Arrive On Green				0.26	0.26	0.00	0.15	0.63	0.00	0.00	0.42	0.00
Sat Flow, veh/h				3456	3554	1585	1781	3647	0	0	3647	1585
Grp Volume(v), veh/h				379	710	0	402	261	0	0	338	0
Grp Sat Flow(s),veh/h/ln				1728	1777	1585	1781	1777	0	0	1777	1585
Q Serve(g_s), s				8.7	17.6	0.0	11.4	2.8	0.0	0.0	5.8	0.0
Cycle Q Clear(g_c), s				8.7	17.6	0.0	11.4	2.8	0.0	0.0	5.8	0.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				911	937		719	2223	0	0	1488	
V/C Ratio(X)				0.42	0.76		0.56	0.12	0.00	0.00	0.23	
Avail Cap(c_a), veh/h				1251	1286		1041	2223	0	0	1488	
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				29.1	32.4	0.0	10.8	7.2	0.0	0.0	17.8	0.0
Incr Delay (d2), s/veh				0.3	1.8	0.0	0.7	0.1	0.0	0.0	0.4	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				3.6	7.6	0.0	4.2	1.0	0.0	0.0	2.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				29.4	34.1	0.0	11.5	7.3	0.0	0.0	18.2	0.0
LnGrp LOS				C	C		B	A	A	A	B	
Approach Vol, veh/h					1089			663			338	
Approach Delay, s/veh					32.5			9.9			18.2	
Approach LOS					C			A			B	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		65.0			19.8	45.2		30.6				
Change Period (Y+Rc), s		* 5.2			* 5.2	* 5.2		5.4				
Max Green Setting (Gmax), s		* 60			* 32	* 23		34.6				
Max Q Clear Time (g_c+I1), s		4.8			13.4	7.8		19.6				
Green Ext Time (p_c), s		1.9			1.2	1.9		5.6				
Intersection Summary												
HCM 6th Ctrl Delay				23.0								
HCM 6th LOS				C								
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												
Unsignalized Delay for [EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.												

Queues

43: Blue Pkwy & I-470 EB Ramp

PM Future



Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	31	480	748	612	387	31	653
v/c Ratio	0.05	0.27	0.89	0.53	0.50	0.12	0.49
Control Delay	12.1	12.8	31.2	31.8	6.0	23.4	25.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.1	12.8	31.2	31.8	6.0	23.4	25.7
Queue Length 50th (ft)	8	79	339	175	0	12	162
Queue Length 95th (ft)	21	105	497	247	59	34	234
Internal Link Dist (ft)		816		542			586
Turn Bay Length (ft)	230		230		280	780	
Base Capacity (vph)	1161	2296	1055	1144	773	254	1343
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.21	0.71	0.53	0.50	0.12	0.49

Intersection Summary

HCM 6th Signalized Intersection Summary

43: Blue Pkwy & I-470 EB Ramp

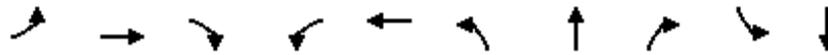
PM Future

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 						 			 	
Traffic Volume (veh/h)	27	422	658	0	0	0	0	526	333	27	568	0
Future Volume (veh/h)	27	422	658	0	0	0	0	526	333	27	568	0
Initial Q (Qb), veh	0	0	0					0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	31	480	748				0	612	387	31	653	0
Peak Hour Factor	0.88	0.88	0.88				0.86	0.86	0.86	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	927	1850	825				0	1062	474	217	1340	0
Arrive On Green	0.52	0.52	0.52				0.00	0.30	0.30	0.03	0.38	0.00
Sat Flow, veh/h	1781	3554	1585				0	3647	1585	1781	3647	0
Grp Volume(v), veh/h	31	480	748				0	612	387	31	653	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585				0	1777	1585	1781	1777	0
Q Serve(g_s), s	0.8	6.9	39.8				0.0	13.5	21.0	1.1	13.0	0.0
Cycle Q Clear(g_c), s	0.8	6.9	39.8				0.0	13.5	21.0	1.1	13.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	927	1850	825				0	1062	474	217	1340	0
V/C Ratio(X)	0.03	0.26	0.91				0.00	0.58	0.82	0.14	0.49	0.00
Avail Cap(c_a), veh/h	1161	2316	1033				0	1062	474	262	1340	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	10.9	12.3	20.2				0.0	27.6	30.2	21.3	22.1	0.0
Incr Delay (d2), s/veh	0.0	0.1	9.7				0.0	2.3	14.4	0.3	1.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	2.6	15.6				0.0	5.9	9.7	0.5	5.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.9	12.4	29.9				0.0	29.8	44.6	21.6	23.3	0.0
LnGrp LOS	B	B	C				A	C	D	C	C	A
Approach Vol, veh/h		1259						999			684	
Approach Delay, s/veh		22.8						35.5			23.3	
Approach LOS		C						D			C	
Timer - Assigned Phs	1	2		4				6				
Phs Duration (G+Y+Rc), s	7.3	32.7		52.8				40.0				
Change Period (Y+Rc), s	4.5	5.0		4.5				5.0				
Max Green Setting (Gmax), s	5.1	25.4		60.5				35.0				
Max Q Clear Time (g_c+I1), s	3.1	23.0		41.8				15.0				
Green Ext Time (p_c), s	0.0	1.3		6.6				4.4				
Intersection Summary												
HCM 6th Ctrl Delay			27.2									
HCM 6th LOS			C									

Queues

46: Blue Pkwy & Ward Rd & West Dealership Access

PM Future



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	61	801	578	179	607	389	14	154	14	85
v/c Ratio	0.37	0.73	0.46	0.47	0.48	0.72	0.02	0.21	0.02	0.12
Control Delay	46.4	32.8	3.4	43.2	25.2	32.8	17.8	4.0	17.7	7.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.4	32.8	3.4	43.2	25.2	32.8	17.8	4.0	17.7	7.5
Queue Length 50th (ft)	35	216	0	52	147	193	5	0	5	7
Queue Length 95th (ft)	74	296	40	68	161	#351	17	38	17	37
Internal Link Dist (ft)		383			346		526			358
Turn Bay Length (ft)	200		360	325				210	150	
Base Capacity (vph)	318	1197	1325	599	1267	542	773	746	585	731
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.67	0.44	0.30	0.48	0.72	0.02	0.21	0.02	0.12

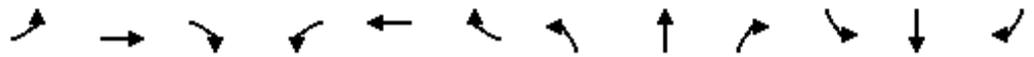
Intersection Summary

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

HCM 6th Signalized Intersection Summary

46: Blue Pkwy & Ward Rd & West Dealership Access

PM Future



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	56	721	520	131	440	4	354	13	140	13	19	59
Future Volume (veh/h)	56	721	520	131	440	4	354	13	140	13	19	59
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	61	801	578	179	603	4	389	14	154	14	21	64
Peak Hour Factor	0.92	0.90	0.90	0.73	0.73	0.92	0.91	0.91	0.91	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	80	1061	833	266	1219	8	634	840	712	626	183	557
Arrive On Green	0.04	0.30	0.30	0.08	0.34	0.34	0.45	0.45	0.45	0.45	0.45	0.45
Sat Flow, veh/h	1781	3554	2790	3456	3619	24	1313	1870	1585	1217	407	1240
Grp Volume(v), veh/h	61	801	578	179	296	311	389	14	154	14	0	85
Grp Sat Flow(s),veh/h/ln	1781	1777	1395	1728	1777	1866	1313	1870	1585	1217	0	1647
Q Serve(g_s), s	2.9	17.5	15.7	4.3	11.4	11.4	21.0	0.4	5.1	0.6	0.0	2.6
Cycle Q Clear(g_c), s	2.9	17.5	15.7	4.3	11.4	11.4	23.5	0.4	5.1	0.9	0.0	2.6
Prop In Lane	1.00		1.00	1.00		0.01	1.00		1.00	1.00		0.75
Lane Grp Cap(c), veh/h	80	1061	833	266	598	629	634	840	712	626	0	740
V/C Ratio(X)	0.77	0.75	0.69	0.67	0.49	0.49	0.61	0.02	0.22	0.02	0.00	0.11
Avail Cap(c_a), veh/h	343	1286	1009	645	643	675	634	840	712	626	0	740
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	0.00	1.00
Uniform Delay (d), s/veh	40.5	27.2	26.6	38.5	22.6	22.6	20.5	13.1	14.4	13.3	0.0	13.7
Incr Delay (d2), s/veh	14.1	2.1	1.6	2.9	0.6	0.6	4.4	0.0	0.7	0.1	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	7.5	5.2	1.9	4.7	4.9	6.8	0.2	1.9	0.2	0.0	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.6	29.3	28.2	41.4	23.2	23.2	24.9	13.1	15.1	13.4	0.0	14.0
LnGrp LOS	D	C	C	D	C	C	C	B	B	B	A	B
Approach Vol, veh/h		1440			786			557				99
Approach Delay, s/veh		29.9			27.4			21.9				13.9
Approach LOS		C			C			C				B
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		43.5	11.6	30.6		43.5	8.3	33.9				
Change Period (Y+Rc), s		5.0	5.0	5.0		* 5	4.5	5.0				
Max Green Setting (Gmax), s		38.0	16.0	31.0		* 39	16.5	31.0				
Max Q Clear Time (g_c+I1), s		25.5	6.3	19.5		4.6	4.9	13.4				
Green Ext Time (p_c), s		1.6	0.4	6.1		0.5	0.1	3.5				
Intersection Summary												
HCM 6th Ctrl Delay				27.1								
HCM 6th LOS				C								
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Queues

48: Blue Pkwy & North Access

PM Future



Lane Group	EBL	EBR	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	169	122	12	58	415	10	496	254
v/c Ratio	0.51	0.19	0.02	0.29	0.19	0.06	0.26	0.19
Control Delay	30.9	0.6	0.0	36.0	8.1	36.0	12.1	1.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.9	0.6	0.0	36.0	8.1	36.0	12.1	1.1
Queue Length 50th (ft)	68	0	0	24	27	4	61	0
Queue Length 95th (ft)	107	0	0	68	110	21	143	24
Internal Link Dist (ft)			394		623		526	
Turn Bay Length (ft)	110			290		290		155
Base Capacity (vph)	488	937	758	329	2213	200	1919	1386
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.13	0.02	0.18	0.19	0.05	0.26	0.18

Intersection Summary

HCM 6th Signalized Intersection Summary

48: Blue Pkwy & North Access

PM Future

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	132	0	95	0	0	6	52	369	0	9	441	226
Future Volume (veh/h)	132	0	95	0	0	6	52	369	0	9	441	226
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	169	0	122	0	0	12	58	415	0	10	496	254
Peak Hour Factor	0.78	0.78	0.78	0.50	0.50	0.50	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	385	473	401	192	0	118	99	1869	725	27	1724	943
Arrive On Green	0.11	0.00	0.25	0.00	0.00	0.07	0.06	0.53	0.00	0.02	0.49	0.49
Sat Flow, veh/h	1781	1870	1585	1781	0	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	169	0	122	0	0	12	58	415	0	10	496	254
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	6.3	0.0	4.7	0.0	0.0	0.5	2.4	4.7	5.2	0.4	6.3	5.9
Cycle Q Clear(g_c), s	6.3	0.0	4.7	0.0	0.0	0.5	2.4	4.7	5.2	0.4	6.3	5.9
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	385	473	401	192	0	118	99	1869	725	27	1724	943
V/C Ratio(X)	0.44	0.00	0.30	0.00	0.00	0.10	0.58	0.22	0.00	0.37	0.29	0.27
Avail Cap(c_a), veh/h	609	756	641	331	0	394	301	1869	725	184	1724	943
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	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.1	0.0	22.9	0.0	0.0	32.7	34.9	9.6	0.0	36.9	11.7	7.4
Incr Delay (d2), s/veh	0.8	0.0	0.4	0.0	0.0	0.4	5.3	0.3	0.0	8.4	0.4	0.7
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	2.6	0.0	1.7	0.0	0.0	0.2	1.2	1.7	0.0	0.2	2.4	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.9	0.0	23.3	0.0	0.0	33.0	40.2	9.9	0.0	45.3	12.1	8.1
LnGrp LOS	C	A	C	A	A	C	D	A	A	D	B	A
Approach Vol, veh/h		291			12			473			760	
Approach Delay, s/veh		25.4			33.0			13.6			11.2	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.3	45.0	0.0	24.4	9.4	41.9	13.5	10.8				
Change Period (Y+Rc), s	* 5.2	* 5.2	* 5.2	* 5.2	* 5.2	* 5.2	* 5.2	* 5.2				
Max Green Setting (Gmax), s	* 7.8	* 40	* 6	* 31	* 13	* 35	* 18	* 19				
Max Q Clear Time (g_c+I1), s	2.4	7.2	0.0	6.7	4.4	8.3	8.3	2.5				
Green Ext Time (p_c), s	0.0	3.0	0.0	0.3	0.1	4.5	0.3	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			14.8									
HCM 6th LOS			B									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Queues

51: Blue Pkwy & Midway Access

PM Future



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	93	168	10	42	81	380	1	11	514	58
v/c Ratio	0.34	0.26	0.05	0.25	0.25	0.16	0.00	0.04	0.26	0.05
Control Delay	28.5	1.0	24.3	21.2	37.4	7.4	0.0	38.2	11.7	1.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.5	1.0	24.3	21.2	37.4	7.4	0.0	38.2	11.7	1.6
Queue Length 50th (ft)	38	0	4	4	20	35	0	2	76	0
Queue Length 95th (ft)	58	0	12	21	43	86	0	11	128	11
Internal Link Dist (ft)		404		466		564			623	
Turn Bay Length (ft)					240		170	240		300
Base Capacity (vph)	343	827	254	500	508	2340	1322	331	1997	1242
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.20	0.04	0.08	0.16	0.16	0.00	0.03	0.26	0.05

Intersection Summary

HCM 6th Signalized Intersection Summary

51: Blue Pkwy & Midway Access

PM Future

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	64	0	116	7	6	22	71	334	1	10	473	53
Future Volume (veh/h)	64	0	116	7	6	22	71	334	1	10	473	53
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	93	0	168	10	9	33	81	380	1	11	514	58
Peak Hour Factor	0.69	0.69	0.69	0.67	0.67	0.67	0.88	0.88	0.88	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	298	0	222	165	31	115	188	2110	961	47	1965	977
Arrive On Green	0.06	0.00	0.14	0.01	0.09	0.09	0.05	0.59	0.59	0.01	0.55	0.55
Sat Flow, veh/h	1781	0	1585	1781	351	1287	3456	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	93	0	168	10	0	42	81	380	1	11	514	58
Grp Sat Flow(s),veh/h/ln	1781	0	1585	1781	0	1639	1728	1777	1585	1728	1777	1585
Q Serve(g_s), s	3.4	0.0	7.6	0.4	0.0	1.8	1.7	3.6	0.0	0.2	5.7	1.1
Cycle Q Clear(g_c), s	3.4	0.0	7.6	0.4	0.0	1.8	1.7	3.6	0.0	0.2	5.7	1.1
Prop In Lane	1.00		1.00	1.00		0.79	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	298	0	222	165	0	146	188	2110	961	47	1965	977
V/C Ratio(X)	0.31	0.00	0.76	0.06	0.00	0.29	0.43	0.18	0.00	0.23	0.26	0.06
Avail Cap(c_a), veh/h	482	0	560	344	0	492	530	2110	961	346	1965	977
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.3	0.0	31.0	30.5	0.0	31.9	34.3	6.9	5.8	36.6	8.8	5.7
Incr Delay (d2), s/veh	0.6	0.0	5.2	0.2	0.0	1.1	1.6	0.2	0.0	2.5	0.3	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	1.5	0.0	3.1	0.2	0.0	0.7	0.7	1.2	0.0	0.1	2.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.9	0.0	36.2	30.7	0.0	33.0	35.9	7.1	5.8	39.1	9.1	5.8
LnGrp LOS	C	A	D	C	A	C	D	A	A	D	A	A
Approach Vol, veh/h		261			52			462			583	
Approach Delay, s/veh		33.3			32.5			12.2			9.3	
Approach LOS		C			C			B			A	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.5	49.0	5.4	15.0	8.6	45.9	9.2	11.2				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	7.5	44.5	8.5	26.5	11.5	40.5	12.5	22.5				
Max Q Clear Time (g_c+I1), s	2.2	5.6	2.4	9.6	3.7	7.7	5.4	3.8				
Green Ext Time (p_c), s	0.0	2.8	0.0	0.9	0.1	4.0	0.1	0.1				
Intersection Summary												
HCM 6th Ctrl Delay			15.8									
HCM 6th LOS			B									

Queues

54: Blue Pkwy & South Access

PM Future



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	87	9	504	68	75	480	320	54	16	448	199
v/c Ratio	0.34	0.05	0.73	0.19	0.37	0.62	0.14	0.04	0.11	0.34	0.21
Control Delay	34.6	37.4	16.8	26.0	20.5	32.0	8.3	1.2	40.5	21.7	2.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.6	37.4	16.8	26.0	20.5	32.0	8.3	1.2	40.5	21.7	2.7
Queue Length 50th (ft)	41	4	93	27	8	112	30	0	8	85	0
Queue Length 95th (ft)	69	18	132	56	41	175	80	11	29	156	35
Internal Link Dist (ft)		380			478		1188			564	
Turn Bay Length (ft)						170		260	310		325
Base Capacity (vph)	401	515	866	418	456	1259	2222	1484	284	1308	1067
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.02	0.58	0.16	0.16	0.38	0.14	0.04	0.06	0.34	0.19

Intersection Summary

HCM 6th Signalized Intersection Summary
54: Blue Pkwy & South Access

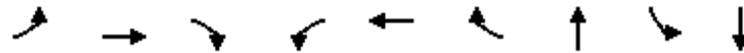
PM Future

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	71	7	413	55	13	48	432	288	49	15	412	183
Future Volume (veh/h)	71	7	413	55	13	48	432	288	49	15	412	183
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	87	9	504	68	16	59	480	320	54	16	448	199
Peak Hour Factor	0.82	0.82	0.82	0.81	0.81	0.81	0.90	0.90	0.90	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	433	448	654	367	81	299	598	1762	858	33	1213	626
Arrive On Green	0.05	0.24	0.24	0.05	0.23	0.23	0.17	0.50	0.50	0.02	0.34	0.34
Sat Flow, veh/h	1781	1870	1585	1781	350	1289	3456	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	87	9	504	68	0	75	480	320	54	16	448	199
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1638	1728	1777	1585	1781	1777	1585
Q Serve(g_s), s	3.3	0.3	21.5	2.6	0.0	3.3	12.0	4.5	1.5	0.8	8.5	7.8
Cycle Q Clear(g_c), s	3.3	0.3	21.5	2.6	0.0	3.3	12.0	4.5	1.5	0.8	8.5	7.8
Prop In Lane	1.00		1.00	1.00		0.79	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	433	448	654	367	0	380	598	1762	858	33	1213	626
V/C Ratio(X)	0.20	0.02	0.77	0.19	0.00	0.20	0.80	0.18	0.06	0.49	0.37	0.32
Avail Cap(c_a), veh/h	646	448	654	554	0	380	1098	1762	858	248	1213	626
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.2	26.1	22.7	24.4	0.0	27.8	35.6	12.5	9.8	43.6	22.3	18.8
Incr Delay (d2), s/veh	0.2	0.0	5.6	0.2	0.0	0.3	2.6	0.2	0.1	10.9	0.9	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.1	9.7	1.1	0.0	1.3	5.2	1.8	0.5	0.4	3.6	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.4	26.1	28.3	24.6	0.0	28.0	38.2	12.8	9.9	54.6	23.1	20.1
LnGrp LOS	C	C	C	C	A	C	D	B	A	D	C	C
Approach Vol, veh/h		600			143			854			663	
Approach Delay, s/veh		27.7			26.4			26.9			23.0	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.1	49.0	8.6	26.0	20.0	35.1	9.3	25.3				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	12.5	44.5	13.5	21.5	28.5	28.5	15.5	19.5				
Max Q Clear Time (g_c+I1), s	2.8	6.5	4.6	23.5	14.0	10.5	5.3	5.3				
Green Ext Time (p_c), s	0.0	2.4	0.1	0.0	1.5	3.5	0.1	0.3				
Intersection Summary												
HCM 6th Ctrl Delay			25.9									
HCM 6th LOS			C									

Queues

1: Missouri Rd & Ward Rd

PM Future with Improvements



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	264	704	1	1	459	11	9	82	169
v/c Ratio	0.57	0.35	0.00	0.01	0.51	0.02	0.03	0.34	0.22
Control Delay	23.3	7.3	0.0	28.0	20.2	0.1	0.1	26.3	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.3	7.3	0.0	28.0	20.2	0.1	0.1	26.3	0.6
Queue Length 50th (ft)	69	45	0	0	62	0	0	22	0
Queue Length 95th (ft)	161	131	0	5	128	0	0	65	0
Internal Link Dist (ft)		432			492		663		453
Turn Bay Length (ft)	210		160	215		215		200	
Base Capacity (vph)	1230	3411	1529	225	2029	960	743	666	1078
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.21	0.00	0.00	0.23	0.01	0.01	0.12	0.16

Intersection Summary

HCM 6th Signalized Intersection Summary

1: Missouri Rd & Ward Rd

PM Future with Improvements

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	238	634	1	1	413	10	3	0	4	70	0	144
Future Volume (veh/h)	238	634	1	1	413	10	3	0	4	70	0	144
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	264	704	1	1	459	11	4	0	5	82	0	169
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	351	1543	688	4	847	378	175	41	111	454	0	278
Arrive On Green	0.20	0.43	0.43	0.00	0.24	0.24	0.18	0.00	0.18	0.18	0.00	0.18
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	273	231	630	1411	0	1585
Grp Volume(v), veh/h	264	704	1	1	459	11	9	0	0	82	0	169
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1134	0	0	1411	0	1585
Q Serve(g_s), s	5.7	5.7	0.0	0.0	4.6	0.2	0.0	0.0	0.0	0.0	0.0	4.0
Cycle Q Clear(g_c), s	5.7	5.7	0.0	0.0	4.6	0.2	4.0	0.0	0.0	1.7	0.0	4.0
Prop In Lane	1.00		1.00	1.00		1.00	0.44		0.56	1.00		1.00
Lane Grp Cap(c), veh/h	351	1543	688	4	847	378	326	0	0	454	0	278
V/C Ratio(X)	0.75	0.46	0.00	0.23	0.54	0.03	0.03	0.00	0.00	0.18	0.00	0.61
Avail Cap(c_a), veh/h	1547	5068	2261	283	2547	1136	911	0	0	1046	0	942
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	15.5	8.2	6.5	20.4	13.6	11.9	14.0	0.0	0.0	14.6	0.0	15.6
Incr Delay (d2), s/veh	3.2	0.2	0.0	24.8	0.5	0.0	0.0	0.0	0.0	0.2	0.0	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	1.6	0.0	0.0	1.6	0.1	0.1	0.0	0.0	0.6	0.0	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.7	8.4	6.5	45.2	14.2	12.0	14.0	0.0	0.0	14.8	0.0	17.7
LnGrp LOS	B	A	A	D	B	B	B	A	A	B	A	B
Approach Vol, veh/h		969			471			9			251	
Approach Delay, s/veh		11.2			14.2			14.0			16.7	
Approach LOS		B			B			B			B	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		12.9	4.6	23.5		12.9	12.6	15.4				
Change Period (Y+Rc), s		* 5.7	4.5	* 5.7		* 5.7	4.5	* 5.7				
Max Green Setting (Gmax), s		* 24	6.5	* 58		* 24	35.5	* 29				
Max Q Clear Time (g_c+I1), s		6.0	2.0	7.7		6.0	7.7	6.6				
Green Ext Time (p_c), s		0.0	0.0	5.8		1.1	0.8	3.1				
Intersection Summary												
HCM 6th Ctrl Delay				12.8								
HCM 6th LOS				B								
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												