LIFE TIME

Mini Traffic Impact Analysis

February 2019

PREPARED FOR

LIFE TIME
LT REAL ESTATE COMPANY, INC.
2902 CORPORATE PLACE
CHANHASSEN, MN 55317

PREPARED BY

DAVID EVANS AND ASSOCIATES, INC.
2100 SW RIVER PARKWAY
PORTLAND, OR 97201

DAVID EVANS AND ASSOCIATES INC.

LIFE TIME

Mini Traffic Impact Analysis

February 2019

PREPARED FOR

LIFE TIME
LT REAL ESTATE COMPANY, INC.
2902 CORPORATE PLACE
CHANHASSEN, MN 55317

PREPARED BY

DAVID EVANS AND ASSOCIATES, INC.
2100 SW RIVER PARKWAY
PORTLAND, OR 97201

DAVID EVANS AND ASSOCIATES INC.

Contents

Definition and Background 1
Purpose 1
Study Area 1
Existing Conditions 1
Turning Movement Counts 3
Traffic Analysis Procedures 3
Model Calibration 3
Existing (2017) Traffic Conditions 5
Operational Criteria 5
Mobility Targets 5
Existing (2017) Intersection Operations 6
Existing (2017) Intersection Queuing 6
Safety Analysis 7
Background Conditions 8
2021 Planned Projects 8
Background (2021) Volumes Development 8
Background (2021) Traffic Conditions 9
Background (2021) Intersection Operations 9
Background (2021) Intersection Queuing 9
Project Conditions 12
2021 Planned Projects 12
Site Trip Generation 12
Trip Generation 13
Trip Reductions 13
Trip Distribution 14
Project (2021) Volume Development 14
Project (2021) Traffic Conditions 14
Project (2021) Intersection Operations 14
Project (2021) Intersection Queuing 15
Mitigated Conditions 20
SW Cedar Hills at SW Barnes: 20
NW 116th at SW Barnes: 20
US 26/OR 217 at SW Barnes: 21
Conclusions and Recommendations 21

Figures

Figure 1. Study Area 2
Figure 2. Existing (2017) AM and PM Peak Hour Turning Movement Volumes 4
Figure 3. Background (2021) AM and PM Peak Hour Turning Movement Volumes 10
Figure 4. Pipeline (2021) AM and PM Peak Hour Turning Movement Volumes 11
Figure 5. Site Generated Trips (2021) AM and PM Peak Hour Traffic Volumes 16
Figure 6. Pass-By Trips (2021) AM and PM Peak Hour Traffic Volumes 17
Figure 7. Project Trip Distribution 18
Figure 8. Project (2021) AM and PM Peak Hour Traffic Volumes 19

Tables

Table 1. City, County and State Mobility Targets 5
Table 2. Existing (2017) Intersection Operations 6
Table 3. Crash Summary of SPIS Sites 7
Table 4. Background (2021) Intersection Operations 9
Table 5. AM and PM Peak Hour Network Trip Generation 13
Table 6. Project (2021) Intersection Operations 15

Definition and Background

This report provides the purpose and context for the mini Traffic Impact Analysis (TIA) of the proposed development of a Life Time (LT) facility in Beaverton, Oregon.

Purpose

The proposed project (LT Project or Project) includes construction of: a 140,000 sq. ft. indoor fitness center with an outdoor pool deck; 10 indoor tennis courts; a 31,170 sq. ft. office space (on the top story of the fitness center); a parking structure; and surface parking and landscaping. The traffic analysis is intended to study the currently proposed total build-out scenario of the LT Project in the expected opening year of 2021. The analysis evaluates three unique scenarios:

1. Existing (2017)
2. Future (2021) Baseline (Without Project)
3. Future (2021) With Project

In 2013, the City approved a Planned Unit Development (PUD) that includes the parcel where the proposed LT Project will be located (LT Site). The LT Site is referred to in the PUD as the "Town Square Two" property. At the time of the PUD approval, the land uses on the LT Site were assumed to be 140,000 sq. ft. of retail, 6,000 sq. ft. of pharmacy, 2,000 sq. ft. of coffee shop, and 15,000 sq. ft. of high-turnover sit down restaurant. The purpose of the assumed uses was to evaluate potential transportation impacts associated with the full development of the PUD. However, the PUD allows for development of a range of uses on the parcels within the PUD so long as they are permitted in the zone in which they are proposed. As detailed below, the LT Project generates less traffic than the uses approved on the Town Square Two site by the PUD.

David Evans and Associates (DEA) will show that with a few of the improvements required by the PUD to the existing roadway network, the additional traffic generated by the LT Project can be absorbed into the network and the study area intersections would meet the applicable transportation performance standards.

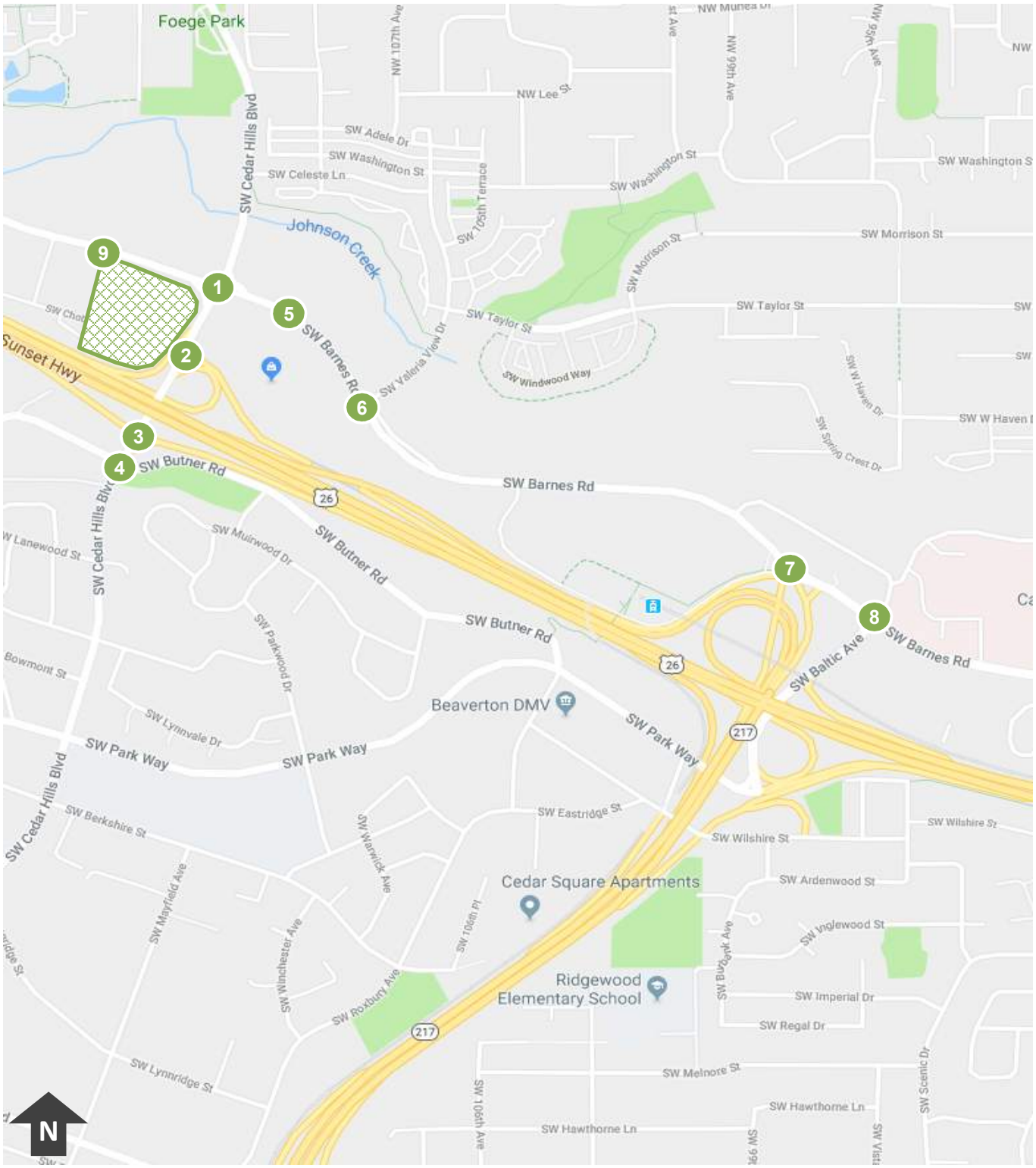
Study Area

The LT Site is approximately nine-acres located in the City of Beaverton in Washington County, Oregon. As shown in Figure 1, the LT Site is located at the southwest corner of SW Cedar Hills Boulevard and SW Barnes Road (tax lot number 1S103A001700). The following traffic analysis will evaluate eight existing intersections and one new potential access for nine total study area intersections. The study intersections are listed below:

1. SW Cedar Hills Blvd at SW Barnes Rd
2. SW Cedar Hills Blvd at US 26 WB Ramps
3. SW Cedar Hills Blvd at US 26 EB Ramps
4. SW Cedar Hills Blvd at SW Butner Rd
5. Towne Square West Access at SW Barnes Rd
6. SW Valeria View Dr at SW Barnes Rd
7. US 26/OR 217 at SW Barnes Rd
8. SW Baltic Ave at SW Barnes Rd
9. *Access:* SW Barnes Rd at NW 116th Ave

Existing Conditions

The assessment of existing traffic conditions includes development of existing traffic volumes and an assessment of traffic operations for year 2017.



Legend

Study Intersection

Proposed Development Site

Figure 1
Study Area

DAVID EVANS AND ASSOCIATES INC.

Turning Movement Counts

Existing traffic volume data was assembled from turning movement traffic counts conducted at the eight existing area intersections in December 2017 when school was still in session (to capture the influence of the trips associated with Catlin Gabel). Traffic counts consisted of 2-hour turning movement counts from 7:00 a.m. – 9:00 a.m. and 4:00 p.m. – 6:00 p.m. for three consecutive mid-week days: December 5th, December 6th, and December 7th. The three days of volumes were averaged to create a single set of AM and PM turning movement volumes and a common peak hour was determined for each peak period. The analysis assumes AM and PM peak hours of 7:30 a.m. – 8:30 a.m. and 4:45 p.m. – 5:45 p.m., respectively.

Peak hour traffic count volumes were generally increased to balance with adjacent intersections, where appropriate. Balancing was completed to achieve a uniform dataset for simulation analysis. The turning movement volumes are depicted in Figure 2.

Traffic Analysis Procedures

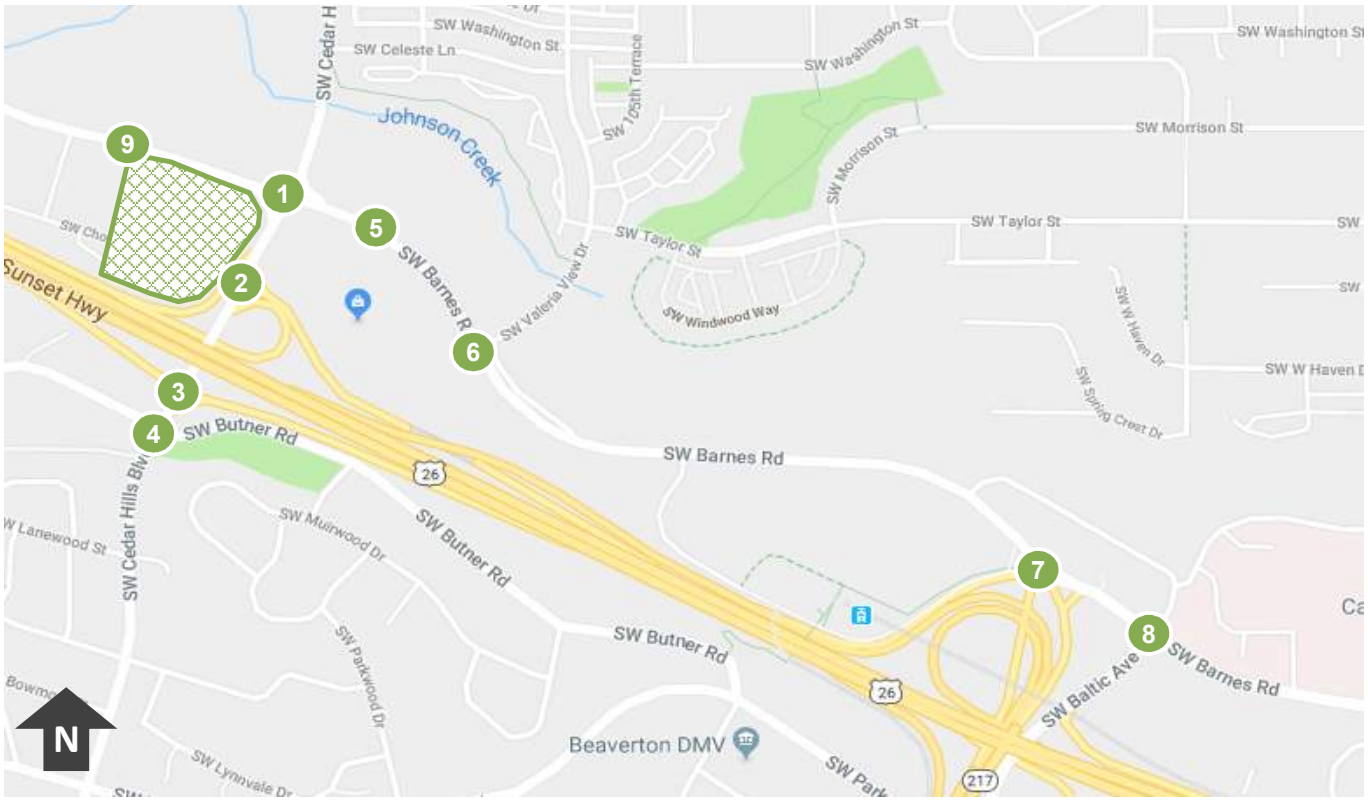
LT worked closely with the City, County, and ODOT to scope the TIA, including the methodology, which was approved by the agencies' technical staff. All operations were evaluated using the methodology outlined in the *2000 Highway Capacity Manual* (HCM 2000) along with the procedures outlined in the Oregon Department of Transportation's (ODOT) *Analysis Procedures Manual* (APM).

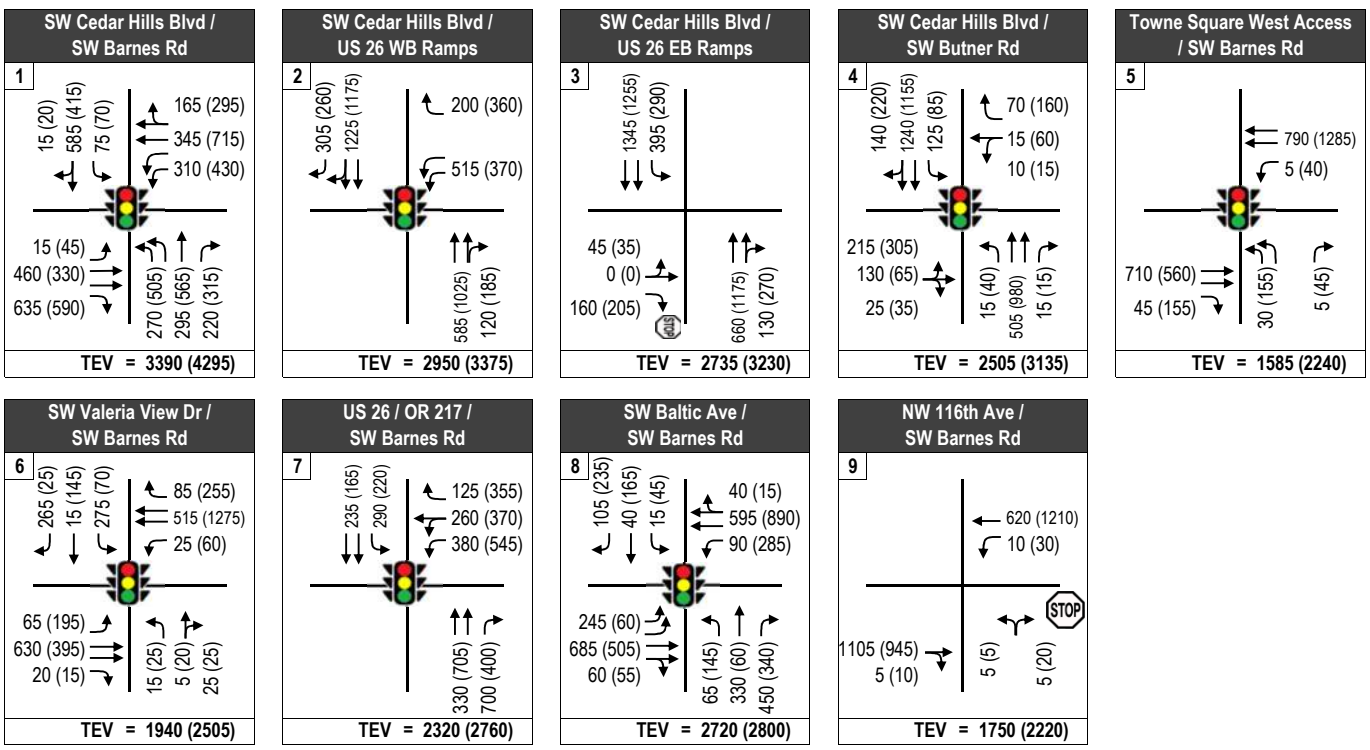
The Synchro/SimTraffic analysis software was selected to perform the intersection analysis as it can provide the volume-to-capacity (v/c) ratio and level of service (LOS) output of an HCM 2000 analysis and consider the systematic interaction of the intersections with regard to queuing and delays. Operations will be reported using the *2000 Highway Capacity Manual* (HCM 2000) methodology, because HCM 2010 does not report an overall intersection V/C ratio. SimTraffic was used to determine 95th percentile queue lengths.

Model Calibration

Before the operations analysis began, the Synchro and SimTraffic models were calibrated for local conditions. For the calibration, traffic volumes, lane configurations, lane utilization and signal timing were input into the traffic models. SimTraffic was then run for each peak period. The simulations were conducted with a Peak Hour Factor (PHF) to replicate the peaking traffic patterns within the peak hour. Turning speeds and headway factors in the SimTraffic model were adjusted and the model was re-simulated and, once again, compared to the field observed queue lengths and delays. This process was repeated until the model was visually comparable to the actual field observations. Once this visual level of calibration was gained, volume throughputs were summarized from the SimTraffic simulations and compared to actual count data.

Given the limited field data used for most traffic analyses, the manufacturers of SimTraffic consider the model to be calibrated when model results are within 20% of an observed goal. A 10% calibration is considered excellent but generally requires more detailed field data such as acceleration rates, reaction times, headways, and free flow speeds. ODOT's Transportation Planning and Analysis Unit (TPAU) has collected field data and suggested edits to some of these default simulation parameters. The suggested TPAU edits have been included in this analysis. Finally, 11 SimTraffic simulation seeds were run and any outliers were omitted. The five most consistent runs were averaged to obtain an average model run.





Legend

Turning Movement

AM (PM) Peak Hour Volume

TEV: Total Entering Volume

Signalized

STOP Control

Intersection Number

Figure 2

Existing Conditions (2017)

AM & PM Peak Hour Traffic Volumes

DAVID EVANS AND ASSOCIATES INC.

Existing (2017) Traffic Conditions

Existing AM and PM peak hour traffic operations were evaluated for the eight existing study area intersections. The operational criteria, jurisdictional standards, and procedures are described below followed by a discussion of the operational findings.

Operational Criteria

Transportation engineers have established various methods for measuring traffic operations of roadways and intersections, which are the basis for the mobility targets. Most jurisdictions in Oregon apply measures outlined in the *Highway Capacity Manual* using either the v/c ratio or LOS to report intersection operations and performance. Both the LOS and v/c ratio concepts require consideration of factors that include traffic demand, capacity of the intersection or roadway, delay, frequency of interruptions in traffic flow, relative freedom for traffic maneuvers, driving comfort, convenience, and operating cost. The v/c and LOS are defined here. Also included is a description of 95th percentile queues. Queuing analysis can provide additional context to the operational outputs.

> ***Volume-to-Capacity (v/c) Ratio:*** v/c ratio is a comparison of traffic demand to intersection capacity. As the v/c ratio approaches 1.00, traffic becomes more congested and unstable, with longer delays.
>
> ***Level of Service (LOS):*** LOS is a function of control delay, which includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay.
>
> ***95th Percentile Queues:*** The 95th percentile queue length (meaning 95 percent of all queues will be shorter) is used to examine queuing and where demand may exceed available storage.

Mobility Targets

The City of Beaverton and ODOT maintain separate mobility targets, which apply to the LT Mini TIA. ODOT's mobility target is a v/c of 0.85 overall. The City of Beaverton's has agreed to lessen, slightly, their mobility target is a v/c of 0.99 by lane group. Because the intersection of SW Baltic Ave at SW Barnes Rd is not within the City of Beaverton, the Washington County operational target of an overall intersection v/c of 0.99 will be referenced for intersections outside of the City of Beaverton. Table 1 depicts applicable mobility targets for each study area intersection.

Table 1. City, County and State Mobility Targets

Intersection		Jurisdiction	Target
1	SW Cedar Hills Blvd at SW Barnes Rd	Beaverton	0.99 by lane group
2	SW Cedar Hills Blvd at US 26 WB Ramps	ODOT	0.85 overall
3	SW Cedar Hills Blvd at US 26 EB Ramps	ODOT	0.85 overall
4	SW Cedar Hills Blvd at SW Butner Rd	Beaverton	0.99 by lane group
5	Towne Square Access at SW Barnes Rd	Beaverton	0.99 by lane group
6	SW Valeria View Dr at SW Barnes Rd	Beaverton	0.99 by lane group
7	US 26/OR 217 at SW Barnes Rd	ODOT	0.85 overall
8	SW Baltic Ave at SW Barnes Rd	Washington Co.	0.99 overall
9	*Access:* SW Barnes Rd at NW 116th Ave	Beaverton	0.99 by lane group

Existing (2017) Intersection Operations

Existing (2017) AM and PM peak hour traffic operations were evaluated at the study area intersections. These findings reflect the current signal timing plans. Table 2 summarizes the overall intersection results of the traffic operations analysis. Performance by lane group and detailed analysis worksheets are summarized in **Appendix A**.

Under existing conditions, two intersections exceed mobility targets (shown with white font in a black cell in the table below) in the AM peak hour and one intersection exceeds mobility targets in the PM peak hour. In both peak periods, SW Cedar Hills Boulevard at the US 26 Eastbound Ramps exceed ODOT's target of an overall v/c of 0.85. The intersection is currently STOP-controlled on the eastbound approach. The other intersection to exceed mobility targets in the AM peak hour is SW Cedar Hills Boulevard at SW Butner Road. The southbound through/right lane group has a v/c of 1.0, which exceeds the City's v/c target of 0.99 per lane group.

Table 2. Existing (2017) Intersection Operations

Intersection	Critical Movement	AM			PM		
		LOS	Delay	v/c	LOS	Delay	v/c
1. SW Cedar Hills Blvd at SW Barnes Rd	Worst Lane Group: AM SBTR & PM: SBTR	D	43.0	0.88	E	62.9	0.91
2. SW Cedar Hills Blvd at US 26 WB Ramps	Overall	A	8.9	0.63	A	7.2	0.56
3. SW Cedar Hills Blvd at US 26 EB Ramps	EB L/T	**F**	**513.8**	**1.46**	**F**	**251.6**	**0.87**
4. SW Cedar Hills Blvd at SW Butner Rd	Worst Lane Group: AM SBTR & PM: SBTR	**D**	**42.3**	**1.00**	D	39.2	0.97
5. Towne Square Access at SW Barnes Rd	Worst Lane Group: AM WBT & PM SBL	A	2.4	0.29	D	40.2	0.53
6. SW Valeria View Dr at SW Barnes Rd	Worst Lane Group: AM SBL & PM SBT	D	40.2	0.78	D	44.4	0.66
7. US 26/OR 217 at SW Barnes Rd	Overall	B	12.5	0.66	C	21.5	0.76
8. SW Baltic Ave at SW Barnes Rd	Overall	C	28.6	0.61	C	30.7	0.68
9. *Access*: SW Barnes Rd at NW 116th Ave	NB L/R	C	21.0	0.04	C	20.7	0.11

Existing (2017) Intersection Queuing

This section describes the presence and extent of queuing within the study area. When a movement is operating near or above capacity, a significant queue can begin to form. Depending on intersection operations, these queues can grow long enough to spill out from turn lanes and begin to affect through lanes. If an entire approach is over capacity, the resulting queuing can affect the entire roadway segment and in some extreme cases, multiple adjacent intersections.

Under existing conditions, the majority of the observed 95th percentile queues are not anticipated to exceed the available storage, with the exception of two intersections. The first location is the southbound queue on SW Cedar Hills Boulevard at SW Butner Road. This queue is anticipated to spill back to the adjacent intersection of SW Cedar Hills Boulevard at US 26 Eastbound Ramps during both the AM and PM peak hours. The second is the southbound queue on SW Cedar Hills Boulevard at SW Barnes Road. During the PM peak hour, the observed queue has spillback that extends through the unsignalized intersection of SW Celeste Lane (the adjacent intersection to the north). The eastbound US 26 exit ramp queue approaching SW Cedar Hills Boulevard is impossible to simulate as many drivers

currently make illegal left turn maneuvers into oncoming (southbound) lanes to get past stopped southbound left-turning vehicles. Detailed queuing summaries are presented in **Appendix B**.

Safety Analysis

The Washington County Safety Priority Index System (SPIS) 2017 (2013-2015 crashes) was used to identify project study intersections that may be potentially hazardous based on past collision frequency and severity. Of the eight study area intersections, five intersections are on the County's SPIS list, two intersections are ODOT-controlled, and the final intersection (Valeria View) likely does not meet the criteria to be listed. The County's SPIS list identifies and ranks potentially hazardous intersections and shows the severity of the crashes that occurred, but does not identify the type of crash. The highest SPIS score possible is 100; the top 10% of the sites on the SPIS list have a score of 75.4 or higher. The five intersections included in the County's SPIS list are shown in Table 3.

Table 3. Crash Summary of SPIS Sites

Intersection	SPIS Score	SPIS Rank	Injury A	Injury B	Injury C	Property Only	TOTAL
1 SW Cedar Hills Blvd at SW Barnes Rd	81.6	8	1	2	20	**35**	**58**
4 SW Cedar Hills Blvd at SW Butner Rd	57.0	82	1	4	6	**11**	**22**
5 Towne Square Access at SW Barnes Rd	30.6	243	1	1	0	**3**	**5**
7 US 26/OR 217 at SW Barnes Rd	38.6	169	0	1	9	**9**	**19**
8 SW Baltic Ave at SW Barnes Rd	86.2	1	3	10	20	**32**	**65**

Source: Washington County SPIS List

No fatalities occurred at any of the study area intersections. The intersection of SW Baltic Avenue and SW Barnes Road has the highest SPIS score in the County, with three Injury A crashes and ten Injury B crashes contributing to the high overall score. The proximity of the intersection to the US 26/Hwy 217 interchange, coupled with at-capacity operations, likely contribute to the high crash rate. This intersection is planned to have many improvements in the future, which should result in a reduction in the crash rate at this intersection. Future improvements include the Baltic Extension connection to SW 95th Avenue, St. Vincent's Master Plan improvements, and Peterkort PUD required mitigations. The improvements will be designed to provide adequate sight distance to the signal heads and dual left-turn pockets will require protected phasing on each approach. The capacity of the intersection will be improved with the addition of travel lanes and turn-pockets, which will reduce the queuing and delay that occurs at the intersection. The expansion of the westbound approach will allow vehicles to more effectively select appropriate lanes, minimizing merging and lane changes, as they near the Baltic intersection through the provision of a third westbound auxiliary lane across the frontage of the Hospital. The development of the LT Project does not trigger the PUD improvements listed above, as the impact of the additional LT trips is very low at these intersections. These improvements would be triggered with later phases of the PUD buildout.

The intersection of SW Cedar Hill Boulevard and SW Barnes Road has the eighth highest SPIS score in the County with 1 Injury A crash and 35 Property Damage Only (PDO) crashes. The high number of PDO

crashes is indicative of congested areas where queuing is present and vehicles are stopping and starting frequently. Today, as vehicles traverse the double northbound left-turns from SW Cedar Hills Boulevard to SW Barnes Road, they must immediately merge down to a single lane; this merging requirement reduces the efficiency and safety of the turn movement as drivers are beginning to position for the downstream merge. The proposed mitigations for the LT Project, discussed in later in this TIA, would extend the two westbound receiving lanes on SW Barnes Road and connect them to the 5-lane cross section further west on SW Barnes Road, thereby eliminating the need for drivers to position as they maneuver the turn. This improvement is anticipated to lead to a reduction in crashes at this intersection.

Intersections 4, 5, and 7 are not in the top 10% of the County's SPIS Sites; therefore, they do not warrant further investigation.

A review of the ODOT SPIS data shows that the intersection of SW Cedar Hills Boulevard and the US 26 EB Ramp experienced a high number of turning-type crashes. This is likely due to the excessive delay experienced by drivers exiting US 26 and attempting to make a left turn on northbound SW Cedar Hills Boulevard. As discussed the next section of this report, there is currently a project to signalize the intersection. The project is planned to be fully constructed by the end of 2019 and is expected to address the high number of turning crashes that were observed in the three-year period from 2014 to 2016. The details of the safety analysis can be found in the latter portion of **Appendix B**.

Background Conditions

Background conditions reflect the study area for year 2021 with funded planned projects constructed and without the presence of the LT Project. The assessment of background traffic conditions includes development of background traffic volumes and an assessment of traffic operations for year 2021.

2021 Planned Projects

Within the study area, the City staff provided the following intersection improvements and planned developments to be assumed under the future 2021 background conditions:

- SW Cedar Hills Blvd at US 26 EB Ramps intersection signalization with the signalized intersection of SW Cedar Hills Blvd at SW Butner Rd running out of the same controller. The signal system of the Cedar Hills Boulevard corridor between Barnes and Butner was assumed to be interconnected with this project.
- St. Vincent's expansion (planned development)
- Touchmark West (planned development)
- Touchmark East (planned development)
- Remaining Timberland parcel (planned development)

Background (2021) Volumes Development

To calculate the 2021 Background volumes, a growth rate of 0.5% per year was applied to the existing (2017) AM and PM balanced turning movement volumes. The growth rate is specified in the Peterkort PUD traffic study and reflects site-specific conditions of the PUD. The growth rate was agreed upon with the City and County during the scoping of this project.

Currently, substantial delays cause drivers to avoid the unsignalized intersection of SW Cedar Hills Blvd at the US 26 EB Ramp terminal. Once the intersection is signalized, it is expected to draw some of those

diverted vehicles back to the intersection. As was done in the Peterkort PUD study, a total of 100-vehicles were shifted from Murray Avenue and Baltic Avenue to SW Cedar Hills Blvd. The total background turning movement volumes are depicted in Figure 3, which include the existing turning movement volumes grown to the year 2021 and then increased by the traffic expected to be generated from the planned projects (noted above). Figure 4 summarizes the trips that were added as part of the planned projects that are assumed complete by 2021. Further details summarizing the development of the 2021 background traffic volumes are found in **Appendix C**.

Background (2021) Traffic Conditions

Background traffic operations were evaluated for the eight existing study area intersections. The operational findings are described below and detailed analysis worksheets are available in **Appendix D**.

Background (2021) Intersection Operations

Table 4 summarizes the overall intersection results of the traffic operations analysis. Performance by lane group is summarized in **Appendix D**. The operations analysis shows that the signalization of the SW Cedar Hills Boulevard at the US 26 Eastbound Ramp significantly improves the intersection's operations.

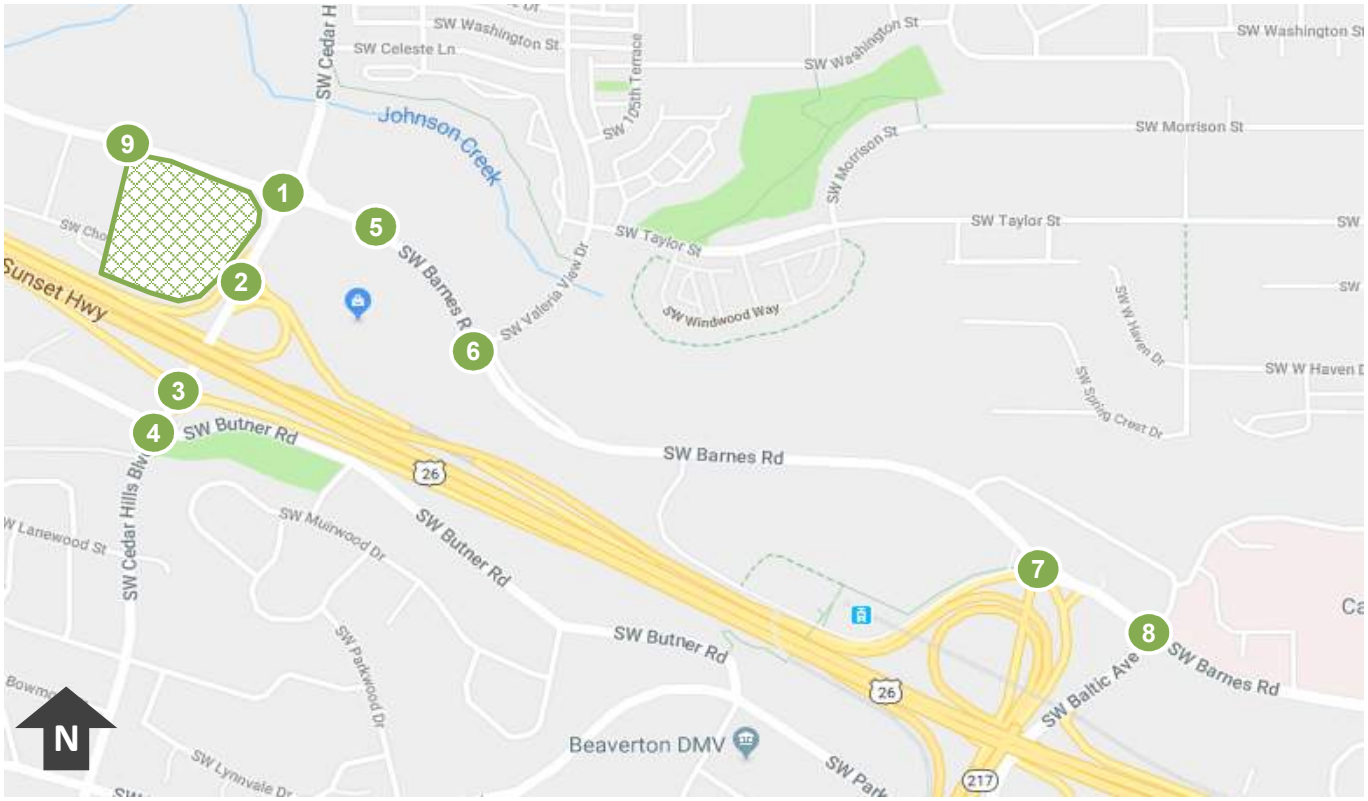
Under background conditions, one study area intersection in the PM peak hour is expected to exceed the ODOT target of 0.85 (shown with white font in a black cell in the table below). The intersection of US 26/OR 217 at SW Barnes Road is expected to operate at a v/c of 0.90.

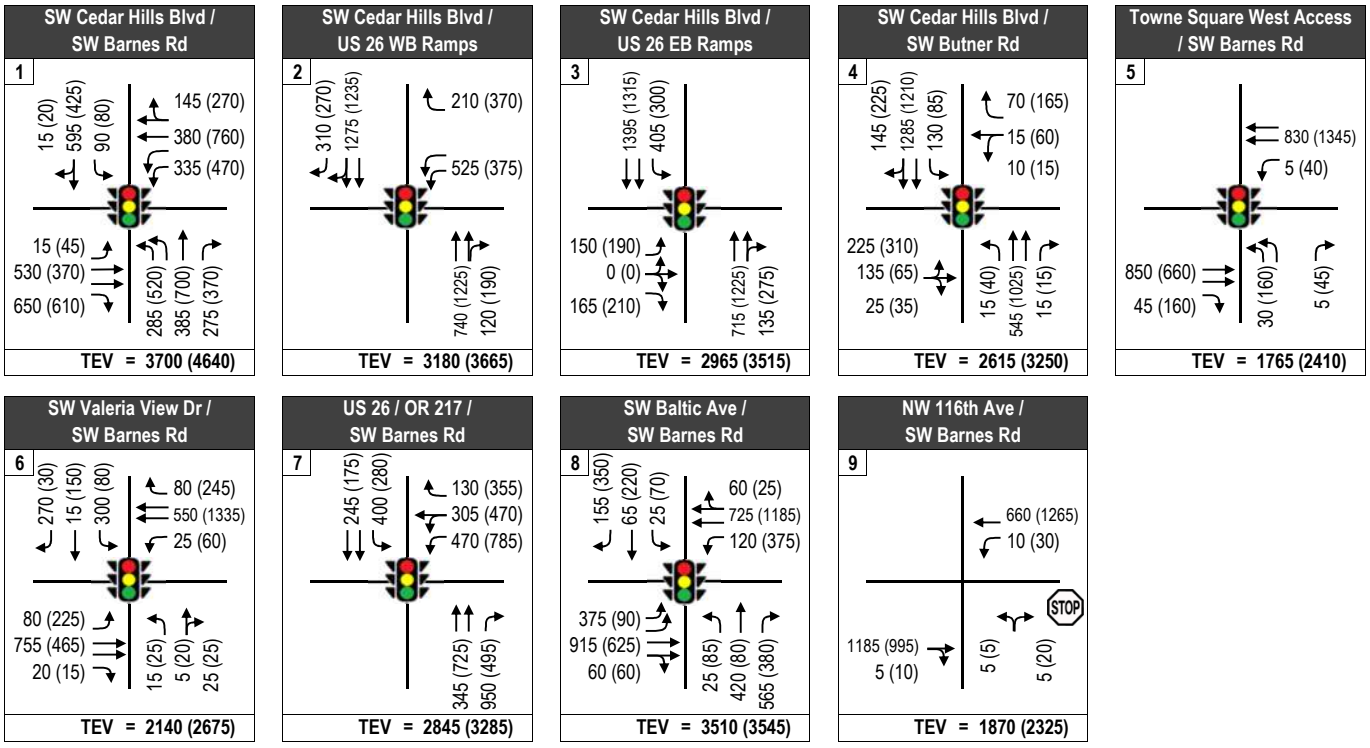
Table 4. Background (2021) Intersection Operations

Intersection	Critical Movement	AM			PM		
		LOS	Delay	v/c	LOS	Delay	v/c
1. SW Cedar Hills Blvd at SW Barnes Rd	Worst Lane Group: AM SBTR & PM: WBTR	F	68.1	0.98	E	58.2	0.95
2. SW Cedar Hills Blvd at US 26 WB Ramps	Overall	B	10.3	0.64	B	10.1	0.69
3. SW Cedar Hills Blvd at US 26 EB Ramps	EB L/T	C	23.5	0.78	B	19.5	0.86
4. SW Cedar Hills Blvd at SW Butner Rd	Worst Lane Group: AM SBTR & PM: EBLTR	B	16.8	0.88	D	48.1	0.85
5. Towne Square Access at SW Barnes Rd	Worst Lane Group: AM EBT & PM NBL	A	2.7	0.33	D	40.1	0.54
6. SW Valeria View Dr at SW Barnes Rd	Worst Lane Group: AM SBL & PM EBL	D	39.6	0.80	B	16.4	0.69
7. US 26/OR 217 at SW Barnes Rd	Overall	B	15.3	0.78	**C**	**33.2**	**0.90**
8. SW Baltic Ave at SW Barnes Rd	Overall	C	34.6	0.80	C	32.2	0.77
9. *Access*: SW Barnes Rd at NW 116th Ave	NB L/R	C	22.9	0.05	C	22.0	0.11

Background (2021) Intersection Queuing

The queuing results for the 2021 background condition are intended to be a reference point for assessing the impacts of the trips generated by the LT Project. During both the AM and PM peak hours, queues along the SW Cedar Hills Boulevard corridor are anticipated to extend beyond the available turn lane storage and beyond the available storage/spacing between intersections for through lanes in both directions. During the PM peak hour, queuing results indicate that vehicles traveling westbound on SW Barnes Road could experience congestion at the intersection of US 26/OR 217 and SW Barnes Road through the intersection of SW Barnes Road and SW Baltic Avenue and beyond the next intersection to the east. Detailed queuing summaries are presented in **Appendix E**.



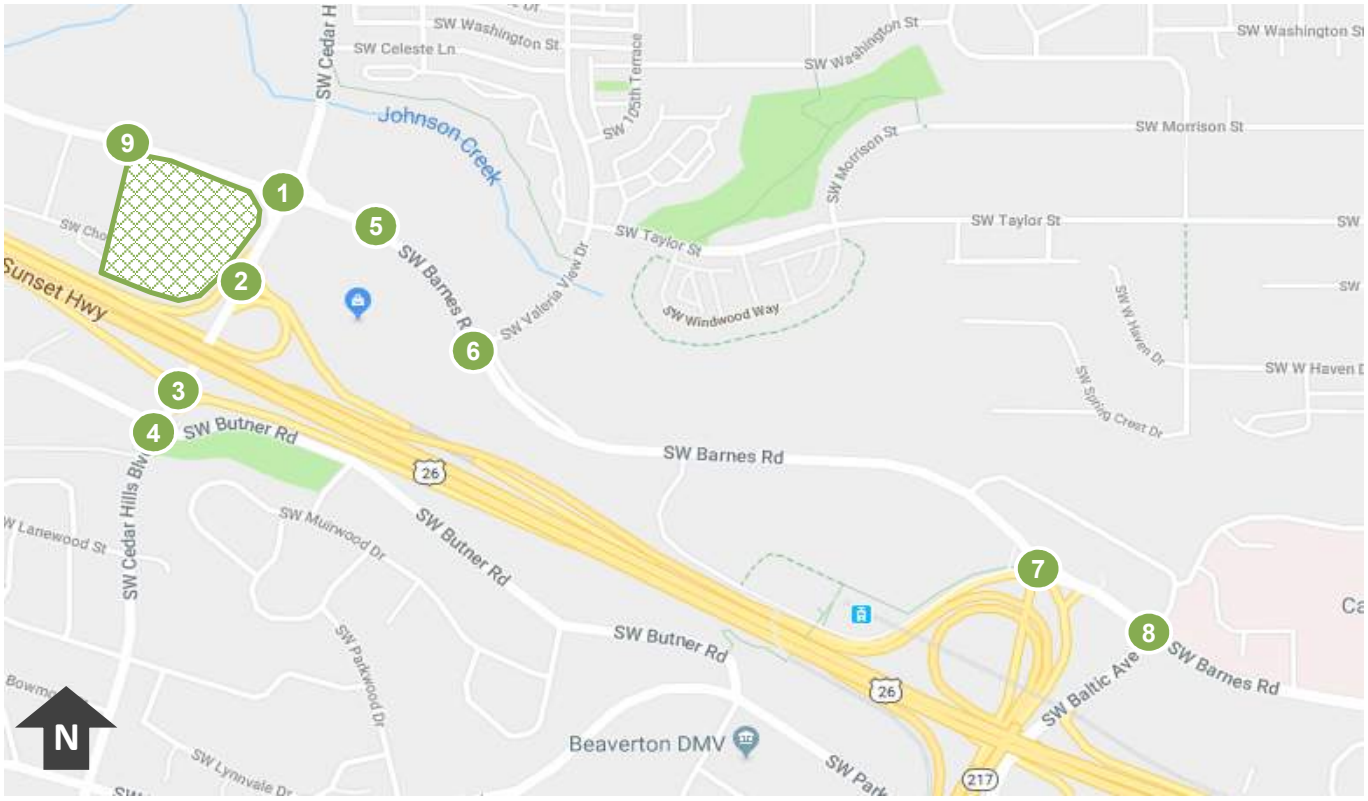


Legend

- Turning Movement
- ### AM (PM) Peak Hour Volume
- TEV: Total Entering Volume
- Signalized
- STOP Control
- # Intersection Number

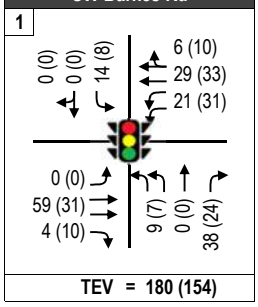
Figure 3
Background Conditions (2021)
AM & PM Peak Hour Traffic Volumes

DAVID EVANS AND ASSOCIATES INC.



SW Cedar Hills Blvd / SW Barnes Rd

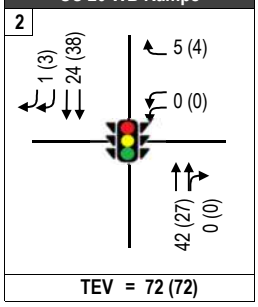
1



TEV = 180 (154)

SW Cedar Hills Blvd / US 26 WB Ramps

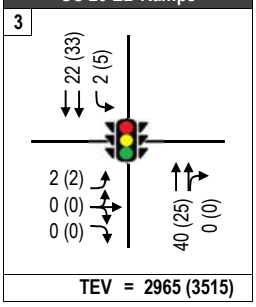
2



TEV = 72 (72)

SW Cedar Hills Blvd / US 26 EB Ramps

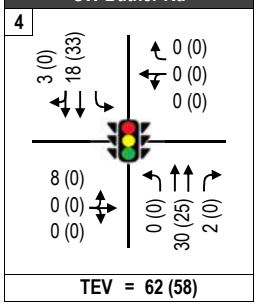
3



TEV = 2965 (3515)

SW Cedar Hills Blvd / SW Butner Rd

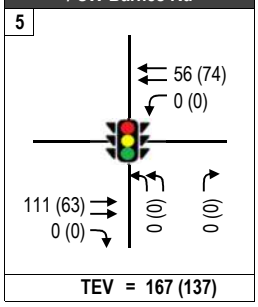
4



TEV = 62 (58)

Towne Square West Access / SW Barnes Rd

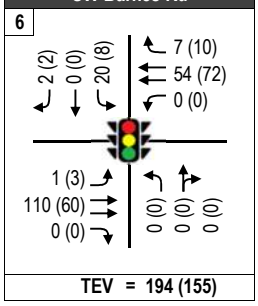
5



TEV = 167 (137)

SW Valeria View Dr / SW Barnes Rd

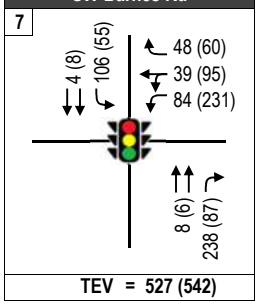
6



TEV = 194 (155)

US 26 / OR 217 / SW Barnes Rd

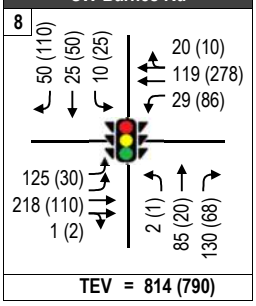
7



TEV = 527 (542)

SW Baltic Ave / SW Barnes Rd

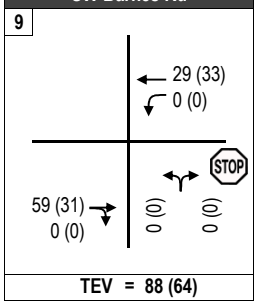
8



TEV = 814 (790)

NW 116th Ave / SW Barnes Rd

9



TEV = 88 (64)

Legend

- Turning Movement
- ### AM (PM) Peak Hour Volume
- TEV: Total Entering Volume
- Signalized
- STOP Control
- # Intersection Number

Figure 4

Pipeline Volumes (2021)

AM & PM Peak Hour Traffic Volumes

DAVID EVANS AND ASSOCIATES INC.

Project Conditions

This section describes the anticipated traffic conditions within the study area once the LT Project is constructed and occupied. The assessment of Project traffic conditions includes development of Project traffic volumes and an assessment of traffic operations for year 2021.

2021 Planned Projects

Within the study area, the LT Project builds upon the background (2021) conditions with the following improvements constructed to mitigate the impacts of the Project:

- Construct a 2-lane public street (NW 116th Ave.) connecting SW Barnes Road to SW Choban Lane on the western edge of the property.
- Construct a new unsignalized public street intersection where the new NW 116th Ave. meets SW Barnes Road.
- Construct the site frontage improvement along SW Barnes Road (as described in the 2013 Peterkort PUD conditions of approval).
- Construct a second eastbound right-turn lane from SW Barnes Road to SW Cedar Hills Boulevard (as described in the 2013 Peterkort PUD conditions of approval).
- Construct the site frontage improvement along SW Cedar Hills Boulevard (as described in the 2013 Peterkort PUD conditions of approval, and refined with this TIA).

Site Trip Generation

Trip generation for the LT Project was determined based on two data sources: (1) a study prepared by TRC Engineers, Inc., *Life Time Fitness Centers: Traffic & Parking Design Characteristics* (TRC Report), based on traffic counts collected at existing, LT fitness centers with fully developed memberships, and (2) the Institute of Transportation Engineers (ITE) Trip Generation Manual (10th edition).

LT commissioned the TRC Report in 2007 for evaluating traffic impacts of LT fitness centers. As explained in the report, the traffic characteristics of ITE land use categories do not accurately reflect trips generated by LT fitness centers due to significant differences (largely in size and membership characteristics) between the ITE data samples and LT fitness centers. To accurately characterize traffic characteristics of LT fitness centers, the study evaluated traffic counts, membership data, and pass-by data interviews at five LT fitness centers located in four states, in three different regions in the United States. The TRC Report discussing the results of the five-facility study is included as **Appendix F**.

The trip generation data from the TRC Report was used to estimate trip generation for the proposed 140,000 sq. ft. fitness center. However, the facilities evaluated in the TRC Report did not include tennis courts or office space. For that reason, the ITE Trip Generation report was used to estimate trip generation for the 10 tennis courts and 31,170 sq. ft. office space.

Addendum 2 provides a more detailed discussion of the use of the TRC Report and the ITE Trip Generation report to estimate trip generation for the LT Project. As discussed in that addendum, utilizing the trip generation data from the TRC Report produces the most conservative trip generation estimate for the LT Project.

After the initial trip generation was estimated, trip reductions were applied to reflect pass-by trips to the LT Site, and the trips were distributed throughout the study area.

Trip Generation

Three different land uses were assumed for the proposed LT Project, 140,000 square foot of fitness center, 10 indoor tennis courts, and 31,170 square feet of office space.

The outdoor pool that will be constructed as part of the LT Project is considered an ancillary use to the Fitness Center. All five of the sites studied in the TRC Report included outdoor and pool space. The trips associated with the outdoor pool are therefore assumed in the trip generation rate identified in the TRC Report. Table 5 depicts the trip generation associated with the Project and the total network trips for the Project are summarized in Figure 5.

Trip Reductions

The proposed site of the LT development is currently vacant and there are currently no existing trips to or from the site. As such, no trip reductions were taken for existing uses.

The total trip generation estimate for the LT Project was reduced to reflect pass-by trips. The ITE Trip Generation Handbook discusses pass-by trips as:

> "…made as intermediate stops on the way from an origin to a primary trip destination without a route diversion. Pass-by trips are attracted from traffic passing the site on an adjacent street or roadway that offers direct access to the generator. Pass-by trips are not diverted from another roadway."

The methodology in the TRC Report was used to calculate pass-by trip volumes for the fitness center; no pass-by trips were assumed for the tennis court and offices. The TRC Report assumes a pass-by rate of 29% for sites with at least one high-volume street. Because SW Barnes Road and SW Cedar Hills Boulevard are both high-volume streets, a pass-by rate of 29% was assumed for this analysis, which is conservative. There was one subtle nuance to the pass-by trip calculations. A portion of the 29% of pass-by trips were diverted from the north and southbound through trips on SW Cedar Hills Boulevard. This change was made due to the natural "funneling" of traffic that occurs north of the site towards the SW Cedar Hills Boulevard corridor. Figure 6 summarizes the intersections impacted by pass-by trips and the associated traffic volumes.

Table 5. AM and PM Peak Hour Network Trip Generation

Land Use[1,2]	Size		AM			PM		
			In	Out	Total	In	Out	Total
LT Trip Generation	140	1,000 SF	192	152	344	359	250	609
Racquet/Tennis Club (ITE 491)	10	Courts	15	14	29	19	19	38
Office (ITE 710)	31.17	1,000 SF	31	5	36	6	30	36
Trips Generated			238	171	409	384	299	683
Pass-By Trips[3]			*56*	*44*	*100*	*105*	*72*	*177*
Total Peak Hour Network Trips			**182**	**127**	**309**	**279**	**227**	**506**

1. TRC Engineers, Inc., *Life Time Fitness Centers: Traffic & Parking Design Characteristics*, 2007.
2. ITE Trip Generation Manual, 10th ed.
3. Pass-by trips were calculated using the percentage outlined in the TRC Report (29%), and are applied only to fitness center generated trips; not the racquet/tennis or office uses.

The land uses assumed in the 2013 PUD for the "Towne Square Two" site generated a higher total number of peak hour trips than the proposed LT Project. The PUD identified 477 and 557 total trips in the AM and PM peak hours, respectively.

Trip Distribution

The LT Project's projected trips were reviewed in combination with the existing traffic patterns and land uses near the LT Project area with insight from the Peterkort PUD study to determine how the site generated trips would travel to and from the proposed LT Project. The City, County, and State technical transportation staff agreed with the assumption that the LT fitness center trips would distribute similar to the "retail" distribution from the Peterkort PUD study. The "retail" distribution results in a more localized draw, which is also assumed true for a fitness center. The distribution of trips to and from the office space and tennis facility were determined to be consistent with the "office" distribution from the Peterkort PUD study. The "office" distribution results in a regional draw, which is also assumed true for a larger tennis facility. The resulting trip distribution percentages are shown in Figure 7**.** The distribution percentages were also agreed to by the agency staff.

Project (2021) Volume Development

To calculate the 2021 Project volumes, site generated and pass-by trips were applied to the background (2021) conditions. The total Project turning movement volumes are depicted in Figure 8. Further details summarizing the development of the 2021 Project traffic volumes are found in **Appendix C**.

Project (2021) Traffic Conditions

Project AM and PM peak hour traffic operations were evaluated for the eight existing study area intersections plus the proposed access. The operational findings are described below, and detailed analysis worksheets are available in **Appendix G**.

Project (2021) Intersection Operations

Table 6 summarizes the overall intersection results of the traffic operations analysis. Performance by lane group is summarized in **Appendix G**.

Three of the study area intersections are not expected to meet the applicable mobility targets (shown with white font in a black cell in the table on the following page). First, in the PM peak hour, SW Cedar Hills Boulevard at SW Barnes Road is expected to operate with a maximum lane group v/c of 1.16 (up from 0.95 in the Background 2021 condition), which exceeds the City's 0.99 mobility target. Mitigation will be required to meet the City's mobility target for the intersection of SW Cedar Hills Boulevard and SW Barnes Road.

Second, the intersection of US 26/OR 217 at SW Barnes Road exceeds ODOT's 0.85 mobility target with an expected v/c ratio of 0.91 (up from 0.90 in the Background 2021 condition). Mitigation will be required to meet ODOT's mobility target for the intersection of US 26/OR 217 and SW Barnes Road.

Third, the access point of SW Barnes Road at NW 116th Avenue is not expected to meet operational standards as an unsignalized intersection. Mitigation will be required at the SW Barnes Rd at NW 116th Avenue intersection.

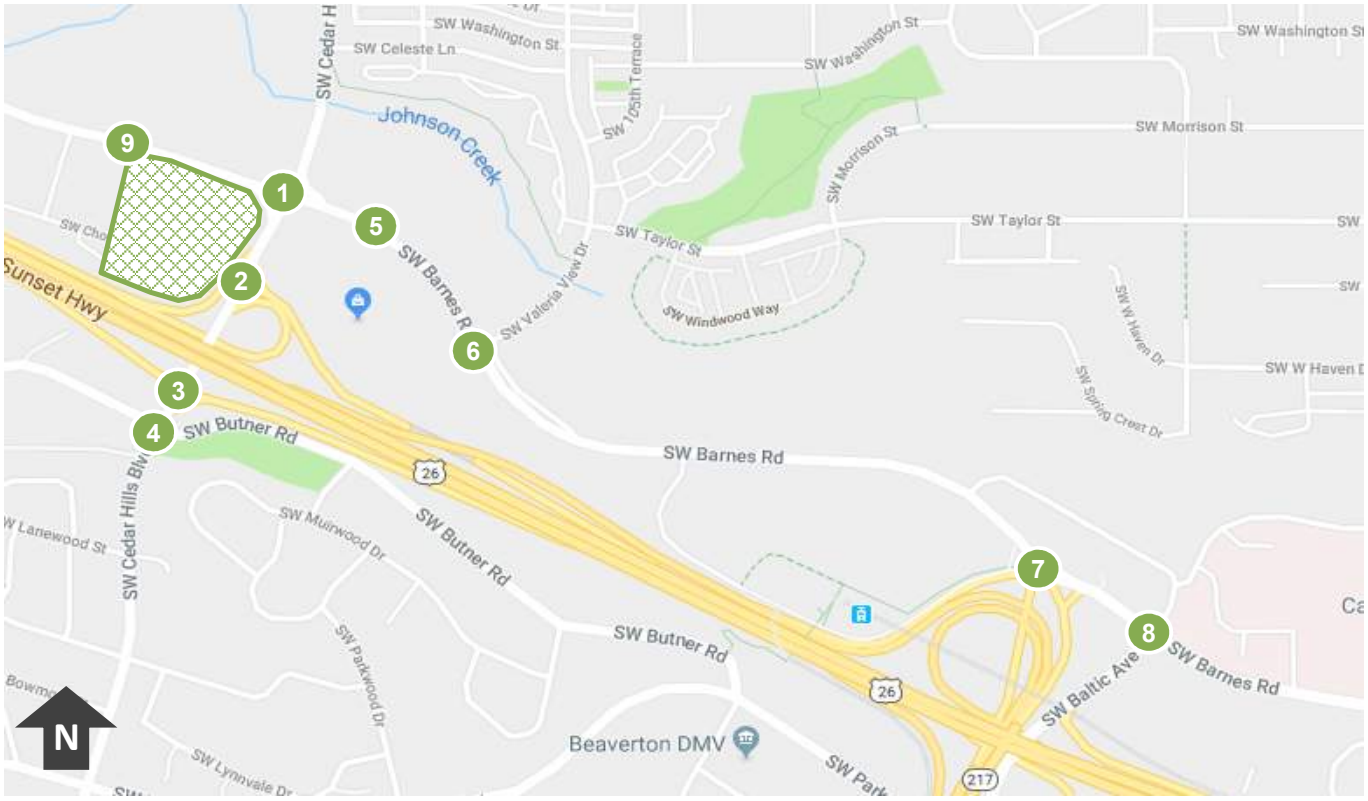
Finally, although the intersection of SW Cedar Hills Boulevard at SW Butner Road is expected to operate with a PM peak hour V/C of 1.02, each lane group is expected to operate with a V/C of 0.95 or better. Because each lane group meets the City's mobility target, no mitigation is proposed.

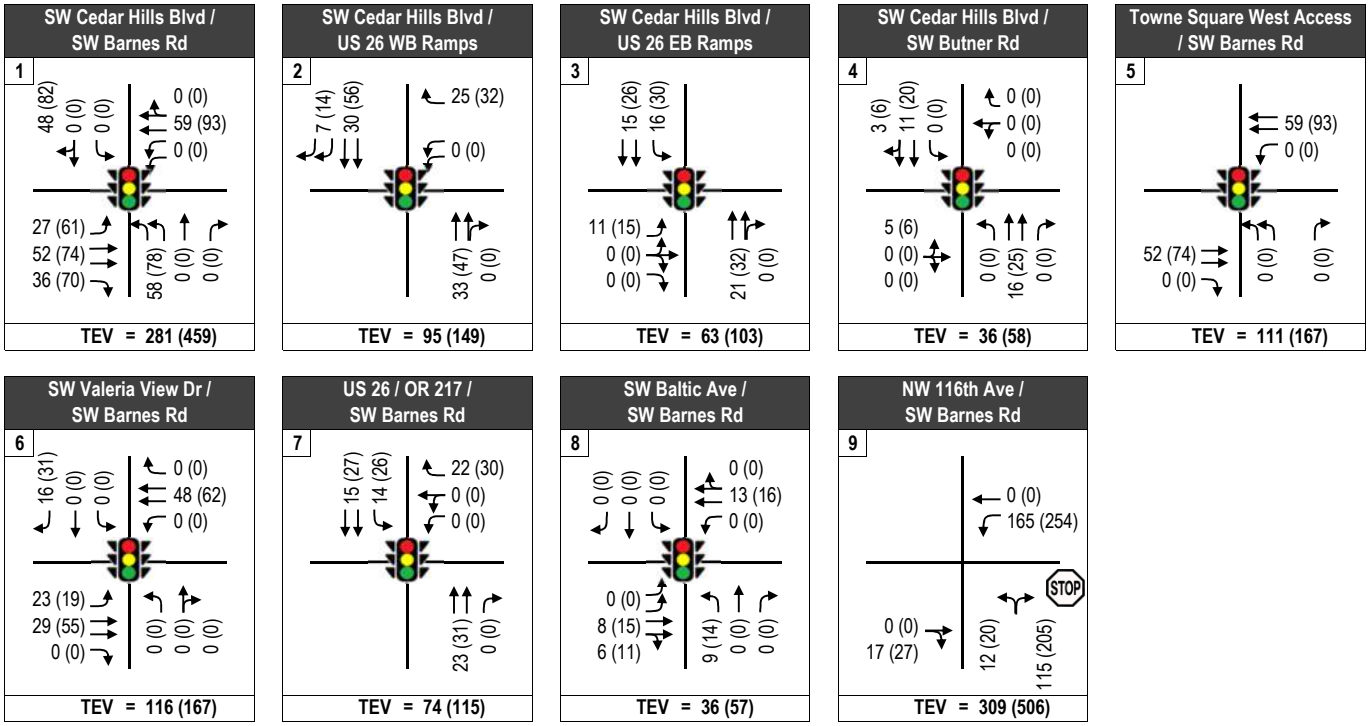
Table 6. Project (2021) Intersection Operations

Intersection	Critical Movement	AM			PM		
		LOS	Delay	v/c	LOS	Delay	v/c
1. SW Cedar Hills Blvd at SW Barnes Rd	Worst Lane Group: AM SBTR & PM: SBTR	E	64.6	0.98	**F**	**138.0**	**1.16**
2. SW Cedar Hills Blvd at US 26 WB Ramps	Overall	B	10.3	0.65	B	12.5	0.74
3. SW Cedar Hills Blvd at US 26 EB Ramps	EB L/T	C	27.1	0.75	C	25.2	0.78
4. SW Cedar Hills Blvd at SW Butner Rd	Worst Lane Group: AM SBTR & PM: EBLTR	C	32.2	0.99	E	69.5	0.95
5. Towne Square Access at SW Barnes Rd	Worst Lane Group: AM EBT & PM NBL	A	2.8	0.35	D	40.1	0.54
6. SW Valeria View Dr at SW Barnes Rd	Worst Lane Group: AM SBL & PM EBL	D	39.6	0.80	C	22.6	0.75
7. US 26/OR 217 at SW Barnes Rd	Overall	B	15.9	0.78	**D**	**36.1**	**0.91**
8. SW Baltic Ave at SW Barnes Rd	Overall	C	34.8	0.81	C	33.6	0.78
9. *Access*: SW Barnes Rd at NW 116th Ave	NB L/R	**F**	**>120**	**>2.00**	**F**	**>120**	**>2.00**

Project (2021) Intersection Queuing

The analysis determined that the lack of available capacity at the intersection of SW Cedar Hills Boulevard and SW Barnes Road is expected to cause excessive queuing in the PM peak hour in the north and southbound directions along SW Cedar Hills Boulevard approaching SW Barnes Road. While the v/c ratio for the intersection of US 26/OR 217 at SW Barnes Rd increases beyond the ODOT threshold in the PM peak hour, there is no expected change in the off-ramp queue length. The queue is expected to be 300 feet long in both the Background (2021) condition and the Project condition. The mitigations presented in the next section of this TIA are intended to address the queuing deficiencies. Detailed queuing summaries are presented in **Appendix H**.



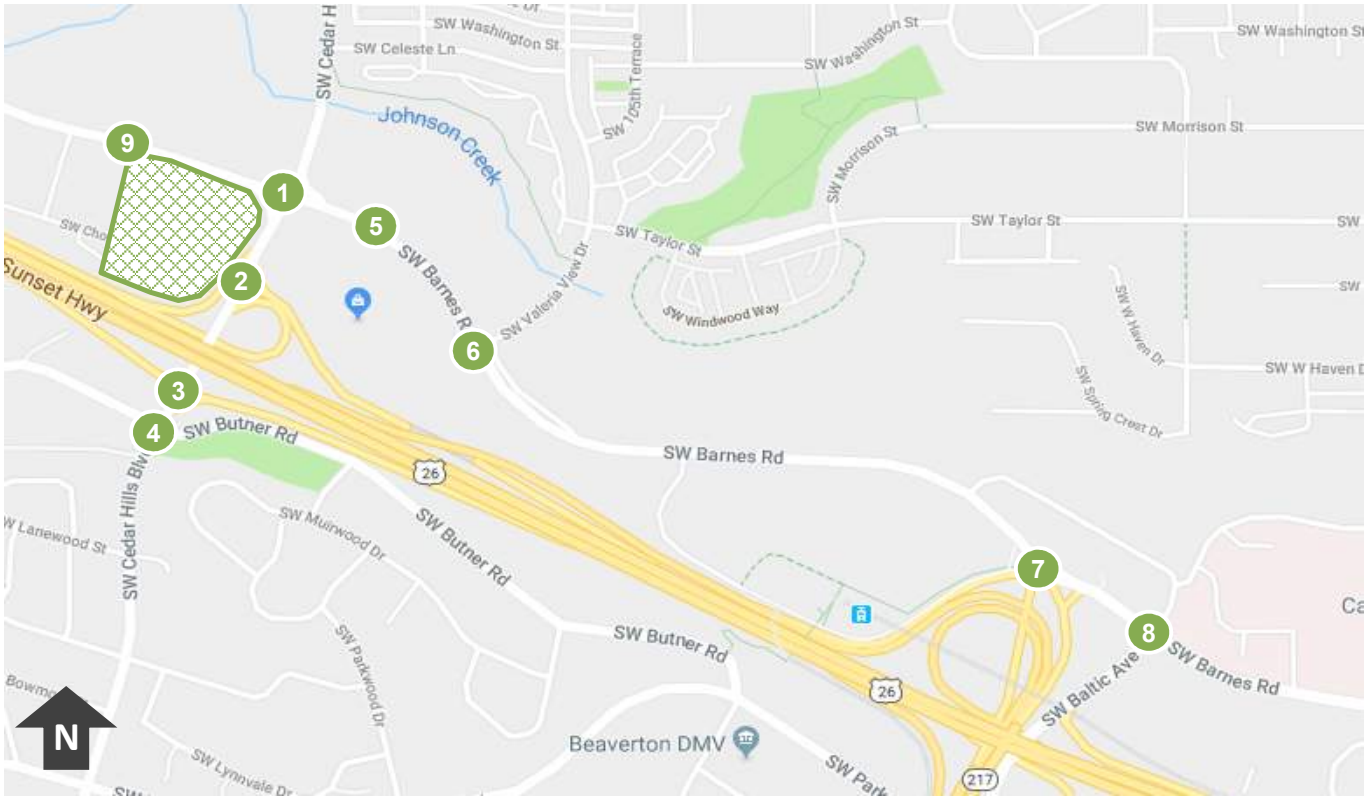


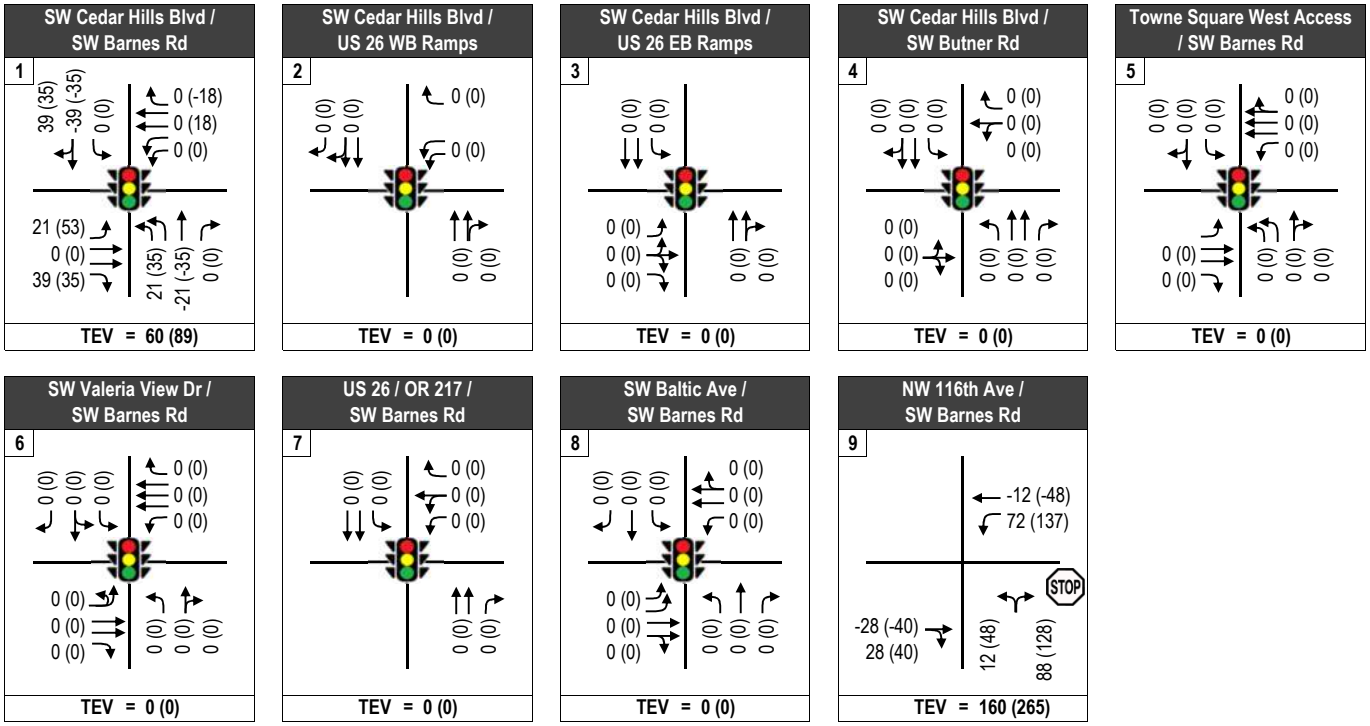
Legend

- Turning Movement
- ### AM (PM) Peak Hour Volume
- TEV: Total Entering Volume
- Signalized
- STOP Control
- # Intersection Number

Figure 5
Site Generated Trips (2021)
AM & PM Peak Hour Traffic Volumes

DAVID EVANS AND ASSOCIATES INC.



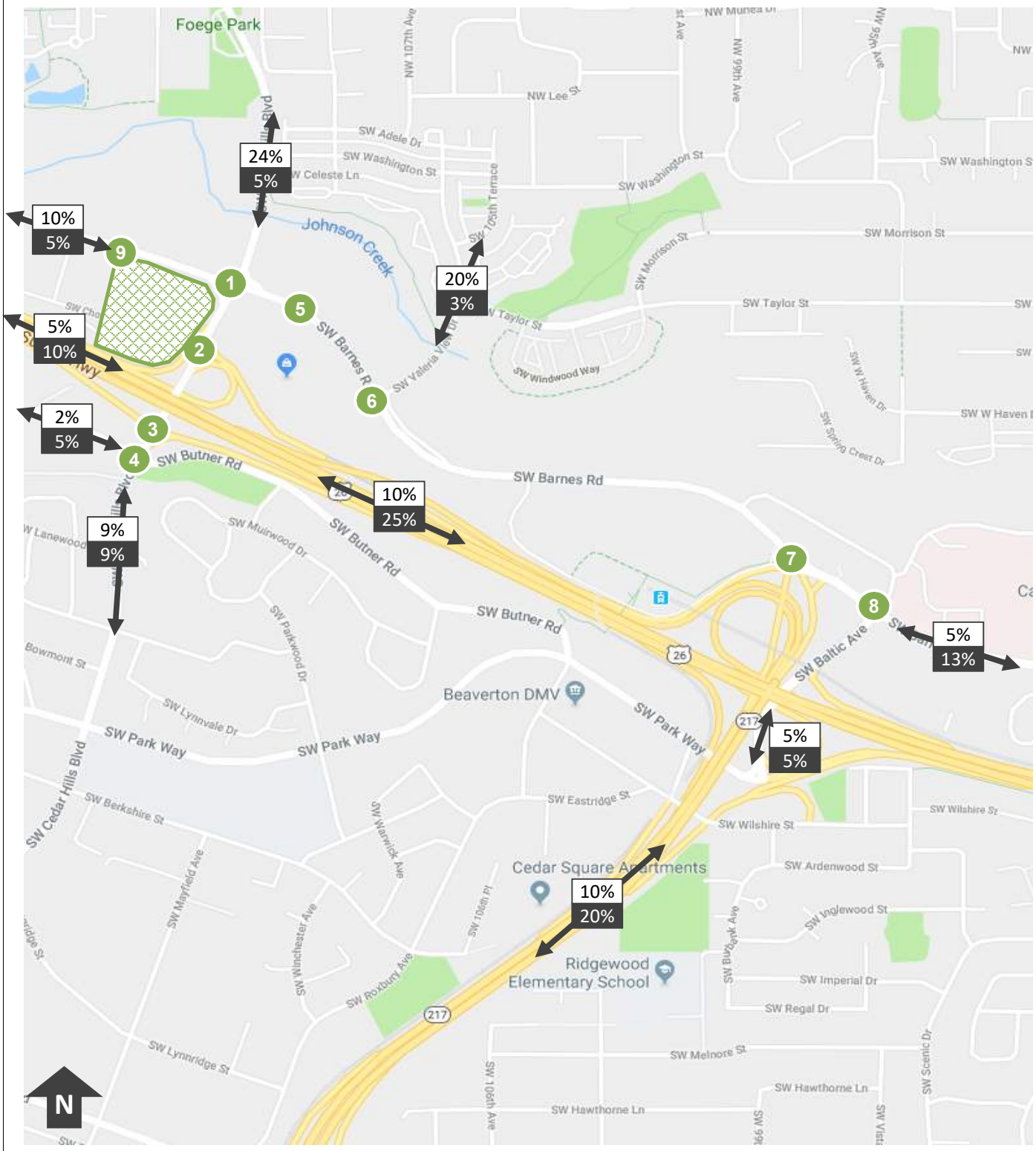


Legend

- Turning Movement
- ### AM (PM) Peak Hour Volume
- TEV: Total Entering Volume
- Signalized
- STOP Control
- # Intersection Number

Figure 6
Pass By Trips (2021)
AM & PM Peak Hour Traffic Volumes

DAVID EVANS AND ASSOCIATES INC.



Legend

Study Intersection

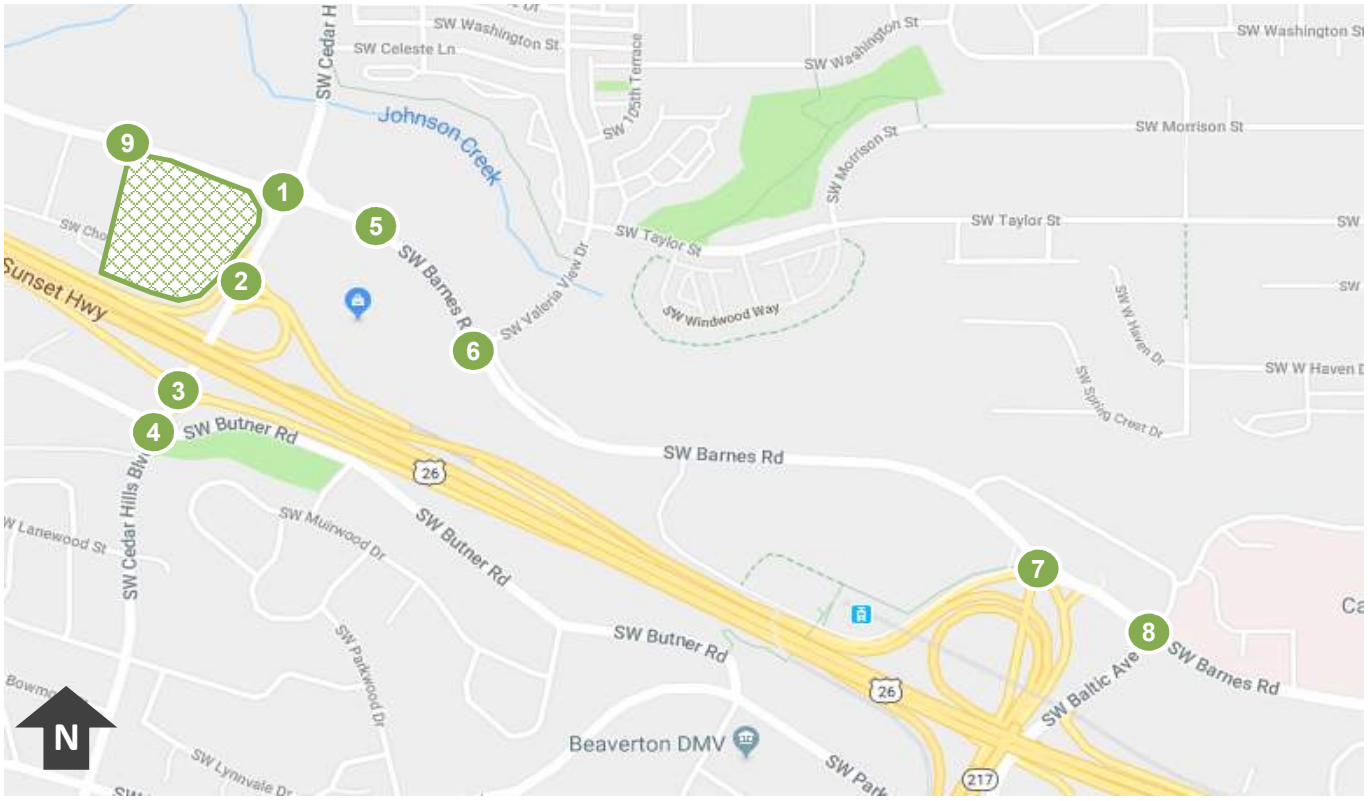
Proposed Development Site

LifeTime
Office/Tennis

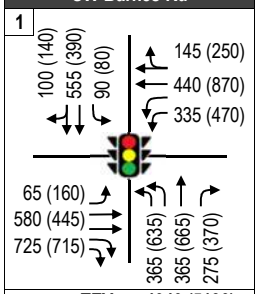
Trip Distribution Pattern

Figure 7
Trip Distribution

DAVID EVANS AND ASSOCIATES INC.

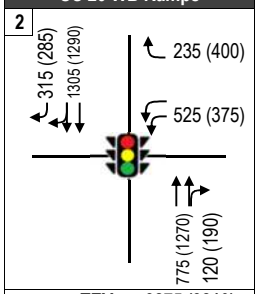


SW Cedar Hills Blvd / SW Barnes Rd (1)



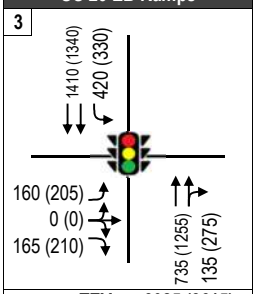
TEV = 4040 (5190)

SW Cedar Hills Blvd / US 26 WB Ramps (2)



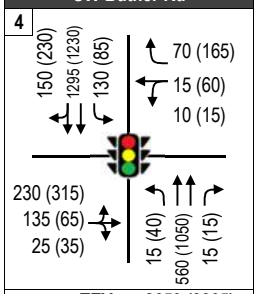
TEV = 3275 (3810)

SW Cedar Hills Blvd / US 26 EB Ramps (3)



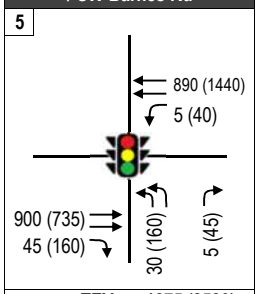
TEV = 3025 (3615)

SW Cedar Hills Blvd / SW Butner Rd (4)



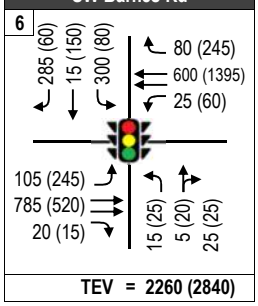
TEV = 2650 (3305)

Towne Square West Access / SW Barnes Rd (5)



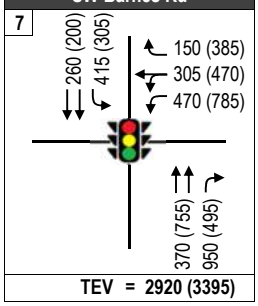
TEV = 1875 (2580)

SW Valeria View Dr / SW Barnes Rd (6)



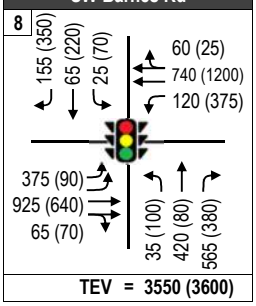
TEV = 2260 (2840)

US 26 / OR 217 / SW Barnes Rd (7)



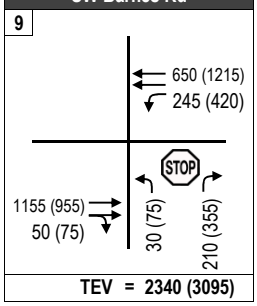
TEV = 2920 (3395)

SW Baltic Ave / SW Barnes Rd (8)



TEV = 3550 (3600)

NW 116th Ave / SW Barnes Rd (9)



TEV = 2340 (3095)

Legend

- Turning Movement
- ### AM (PM) Peak Hour Volume
- TEV: Total Entering Volume
- Signalized
- STOP Control
- # Intersection Number

Figure 8
Total Project Volumes (2021)
AM & PM Peak Hour Traffic Volumes

DAVID EVANS AND ASSOCIATES INC.

Mitigated Conditions

Three intersections were identified as needing additional mitigation.

1. SW Cedar Hills Boulevard at SW Barnes Road: the additional Project trips are expected to cause the southbound through/right v/c to rise from 0.95 under the background conditions to 1.16 under the project conditions in the PM peak hour.
2. SW Barnes Road at NW 116th Avenue: the additional Project trips are expected to cause the northbound approach leg v/c ratio to increase in excess of 2.0 in both the AM and PM peak hours.
3. US 26/OR 217 at SW Barnes Road: the additional Project trips are expected to cause the overall intersection v/c ratio to increase by 0.01, from 0.90 to 0.91.

SW Cedar Hills at SW Barnes: To mitigate the expected impact of the LT Project to the SW Cedar Hills at SW Barnes Road intersection operations, we recommend that LT widen the northern leg of the intersection to construct a shared southbound through/right-turn lane. This mitigation would result in the worst lane group of the intersection to switch to the northbound through with a v/c ratio 0.98 in the PM peak hour, which meets the City's v/c standard. If this mitigation is completed, we suggest that the southbound right-turn lane be designed with a storage length of between 180 and 200 feet.

NW 116th at SW Barnes: To mitigate the expected impact of the LT Project to the NW 116th Avenue intersection operations, we suggest that LT install a traffic signal and complete the 5-lane widening of SW Barnes Road. The signal would operate as an actuated signal, but would not be coordinated with any other signals. The 5-lane widening would connect the two 5-lane segments to the west and east of the proposed NW 116th Avenue. The installation of a signal at this intersection would change the analysis of how the signal is operating from a focus on the worst approach to the overall operations. The v/c ratio would be expected to drop from over 2.0 without the signal to an AM and PM peak hour v/c ratio of 0.67 and 0.81, respectively, which is well below the City's v/c standard.

Based on a review of the queueing summaries for the left turn from westbound Barnes to southbound NW 116th Avenue; we determined that the turn pocket must be at least 275 feet long. The left turn from eastbound SW Barnes Road to northbound SW Cedar Hills Boulevard was then reviewed, and we determined that the turn pocket must be at least 275 feet long. With roughly 750 feet between the two intersections, there is adequate spacing for back-to back left turn pockets with a 165-foot reversing curve between the two left turn pockets.

This treatment is consistent with the 2013 PUD, which includes a signal at this location, and indicates that when the parcels on the north side of Barnes Road develop, the currently unsignalized intersection of NW 117th Avenue and SW Barnes Road would become access restricted to eastbound right-in-right-out to facilitate the eastbound left-turn pocket to northbound NW 116th Avenue. Vehicles that currently use NW 117th Avenue would then shift to use the new signal at NW 116th Avenue. A peak hour and four-hour signal warrant analysis was conducted. The demands for the four-hour warrant were calculated using the traffic counts and making an assumption that the development would generate 70% of the peak hour trips in the second hour of the morning and evening commute periods.

US 26/OR 217 at SW Barnes: At the intersection of US 26/OR 217 at SW Barnes Road the addition of the LT trips result in no change to the off-ramp queue length in the PM peak hour. The impact is felt on the SW Barnes Road approaches to the intersection. However, an increase in the cycle length of the intersection from 110 seconds to 120 seconds would reduce the overall intersection v/c ratio from 0.91 to the ODOT standard of 0.90. As there is no impact to the expected off-ramp queue length, the signal timing modification will mitigate the LT impact that is measurable on the SW Barnes Road approaches to the intersection.

Conclusions and Recommendations

This TIA has shown that all study area intersections can meet the applicable mobility targets with the additional traffic of the LT Project with the following mitigations:

- Construction of site frontage improvements along SW Barnes Road and SW Cedar Hills Boulevard (as described in the 2013 Peterkort PUD conditions of approval and modified herein). This includes the second eastbound right turn lane from SW Barnes Road to SW Cedar Hills Boulevard.
- Construction of a two-lane public road between SW Barnes Road and SW Choban Lane (assumed to be NW 116th Avenue).
- Widen the 2/3-lane segment of SW Barnes Road to 5-lanes to connect the current 5-lane segments to the west and east of the proposed NW 116th Avenue intersection.
- Construction of a traffic signal at the intersection of SW Barnes Road at the new public road (assumed to be NW 116th Ave).
- Construction of a shared southbound through/right-turn lane at the intersection of SW Barnes Road and SW Cedar Hills Boulevard with a storage length of between 180 and 200 feet.
- Increase the signal cycle length of the US 26/OR 217 at SW Barnes Road intersection from 110 seconds to 120 seconds to mitigate the LT impact to the Barnes Road approaches to the intersection.

Life Time

Mini Traffic Impact Analysis - APPENDIX

February 2019

APPENDIX A –

Existing Operations

EXISTING (2017)

			AM			PM			AM		PM	
No.	Intersection	Lane Group	LOS	Delay	V/C	LOS	Delay	V/C	95th % Queue	Storage	95th % Queue	Storage
1	SW Cedar Hills Blvd at SW Barnes Rd	OVERALL	C	30.3	0.79	D	38.5	0.87				
		EB L	E	55.4	0.44	E	56.9	0.50	50	320	100	320
		EB T	D	41.2	0.65	D	39.7	0.40	200		200	
		EB R	A	0.8	0.42	A	0.7	0.38				
		WB L	D	52.9	0.77	D	52.9	0.76	175	315	250	315
		WB T/R	C	30.1	0.47	D	42.1	0.83	175		400	
		NB L	D	46.3	0.63	D	52.8	0.80	150		325	
		NB T	B	20.0	0.37	D	37.9	0.79	375		475	
		NB R	A	9.5	0.15	B	12.2	0.27	**275**	135	**325**	135
		SB L	E	57.2	0.64	E	65.2	0.65	250	375	**400**	375
		SB T/R	D	43.0	0.88	E	62.9	0.91	600		775	
2	SW Cedar Hills Blvd at US 26 WB Ramps	OVERALL	A	8.9	0.63	A	7.2	0.56				
		WB L	B	13.5	0.51	B	11.6	0.39	175		150	
		WB R	A	0.2	0.13	A	0.3	0.23	50		350	
		NB T	A	6.5	0.33	A	7.1	0.57	150		525	
		SB T	A	9.5	0.69	A	7.9	0.66	200		250	
3	SW Cedar Hills Blvd at US 26 EB Ramps	WORST	F	513.8	1.47	F	251.6	0.87				
		EB L/T	F	513.8	1.47	F	251.6	0.87	700		725	
		EB R	C	21.6	0.44	C	21.9	0.50	200		350	
		NB T/R	-			-			75		125	
		SB L	B	12.3	0.46	C	17.6	0.51	150	375	275	375
		SB T	-			-			225		350	
4	SW Cedar Hills Blvd at SW Butner Rd	OVERALL	D	38.5	1.0	C	33.1	0.92				
		EB L/T/R	D	52.1	0.94	D	50.5	0.93	225		350	
		WB L/T	B	18.4	0.06	B	18.4	0.14	50		125	
		WB R	C	20.4	0.05	C	20.1	0.10	**75**	25	**75**	25
		NB L	D	35.1	0.19	C	33.7	0.27	50	225	75	225
		NB T	B	16.5	0.42	B	19.8	0.68	175		325	
		NB R	B	13.7	0.01	B	13.4	0.01	25	300	25	300
		SB L	E	63.3	0.85	D	47.6	0.68	**150**	60	**150**	60
		SB T/R	D	42.3	1.00	D	39.2	0.97	225		225	
5	Towne Square West Access at SW Barnes R	OVERALL	A	3.2	0.29	A	8.9	0.49				
		EB T	A	2.5	0.27	A	4.0	0.22	75		100	
		EB R	A	1.1	0.03	A	1.8	0.10	25	240	25	240
		WB L	A	1.0	0.01	A	4.1	0.06	25	135	75	135
		WB T	A	2.4	0.29	A	7.3	0.45	100		125	
		NB L	D	40.9	0.18	D	40.2	0.53	50	155	75	155
		NB R	D	39.4	0.00	C	34.0	0.02	25	155	50	155
6	SW Valeria View Dr at SW Barnes Rd	OVERALL	B	17.8	0.48	B	12.8	0.62				
		EB L	A	8.8	0.15	B	15.3	0.60	75	250	150	250
		EB T	B	12.1	0.34	A	7.9	0.16	150		100	
		EB R	A	8.6	0.01	A	4.2	0.01	25	165	25	165
		WB L	A	9.4	0.07	A	4.3	0.09	50	100	100	100
		WB T	B	11.9	0.30	A	9.1	0.56	150		275	
		WB R	B	10.2	0.06	A	6.1	0.17	50	565	100	565
		NB L	C	23.8	0.04	D	36.6	0.24	50		75	
		NB T/R	C	23.7	0.03	D	35.4	0.12	50		50	
		SB L	D	40.2	0.78	D	38.5	0.44	250	250	100	250
		SB T	C	23.7	0.03	D	44.4	0.66	50		150	
		SB R	C	24.9	0.18	C	34.8	0.02	100	250	50	250
7	Beaverton/Tigard Interchange	OVERALL	B	12.5	0.66	C	21.5	0.76				
		WB L	C	23.2	0.73	C	28.8	0.80	200		325	
		WB L/T	C	22.6	0.71	C	28.6	0.80	250		425	
		WB R	A	3.8	0.08	A	7.2	0.37	75	240	**325**	240
		NB T	B	1.9	0.51	C	31.3	0.81	125		275	
		NB R	A	0.9	0.45	A	0.4	0.26				
		SB L	B	18.5	0.58	C	30.8	0.63	175		150	
		SB T	A	5.4	0.12	A	8.7	0.09	75	300	75	300
8	SW Baltic Ave at SW Barnes Rd	OVERALL	C	28.6	0.61	C	30.7	0.68				
		EB L	D	46.0	0.68	D	47.9	0.33	150	200	75	200
		EB T/R	B	17.3	0.47	C	25.8	0.46	225		225	
		WB L	E	58.3	0.71	E	60.9	0.88	150	200	**275**	200
		WB T/R	B	18.9	0.43	B	17.9	0.53	250		350	
		NB L	D	49.6	0.58	E	56.4	0.75	100	325	175	325
		NB T	D	46.4	0.82	C	33.7	0.16	300		100	
		NB R	C	30.0	0.60	C	21.1	0.34	225		125	
		SB L	D	50.2	0.38	D	49.3	0.49	50	75	**100**	75
		SB T	C	33.3	0.12	D	45.4	0.64	75		225	
		SB R	C	21.7	0.07	C	33.9	0.46	75	200	175	200
9a	Intersection does not exist under Existing conditions											
9b	Intersection does not exist under Existing conditions											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	460	635	310	345	165	270	295	220	75	585	15
Future Volume (vph)	15	460	635	310	345	165	270	295	220	75	585	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	5.0	4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95		0.97	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.95		1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	3433	3367		3433	1863	1583	1770	1856	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	3433	3367		3433	1863	1583	1770	1856	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	16	484	668	326	363	174	284	311	232	79	616	16
RTOR Reduction (vph)	0	0	0	0	45	0	0	0	93	0	1	0
Lane Group Flow (vph)	16	484	668	326	492	0	284	311	139	79	631	0
Turn Type	Prot	NA	Free	Prot	NA		Prot	NA	pt+ov	Prot	NA	
Protected Phases	1	6		5	2		7	4	4 5	3	8	
Permitted Phases			Free									
Actuated Green, G (s)	2.2	21.6	107.9	12.4	32.8		13.2	47.4	64.8	7.5	40.7	
Effective Green, g (s)	2.2	22.6	107.9	13.4	33.8		14.2	48.4	64.8	7.5	41.7	
Actuated g/C Ratio	0.02	0.21	1.00	0.12	0.31		0.13	0.45	0.60	0.07	0.39	
Clearance Time (s)	4.0	5.0		5.0	5.0		5.0	5.0		4.0	5.0	
Vehicle Extension (s)	1.5	3.1		2.0	3.1		2.0	3.1		1.5	3.1	
Lane Grp Cap (vph)	36	741	1583	426	1054		451	835	950	123	717	
v/s Ratio Prot	0.01	c0.14		c0.09	0.15		c0.08	0.17	0.09	0.04	c0.34	
v/s Ratio Perm			0.42									
v/c Ratio	0.44	0.65	0.42	0.77	0.47		0.63	0.37	0.15	0.64	0.88	
Uniform Delay, d1	52.2	39.1	0.0	45.7	29.8		44.4	19.7	9.4	48.9	30.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	3.2	2.1	0.8	7.2	0.3		2.0	0.3	0.1	8.3	12.2	
Delay (s)	55.4	41.2	0.8	52.9	30.1		46.3	20.0	9.5	57.2	43.0	
Level of Service	E	D	A	D	C		D	B	A	E	D	
Approach Delay (s)		18.3			38.8			26.1			44.6	
Approach LOS		B			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	30.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	107.9	Sum of lost time (s)	18.0
Intersection Capacity Utilization	74.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	515	200	585	0	0	1225
Future Volume (vph)	515	200	585	0	0	1225
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	2.5	4.0			4.0
Lane Util. Factor	0.97	1.00	0.95			0.95
Frt	1.00	0.85	1.00			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	3433	1583	3539			3539
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	3433	1583	3539			3539
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	536	208	609	0	0	1276
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	536	208	609	0	0	1276
Turn Type	Prot	Free	NA			NA
Protected Phases	8		6			2
Permitted Phases		Free				
Actuated Green, G (s)	12.6	46.1	22.5			22.5
Effective Green, g (s)	14.1	46.1	24.0			24.0
Actuated g/C Ratio	0.31	1.00	0.52			0.52
Clearance Time (s)	5.5		5.5			5.5
Vehicle Extension (s)	2.5		3.5			3.5
Lane Grp Cap (vph)	1050	1583	1842			1842
v/s Ratio Prot	c0.16		0.17			c0.36
v/s Ratio Perm		0.13				
v/c Ratio	0.51	0.13	0.33			0.69
Uniform Delay, d1	13.2	0.0	6.4			8.3
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	0.3	0.2	0.1			1.2
Delay (s)	13.5	0.2	6.5			9.5
Level of Service	B	A	A			A
Approach Delay (s)	9.8		6.5			9.5
Approach LOS	A		A			A

Intersection Summary			
HCM 2000 Control Delay	8.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	46.1	Sum of lost time (s)	8.0
Intersection Capacity Utilization	78.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	11.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	45	0	160	0	0	0	0	660	130	395	1345	0
Future Vol, veh/h	45	0	160	0	0	0	0	660	130	395	1345	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	Yield	-	-	None
Storage Length	-	-	0	-	-	-	-	-	-	375	-	-
Veh in Median Storage, #	-	0	-	-	-	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	47	0	167	0	0	0	0	688	135	411	1401	0

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	2568	2912	701	-	0	0	688	0	0
Stage 1	2224	2224	-	-	-	-	-	-	-
Stage 2	344	688	-	-	-	-	-	-	-
Critical Hdwy	6.84	6.54	6.94	-	-	-	4.14	-	-
Critical Hdwy Stg 1	5.84	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.84	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	-	-	-	2.22	-	-
Pot Cap-1 Maneuver	~ 21	15	381	0	-	-	902	-	0
Stage 1	68	79	-	0	-	-	-	-	0
Stage 2	689	445	-	0	-	-	-	-	0
Platoon blocked, %					-	-		-	
Mov Cap-1 Maneuver	~ 11	0	381	-	-	-	902	-	-
Mov Cap-2 Maneuver	~ 32	0	-	-	-	-	-	-	-
Stage 1	~ 37	0	-	-	-	-	-	-	-
Stage 2	689	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	129.6	0	2.8
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	SBL	SBT
Capacity (veh/h)	-	-	32	381	902	-
HCM Lane V/C Ratio	-	-	1.465	0.437	0.456	-
HCM Control Delay (s)	-	-	$ 513.8	21.6	12.3	-
HCM Lane LOS	-	-	F	C	B	-
HCM 95th %tile Q(veh)	-	-	5.2	2.2	2.4	-

Notes

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	215	130	25	10	15	70	15	505	15	125	1240	140
Future Volume (vph)	215	130	25	10	15	70	15	505	15	125	1240	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0	6.9	4.0	4.0	4.0	6.8	5.9	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frt		0.99			1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected		0.97			0.98	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1794			1825	1583	1770	3539	1583	1770	3485	
Flt Permitted		0.80			0.85	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1485			1581	1583	1770	3539	1583	1770	3485	
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	250	151	29	12	17	81	17	587	17	145	1442	163
RTOR Reduction (vph)	0	3	0	0	0	59	0	0	10	0	10	0
Lane Group Flow (vph)	0	427	0	0	29	22	17	587	7	145	1595	0
Turn Type	Perm	NA		Perm	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8			2			
Actuated Green, G (s)		20.3			20.3	20.3	1.2	28.3	28.3	7.3	34.5	
Effective Green, g (s)		23.2			23.2	20.3	3.8	30.1	30.1	7.3	34.5	
Actuated g/C Ratio		0.31			0.31	0.27	0.05	0.40	0.40	0.10	0.46	
Clearance Time (s)		6.9			6.9	6.9	6.6	5.8	5.8	6.8	5.9	
Vehicle Extension (s)		2.4			2.4	2.4	2.6	2.5	2.5	2.4	2.1	
Lane Grp Cap (vph)		456			486	426	89	1412	631	171	1594	
v/s Ratio Prot							0.01	0.17		c0.08	c0.46	
v/s Ratio Perm		c0.29			0.02	0.01			0.00			
v/c Ratio		0.94			0.06	0.05	0.19	0.42	0.01	0.85	1.00	
Uniform Delay, d1		25.4			18.4	20.4	34.3	16.3	13.7	33.5	20.5	
Progression Factor		1.00			1.00	1.00	1.00	1.00	1.00	1.00	0.96	
Incremental Delay, d2		26.7			0.0	0.0	0.8	0.1	0.0	29.8	22.6	
Delay (s)		52.1			18.4	20.4	35.1	16.5	13.7	63.3	42.3	
Level of Service		D			B	C	D	B	B	E	D	
Approach Delay (s)		52.1			19.9			16.9			44.1	
Approach LOS		D			B			B			D	

Intersection Summary			
HCM 2000 Control Delay	38.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	75.4	Sum of lost time (s)	14.8
Intersection Capacity Utilization	81.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	710	45	5	790	30	5
Future Volume (vph)	710	45	5	790	30	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.95	1.00	1.00	0.95	0.97	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1583	1770	3539	3433	1583
Flt Permitted	1.00	1.00	0.33	1.00	0.95	1.00
Satd. Flow (perm)	3539	1583	617	3539	3433	1583
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	780	49	5	868	33	5
RTOR Reduction (vph)	0	8	0	0	0	5
Lane Group Flow (vph)	780	41	5	868	33	0
Turn Type	NA	pm+ov	pm+pt	NA	Prot	pm+ov
Protected Phases	2	8	1	6	8	1
Permitted Phases		2	6			8
Actuated Green, G (s)	71.2	76.0	76.2	76.2	4.8	5.8
Effective Green, g (s)	72.2	76.0	76.2	77.2	4.8	5.8
Actuated g/C Ratio	0.80	0.84	0.85	0.86	0.05	0.06
Clearance Time (s)	5.0	4.0	4.0	5.0	4.0	4.0
Vehicle Extension (s)	3.2	2.0	1.5	3.2	2.0	1.5
Lane Grp Cap (vph)	2839	1336	535	3035	183	172
v/s Ratio Prot	0.22	0.00	0.00	c0.25	c0.01	0.00
v/s Ratio Perm		0.02	0.01			0.00
v/c Ratio	0.27	0.03	0.01	0.29	0.18	0.00
Uniform Delay, d1	2.3	1.1	1.2	1.2	40.7	39.4
Progression Factor	1.00	1.00	0.78	1.80	1.00	1.00
Incremental Delay, d2	0.2	0.0	0.0	0.2	0.2	0.0
Delay (s)	2.5	1.1	1.0	2.4	40.9	39.4
Level of Service	A	A	A	A	D	D
Approach Delay (s)	2.4			2.4	40.7	
Approach LOS	A			A	D	

Intersection Summary			
HCM 2000 Control Delay	3.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	33.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	630	20	25	515	85	15	5	25	275	15	265
Future Volume (vph)	65	630	20	25	515	85	15	5	25	275	15	265
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.87		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1627		1770	1863	1583
Flt Permitted	0.38	1.00	1.00	0.37	1.00	1.00	0.75	1.00		0.74	1.00	1.00
Satd. Flow (perm)	710	3539	1583	681	3539	1583	1392	1627		1372	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	71	685	22	27	560	92	16	5	27	299	16	288
RTOR Reduction (vph)	0	0	10	0	0	43	0	20	0	0	0	208
Lane Group Flow (vph)	71	685	12	27	560	49	16	13	0	299	16	80
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2		2	6		6	8			4		4
Actuated Green, G (s)	54.7	49.9	49.9	49.3	47.2	47.2	25.0	25.0		25.0	25.0	25.0
Effective Green, g (s)	54.7	50.9	50.9	49.3	48.2	48.2	25.0	25.0		25.0	25.0	25.0
Actuated g/C Ratio	0.61	0.57	0.57	0.55	0.54	0.54	0.28	0.28		0.28	0.28	0.28
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	1.5	3.1	3.1	1.5	3.1	3.1	2.5	2.5		3.0	3.0	3.0
Lane Grp Cap (vph)	488	2001	895	398	1895	847	386	451		381	517	439
v/s Ratio Prot	c0.01	c0.19		0.00	0.16			0.01			0.01	
v/s Ratio Perm	0.08		0.01	0.04		0.03	0.01			c0.22		0.05
v/c Ratio	0.15	0.34	0.01	0.07	0.30	0.06	0.04	0.03		0.78	0.03	0.18
Uniform Delay, d1	7.5	10.5	8.6	9.4	11.5	10.0	23.7	23.7		30.0	23.7	24.7
Progression Factor	1.16	1.10	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.0	0.5	0.0	0.0	0.4	0.1	0.0	0.0		10.2	0.0	0.2
Delay (s)	8.8	12.1	8.6	9.4	11.9	10.2	23.8	23.7		40.2	23.7	24.9
Level of Service	A	B	A	A	B	B	C	C		D	C	C
Approach Delay (s)		11.7			11.6			23.7			32.5	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	17.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	53.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	380	260	125	0	330	700	290	235	0
Future Volume (vph)	0	0	0	380	260	125	0	330	700	290	235	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5	4.5	4.5		4.5	4.0	5.0	5.0	
Lane Util. Factor				0.95	0.95	1.00		0.95	1.00	1.00	0.95	
Frt				1.00	1.00	0.85		1.00	0.85	1.00	1.00	
Flt Protected				0.95	0.99	1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)				1681	1752	1583		3539	1583	1770	3539	
Flt Permitted				0.95	0.99	1.00		1.00	1.00	0.95	1.00	
Satd. Flow (perm)				1681	1752	1583		3539	1583	1770	3539	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	0	0	388	265	128	0	337	714	296	240	0
RTOR Reduction (vph)	0	0	0	0	0	47	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	322	331	81	0	337	714	296	240	0
Turn Type				Split	NA	pt+ov		NA	Free	Prot	NA	
Protected Phases				1	1	1 2		8		2	2 8	
Permitted Phases									Free			
Actuated Green, G (s)				14.2	14.2	34.1		10.1	53.7	15.4	30.5	
Effective Green, g (s)				14.2	14.2	34.1		10.1	53.7	15.4	30.5	
Actuated g/C Ratio				0.26	0.26	0.64		0.19	1.00	0.29	0.57	
Clearance Time (s)				4.5	4.5			4.5		5.0		
Vehicle Extension (s)				2.3	2.3			2.3		4.1		
Lane Grp Cap (vph)				444	463	1005		665	1583	507	2010	
v/s Ratio Prot				c0.19	0.19	0.05		0.10		0.17	0.07	
v/s Ratio Perm									c0.45			
v/c Ratio				0.73	0.71	0.08		0.51	0.45	0.58	0.12	
Uniform Delay, d1				18.0	17.9	3.8		19.6	0.0	16.4	5.4	
Progression Factor				1.00	1.00	1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2				5.2	4.6	0.0		0.4	0.9	2.1	0.0	
Delay (s)				23.2	22.6	3.8		19.9	0.9	18.5	5.4	
Level of Service				C	C	A		B	A	B	A	
Approach Delay (s)		0.0			19.8			7.0			12.6	
Approach LOS		A			B			A			B	

Intersection Summary			
HCM 2000 Control Delay	12.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	53.7	Sum of lost time (s)	14.0
Intersection Capacity Utilization	54.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	245	685	60	90	595	40	65	330	450	15	40	105
Future Volume (vph)	245	685	60	90	595	40	65	330	450	15	40	105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3496		1770	3506		1770	1863	1583	1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3496		1770	3506		1770	1863	1583	1770	1863	1583
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	269	753	66	99	654	44	71	363	495	16	44	115
RTOR Reduction (vph)	0	5	0	0	4	0	0	0	154	0	0	75
Lane Group Flow (vph)	269	814	0	99	694	0	71	363	341	16	44	40
Turn Type	Prot	NA		Prot	NA		Prot	NA	pm+ov	Prot	NA	custom
Protected Phases	5	2		1	6		3	8	1	7	4	4 5
Permitted Phases									8			4
Actuated Green, G (s)	11.6	48.8		7.9	45.1		6.9	23.9	31.8	2.4	19.4	35.0
Effective Green, g (s)	11.6	49.8		7.9	46.1		6.9	23.9	31.8	2.4	19.4	35.0
Actuated g/C Ratio	0.12	0.50		0.08	0.46		0.07	0.24	0.32	0.02	0.19	0.35
Clearance Time (s)	4.0	5.0		4.0	5.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	1.5	3.1		1.5	3.1		1.5	2.0	1.5	1.5	2.0	
Lane Grp Cap (vph)	398	1741		139	1616		122	445	566	42	361	554
v/s Ratio Prot	c0.08	c0.23		0.06	0.20		c0.04	c0.19	0.05	0.01	0.02	0.03
v/s Ratio Perm									0.17			
v/c Ratio	0.68	0.47		0.71	0.43		0.58	0.82	0.60	0.38	0.12	0.07
Uniform Delay, d1	42.4	16.4		44.9	18.1		45.2	36.0	28.8	48.1	33.3	21.7
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.6	0.9		13.4	0.8		4.5	10.5	1.2	2.1	0.1	0.0
Delay (s)	46.0	17.3		58.3	18.9		49.6	46.4	30.0	50.2	33.3	21.7
Level of Service	D	B		E	B		D	D	C	D	C	C
Approach Delay (s)		24.4			23.8			37.9			27.2	
Approach LOS		C			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	28.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	62.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1105	5	10	620	5	5
Future Volume (Veh/h)	1105	5	10	620	5	5
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1201	5	11	674	5	5
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			TWLTL		
Median storage veh)				2		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			1206		1900	1204
vC1, stage 1 conf vol					1204	
vC2, stage 2 conf vol					696	
vCu, unblocked vol			1206		1900	1204
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)			2.2		3.5	3.3
p0 queue free %			98		98	98
cM capacity (veh/h)			579		247	224

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	1206	11	674	10
Volume Left	0	11	0	5
Volume Right	5	0	0	5
cSH	1700	579	1700	235
Volume to Capacity	0.71	0.02	0.40	0.04
Queue Length 95th (ft)	0	1	0	3
Control Delay (s)	0.0	11.3	0.0	21.0
Lane LOS		B		C
Approach Delay (s)	0.0	0.2		21.0
Approach LOS				C

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	68.5%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	330	590	430	715	295	505	565	315	70	415	20
Future Volume (vph)	45	330	590	430	715	295	505	565	315	70	415	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	5.0	4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95		0.97	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.96		1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	3433	3384		3433	1863	1583	1770	1850	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	3433	3384		3433	1863	1583	1770	1850	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	46	340	608	443	737	304	521	582	325	72	428	21
RTOR Reduction (vph)	0	0	0	0	34	0	0	0	77	0	1	0
Lane Group Flow (vph)	46	340	608	443	1007	0	521	582	248	72	448	0
Turn Type	Prot	NA	Free	Prot	NA		Prot	NA	pt+ov	Prot	NA	
Protected Phases	1	6		5	2		7	4	4 5	3	8	
Permitted Phases			Free									
Actuated Green, G (s)	6.3	27.9	120.0	19.3	41.9		21.8	46.3	70.6	7.5	31.0	
Effective Green, g (s)	6.3	28.9	120.0	20.3	42.9		22.8	47.3	70.6	7.5	32.0	
Actuated g/C Ratio	0.05	0.24	1.00	0.17	0.36		0.19	0.39	0.59	0.06	0.27	
Clearance Time (s)	4.0	5.0		5.0	5.0		5.0	5.0		4.0	5.0	
Vehicle Extension (s)	1.5	3.1		2.0	3.1		2.0	3.1		1.5	3.1	
Lane Grp Cap (vph)	92	852	1583	580	1209		652	734	931	110	493	
v/s Ratio Prot	0.03	0.10		c0.13	c0.30		c0.15	0.31	0.16	0.04	c0.24	
v/s Ratio Perm			0.38									
v/c Ratio	0.50	0.40	0.38	0.76	0.83		0.80	0.79	0.27	0.65	0.91	
Uniform Delay, d1	55.3	38.3	0.0	47.6	35.3		46.4	32.0	12.1	55.0	42.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.6	1.4	0.7	5.4	6.8		6.4	5.9	0.2	10.2	20.4	
Delay (s)	56.9	39.7	0.7	52.9	42.1		52.8	37.9	12.2	65.2	62.9	
Level of Service	E	D	A	D	D		D	D	B	E	E	
Approach Delay (s)		16.6			45.3			37.5			63.2	
Approach LOS		B			D			D			E	

Intersection Summary			
HCM 2000 Control Delay	38.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	84.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	370	360	1025	0	0	1175
Future Volume (vph)	370	360	1025	0	0	1175
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	2.5	4.0			4.0
Lane Util. Factor	0.97	1.00	0.95			0.95
Frt	1.00	0.85	1.00			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	3433	1583	3539			3539
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	3433	1583	3539			3539
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	378	367	1046	0	0	1199
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	378	367	1046	0	0	1199
Turn Type	Prot	Free	NA			NA
Protected Phases	8		6			2
Permitted Phases		Free				
Actuated Green, G (s)	9.7	39.6	18.9			18.9
Effective Green, g (s)	11.2	39.6	20.4			20.4
Actuated g/C Ratio	0.28	1.00	0.52			0.52
Clearance Time (s)	5.5		5.5			5.5
Vehicle Extension (s)	2.5		3.5			3.5
Lane Grp Cap (vph)	970	1583	1823			1823
v/s Ratio Prot	c0.11		0.30			c0.34
v/s Ratio Perm		0.23				
v/c Ratio	0.39	0.23	0.57			0.66
Uniform Delay, d1	11.4	0.0	6.6			7.0
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	0.2	0.3	0.5			0.9
Delay (s)	11.6	0.3	7.1			7.9
Level of Service	B	A	A			A
Approach Delay (s)	6.1		7.1			7.9
Approach LOS	A		A			A

Intersection Summary			
HCM 2000 Control Delay	7.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	39.6	Sum of lost time (s)	8.0
Intersection Capacity Utilization	87.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	5.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	35	0	205	0	0	0	0	1175	270	290	1255	0
Future Vol, veh/h	35	0	205	0	0	0	0	1175	270	290	1255	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	Yield	-	-	None
Storage Length	-	-	0	-	-	-	-	-	-	375	-	-
Veh in Median Storage, #	-	0	-	-	-	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	36	0	209	0	0	0	0	1199	276	296	1281	0

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	2471	3071	640	-	0	0	1199	0	0
Stage 1	1872	1872	-	-	-	-	-	-	-
Stage 2	599	1199	-	-	-	-	-	-	-
Critical Hdwy	6.84	6.54	6.94	-	-	-	4.14	-	-
Critical Hdwy Stg 1	5.84	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.84	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	-	-	-	2.22	-	-
Pot Cap-1 Maneuver	~ 25	12	418	0	-	-	578	-	0
Stage 1	107	120	-	0	-	-	-	-	0
Stage 2	511	257	-	0	-	-	-	-	0
Platoon blocked, %					-	-		-	
Mov Cap-1 Maneuver	~ 12	0	418	-	-	-	578	-	-
Mov Cap-2 Maneuver	41	0	-	-	-	-	-	-	-
Stage 1	52	0	-	-	-	-	-	-	-
Stage 2	511	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	55.4	0	3.3
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	SBL	SBT
Capacity (veh/h)	-	-	41	418	578	-
HCM Lane V/C Ratio	-	-	0.871	0.5	0.512	-
HCM Control Delay (s)	-	-	251.6	21.9	17.6	-
HCM Lane LOS	-	-	F	C	C	-
HCM 95th %tile Q(veh)	-	-	3.3	2.7	2.9	-

Notes

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	305	65	35	15	60	160	40	980	15	85	1155	220
Future Volume (vph)	305	65	35	15	60	160	40	980	15	85	1155	220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0	6.9	4.0	4.0	4.0	6.8	5.9	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frt		0.99			1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected		0.96			0.99	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1774			1845	1583	1770	3539	1583	1770	3454	
Flt Permitted		0.73			0.91	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1344			1700	1583	1770	3539	1583	1770	3454	
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	308	66	35	15	61	162	40	990	15	86	1167	222
RTOR Reduction (vph)	0	4	0	0	0	115	0	0	9	0	20	0
Lane Group Flow (vph)	0	405	0	0	76	47	40	990	6	86	1369	0
Turn Type	Perm	NA		Perm	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8			2			
Actuated Green, G (s)		22.1			22.1	22.1	3.9	29.7	29.7	5.5	31.4	
Effective Green, g (s)		25.0			25.0	22.1	6.5	31.5	31.5	5.5	31.4	
Actuated g/C Ratio		0.33			0.33	0.29	0.08	0.41	0.41	0.07	0.41	
Clearance Time (s)		6.9			6.9	6.9	6.6	5.8	5.8	6.8	5.9	
Vehicle Extension (s)		2.4			2.4	2.4	2.6	2.5	2.5	2.4	2.1	
Lane Grp Cap (vph)		437			553	455	149	1451	649	126	1412	
v/s Ratio Prot							0.02	0.28		c0.05	c0.40	
v/s Ratio Perm		c0.30			0.04	0.03			0.00			
v/c Ratio		0.93			0.14	0.10	0.27	0.68	0.01	0.68	0.97	
Uniform Delay, d1		25.0			18.3	20.1	32.9	18.6	13.4	34.8	22.2	
Progression Factor		1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		25.5			0.1	0.1	0.8	1.2	0.0	12.7	17.0	
Delay (s)		50.5			18.4	20.1	33.7	19.8	13.4	47.6	39.2	
Level of Service		D			B	C	C	B	B	D	D	
Approach Delay (s)		50.5			19.6			20.2			39.7	
Approach LOS		D			B			C			D	

Intersection Summary			
HCM 2000 Control Delay	33.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	76.8	Sum of lost time (s)	14.8
Intersection Capacity Utilization	83.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	560	155	40	1285	155	45
Future Volume (vph)	560	155	40	1285	155	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.95	1.00	1.00	0.95	0.97	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1583	1770	3539	3433	1583
Flt Permitted	1.00	1.00	0.40	1.00	0.95	1.00
Satd. Flow (perm)	3539	1583	753	3539	3433	1583
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	577	160	41	1325	160	46
RTOR Reduction (vph)	0	30	0	0	0	40
Lane Group Flow (vph)	577	130	41	1325	160	6
Turn Type	NA	pm+ov	pm+pt	NA	Prot	pm+ov
Protected Phases	2	8	1	6	8	1
Permitted Phases		2	6			8
Actuated Green, G (s)	65.1	73.0	73.1	73.1	7.9	11.9
Effective Green, g (s)	66.1	73.0	73.1	74.1	7.9	11.9
Actuated g/C Ratio	0.73	0.81	0.81	0.82	0.09	0.13
Clearance Time (s)	5.0	4.0	4.0	5.0	4.0	4.0
Vehicle Extension (s)	3.2	2.0	1.5	3.2	2.0	1.5
Lane Grp Cap (vph)	2599	1283	656	2913	301	279
v/s Ratio Prot	0.16	0.01	0.00	c0.37	c0.05	0.00
v/s Ratio Perm		0.07	0.05			0.00
v/c Ratio	0.22	0.10	0.06	0.45	0.53	0.02
Uniform Delay, d1	3.8	1.7	1.8	2.2	39.3	34.0
Progression Factor	1.00	1.00	2.29	3.07	1.00	1.00
Incremental Delay, d2	0.2	0.0	0.0	0.4	0.9	0.0
Delay (s)	4.0	1.8	4.1	7.3	40.2	34.0
Level of Service	A	A	A	A	D	C
Approach Delay (s)	3.5			7.2	38.8	
Approach LOS	A			A	D	

Intersection Summary			
HCM 2000 Control Delay	8.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	47.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	195	395	15	60	1275	255	25	20	25	70	145	25
Future Volume (vph)	195	395	15	60	1275	255	25	20	25	70	145	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.92		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1708		1770	1863	1583
Flt Permitted	0.15	1.00	1.00	0.51	1.00	1.00	0.47	1.00		0.73	1.00	1.00
Satd. Flow (perm)	275	3539	1583	955	3539	1583	883	1708		1353	1863	1583
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	201	407	15	62	1314	263	26	21	26	72	149	26
RTOR Reduction (vph)	0	0	5	0	0	89	0	23	0	0	0	23
Lane Group Flow (vph)	201	407	10	62	1314	174	26	24	0	72	149	3
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2		2	6		6	8			4		4
Actuated Green, G (s)	69.2	61.8	61.8	62.8	58.6	58.6	11.0	11.0		11.0	11.0	11.0
Effective Green, g (s)	69.2	62.8	62.8	62.8	59.6	59.6	11.0	11.0		11.0	11.0	11.0
Actuated g/C Ratio	0.77	0.70	0.70	0.70	0.66	0.66	0.12	0.12		0.12	0.12	0.12
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	1.5	3.1	3.1	1.5	3.1	3.1	2.5	2.5		3.0	3.0	3.0
Lane Grp Cap (vph)	334	2469	1104	704	2343	1048	107	208		165	227	193
v/s Ratio Prot	c0.05	0.11		0.00	0.37			0.01			c0.08	
v/s Ratio Perm	c0.41		0.01	0.06		0.11	0.03			0.05		0.00
v/c Ratio	0.60	0.16	0.01	0.09	0.56	0.17	0.24	0.12		0.44	0.66	0.02
Uniform Delay, d1	6.5	4.6	4.1	4.3	8.2	5.8	35.7	35.2		36.6	37.7	34.7
Progression Factor	2.04	1.66	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	2.1	0.1	0.0	0.0	1.0	0.3	0.9	0.2		1.8	6.7	0.0
Delay (s)	15.3	7.9	4.2	4.3	9.1	6.1	36.6	35.4		38.5	44.4	34.8
Level of Service	B	A	A	A	A	A	D	D		D	D	C
Approach Delay (s)		10.2			8.5			35.8			41.6	
Approach LOS		B			A			D			D	

Intersection Summary			
HCM 2000 Control Delay	12.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	72.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	545	370	355	0	705	400	220	165	0
Future Volume (vph)	0	0	0	545	370	355	0	705	400	220	165	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5	4.5	4.5		4.5	4.0	5.0	5.0	
Lane Util. Factor				0.95	0.95	1.00		0.95	1.00	1.00	0.95	
Frt				1.00	1.00	0.85		1.00	0.85	1.00	1.00	
Flt Protected				0.95	0.99	1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)				1681	1751	1583		3539	1583	1770	3539	
Flt Permitted				0.95	0.99	1.00		1.00	1.00	0.95	1.00	
Satd. Flow (perm)				1681	1751	1583		3539	1583	1770	3539	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	0	0	568	385	370	0	734	417	229	172	0
RTOR Reduction (vph)	0	0	0	0	0	8	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	466	487	362	0	734	417	229	172	0
Turn Type				Split	NA	pt+ov		NA	Free	Prot	NA	
Protected Phases				1	1	1 2		8		2	2 8	
Permitted Phases									Free			
Actuated Green, G (s)				25.9	25.9	45.7		19.0	74.2	15.3	39.3	
Effective Green, g (s)				25.9	25.9	45.7		19.0	74.2	15.3	39.3	
Actuated g/C Ratio				0.35	0.35	0.62		0.26	1.00	0.21	0.53	
Clearance Time (s)				4.5	4.5			4.5		5.0		
Vehicle Extension (s)				2.3	2.3			2.3		4.1		
Lane Grp Cap (vph)				586	611	974		906	1583	364	1874	
v/s Ratio Prot				0.28	c0.28	0.23		c0.21		c0.13	0.05	
v/s Ratio Perm									0.26			
v/c Ratio				0.80	0.80	0.37		0.81	0.26	0.63	0.09	
Uniform Delay, d1				21.8	21.8	7.1		25.9	0.0	26.9	8.6	
Progression Factor				1.00	1.00	1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2				7.0	6.8	0.1		5.3	0.4	3.9	0.0	
Delay (s)				28.8	28.6	7.2		31.3	0.4	30.8	8.7	
Level of Service				C	C	A		C	A	C	A	
Approach Delay (s)		0.0			22.7			20.1			21.3	
Approach LOS		A			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	21.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	74.2	Sum of lost time (s)	14.0
Intersection Capacity Utilization	68.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	505	55	285	890	15	145	60	340	45	165	235
Future Volume (vph)	60	505	55	285	890	15	145	60	340	45	165	235
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3487		1770	3531		1770	1863	1583	1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3487		1770	3531		1770	1863	1583	1770	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	65	549	60	310	967	16	158	65	370	49	179	255
RTOR Reduction (vph)	0	7	0	0	1	0	0	0	127	0	0	78
Lane Group Flow (vph)	65	602	0	310	982	0	158	65	243	49	179	177
Turn Type	Prot	NA		Prot	NA		Prot	NA	pm+ov	Prot	NA	custom
Protected Phases	5	2		1	6		3	8	1	7	4	4 5
Permitted Phases									8			4
Actuated Green, G (s)	6.0	38.6		21.0	53.6		12.6	22.4	43.4	6.0	15.8	25.8
Effective Green, g (s)	6.0	39.6		21.0	54.6		12.6	22.4	43.4	6.0	15.8	25.8
Actuated g/C Ratio	0.06	0.38		0.20	0.52		0.12	0.21	0.41	0.06	0.15	0.25
Clearance Time (s)	4.0	5.0		4.0	5.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	1.5	3.1		1.5	3.1		1.5	2.0	1.5	1.5	2.0	
Lane Grp Cap (vph)	196	1315		354	1836		212	397	714	101	280	388
v/s Ratio Prot	0.02	0.17		c0.18	c0.28		c0.09	0.03	0.07	0.03	c0.10	0.11
v/s Ratio Perm									0.09			
v/c Ratio	0.33	0.46		0.88	0.53		0.75	0.16	0.34	0.49	0.64	0.46
Uniform Delay, d1	47.6	24.6		40.7	16.8		44.6	33.7	21.0	48.0	41.9	33.6
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	1.2		20.2	1.1		11.7	0.1	0.1	1.3	3.5	0.3
Delay (s)	47.9	25.8		60.9	17.9		56.4	33.7	21.1	49.3	45.4	33.9
Level of Service	D	C		E	B		E	C	C	D	D	C
Approach Delay (s)		27.9			28.2			31.9			39.8	
Approach LOS		C			C			C			D	

Intersection Summary			
HCM 2000 Control Delay	30.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	61.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	945	10	30	1210	5	20
Future Volume (Veh/h)	945	10	30	1210	5	20
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1027	11	33	1315	5	22
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			TWLTL		
Median storage veh)				2		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			1038		2414	1032
vC1, stage 1 conf vol					1032	
vC2, stage 2 conf vol					1381	
vCu, unblocked vol			1038		2414	1032
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)			2.2		3.5	3.3
p0 queue free %			95		97	92
cM capacity (veh/h)			670		182	283

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	1038	33	1315	27
Volume Left	0	33	0	5
Volume Right	11	0	0	22
cSH	1700	670	1700	256
Volume to Capacity	0.61	0.05	0.77	0.11
Queue Length 95th (ft)	0	4	0	9
Control Delay (s)	0.0	10.7	0.0	20.7
Lane LOS		B		C
Approach Delay (s)	0.0	0.3		20.7
Approach LOS				C

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	73.7%	ICU Level of Service	D
Analysis Period (min)	15		

APPENDIX B –

Existing Queuing

EXISTING (2017)

			AM			PM			AM		PM	
No.	Intersection	Lane Group	LOS	Delay	V/C	LOS	Delay	V/C	95th % Queue	Storage	95th % Queue	Storage
1	SW Cedar Hills Blvd at SW Barnes Rd	OVERALL	C	30.3	0.79	D	38.5	0.87				
		EB L	E	55.4	0.44	E	56.9	0.50	50	320	100	320
		EB T	D	41.2	0.65	D	39.7	0.40	200		200	
		EB R	A	0.8	0.42	A	0.7	0.38				
		WB L	D	52.9	0.77	D	52.9	0.76	175	315	250	315
		WB T/R	C	30.1	0.47	D	42.1	0.83	175		400	
		NB L	D	46.3	0.63	D	52.8	0.80	150		325	
		NB T	B	20.0	0.37	D	37.9	0.79	375		475	
		NB R	A	9.5	0.15	B	12.2	0.27	**275**	135	**325**	135
		SB L	E	57.2	0.64	E	65.2	0.65	250	375	**400**	375
		SB T/R	D	43.0	0.88	E	62.9	0.91	600		775	
2	SW Cedar Hills Blvd at US 26 WB Ramps	OVERALL	A	8.9	0.63	A	7.2	0.56				
		WB L	B	13.5	0.51	B	11.6	0.39	175		150	
		WB R	A	0.2	0.13	A	0.3	0.23	50		350	
		NB T	A	6.5	0.33	A	7.1	0.57	150		525	
		SB T	A	9.5	0.69	A	7.9	0.66	200		250	
3	SW Cedar Hills Blvd at US 26 EB Ramps	WORST	F	513.8	1.47	F	251.6	0.87				
		EB L/T	F	513.8	1.47	F	251.6	0.87	700		725	
		EB R	C	21.6	0.44	C	21.9	0.50	200		350	
		NB T/R	-			-			75		125	
		SB L	B	12.3	0.46	C	17.6	0.51	150	375	275	375
		SB T	-			-			225		350	
4	SW Cedar Hills Blvd at SW Butner Rd	OVERALL	D	38.5	1.0	C	33.1	0.92				
		EB L/T/R	D	52.1	0.94	D	50.5	0.93	225		350	
		WB L/T	B	18.4	0.06	B	18.4	0.14	50		125	
		WB R	C	20.4	0.05	C	20.1	0.10	**75**	25	**75**	25
		NB L	D	35.1	0.19	C	33.7	0.27	50	225	75	225
		NB T	B	16.5	0.42	B	19.8	0.68	175		325	
		NB R	B	13.7	0.01	B	13.4	0.01	25	300	25	300
		SB L	E	63.3	0.85	D	47.6	0.68	**150**	60	**150**	60
		SB T/R	D	42.3	1.00	D	39.2	0.97	225		225	
5	Towne Square West Access at SW Barnes R	OVERALL	A	3.2	0.29	A	8.9	0.49				
		EB T	A	2.5	0.27	A	4.0	0.22	75		100	
		EB R	A	1.1	0.03	A	1.8	0.10	25	240	25	240
		WB L	A	1.0	0.01	A	4.1	0.06	25	135	75	135
		WB T	A	2.4	0.29	A	7.3	0.45	100		125	
		NB L	D	40.9	0.18	D	40.2	0.53	50	155	75	155
		NB R	D	39.4	0.00	C	34.0	0.02	25	155	50	155
6	SW Valeria View Dr at SW Barnes Rd	OVERALL	B	17.8	0.48	B	12.8	0.62				
		EB L	A	8.8	0.15	B	15.3	0.60	75	250	150	250
		EB T	B	12.1	0.34	A	7.9	0.16	150		100	
		EB R	A	8.6	0.01	A	4.2	0.01	25	165	25	165
		WB L	A	9.4	0.07	A	4.3	0.09	50	100	100	100
		WB T	B	11.9	0.30	A	9.1	0.56	150		275	
		WB R	B	10.2	0.06	A	6.1	0.17	50	565	100	565
		NB L	C	23.8	0.04	D	36.6	0.24	50		75	
		NB T/R	C	23.7	0.03	D	35.4	0.12	50		50	
		SB L	D	40.2	0.78	D	38.5	0.44	250	250	100	250
		SB T	C	23.7	0.03	D	44.4	0.66	50		150	
		SB R	C	24.9	0.18	C	34.8	0.02	100	250	50	250
7	Beaverton/Tigard Interchange	OVERALL	B	12.5	0.66	C	21.5	0.76				
		WB L	C	23.2	0.73	C	28.8	0.80	200		325	
		WB L/T	C	22.6	0.71	C	28.6	0.80	250		425	
		WB R	A	3.8	0.08	A	7.2	0.37	75	240	**325**	240
		NB T	B	1.9	0.51	C	31.3	0.81	125		275	
		NB R	A	0.9	0.45	A	0.4	0.26				
		SB L	B	18.5	0.58	C	30.8	0.63	175		150	
		SB T	A	5.4	0.12	A	8.7	0.09	75	300	75	300
8	SW Baltic Ave at SW Barnes Rd	OVERALL	C	28.6	0.61	C	30.7	0.68				
		EB L	D	46.0	0.68	D	47.9	0.33	150	200	75	200
		EB T/R	B	17.3	0.47	C	25.8	0.46	225		225	
		WB L	E	58.3	0.71	E	60.9	0.88	150	200	**275**	200
		WB T/R	B	18.9	0.43	B	17.9	0.53	250		350	
		NB L	D	49.6	0.58	E	56.4	0.75	100	325	175	325
		NB T	D	46.4	0.82	C	33.7	0.16	300		100	
		NB R	C	30.0	0.60	C	21.1	0.34	225		125	
		SB L	D	50.2	0.38	D	49.3	0.49	50	75	**100**	75
		SB T	C	33.3	0.12	D	45.4	0.64	75		225	
		SB R	C	21.7	0.07	C	33.9	0.46	75	200	175	200
9a	Intersection does not exist under Existing conditions											
9b	Intersection does not exist under Existing conditions											

Intersection: 10: SW Cedar Hills Blvd & SW Barnes Rd

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB	SB
Directions Served	L	T	T	L	L	T	TR	L	L	T	R	L
Maximum Queue (ft)	60	222	203	178	186	151	189	165	165	312	235	423
Average Queue (ft)	14	140	116	83	100	64	91	87	83	204	132	70
95th Queue (ft)	43	200	186	146	156	124	168	143	143	337	266	246
Link Distance (ft)		1390	1390			486	486	237	237	237		
Upstream Blk Time (%)										9	1	
Queuing Penalty (veh)										25	0	
Storage Bay Dist (ft)	320			315	315						135	375
Storage Blk Time (%)										28	3	
Queuing Penalty (veh)										61	8	

Intersection: 10: SW Cedar Hills Blvd & SW Barnes Rd

Movement	SB
Directions Served	TR
Maximum Queue (ft)	675
Average Queue (ft)	372
95th Queue (ft)	581
Link Distance (ft)	1973
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	12
Queuing Penalty (veh)	9

Intersection: 15: SW Cedar Hills Blvd & US 26 WB On Ramp

Movement	NB	NB	SB	SB	SB
Directions Served	T	T	T	TR	R
Maximum Queue (ft)	28	170	108	162	81
Average Queue (ft)	3	27	13	18	3
95th Queue (ft)	17	115	54	77	40
Link Distance (ft)	103	103	237	237	237
Upstream Blk Time (%)		3		0	
Queuing Penalty (veh)		13		0	
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 20: SW Cedar Hills Blvd & US 26 WB Off Ramp

Movement	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	L	R	T	T	T	T
Maximum Queue (ft)	202	166	62	90	94	177	175
Average Queue (ft)	110	63	3	44	68	128	135
95th Queue (ft)	173	124	37	87	105	189	189
Link Distance (ft)	1118	1118	1118	40	40	103	103
Upstream Blk Time (%)				6	16	10	11
Queuing Penalty (veh)				18	47	59	68
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 25: SW Cedar Hills Blvd

Movement	NB	NB	SB
Directions Served	T	TR	T
Maximum Queue (ft)	28	187	9
Average Queue (ft)	2	21	0
95th Queue (ft)	17	106	0
Link Distance (ft)	491	491	40
Upstream Blk Time (%)			0
Queuing Penalty (veh)			0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 30: SW Cedar Hills Blvd & US 26 EB Off Ramp/US 26 EB On Ramp

Movement	EB	EB	NB	NB	SB	SB	SB
Directions Served	LT	R	T	TR	L	T	T
Maximum Queue (ft)	688	212	12	86	165	232	263
Average Queue (ft)	478	84	0	23	81	65	89
95th Queue (ft)	697	189	5	68	132	195	214
Link Distance (ft)	1074	1074	136	136		491	491
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)					375		
Storage Blk Time (%)						0	
Queuing Penalty (veh)						0	

Intersection: 40: SW Cedar Hills Blvd & SW Butner Rd

Movement	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	T	R	L	T	TR
Maximum Queue (ft)	264	74	49	46	148	198	25	130	172	198
Average Queue (ft)	130	15	32	13	61	93	6	76	137	164
95th Queue (ft)	218	50	55	39	116	159	23	139	182	214
Link Distance (ft)	914	933			1040	1040			136	136
Upstream Blk Time (%)								0	12	20
Queuing Penalty (veh)								0	89	151
Storage Bay Dist (ft)			25	225			300	60		
Storage Blk Time (%)		8	5					12	29	
Queuing Penalty (veh)		6	1					75	37	

Intersection: 50: Town Square West Access & SW Barnes Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB
Directions Served	T	T	R	L	T	T	L	L	R
Maximum Queue (ft)	100	84	27	30	112	107	35	46	17
Average Queue (ft)	14	19	4	2	26	25	8	14	2
95th Queue (ft)	58	62	20	15	78	75	30	37	12
Link Distance (ft)	486	486			542	542		291	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)			240	135			155		155
Storage Blk Time (%)					0				
Queuing Penalty (veh)					0				

Intersection: 60: Town Square East Access/SW Valeria View Dr & SW Barnes Rd

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	T	R	L	TR	L	T
Maximum Queue (ft)	70	191	197	20	44	177	138	48	40	40	276	76
Average Queue (ft)	24	57	65	3	12	59	49	17	11	13	144	11
95th Queue (ft)	54	137	150	13	35	129	110	42	34	37	232	48
Link Distance (ft)		542	542			1048	1048		455	455		704
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	250			165	100			565			250	
Storage Blk Time (%)		0	1			2					1	0
Queuing Penalty (veh)		0	0			0					1	0

Intersection: 60: Town Square East Access/SW Valeria View Dr & SW Barnes Rd

Movement	SB
Directions Served	R
Maximum Queue (ft)	140
Average Queue (ft)	55
95th Queue (ft)	98
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	250
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 70: OR 217 & SW Barnes Rd

Movement	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	LT	R	T	T	L	T	T
Maximum Queue (ft)	198	267	58	142	116	177	50	84
Average Queue (ft)	92	136	4	78	54	83	11	29
95th Queue (ft)	168	227	60	125	98	154	34	66
Link Distance (ft)	495	495		868	868	437	437	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)			240					300
Storage Blk Time (%)		1						
Queuing Penalty (veh)		1						

Intersection: 80: Baltic Ave & SW Barnes Rd

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	L	T	TR	L	T	TR	L	T	R	L	T
Maximum Queue (ft)	151	169	232	266	153	222	277	116	310	288	48	81
Average Queue (ft)	72	91	107	135	69	87	132	44	179	118	14	30
95th Queue (ft)	128	141	186	220	127	168	227	93	284	220	40	66
Link Distance (ft)			495	495		624	624		564	564		483
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	200	200			200			325			75	
Storage Blk Time (%)			1			0			0		0	2
Queuing Penalty (veh)			2			0			0		0	2

Intersection: 80: Baltic Ave & SW Barnes Rd

Movement	SB
Directions Served	R
Maximum Queue (ft)	69
Average Queue (ft)	34
95th Queue (ft)	62
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	200
Storage Blk Time (%)	
Queuing Penalty (veh)	

Zone Summary

Zone wide Queuing Penalty: 675

Intersection: 10: SW Cedar Hills Blvd & SW Barnes Rd

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB	SB
Directions Served	L	T	T	L	L	T	TR	L	L	T	R	L
Maximum Queue (ft)	86	225	208	254	285	382	442	312	258	324	235	499
Average Queue (ft)	40	115	97	128	149	221	262	199	187	297	199	114
95th Queue (ft)	76	187	176	214	241	345	396	292	258	346	314	357
Link Distance (ft)		1390	1390			486	486	237	237	237		
Upstream Blk Time (%)							0	2	2	25	1	
Queuing Penalty (veh)							0	11	9	114	0	
Storage Bay Dist (ft)	320			315	315						135	375
Storage Blk Time (%)				0	0	2				40	2	
Queuing Penalty (veh)				0	0	7				127	13	

Intersection: 10: SW Cedar Hills Blvd & SW Barnes Rd

Movement	SB
Directions Served	TR
Maximum Queue (ft)	732
Average Queue (ft)	406
95th Queue (ft)	658
Link Distance (ft)	1563
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	23
Queuing Penalty (veh)	16

Intersection: 15: SW Cedar Hills Blvd & US 26 WB On Ramp

Movement	NB	NB	SB	SB	SB
Directions Served	T	T	T	TR	R
Maximum Queue (ft)	120	186	137	220	142
Average Queue (ft)	19	124	16	29	7
95th Queue (ft)	66	234	79	125	67
Link Distance (ft)	103	103	237	237	237
Upstream Blk Time (%)	0	28	0	0	0
Queuing Penalty (veh)	1	191	0	1	0
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 20: SW Cedar Hills Blvd & US 26 WB Off Ramp

Movement	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	L	R	T	T	T	T
Maximum Queue (ft)	175	136	378	107	115	177	180
Average Queue (ft)	79	49	104	76	91	118	126
95th Queue (ft)	134	99	326	113	111	191	195
Link Distance (ft)	1118	1118	1118	40	40	103	103
Upstream Blk Time (%)				19	43	7	8
Queuing Penalty (veh)				95	218	39	49
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 25: SW Cedar Hills Blvd

Movement	NB	NB	SB	SB
Directions Served	T	TR	T	T
Maximum Queue (ft)	505	508	19	39
Average Queue (ft)	122	210	1	2
95th Queue (ft)	376	484	11	21
Link Distance (ft)	491	491	40	40
Upstream Blk Time (%)	0	1	0	0
Queuing Penalty (veh)	3	9	0	1
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 30: SW Cedar Hills Blvd & US 26 EB Off Ramp/US 26 EB On Ramp

Movement	EB	EB	NB	NB	SB	SB	SB
Directions Served	LT	R	T	TR	L	T	T
Maximum Queue (ft)	606	340	128	173	301	392	410
Average Queue (ft)	418	142	9	48	130	130	156
95th Queue (ft)	703	348	61	124	258	329	345
Link Distance (ft)	1074	1074	136	136		491	491
Upstream Blk Time (%)			0	1		0	0
Queuing Penalty (veh)			1	4		3	3
Storage Bay Dist (ft)					375		
Storage Blk Time (%)						1	
Queuing Penalty (veh)						3	

Intersection: 40: SW Cedar Hills Blvd & SW Butner Rd

Movement	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	T	R	L	T	TR
Maximum Queue (ft)	378	152	64	74	300	343	26	129	186	209
Average Queue (ft)	211	55	43	31	158	210	6	72	150	178
95th Queue (ft)	328	117	61	64	261	314	24	140	183	208
Link Distance (ft)	929	933			1040	1040			136	136
Upstream Blk Time (%)								0	22	34
Queuing Penalty (veh)								0	161	246
Storage Bay Dist (ft)			25	225			300	60		
Storage Blk Time (%)		25	16		1	1		10	39	
Queuing Penalty (veh)		40	12		0	0		60	33	

Intersection: 50: Town Square West Access & SW Barnes Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB
Directions Served	T	T	R	L	T	T	L	L	R
Maximum Queue (ft)	138	120	30	143	278	277	120	158	54
Average Queue (ft)	36	36	6	22	111	106	37	73	18
95th Queue (ft)	97	91	23	66	236	225	89	135	39
Link Distance (ft)	486	486			542	542		291	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)			240	135			155		155
Storage Blk Time (%)					3		0	0	
Queuing Penalty (veh)					1		0	1	

Intersection: 60: Town Square East Access/SW Valeria View Dr & SW Barnes Rd

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	T	R	L	TR	L	T
Maximum Queue (ft)	181	98	138	19	117	344	313	106	68	57	101	155
Average Queue (ft)	77	22	38	2	26	135	128	37	22	20	41	82
95th Queue (ft)	149	66	91	10	90	273	253	79	55	47	80	140
Link Distance (ft)		542	542			1048	1048		455	455		704
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	250			165	100			565			250	
Storage Blk Time (%)			0			10						
Queuing Penalty (veh)			0			6						

Intersection: 60: Town Square East Access/SW Valeria View Dr & SW Barnes Rd

Movement	SB
Directions Served	R
Maximum Queue (ft)	68
Average Queue (ft)	15
95th Queue (ft)	45
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	250
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 70: OR 217 & SW Barnes Rd

Movement	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	LT	R	T	T	L	T	T
Maximum Queue (ft)	407	518	290	291	261	171	52	85
Average Queue (ft)	192	262	88	177	144	82	11	30
95th Queue (ft)	317	416	306	260	230	148	34	70
Link Distance (ft)	545	545		879	879	417	417	
Upstream Blk Time (%)		0						
Queuing Penalty (veh)		0						
Storage Bay Dist (ft)			240					300
Storage Blk Time (%)		10	0		0			
Queuing Penalty (veh)		36	0		1			

Intersection: 80: Baltic Ave & SW Barnes Rd

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	L	T	TR	L	T	TR	L	T	R	L	T
Maximum Queue (ft)	64	90	224	242	295	373	386	204	125	142	149	273
Average Queue (ft)	9	36	102	127	174	149	205	101	48	75	37	117
95th Queue (ft)	36	75	188	212	274	304	348	174	100	125	92	212
Link Distance (ft)			545	545		624	624		564	564		483
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	200	200			200			325			75	
Storage Blk Time (%)			0		9	1					2	32
Queuing Penalty (veh)			0		40	2					7	90

Intersection: 80: Baltic Ave & SW Barnes Rd

Movement	SB
Directions Served	R
Maximum Queue (ft)	194
Average Queue (ft)	88
95th Queue (ft)	165
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	200
Storage Blk Time (%)	1
Queuing Penalty (veh)	1

Zone Summary

Zone wide Queuing Penalty: 1656

WASHINGTON COUNTY OREGON
SAFETY PRIORITY INDEX SYSTEM (SPIS)

2013-2015
(Sorted by Rank)

THE SPIS LIST IS A SCREENING TOOL USED TO IDENTIFY AND RANK POTENTIALLY HAZARDOUS INTERSECTIONS.

THE SPIS LIST IS COMPILED FROM VEHICLE CRASHES REPORTED TO THE OREGON DEPARTMENT OF TRANSPORTATION.

THE LIST INCLUDES THREE CONSECUTIVE CALENDAR YEARS OF INTERSECTION CRASH DATA.

INTERSECTIONS INCLUDED HAVE THREE OR MORE CRASHES, OR ONE OR MORE SEVERE INJURY OR FATAL CRASHES.

THE LIST INCLUDES INTERSECTIONS WHERE WASHINGTON COUNTY HAS JURISDICTION OF AT LEAST ONE APPROACH.

INTERSECTIONS WITH PRIVATE ROAD APPROACHES ARE INCLUDED.

CRASHES ARE COMPILED AT AND UP TO 265 FEET IN EACH DIRECTION FROM THE INTERSECTION.

CRASHES WERE ANALYZED USING GEOCODED DATA AND MAY VARY FROM PREVIOUS CALCULATIONS.

FOR MORE INFORMATION REGARDING COUNTY CONSTRUCTION PROJECTS REFER TO:
www.wc-roads.com

FOR MORE INFORMATION REGARDING COUNTY TRAFFIC COUNTS REFER TO:
www.co.washington.or.us/LUT/Divisions/TrafficEngineering/Programs/traffic-counts.cfm

DEFINITIONS:
- RANK = Comparison to other intersections on the SPIS List.
- ENT ADT = Entering daily traffic at the intersection.
- SPIS SCORE = Calculated SPIS value.
- CRASH TOTAL = Total **"Crashes"**, over 3 years
- FATAL = Total **"Crashes"** Resulting in a Fatality.
- INJ A = Total Severe Injury **"Crashes"**
- INJ B = Total Moderate Injury **"Crashes"**
- INJ C = Total Minor Injury **"Crashes"**
- PDO = Total Property Damage Only **"Crashes"**

SPIS SCORE CALCULATION:
The SPIS Score is composed of three crash elements: Frequency, Rate, and Severity.
Frequency: The total number of crashes. Maximum 25% of the SPIS Score.
Rate: # of crashes compared to traffic volumes. Maximum 25% of the SPIS Score.
Severity: # of crashes related to the resulting injuries. Maximum 50% of the SPIS Score.
The highest possible SPIS Score value is 100.

DEPARTMENT of LAND USE & TRANSPORTATION
ENGINEERING and CONSTRUCTION SERVICES DIVISION
TRAFFIC ENGINEERING SECTION
503-846-7950

CURRENT RANK	12-14 PREV RANK (OF 305)	11-13 PREV RANK (OF 304)	ROADWAY	INTERSECTING ROADWAY	ENT ADT	TOTAL CRASHES	FATAL	INJ A	INJ B	INJ C	PDO	SPIS SCORE	COMMENTS
1	1	5	BALTIC AVE	BARNES RD	23000	65	0	3	10	20	32	86.2	West x-walk closed, installing reflective backplates for Barnes approaches in 2018.
2	2	3	FARMINGTON RD (OR10)	MURRAY BLVD	46000	98	0	3	7	36	52	85.9	MSTIP to widen Farmington to 5 lanes under construction.
3	4	1	HALL BLVD (OR141)	SCHOLLS FERRY RD (OR210)	38000	75	0	0	4	26	45	84.0	Potentially part of future SCATS project by Beaverton.
4	6	2	185TH AVE	BASELINE RD	45000	83	0	1	11	35	36	83.9	Preemption signal timing altered summer 2017.
5	5	4	185TH AVE	TUALATIN VALLEY HWY (OR8)	60000	97	0	6	7	38	46	83.7	ODOT safety project completed in 2016.
6	9	7	198TH AVE	TUALATIN VALLEY HWY (OR8)	50000	78	0	1	7	36	34	82.4	198th widening project in design.
5% 7	8	34	EVERGREEN PKWY	STUCKI AVE	18000	40	0	1	14	8	17	81.8	Reflective backplates added in 2017, EB FYA turned off in 2016.
8	7	9	BARNES RD	CEDAR HILLS BLVD	34000	58	0	1	2	20	35	81.6	Reflective backplates added in 2017.
9	11	26	209TH AVE	TUALATIN VALLEY HWY (OR8)	39000	61	0	0	5	26	30	81.2	Protected lefts added. Part of the South Hillsboro development.
10	10	6	MURRAY BLVD	TUALATIN VALLEY HWY (OR8)	58000	74	0	0	5	30	39	80.8	
11	3	8	BROOKWOOD PKWY	CORNELL RD	49000	66	0	1	5	26	34	80.6	Flashing yellow turned off during daytime in 2013. Part of InSync adaptive since 2013.
12	14	17	BOONES FERRY RD	TUALATIN-SHERWOOD RD	71000	80	0	0	3	33	44	80.4	Part of SCATS.
13	19	72	JENKINS RD	MURRAY BLVD	41000	64	0	0	0	25	39	79.6	Reflective backplates added in 2017.
14	15	22	170TH AVE	TUALATIN VALLEY HWY (OR8)	55000	63	0	1	4	24	34	79.3	
15	13	33	185TH AVE	CORNELL RD	52000	60	0	0	4	26	30	79.1	
16	44	35	ALLEN BLVD	MURRAY BLVD	48000	57	0	1	2	23	31	79.1	Reflective backplates added in 2017.
17	16	20	GARDEN HOME RD	OLESON RD	28000	41	0	2	1	8	30	78.8	Modified signal timing in 2017.
18	35	57	BEAVERTON-HILLSDALE HWY (OR10)	SCHOLLS FERRY RD (OR210)/DOGWOOD	24000	37	0	2	1	13	21	78.7	
19	55	111	BASELINE RD/MAIN ST	BROOKWOOD PKWY	35000	46	0	2	4	11	29	78.7	Widening project completed in 2017.
20	12	13	178TH AVE	TUALATIN VALLEY HWY (OR8)	35000	43	0	1	3	27	12	77.9	
10% 21	18	14	158TH AVE	WALKER RD	46000	49	0	3	6	18	22	77.7	MSTIP widening project under construction.
22	39	18	MURRAY BLVD	SCHOLLS FERRY RD (OR210)	43000	46	0	1	4	18	23	77.4	Scholls Ferry widening completed in 2016. Modified signal timing, added RBP in 2017.
23	21	27	112TH AVE/AVERY ST	TUALATIN-SHERWOOD RD	32000	37	0	1	2	24	10	76.8	City red light camera. EB right turn overlap installed.
24	36	113	072ND AVE/BRIDGEPORT RD	LOWER BOONES FERRY RD	39000	40	0	1	1	18	20	76.5	
25	20	10	NEHALEM HWY (OR47)	PURDIN RD/VERBOORT RD	13000	21	1	2	4	7	7	76.3	Roundabout construction completed in 2016.

10%

CURRENT RANK	12-14 PREV RANK (OF 305)	11-13 PREV RANK (OF 304)	ROADWAY	INTERSECTING ROADWAY	ENT ADT	TOTAL CRASHES	FATAL	INJ A	INJ B	INJ C	PDO	SPIS SCORE	COMMENTS
26	24	16	001ST AVE (OR219)	BASELINE ST (OR8)	28000	32	0	1	3	16	12	76.0	
27			ELWERT RD	PACIFIC HWY (OR99W)	37000	37	0	1	3	17	16	75.9	
28	23	21	185TH AVE	WALKER RD	44000	47	0	0	7	20	20	75.8	
29	83	120	LONG RD	SUSBAUER RD	6000	15	1	1	2	6	5	75.6	
30	106	64	173RD AVE	WALKER RD	25000	32	0	1	5	13	13	75.6	MSTIP widening project completed in 2017.
31	26	19	025TH AVE	CORNELL RD	40000	37	0	1	6	14	16	75.5	Project in coordination with City of Hillsboro. Construction in 2018.
32	69	59	BROOKWOOD AVE	TUALATIN VALLEY HWY (OR8)	45000	39	0	1	2	20	16	75.4	
33	28	24	124TH AVE	TUALATIN-SHERWOOD RD	36000	34	0	2	2	19	11	75.2	124th Extension project under construction.
34	57	60	229TH AVE	EVERGREEN PKWY	25000	27	0	2	5	10	10	74.9	EB flashing yellow arrow removed in 2014. Reflective backplates added in 2017.
35	30	65	BASELINE RD	CORNELIUS PASS RD	45000	34	0	1	4	19	10	74.0	Modified signal timing in 2016.
36	34	66	MARTINAZZI AVE	TUALATIN-SHERWOOD RD	44000	48	0	0	1	24	23	73.2	Part of SCATS.
37	53	133	GLENCOE RD	SCOTCH CHURCH RD/ZION CHURCH RD	21000	21	0	2	1	10	8	73.2	Modified signal detection to radar in 2017, added advance radar for trucks.
38	77	28	158TH AVE	JENKINS RD	35000	27	0	2	3	7	15	73.0	MSTIP widening project in design.
39	58	43	MURRAY BLVD	WALKER RD	49000	41	0	1	5	11	24	72.8	MSTIP widening project in design. Reflective backplates added in 2017.
40	129	37	CORNELIUS PASS RD	EVERGREEN PKWY	54000	41	0	1	5	11	24	72.3	Widening project completed in 2017.
41	40	55	PACIFIC HWY (OR99W)	ROY ROGERS RD/TUALATIN-SHERWOOD RD	60000	53	0	0	1	23	29	71.8	MSTIP project on hold.
42	31	32	125TH AVE/NORTH DAKOTA ST	SCHOLLS FERRY RD (OR210)	55000	43	0	0	1	25	17	71.5	Reflective backplates added in 2017. Signal retiming in 2018.
43	22	36	CENTURY BLVD	CORNELL RD	40000	42	0	0	5	19	18	69.8	improvements completed 2016 and 2017. Road renamed from 229th/231st to Century.
44	73	80	010TH/CORNELL RD	MAIN ST	35000	19	0	2	3	7	7	69.8	
45	51	48	185TH AVE	FARMINGTON RD (OR10)	26000	29	0	1	3	12	13	69.2	Development improvements completed in 2014.
46	41	86	CORNELL RD	SALTZMAN RD	29000	33	0	1	3	11	18	69.1	
47	66	15	CIPOLE RD	TUALATIN-SHERWOOD RD	31000	27	0	1	1	15	10	68.6	Modified signal timing in 2017.
48	33	54	206TH AVE/JOHN OLSEN AVE	CORNELL RD	24000	27	0	1	6	9	11	68.6	
49	17	69	CORNELIUS PASS RD	OLD CORNELIUS PASS RD	10000	24	0	1	3	9	11	68.5	Signal warrant analysis completed in 2017, possible temp signal design in 2018.
50	118	89	BURKHALTER RD/SIMPSON RD	HILLSBORO-SILVERTON HWY (OR219)	11000	12	1	1	4	4	2	68.1	

CURRENT RANK	12-14 PREV RANK (OF 305)	11-13 PREV RANK (OF 304)	ROADWAY	INTERSECTING ROADWAY	ENT ADT	TOTAL CRASHES	FATAL	INJ A	INJ B	INJ C	PDO	SPIS SCORE	COMMENTS
51	48	157	CAMELOT CT/CANYON LN	CANYON RD (OR8)	20000	13	0	2	3	6	2	67.4	
52	32	61	013TH AVE/RIVER RD	TUALATIN VALLEY HWY (OR8)	36000	28	1	0	5	10	12	66.9	
53	68	38	TETON AVE	TUALATIN-SHERWOOD RD	33000	39	0	0	6	16	17	66.7	Part of SCATS.
54	90	146	NEHALEM HWY (OR47)	PEBBLE CREEK RD	5000	18	0	1	4	6	7	66.7	
55	79	85	EVERGREEN RD	JACKSON SCHOOL RD (NORTH)	22000	16	1	1	1	6	7	66.4	
56	110	122	DIVISION ST/KINNAMAN RD	FARMINGTON RD (OR10)	28000	41	0	0	2	18	21	65.7	
57	47	25	185TH AVE	PARK VIEW BLVD/ROCK CREEK BLVD	28000	23	0	1	3	12	7	65.4	
58	38	11	185TH AVE	EVERGREEN PKWY	58000	50	0	0	4	16	30	64.9	Reflective backplates added in 2017.
59	74	49	BUTLER ST	CORNELL RD	29000	32	0	0	6	16	10	64.1	Part of InSync since 2013.
60	56	130	CORNELIUS PASS RD	JOHNSON ST	19000	22	0	1	0	13	8	64.0	Widening project in design.
61	128	44	185TH AVE	HERITAGE PKWY	28000	20	0	1	3	12	4	63.5	
62	130	118	OREGON ST	TUALATIN-SHERWOOD RD	32000	29	0	1	4	8	16	63.5	
63	103		HILLSBORO HWY (OR219)	MOUNTAIN HOME RD/VANDERSCHUERE RD	3000	8	0	2	1	1	4	63.1	
64	70	62	CORNELIUS PASS RD	CORNELL RD	46000	35	0	0	7	15	13	63.0	Widening project completed in 2017.
65	45	12	010TH AVE	BASELINE ST (OR8)	22000	32	1	0	3	6	22	62.9	
66	37	42	CORNELIUS PASS RD	IMBRIE DR	52000	39	0	0	5	16	18	62.7	Widening project completed in 2017.
67	42	29	OLESON RD	SCHOLLS FERRY RD (OR210)	22000	48	0	0	2	12	34	61.6	
68	80	76	CORNELL RD	MURRAY BLVD	44000	31	0	1	2	9	19	61.4	
69	153	97	CORNELIUS PASS RD	TUALATIN VALLEY HWY (OR8)	50000	29	1	0	1	11	16	61.4	Cornelius Pass extension part of South Hillsboro development.
70	25	41	017TH AVE	CORNELL RD	29000	32	0	0	6	14	12	61.1	
71	91	88	BEEF BEND RD	PACIFIC HWY (OR99W)	39000	26	0	1	1	11	13	61.0	
72	60	50	CONESTOGA DR	SCHOLLS FERRY RD (OR210)	49000	27	0	1	0	12	14	60.5	Reflective backplates added in 2017.
73	85	106	048TH AVE	CORNELL RD	27000	34	0	0	4	14	16	59.6	Signal retiming in 2018.
74	92	96	195TH AVE	FARMINGTON RD (OR10)	16000	10	0	2	1	4	3	59.5	Part of InSync since 2013.
75	109	39	BROOKWOOD PKWY	EVERGREEN PKWY	44000	36	0	0	5	14	17	59.2	Widening project completed in 2017.

CURRENT RANK	12-14 PREV RANK (OF 305)	11-13 PREV RANK (OF 304)	ROADWAY	INTERSECTING ROADWAY	ENT ADT	TOTAL CRASHES	FATAL	INJ A	INJ B	INJ C	PDO	SPIS SCORE	COMMENTS
76	52	104	185TH AVE	WEST UNION RD	33000	23	0	1	3	8	11	58.6	
77	281	252	MILL CREEK DR	MURRAY BLVD	31000	22	0	1	3	8	10	58.3	
78	97	183	196TH AVE	FARMINGTON RD (OR10)	16000	10	0	2	1	3	4	58.0	
79	104	81	NYBERG ST	TUALATIN-SHERWOOD RD	59000	32	0	0	4	16	12	57.6	Part of SCATS.
80	46	79	192ND AVE	TUALATIN VALLEY HWY (OR8)	37000	19	0	1	3	9	6	57.2	ODOT safety project completed in 2016.
81	63	87	053RD AVE	BASELINE RD	25000	31	0	0	4	13	14	57.0	Widening project completed in 2017.
82	93	31	BUTNER RD	CEDAR HILLS BLVD	30000	22	0	1	4	6	11	57.0	Reflective backplates added in 2017.
83	168	105	SCHENDEL AVE	WALKER RD	16000	19	0	1	2	7	9	56.9	MSTIP widening project in design.
84	59	47	GERDA LN	TUALATIN-SHERWOOD RD	26000	34	0	0	2	14	18	56.8	
85	27	45	FISCHER RD	PACIFIC HWY (OR99W)	38000	29	0	1	1	7	20	56.6	ODOT access management project completed in 2014.
86	181	207	160TH AVE	FARMINGTON RD (OR10)	30000	16	0	1	3	9	3	56.1	
87	149		185TH AVE	RIGERT RD	6500	7	0	2	1	1	3	55.8	
88	95	126	110TH AVE	BEAVERTON-HILLSDALE HWY (OR10)	34000	35	0	0	3	13	19	55.7	
89	81	127	AMBERGLEN PKWY/STUCKI AVE	CORNELL RD	25000	34	0	0	4	11	19	55.6	
90	88		338TH AVE	BASELINE ST (OR8)	34000	11	0	2	0	3	6	54.8	
91	72	116	BEARD RD/BROCKMAN ST	MURRAY BLVD	29000	31	0	0	1	15	15	54.6	Reflective backplates added in 2017.
92	198		DAVIS RD	MURRAY BLVD	27000	8	0	2	3	1	2	54.2	Reflective backplates added in 2017.
93	71	71	OUTRIGGER TER	WALKER RD	16000	17	0	1	5	3	8	53.9	
94	94	119	170TH AVE	BASELINE RD	25000	25	0	0	4	13	8	53.7	Modified signal timing in 2017.
95	107	117	043RD AVE	MAIN ST	17000	15	0	1	2	7	5	53.4	Widening project completed in 2017.
96	54	95	JACKSON SCHOOL RD	WEST UNION RD	1200	12	0	0	3	6	3	53.3	Changed to 4-way stop in 2014.
97	76	108	NIMBUS AVE	SCHOLLS FERRY RD (OR210)	45000	35	0	0	1	14	20	52.6	Reflective backplates added in 2017. Signal retiming in 2018.
98	143	93	179TH AVE/EVERGREEN PKWY	CORNELL RD	30000	17	0	1	1	8	7	52.2	
99	139	103	185TH AVE	BRONSON RD	53000	39	0	0	1	13	25	52.1	
100	167	138	158TH AVE	SCHENDEL AVE	27000	16	0	1	1	8	6	52.0	

CURRENT RANK	12-14 PREV RANK (OF 305)	11-13 PREV RANK (OF 304)	ROADWAY	INTERSECTING ROADWAY	ENT ADT	TOTAL CRASHES	FATAL	INJ A	INJ B	INJ C	PDO	SPIS SCORE	COMMENTS
101	251	142	CORNELL RD	ELAM YOUNG PKWY (WEST)	27000	16	1	0	2	7	6	52.0	Part of InSync since 2013.
102	192	148	BANKS RD/HARRISON RD	SUNSET HWY (US26)	11000	7	0	2	1	0	4	51.5	
103	105	52	HART RD	MURRAY BLVD	31000	34	0	0	1	12	21	51.2	Reflective backplates added in 2017.
104	62	46	121ST AVE/BOONES BEND DR	SCHOLLS FERRY RD (OR210)	54000	26	0	0	2	15	9	50.6	Reflective backplates added in 2017. Signal retiming in 2018.
105	210	304	MURRAY BLVD	WEIR RD	26000	14	1	0	1	8	4	50.6	East leg added in 2014. Reflective backplates added in 2017.
106	116	94	AMBERWOOD DR/BUTLER ST	CORNELIUS PASS RD	37000	23	0	0	7	10	6	50.6	
107	29	30	MILLIKAN WAY	MURRAY BLVD	39000	32	0	0	3	11	18	50.5	
108	191	170	BARNES RD	CATLIN CREST DR/MILLER RD	25000	15	0	1	1	7	6	50.1	
109	185		BROOKMAN RD/CHAPMAN RD	PACIFIC HWY (OR99W)	37000	9	0	2	0	1	6	49.9	
110	131	84	110TH AVE	CANYON RD (OR8)	22000	18	0	1	2	4	11	49.9	
111	112	152	JAY ST (PVT)	JENKINS RD	24000	30	0	0	1	11	18	49.3	MSTIP widening project in design.
112	113	121	185TH AVE	JOHNSON ST	26000	25	0	0	1	13	11	49.0	
113	115	172	MURRAY BLVD	SCIENCE PARK DR	30000	28	0	0	5	8	15	48.4	
114			185TH AVE	BLANTON ST (WEST)	19000	15	0	1	2	4	8	48.3	
115	140	124	185TH AVE	KINNAMAN RD	20000	23	0	0	3	10	10	47.8	
116	67	63	205TH AVE/206TH AVE	BASELINE RD	29000	21	0	0	4	11	6	47.5	
117	220	156	194TH TER/ABERWOOD DR	CORNELL RD	25000	24	0	0	6	7	11	47.1	
118	98	98	FARMINGTON RD (OR10)	HILLSBORO-SILVERTON HWY (OR219)	8000	10	1	0	1	4	4	46.8	
119	133	92	CEDAR HILLS BLVD	FAIRFIELD ST	26000	11	0	1	1	7	2	46.6	Reflective backplates added in 2017.
120	87	222	FERN HILL RD/MAPLE ST	TUALATIN VALLEY HWY (OR47)	11000	13	0	1	2	2	8	46.6	
121	43	23	170TH AVE	FARMINGTON RD (OR10)	40000	33	0	0	2	9	22	46.3	
122	132	189	185TH AVE	STEPPING STONE DR	26000	25	0	0	3	9	13	46.0	
123	223	74	EVERGREEN PKWY	IMBRIE DR	26000	27	0	0	3	8	16	45.6	Phase changes in 2014 to allow EB left to run concurrent with peds across Evergreen.
124	171	243	LANGER FARMS PKWY	TUALATIN-SHERWOOD RD	26000	17	0	1	2	2	12	45.4	Signal installed in 2014.
125	108	101	CORNELIUS PASS RD	WEST UNION RD	25000	11	0	1	2	5	3	45.3	

CURRENT RANK	12-14 PREV RANK (OF 305)	11-13 PREV RANK (OF 304)	ROADWAY	INTERSECTING ROADWAY	ENT ADT	TOTAL CRASHES	FATAL	INJ A	INJ B	INJ C	PDO	SPIS SCORE	COMMENTS
126	144	140	MAYFIELD AVE	WALKER RD	20000	10	0	1	1	6	2	45.1	
127			103RD AVE	PORTER ST	100	1	0	1	0	0	0	45.1	
128	114		185TH AVE	EDGEWAY DR/SALIX TER	28000	24	0	0	3	9	12	45.0	
129	135	129	MURRAY BLVD	OSPREY DR	28000	26	0	0	1	10	15	44.6	Reflective backplates added in 2017.
130			170TH AVE	MERLO RD	13000	12	0	1	1	3	7	44.6	
131	138		RIVER RD	SCHOLLS FERRY RD (OR210)	11000	12	0	1	2	1	8	44.1	Roundabout.
132	258	300	025TH AVE	EVERGREEN RD	20000	12	0	1	4	1	6	44.0	
133	222	244	185TH AVE	HOLLY ST	31000	14	0	1	1	4	8	44.0	
134	162	158	115TH AVE	TUALATIN-SHERWOOD RD	29000	17	0	0	2	12	3	43.4	
135			BALD PEAK RD	LAUREL RD	3000	5	0	1	1	3	0	43.4	
136	150	295	B ST	TUALATIN VALLEY HWY (OR47)	16000	10	0	1	1	4	4	43.0	
137	117	150	HORIZON BLVD/TEAL BLVD	SCHOLLS FERRY RD (OR210)	35000	11	0	1	0	6	4	42.7	MSTIP project completed in 2014. Reflective backplates added in 2017.
138	160	177	GREENBURG RD/OLESON RD	HALL BLVD (OR141)	25000	24	0	0	2	8	14	42.6	
139			185TH AVE	SHAW ST	19000	13	0	1	2	1	9	42.2	
140	127	176	ALOCLEK DR	CORNELL RD	25000	9	0	1	1	5	2	41.9	
141			063RD AVE	CORNELL RD	27000	12	0	1	0	4	7	41.4	
142	164	135	ALLEN BLVD	SCHOLLS FERRY RD (OR210)	30000	26	0	0	2	7	17	41.3	Reflective backplates added in 2017.
143			BEAVERTON-TIGARD HWY (OR217) NB	WALKER RD	18000	10	0	1	0	4	5	41.0	
144	102	83	188TH AVE	EVERGREEN PKWY	21000	20	0	0	3	7	10	41.0	Turned off WB flashing yellow arrow during weekday afternoon peak in 2015.
145			LEE RD	WEST SHORE DR	500	2	0	1	0	0	1	40.8	
146	228	198	170TH AVE	BLANTON ST	17000	16	0	0	1	10	5	40.7	
147	142	131	149TH AVE/ST JOHN VIANNEY WAY	FARMINGTON RD (OR10)	26000	19	0	0	1	10	8	40.7	
148	99	75	175TH AVE/ROY ROGERS RD	SCHOLLS FERRY RD (OR210)	23000	25	0	0	1	7	17	40.7	Development improvements completed, RBP installed in 2017. MSTIP project in design.
149	207	246	143RD AVE/KAISER RD	THOMPSON RD/WEST UNION RD	15000	15	0	0	0	11	4	40.6	WB flashing yellow arrow turned off; NB/SB turned on in 2015.
150	201		MINTER BRIDGE RD	RIVER RD	14000	20	0	0	0	8	12	40.5	

CURRENT RANK	12-14 PREV RANK (OF 305)	11-13 PREV RANK (OF 304)	ROADWAY	INTERSECTING ROADWAY	ENT ADT	TOTAL CRASHES	FATAL	INJ A	INJ B	INJ C	PDO	SPIS SCORE	COMMENTS
151	213	245	107TH AVE	BEAVERTON-HILLSDALE HWY (OR10)	28000	19	0	0	2	9	8	40.4	
152			FARMINGTON RD (OR10)	RIVER RD	11000	10	0	1	0	2	7	40.4	
153	151	165	150TH AVE/KOLL PKWY	WALKER RD	24000	20	0	0	1	9	10	40.3	
154	255	272	ANDERSON RD/OLD HWY 47	TUALATIN VALLEY HWY (OR47)	14000	2	1	1	0	0	0	40.3	
155	120	302	DAVIS LN (PVT)	ZION CHURCH RD	15000	2	0	2	0	0	0	40.2	
156	147	102	LAIDLAW RD	WEST UNION RD	15000	18	0	0	3	6	9	40.1	
157			PLEASANT VALLEY RD	SCHOLLS FERRY RD (OR210)	10000	7	0	1	0	4	2	40.0	
158	155	184	135TH AVE	SCHOLLS FERRY RD (OR210)	42000	21	0	0	3	8	10	39.9	Reflective backplates added in 2017. Signal retiming in 2018.
159	124	153	209TH AVE	CARLIN BLVD/ROSEDALE RD	12000	10	0	1	1	1	7	39.9	
160	204	279	BALD PEAK RD	CAMPBELL RD	4000	5	0	1	0	3	1	39.9	Intersection realignment completed in 2017.
161	86	90	BEAVERTON-HILLSDALE HWY (OR10)	OLESON RD	51000	28	0	0	3	6	19	39.8	
162	269		185TH AVE	GERMANTOWN RD	8000	16	0	0	1	6	9	39.8	
163	123	149	214TH AVE	TUALATIN VALLEY HWY (OR8)	39000	11	0	1	0	4	6	39.5	
164	134	161	082ND PL/LEAHY RD	BARNES RD	19000	19	0	0	1	8	10	39.4	
165			BARNES RD	MONTEREY PL/ST VINCENT	18977	10	1	0	0	3	6	39.3	
166	190		170TH AVE	SHAW ST	17000	20	0	0	1	7	12	39.3	
167	237		325TH PL/LONEY LN (PVT)	LAUREL RD	700	2	0	1	1	0	0	39.2	
168	184	205	SCHOLLS FERRY RD (OR210)	SPRINGWOOD DR	38000	10	0	1	0	4	5	38.7	
169	152	109	BARNES RD	OR 217/US 26	30000	19	0	0	1	9	9	38.6	
170			123RD AVE	WALKER RD	20000	8	1	0	1	3	3	38.5	
171	197	229	158TH AVE	CORNELL RD	48000	22	0	0	1	9	12	38.5	
172	170	236	BETHANY BLVD	WEST UNION RD	36000	17	0	0	5	6	6	38.0	Bethany widening completed in 2014.
173	161	168	GREENBURG RD	WASHINGTON SQUARE RD (SOUTH)(PVT)	11000	15	0	0	1	7	7	38.0	
174			170TH AVE	HERITAGE CT	18000	7	0	1	1	3	2	37.7	
175			DAVID HILL RD	THATCHER RD	1000	6	0	0	1	2	3	37.7	

CURRENT RANK	12-14 PREV RANK (OF 305)	11-13 PREV RANK (OF 304)	ROADWAY	INTERSECTING ROADWAY	ENT ADT	TOTAL CRASHES	FATAL	INJ A	INJ B	INJ C	PDO	SPIS SCORE	COMMENTS
176	232	204	198TH AVE	ALEXANDER ST	14000	16	0	0	2	6	8	37.4	
177	61	68	EVERGREEN PKWY	JOHN OLSEN AVE	37000	16	0	0	4	7	5	37.3	Reflective backplates added in 2017.
178			BLOOMING FERN HILL RD	WINTERS RD	2000	3	0	1	0	2	0	37.3	
179	199	137	MURRAY BLVD	TEAL BLVD	29000	19	0	0	3	6	10	37.2	Reflective backplates added in 2017.
180	82		065TH AVE	BORLAND RD	15000	16	0	0	1	7	8	37.0	
181	125	143	194TH TER	EVERGREEN PKWY	21000	8	0	1	1	2	4	36.9	Reflective backplates added in 2017.
182	209	270	BASELINE RD	LISA DR/WILLOW CREEK DR	23000	8	0	1	1	2	4	36.6	
183	96	58	153RD DR	JENKINS RD	29000	18	0	0	1	8	9	36.6	MSTIP widening project in design.
184	141	100	021ST AVE	CORNELL RD	29000	20	0	0	1	7	12	36.4	
185	146		CEDAR HILLS BLVD	HUNTINGTON AVE	22000	9	1	0	0	2	6	36.3	
186	188	144	185TH AVE	ROSA RD	14000	13	0	0	2	7	4	36.2	
187	156	123	143RD AVE	CORNELL RD	27000	17	0	0	1	8	8	36.2	
188	157		BARNES RD	CORNELL RD	12000	7	1	0	1	1	4	36.2	
189			064TH LN	CORNELL RD	27000	8	0	1	0	3	4	36.2	
190			SCHOLLS-SHERWOOD RD	SHEPPARD TER	4000	4	0	1	2	0	1	36.0	
191			MIDWAY RD	VANDERSCHUERE RD	2000	3	1	0	0	1	1	35.8	
192	78	145	185TH AVE	CHEMEKETA LN	20000	8	0	1	0	2	5	35.5	MSTIP widening project under construction.
193	200		BEECHWOOD AVE	WALKER RD	20000	14	0	0	0	9	5	35.3	
194	178	263	CORNELL RD	TRAIL AVE	18000	15	0	0	0	8	7	35.1	
195			BULL MOUNTAIN RD	ROY ROGERS RD	20000	9	0	1	0	1	7	35.1	Future traffic signal, possible 2018 installation.
196	163	219	188TH AVE	CORNELL RD	25000	15	0	0	5	4	6	35.1	
197	183		126TH AVE/TERRAVIEW DR	BULL MOUNTAIN RD	11000	7	0	1	0	1	5	35.0	
198			CORNELIUS PASS RD	RONLER DR	31000	14	0	0	2	8	4	35.0	
199	227	250	CORNELIUS PASS RD	QUATAMA RD	24000	8	0	1	0	2	5	35.0	
200			107TH AVE	CANYON RD (OR8)	18000	6	0	1	0	3	2	34.9	

CURRENT RANK	12-14 PREV RANK (OF 305)	11-13 PREV RANK (OF 304)	ROADWAY	INTERSECTING ROADWAY	ENT ADT	TOTAL CRASHES	FATAL	INJ A	INJ B	INJ C	PDO	SPIS SCORE	COMMENTS
201	246	188	CORNELL RD	ORENCO STATION PKWY	27000	15	0	0	0	9	6	34.7	Part of InSync since 2013.
202	226	218	006TH ST	MURRAY BLVD	28000	15	0	0	2	7	6	34.6	
203	268		174TH AVE	TUALATIN VALLEY HWY (OR8)	34000	16	0	0	2	7	7	34.6	
204	172	240	ARRINGTON RD	CORNELL RD	29000	15	0	0	3	6	6	34.5	
205	75	40	010TH AVE	WASHINGTON ST	30000	22	0	0	1	5	16	34.5	
206	50	51	089TH AVE	TUALATIN-SHERWOOD RD	37000	16	0	0	3	6	7	34.3	Part of SCATS.
207			HILLSBORO-SILVERTON HWY (OR219)	SCHOLLS FERRY RD (OR210)	14000	5	0	1	0	3	1	34.2	
208	187		DAIRY CREEK RD	MOUNTAINDALE RD	1100	2	0	1	0	0	1	34.1	
209	189	193	065TH AVE	NYBERG LN/NYBERG ST	23000	15	0	0	4	4	7	33.9	
210	297		CORNELIUS PASS RD	GERMANTOWN RD	29000	16	0	0	4	4	8	33.7	
211	158	134	090TH AVE	TUALATIN-SHERWOOD RD	37000	13	0	0	2	8	3	33.7	Part of SCATS.
212	274	223	BROOKWOOD PKWY	SHUTE RD	25000	17	0	0	5	2	10	33.5	
213	203	191	CORNELL RD	TOWN CENTER DR (PVT)	18000	5	0	1	1	2	1	33.5	
214	270	173	DAVIES RD	SCHOLLS FERRY RD (OR210)	31000	16	0	0	1	7	8	33.4	Reflective backplates added in 2017. Signal retiming in 2018.
215	65	53	BALER WAY	TUALATIN-SHERWOOD RD	26000	15	0	0	0	8	7	33.4	
216			SALTZMAN RD	THOMPSON RD	8000	5	0	1	0	1	3	33.2	
217	291		SELLERS RD	SUNSET HWY (US26)	13000	5	0	1	1	1	2	32.9	
218			090TH AVE	SCHOLLS FERRY RD (OR210)	13000	5	0	1	0	2	2	32.9	
219			331ST AVE	BRIDGES ST	500	1	1	0	0	0	0	32.6	
220			BALD PEAK RD	HILLSBORO HWY (OR219)	4000	9	0	0	2	2	5	32.4	
221	257	259	BETHANY BLVD	CORNELL RD	39000	23	0	0	2	3	18	32.3	Bethany widening completed in 2014.
222			198TH AVE	SANDRA LN	9000	4	0	1	1	1	1	32.3	
223	241	293	179TH AVE	FARMINGTON RD (OR10)	17000	13	0	0	0	7	6	32.2	
224	173		153RD AVE	FARMINGTON RD (OR10)	26000	7	0	1	1	0	5	32.2	
225			NEHALEM HWY (OR47)	NOWAKOWSKI RD	5000	9	0	0	4	1	4	32.2	

CURRENT RANK	12-14 PREV RANK (OF 305)	11-13 PREV RANK (OF 304)	ROADWAY	INTERSECTING ROADWAY	ENT ADT	TOTAL CRASHES	FATAL	INJ A	INJ B	INJ C	PDO	SPIS SCORE	COMMENTS
226	49	67	PCC ROCK CREEK CAMPUS	SPRINGVILLE RD	16000	11	0	0	3	5	3	32.1	
227			CORNELL RD	LINCOLN ST	25000	13	0	0	1	7	5	32.0	
228			198TH AVE	SHAW ST	18000	5	0	1	2	0	2	32.0	
229	253	264	BEEF BEND RD	SUMMERVIEW DR	10000	4	0	1	1	1	1	31.9	
230	154	136	TONQUIN RD	WALDO WAY	1000	5	0	0	0	1	4	31.9	124th Extension project under construction.
231	216	233	218TH TER/FRANCES ST	CORNELIUS PASS RD	26000	13	0	0	3	5	5	31.8	
232	265	267	HOCKEN AVE	JENKINS RD	27000	15	0	0	1	6	8	31.7	
233			GASTON RD	SPRING HILL RD	1000	4	0	0	0	3	1	31.7	
234	259	265	KAISER RD	MITCHELL ST	11000	4	0	1	1	1	1	31.6	
235	256	247	ALOCLEK DR/WALBRIDGE ST	CORNELIUS PASS RD	25000	14	0	0	0	7	7	31.3	
236	195		CORNELL RD	TURNER DR	25000	5	0	1	0	2	2	31.3	
237	221	276	HILLSIDE RD	KANSAS CITY RD/THATCHER RD	600	1	0	1	0	0	0	31.2	
238	245	248	BROOKWOOD AVE	WITCH HAZEL RD	7000	10	0	0	3	2	5	31.2	
239	212		192ND AVE	JOHNSON ST	6000	4	0	1	0	0	3	30.9	
240	249	171	GREENVILLE RD	NEHALEM HWY (OR47)	7000	3	0	1	1	1	0	30.9	
241	242		BRIDGEPORT RD	RIVENDELL DR/UPPER BOONES FERRY RD	14000	12	0	0	0	6	6	30.7	
242	301		GREENBURG RD	LOCUST ST	5000	9	0	0	0	4	5	30.7	
243	175		BARNES RD	PETERCOURT TOWN SQUARE (PVT)	17000	5	0	1	1	0	3	30.6	
244	100	215	187TH AVE	ALEXANDER ST	10000	4	0	1	0	1	2	30.4	ODOT safety project completed in 2016.
245	234		185TH AVE	TANASBOURNE DR/TOWN CENTER (PVT)	56000	12	0	0	2	7	3	30.4	
246	236		211TH AVE/211TH PL	JAY ST	1000	4	0	0	1	1	2	30.2	
247	219		TONQUIN LOOP	TONQUIN RD	500	3	0	0	0	0	3	29.9	
248	193	208	CANYON RD	WALKER RD	30000	15	0	0	0	6	9	29.8	
249			109TH AVE	BEAVERTON-HILLSDALE HWY (OR10)	30000	13	0	0	1	6	6	29.8	
250	211	181	077TH AVE/078TH AVE	BEAVERTON-HILLSDALE HWY (OR10)	25000	14	0	0	3	3	8	29.8	

CURRENT RANK	12-14 PREV RANK (OF 305)	11-13 PREV RANK (OF 304)	ROADWAY	INTERSECTING ROADWAY	ENT ADT	TOTAL CRASHES	FATAL	INJ A	INJ B	INJ C	PDO	SPIS SCORE	COMMENTS
251	208	268	158TH AVE	WATERHOUSE AVE	26000	16	0	0	1	4	11	29.6	
252			080TH AVE	OAK ST	2000	6	0	0	1	1	4	29.6	
253	215	262	173RD AVE	CORNELL RD	27000	16	0	0	2	3	11	29.5	
254	217	231	001ST AVE	WASHINGTON ST	12000	10	0	0	0	6	4	29.4	
255	231	187	HALL BLVD (OR141)	LOCUST ST	15000	11	0	0	2	4	5	29.4	
256	176	163	334TH AVE	BASELINE ST (OR8)	34000	5	0	1	0	1	3	29.3	
257	277		BALTIC AVE	US 26 RAMP WB	20000	14	0	0	0	5	9	29.3	
258			160TH AVE	BLANTON ST	10000	13	0	0	0	3	10	29.2	
259			ELM AVE	SCHOLLS FERRY RD (OR210)	10000	9	0	0	1	5	3	29.2	
260			MURRAY BLVD	SEXTON MOUNTAIN DR	24000	11	0	0	3	4	4	28.9	Reflective backplates added in 2017.
261	252	182	041ST AVE	MAIN ST	17000	11	0	0	1	5	5	28.8	
262			BUTNER RD	MURRAY BLVD	34000	14	0	0	0	6	8	28.7	Reflective backplates added in 2017.
263	296	299	175TH AVE	BASELINE RD	22000	12	0	0	1	5	6	28.6	
264			SCOGGINS VALLEY RD	TUALATIN VALLEY HWY (OR47)	9000	3	0	1	1	0	1	28.6	
265			087TH AVE	CANYON LN	2000	5	0	0	2	1	2	28.6	
266			117TH AVE	BARNES RD	22000	4	0	1	0	1	2	28.5	
267	278	266	170TH AVE	BANY RD	28000	11	0	0	1	6	4	28.4	
268	254	179	197TH AVE	BASELINE RD	24000	12	0	0	3	3	6	28.3	Widening project completed in 2017.
269	84	107	185TH AVE	PHEASANT LN	26000	4	1	0	1	0	2	28.3	
270	205	180	BASELINE RD/MAIN ST	CENTURY BLVD	17000	12	0	0	2	3	7	28.3	Widening project completed in 2017. Hillsboro project to extend Century Blvd.
271	186		165TH AVE	BRUGGER RD	3000	2	0	1	0	0	1	28.0	
272	260		JOHNSON RD	NEHALEM HWY (OR47)	3000	2	0	1	0	0	1	28.0	
273	302	213	BOONES FERRY RD	DAY RD	19000	14	0	0	0	4	10	28.0	Boones Ferry widening completed in 2014.
274	267	202	BOWERMAN DR (PVT)	JENKINS RD	24000	10	0	0	2	5	3	28.0	
275	165	114	SUSBAUER RD	WREN RD	6000	8	0	0	3	1	4	27.9	Relocated warning signs, added warning and guide signs in 2013.

CURRENT RANK	12-14 PREV RANK (OF 305)	11-13 PREV RANK (OF 304)	ROADWAY	INTERSECTING ROADWAY	ENT ADT	TOTAL CRASHES	FATAL	INJ A	INJ B	INJ C	PDO	SPIS SCORE	COMMENTS
276	250	160	012TH AVE/STURGESS AVE	CORNELL RD	28000	14	0	0	1	4	9	27.8	
277			182ND AVE	TUALATIN VALLEY HWY (OR8)	35000	13	0	0	0	6	7	27.8	
278	233	147	BRIDGEPORT RD	HAZEL FERN RD	10000	9	0	0	0	5	4	27.7	
279	174	99	147TH TER/MURRAY SCHOLLS PL (PVT)	SCHOLLS FERRY RD (OR210)	27000	10	0	0	3	4	3	27.6	Reflective backplates added in 2017.
280	64	70	187TH AVE	TUALATIN VALLEY HWY (OR8)	37000	15	0	0	2	3	10	27.6	ODOT safety project completed in 2016.
281	101	112	130TH AVE	SCHOLLS FERRY RD (OR210)	25000	13	0	0	2	3	8	27.5	Reflective backplates added in 2017. Signal retiming in 2018.
282			CORNELL RD	JACKSON ST	25000	13	0	0	1	4	8	27.5	
283	289	249	CORNELL RD	GRANT ST	29000	10	0	0	0	7	3	27.4	
284	243	238	001ST AVE	MAIN ST	22000	12	0	0	0	5	7	27.1	Signal timing changes implemented in 2013.
285			095TH AVE	TUALATIN-SHERWOOD RD	32000	10	0	0	1	6	3	27.1	Part of SCATS.
286			097TH AVE	TUALATIN-SHERWOOD RD	32000	10	0	0	1	6	3	27.1	
287			106TH AVE	CANYON RD (OR8)	18000	3	0	1	0	1	1	27.1	
288	126	110	034TH AVE	CORNELL RD	34000	10	0	0	3	4	3	27.0	
289	169	78	JACKSON SCHOOL RD	SCOTCH CHURCH RD	21000	10	0	0	1	5	4	27.0	Roundabout construction completed in 2016.
290			MAVERICK TER	MURRAY BLVD	24000	12	0	0	2	3	7	26.8	Reflective backplates added in 2017.
291			CEDAR HILLS BLVD	PARK WAY	22000	10	0	0	3	3	4	26.8	Reflective backplates added in 2017.
292	279	303	BETHANY BLVD	LAIDLAW RD	26000	9	0	0	1	6	2	26.8	
293			NEHALEM HWY (OR47)	REILING RD	7000	2	0	1	1	0	0	26.6	
294			DUDNEY AVE	TUALATIN VALLEY HWY (OR47)	11000	3	0	1	0	0	2	26.6	
295			CORNELL RD	OLEANDER LN	25000	10	0	0	1	5	4	26.4	
296			RIVER RD	ROOD BRIDGE RD	6000	8	0	0	0	3	5	26.4	
297	287		FARMINGTON RD (OR10)	RIGGS RD	8000	2	1	0	0	1	0	26.3	
298			DIERDORFF RD	HELVETIA RD	1000	3	0	0	1	1	1	26.3	
299			209TH AVE	JOHNSON ST	10000	13	0	0	0	1	12	26.2	
300			185TH AVE	ALEXANDER ST	24000	13	0	0	0	4	9	26.1	

CURRENT RANK	12-14 PREV RANK (OF 305)	11-13 PREV RANK (OF 304)	ROADWAY	INTERSECTING ROADWAY	ENT ADT	TOTAL CRASHES	FATAL	INJ A	INJ B	INJ C	PDO	SPIS SCORE	COMMENTS
301	264	237	001ST AVE	LINCOLN ST	14000	9	0	0	1	4	4	26.0	
302	290	294	097TH AVE	CORNELL RD	11000	2	0	1	1	0	0	25.7	
303	225	239	BASELINE RD	BORWICK ST	17000	8	0	0	3	3	2	25.6	
304	280		CORY ST	GLENCOE RD	12000	8	0	0	0	5	3	25.5	
305			RIVER RD	WITCH HAZEL RD	12000	8	0	0	0	5	3	25.5	
306	122	159	107TH AVE	CORNELL RD	16000	9	0	0	0	5	4	25.5	MSTIP widening project in design.
307	89	91	CORNELL RD	WALBRIDGE ST	29000	11	0	0	2	3	6	25.3	
308			BARNES RD	SALTZMAN RD	14000	11	0	0	0	3	8	25.2	
309	111	186	CRESTWOOD DR	SCHOLLS FERRY RD (OR210)	15000	2	0	1	0	1	0	25.2	
310			176TH AVE	FARMINGTON RD (OR10)	20000	11	0	0	0	4	7	25.1	
311			BEEF BEND RD	ROY ROGERS RD	18000	9	0	0	1	4	4	25.0	
312	285	277	175TH AVE	RIGERT RD	15000	11	0	0	1	2	8	24.9	Intersection reconstruction completed in 2017.
313	229	284	BOONES FERRY RD	LOWER BOONES FERRY RD	14000	8	0	0	1	4	3	24.8	
314	286		GALES CREEK RD (OR8)	WILLAMINA AVE	6000	7	0	0	2	1	4	24.7	
315			BASELINE RD	JENKINS RD	22000	11	0	0	1	3	7	24.7	
316	235	199	185TH AVE	SUNSET SQUARE/MCKINLEY ELEM	32000	9	0	0	2	4	3	24.7	
317			122ND AVE	WALKER RD	24000	2	0	1	0	1	0	24.7	
318	283	281	BETHANY BLVD	BRONSON RD	10000	9	0	0	1	2	6	24.7	
319			LEISY RD	WREN RD	2000	1	0	1	0	0	0	24.6	
320	206		113TH AVE/CEDAR HILLS BLVD	CORNELL RD	16000	7	0	0	2	4	1	24.6	
321	179		WALKER RD	WESTFIELD AVE	15000	8	0	0	0	5	3	24.6	
322	248		GRAHAMS FERRY RD	TONQUIN RD	4000	7	0	0	1	0	6	24.5	124th Extension project under construction.
323			175TH AVE	KINNAMAN RD	11000	8	0	0	3	1	4	24.4	
324	261	174	091ST AVE	BEAVERTON-HILLSDALE HWY (OR10)	33000	12	0	0	0	4	8	24.2	
325	166	73	CIPOLE RD	PACIFIC HWY (OR99W)	40000	9	0	0	0	6	3	24.2	

CURRENT RANK	12-14 PREV RANK (OF 305)	11-13 PREV RANK (OF 304)	ROADWAY	INTERSECTING ROADWAY	ENT ADT	TOTAL CRASHES	FATAL	INJ A	INJ B	INJ C	PDO	SPIS SCORE	COMMENTS
326			BUTTERNUT ST (EAST)	KINNAMAN RD	11000	2	0	1	0	0	1	24.2	

CEDAR HILLS BLVD and Intersectional Crashes at CEDAR HILLS BLVD, City of Beaverton,

CRASH_ID	SER_NO	CRASH_DT	CRASH_WK_DAY_CD	CRASH_HR_SHORT_DESC	ST_NM	ISECT_ST_NM	RD_CHAR_CD	RD_CHAR_SHORT_DESC	CMPSS_DIR_CD	CMPSS_DIR_FROM_CD	CMPSS_DIR_SHORT_DESC	IMPCT_LOC_CD	ISECT_TYP_SHORT_DESC	MEDN_TYP_SHORT_DESC	TURNG_LEG_QTY	LN_QTY	ISECT_REL_FLG	TRAF_CNTL_DEVICE_SHORT_DESC	OFF_RDWY_FLG	WTHR_COND_SHORT_DESC	RD_SURF_SHORT_DESC	LGT_COND_SHORT_DESC	CRASH_TYP_SHORT_DESC	COLLIS_TYP_SHORT_DESC	STRIKG_VHCL_FLG	VHCL_CODED_SEQ_NO	VHCL_TYP_SHORT_DESC	VHCL_OWNSHP_SHORT_DESC	VHCL_MVMNT_SHORT_DESC	VHCL_CMPSS_DIR_FROM_SHORT_DESC	VHCL_CMPSS_DIR_TO_SHORT_DESC	VHCL_ACTN_CD	VHCL_EVNT_1_CD	VHCL_EVNT_2_CD	VHCL_EVNT_3_CD	VHCL_CAUSE_1_CD	VHCL_CAUSE_2_CD	VHCL_CAUSE_3_CD	PARTIC_ID	STRIKG_PARTIC_FLG	PARTIC_VHCL_SEQ_NO	PARTIC_TYP_CD	PARTIC_TYP_SHORT_DESC	INJ_SVRTY_SHORT_DESC	AGE_VAL	SEX_CD	DRVR_LIC_STAT_SHORT_DESC	DRVR_RES_SHORT_DESC	PARTIC_ERR_1_CD	PARTIC_ERR_2_CD	PARTIC_CAUSE_1_CD	PARTIC_CAUSE_2_CD
1607364	02096	4/20/2015	2	4P	SW CEDAR HILLS BLVD	EB EXTO CEDAR HILLS	1	INTER	9		CN	03	CROSS		1		0	STOP SIGN	0	CLR	DRY	DAY	ANGL-OTH	TURN	1	1	PSNGR CAR	PRVTE	TURN-R	NW	S	000				00			3463913	0	1	1	DRVR	NONE	84	1	OR-Y	OR<25	028		02	
1607364	02096	4/20/2015	2	4P	SW CEDAR HILLS BLVD	EB EXTO CEDAR HILLS	1	INTER	9		CN	03	CROSS		1		0	STOP SIGN	0	CLR	DRY	DAY	ANGL-OTH	TURN	0	2	PSNGR CAR	PRVTE	STRGHT	N	S	000				00			3463914	0	1	1	DRVR	INJC	64	1	OR-Y	OR<25	000		00	
1607364	02096	4/20/2015	2	4P	SW CEDAR HILLS BLVD	EB EXTO CEDAR HILLS	1	INTER	9		CN	03	CROSS		1		0	STOP SIGN	0	CLR	DRY	DAY	ANGL-OTH	TURN	0	2	PSNGR CAR	PRVTE	STRGHT	N	S	000				00			3463915	0	2	2	PSNG	INJC	00	2			000		00	
1578212	02492	5/2/2014	6	8A	SW CEDAR HILLS BLVD	EB EXTO CEDAR HILLS	1	INTER	8		NW	06	CROSS		1		0	STOP SIGN	0	CLR	DRY	DAY	S-1STOP	REAR	1	1	PSNGR CAR	PRVTE	STRGHT	NW	SE	000				00			3401043	0	1	1	DRVR	NONE	00	2	OR-Y	UNK	026		07	
1578212	02492	5/2/2014	6	8A	SW CEDAR HILLS BLVD	EB EXTO CEDAR HILLS	1	INTER	8		NW	06	CROSS		1		0	STOP SIGN	0	CLR	DRY	DAY	S-1STOP	REAR	0	2	PSNGR CAR	PRVTE	STOP	NW	SE	011				00			3401044	0	1	1	DRVR	NONE	49	1	OR-Y	OR<25	000		00	
1579923	02678	5/12/2014	2	5P	SW CEDAR HILLS BLVD	EB EXTO CEDAR HILLS	1	INTER	8		NW	06	CROSS		1		0	STOP SIGN	0	CLR	DRY	DAY	S-1STOP	REAR	1	1	PSNGR CAR	PRVTE	STRGHT	NW	SE	000				00			3404669	0	1	1	DRVR	NONE	26	1	OR-Y	OR<25	026		07	
1579923	02678	5/12/2014	2	5P	SW CEDAR HILLS BLVD	EB EXTO CEDAR HILLS	1	INTER	8		NW	06	CROSS		1		0	STOP SIGN	0	CLR	DRY	DAY	S-1STOP	REAR	0	2	PSNGR CAR	PRVTE	STOP	NW	SE	011				00			3404670	0	1	1	DRVR	INJC	29	2	OR-Y	OR<25	000		00	
1579923	02678	5/12/2014	2	5P	SW CEDAR HILLS BLVD	EB EXTO CEDAR HILLS	1	INTER	8		NW	06	CROSS		1		0	STOP SIGN	0	CLR	DRY	DAY	S-1STOP	REAR	0	2	PSNGR CAR	PRVTE	STOP	NW	SE	011				00			3404671	0	2	2	PSNG	INJC	64	2			000		00	
1579923	02678	5/12/2014	2	5P	SW CEDAR HILLS BLVD	EB EXTO CEDAR HILLS	1	INTER	8		NW	06	CROSS		1		0	STOP SIGN	0	CLR	DRY	DAY	S-1STOP	REAR	0	2	PSNGR CAR	PRVTE	STOP	NW	SE	011				00			3404672	0	3	2	PSNG	INJC	28	1			000		00	
1581042	03079	6/2/2014	2	7P	SW CEDAR HILLS BLVD	EB EXTO CEDAR HILLS	1	INTER	8		NW	06	CROSS		1		0	STOP SIGN	0	CLR	DRY	DAY	S-1STOP	REAR	1	1	PSNGR CAR	PRVTE	STRGHT	NW	SE	000				00			3407092	0	1	1	DRVR	INJC	50	2	OR-Y	OR<25	052	026	32	29
1581042	03079	6/2/2014	2	7P	SW CEDAR HILLS BLVD	EB EXTO CEDAR HILLS	1	INTER	8		NW	06	CROSS		1		0	STOP SIGN	0	CLR	DRY	DAY	S-1STOP	REAR	0	2	PSNGR CAR	RENTL	STOP	NW	SE	011				00			3407093	0	1	1	DRVR	NONE	49	2	OR-Y	OR<25	000		00	
1636623	03339	6/16/2015	3	5P	SW CEDAR HILLS BLVD	EB EXTO CEDAR HILLS	1	INTER	8		NW	06	CROSS		1		0	TRF SIGNAL	0	CLR	DRY	DAY	S-1STOP	REAR	1	1	PSNGR CAR	PRVTE	STRGHT	NW	SE	000				00			3529895	0	1	1	DRVR	NONE	00	1	OR-Y	OR<25	026		29	
1636623	03339	6/16/2015	3	5P	SW CEDAR HILLS BLVD	EB EXTO CEDAR HILLS	1	INTER	8		NW	06	CROSS		1		0	TRF SIGNAL	0	CLR	DRY	DAY	S-1STOP	REAR	0	2	PSNGR CAR	PRVTE	STOP	NW	SE	011				00			3529896	0	1	1	DRVR	NONE	55	2	OR-Y	OR<25	000		00	
1660344	01053	2/16/2016	3	8A	SW CEDAR HILLS BLVD	EB EXTO CEDAR HILLS	1	INTER	9		CN	04	CROSS		0		0	STOP SIGN	0	CLD	WET	DAY	ANGL-OTH	ANGL	1	1	PSNGR CAR	PRVTE	STRGHT	S	N	000				00			3575312	0	1	1	DRVR	NONE	31	2	OR-Y	OR<25	000		00	
1660344	01053	2/16/2016	3	8A	SW CEDAR HILLS BLVD	EB EXTO CEDAR HILLS	1	INTER	9		CN	04	CROSS		0		0	STOP SIGN	0	CLD	WET	DAY	ANGL-OTH	ANGL	0	2	PSNGR CAR	PRVTE	STRGHT	NW	SE	000				00			3575313	0	1	1	DRVR	INJC	55	2	OR-Y	OR<25	028		02	
1605599	01204	3/6/2015	6	5P	SW CEDAR HILLS BLVD	EB ENFR CEDAR HILLS	1	INTER	5		S	09	CROSS		1		0	TRF SIGNAL	0	CLR	DRY	DAY	S-1STOP	REAR	1	1	PSNGR CAR	PRVTE	STRGHT	S	N	000				00			3459668	0	1	1	DRVR	NONE	38	2	OR-Y	OR<25	026		29	
1605599	01204	3/6/2015	6	5P	SW CEDAR HILLS BLVD	EB ENFR CEDAR HILLS	1	INTER	5		S	09	CROSS		1		0	TRF SIGNAL	0	CLR	DRY	DAY	S-1STOP	REAR	0	2	PSNGR CAR	PRVTE	STOP	S	N	011				00			3459669	0	1	1	DRVR	INJC	59	2	OR-Y	OR<25	000		00	
1703324	08012	11/22/2016	3	4P	SW CEDAR HILLS BLVD	EB EXTO CEDAR HILLS	1	INTER	1		N	05	CROSS		1		0	STOP SIGN	0	RAIN	WET	DAY	ANGL-OTH	TURN	1	1	PSNGR CAR	N/A	TURN-L	NW	N	000				00			3667261	0	1	1	DRVR	NONE	00	9	UNK	UNK	000		00	
1703324	08012	11/22/2016	3	4P	SW CEDAR HILLS BLVD	EB EXTO CEDAR HILLS	1	INTER	1		N	05	CROSS		1		0	STOP SIGN	0	RAIN	WET	DAY	ANGL-OTH	TURN	0	2	PSNGR CAR	N/A	STRGHT	S	N	000				00			3667262	0	1	1	DRVR	NONE	00	9	UNK	UNK	000		00	
1692668	03363	5/23/2016	2	9P	SW CEDAR HILLS BLVD	EB EXTO CEDAR HILLS	1	INTER	1		N	06	CROSS		1		0	NONE	0	CLD	DRY	DLIT	ANGL-STP	TURN	1	1	PSNGR CAR	N/A	TURN-L	NW	N	000				00			3648762	0	1	1	DRVR	NONE	00	9	UNK	UNK	000		00	
1692668	03363	5/23/2016	2	9P	SW CEDAR HILLS BLVD	EB EXTO CEDAR HILLS	1	INTER	1		N	06	CROSS		1		0	NONE	0	CLD	DRY	DLIT	ANGL-STP	TURN	0	2	PSNGR CAR	N/A	STOP	N	S	012				00			3648763	0	1	1	DRVR	NONE	00	9	UNK	UNK	000		00	
1677845	07139	10/19/2016	4	5P	SW CEDAR HILLS BLVD	EB EXTO CEDAR HILLS	1	INTER	5		S	06	CROSS		1		0	TRF SIGNAL	0	RAIN	WET	DAY	S-1STOP	REAR	1	1	PSNGR CAR	PRVTE	STRGHT	NW	SE	000				00			3617071	0	1	1	DRVR	NONE	85	2	OR-Y	OR<25	026		29	
1677845	07139	10/19/2016	4	5P	SW CEDAR HILLS BLVD	EB EXTO CEDAR HILLS	1	INTER	5		S	06	CROSS		1		0	TRF SIGNAL	0	RAIN	WET	DAY	S-1STOP	REAR	0	2	PSNGR CAR	PRVTE	STOP	NW	S	013				00			3617072	0	1	1	DRVR	INJC	38	2	OR-Y	OR<25	000		00	
1639540	05254	9/11/2015	6	5P	SW CEDAR HILLS BLVD	EB EXTO CEDAR HILLS	1	INTER	9		CN	01	CROSS		1		0	STOP SIGN	0	CLR	DRY	DAY	ANGL-OTH	TURN	1	1	PSNGR CAR	PRVTE	STRGHT	N	S	000				00			3535210	0	1	1	DRVR	NONE	27	1	OR-Y	OR<25	000		00	
1639540	05254	9/11/2015	6	5P	SW CEDAR HILLS BLVD	EB EXTO CEDAR HILLS	1	INTER	9		CN	01	CROSS		1		0	STOP SIGN	0	CLR	DRY	DAY	ANGL-OTH	TURN	0	2	PSNGR CAR	PRVTE	TURN-L	NW	N	015				00			3535211	0	1	1	DRVR	NONE	29	1	OR-Y	OR<25	028		02	
1552766	00366	1/22/2014	4	5P	SW CEDAR HILLS BLVD	EB EXTO CEDAR HILLS	1	INTER	9		CN	03	CROSS		0		0	STOP SIGN	0	CLR	DRY	DLIT	ANGL-OTH	TURN	1	1	PSNGR CAR	PRVTE	TURN-L	NW	N	015				00			3347259	0	1	1	DRVR	NONE	39	1	OTH-Y	OR<25	028		02	
1552766	00366	1/22/2014	4	5P	SW CEDAR HILLS BLVD	EB EXTO CEDAR HILLS	1	INTER	9		CN	03	CROSS		0		0	STOP SIGN	0	CLR	DRY	DLIT	ANGL-OTH	TURN	0	2	PSNGR CAR	PRVTE	STRGHT	N	S	000				00			3347260	0	1	1	DRVR	INJC	56	1	OR-Y	OR<25	000		00	
1552766	00366	1/22/2014	4	5P	SW CEDAR HILLS BLVD	EB EXTO CEDAR HILLS	1	INTER	9		CN	03	CROSS		0		0	STOP SIGN	0	CLR	DRY	DLIT	ANGL-OTH	TURN	0	2	PSNGR CAR	PRVTE	STRGHT	N	S	000				00			3347261	0	2	2	PSNG	INJC	00	2			000		00	
1588686	04492	8/6/2014	4	5P	SW CEDAR HILLS BLVD	EB EXTO CEDAR HILLS	1	INTER	9		CN	03	CROSS		0		0	STOP SIGN	0	CLR	DRY	DAY	ANGL-OTH	TURN	1	1	PSNGR CAR	PRVTE	TURN-L	NW	N	000				00			3423354	0	1	1	DRVR	NONE	28	1	OR-Y	OR<25	028		02	
1588686	04492	8/6/2014	4	5P	SW CEDAR HILLS BLVD	EB EXTO CEDAR HILLS	1	INTER	9		CN	03	CROSS		0		0	STOP SIGN	0	CLR	DRY	DAY	ANGL-OTH	TURN	0	2	PSNGR CAR	PRVTE	STRGHT	N	S	000				00			3423355	0	1	1	DRVR	NONE	00	2	UNK	UNK	000		00	
1595002	07022	11/21/2014	6	5P	SW CEDAR HILLS BLVD	EB EXTO CEDAR HILLS	1	INTER	9		CN	03	CROSS		1		0	STOP SIGN	0	RAIN	WET	DARK	ANGL-OTH	TURN	1	1	PSNGR CAR	PRVTE	STRGHT	N	S	000				00			3436879	0	1	1	DRVR	NONE	24	2	OR-Y	OR<25	000		00	
1595002	07022	11/21/2014	6	5P	SW CEDAR HILLS BLVD	EB EXTO CEDAR HILLS	1	INTER	9		CN	03	CROSS		1		0	STOP SIGN	0	RAIN	WET	DARK	ANGL-OTH	TURN	0	2	PSNGR CAR	PRVTE	TURN-L	NW	N	015				00			3436880	0	1	1	DRVR	INJC	34	1	OR-Y	OR<25	028		02	
1651508	06789	11/11/2015	4	4P	SW CEDAR HILLS BLVD	EB EXTO CEDAR HILLS	1	INTER	9		CN	03	CROSS		0		0	STOP SIGN	0	CLR	DRY	DAY	ANGL-OTH	TURN	1	1	PSNGR CAR	PRVTE	TURN-L	NW	N	015				00			3557124	0	1	1	DRVR	NONE	39	2	OR-Y	OR<25	028		02	
1651508	06789	11/11/2015	4	4P	SW CEDAR HILLS BLVD	EB EXTO CEDAR HILLS	1	INTER	9		CN	03	CROSS		0		0	STOP SIGN	0	CLR	DRY	DAY	ANGL-OTH	TURN	0	2	PSNGR CAR	PRVTE	STRGHT	N	S	000				00			3557125	0	1	1	DRVR	NONE	34	2	OR-Y	OR<25	000		00	
1652679	07327	12/2/2015	4	11A	SW CEDAR HILLS BLVD	EB EXTO CEDAR HILLS	1	INTER	9		CN	03	CROSS		1		0	STOP SIGN	0	CLR	DRY	DAY	ANGL-OTH	TURN	1	1	PSNGR CAR	PRVTE	STRGHT	N	S	000				00			3559211	0	1	1	DRVR	NONE	86	1	OR-Y	OR<25	000		00	
1652679	07327	12/2/2015	4	11A	SW CEDAR HILLS BLVD	EB EXTO CEDAR HILLS	1	INTER	9		CN	03	CROSS		1		0	STOP SIGN	0	CLR	DRY	DAY	ANGL-OTH	TURN	0	2	PSNGR CAR	PRVTE	TURN-L	NW	N	000				00			3559212	0	1	1	DRVR	NONE	24	1	OR-Y	OR<25	028		02	
1653355	07679	12/14/2015	2	11A	SW CEDAR HILLS BLVD	EB EXTO CEDAR HILLS	1	INTER	9		CN	03	CROSS		0		0	STOP SIGN	0	RAIN	WET	DAY	ANGL-OTH	TURN	1	1	PSNGR CAR	PRVTE	TURN-L	NW	N	000				00			3560449	0	1	1	DRVR	NONE	73	1	OR-Y	OR<25	021	017	03	
1653355	07679	12/14/2015	2	11A	SW CEDAR HILLS BLVD	EB EXTO CEDAR HILLS	1	INTER	9		CN	03	CROSS		0		0	STOP SIGN	0	RAIN	WET	DAY	ANGL-OTH	TURN	0	2	PSNGR CAR	PRVTE	STRGHT	N	S	000				00			3560450	0	1	1	DRVR	NONE	28	1	OTH-Y	N-RES	000		00	
1697478	04999	7/28/2016	5	6A	SW CEDAR HILLS BLVD	EB EXTO CEDAR HILLS	1	INTER	9		CN	03	CROSS		1		0	STOP SIGN	0	CLR	DRY	DAY	ANGL-OTH	TURN	1	1	PSNGR CAR	N/A	TURN-L	NW	N	000				00			3656936	0	1	1	DRVR	NONE	00	9	UNK	UNK	000		00	
1697478	04999	7/28/2016	5	6A	SW CEDAR HILLS BLVD	EB EXTO CEDAR HILLS	1	INTER	9		CN	03	CROSS		1		0	STOP SIGN	0	CLR	DRY	DAY	ANGL-OTH	TURN	0	2	PSNGR CAR	N/A	TURN-L	N	SE	000				00			3656937	0	1	1	DRVR	NONE	00	9	UNK	UNK	000		00	
1701302	06736	10/5/2016	4	2P	SW CEDAR HILLS BLVD	EB EXTO CEDAR HILLS	1	INTER	9		CN	03	CROSS		1		0	STOP SIGN	0	CLR	DRY	DAY	ANGL-OTH	TURN	1	1	PSNGR CAR	N/A	TURN-L	NW	N	000				00			3663660	0	1	1	DRVR	NONE	00	9	UNK	UNK	000		00	
1701302	06736	10/5/2016	4	2P	SW CEDAR HILLS BLVD	EB EXTO CEDAR HILLS	1	INTER	9		CN	03	CROSS		1		0	STOP SIGN	0	CLR	DRY	DAY	ANGL-OTH	TURN	0	2	PSNGR CAR	N/A	STRGHT	N	S	000				00			3663661	0	1	1	DRVR	NONE	00	9	UNK	UNK	000		00	
1590404	06202	10/21/2014	3	9A	SW CEDAR HILLS BLVD	EB EXTO CEDAR HILLS	1	INTER	9		CN	04	CROSS		0		0	STOP SIGN	0	CLR	DRY	DAY	O-1 L-TURN	TURN	1	1	PSNGR CAR	PRVTE	STRGHT	S	N	000				00			3426999	0	1	1	DRVR	NONE	56	1	OR-Y	OR<25	000		00	
1590404	06202	10/21/2014	3	9A	SW CEDAR HILLS BLVD	EB EXTO CEDAR HILLS	1	INTER	9		CN	04	CROSS		0		0	STOP SIGN	0	CLR	DRY	DAY	O-1 L-TURN	TURN	0	2	PSNGR CAR	PRVTE	TURN-L	N	E	000				00			3427000	0	1	1	DRVR	NONE	62	1	OR-Y	OR<25	004	028	02	
1701733	07198	10/21/2016	6	6P	SW CEDAR HILLS BLVD	EB EXTO CEDAR HILLS	1	INTER	9		CN	04	CROSS		1		0	STOP SIGN	0	RAIN	WET	DLIT	ANGL-OTH	TURN	1	1	PSNGR CAR	N/A	TURN-L	NW	N	000				00			3664435	0	1	1	DRVR	NONE	00	9	UNK	UNK	000		00	
1701733	07198	10/21/2016	6	6P	SW CEDAR HILLS BLVD	EB EXTO CEDAR HILLS	1	INTER	9		CN	04	CROSS		1		0	STOP SIGN	0	RAIN	WET	DLIT	ANGL-OTH	TURN	0	2	PSNGR CAR	N/A	STRGHT	S	N	000				00			3664436	0	1	1	DRVR	NONE	00	9	UNK	UNK	000		00	
1567753	82898	3/25/2014	3	11A	SW CEDAR HILLS BLVD	EB ENFR CEDAR HILLS	1	INTER	5		S	09	CROSS		1		0	STOP SIGN	0	RAIN	WET	DAY	S-1STOP	REAR	1	1	PSNGR CAR	PRVTE	STRGHT	S	N	000				00			3378682	0	1	1	DRVR	NONE	78	1	OTH-Y	OR<25	016	026	27	29
1567753	82898	3/25/2014	3	11A	SW CEDAR HILLS BLVD	EB ENFR CEDAR HILLS	1	INTER	5		S	09	CROSS		1		0	STOP SIGN	0	RAIN	WET	DAY	S-1STOP	REAR	0	2	PSNGR CAR	PRVTE	STOP	S	N	011				00			3378683	0	1	1	DRVR	NONE	26	2	OR-Y	OR>25	000		00	
1595477	07377	12/8/2014	2	5P	SW CEDAR HILLS BLVD	EB ENFR CEDAR HILLS	1	INTER	9		CN	03	CROSS		1		0	STOP SIGN	0	CLR	DRY	DUSK	ANGL-OTH	TURN	1	1	PSNGR CAR	PRVTE	TURN-L	NW	N	015				00			3437897	0	1	1	DRVR	NONE	28	1	OR-Y	OR<25	028		02	
1595477	07377	12/8/2014	2	5P	SW CEDAR HILLS BLVD	EB ENFR CEDAR HILLS	1	INTER	9		CN	03	CROSS		0		0	STOP SIGN	0	CLR	DRY	DUSK	ANGL-OTH	TURN	0	2	PSNGR CAR	PRVTE	STRGHT	N	S	000				00			3437898	0	1	1	DRVR	INJB	48	2	OR-Y	OR<25	000		00	
1591501	06427	10/28/2014	3	2P	SW CEDAR HILLS BLVD	EB ENFR CEDAR HILLS	1	INTER	9		CN	04	CROSS		1		0	STOP SIGN	0	RAIN	WET	DAY	O-1 L-TURN	TURN	1	1	PSNGR CAR	PRVTE	STRGHT	S	N	000				00			3429382	0	1	1	DRVR	NONE	54	2	OR-Y	OR<25	000		00	
1591501	06427	10/28/2014	3	2P	SW CEDAR HILLS BLVD	EB ENFR CEDAR HILLS	1	INTER	9		CN	04	CROSS		1		0	STOP SIGN	0	RAIN	WET	DAY	O-1 L-TURN	TURN	0	2	PSNGR CAR	PRVTE	TURN-L	N	E	000				00			3429383	0	1	1	DRVR	NONE	16	1	OR-Y	OR<25	004	028	02	
1591811	06472	10/30/2014	5	2P	SW CEDAR HILLS BLVD	EB ENFR CEDAR HILLS	1	INTER	9		CN	04	CROSS		1		0	STOP SIGN	0	RAIN	WET	DAY	O-1 L-TURN	TURN	1	1	PSNGR CAR	PRVTE	STRGHT	S	N	000				00			3430075	0	1	1	DRVR	NONE	54	2	OR-Y	OR<25	000		00	
1591811	06472	10/30/2014	5	2P	SW CEDAR HILLS BLVD	EB ENFR CEDAR HILLS	1	INTER	9		CN	04	CROSS		1		0	STOP SIGN	0	RAIN	WET	DAY	O-1 L-TURN	TURN	0	2	PSNGR CAR	PRVTE	TURN-L	N	E	000				00			3430076	0	1	1	DRVR	NONE	16	1	OR-Y	OR<25	004	028	02	
1594737	06982	11/20/2014	5	6A	SW CEDAR HILLS BLVD	EB ENFR CEDAR HILLS	1	INTER	9		CN	04	CROSS		1		0	STOP SIGN	0	RAIN	WET	DLIT	O-1 L-TURN	TURN	1	1	PSNGR CAR	PRVTE	TURN-L	N	E	000				00			3436319	0	1	1	DRVR	NONE	45	1	OR-Y	OR<25	004	028	02	
1594737	06982	11/20/2014	5	6A	SW CEDAR HILLS BLVD	EB ENFR CEDAR HILLS	1	INTER	9		CN	04	CROSS		1		0	STOP SIGN	0	RAIN	WET	DLIT	O-1 L-TURN	TURN	0	2	PSNGR CAR	PRVTE	STRGHT	S	N	000				00			3436320	0	1	1	DRVR	INJB	33	1	OR-Y	OR<25	000		00	
1594737	06982	11/20/2014	5	6A	SW CEDAR HILLS BLVD	EB ENFR CEDAR HILLS	1	INTER	9		CN	04	CROSS		1		0	STOP SIGN	0	RAIN	WET	DLIT	O-1 L-TURN	TURN	0	2	PSNGR CAR	PRVTE	STRGHT	S	N	000				00			3436321	0	2	2	PSNG	INJB	33	2			000		00	
1652630	07293	12/1/2015	3	6P	SW CEDAR HILLS BLVD	EB ENFR CEDAR HILLS	1	INTER	9		CN	04	CROSS		1		0	STOP SIGN	0	RAIN	WET	DLIT	O-1 L-TURN	TURN	1	1	PSNGR CAR	PRVTE	STRGHT	S	N	000				00			3559119	0	1	1	DRVR	NONE	00	2	OR-Y	OR>25	000		00	
1652630	07293	12/1/2015	3	6P	SW CEDAR HILLS BLVD	EB ENFR CEDAR HILLS	1	INTER	9		CN	04	CROSS		1		0	STOP SIGN	0	RAIN	WET	DLIT	O-1 L-TURN	TURN	0	2	PSNGR CAR	PRVTE	TURN-L	N	E	000				00			3559120	0	1	1	DRVR	NONE	48	1	OR-Y	OR<25	028	004	02	
1659723	01014	2/13/2016	7	6P	SW CEDAR HILLS BLVD	EB ENFR CEDAR HILLS	1	INTER	9		CN	04	CROSS		1		0	TRF SIGNAL	0	RAIN	WET	DLIT	O-1 L-TURN	TURN	1	1	PSNGR CAR	PRVTE	STRGHT	S	N	000				00			3573843	0	1	1	DRVR	NONE	47	2	OR-Y	OR<25	000		00	
1659723	01014	2/13/2016	7	6P	SW CEDAR HILLS BLVD	EB ENFR CEDAR HILLS	1	INTER	9		CN	04	CROSS		1		0	TRF SIGNAL	0	RAIN	WET	DLIT	O-1 L-TURN	TURN	0	2	PSNGR CAR	PRVTE	TURN-L	N	E	000				00			3573844	0	1	1	DRVR	INJC	41	2	OR-Y	OR<25	028		02	
1668886	03950	6/16/2016	5	3P	SW CEDAR HILLS BLVD	EB ENFR CEDAR HILLS	1	INTER	9		CN	04	CROSS		1		0	TRF SIGNAL	0	CLD	DRY	DAY	O-1 L-TURN	TURN	1	1	PSNGR CAR	PRVTE	TURN-L	N	E	000				00			3595658	0	1	1	DRVR	NONE	33	2	OR-Y	OR<25	004	028	02	
1668886	03950	6/16/2016	5	3P	SW CEDAR HILLS BLVD	EB ENFR CEDAR HILLS	1	INTER	9		CN	04	CROSS		1		0	TRF SIGNAL	0	CLD	DRY	DAY	O-1 L-TURN	TURN	0	2	MTRCYCLE	PRVTE	STRGHT	S	N	000				00			3595659	0	1	1	DRVR	INJA	24	1	OR-Y	OR<25	000		00	
1586484	04101	7/20/2014	1	9P	SW CEDAR HILLS BLVD	EB ENFR CEDAR HILLS	3	STRGHT	1		N	03		NONE		4	0	UNKNOWN	0	CLR	DRY	DLIT	S-STRGHT	SS-O	1	1	PSNGR CAR	PRVTE	STRGHT	S	N	000				00			3418713	0	1	1	DRVR	NONE	21	2	OTH-Y	N-RES	045		13	
1586484	04101	7/20/2014	1	9P	SW CEDAR HILLS BLVD	EB ENFR CEDAR HILLS	3	STRGHT	1		N	03		NONE		4	0	UNKNOWN	0	CLR	DRY	DLIT	S-STRGHT	SS-O	0	2	PSNGR CAR	PRVTE	STRGHT	S	N	000				00			3418714	0	1	1	DRVR	NONE	22	1	OR-Y	OR<25	000		00	
1661480	01617	3/11/2016	6	8P	SW CEDAR HILLS BLVD	EB ENFR CEDAR HILLS	1	INTER	9		CN	02	CROSS		2		0	TRF SIGNAL	0	RAIN	WET	DLIT	ANGL-OTH	ANGL	1	1	PSNGR CAR	PRVTE	STRGHT	S	N	000				00			3578065	0	1	1	DRVR	NONE	74	1	OR-Y	OR<25	097		00	
1661480	01617	3/11/2016	6	8P	SW CEDAR HILLS BLVD	EB ENFR CEDAR HILLS	1	INTER	9		CN	02	CROSS		2		0	TRF SIGNAL	0	RAIN	WET	DLIT	ANGL-OTH	ANGL	0	2	PSNGR CAR	PRVTE	TURN-L	E	S	000				00			3578066	0	1	1	DRVR	INJC	27	2	OR-Y	OR<25	097		00	
1566321	01709	3/26/2014	4	12P	SW BALTIC/98TH	SW BARNES RD	1	INTER	4		SE	06	CROSS		0		0	TRF SIGNAL	0	CLD	WET	DAY	S-STRGHT	SS-O	1	1	PSNGR CAR	PRVTE	STRGHT	SE	NW	000				00			3375586	0	1	1	DRVR	NONE	99	1	OR-Y	OR<25	045		13	
1566321	01709	3/26/2014	4	12P	SW BALTIC/98TH	SW BARNES RD	1	INTER	4		SE	06	CROSS		0		0	TRF SIGNAL	0	CLD	WET	DAY	S-STRGHT	SS-O	0	2	PSNGR CAR	PRVTE	STRGHT	SE	NW	000				00			3375587	0	1	1	DRVR	NONE	29	1	OR-Y	OR<25	000		00	
1573773	02194	4/11/2014	6	3P	SW BALTIC/98TH	SW BARNES RD	1	INTER	4		SE	06	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DAY	S-STRGHT	SS-O	1	1	PSNGR CAR	PRVTE	STRGHT	SE	NW	000				00			3391583	0	1	1	DRVR	NONE	00	1	UNK	UNK	045		13	
1573773	02194	4/11/2014	6	3P	SW BALTIC/98TH	SW BARNES RD	1	INTER	4		SE	06	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DAY	S-STRGHT	SS-O	0	2	PSNGR CAR	PRVTE	STRGHT	SE	NW	000				00			3391584	0	1	1	DRVR	NONE	26	1	OR-Y	OR<25	000		00	
1576188	02376	4/26/2014	7	9P	SW BALTIC/98TH	SW BARNES RD	1	INTER	4		SE	06	CROSS		0		0	TRF SIGNAL	0	CLD	WET	DLIT	S-STRGHT	SS-O	1	1	PSNGR CAR	PRVTE	STRGHT	SE	NW	000				00			3396718	0	1	1	DRVR	NONE	59	2	OR-Y	OR<25	045		13	
1576188	02376	4/26/2014	7	9P	SW BALTIC/98TH	SW BARNES RD	1	INTER	4		SE	06	CROSS		0		0	TRF SIGNAL	0	CLD	WET	DLIT	S-STRGHT	SS-O	0	2	PSNGR CAR	PRVTE	STRGHT	SE	NW	000				00			3396719	0	1	1	DRVR	INJC	43	2	OR-Y	OR<25	000		00	
1576188	02376	4/26/2014	7	9P	SW BALTIC/98TH	SW BARNES RD	1	INTER	4		SE	06	CROSS		0		0	TRF SIGNAL	0	CLD	WET	DLIT	S-STRGHT	SS-O	0	2	PSNGR CAR	PRVTE	STRGHT	SE	NW	000				00			3396720	0	2	2	PSNG	INJC	48	2			000		00	
1590021	07561	12/15/2014	2	4P	SW BALTIC/98TH	SW BARNES RD	1	INTER	4		SE	06	CROSS		0		0	TRF SIGNAL	0	CLD	DRY	DAY	S-1STOP	REAR	1	1	PSNGR CAR	PRVTE	STRGHT	SE	NW	000				00			3439055	0	1	1	DRVR	NONE	58	2	OR-Y	OR<25	043	026	07	
1590021	07561	12/15/2014	2	4P	SW BALTIC/98TH	SW BARNES RD	1	INTER	4		SE	06	CROSS		0		0	TRF SIGNAL	0	CLD	DRY	DAY	S-1STOP	REAR	0	2	PSNGR CAR	PRVTE	STOP	SE	NW	011				00			3439056	0	1	1	DRVR	NONE	33	2	OR-Y	OR<25	000		00	
1639770	05471	9/21/2015	2	11A	SW BALTIC/98TH	SW BARNES RD	1	INTER	4		SE	06	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DAY	S-STRGHT	REAR	1	1	PSNGR CAR	PRVTE	STRGHT	SE	NW	000				00			3535640	0	1	1	DRVR	NONE	24	2	OR-Y	OR<25	043		07	
1639770	05471	9/21/2015	2	11A	SW BALTIC/98TH	SW BARNES RD	1	INTER	4		SE	06	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DAY	S-STRGHT	REAR	0	2	PSNGR CAR	PRVTE	STRGHT	SE	NW	006				00			3535641	0	1	1	DRVR	NONE	56	1	OR-Y	OR<25	000		00	
1658178	80745	1/19/2016	3	2P	SW BALTIC/98TH	SW BARNES RD	1	INTER	4		SE	06	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DAY	S-1STOP	REAR	1	1	BOBTAIL	PRVTE	STRGHT	SE	NW	000				00			3570244	0	1	1	DRVR	NONE	35	1	OR-Y	OR<25	026		29	
1658178	80745	1/19/2016	3	2P	SW BALTIC/98TH	SW BARNES RD	1	INTER	4		SE	06	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DAY	S-1STOP	REAR	0	2	PSNGR CAR	PRVTE	STOP	SE	NW	011				00			3570245	0	1	1	DRVR	INJB	79	2	OR-Y	OR<25	000		00	
1683254	85039	12/14/2016	4	3P	SW BALTIC/98TH	SW BARNES RD	1	INTER	4		SE	06	CROSS		0		0	TRF SIGNAL	0	SNOW	SNO	DAY	S-1STOP	REAR	1	1	PSNGR CAR	PRVTE	STRGHT	SE	NW	000				00			3630074	0	1	1	DRVR	NONE	28	1	OTH-Y	N-RES	026		29	
1683254	85039	12/14/2016	4	3P	SW BALTIC/98TH	SW BARNES RD	1	INTER	4		SE	06	CROSS		0		0	TRF SIGNAL	0	SNOW	SNO	DAY	S-1STOP	REAR	0	2	PSNGR CAR	PRVTE	STOP	SE	NW	011				00			3630075	0	1	1	DRVR	INJC	24	1	OTH-Y	OR<25	000		00	
1585593	05629	9/25/2014	5	2P	SW BALTIC/98TH	SW BARNES RD	1	INTER	6		SW	06	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DAY	S-1STOP	REAR	1	1	PSNGR CAR	PRVTE	STRGHT	SW	NE	000				00			3416779	0	1	1	DRVR	NONE	00	2	OR-Y	OR<25	026		07	
1585593	05629	9/25/2014	5	2P	SW BALTIC/98TH	SW BARNES RD	1	INTER	6		SW	06	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DAY	S-1STOP	REAR	0	2	PSNGR CAR	PRVTE	STOP	SW	NE	011				00			3416780	0	1	1	DRVR	NONE	62	2	OR-Y	OR<25	000		00	
1616265	06215	10/21/2015	4	3P	SW BALTIC/98TH	SW BARNES RD	1	INTER	6		SW	06	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DAY	S-1STOP	REAR	1	1	PSNGR CAR	PRVTE	STRGHT	SW	NE	000				00			3485327	0	1	1	DRVR	NONE	19	2	OR-Y	OR<25	052		32	
1616265	06215	10/21/2015	4	3P	SW BALTIC/98TH	SW BARNES RD	1	INTER	6		SW	06	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DAY	S-1STOP	REAR	0	2	PSNGR CAR	PRVTE	STOP	SW	NE	011				00			3485328	0	1	1	DRVR	INJC	33	1	OR-Y	OR<25	000		00	
1674586	88994	8/2/2016	3	1P	SW BALTIC/98TH	SW BARNES RD	1	INTER	6		SW	06	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DAY	S-1TURN	REAR	1	1	PSNGR CAR	PRVTE	STRGHT	SW	NE	000				00			3609156	0	1	1	DRVR	NONE	59	2	OR-Y	OR<25	026		29	
1674586	88994	8/2/2016	3	1P	SW BALTIC/98TH	SW BARNES RD	1	INTER	6		SW	06	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DAY	S-1TURN	REAR	0	2	PSNGR CAR	PRVTE	TURN-R	SW	SE	013				00			3609157	0	1	1	DRVR	INJC	24	2	OR-Y	OR<25	000		00	
1674586	88994	8/2/2016	3	1P	SW BALTIC/98TH	SW BARNES RD	1	INTER	6		SW	06	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DAY	S-1TURN	REAR	0	2	PSNGR CAR	PRVTE	TURN-R	SW	SE	013				00			3609158	0	2	2	PSNG	INJC	18	2			000		00	
1679881	07994	11/22/2016	3	12A	SW BALTIC/98TH	SW BARNES RD	1	INTER	6		SW	06	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DLIT	S-1STOP	REAR	1	1	PSNGR CAR	PRVTE	STRGHT	SW	NE	000				00			3621912	0	1	1	DRVR	NONE	28	1	OR-Y	OR<25	026		29	
1679881	07994	11/22/2016	3	12A	SW BALTIC/98TH	SW BARNES RD	1	INTER	6		SW	06	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DLIT	S-1STOP	REAR	0	2	PSNGR CAR	PRVTE	STOP	SW	NE	011				00			3621913	0	1	1	DRVR	INJC	57	2	OR-Y	OR<25	000		00	
1695521	05057	7/31/2016	1	5P	SW BALTIC/98TH	SW BARNES RD	1	INTER	6		SW	06	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DAY	S-1STOP	REAR	1	1	PSNGR CAR	N/A	STRGHT	SW	NE	000				00			3653603	0	1	1	DRVR	NONE	00	9	UNK	UNK	000		00	
1695521	05057	7/31/2016	1	5P	SW BALTIC/98TH	SW BARNES RD	1	INTER	6		SW	06	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DAY	S-1STOP	REAR	0	2	PSNGR CAR	N/A	STOP	SW	NE	011				00			3653604	0	1	1	DRVR	NONE	00	9	UNK	UNK	000		00	
1582598	03256	6/10/2014	3	4P	SW BALTIC/98TH	SW BARNES RD	1	INTER	8		NW	06	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DAY	S-1STOP	REAR	1	1	PSNGR CAR	PRVTE	STRGHT	NW	SE	000				00			3410465	0	1	1	DRVR	NONE	44	1	OR-Y	OR<25	026		07	
1582598	03256	6/10/2014	3	4P	SW BALTIC/98TH	SW BARNES RD	1	INTER	8		NW	06	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DAY	S-1STOP	REAR	0	2	PSNGR CAR	PRVTE	TURN-R	NW	SW	013	004			00			3410466	0	1	1	DRVR	NONE	36	1	OTH-Y	N-RES	000		00	
1659688	00995	2/12/2016	6	4P	SW BALTIC/98TH	SW BARNES RD	1	INTER	8		NW	06	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DAY	S-1STOP	REAR	1	1	PSNGR CAR	PRVTE	STRGHT	NW	SE	006				00			3573760	0	1	1	DRVR	NONE	37	1	OTH-Y	N-RES	026		29	
1659688	00995	2/12/2016	6	4P	SW BALTIC/98TH	SW BARNES RD	1	INTER	8		NW	06	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DAY	S-1STOP	REAR	0	2	PSNGR CAR	PRVTE	STOP	NW	SE	011				00			3573761	0	1	1	DRVR	INJC	51	1	OR-Y	OR<25	000		00	
1588382	06033	9/11/2014	5	10A	SW BALTIC/98TH	SW BARNES RD	1	INTER	9		CN	01	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DAY	ANGL-OTH	TURN	1	1	PSNGR CAR	PRVTE	STRGHT	SE	NW	000				00			3422718	0	1	1	DRVR	NONE	61	1	OR-Y	OR<25	016	020	27	04
1588382	06033	9/11/2014	5	10A	SW BALTIC/98TH	SW BARNES RD	1	INTER	9		CN	01	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DAY	ANGL-OTH	TURN	0	2	PSNGR CAR	PRVTE	TURN-L	NE	SE	000				00			3422719	0	1	1	DRVR	NONE	51	2	OR-Y	OR<25	000		00	
1631803	00895	2/17/2015	3	6P	SW BALTIC/98TH	SW BARNES RD	1	INTER	9		CN	01	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DLIT	ANGL-OTH	ANGL	1	1	PSNGR CAR	PRVTE	STRGHT	SE	NW	000				00			3521038	0	1	1	DRVR	NONE	63	2	OR-Y	OR<25	020		04	
1631803	00895	2/17/2015	3	6P	SW BALTIC/98TH	SW BARNES RD	1	INTER	9		CN	01	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DLIT	ANGL-OTH	ANGL	0	2	PSNGR CAR	PRVTE	STRGHT	NE	SW	000				00			3521039	0	1	1	DRVR	NONE	47	2	OR-Y	OR<25	000		00	
1565622	01639	3/22/2014	7	4P	SW BALTIC/98TH	SW BARNES RD	1	INTER	9		CN	02	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DAY	ANGL-OTH	ANGL	1	1	PSNGR CAR	PRVTE	STRGHT	SW	NE	000				00			3374126	0	1	1	DRVR	NONE	34	2	OR-Y	OR<25	000		00	
1565622	01639	3/22/2014	7	4P	SW BALTIC/98TH	SW BARNES RD	1	INTER	9		CN	02	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DAY	ANGL-OTH	ANGL	0	2	PSNGR CAR	PRVTE	STRGHT	SE	NW	000				00			3374127	0	1	1	DRVR	INJC	27	2	OR-Y	OR<25	020		04	
1587229	05855	10/7/2014	3	9A	SW BALTIC/98TH	SW BARNES RD	1	INTER	9		CN	02	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DAY	ANGL-OTH	ANGL	1	1	PSNGR CAR	PRVTE	STRGHT	SE	NW	000				00			3420274	0	1	1	DRVR	NONE	68	1	OR-Y	OR<25	020		04	
1587229	05855	10/7/2014	3	9A	SW BALTIC/98TH	SW BARNES RD	1	INTER	9		CN	02	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DAY	ANGL-OTH	ANGL	0	2	PSNGR CAR	PRVTE	STRGHT	SW	NE	000				00			3420275	0	1	1	DRVR	NONE	38	2	OR-Y	OR<25	000		00	
1587229	05855	10/7/2014	3	9A	SW BALTIC/98TH	SW BARNES RD	1	INTER	9		CN	02	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DAY	ANGL-OTH	ANGL	0	2	PSNGR CAR	PRVTE	STRGHT	SW	NE	000				00			3420276	0	2	2	PSNG	INJB	05	2			000		00	
1587229	05855	10/7/2014	3	9A	SW BALTIC/98TH	SW BARNES RD	1	INTER	9		CN	02	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DAY	ANGL-OTH	ANGL	0	2	PSNGR CAR	PRVTE	STRGHT	SW	NE	000				00			3420277	0	3	2	PSNG	NO<5	03	1			000		00	
1590041	06143	10/18/2014	7	9A	SW BALTIC/98TH	SW BARNES RD	1	INTER	9		CN	02	CROSS		0		0	TRF SIGNAL	0	RAIN	WET	DAY	ANGL-OTH	ANGL	1	1	PSNGR CAR	PRVTE	STRGHT	SE	NW	000	124			00			3426215	0	1	1	DRVR	NONE	60	1	OR-Y	OR<25	040		04	
1590041	06143	10/18/2014	7	9A	SW BALTIC/98TH	SW BARNES RD	1	INTER	9		CN	02	CROSS		0		0	TRF SIGNAL	0	RAIN	WET	DAY	ANGL-OTH	ANGL	0	2	PSNGR CAR	PRVTE	STRGHT	SW	NE	000				00			3426216	0	1	1	DRVR	INJB	58	2	OR-Y	OR<25	000		00	
1590829	04973	8/28/2014	5	6P	SW BALTIC/98TH	SW BARNES RD	1	INTER	9		CN	02	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DAY	ANGL-OTH	ANGL	1	1	PSNGR CAR	PRVTE	STRGHT	SW	NE	000				00			3427911	0	1	1	DRVR	INJB	24	1	OR-Y	OR<25	000		00	
1590829	04973	8/28/2014	5	6P	SW BALTIC/98TH	SW BARNES RD	1	INTER	9		CN	02	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DAY	ANGL-OTH	ANGL	0	2	PSNGR CAR	PRVTE	STRGHT	SE	NW	000				00			3427912	0	1	1	DRVR	INJB	55	2	OTH-Y	N-RES	020		04	
1590829	04973	8/28/2014	5	6P	SW BALTIC/98TH	SW BARNES RD	1	INTER	9		CN	02	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DAY	ANGL-OTH	ANGL	0	2	PSNGR CAR	PRVTE	STRGHT	SE	NW	000				00			3427913	0	2	2	PSNG	NO<5	01	1			000		00	
1595460	05998	10/13/2014	2	6P	SW BALTIC/98TH	SW BARNES RD	1	INTER	9		CN	02	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DUSK	ANGL-OTH	ANGL	1	1	PSNGR CAR	PRVTE	STRGHT	SE	NW	000				00			3437858	0	1	1	DRVR	NONE	26	2	OR-Y	OR<25	020		04	
1595460	05998	10/13/2014	2	6P	SW BALTIC/98TH	SW BARNES RD	1	INTER	9		CN	02	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DUSK	ANGL-OTH	ANGL	0	2	PSNGR CAR	PRVTE	STRGHT	SW	NE	000				00			3437859	0	1	1	DRVR	INJC	32	2	OR-Y	OR<25	000		00	
1603402	00165	1/11/2015	1	3P	SW BALTIC/98TH	SW BARNES RD	1	INTER	9		CN	02	CROSS		0		0	TRF SIGNAL	0	CLD	WET	DAY	ANGL-OTH	ANGL	1	1	PSNGR CAR	PRVTE	STRGHT	SE	NW	000	087			00			3454361	0	1	1	DRVR	INJC	40	2	OR-Y	OR<25	020		04	
1603402	00165	1/11/2015	1	3P	SW BALTIC/98TH	SW BARNES RD	1	INTER	9		CN	02	CROSS		0		0	TRF SIGNAL	0	CLD	WET	DAY	ANGL-OTH	ANGL	0	2	PSNGR CAR	PRVTE	STRGHT	SW	NE	000				00			3454362	0	1	1	DRVR	INJB	28	1	OR-Y	OR<25	000		00	
1605705	01261	3/8/2015	1	1P	SW BALTIC/98TH	SW BARNES RD	1	INTER	9		CN	02	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DAY	ANGL-OTH	ANGL	1	1	PSNGR CAR	PRVTE	STRGHT	SE	NW	000				00			3459927	0	1	1	DRVR	NONE	18	1	OR-Y	OR<25	020		04	
1605705	01261	3/8/2015	1	1P	SW BALTIC/98TH	SW BARNES RD	1	INTER	9		CN	02	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DAY	ANGL-OTH	ANGL	0	2	PSNGR CAR	PRVTE	STRGHT	SW	NE	000				00			3459928	0	1	1	DRVR	INJA	42	2	OR-Y	OR<25	000		00	
1611180	03801	7/7/2015	3	4P	SW BALTIC/98TH	SW BARNES RD	1	INTER	9		CN	02	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DAY	ANGL-OTH	ANGL	1	1	PSNGR CAR	PRVTE	STRGHT	SE	NW	000				00			3473040	0	1	1	DRVR	INJB	25	2	OR-Y	OR<25	020		04	
1611180	03801	7/7/2015	3	4P	SW BALTIC/98TH	SW BARNES RD	1	INTER	9		CN	02	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DAY	ANGL-OTH	ANGL	0	2	PSNGR CAR	PRVTE	STRGHT	SW	NE	000				00			3473041	0	1	1	DRVR	INJC	62	1	OR-Y	OR<25	000		00	
1611180	03801	7/7/2015	3	4P	SW BALTIC/98TH	SW BARNES RD	1	INTER	9		CN	02	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DAY	ANGL-OTH	ANGL	0	2	PSNGR CAR	PRVTE	STRGHT	SW	NE	000				00			3473042	0	2	2	PSNG	INJB	60	2			000		00	
1612222	04279	7/29/2015	4	1P	SW BALTIC/98TH	SW BARNES RD	1	INTER	9		CN	02	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DAY	ANGL-OTH	ANGL	1	1	PSNGR CAR	PRVTE	STRGHT	SW	NE	000				00			3475458	0	1	1	DRVR	INJB	53	2	OR-Y	OR<25	000		00	
1612222	04279	7/29/2015	4	1P	SW BALTIC/98TH	SW BARNES RD	1	INTER	9		CN	02	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DAY	ANGL-OTH	ANGL	0	2	PSNGR CAR	PRVTE	STRGHT	SE	NW	000				00			3475459	0	1	1	DRVR	NONE	64	2	OR-Y	OR<25	020		04	
1615683	05942	10/11/2015	1	6P	SW BALTIC/98TH	SW BARNES RD	1	INTER	9		CN	02	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DUSK	O-1 L-TURN	TURN	1	1	PSNGR CAR	PRVTE	STRGHT	SE	NW	000				00			3483941	0	1	1	DRVR	INJB	72	2	OR-Y	OR<25	020		04	
1615683	05942	10/11/2015	1	6P	SW BALTIC/98TH	SW BARNES RD	1	INTER	9		CN	02	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DUSK	O-1 L-TURN	TURN	0	2	PSNGR CAR	PRVTE	TURN-L	NW	NE	000				00			3483942	0	1	1	DRVR	INJB	22	2	OR-Y	OR<25	000		00	
1617694	06769	11/11/2015	4	12P	SW BALTIC/98TH	SW BARNES RD	1	INTER	9		CN	02	CROSS		0		0	TRF SIGNAL	0	CLD	DRY	DAY	ANGL-OTH	ANGL	1	1	PSNGR CAR	PRVTE	STRGHT	SW	NE	000				00			3488774	0	1	1	DRVR	INJC	81	2	OR-Y	OR<25	000		00	
1617694	06769	11/11/2015	4	12P	SW BALTIC/98TH	SW BARNES RD	1	INTER	9		CN	02	CROSS		0		0	TRF SIGNAL	0	CLD	DRY	DAY	ANGL-OTH	ANGL	0	2	PSNGR CAR	PRVTE	STRGHT	SE	NW	000				00			3488775	0	1	1	DRVR	NONE	68	2	OTH-Y	N-RES	020		04	
1619845	83133	11/22/2015	1	6P	SW BALTIC/98TH	SW BARNES RD	1	INTER	9		CN	02	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DLIT	ANGL-OTH	ANGL	1	1	PSNGR CAR	PRVTE	STRGHT	SE	NW	000				00			3493881	0	1	1	DRVR	NONE	30	1	OR-Y	OR<25	020		04	
1619845	83133	11/22/2015	1	6P	SW BALTIC/98TH	SW BARNES RD	1	INTER	9		CN	02	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DLIT	ANGL-OTH	ANGL	1	1	PSNGR CAR	PRVTE	STRGHT	SE	NW	000				00			3493882	0	2	2	PSNG	NO<5	02	1			000		00	
1619845	83133	11/22/2015	1	6P	SW BALTIC/98TH	SW BARNES RD	1	INTER	9		CN	02	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DLIT	ANGL-OTH	ANGL	0	2	PSNGR CAR	PRVTE	STRGHT	SW	NE	000				00			3493883	0	1	1	DRVR	INJC	57	2	OR-Y	OR<25	000		00	

CEDAR HILLS BLVD and Intersectional Crashes at CEDAR HILLS BLVD, City of Beaverton,

CRASH_ID	SER_NO	CRASH_DT	CRASH_WK_DAY_CD	CRASH_HR_SHORT_DESC	ST_NM	ISECT_ST_NM	RD_CHAR_CD	RD_CHAR_SHORT_DESC	CMPSS_DIR_CD	CMPSS_DIR_FROM_CD	CMPSS_DIR_SHORT_DESC	IMPCT_LOC_CD	ISECT_TYP_SHORT_DESC	MEDN_TYP_SHORT_DESC	TURNG_LEG_QTY	LN_QTY	ISECT_REL_FLG	TRAF_CNTL_DEVICE_SHORT_DESC	OFF_RDWY_FLG	WTHR_COND_SHORT_DESC	RD_SURF_SHORT_DESC	LGT_COND_SHORT_DESC	CRASH_TYP_SHORT_DESC	COLLIS_TYP_SHORT_DESC	STRIKG_VHCL_FLG	VHCL_CODED_SEQ_NO	VHCL_TYP_SHORT_DESC	VHCL_OWNSHP_SHORT_DESC	VHCL_MVMNT_SHORT_DESC	VHCL_CMPSS_DIR_FROM_SHORT_DESC	VHCL_CMPSS_DIR_TO_SHORT_DESC	VHCL_ACTN_CD	VHCL_EVNT_1_CD	VHCL_EVNT_2_CD	VHCL_EVNT_3_CD	VHCL_CAUSE_1_CD	VHCL_CAUSE_2_CD	VHCL_CAUSE_3_CD	PARTIC_ID	STRIKG_PARTIC_FLG	PARTIC_VHCL_SEQ_NO	PARTIC_TYP_CD	PARTIC_TYP_SHORT_DESC	INJ_SVRTY_SHORT_DESC	AGE_VAL	SEX_CD	DRVR_LIC_STAT_SHORT_DESC	DRVR_RES_SHORT_DESC	PARTIC_ERR_1_CD	PARTIC_ERR_2_CD	PARTIC_CAUSE_1_CD	PARTIC_CAUSE_2_CD
1620100	07531	12/9/2015	4	11A	SW BALTIC/98TH	SW BARNES RD	1	INTER	9		CN	02	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DAY	ANGL-OTH	ANGL	1	1	PSNGR CAR	PRVTE	STRGHT	SW	NE	000				00			3494477	0	1	1	DRVR	INJC	63	2	OR-Y	OR>25	000		00	
1620100	07531	12/9/2015	4	11A	SW BALTIC/98TH	SW BARNES RD	1	INTER	9		CN	02	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DAY	ANGL-OTH	ANGL	0	2	PSNGR CAR	PRVTE	STRGHT	SE	NW	000				00			3494478	0	1	1	DRVR	INJC	82	2	OR-Y	OR<25	020		04	
1659309	00884	2/9/2016	3	2P	SW BALTIC/98TH	SW BARNES RD	1	INTER	9		CN	02	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DAY	ANGL-OTH	ANGL	1	1	PSNGR CAR	PRVTE	STRGHT	SW	NE	000				00			3572865	0	1	1	DRVR	NONE	66	2	OR-Y	OR<25	000		00	
1659309	00884	2/9/2016	3	2P	SW BALTIC/98TH	SW BARNES RD	1	INTER	9		CN	02	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DAY	ANGL-OTH	ANGL	0	2	PSNGR CAR	PRVTE	STRGHT	SE	NW	000				00			3572866	0	1	1	DRVR	INJA	66	2	OR-Y	OR<25	020		04	
1669007	04020	6/19/2016	1	2P	SW BALTIC/98TH	SW BARNES RD	1	INTER	9		CN	02	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DAY	ANGL-OTH	ANGL	1	1	PSNGR CAR	PRVTE	STRGHT	SE	NW	000				00			3595934	0	1	1	DRVR	NONE	57	2	OTH-Y	N-RES	020		04	
1669007	04020	6/19/2016	1	2P	SW BALTIC/98TH	SW BARNES RD	1	INTER	9		CN	02	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DAY	ANGL-OTH	ANGL	1	1	PSNGR CAR	PRVTE	STRGHT	SE	NW	000				00			3595935	0	2	2	PSNG	INJB	63	2			000		00	
1669007	04020	6/19/2016	1	2P	SW BALTIC/98TH	SW BARNES RD	1	INTER	9		CN	02	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DAY	ANGL-OTH	ANGL	0	2	PSNGR CAR	PRVTE	STRGHT	SW	NE	000				00			3595936	0	1	1	DRVR	NONE	35	1	OR-Y	OR<25	000		00	
1669456	04155	6/24/2016	6	1P	SW BALTIC/98TH	SW BARNES RD	1	INTER	9		CN	02	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DAY	ANGL-OTH	ANGL	1	1	PSNGR CAR	PRVTE	STRGHT	SW	NE	000				00			3597020	0	1	1	DRVR	INJC	36	2	OTH-Y	OR<25	097		00	
1669456	04155	6/24/2016	6	1P	SW BALTIC/98TH	SW BARNES RD	1	INTER	9		CN	02	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DAY	ANGL-OTH	ANGL	0	2	PSNGR CAR	PRVTE	STRGHT	SE	NW	000				00			3597021	0	1	1	DRVR	NONE	43	1	OR-Y	OR<25	097		00	
1669840	04340	7/1/2016	6	6A	SW BALTIC/98TH	SW BARNES RD	1	INTER	9		CN	02	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DAY	ANGL-OTH	ANGL	1	1	PSNGR CAR	PRVTE	STRGHT	SE	NW	000				00			3597963	0	1	1	DRVR	NONE	30	1	OR-Y	OR<25	020		04	
1669840	04340	7/1/2016	6	6A	SW BALTIC/98TH	SW BARNES RD	1	INTER	9		CN	02	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DAY	ANGL-OTH	ANGL	0	2	PSNGR CAR	PRVTE	STRGHT	SW	NE	000				00			3597964	0	1	1	DRVR	INJC	30	1	OR-Y	OR<25	000		00	
1672607	05344	8/11/2016	5	11P	SW BALTIC/98TH	SW BARNES RD	1	INTER	9		CN	02	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DLIT	O-1 L-TURN	TURN	1	1	PSNGR CAR	PRVTE	TURN-L	NW	NE	000				00			3604469	0	1	1	DRVR	INJC	36	2	OTH-Y	N-RES	097		00	
1672607	05344	8/11/2016	5	11P	SW BALTIC/98TH	SW BARNES RD	1	INTER	9		CN	02	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DLIT	O-1 L-TURN	TURN	0	2	PSNGR CAR	PRVTE	STRGHT	SE	NW	000				00			3604470	0	1	1	DRVR	NONE	43	2	OR-Y	OR<25	097		00	
1672607	05344	8/11/2016	5	11P	SW BALTIC/98TH	SW BARNES RD	1	INTER	9		CN	02	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DLIT	O-1 L-TURN	TURN	0	2	PSNGR CAR	PRVTE	STRGHT	SE	NW	000				00			3604471	0	2	2	PSNG	INJC	68	2			000		00	
1677522	07092	10/14/2016	6	5A	SW BALTIC/98TH	SW BARNES RD	1	INTER	9		CN	02	CROSS		0		0	TRF SIGNAL	0	RAIN	WET	DLIT	ANGL-OTH	ANGL	1	1	PSNGR CAR	PRVTE	STRGHT	SE	NW	000				00			3616287	0	1	1	DRVR	NONE	28	2	OR-Y	OR<25	020		04	
1677522	07092	10/14/2016	6	5A	SW BALTIC/98TH	SW BARNES RD	1	INTER	9		CN	02	CROSS		0		0	TRF SIGNAL	0	RAIN	WET	DLIT	ANGL-OTH	ANGL	0	2	PSNGR CAR	PRVTE	STRGHT	SW	NE	000				00			3616288	0	1	1	DRVR	NONE	22	2	OTH-Y	N-RES	000		00	
1677522	07092	10/14/2016	6	5A	SW BALTIC/98TH	SW BARNES RD	1	INTER	9		CN	02	CROSS		0		0	TRF SIGNAL	0	RAIN	WET	DLIT	ANGL-OTH	ANGL	0	2	PSNGR CAR	PRVTE	STRGHT	SW	NE	000				00			3616289	0	2	2	PSNG	INJC	30	2			000		00	
1679958	08049	11/23/2016	4	7A	SW BALTIC/98TH	SW BARNES RD	1	INTER	9		CN	02	CROSS		0		0	TRF SIGNAL	0	RAIN	WET	DAY	ANGL-OTH	ANGL	1	1	PSNGR CAR	PRVTE	STRGHT	SE	NW	000				00			3622097	0	1	1	DRVR	INJC	33	1	OTH-Y	OR<25	020	052	04	32
1679958	08049	11/23/2016	4	7A	SW BALTIC/98TH	SW BARNES RD	1	INTER	9		CN	02	CROSS		0		0	TRF SIGNAL	0	RAIN	WET	DAY	ANGL-OTH	ANGL	0	2	PSNGR CAR	PRVTE	STRGHT	SW	NE	000				00			3622098	0	1	1	DRVR	INJC	48	2	OR-Y	OR<25	000		00	
1689983	01322	2/27/2016	7	6A	SW BALTIC/98TH	SW BARNES RD	1	INTER	9		CN	02	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DAWN	ANGL-OTH	ANGL	1	1	PSNGR CAR	N/A	STRGHT	SW	NE	000				00			3644299	0	1	1	DRVR	NONE	00	9	UNK	UNK	000		00	
1689983	01322	2/27/2016	7	6A	SW BALTIC/98TH	SW BARNES RD	1	INTER	9		CN	02	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DAWN	ANGL-OTH	ANGL	0	2	PSNGR CAR	N/A	STRGHT	SE	NW	000				00			3644300	0	1	1	DRVR	NONE	00	9	UNK	UNK	000		00	
1696314	05275	8/8/2016	2	12P	SW BALTIC/98TH	SW BARNES RD	1	INTER	9		CN	02	CROSS		0		0	TRF SIGNAL	0	CLD	WET	DAY	ANGL-OTH	ANGL	1	1	PSNGR CAR	N/A	STRGHT	SW	NE	000				00			3654955	0	1	1	DRVR	NONE	00	9	UNK	UNK	000		00	
1696314	05275	8/8/2016	2	12P	SW BALTIC/98TH	SW BARNES RD	1	INTER	9		CN	02	CROSS		0		0	TRF SIGNAL	0	CLD	WET	DAY	ANGL-OTH	ANGL	0	2	PSNGR CAR	N/A	STRGHT	SE	NW	000				00			3654956	0	1	1	DRVR	NONE	00	9	UNK	UNK	000		00	
1696325	05295	8/9/2016	3	12P	SW BALTIC/98TH	SW BARNES RD	1	INTER	9		CN	02	CROSS		0		0	TRF SIGNAL	0	CLD	DRY	DAY	ANGL-OTH	ANGL	1	1	PSNGR CAR	N/A	STRGHT	SE	NW	000				00			3654973	0	1	1	DRVR	NONE	00	9	UNK	UNK	000		00	
1696325	05295	8/9/2016	3	12P	SW BALTIC/98TH	SW BARNES RD	1	INTER	9		CN	02	CROSS		0		0	TRF SIGNAL	0	CLD	DRY	DAY	ANGL-OTH	ANGL	0	2	PSNGR CAR	N/A	STRGHT	SW	NE	000				00			3654974	0	1	1	DRVR	NONE	00	9	UNK	UNK	000		00	
1701077	06320	9/18/2016	1	9P	SW BALTIC/98TH	SW BARNES RD	1	INTER	9		CN	02	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DLIT	ANGL-OTH	TURN	1	1	PSNGR CAR	N/A	TURN-L	SE	SW	000				00			3663236	0	1	1	DRVR	NONE	00	9	UNK	UNK	000		00	
1701077	06320	9/18/2016	1	9P	SW BALTIC/98TH	SW BARNES RD	1	INTER	9		CN	02	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DLIT	ANGL-OTH	TURN	0	2	PSNGR CAR	N/A	STRGHT	SW	NE	000				00			3663237	0	1	1	DRVR	NONE	00	9	UNK	UNK	000		00	
1580364	02748	5/15/2014	5	6A	SW BALTIC/98TH	SW BARNES RD	1	INTER	9		CN	03	CROSS		0		0	TRF SIGNAL	0	CLD	WET	DAY	O-1 L-TURN	TURN	1	1	PSNGR CAR	PRVTE	TURN-L	SE	SW	000				00			3405648	0	1	1	DRVR	NONE	76	1	OR-Y	OR<25	000		00	
1580364	02748	5/15/2014	5	6A	SW BALTIC/98TH	SW BARNES RD	1	INTER	9		CN	03	CROSS		0		0	TRF SIGNAL	0	CLD	WET	DAY	O-1 L-TURN	TURN	0	2	PSNGR CAR	PRVTE	STRGHT	NW	SE	000				00			3405649	0	1	1	DRVR	NONE	19	2	OR-Y	OR<25	020		04	
1605788	01319	3/12/2015	5	1P	SW BALTIC/98TH	SW BARNES RD	1	INTER	9		CN	04	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DAY	ANGL-OTH	ANGL	1	1	PSNGR CAR	PRVTE	STRGHT	SW	NE	000				00			3460125	0	1	1	DRVR	INJB	49	2	OR-Y	OR<25	052		32	
1605788	01319	3/12/2015	5	1P	SW BALTIC/98TH	SW BARNES RD	1	INTER	9		CN	04	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DAY	ANGL-OTH	ANGL	1	1	PSNGR CAR	PRVTE	STRGHT	SW	NE	000				00			3460126	0	2	2	PSNG	INJB	87	1			000		00	
1605788	01319	3/12/2015	5	1P	SW BALTIC/98TH	SW BARNES RD	1	INTER	9		CN	04	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DAY	ANGL-OTH	ANGL	1	1	PSNGR CAR	PRVTE	STRGHT	SW	NE	000				00			3460127	0	3	2	PSNG	INJB	90	2			000		00	
1605788	01319	3/12/2015	5	1P	SW BALTIC/98TH	SW BARNES RD	1	INTER	9		CN	04	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DAY	ANGL-OTH	ANGL	0	2	PSNGR CAR	PRVTE	STRGHT	NW	SE	000	013			00			3460128	0	1	1	DRVR	INJC	65	1	OR-Y	OR<25	000		00	
1605788	01319	3/12/2015	5	1P	SW BALTIC/98TH	SW BARNES RD	1	INTER	9		CN	04	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DAY	ANGL-OTH	ANGL	0	3	PSNGR CAR	PRVTE	STRGHT	SE	NW	022				00			3460129	0	1	1	DRVR	NONE	31	1	OR-Y	OR<25	000		00	
1683871	07634	11/6/2016	1	6P	SW BALTIC/98TH	SW BARNES RD	1	INTER	9		CN	04	CROSS		0		0	TRF SIGNAL	0	CLD	DRY	DLIT	ANGL-OTH	ANGL	1	1	PSNGR CAR	PRVTE	STRGHT	NW	SE	000				00			3631542	0	1	1	DRVR	NONE	27	1	OR-Y	OR<25	028	052	02	32
1683871	07634	11/6/2016	1	6P	SW BALTIC/98TH	SW BARNES RD	1	INTER	9		CN	04	CROSS		0		0	TRF SIGNAL	0	CLD	DRY	DLIT	ANGL-OTH	ANGL	0	2	PSNGR CAR	PRVTE	STRGHT	SW	NE	000				00			3631543	0	1	1	DRVR	INJC	45	2	OR-Y	OR<25	000		00	
1678643	07452	10/31/2016	2	7A	SW BARNES RD	SW BALTIC/98TH	3	STRGHT	4		SE	06		NONE		4	1	UNKNOWN	0	RAIN	WET	DAWN	S-1STOP	REAR	1	1	PSNGR CAR	UNKN	STRGHT	SE	NW	000				00			3618988	0	1	1	DRVR	NONE	00	9	UNK	UNK	026		29	
1678643	07452	10/31/2016	2	7A	SW BARNES RD	SW BALTIC/98TH	3	STRGHT	4		SE	06		NONE		4	1	UNKNOWN	0	RAIN	WET	DAWN	S-1STOP	REAR	0	2	PSNGR CAR	PRVTE	STOP	SE	NW	011				00			3618989	0	1	1	DRVR	INJC	40	2	OR-Y	OR<25	000		00	
1610325	03378	6/18/2015	5	5P	SW BARNES RD	SW BALTIC/98TH	3	STRGHT	4		SE	08		NONE		4	0	UNKNOWN	0	CLR	DRY	DAY	S-1STOP	REAR	1	1	PSNGR CAR	PRVTE	STRGHT	SE	NW	000				00			3470996	0	1	1	DRVR	INJB	31	1	OR-Y	OR<25	043		07	
1610325	03378	6/18/2015	5	5P	SW BARNES RD	SW BALTIC/98TH	3	STRGHT	4		SE	08		NONE		4	0	UNKNOWN	0	CLR	DRY	DAY	S-1STOP	REAR	0	2	PSNGR CAR	PRVTE	STOP	SE	NW	011				00			3470997	0	1	1	DRVR	INJC	32	2	OR-Y	OR<25	000		00	
1611822	04125	7/23/2015	5	7A	SW BARNES RD	SW BALTIC/98TH	3	STRGHT	4		SE	08		NONE		4	0	UNKNOWN	0	CLR	DRY	DAY	S-STRGHT	REAR	1	1	PSNGR CAR	PRVTE	STRGHT	SE	NW	000				00			3474538	0	1	1	DRVR	NONE	28	1	OR-Y	OR<25	043		07	
1611822	04125	7/23/2015	5	7A	SW BARNES RD	SW BALTIC/98TH	3	STRGHT	4		SE	08		NONE		4	0	UNKNOWN	0	CLR	DRY	DAY	S-STRGHT	REAR	0	2	PSNGR CAR	PRVTE	STRGHT	SE	NW	006	013			00			3474539	0	1	1	DRVR	INJC	24	2	OR-Y	OR<25	000		00	
1611822	04125	7/23/2015	5	7A	SW BARNES RD	SW BALTIC/98TH	3	STRGHT	4		SE	08		NONE		4	0	UNKNOWN	0	CLR	DRY	DAY	S-STRGHT	REAR	0	3	PSNGR CAR	PRVTE	STOP	SE	NW	022	013			00			3474540	0	1	1	DRVR	INJC	23	2	OR-Y	OR<25	000		00	
1611822	04125	7/23/2015	5	7A	SW BARNES RD	SW BALTIC/98TH	3	STRGHT	4		SE	08		NONE		4	0	UNKNOWN	0	CLR	DRY	DAY	S-STRGHT	REAR	0	4	PSNGR CAR	PRVTE	STOP	SE	NW	022				00			3474541	0	1	1	DRVR	NONE	45	2	OR-Y	OR<25	000		00	
1616327	06254	10/24/2015	7	6P	SW BARNES RD	SW BALTIC/98TH	3	STRGHT	4		SE	08		NONE		4	0	UNKNOWN	0	CLR	DRY	DAY	S-1STOP	REAR	1	1	PSNGR CAR	PRVTE	STRGHT	SE	NW	000				00			3485484	0	1	1	DRVR	NONE	37	2	OR-Y	OR<25	026		29	
1616327	06254	10/24/2015	7	6P	SW BARNES RD	SW BALTIC/98TH	3	STRGHT	4		SE	08		NONE		4	0	UNKNOWN	0	CLR	DRY	DAY	S-1STOP	REAR	0	2	PSNGR CAR	PRVTE	STOP	SE	NW	011	013			00			3485485	0	1	1	DRVR	NONE	56	1	OR-Y	OR>25	000		00	
1616327	06254	10/24/2015	7	6P	SW BARNES RD	SW BALTIC/98TH	3	STRGHT	4		SE	08		NONE		4	0	UNKNOWN	0	CLR	DRY	DAY	S-1STOP	REAR	0	3	PSNGR CAR	PRVTE	STOP	SE	NW	022				00			3485486	0	1	1	DRVR	INJC	31	1	OR-Y	OR<25	000		00	
1616327	06254	10/24/2015	7	6P	SW BARNES RD	SW BALTIC/98TH	3	STRGHT	4		SE	08		NONE		4	0	UNKNOWN	0	CLR	DRY	DAY	S-1STOP	REAR	0	3	PSNGR CAR	PRVTE	STOP	SE	NW	022				00			3485487	0	2	2	PSNG	INJC	30	1			000		00	
1616327	06254	10/24/2015	7	6P	SW BARNES RD	SW BALTIC/98TH	3	STRGHT	4		SE	08		NONE		4	0	UNKNOWN	0	CLR	DRY	DAY	S-1STOP	REAR	0	3	PSNGR CAR	PRVTE	STOP	SE	NW	022				00			3485488	0	3	2	PSNG	INJC	29	2			000		00	
1590143	04800	8/21/2014	5	6P	SW BARNES RD	SW BALTIC/98TH	3	STRGHT	8		NW	06		NONE		4	0	UNKNOWN	0	CLR	DRY	DAY	S-1STOP	REAR	1	1	PSNGR CAR	PRVTE	STRGHT	NW	SE	000				00			3426428	0	1	1	DRVR	NONE	32	1	OR-Y	OR<25	016	026	27	07
1590143	04800	8/21/2014	5	6P	SW BARNES RD	SW BALTIC/98TH	3	STRGHT	8		NW	06		NONE		4	0	UNKNOWN	0	CLR	DRY	DAY	S-1STOP	REAR	0	2	PSNGR CAR	PRVTE	STOP	NW	SE	011				00			3426429	0	1	1	DRVR	NONE	68	2	OR-Y	OR<25	000		00	
1633235	01895	4/11/2015	7	7A	SW BARNES RD	SW BALTIC/98TH	3	STRGHT	8		NW	07		NONE		4	0	UNKNOWN	1	CLD	WET	DAY	FIX OBJ	FIX	1	1	PSNGR CAR	PRVTE	STRGHT	SE	NW	000	040	079	062	00			3523706	0	1	1	DRVR	NONE	47	1	OR-Y	OR<25	080	081	16	
1591643	05187	9/7/2014	1	2P	SW BARNES RD	SW BALTIC/98TH	3	STRGHT	8		NW	08		NONE		4	0	UNKNOWN	0	CLR	DRY	DAY	S-1STOP	REAR	1	1	PSNGR CAR	PRVTE	STRGHT	NW	SE	000				00			3429691	0	1	1	DRVR	NONE	60	2	OR-Y	UNK	026		07	
1591643	05187	9/7/2014	1	2P	SW BARNES RD	SW BALTIC/98TH	3	STRGHT	8		NW	08		NONE		4	0	UNKNOWN	0	CLR	DRY	DAY	S-1STOP	REAR	0	2	PSNGR CAR	PRVTE	STOP	NW	SE	011				00			3429692	0	1	1	DRVR	NONE	36	2	OR-Y	OR<25	000		00	
1572656	02153	4/14/2014	2	6P	SW BARNES RD	SW CEDAR HILLS BLVD	1	INTER	2		NE	06	CROSS		2		0	TRF SIGNAL	0	CLR	DRY	DAY	S-1STOP	REAR	1	1	PSNGR CAR	PRVTE	STRGHT	NE	SW	000				00			3389127	0	1	1	DRVR	NONE	45	2	OR-Y	OR<25	026		07	
1572656	02153	4/14/2014	2	6P	SW BARNES RD	SW CEDAR HILLS BLVD	1	INTER	2		NE	06	CROSS		2		0	TRF SIGNAL	0	CLR	DRY	DAY	S-1STOP	REAR	0	2	PSNGR CAR	PRVTE	STOP	NE	SW	011	013			00			3389128	0	1	1	DRVR	NONE	69	1	OR-Y	OR<25	000		00	
1572656	02153	4/14/2014	2	6P	SW BARNES RD	SW CEDAR HILLS BLVD	1	INTER	2		NE	06	CROSS		2		0	TRF SIGNAL	0	CLR	DRY	DAY	S-1STOP	REAR	0	3	PSNGR CAR	PRVTE	STOP	NE	SW	011				00			3389129	0	1	1	DRVR	NONE	00	1	UNK	OR<25	000		00	
1575602	02325	4/23/2014	4	10A	SW BARNES RD	SW CEDAR HILLS BLVD	1	INTER	2		NE	06	CROSS		2		0	TRF SIGNAL	0	RAIN	WET	DAY	S-STRGHT	REAR	1	1	PSNGR CAR	PRVTE	STRGHT	NE	SW	000				00			3395494	0	1	1	DRVR	INJC	36	2	OR-Y	OR<25	000		00	
1575602	02325	4/23/2014	4	10A	SW BARNES RD	SW CEDAR HILLS BLVD	1	INTER	2		NE	06	CROSS		2		0	TRF SIGNAL	0	RAIN	WET	DAY	S-STRGHT	REAR	0	2	PSNGR CAR	PRVTE	STRGHT	NE	SW	000				00			3395495	0	1	1	DRVR	NONE	46	2	OR-Y	OR<25	045		13	
1594439	07074	11/24/2014	2	12P	SW BARNES RD	SW CEDAR HILLS BLVD	1	INTER	2		NE	06	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DAY	S-1STOP	REAR	1	1	PSNGR CAR	PRVTE	STRGHT	NE	SW	000				00			3435740	0	1	1	DRVR	INJB	48	2	OR-Y	OR<25	026		29	
1594439	07074	11/24/2014	2	12P	SW BARNES RD	SW CEDAR HILLS BLVD	1	INTER	2		NE	06	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DAY	S-1STOP	REAR	0	2	PSNGR CAR	PRVTE	STOP	NE	SW	011	013			00			3435741	0	1	1	DRVR	INJC	24	2	OR-Y	OR<25	000		00	
1594439	07074	11/24/2014	2	12P	SW BARNES RD	SW CEDAR HILLS BLVD	1	INTER	2		NE	06	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DAY	S-1STOP	REAR	0	3	PSNGR CAR	PRVTE	STOP	NE	SW	011	013			00			3435742	0	1	1	DRVR	NONE	72	2	OR-Y	OR<25	000		00	
1594439	07074	11/24/2014	2	12P	SW BARNES RD	SW CEDAR HILLS BLVD	1	INTER	2		NE	06	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DAY	S-1STOP	REAR	0	4	PSNGR CAR	PRVTE	STOP	NE	SW	011				00			3435743	0	1	1	DRVR	NONE	49	2	OR-Y	OR<25	000		00	
1636021	02892	5/29/2015	6	12P	SW BARNES RD	SW CEDAR HILLS BLVD	1	INTER	2		NE	06	CROSS		1		0	TRF SIGNAL	0	CLR	DRY	DAY	S-1STOP	REAR	1	1	PSNGR CAR	PRVTE	STRGHT	NE	SW	000				00			3528737	0	1	1	DRVR	NONE	34	1	OR-Y	OR<25	026		29	
1636021	02892	5/29/2015	6	12P	SW BARNES RD	SW CEDAR HILLS BLVD	1	INTER	2		NE	06	CROSS		1		0	TRF SIGNAL	0	CLR	DRY	DAY	S-1STOP	REAR	0	2	PSNGR CAR	PRVTE	STOP	NE	SW	011				00			3528738	0	1	1	DRVR	NONE	45	2	OR-Y	OR<25	000		00	
1693341	03480	5/27/2016	6	12P	SW BARNES RD	SW CEDAR HILLS BLVD	1	INTER	2		NE	06	CROSS		2		0	TRF SIGNAL	0	CLR	DRY	DAY	S-1STOP	REAR	1	1	PSNGR CAR	N/A	STRGHT	NE	SW	000				00			3649948	0	1	1	DRVR	NONE	00	9	UNK	UNK	000		00	
1693341	03480	5/27/2016	6	12P	SW BARNES RD	SW CEDAR HILLS BLVD	1	INTER	2		NE	06	CROSS		2		0	TRF SIGNAL	0	CLR	DRY	DAY	S-1STOP	REAR	0	2	PSNGR CAR	N/A	STOP	NE	SW	011				00			3649949	0	1	1	DRVR	NONE	00	9	UNK	UNK	000		00	
1569472	01947	4/5/2014	7	2P	SW BARNES RD	SW CEDAR HILLS BLVD	1	INTER	3		E	09	CROSS		2		0	TRF SIGNAL	0	CLR	DRY	DAY	S-1STOP	REAR	1	1	PSNGR CAR	PRVTE	STRGHT	S	N	000				00			3382383	0	1	1	DRVR	NONE	25	1	OR-Y	OR<25	026		07	
1569472	01947	4/5/2014	7	2P	SW BARNES RD	SW CEDAR HILLS BLVD	1	INTER	3		E	09	CROSS		2		0	TRF SIGNAL	0	CLR	DRY	DAY	S-1STOP	REAR	0	2	PSNGR CAR	PRVTE	STOP	S	N	011				00			3382384	0	1	1	DRVR	NONE	25	1	OR-Y	OR>25	000		00	
1587957	04318	7/29/2014	3	7P	SW BARNES RD	SW CEDAR HILLS BLVD	1	INTER	3		E	09	CROSS		2		0	TRF SIGNAL	0	CLR	DRY	DAY	S-1STOP	REAR	1	1	PSNGR CAR	PRVTE	STRGHT	E	W	000				00			3421811	0	1	1	DRVR	NONE	43	2	OR-Y	OR<25	026		07	
1587957	04318	7/29/2014	3	7P	SW BARNES RD	SW CEDAR HILLS BLVD	1	INTER	3		E	09	CROSS		2		0	TRF SIGNAL	0	CLR	DRY	DAY	S-1STOP	REAR	0	2	PSNGR CAR	PRVTE	STOP	E	W	011				00			3421812	0	1	1	DRVR	NONE	55	2	OR-Y	OR<25	000		00	
1688506	00462	1/20/2016	4	9P	SW BARNES RD	SW CEDAR HILLS BLVD	2	ALLEY	4		SE	01		NONE		4	0	TRF SIGNAL	0	RAIN	WET	DLIT	ANGL-OTH	TURN	1	1	PSNGR CAR	N/A	TURN-L	SW	NW	018				00			3641644	0	1	1	DRVR	NONE	00	9	UNK	UNK	000		00	
1688506	00462	1/20/2016	4	9P	SW BARNES RD	SW CEDAR HILLS BLVD	2	ALLEY	4		SE	01		NONE		4	0	TRF SIGNAL	0	RAIN	WET	DLIT	ANGL-OTH	TURN	0	2	PSNGR CAR	N/A	STRGHT	SE	NW	000				00			3641645	0	1	1	DRVR	NONE	00	9	UNK	UNK	000		00	
1590433	06208	10/21/2014	3	4P	SW BARNES RD	SW CEDAR HILLS BLVD	1	INTER	4		SE	06	CROSS		2		0	TRF SIGNAL	0	RAIN	WET	DAY	S-1STOP	REAR	1	1	PSNGR CAR	PRVTE	STRGHT	SE	NW	000				00			3427067	0	1	1	DRVR	NONE	00	1	OR-Y	UNK	026		29	
1590433	06208	10/21/2014	3	4P	SW BARNES RD	SW CEDAR HILLS BLVD	1	INTER	4		SE	06	CROSS		2		0	TRF SIGNAL	0	RAIN	WET	DAY	S-1STOP	REAR	0	2	PSNGR CAR	PRVTE	STOP	SE	NW	011				00			3427068	0	1	1	DRVR	NONE	62	1	OR-Y	OR<25	000		00	
1591150	05074	9/3/2014	4	4P	SW BARNES RD	SW CEDAR HILLS BLVD	1	INTER	4		SE	06	CROSS		2		0	TRF SIGNAL	0	CLR	DRY	DAY	S-1STOP	REAR	1	1	PSNGR CAR	PRVTE	STRGHT	SE	NW	000				00			3428606	0	1	1	DRVR	NONE	00	2	OR-Y	UNK	026		07	
1591150	05074	9/3/2014	4	4P	SW BARNES RD	SW CEDAR HILLS BLVD	1	INTER	4		SE	06	CROSS		2		0	TRF SIGNAL	0	CLR	DRY	DAY	S-1STOP	REAR	0	2	PSNGR CAR	PRVTE	STOP	SE	NW	011				00			3428607	0	1	1	DRVR	INJC	23	2	OR-Y	OR<25	000		00	
1633302	01933	4/13/2015	2	4P	SW BARNES RD	SW CEDAR HILLS BLVD	3	STRGHT	4		SE	06		NONE		4	0	UNKNOWN	0	RAIN	WET	DAY	S-1STOP	REAR	1	1	PSNGR CAR	PRVTE	STRGHT	SE	NW	000				00			3523831	0	1	1	DRVR	NONE	42	2	OR-Y	OR<25	026		29	
1633302	01933	4/13/2015	2	4P	SW BARNES RD	SW CEDAR HILLS BLVD	3	STRGHT	4		SE	06		NONE		4	0	UNKNOWN	0	RAIN	WET	DAY	S-1STOP	REAR	0	2	PSNGR CAR	PRVTE	STOP	SE	NW	011				00			3523832	0	1	1	DRVR	NONE	00	1	OTH-Y	N-RES	000		00	
1645546	05988	10/10/2015	7	4P	SW BARNES RD	SW CEDAR HILLS BLVD	1	INTER	4		SE	06	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DAY	S-1STOP	REAR	1	1	PSNGR CAR	PRVTE	STRGHT	SE	NW	000				00			3546193	0	1	1	DRVR	NONE	00	1	OR-Y	OR<25	014	026	29	
1645546	05988	10/10/2015	7	4P	SW BARNES RD	SW CEDAR HILLS BLVD	1	INTER	4		SE	06	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DAY	S-1STOP	REAR	0	2	PSNGR CAR	PRVTE	STOP	SE	NW	011				00			3546194	0	1	1	DRVR	NONE	25	2	OR-Y	OR<25	000		00	
1561426	81956	2/25/2014	3	5A	SW BARNES RD	SW CEDAR HILLS BLVD	2	ALLEY	4		SE	07		NONE		4	0	TRF SIGNAL	0	RAIN	WET	DLIT	ANGL-OTH	TURN	1	1	PSNGR CAR	PRVTE	STRGHT	NW	SE	000				00			3365292	0	1	1	DRVR	NONE	27	1	OR-Y	OR<25	020		04	
1561426	81956	2/25/2014	3	5A	SW BARNES RD	SW CEDAR HILLS BLVD	2	ALLEY	4		SE	07		NONE		4	0	TRF SIGNAL	0	RAIN	WET	DLIT	ANGL-OTH	TURN	0	2	PSNGR CAR	PRVTE	TURN-L	SW	NW	018				00			3365293	0	1	1	DRVR	INJB	25	2	OTH-Y	OR<25	000		00	
1703461	08242	12/1/2016	5	4P	SW BARNES RD	SW CEDAR HILLS BLVD	2	ALLEY	4		SE	07		NONE		4	0	TRF SIGNAL	0	CLR	DRY	DAY	O-1 L-TURN	TURN	1	1	PSNGR CAR	N/A	TURN-L	SE	SW	019				00			3667511	0	1	1	DRVR	NONE	00	9	UNK	UNK	000		00	
1703461	08242	12/1/2016	5	4P	SW BARNES RD	SW CEDAR HILLS BLVD	2	ALLEY	4		SE	07		NONE		4	0	TRF SIGNAL	0	CLR	DRY	DAY	O-1 L-TURN	TURN	0	2	PSNGR CAR	N/A	STRGHT	NW	SE	000				00			3667512	0	1	1	DRVR	NONE	00	9	UNK	UNK	000		00	
1592675	06604	10/25/2014	7	1P	SW BARNES RD	SW CEDAR HILLS BLVD	3	STRGHT	4		SE	08		NONE		2	1	UNKNOWN	0	RAIN	WET	DAY	S-1STOP	REAR	1	1	PSNGR CAR	PRVTE	STRGHT	SE	NW	000				00			3431952	0	1	1	DRVR	NONE	33	2	OR-Y	OR<25	026		29	
1592675	06604	10/25/2014	7	1P	SW BARNES RD	SW CEDAR HILLS BLVD	3	STRGHT	4		SE	08		NONE		2	1	UNKNOWN	0	RAIN	WET	DAY	S-1STOP	REAR	0	2	PSNGR CAR	PRVTE	STOP	SE	NW	011				00			3431953	0	1	1	DRVR	INJC	33	1	OR-Y	OR<25	000		00	
1620645	07732	12/16/2015	4	4P	SW BARNES RD	SW CEDAR HILLS BLVD	3	STRGHT	4		SE	08		NONE		6	0	UNKNOWN	0	CLD	DRY	DUSK	S-1STOP	REAR	1	1	PSNGR CAR	PRVTE	STRGHT	SE	NW	000				00			3495803	0	1	1	DRVR	NONE	50	1	OR-Y	OR<25	026		29	
1620645	07732	12/16/2015	4	4P	SW BARNES RD	SW CEDAR HILLS BLVD	3	STRGHT	4		SE	08		NONE		6	0	UNKNOWN	0	CLD	DRY	DUSK	S-1STOP	REAR	0	2	PSNGR CAR	PRVTE	STOP	SE	NW	011	013			00			3495804	0	1	1	DRVR	INJB	20	2	OR-Y	OR<25	000		00	
1620645	07732	12/16/2015	4	4P	SW BARNES RD	SW CEDAR HILLS BLVD	3	STRGHT	4		SE	08		NONE		6	0	UNKNOWN	0	CLD	DRY	DUSK	S-1STOP	REAR	0	3	PSNGR CAR	PRVTE	STOP	SE	NW	022				00			3495805	0	1	1	DRVR	NONE	40	2	OR-Y	OR<25	000		00	
1628972	97769	12/16/2015	4	4P	SW BARNES RD	SW CEDAR HILLS BLVD	3	STRGHT	4		SE	08		NONE		4	0	UNKNOWN	0	RAIN	WET	DUSK	S-1STOP	REAR	1	1	PSNGR CAR	PRVTE	STRGHT	SE	NW	000				00			3515274	0	1	1	DRVR	NONE	50	1	OR-Y	OR<25	026		29	
1628972	97769	12/16/2015	4	4P	SW BARNES RD	SW CEDAR HILLS BLVD	3	STRGHT	4		SE	08		NONE		4	0	UNKNOWN	0	RAIN	WET	DUSK	S-1STOP	REAR	0	2	PSNGR CAR	PRVTE	STOP	SE	NW	011				00			3515275	0	1	1	DRVR	NONE	20	2	OR-Y	OR<25	000		00	
1592604	05228	9/9/2014	3	9A	SW BARNES RD	SW CEDAR HILLS BLVD	1	INTER	5		S	09	CROSS		2		0	TRF SIGNAL	0	CLR	DRY	DAY	S-1STOP	REAR	1	1	PSNGR CAR	PRVTE	STRGHT	N	S	000				00			3431802	0	1	1	DRVR	NONE	41	2	OR-Y	OR<25	026		07	
1592604	05228	9/9/2014	3	9A	SW BARNES RD	SW CEDAR HILLS BLVD	1	INTER	5		S	09	CROSS		2		0	TRF SIGNAL	0	CLR	DRY	DAY	S-1STOP	REAR	0	2	PSNGR CAR	PRVTE	STOP	N	S	011				00			3431803	0	1	1	DRVR	NONE	29	2	OR-Y	OR<25	000		00	
1583276	03537	6/23/2014	2	8P	SW BARNES RD	SW CEDAR HILLS BLVD	1	INTER	6		SW	06	CROSS		2		0	TRF SIGNAL	0	CLD	WET	DAY	S-1STOP	REAR	1	1	PSNGR CAR	PRVTE	STRGHT	SW	NE	000				00			3411954	0	1	1	DRVR	NONE	38	1	OR-Y	OR<25	026		29	
1583276	03537	6/23/2014	2	8P	SW BARNES RD	SW CEDAR HILLS BLVD	1	INTER	6		SW	06	CROSS		2		0	TRF SIGNAL	0	CLD	WET	DAY	S-1STOP	REAR	0	2	PSNGR CAR	PRVTE	STOP	SW	NE	011	013			00			3411955	0	1	1	DRVR	INJC	58	1	OR-Y	OR<25	000		00	
1583276	03537	6/23/2014	2	8P	SW BARNES RD	SW CEDAR HILLS BLVD	1	INTER	6		SW	06	CROSS		2		0	TRF SIGNAL	0	CLD	WET	DAY	S-1STOP	REAR	0	3	PSNGR CAR	PRVTE	STOP	SW	NE	011				00			3411956	0	1	1	DRVR	NONE	38	2	OR-Y	OR<25	000		00	
1615244	05643	9/27/2015	1	12P	SW BARNES RD	SW CEDAR HILLS BLVD	1	INTER	6		SW	06	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DAY	S-1STOP	REAR	1	1	PSNGR CAR	PRVTE	STRGHT	SW	NE	000				00			3482839	0	1	1	DRVR	NONE	61	1	OR-Y	OR<25	026		29	
1615244	05643	9/27/2015	1	12P	SW BARNES RD	SW CEDAR HILLS BLVD	1	INTER	6		SW	06	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DAY	S-1STOP	REAR	0	2	PSNGR CAR	PRVTE	STOP	SW	NE	011				00			3482840	0	1	1	DRVR	INJC	60	1	OR-Y	OR<25	000		00	
1615244	05643	9/27/2015	1	12P	SW BARNES RD	SW CEDAR HILLS BLVD	1	INTER	6		SW	06	CROSS		0		0	TRF SIGNAL	0	CLR	DRY	DAY	S-1STOP	REAR	0	2	PSNGR CAR	PRVTE	STOP	SW	NE	011				00			3482841	0	2	2	PSNG	INJC	61	2			000		00	
1667497	85994	9/8/2016	5	4P	SW BARNES RD	SW CEDAR HILLS BLVD	1	INTER	6		SW	06	CROSS		2		0	UNKNOWN	0	CLR	DRY	DAY	S-1STOP	REAR	1	1	PSNGR CAR	PRVTE	STRGHT	SW	NE	000				00			3592395	0	1	1	DRVR	NONE	44	2	OR-Y	OR<25	026		29	
1667497	85994	9/8/2016	5	4P	SW BARNES RD	SW CEDAR HILLS BLVD	1	INTER	6		SW	06	CROSS		2		0	UNKNOWN	0	CLR	DRY	DAY	S-1STOP	REAR	0	2	PSNGR CAR	PRVTE	STOP	SW	NE	011	013			00			3592396	0	1	1	DRVR	INJC	36	2	OTH-Y	N-RES	000		00	
1667497	85994	9/8/2016	5	4P	SW BARNES RD	SW CEDAR HILLS BLVD	1	INTER	6		SW	06	CROSS		2		0	UNKNOWN	0	CLR	DRY	DAY	S-1STOP	REAR	0	3	PSNGR CAR	PRVTE	STOP	SW	NE	022				00			3592397	0	1	1	DRVR	NONE	47	2	OR-Y	OR<25	000		00	
1670822	04649	7/14/2016	5	7P	SW BARNES RD	SW CEDAR HILLS BLVD	1	INTER	6		SW	06	CROSS		2		0	TRF SIGNAL	0	CLR	DRY	DAY	S-1STOP	REAR	1	1	PSNGR CAR	PRVTE	STRGHT	SW	NE	000	058			00			3600298	0	1	1	DRVR	INJC	94	1	OR-Y	OR<25	026		29	
1670822	04649	7/14/2016	5	7P	SW BARNES RD	SW CEDAR HILLS BLVD	1	INTER	6		SW	06	CROSS		2		0	TRF SIGNAL	0	CLR	DRY	DAY	S-1STOP	REAR	0	2	PSNGR CAR	PRVTE	STOP	SW	NE	011				00			3600299	0	1	1	DRVR	INJC	39	2	OR-Y	OR<25	000		00	
1688783	00638	1/28/2016	5	11A	SW BARNES RD	SW CEDAR HILLS BLVD	1	INTER	6		SW	09	CROSS		2		0	YIELD	0	CLR	WET	DAY	S-1STOP	REAR	1	1	PSNGR CAR	N/A	TURN-R	NW	SW	000				00			3642137	0	1	1	DRVR	NONE	00	9	UNK	UNK	000		00	
1688783	00638	1/28/2016	5	11A	SW BARNES RD	SW CEDAR HILLS BLVD	1	INTER	6		SW	09	CROSS		2		0	YIELD	0	CLR	WET	DAY	S-1STOP	REAR	0	2	PSNGR CAR	N/A	STOP	NW	SW	013				00			3642138	0	1	1	DRVR	NONE	00	9	UNK	UNK	000		00	
1631188	00432	1/24/2015	7	10P	SW BARNES RD	SW CEDAR HILLS BLVD	1	INTER	7		W	05	CROSS		0		0	TRF SIGNAL	1	CLD	WET	DLIT	FIX OBJ	FIX	1	1	PSNGR CAR	PRVTE	TURN-L	S	W	007	092	040		00			3519915	0	1	1	DRVR	NONE	17	1	OR-Y	OR<25	081		26	
1603384	00111	1/8/2015	5	5P	SW BARNES RD	SW CEDAR HILLS BLVD	3	STRGHT	7		W	07		NONE		2	0	UNKNOWN	0	CLR	DRY	DLIT	S-STRGHT	REAR	1	1	PSNGR CAR	PRVTE	STRGHT	E	W	000				00			3454317	0	1	1	DRVR	NONE	20	2	OR-Y	OR<25	043	042	07	
1603384	00111	1/8/2015	5	5P	SW BARNES RD	SW CEDAR HILLS BLVD	3	STRGHT	7		W	07		NONE		2	0	UNKNOWN	0	CLR	DRY	DLIT	S-STRGHT	REAR	0	2	PSNGR CAR	PRVTE	STRGHT	E	W	000	013			00			3454318	0	1	1	DRVR	INJC	49	2	OR-Y	OR<25	000		00	
1603384	00111	1/8/2015	5	5P	SW BARNES RD	SW CEDAR HILLS BLVD	3	STRGHT	7		W	07		NONE		2	0	UNKNOWN	0	CLR	DRY	DLIT	S-STRGHT	REAR	0	3	PSNGR CAR	PRVTE	STRGHT	E	W	006				00			3454319	0	1	1	DRVR	NONE	70	2	OR-Y	OR<25	000		00	
1559565	00282	1/17/2014	6	8P	SW BARNES RD	SW CEDAR HILLS BLVD	1	INTER	7		W	09	CROSS		2		0	TRF SIGNAL	0	FOG	DRY	DLIT	S-1STOP	REAR	1	1	PSNGR CAR	PRVTE	STRGHT	N	S	000				00			3361433	0	1	1	DRVR	NONE	32	1	OR-Y	UNK	026		29	
1559565	00282	1/17/2014	6	8P	SW BARNES RD	SW CEDAR HILLS BLVD	1	INTER	7		W	09	CROSS		2		0	TRF SIGNAL	0	FOG	DRY	DLIT	S-1STOP	REAR	0	2	PSNGR CAR	PRVTE	STOP	N	S	011				00			3361434	0	1	1	DRVR	INJC	17	2	OR-Y	OR<25	000		00	
1588432	04430	8/4/2014	2	4P	SW BARNES RD	SW CEDAR HILLS BLVD	1	INTER	7		W	09	CROSS		2		0	TRF SIGNAL	0	CLR	DRY	DAY	S-1STOP	REAR	1	1	PSNGR CAR	PRVTE	STRGHT	W	E	000				00			3422824	0	1	1	DRVR	NONE	00	2	OR-Y	OR<25	026		07	
1588432	04430	8/4/2014	2	4P	SW BARNES RD	SW CEDAR HILLS BLVD	1	INTER	7		W	09	CROSS		2		0	TRF SIGNAL	0	CLR	DRY	DAY	S-1STOP	REAR	0	2	PSNGR CAR	PRVTE	STOP	W	E	011				00			3422825	0	1	1	DRVR	NONE	71	2	OR-Y	OR<25	000		00	
1590396	04865	8/25/2014	2	7P	SW BARNES RD	SW CEDAR HILLS BLVD	1	INTER	7		W	09	CROSS		2		0	YIELD	0	CLR	DRY	DAY	S-1STOP	REAR	1	1	PSNGR CAR	PRVTE	STRGHT	NW	SE	000				00			3426978	0	1	1	DRVR	NONE	26	2	OR-Y	OR<25	026		07	
1590396	04865	8/25/2014	2	7P	SW BARNES RD	SW CEDAR HILLS BLVD	1	INTER	7		W	09	CROSS		2		0	YIELD	0	CLR	DRY	DAY	S-1STOP	REAR	0	2	PSNGR CAR	PRVTE	STOP	NW	SE	011				00			3426979	0	1	1	DRVR	NONE	30	2	OR-Y	OR<25	000		00	
1630851	00229	1/14/2015	4	1P	SW BARNES RD	SW CEDAR HILLS BLVD	1	INTER	7		W	09	CROSS		1		0	YIELD	0	CLR	DRY	DAY	S-1STOP	REAR	1	1	PSNGR CAR	PRVTE	TURN-R	NW	SW	000				00			3519303	0	1	1	DRVR	NONE	49	2	OR-Y	OR<25	026		29	
1630851	00229	1/14/2015	4	1P	SW BARNES RD	SW CEDAR HILLS BLVD	1	INTER	7		W	09	CROSS		1		0	YIELD	0	CLR	DRY	DAY	S-1STOP	REAR	0	2	PSNGR CAR	PRVTE	STOP	NW	SW	013				00			3519304	0	1	1	DRVR	NONE	56	2	OR-Y	OR<25	000		00	
1633578	82612	3/12/2015	5	9A	SW BARNES RD	SW CEDAR HILLS BLVD	1	INTER	7		W	09	CROSS		1		0	YIELD	0	CLR	DRY	DAY	S-1STOP	REAR	1	1	PSNGR CAR	PRVTE	TURN-R	NW	SW	000				00			3524353	0	1	1	DRVR	NONE	00	1	UNK	UNK	026		29	
1633578	82612	3/12/2015	5	9A	SW BARNES RD	SW CEDAR HILLS BLVD	1	INTER	7		W	09	CROSS		1		0	YIELD	0	CLR	DRY	DAY	S-1STOP	REAR	0	2	PSNGR CAR	PRVTE	STOP	NW	SW	011				00			3524354	0	1	1	DRVR	NONE	40	1	OR-Y	OR<25	000		00	
1639250	05038	9/2/2015	4	3P	SW BARNES RD	SW CEDAR HILLS BLVD	1	INTER	7		W	09	CROSS		1		0	YIELD	0	CLR	DRY	DAY	S-1STOP	REAR	1	1	PSNGR CAR	PRVTE	TURN-R	NW	SW	000				00			3534656	0	1	1	DRVR	NONE	72	2	OR-Y	OR<25	026		29	
1639250	05038	9/2/2015	4	3P	SW BARNES RD	SW CEDAR HILLS BLVD	1	INTER	7		W	09	CROSS		1		0	YIELD	0	CLR	DRY	DAY	S-1STOP	REAR	0	2	PSNGR CAR	PRVTE	STOP	NW	SW	013				00			3534657	0	1	1	DRVR	NONE	60	2	OR-Y	OR<25	000		00	
1640033	05599	9/25/2015	6	1P	SW BARNES RD	SW CEDAR HILLS BLVD	1	INTER	7		W	09	CROSS		1		0	YIELD	0	CLR	DRY	DAY	S-OTHER	REAR	1	1	PSNGR CAR	PRVTE	TURN-R	NW	SW	000				00			3536141	0	1	1	DRVR	NONE	50	2	OR-Y	OR<25	026		29	
1640033	05599	9/25/2015	6	1P	SW BARNES RD	SW CEDAR HILLS BLVD	1	INTER	7		W	09	CROSS		1		0	YIELD	0	CLR	DRY	DAY	S-OTHER	REAR	0	2	PSNGR CAR	PRVTE	STOP	NW	SW	013				00			3536142	0	1	1	DRVR	NONE	52	1	OR-Y	OR<25	000		00	
1589139	06102	10/17/2014	6	7P	SW BARNES RD	SW CEDAR HILLS BLVD	1	INTER	8		NW	06	CROSS		2		0	TRF SIGNAL	0	RAIN	WET	DLIT	S-1STOP	REAR	1	1	PSNGR CAR	PRVTE	STRGHT	NW	SE	000				00			3424280	0	1	1	DRVR	NONE	22	2	OTH-Y	OR<25	026		29	
1589139	06102	10/17/2014	6	7P	SW BARNES RD	SW CEDAR HILLS BLVD	1	INTER	8		NW	06	CROSS		2		0	TRF SIGNAL	0	RAIN	WET	DLIT	S-1STOP	REAR	0	2	PSNGR CAR	PRVTE	STOP	NW	SE	011	013			00			3424281	0	1	1	DRVR	INJC	42	2	OR-Y	OR<25	000		00	
1589139	06102	10/17/2014	6	7P	SW BARNES RD	SW CEDAR HILLS BLVD	1	INTER	8		NW	06	CROSS		2		0	TRF SIGNAL	0	RAIN	WET	DLIT	S-1STOP	REAR	0	2	PSNGR CAR	PRVTE	STOP	NW	SE	011	013			00			3424282	0	2	2	PSNG	INJC	07	1			000		00	
1589139	06102	10/17/2014	6	7P	SW BARNES RD	SW CEDAR HILLS BLVD	1	INTER	8		NW	06	CROSS		2		0	TRF SIGNAL	0	RAIN	WET	DLIT	S-1STOP	REAR	0	3	PSNGR CAR	PRVTE	STOP	NW	SE	011	013			00			3424283	0	1	1	DRVR	NONE	47	2	OR-Y	OR<25	000		00	
1589139	06102	10/17/2014	6	7P	SW BARNES RD	SW CEDAR HILLS BLVD	1	INTER	8		NW	06	CROSS		2		0	TRF SIGNAL	0	RAIN	WET	DLIT	S-1STOP	REAR	0	3	PSNGR CAR	PRVTE	STOP	NW	SE	011	013			00			3424284	0	2	2	PSNG	INJC	48	1			000		00	

CEDAR HILLS BLVD and Intersectional Crashes at CEDAR HILLS BLVD, City of Beaverton,

CRASH_ID	SER_NO	CRASH_DT	CRASH_WK_DAY_CD	CRASH_HR_S HORT_DESC	ST_NM	ISECT_ST_NM	RD_CHAR_CD	RD_CHAR_SHORT_DESC	CMPSS_DIR_CD	CMPSS_DIR_FROM_CD	CMPSS_DIR_SHORT_DESC	IMPCT_LOC_CD	ISECT_TYP_SHORT_DESC	MEDN_TYP_SHORT_DESC	TURNG_LEG_QTY	LN_QTY	ISECT_REL_FLG	TRAF_CNTL_DEVICE_SHORT_DESC	OFF_RDWY_FLG	WTHR_COND_SHORT_DESC	RD_SURF_SHORT_DESC	LGT_COND_SHORT_DESC	CRASH_TYP_SHORT_DESC	COLLIS_TYP_SHORT_DESC	STRIKG_VHCL_FLG	VHCL_CODED_SEQ_NO	VHCL_TYP_SHORT_DESC	VHCL_OWNS HP_SHORT_DESC	VHCL_MVMNT_SHORT_DESC	VHCL_CMPSS_DIR_FROM_SHORT_DESC	VHCL_CMPSS_DIR_TO_SHORT_DESC	VHCL_ACTN_CD	VHCL_EVNT_1_CD	VHCL_EVNT_2_CD	VHCL_EVNT_3_CD	VHCL_CAUSE_1_CD	VHCL_CAUSE_2_CD	VHCL_CAUSE_3_CD	PARTIC_ID	STRIKG_PARTIC_FLG	PARTIC_VHCL_SEQ_NO	PARTIC_TYP_CD	PARTIC_TYP_SHORT_DESC	INJ_SVRTY_SHORT_DESC	AGE_VAL	SEX_CD	DRVR_LIC_STAT_SHORT_DESC	DRVR_RES_SHORT_DESC	PARTIC_ERR_1_CD	PARTIC_ERR_2_CD	PARTIC_CAUSE_1_CD	PARTIC_CAUSE_2_CD
1589139	06102	10/17/2014	6 7P	SW BARNES RD	SW CEDAR HILLS BLVD		1	INTER	8		NW	06	CROSS		2	0		TRF SIGNAL	0	RAIN	WET	DLIT	S-1STOP	REAR	0	3	PSNGR CAR	PRVTE	STOP	NW	SE	011	013					3424285	0	3	2	PSNG	INJB	09	2			000		00	
1589139	06102	10/17/2014	6 7P	SW BARNES RD	SW CEDAR HILLS BLVD		1	INTER	8		NW	06	CROSS		2	0		TRF SIGNAL	0	RAIN	WET	DLIT	S-1STOP	REAR	0	4	PSNGR CAR	PRVTE	STOP	NW	SE	011						3424286	0	1	1	DRVR	NONE	45	1	OR-Y	OR<25	000		00	
1657464	00442	1/19/2016	3 7A	SW BARNES RD	SW CEDAR HILLS BLVD		1	INTER	8		NW	06	CROSS		2	0		YIELD	0	RAIN	WET	DAWN	S-1STOP	REAR	1	1	PSNGR CAR	PRVTE	STRGHT	NW	SE	000						3568548	0	1	1	DRVR	NONE	42	1	OR-Y	OR<25	043		07	
1657464	00442	1/19/2016	3 7A	SW BARNES RD	SW CEDAR HILLS BLVD		1	INTER	8		NW	06	CROSS		2	0		YIELD	0	RAIN	WET	DAWN	S-1STOP	REAR	0	2	PSNGR CAR	PRVTE	STOP	NW	SE	011						3568549	0	1	1	DRVR	INJC	20	2	OR-Y	OR<25	000		00	
1680500	08300	12/3/2016	7 5P	SW BARNES RD	SW CEDAR HILLS BLVD		1	INTER	8		NW	06	CROSS		2	0		TRF SIGNAL	0	RAIN	WET	DUSK	S-1STOP	REAR	1	1	PSNGR CAR	PRVTE	STRGHT	NW	SE	000						3623459	0	1	1	DRVR	NONE	00	2	UNK	UNK	026		29	
1680500	08300	12/3/2016	7 5P	SW BARNES RD	SW CEDAR HILLS BLVD		1	INTER	8		NW	06	CROSS		2	0		TRF SIGNAL	0	RAIN	WET	DUSK	S-1STOP	REAR	0	2	PSNGR CAR	PRVTE	STOP	NW	SE	011						3623460	0	1	1	DRVR	INJC	49	2	OR-Y	OR<25	000		00	
1695372	04226	6/27/2016	2 3P	SW BARNES RD	SW CEDAR HILLS BLVD		1	INTER	8		NW	09	CROSS		2	0		TRF SIGNAL	0	CLR	DRY	DAY	S-1STOP	REAR	1	1	PSNGR CAR	N/A	STRGHT	W	E	000						3653350	0	1	1	DRVR	NONE	00	9	UNK	UNK	000		00	
1695372	04226	6/27/2016	2 3P	SW BARNES RD	SW CEDAR HILLS BLVD		1	INTER	8		NW	09	CROSS		2	0		TRF SIGNAL	0	CLR	DRY	DAY	S-1STOP	REAR	0	2	PSNGR CAR	N/A	STOP	W	E	011						3653351	0	1	1	DRVR	NONE	00	9	UNK	UNK	000		00	
1606798	01815	4/8/2015	4 7A	SW BARNES RD	SW CEDAR HILLS BLVD		1	INTER	9		CN	01	CROSS		0	0		TRF SIGNAL	0	CLR	DRY	DAY	ANGL-OTH	TURN	1	1	PSNGR CAR	PRVTE	STRGHT	SE	NW	000						3462536	0	1	1	DRVR	NONE	26	1	OR-Y	OR<25	020		04	
1606798	01815	4/8/2015	4 7A	SW BARNES RD	SW CEDAR HILLS BLVD		1	INTER	9		CN	01	CROSS		0	0		TRF SIGNAL	0	CLR	DRY	DAY	ANGL-OTH	TURN	0	2	PSNGR CAR	PRVTE	TURN-L	NE	SE	000						3462537	0	1	1	DRVR	NONE	31	2	OR-Y	OR<25	000		00	
1606798	01815	4/8/2015	4 7A	SW BARNES RD	SW CEDAR HILLS BLVD		1	INTER	9		CN	01	CROSS		0	0		TRF SIGNAL	0	CLR	DRY	DAY	ANGL-OTH	TURN	0	3	PSNGR CAR	PRVTE	TURN-L	NE	SE	000	013	040	062			3462538	0	1	1	DRVR	INJC	27	1	OR-Y	OR<25	000		00	
1606798	01815	4/8/2015	4 7A	SW BARNES RD	SW CEDAR HILLS BLVD		1	INTER	9		CN	01	CROSS		0	0		TRF SIGNAL	0	CLR	DRY	DAY	ANGL-OTH	TURN	0	4	PSNGR CAR	PRVTE	STOP	NW	SE	022						3462539	0	1	1	DRVR	INJC	25	2	OR-Y	OR<25	000		00	
1587591	05931	10/7/2014	3 11A	SW BARNES RD	SW CEDAR HILLS BLVD		1	INTER	9		CN	02	CROSS		2	0		TRF SIGNAL	0	CLR	DRY	DAY	ANGL-OTH	TURN	1	1	PSNGR CAR	PRVTE	TURN-L	SW	NW	000						3421066	0	1	1	DRVR	INJC	29	1	OR-Y	OR<25	000		00	
1587591	05931	10/7/2014	3 11A	SW BARNES RD	SW CEDAR HILLS BLVD		1	INTER	9		CN	02	CROSS		2	0		TRF SIGNAL	0	CLR	DRY	DAY	ANGL-OTH	TURN	0	2	PSNGR CAR	PRVTE	STRGHT	SE	NW	000						3421067	0	1	1	DRVR	NONE	72	2	OR-Y	OR<25	020		04	
1582486	02990	5/28/2014	4 1P	SW BARNES RD	SW CEDAR HILLS BLVD		1	INTER	9		CN	03	CROSS		2	0		TRF SIGNAL	0	CLR	WET	DAY	O-1 L-TURN	TURN	1	1	UNKNOWN	UNKN	TURN-L	SE	SW	000						3410231	0	1	1	DRVR	NONE	00	9	UNK	UNK	097		00	
1582486	02990	5/28/2014	4 1P	SW BARNES RD	SW CEDAR HILLS BLVD		1	INTER	9		CN	03	CROSS		2	0		TRF SIGNAL	0	CLR	WET	DAY	O-1 L-TURN	TURN	0	2	PSNGR CAR	PRVTE	STRGHT	NW	SE	000						3410232	0	1	1	DRVR	NONE	66	2	OR-Y	OR<25	097		00	
1583853	03381	6/16/2014	2 6P	SW BARNES RD	SW CEDAR HILLS BLVD		1	INTER	9		CN	03	CROSS		2	0		TRF SIGNAL	0	CLR	DRY	DAY	S-OTHER	TURN	1	1	PSNGR CAR	PRVTE	TURN-L	SE	SW	000						3413159	0	1	1	DRVR	NONE	00	2	UNK	UNK	002		08	
1583853	03381	6/16/2014	2 6P	SW BARNES RD	SW CEDAR HILLS BLVD		1	INTER	9		CN	03	CROSS		2	0		TRF SIGNAL	0	CLR	DRY	DAY	S-OTHER	TURN	0	2	PSNGR CAR	PRVTE	TURN-L	SE	SW	000						3413160	0	1	1	DRVR	NONE	55	1	OR-Y	OR<25	000		00	
1613046	04675	8/16/2015	1 2P	SW BARNES RD	SW CEDAR HILLS BLVD		1	INTER	9		CN	03	CROSS		0	0		TRF SIGNAL	0	CLR	DRY	DAY	S-1STOP	REAR	1	1	PSNGR CAR	PRVTE	STRGHT	NW	SE	000						3477477	0	1	1	DRVR	NONE	31	1	OR-Y	OR<25	026		29	
1613046	04675	8/16/2015	1 2P	SW BARNES RD	SW CEDAR HILLS BLVD		1	INTER	9		CN	03	CROSS		0	0		TRF SIGNAL	0	CLR	DRY	DAY	S-1STOP	REAR	0	2	PSNGR CAR	PRVTE	STOP	NW	SW	013						3477478	0	1	1	DRVR	INJC	67	2	OR-Y	OR<25	000		00	
1587541	04215	7/25/2014	6 7P	SW BARNES RD	SW CEDAR HILLS BLVD		1	INTER	9		CN	04	CROSS		2	0		TRF SIGNAL	0	CLR	DRY	DAY	ANGL-OTH	TURN	1	1	PSNGR CAR	PRVTE	STRGHT	NW	SE	000						3420962	0	1	1	DRVR	NONE	61	1	OR-Y	OR<25	020		04	
1587541	04215	7/25/2014	6 7P	SW BARNES RD	SW CEDAR HILLS BLVD		1	INTER	9		CN	04	CROSS		2	0		TRF SIGNAL	0	CLR	DRY	DAY	ANGL-OTH	TURN	0	2	PSNGR CAR	PRVTE	TURN-L	SW	NW	000						3420963	0	1	1	DRVR	INJC	40	2	OR-Y	OR<25	000		00	
1591111	05054	9/2/2014	3 6A	SW BARNES RD	SW CEDAR HILLS BLVD		1	INTER	9		CN	04	CROSS		2	0		TRF SIGNAL	0	CLR	DRY	DAWN	O-1 L-TURN	TURN	1	1	PSNGR CAR	PRVTE	STRGHT	SW	NE	000						3428517	0	1	1	DRVR	NONE	59	2	OR-Y	OR<25	097		00	
1591111	05054	9/2/2014	3 6A	SW BARNES RD	SW CEDAR HILLS BLVD		1	INTER	9		CN	04	CROSS		2	0		TRF SIGNAL	0	CLR	DRY	DAWN	O-1 L-TURN	TURN	0	2	PSNGR CAR	PRVTE	TURN-L	NE	SE	000						3428518	0	1	1	DRVR	NONE	55	2	OR-Y	OR<25	097		00	
1656467	00227	1/10/2016	1 5A	SW BARNES RD	SW CEDAR HILLS BLVD		1	INTER	9		CN	04			2	0		TRF SIGNAL	1	CLR	DRY	DLIT	FIX OBJ	FIX	1	1	PSNGR CAR	PRVTE	STRGHT	NW	SE	000	040	062	100			3566286	0	1	1	DRVR	INJC	65	1	OR-Y	OR<25	052	081	16	32

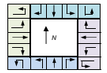
APPENDIX C –

Volume Development Summary

Turning Movement Volume Summary

Project: 001 DEA
Scenario: AM Peak Hour

Project Years:		Annual Growth Rates:	
Starts	2017	Counts to Existing (2017)	0.0%
Finishs	2021	Existing (2017) to Baseline (2021)	0.5%



New Trips: In: 136 Out: 108

New Trips: In: 46 Out: 19

Pass-By Trips: 100
From Barnes 40 40%
Diverted from CHB 60 60%

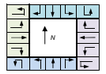
	Actual Counts	Existing (2017)	BALANCED Existing (2017)	Pipeline #1	Pipeline #2	Pipeline #3	Pipeline #7	Total Pipeline	Traffic Shift	Baseline (2021)	Primary Trips	Primary Trips	TOTAL Primary Trips	Pass-By Trips	Total Project Trips	With Project (2021)
		ROUNDED to 5	ROUNDED to 5	St Vincents In Process	Touchmark West	Touchmark East	Teufels - Com		CHB EB-Off Signal	ROUNDED to 5	LTF	Tennis and Office		LTF Land Use Category 2 (29%)		ROUNDED to 5
	Synchro code: 10/10/2017	Synchro code: 1/1/2017	Synchro code: 1/1/							Synchro code: 1/1/2021	Synchro code: 10/10/2021				Synchro code: 10/11/2021	Synchro code: 1/2/2021
North-South Street / East-West Street	10 / 2017 SW Cedar Hills Blvd / SW Barnes Rd	10 SW Cedar Hills Blvd / SW Barnes Rd	10 SW Cedar Hills Blvd / SW Barnes Rd	10 SW Cedar Hills Blvd / SW Barnes Rd	10 SW Cedar Hills Blvd / SW Barnes Rd	10 SW Cedar Hills Blvd / SW Barnes Rd	10 SW Cedar Hills Blvd / SW Barnes Rd	10 SW Cedar Hills Blvd / SW Barnes Rd	10 SW Cedar Hills Blvd / SW Barnes Rd	10 SW Cedar Hills Blvd / SW Barnes Rd	10 SW Cedar Hills Blvd / SW Barnes Rd	10 SW Cedar Hills Blvd / SW Barnes Rd	10 SW Cedar Hills Blvd / SW Barnes Rd	10 SW Cedar Hills Blvd / SW Barnes Rd	10 SW Cedar Hills Blvd / SW Barnes Rd	10 SW Cedar Hills Blvd / SW Barnes Rd
Count Date: 12/6/2017																
Count Source: KDN																
EB WB NB SB Total																
%HV 0% 0% 0% 0%																
PHF 0.95																
Peak Hour Used:																
From 730 To 830																
North-South Street / East-West Street	20 / 2017 SW Cedar Hills Blvd / US 26 WB Ramps	20 SW Cedar Hills Blvd / US 26 WB Ramps	20 SW Cedar Hills Blvd / US 26 WB Ramps	20 SW Cedar Hills Blvd / US 26 WB Ramps	20 SW Cedar Hills Blvd / US 26 WB Ramps	20 SW Cedar Hills Blvd / US 26 WB Ramps	20 SW Cedar Hills Blvd / US 26 WB Ramps	20 SW Cedar Hills Blvd / US 26 WB Ramps	20 SW Cedar Hills Blvd / US 26 WB Ramps	20 SW Cedar Hills Blvd / US 26 WB Ramps	20 SW Cedar Hills Blvd / US 26 WB Ramps	20 SW Cedar Hills Blvd / US 26 WB Ramps	20 SW Cedar Hills Blvd / US 26 WB Ramps	20 SW Cedar Hills Blvd / US 26 WB Ramps	20 SW Cedar Hills Blvd / US 26 WB Ramps	20 SW Cedar Hills Blvd / US 26 WB Ramps
Count Date: 12/6/2017																
Count Source: KDN																
EB WB NB SB Total																
%HV 0% 0% 0% 0%																
PHF 0.96																
Peak Hour Used:																
From 730 To 830																
North-South Street / East-West Street	30 / 2017 SW Cedar Hills Blvd / US 26 EB Ramps	30 SW Cedar Hills Blvd / US 26 EB Ramps	30 SW Cedar Hills Blvd / US 26 EB Ramps	30 SW Cedar Hills Blvd / US 26 EB Ramps	30 SW Cedar Hills Blvd / US 26 EB Ramps	30 SW Cedar Hills Blvd / US 26 EB Ramps	30 SW Cedar Hills Blvd / US 26 EB Ramps	30 SW Cedar Hills Blvd / US 26 EB Ramps	30 SW Cedar Hills Blvd / US 26 EB Ramps	30 SW Cedar Hills Blvd / US 26 EB Ramps	30 SW Cedar Hills Blvd / US 26 EB Ramps	30 SW Cedar Hills Blvd / US 26 EB Ramps	30 SW Cedar Hills Blvd / US 26 EB Ramps	30 SW Cedar Hills Blvd / US 26 EB Ramps	30 SW Cedar Hills Blvd / US 26 EB Ramps	30 SW Cedar Hills Blvd / US 26 EB Ramps
Count Date: 12/6/2017																
Count Source: KDN																
EB WB NB SB Total																
%HV 0% 0% 0% 0%																
PHF 0.96																
Peak Hour Used:																
From 730 To 830																
North-South Street / East-West Street	40 / 2017 SW Cedar Hills Blvd / SW Butner Rd	40 SW Cedar Hills Blvd / SW Butner Rd	40 SW Cedar Hills Blvd / SW Butner Rd	40 SW Cedar Hills Blvd / SW Butner Rd	40 SW Cedar Hills Blvd / SW Butner Rd	40 SW Cedar Hills Blvd / SW Butner Rd	40 SW Cedar Hills Blvd / SW Butner Rd	40 SW Cedar Hills Blvd / SW Butner Rd	40 SW Cedar Hills Blvd / SW Butner Rd	40 SW Cedar Hills Blvd / SW Butner Rd	40 SW Cedar Hills Blvd / SW Butner Rd	40 SW Cedar Hills Blvd / SW Butner Rd	40 SW Cedar Hills Blvd / SW Butner Rd	40 SW Cedar Hills Blvd / SW Butner Rd	40 SW Cedar Hills Blvd / SW Butner Rd	40 SW Cedar Hills Blvd / SW Butner Rd
Count Date: 12/6/2017																
Count Source: KDN																
EB WB NB SB Total																
%HV 0% 0% 0% 0%																
PHF 0.00																
Peak Hour Used:																
From 730 To 830																
North-South Street / East-West Street	50 / 2017 SW Barnes Rd / Town Square West	50 SW Barnes Rd / Town Square West	50 SW Barnes Rd / Town Square West	50 SW Barnes Rd / Town Square West	50 SW Barnes Rd / Town Square West	50 SW Barnes Rd / Town Square West	50 SW Barnes Rd / Town Square West	50 SW Barnes Rd / Town Square West	50 SW Barnes Rd / Town Square West	50 SW Barnes Rd / Town Square West	50 SW Barnes Rd / Town Square West	50 SW Barnes Rd / Town Square West	50 SW Barnes Rd / Town Square West	50 SW Barnes Rd / Town Square West	50 SW Barnes Rd / Town Square West	50 SW Barnes Rd / Town Square West
Count Date: 12/6/2017																
Count Source: KDN																
EB WB NB SB Total																
%HV 0% 0% 0% 0%																
PHF 0.91																
Peak Hour Used:																
From 730 To 830																
North-South Street / East-West Street	60 / 2017 SW Valeria View Dr / SW Barnes Rd	60 SW Valeria View Dr / SW Barnes Rd	60 SW Valeria View Dr / SW Barnes Rd	60 SW Valeria View Dr / SW Barnes Rd	60 SW Valeria View Dr / SW Barnes Rd	60 SW Valeria View Dr / SW Barnes Rd	60 SW Valeria View Dr / SW Barnes Rd	60 SW Valeria View Dr / SW Barnes Rd	60 SW Valeria View Dr / SW Barnes Rd	60 SW Valeria View Dr / SW Barnes Rd	60 SW Valeria View Dr / SW Barnes Rd	60 SW Valeria View Dr / SW Barnes Rd	60 SW Valeria View Dr / SW Barnes Rd	60 SW Valeria View Dr / SW Barnes Rd	60 SW Valeria View Dr / SW Barnes Rd	60 SW Valeria View Dr / SW Barnes Rd
Count Date: 12/6/2017																
Count Source: KDN																
EB WB NB SB Total																
%HV 0% 0% 0% 0%																
PHF 0.92																
Peak Hour Used:																
From 730 To 830																
North-South Street / East-West Street	70 / 2017 OR 217 / SW Barnes Rd	70 OR 217 / SW Barnes Rd	70 OR 217 / SW Barnes Rd	70 OR 217 / SW Barnes Rd	70 OR 217 / SW Barnes Rd	70 OR 217 / SW Barnes Rd	70 OR 217 / SW Barnes Rd	70 OR 217 / SW Barnes Rd	70 OR 217 / SW Barnes Rd	70 OR 217 / SW Barnes Rd	70 OR 217 / SW Barnes Rd	70 OR 217 / SW Barnes Rd	70 OR 217 / SW Barnes Rd	70 OR 217 / SW Barnes Rd	70 OR 217 / SW Barnes Rd	70 OR 217 / SW Barnes Rd
Count Date: 12/20/2017																
Count Source: KDN																
EB WB NB SB Total																
%HV 0% 0% 0% 0%																
PHF 0.98																
Peak Hour Used:																
From 730 To 830																
North-South Street / East-West Street	80 / 2017 SW Baltic Ave / SW Barnes Rd	80 SW Baltic Ave / SW Barnes Rd	80 SW Baltic Ave / SW Barnes Rd	80 SW Baltic Ave / SW Barnes Rd	80 SW Baltic Ave / SW Barnes Rd	80 SW Baltic Ave / SW Barnes Rd	80 SW Baltic Ave / SW Barnes Rd	80 SW Baltic Ave / SW Barnes Rd	80 SW Baltic Ave / SW Barnes Rd	80 SW Baltic Ave / SW Barnes Rd	80 SW Baltic Ave / SW Barnes Rd	80 SW Baltic Ave / SW Barnes Rd	80 SW Baltic Ave / SW Barnes Rd	80 SW Baltic Ave / SW Barnes Rd	80 SW Baltic Ave / SW Barnes Rd	80 SW Baltic Ave / SW Barnes Rd
Count Date: 12/20/2017																
Count Source: KDN																
EB WB NB SB Total																
%HV 0% 0% 0% 0%																
PHF 0.91																
Peak Hour Used:																
From 730 To 830																
North-South Street / East-West Street	90 / 2017 New 116th Ave / SW Barnes Rd	90 New 116th Ave / SW Barnes Rd	90 New 116th Ave / SW Barnes Rd	90 New 116th Ave / SW Barnes Rd	90 New 116th Ave / SW Barnes Rd	90 New 116th Ave / SW Barnes Rd	90 New 116th Ave / SW Barnes Rd	90 New 116th Ave / SW Barnes Rd	90 New 116th Ave / SW Barnes Rd	90 New 116th Ave / SW Barnes Rd	90 New 116th Ave / SW Barnes Rd	90 New 116th Ave / SW Barnes Rd	90 New 116th Ave / SW Barnes Rd	90 New 116th Ave / SW Barnes Rd	90 New 116th Ave / SW Barnes Rd	90 New 116th Ave / SW Barnes Rd
Count Date: 12/1/2017																
Count Source:																
EB WB NB SB Total																
%HV 0% 0% 0% 0%																
PHF 0.92																
Peak Hour Used:																
From 730 To 830																

Turning Movement Volume Summary

Project: 001 DEA
Scenario: PM Peak Hour

Project Years:	
Starts	2017
Finishes	2021

Annual Growth Rates:	
Counts to Existing (2017)	0.0%
Existing (2017) to Baseline (2021)	0.5%



New Trips:
In: 256
Out: 176

New Trips:
In: 25
Out: 49

Pass-By Trips:
177
From Barnes 88 50%
Diverted from CHB 89 50%

	Actual Counts	Existing (2017)	BALANCED Existing (2017)	Pipeline #1	Pipeline #2	Pipeline #3	Pipeline #7	Total Pipeline	Traffic Shift	Baseline (2021)
		ROUNDED to 5	ROUNDED to 5	St Vincents In Process	Touchmark West	Touchmark East	Teufels - Com		CHB EB-Off Signal	ROUNDED to 5
Synchro code:	10/10/2017	1/1/2017	1/1/							1/1/2021

	Primary Trips	Primary Trips	TOTAL Primary Trips	Pass-By Trips	Total Project Trips	With Project (2021)
	LTF Land Use - 131,000 s.f.	Soccer and Tennis		LTF Land Use Category 2 (29%)		ROUNDED to 5
Synchro code:	10/10/2021				10/11/2021	1/2/2021

North-South Street	SW Cedar Hills Blvd	SW Cedar Hills Blvd	SW Cedar Hills Blvd	SW Cedar Hills Blvd	SW Cedar Hills Blvd	SW Cedar Hills Blvd	SW Cedar Hills Blvd	SW Cedar Hills Blvd	SW Cedar Hills Blvd	SW Cedar Hills Blvd	SW Cedar Hills Blvd	SW Cedar Hills Blvd	SW Cedar Hills Blvd	SW Cedar Hills Blvd	SW Cedar Hills Blvd	SW Cedar Hills Blvd	SW Cedar Hills Blvd
East-West Street	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd
Count Date:	12/6/2017																
Count Source:	KDN																
%HV	0% 0% 0% 0%																
PHF	0.97																
Peak Hour Used: From	1645	1645	1645														
To	1745	1745	1745														

North-South Street	SW Cedar Hills Blvd	SW Cedar Hills Blvd	SW Cedar Hills Blvd	SW Cedar Hills Blvd	SW Cedar Hills Blvd	SW Cedar Hills Blvd	SW Cedar Hills Blvd	SW Cedar Hills Blvd	SW Cedar Hills Blvd	SW Cedar Hills Blvd	SW Cedar Hills Blvd	SW Cedar Hills Blvd	SW Cedar Hills Blvd	SW Cedar Hills Blvd	SW Cedar Hills Blvd	SW Cedar Hills Blvd	SW Cedar Hills Blvd
East-West Street	US 26 WB Ramps	US 26 WB Ramps	US 26 WB Ramps	US 26 WB Ramps	US 26 WB Ramps	US 26 WB Ramps	US 26 WB Ramps	US 26 WB Ramps	US 26 WB Ramps	US 26 WB Ramps	US 26 WB Ramps	US 26 WB Ramps	US 26 WB Ramps	US 26 WB Ramps	US 26 WB Ramps	US 26 WB Ramps	US 26 WB Ramps
Count Date:	12/6/2017																
Count Source:	KDN																
%HV	0% 0% 0% 0%																
PHF	0.98																
Peak Hour Used: From	1645	1645	1645														
To	1745	1745	1745														

North-South Street	SW Cedar Hills Blvd	SW Cedar Hills Blvd	SW Cedar Hills Blvd	SW Cedar Hills Blvd	SW Cedar Hills Blvd	SW Cedar Hills Blvd	SW Cedar Hills Blvd	SW Cedar Hills Blvd	SW Cedar Hills Blvd	SW Cedar Hills Blvd	SW Cedar Hills Blvd	SW Cedar Hills Blvd	SW Cedar Hills Blvd	SW Cedar Hills Blvd	SW Cedar Hills Blvd	SW Cedar Hills Blvd	SW Cedar Hills Blvd
East-West Street	US 26 EB Ramps	US 26 EB Ramps	US 26 EB Ramps	US 26 EB Ramps	US 26 EB Ramps	US 26 EB Ramps	US 26 EB Ramps	US 26 EB Ramps	US 26 EB Ramps	US 26 EB Ramps	US 26 EB Ramps	US 26 EB Ramps	US 26 EB Ramps	US 26 EB Ramps	US 26 EB Ramps	US 26 EB Ramps	US 26 EB Ramps
Count Date:	12/6/2017																
Count Source:	KDN																
%HV	0% 0% 0% 0%																
PHF	0.98																
Peak Hour Used: From	1645	1645	1645														
To	1745	1745	1745														

North-South Street	SW Cedar Hills Blvd	SW Cedar Hills Blvd	SW Cedar Hills Blvd	SW Cedar Hills Blvd	SW Cedar Hills Blvd	SW Cedar Hills Blvd	SW Cedar Hills Blvd	SW Cedar Hills Blvd	SW Cedar Hills Blvd	SW Cedar Hills Blvd	SW Cedar Hills Blvd	SW Cedar Hills Blvd	SW Cedar Hills Blvd	SW Cedar Hills Blvd	SW Cedar Hills Blvd	SW Cedar Hills Blvd	SW Cedar Hills Blvd
East-West Street	SW Butner Rd	SW Butner Rd	SW Butner Rd	SW Butner Rd	SW Butner Rd	SW Butner Rd	SW Butner Rd	SW Butner Rd	SW Butner Rd	SW Butner Rd	SW Butner Rd	SW Butner Rd	SW Butner Rd	SW Butner Rd	SW Butner Rd	SW Butner Rd	SW Butner Rd
Count Date:	12/6/2017																
Count Source:	KDN																
%HV	0% 0% 0% 0%																
PHF	0.99																
Peak Hour Used: From	1645	1645	1645														
To	1745	1745	1745														

North-South Street	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd
East-West Street	Town Square West	Town Square West	Town Square West	Town Square West	Town Square West	Town Square West	Town Square West	Town Square West	Town Square West	Town Square West	Town Square West	Town Square West	Town Square West	Town Square West	Town Square West	Town Square West	Town Square West
Count Date:	12/6/2017																
Count Source:	KDN																
%HV	0% 0% 0% 0%																
PHF	0.97																
Peak Hour Used: From	1645	1645	1645														
To	1745	1745	1745														

North-South Street	SW Valeria View Dr	SW Valeria View Dr	SW Valeria View Dr	SW Valeria View Dr	SW Valeria View Dr	SW Valeria View Dr	SW Valeria View Dr	SW Valeria View Dr	SW Valeria View Dr	SW Valeria View Dr	SW Valeria View Dr	SW Valeria View Dr	SW Valeria View Dr	SW Valeria View Dr	SW Valeria View Dr	SW Valeria View Dr	SW Valeria View Dr
East-West Street	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd
Count Date:	12/6/2017																
Count Source:	KDN																
%HV	0% 0% 0% 0%																
PHF	0.97																
Peak Hour Used: From	1645	1645	1645														
To	1745	1745	1745														

North-South Street	OR 217	OR 217	OR 217	OR 217	OR 217	OR 217	OR 217	OR 217	OR 217	OR 217	OR 217	OR 217	OR 217	OR 217	OR 217	OR 217	OR 217
East-West Street	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd
Count Date:	12/19/2017																
Count Source:	KDN																
%HV	0% 0% 0% 0%																
PHF	0.96																
Peak Hour Used: From	1645	1645	1645														
To	1745	1745	1745														

North-South Street	SW Baltic Ave	SW Baltic Ave	SW Baltic Ave	SW Baltic Ave	SW Baltic Ave	SW Baltic Ave	SW Baltic Ave	SW Baltic Ave	SW Baltic Ave	SW Baltic Ave	SW Baltic Ave	SW Baltic Ave	SW Baltic Ave	SW Baltic Ave	SW Baltic Ave	SW Baltic Ave	SW Baltic Ave
East-West Street	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd
Count Date:	12/19/2017																
Count Source:	KDN																
%HV	0% 0% 0% 0%																
PHF	0.92																
Peak Hour Used: From	1645	1645	1645														
To	1745	1745	1745														

North-South Street	New 116th Ave	New 116th Ave	New 116th Ave	New 116th Ave	New 116th Ave	New 116th Ave	New 116th Ave	New 116th Ave	New 116th Ave	New 116th Ave	New 116th Ave	New 116th Ave	New 116th Ave	New 116th Ave	New 116th Ave	New 116th Ave	New 116th Ave
East-West Street	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd	SW Barnes Rd
Count Date:	12/1/2017																
Count Source:																	
%HV	0% 0% 0% 0%																
PHF	0.92																
Peak Hour Used: From	1645	1645	1645														
To	1745	1745	1745														

APPENDIX D –

Background Operations

BACKGROUND (2021)

			AM			PM			AM		PM	
No.	Intersection	Lane Group	LOS	Delay	V/C	LOS	Delay	V/C	95th % Queue	Storage	95th % Queue	Storage
1	SW Cedar Hills Blvd at SW Barnes Rd	OVERALL	D	48.7	1.00	D	47.3	0.95				
		EB L	E	60.70	0.46	F	88.10	0.73	50	320	100	320
		EB T	D	35.70	0.54	D	47.40	0.56	275		275	
		EB R	D	58.90	0.96	C	33.00	0.79				
		WB L	E	61.20	0.82	E	61.20	0.86	200	315	**425**	315
		WB T/R	C	25.50	0.39	E	58.20	0.95	200		550	
		NB L	D	85.60	0.93	D	42.50	0.65	175		300	
		NB T	C	32.00	0.60	D	35.70	0.84	350		350	
		NB R	B	16.40	0.28	A	9.70	0.35	**300**	135	**325**	220
		SB L	E	60.50	0.66	F	129.40	0.93	**600**	375	275	375
		SB T/R	F	68.10	0.98	E	63.10	0.91	1425		550	
2	SW Cedar Hills Blvd at US 26 WB Ramps	OVERALL	B	10.3	0.64	B	10.10	0.69				
		WB L	B	13.70	0.51	B	11.80	0.38	200		175	
		WB R	B	12.20	0.21	B	17.10	0.69	75		400	
		NB T	A	7.30	0.42	A	8.70	0.69	225		550	
		SB T	B	10.30	0.72	A	8.8	0.69	225		250	
3	SW Cedar Hills Blvd at US 26 EB Ramps	OVERALL	C	23.5	0.78	B	19.5	0.86				
		EB L/T	D	51.5	0.64	D	51.1	0.71	775		275	
		EB R	D	43.4	0.13	D	41.9	0.41	1000		275	
		NB T/R	B	19.9	0.54	B	12.7	0.81	150		200	
		SB L	D	49.6	0.84	F	82.5	0.95	**375**	375	**450**	375
		SB T	B	12.8	0.64	A	4.8	0.49	375		500	
4	SW Cedar Hills Blvd at SW Butner Rd	OVERALL	C	25.7	0.93	C	31.0	0.83				
		EB L/T/R	D	41.3	0.78	D	48.1	0.85	325		1025	
		WB L/T	D	42.80	0.13	D	40.40	0.29	100		325	
		WB R	D	42.20	0.05	C	25.20	0.19	**75**	25	**75**	25
		NB L	E	55.20	0.27	E	65.00	0.62	50	225	275	225
		NB T	B	19.70	0.38	D	35.40	0.81	250		775	
		NB R	B	16.10	0.01	C	22.20	0.01	25	300	225	300
		SB L	F	87.70	0.81	D	39.90	0.26	**150**	60	**150**	60
		SB T/R	B	16.80	0.88	C	21.70	0.81	150		150	
5	Towne Square West Access at SW Barnes R	OVERALL	A	3.20	0.33	A	9.40	0.51				
		EB T	A	2.70	0.33	A	4.20	0.26	75		125	
		EB R	A	1.10	0.03	A	1.80	0.10	25	240	50	240
		WB L	A	0.80	0.01	A	4.30	0.07	25	135	100	135
		WB T	A	2.30	0.30	A	8.60	0.48	75		350	
		NB L	D	40.90	0.18	D	40.10	0.54	50	155	150	155
		NB R	D	39.40	0.00	C	33.80	0.02	25	155	50	155
6	SW Valeria View Dr at SW Barnes Rd	OVERALL	B	18.60	0.55	B	14.0	0.70				
		EB L	B	10.00	0.19	B	16.40	0.69	75	250	200	250
		EB T	B	14.10	0.43	A	8.80	0.19	200		125	
		EB R	A	9.40	0.01	A	4.20	0.01	25	165	25	165
		WB L	B	10.60	0.08	A	4.90	0.10	50	100	125	100
		WB T	B	13.40	0.33	B	10.80	0.61	175		350	
		WB R	B	11.20	0.05	A	6.80	0.16	50	565	100	565
		NB L	C	22.50	0.04	D	36.40	0.24	50		50	
		NB T/R	C	22.40	0.03	D	35.10	0.11	50		75	
		SB L	D	39.60	0.80	D	38.80	0.49	275	250	125	250
		SB T	C	22.40	0.03	D	44.50	0.67	75		150	
		SB R	C	23.70	0.19	C	34.50	0.02	125	250	50	250
7	Beaverton/Tigard Interchange	OVERALL	B	15.3	0.78	C	33.2	0.90				
		WB L	C	26.4	0.75	D	47.30	0.94	250		500	
		WB L/T	C	25.8	0.75	D	44.20	0.93	325		550	
		WB R	A	3.5	0.08	A	7.30	0.35	175	240	**400**	240
		NB T	C	26.4	0.59	D	44.10	0.88	150		300	
		NB R	A	1.8	0.61	A	0.50	0.33			50	
		SB L	C	26.1	0.74	D	51.90	0.83	250		275	
		SB T	A	7.0	0.13	B	12.60	0.10	100	300	75	300
8	SW Baltic Ave at SW Barnes Rd	OVERALL	C	34.6	0.80	C	32.2	0.77				
		EB L	D	46.9	0.77	D	47.3	0.42	250	200	100	200
		EB T/R	C	26.1	0.71	D	35.4	0.68	350		275	
		WB L	E	70.1	0.82	D	47.9	0.84	175	200	**350**	200
		WB T/R	C	29.3	0.67	C	22.3	0.72	375		875	
		NB L	D	48.2	0.39	E	57.2	0.68	100	325	150	325
		NB T	D	50.6	0.89	D	35.5	0.24	400		125	
		NB R	C	34.3	0.79	B	18.4	0.42	325		175	
		SB L	D	48.4	0.40	E	56.5	0.64	75	75	**125**	75
		SB T	C	27.1	0.14	D	44.1	0.68	100		325	
		SB R	B	14.6	0.11	D	35.0	0.66	100	200	**250**	200

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	530	650	335	380	145	285	385	275	90	595	15
Future Volume (vph)	15	530	650	335	380	145	285	385	275	90	595	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	5.0	4.0	4.0		4.0	4.0	5.0	4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95		0.97	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.96		1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	3433	3392		3433	1863	1583	1770	1856	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	3433	3392		3433	1863	1583	1770	1856	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	16	558	684	353	400	153	300	405	289	95	626	16
RTOR Reduction (vph)	0	0	60	0	29	0	0	0	64	0	1	0
Lane Group Flow (vph)	16	558	624	353	524	0	300	405	225	95	641	0
Turn Type	Prot	NA	pt+ov	Prot	NA		Prot	NA	pt+ov	Prot	NA	
Protected Phases	1	6	6 7	5	2		7	4	4 5	3	8	
Permitted Phases												
Actuated Green, G (s)	2.4	33.6	48.7	13.9	46.1		10.1	42.1	61.0	9.7	40.7	
Effective Green, g (s)	2.4	34.6	48.7	14.9	47.1		11.1	43.1	61.0	9.7	41.7	
Actuated g/C Ratio	0.02	0.29	0.41	0.13	0.40		0.09	0.36	0.52	0.08	0.35	
Clearance Time (s)	4.0	5.0		5.0	5.0		5.0	5.0		4.0	5.0	
Vehicle Extension (s)	1.5	3.1		2.0	3.1		2.0	3.1		1.5	3.1	
Lane Grp Cap (vph)	35	1035	651	432	1350		322	678	816	145	654	
v/s Ratio Prot	0.01	0.16	c0.39	c0.10	0.15		0.09	0.22	0.14	0.05	c0.35	
v/s Ratio Perm												
v/c Ratio	0.46	0.54	0.96	0.82	0.39		0.93	0.60	0.28	0.66	0.98	
Uniform Delay, d1	57.3	35.2	33.8	50.4	25.3		53.2	30.5	16.2	52.7	37.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	3.4	0.6	25.1	10.8	0.2		32.4	1.4	0.2	7.9	30.2	
Delay (s)	60.7	35.7	58.9	61.2	25.5		85.6	32.0	16.4	60.5	68.1	
Level of Service	E	D	E	E	C		F	C	B	E	E	
Approach Delay (s)		48.7			39.4			43.6			67.1	
Approach LOS		D			D			D			E	

Intersection Summary			
HCM 2000 Control Delay	48.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	118.3	Sum of lost time (s)	19.0
Intersection Capacity Utilization	92.9%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	525	210	740	0	0	1275
Future Volume (vph)	525	210	740	0	0	1275
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0			4.0
Lane Util. Factor	0.97	1.00	0.95			0.95
Frt	1.00	0.85	1.00			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	3433	1583	3539			3539
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	3433	1583	3539			3539
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	547	219	771	0	0	1328
RTOR Reduction (vph)	0	114	0	0	0	0
Lane Group Flow (vph)	547	105	771	0	0	1328
Turn Type	Prot	Prot	NA			NA
Protected Phases	8	8	6			2
Permitted Phases						
Actuated Green, G (s)	13.5	13.5	23.3			23.3
Effective Green, g (s)	15.0	15.0	24.8			24.8
Actuated g/C Ratio	0.31	0.31	0.52			0.52
Clearance Time (s)	5.5	5.5	5.5			5.5
Vehicle Extension (s)	2.5	2.5	3.5			3.5
Lane Grp Cap (vph)	1077	496	1836			1836
v/s Ratio Prot	c0.16	0.07	0.22			c0.38
v/s Ratio Perm						
v/c Ratio	0.51	0.21	0.42			0.72
Uniform Delay, d1	13.4	12.1	7.1			8.9
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	0.3	0.2	0.2			1.5
Delay (s)	13.7	12.2	7.3			10.3
Level of Service	B	B	A			B
Approach Delay (s)	13.2		7.3			10.3
Approach LOS	B		A			B

Intersection Summary			
HCM 2000 Control Delay	10.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	47.8	Sum of lost time (s)	8.0
Intersection Capacity Utilization	84.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	150	0	165	0	0	0	0	715	135	405	1395	0
Future Volume (vph)	150	0	165	0	0	0	0	715	135	405	1395	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0					4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00					0.95		1.00	0.95	
Frt		1.00	0.85					0.98		1.00	1.00	
Flt Protected		0.95	1.00					1.00		0.95	1.00	
Satd. Flow (prot)		1770	1583					3455		1770	3539	
Flt Permitted		0.95	1.00					1.00		0.95	1.00	
Satd. Flow (perm)		1770	1583					3455		1770	3539	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	156	0	172	0	0	0	0	745	141	422	1453	0
RTOR Reduction (vph)	0	0	143	0	0	0	0	13	0	0	0	0
Lane Group Flow (vph)	0	156	29	0	0	0	0	873	0	422	1453	0
Turn Type	Perm	NA	Perm					NA		Prot	NA	
Protected Phases		13						6 8		5 9	2 4	
Permitted Phases	13		13									
Actuated Green, G (s)		15.7	15.7					53.8		32.5	73.3	
Effective Green, g (s)		15.7	15.7					53.8		32.5	73.3	
Actuated g/C Ratio		0.14	0.14					0.47		0.29	0.64	
Clearance Time (s)		4.0	4.0									
Vehicle Extension (s)		2.5	2.5									
Lane Grp Cap (vph)		243	218					1630		504	2275	
v/s Ratio Prot								0.25		c0.24	c0.41	
v/s Ratio Perm		0.09	0.02									
v/c Ratio		0.64	0.13					0.54		0.84	0.64	
Uniform Delay, d1		46.5	43.2					21.3		38.3	12.3	
Progression Factor		1.00	1.00					0.92		1.00	1.00	
Incremental Delay, d2		5.0	0.2					0.2		11.4	0.5	
Delay (s)		51.5	43.4					19.9		49.6	12.8	
Level of Service		D	D					B		D	B	
Approach Delay (s)		47.3			0.0			19.9			21.1	
Approach LOS		D			A			B			C	

Intersection Summary			
HCM 2000 Control Delay	23.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	114.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	64.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	225	135	25	10	15	70	15	545	15	130	1285	145
Future Volume (vph)	225	135	25	10	15	70	15	545	15	130	1285	145
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0	4.0	4.0	4.0	4.0	4.5	4.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frt		0.99			1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected		0.97			0.98	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1794			1825	1583	1770	3539	1583	1770	3485	
Flt Permitted		0.97			0.86	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1794			1607	1583	1770	3539	1583	1770	3485	
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	262	157	29	12	17	81	17	634	17	151	1494	169
RTOR Reduction (vph)	0	2	0	0	0	69	0	0	9	0	7	0
Lane Group Flow (vph)	0	446	0	0	29	12	17	634	8	151	1656	0
Turn Type	Split	NA		Perm	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	4 10!	4 10			8!		5	2		1	6 9	
Permitted Phases				8		8			2			
Actuated Green, G (s)		36.0			16.3	16.3	4.1	53.5	53.5	12.0	61.9	
Effective Green, g (s)		36.5			16.3	16.3	4.1	53.5	53.5	12.0	61.9	
Actuated g/C Ratio		0.32			0.14	0.14	0.04	0.47	0.47	0.11	0.54	
Clearance Time (s)					4.0	4.0	4.0	4.0	4.0	4.5		
Vehicle Extension (s)					2.5	2.5	2.5	2.5	2.5	2.4		
Lane Grp Cap (vph)		574			229	226	63	1660	742	186	1892	
v/s Ratio Prot		c0.25					0.01	0.18		c0.09	c0.48	
v/s Ratio Perm					0.02	0.01			0.01			
v/c Ratio		0.78			0.13	0.05	0.27	0.38	0.01	0.81	0.88	
Uniform Delay, d1		35.1			42.6	42.2	53.5	19.6	16.1	49.9	22.7	
Progression Factor		1.00			1.00	1.00	1.00	1.00	1.00	1.35	0.55	
Incremental Delay, d2		6.2			0.2	0.1	1.7	0.1	0.0	20.1	4.3	
Delay (s)		41.3			42.8	42.2	55.2	19.7	16.1	87.7	16.8	
Level of Service		D			D	D	E	B	B	F	B	
Approach Delay (s)		41.3			42.4			20.5			22.7	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	25.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	114.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	81.2%	ICU Level of Service	D
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	850	45	5	830	30	5
Future Volume (vph)	850	45	5	830	30	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.95	1.00	1.00	0.95	0.97	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1583	1770	3539	3433	1583
Flt Permitted	1.00	1.00	0.28	1.00	0.95	1.00
Satd. Flow (perm)	3539	1583	519	3539	3433	1583
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	934	49	5	912	33	5
RTOR Reduction (vph)	0	8	0	0	0	5
Lane Group Flow (vph)	934	41	5	912	33	0
Turn Type	NA	pm+ov	pm+pt	NA	Prot	pm+ov
Protected Phases	2	8	1	6	8	1
Permitted Phases		2	6			8
Actuated Green, G (s)	71.2	76.0	76.2	76.2	4.8	5.8
Effective Green, g (s)	72.2	76.0	76.2	77.2	4.8	5.8
Actuated g/C Ratio	0.80	0.84	0.85	0.86	0.05	0.06
Clearance Time (s)	5.0	4.0	4.0	5.0	4.0	4.0
Vehicle Extension (s)	3.2	2.0	1.5	3.2	2.0	1.5
Lane Grp Cap (vph)	2839	1336	453	3035	183	172
v/s Ratio Prot	c0.26	0.00	0.00	c0.26	c0.01	0.00
v/s Ratio Perm		0.02	0.01			0.00
v/c Ratio	0.33	0.03	0.01	0.30	0.18	0.00
Uniform Delay, d1	2.4	1.1	1.3	1.2	40.7	39.4
Progression Factor	1.00	1.00	0.59	1.71	1.00	1.00
Incremental Delay, d2	0.3	0.0	0.0	0.2	0.2	0.0
Delay (s)	2.7	1.1	0.8	2.3	40.9	39.4
Level of Service	A	A	A	A	D	D
Approach Delay (s)	2.6			2.3	40.7	
Approach LOS	A			A	D	

Intersection Summary			
HCM 2000 Control Delay	3.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	35.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	755	20	25	550	80	15	5	25	300	15	270
Future Volume (vph)	80	755	20	25	550	80	15	5	25	300	15	270
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.87		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1627		1770	1863	1583
Flt Permitted	0.35	1.00	1.00	0.30	1.00	1.00	0.75	1.00		0.74	1.00	1.00
Satd. Flow (perm)	656	3539	1583	553	3539	1583	1392	1627		1372	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	87	821	22	27	598	87	16	5	27	326	16	293
RTOR Reduction (vph)	0	0	10	0	0	43	0	19	0	0	0	206
Lane Group Flow (vph)	87	821	12	27	598	44	16	13	0	326	16	87
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2		2	6		6	8			4		4
Actuated Green, G (s)	53.2	48.0	48.0	47.2	45.0	45.0	26.8	26.8		26.8	26.8	26.8
Effective Green, g (s)	53.2	49.0	49.0	47.2	46.0	46.0	26.8	26.8		26.8	26.8	26.8
Actuated g/C Ratio	0.59	0.54	0.54	0.52	0.51	0.51	0.30	0.30		0.30	0.30	0.30
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	1.5	3.1	3.1	1.5	3.1	3.1	2.5	2.5		3.0	3.0	3.0
Lane Grp Cap (vph)	452	1926	861	319	1808	809	414	484		408	554	471
v/s Ratio Prot	c0.01	c0.23		0.00	0.17			0.01			0.01	
v/s Ratio Perm	0.10		0.01	0.04		0.03	0.01			c0.24		0.06
v/c Ratio	0.19	0.43	0.01	0.08	0.33	0.05	0.04	0.03		0.80	0.03	0.19
Uniform Delay, d1	8.3	12.2	9.4	10.5	12.9	11.1	22.4	22.4		29.1	22.4	23.5
Progression Factor	1.19	1.10	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.1	0.7	0.0	0.0	0.5	0.1	0.0	0.0		10.5	0.0	0.2
Delay (s)	10.0	14.1	9.4	10.6	13.4	11.2	22.5	22.4		39.6	22.4	23.7
Level of Service	B	B	A	B	B	B	C	C		D	C	C
Approach Delay (s)		13.6			13.1			22.4			31.8	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	18.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	58.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	470	305	130	0	345	950	400	245	0
Future Volume (vph)	0	0	0	470	305	130	0	345	950	400	245	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5	4.5	4.5		4.5	4.0	5.0	5.0	
Lane Util. Factor				0.95	0.95	1.00		0.95	1.00	1.00	0.95	
Frt				1.00	1.00	0.85		1.00	0.85	1.00	1.00	
Flt Protected				0.95	0.99	1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)				1681	1750	1583		3539	1583	1770	3539	
Flt Permitted				0.95	0.99	1.00		1.00	1.00	0.95	1.00	
Satd. Flow (perm)				1681	1750	1583		3539	1583	1770	3539	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	0	0	480	311	133	0	352	969	408	250	0
RTOR Reduction (vph)	0	0	0	0	0	42	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	389	402	91	0	352	969	408	250	0
Turn Type				Split	NA	pt+ov		NA	Free	Prot	NA	
Protected Phases				1	1	1 2		8		2	2 8	
Permitted Phases									Free			
Actuated Green, G (s)				20.3	20.3	45.4		11.2	66.1	20.6	36.8	
Effective Green, g (s)				20.3	20.3	45.4		11.2	66.1	20.6	36.8	
Actuated g/C Ratio				0.31	0.31	0.69		0.17	1.00	0.31	0.56	
Clearance Time (s)				4.5	4.5			4.5		5.0		
Vehicle Extension (s)				2.3	2.3			2.3		4.1		
Lane Grp Cap (vph)				516	537	1087		599	1583	551	1970	
v/s Ratio Prot				c0.23	0.23	0.06		0.10		0.23	0.07	
v/s Ratio Perm									c0.61			
v/c Ratio				0.75	0.75	0.08		0.59	0.61	0.74	0.13	
Uniform Delay, d1				20.6	20.6	3.4		25.3	0.0	20.4	7.0	
Progression Factor				1.00	1.00	1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2				5.7	5.2	0.0		1.1	1.8	5.7	0.0	
Delay (s)				26.4	25.8	3.5		26.4	1.8	26.1	7.0	
Level of Service				C	C	A		C	A	C	A	
Approach Delay (s)		0.0			22.8			8.3			18.8	
Approach LOS		A			C			A			B	

Intersection Summary			
HCM 2000 Control Delay	15.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	66.1	Sum of lost time (s)	14.0
Intersection Capacity Utilization	64.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	375	915	60	120	725	60	25	420	565	25	65	155
Future Volume (vph)	375	915	60	120	725	60	25	420	565	25	65	155
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3507		1770	3499		1770	1863	1583	1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3507		1770	3499		1770	1863	1583	1770	1863	1583
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	412	1005	66	132	797	66	27	462	621	27	71	170
RTOR Reduction (vph)	0	4	0	0	5	0	0	0	104	0	0	89
Lane Group Flow (vph)	412	1067	0	132	858	0	27	462	517	27	71	81
Turn Type	Prot	NA		Prot	NA		Prot	NA	pm+ov	Prot	NA	custom
Protected Phases	5	2		1	6		3	8	1	7	4	4 5
Permitted Phases									8			4
Actuated Green, G (s)	15.5	42.1		9.1	35.7		3.9	28.0	37.1	3.8	27.9	47.4
Effective Green, g (s)	15.5	43.1		9.1	36.7		3.9	28.0	37.1	3.8	27.9	47.4
Actuated g/C Ratio	0.16	0.43		0.09	0.37		0.04	0.28	0.37	0.04	0.28	0.47
Clearance Time (s)	4.0	5.0		4.0	5.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	1.5	3.1		1.5	3.1		1.5	2.0	1.5	1.5	2.0	
Lane Grp Cap (vph)	532	1511		161	1284		69	521	650	67	519	750
v/s Ratio Prot	c0.12	c0.30		0.07	0.25		c0.02	c0.25	c0.07	0.02	0.04	0.05
v/s Ratio Perm									0.25			
v/c Ratio	0.77	0.71		0.82	0.67		0.39	0.89	0.79	0.40	0.14	0.11
Uniform Delay, d1	40.6	23.3		44.6	26.5		46.9	34.5	28.1	47.0	27.0	14.6
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.3	2.8		25.5	2.8		1.3	16.1	6.2	1.4	0.0	0.0
Delay (s)	46.9	26.1		70.1	29.3		48.2	50.6	34.3	48.4	27.1	14.6
Level of Service	D	C		E	C		D	D	C	D	C	B
Approach Delay (s)		31.9			34.7			41.4			21.3	
Approach LOS		C			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	34.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	76.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	370	610	470	760	270	520	700	370	80	425	20
Future Volume (vph)	45	370	610	470	760	270	520	700	370	80	425	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	5.0	4.0	4.0		4.0	4.0	5.0	4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95		0.97	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.96		1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	3433	3400		3433	1863	1583	1770	1850	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	3433	3400		3433	1863	1583	1770	1850	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	46	381	629	485	784	278	536	722	381	82	438	21
RTOR Reduction (vph)	0	0	60	0	27	0	0	0	19	0	1	0
Lane Group Flow (vph)	46	381	569	485	1035	0	536	722	362	82	458	0
Turn Type	Prot	NA	pt+ov	Prot	NA		Prot	NA	pt+ov	Prot	NA	
Protected Phases	1	6	6 7	5	2		7	4	4 5	3	8	
Permitted Phases												
Actuated Green, G (s)	4.3	21.9	54.7	18.7	37.3		27.8	54.4	78.1	6.0	31.6	
Effective Green, g (s)	4.3	22.9	54.7	19.7	38.3		28.8	55.4	78.1	6.0	32.6	
Actuated g/C Ratio	0.04	0.19	0.46	0.16	0.32		0.24	0.46	0.65	0.05	0.27	
Clearance Time (s)	4.0	5.0		5.0	5.0		5.0	5.0		4.0	5.0	
Vehicle Extension (s)	1.5	3.1		2.0	3.1		2.0	3.1		1.5	3.1	
Lane Grp Cap (vph)	63	675	721	563	1085		823	860	1030	88	502	
v/s Ratio Prot	0.03	0.11	c0.36	c0.14	c0.30		0.16	c0.39	0.23	0.05	c0.25	
v/s Ratio Perm												
v/c Ratio	0.73	0.56	0.79	0.86	0.95		0.65	0.84	0.35	0.93	0.91	
Uniform Delay, d1	57.3	44.0	27.7	48.8	40.0		41.1	28.4	9.5	56.8	42.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	30.8	3.4	5.3	12.4	18.2		1.4	7.3	0.2	72.6	20.8	
Delay (s)	88.1	47.4	33.0	61.2	58.2		42.5	35.7	9.7	129.4	63.1	
Level of Service	F	D	C	E	E		D	D	A	F	E	
Approach Delay (s)		40.6			59.2			31.9			73.2	
Approach LOS		D			E			C			E	

Intersection Summary			
HCM 2000 Control Delay	47.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	88.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	375	370	1225	0	0	1235
Future Volume (vph)	375	370	1225	0	0	1235
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0			4.0
Lane Util. Factor	0.97	1.00	0.95			0.95
Frt	1.00	0.85	1.00			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	3433	1583	3539			3539
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	3433	1583	3539			3539
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	383	378	1250	0	0	1260
RTOR Reduction (vph)	0	57	0	0	0	0
Lane Group Flow (vph)	383	321	1250	0	0	1260
Turn Type	Prot	Prot	NA			NA
Protected Phases	8	8	6			2
Permitted Phases						
Actuated Green, G (s)	10.6	10.6	19.7			19.7
Effective Green, g (s)	12.1	12.1	21.2			21.2
Actuated g/C Ratio	0.29	0.29	0.51			0.51
Clearance Time (s)	5.5	5.5	5.5			5.5
Vehicle Extension (s)	2.5	2.5	3.5			3.5
Lane Grp Cap (vph)	1005	463	1816			1816
v/s Ratio Prot	0.11	c0.20	0.35			c0.36
v/s Ratio Perm						
v/c Ratio	0.38	0.69	0.69			0.69
Uniform Delay, d1	11.6	13.0	7.6			7.6
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	0.2	4.1	1.1			1.2
Delay (s)	11.8	17.1	8.7			8.8
Level of Service	B	B	A			A
Approach Delay (s)	14.4		8.7			8.8
Approach LOS	B		A			A

Intersection Summary			
HCM 2000 Control Delay	10.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	41.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	106.4%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	190	0	210	0	0	0	0	1225	275	300	1315	0
Future Volume (vph)	190	0	210	0	0	0	0	1225	275	300	1315	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5					4.0		4.5	4.0	
Lane Util. Factor		1.00	1.00					0.95		1.00	0.95	
Frt		1.00	0.85					0.97		1.00	1.00	
Flt Protected		0.95	1.00					1.00		0.95	1.00	
Satd. Flow (prot)		1770	1583					3442		1770	3539	
Flt Permitted		0.95	1.00					1.00		0.95	1.00	
Satd. Flow (perm)		1770	1583					3442		1770	3539	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	194	0	214	0	0	0	0	1250	281	306	1342	0
RTOR Reduction (vph)	0	0	113	0	0	0	0	17	0	0	0	0
Lane Group Flow (vph)	0	194	101	0	0	0	0	1514	0	306	1342	0
Turn Type	Perm	NA	Perm					NA		Prot	NA	
Protected Phases		10						2 3		1	5 6 7	
Permitted Phases	10		10									
Actuated Green, G (s)		16.6	16.6					58.5		19.6	82.6	
Effective Green, g (s)		16.6	16.6					58.5		19.6	82.6	
Actuated g/C Ratio		0.15	0.15					0.54		0.18	0.77	
Clearance Time (s)		4.5	4.5							4.5		
Vehicle Extension (s)		2.4	2.4							2.4		
Lane Grp Cap (vph)		272	243					1869		322	2714	
v/s Ratio Prot								c0.44		c0.17	0.38	
v/s Ratio Perm		0.11	0.06									
v/c Ratio		0.71	0.41					0.81		0.95	0.49	
Uniform Delay, d1		43.3	41.2					20.1		43.6	4.7	
Progression Factor		1.00	1.00					0.54		1.00	1.00	
Incremental Delay, d2		7.8	0.8					1.8		39.0	0.1	
Delay (s)		51.1	41.9					12.7		82.5	4.8	
Level of Service		D	D					B		F	A	
Approach Delay (s)		46.3			0.0			12.7			19.2	
Approach LOS		D			A			B			B	

Intersection Summary			
HCM 2000 Control Delay	19.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	107.7	Sum of lost time (s)	17.0
Intersection Capacity Utilization	80.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	310	65	35	15	60	160	40	1025	15	85	1210	225
Future Volume (vph)	310	65	35	15	60	160	40	1025	15	85	1210	225
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5			4.0	4.5	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frt		0.99			1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected		0.96			0.99	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1774			1845	1583	1770	3539	1583	1770	3456	
Flt Permitted		0.73			0.89	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1343			1649	1583	1770	3539	1583	1770	3456	
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	313	66	35	15	61	162	40	1035	15	86	1222	227
RTOR Reduction (vph)	0	3	0	0	0	57	0	0	10	0	14	0
Lane Group Flow (vph)	0	411	0	0	76	105	40	1035	5	86	1435	0
Turn Type	custom	NA		Perm	NA	pm+ov	Prot	NA	Perm	Prot	NA	
Protected Phases	3	3 10			13	1	5	2		1	6	
Permitted Phases	10			13		13			2			
Actuated Green, G (s)		32.5			17.1	36.7	4.0	38.6	38.6	19.6	54.7	
Effective Green, g (s)		33.5			17.1	36.7	4.0	38.6	38.6	20.1	54.7	
Actuated g/C Ratio		0.31			0.16	0.34	0.04	0.36	0.36	0.19	0.51	
Clearance Time (s)					4.0	4.5	4.0	4.0	4.0	4.5	4.0	
Vehicle Extension (s)					2.5	2.4	2.5	2.5	2.5	2.4	2.5	
Lane Grp Cap (vph)		483			261	539	65	1268	567	330	1755	
v/s Ratio Prot		c0.13				0.04	c0.02	0.29		0.05	c0.42	
v/s Ratio Perm		c0.14			0.05	0.03			0.00			
v/c Ratio		0.85			0.29	0.19	0.62	0.82	0.01	0.26	0.82	
Uniform Delay, d1		34.8			40.0	25.1	51.1	31.3	22.2	37.4	22.3	
Progression Factor		1.00			1.00	1.00	1.00	1.00	1.00	1.02	0.85	
Incremental Delay, d2		13.4			0.5	0.1	13.9	4.1	0.0	1.7	2.6	
Delay (s)		48.1			40.4	25.2	65.0	35.4	22.2	39.9	21.7	
Level of Service		D			D	C	E	D	C	D	C	
Approach Delay (s)		48.1			30.0			36.3			22.7	
Approach LOS		D			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	31.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	107.7	Sum of lost time (s)	16.5
Intersection Capacity Utilization	83.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	660	160	40	1345	160	45
Future Volume (vph)	660	160	40	1345	160	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.95	1.00	1.00	0.95	0.97	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1583	1770	3539	3433	1583
Flt Permitted	1.00	1.00	0.36	1.00	0.95	1.00
Satd. Flow (perm)	3539	1583	669	3539	3433	1583
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	680	165	41	1387	165	46
RTOR Reduction (vph)	0	31	0	0	0	40
Lane Group Flow (vph)	680	134	41	1387	165	6
Turn Type	NA	pm+ov	pm+pt	NA	Prot	pm+ov
Protected Phases	2	8	1	6	8	1
Permitted Phases		2	6			8
Actuated Green, G (s)	64.9	73.0	72.9	72.9	8.1	12.1
Effective Green, g (s)	65.9	73.0	72.9	73.9	8.1	12.1
Actuated g/C Ratio	0.73	0.81	0.81	0.82	0.09	0.13
Clearance Time (s)	5.0	4.0	4.0	5.0	4.0	4.0
Vehicle Extension (s)	3.2	2.0	1.5	3.2	2.0	1.5
Lane Grp Cap (vph)	2591	1283	590	2905	308	283
v/s Ratio Prot	0.19	0.01	0.00	c0.39	c0.05	0.00
v/s Ratio Perm		0.08	0.05			0.00
v/c Ratio	0.26	0.10	0.07	0.48	0.54	0.02
Uniform Delay, d1	4.0	1.8	1.9	2.4	39.2	33.8
Progression Factor	1.00	1.00	2.30	3.42	1.00	1.00
Incremental Delay, d2	0.2	0.0	0.0	0.5	0.9	0.0
Delay (s)	4.2	1.8	4.3	8.6	40.1	33.8
Level of Service	A	A	A	A	D	C
Approach Delay (s)	3.8			8.4	38.7	
Approach LOS	A			A	D	

Intersection Summary			
HCM 2000 Control Delay	9.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	48.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	225	465	15	60	1335	245	25	20	25	80	150	30
Future Volume (vph)	225	465	15	60	1335	245	25	20	25	80	150	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.92		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1708		1770	1863	1583
Flt Permitted	0.13	1.00	1.00	0.48	1.00	1.00	0.46	1.00		0.73	1.00	1.00
Satd. Flow (perm)	234	3539	1583	891	3539	1583	856	1708		1353	1863	1583
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	232	479	15	62	1376	253	26	21	26	82	155	31
RTOR Reduction (vph)	0	0	5	0	0	91	0	23	0	0	0	27
Lane Group Flow (vph)	232	479	10	62	1376	162	26	24	0	82	155	4
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2		2	6		6	8			4		4
Actuated Green, G (s)	69.7	61.5	61.5	60.8	56.6	56.6	11.3	11.3		11.3	11.3	11.3
Effective Green, g (s)	69.7	62.5	62.5	60.8	57.6	57.6	11.3	11.3		11.3	11.3	11.3
Actuated g/C Ratio	0.77	0.69	0.69	0.68	0.64	0.64	0.13	0.13		0.13	0.13	0.13
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	1.5	3.1	3.1	1.5	3.1	3.1	2.5	2.5		3.0	3.0	3.0
Lane Grp Cap (vph)	336	2457	1099	642	2264	1013	107	214		169	233	198
v/s Ratio Prot	c0.07	0.14		0.00	0.39			0.01			c0.08	
v/s Ratio Perm	c0.46		0.01	0.06		0.10	0.03			0.06		0.00
v/c Ratio	0.69	0.19	0.01	0.10	0.61	0.16	0.24	0.11		0.49	0.67	0.02
Uniform Delay, d1	9.8	4.9	4.2	4.9	9.5	6.5	35.5	34.9		36.6	37.5	34.5
Progression Factor	1.18	1.77	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	4.8	0.2	0.0	0.0	1.2	0.3	0.9	0.2		2.2	7.0	0.0
Delay (s)	16.4	8.8	4.2	4.9	10.8	6.8	36.4	35.1		38.8	44.5	34.5
Level of Service	B	A	A	A	B	A	D	D		D	D	C
Approach Delay (s)		11.1			10.0			35.5			41.6	
Approach LOS		B			A			D			D	

Intersection Summary			
HCM 2000 Control Delay	14.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	75.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	785	470	355	0	725	495	280	175	0
Future Volume (vph)	0	0	0	785	470	355	0	725	495	280	175	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5	4.5	4.5		4.5	4.0	5.0	5.0	
Lane Util. Factor				0.95	0.95	1.00		0.95	1.00	1.00	0.95	
Frt				1.00	1.00	0.85		1.00	0.85	1.00	1.00	
Flt Protected				0.95	0.99	1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)				1681	1747	1583		3539	1583	1770	3539	
Flt Permitted				0.95	0.99	1.00		1.00	1.00	0.95	1.00	
Satd. Flow (perm)				1681	1747	1583		3539	1583	1770	3539	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	0	0	818	490	370	0	755	516	292	182	0
RTOR Reduction (vph)	0	0	0	0	0	8	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	646	662	362	0	755	516	292	182	0
Turn Type				Split	NA	pt+ov		NA	Free	Prot	NA	
Protected Phases				1	1	1 2		8		2	2 8	
Permitted Phases									Free			
Actuated Green, G (s)				38.1	38.1	61.1		22.6	93.2	18.5	46.1	
Effective Green, g (s)				38.1	38.1	61.1		22.6	93.2	18.5	46.1	
Actuated g/C Ratio				0.41	0.41	0.66		0.24	1.00	0.20	0.49	
Clearance Time (s)				4.5	4.5			4.5		5.0		
Vehicle Extension (s)				2.3	2.3			2.3		4.1		
Lane Grp Cap (vph)				687	714	1037		858	1583	351	1750	
v/s Ratio Prot				c0.38	0.38	0.23		c0.21		c0.17	0.05	
v/s Ratio Perm									0.33			
v/c Ratio				0.94	0.93	0.35		0.88	0.33	0.83	0.10	
Uniform Delay, d1				26.5	26.2	7.2		34.0	0.0	35.9	12.5	
Progression Factor				1.00	1.00	1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2				20.9	17.9	0.1		10.1	0.5	16.1	0.0	
Delay (s)				47.3	44.2	7.3		44.1	0.5	51.9	12.6	
Level of Service				D	D	A		D	A	D	B	
Approach Delay (s)		0.0			37.3			26.4			36.8	
Approach LOS		A			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	33.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	93.2	Sum of lost time (s)	14.0
Intersection Capacity Utilization	81.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	625	60	375	1185	25	85	80	380	70	220	350
Future Volume (vph)	90	625	60	375	1185	25	85	80	380	70	220	350
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3493		1770	3528		1770	1863	1583	1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3493		1770	3528		1770	1863	1583	1770	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	98	679	65	408	1288	27	92	87	413	76	239	380
RTOR Reduction (vph)	0	7	0	0	1	0	0	0	73	0	0	73
Lane Group Flow (vph)	98	737	0	408	1314	0	92	87	340	76	239	307
Turn Type	Prot	NA		Prot	NA		Prot	NA	pm+ov	Prot	NA	custom
Protected Phases	5	2		1	6		3	8	1	7	4	4 5
Permitted Phases									8			4
Actuated Green, G (s)	7.2	31.4		28.8	53.0		8.1	20.8	49.6	7.0	19.7	30.9
Effective Green, g (s)	7.2	32.4		28.8	54.0		8.1	20.8	49.6	7.0	19.7	30.9
Actuated g/C Ratio	0.07	0.31		0.27	0.51		0.08	0.20	0.47	0.07	0.19	0.29
Clearance Time (s)	4.0	5.0		4.0	5.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	1.5	3.1		1.5	3.1		1.5	2.0	1.5	1.5	2.0	
Lane Grp Cap (vph)	235	1077		485	1814		136	369	808	118	349	465
v/s Ratio Prot	0.03	0.21		c0.23	c0.37		c0.05	0.05	0.12	0.04	0.13	c0.19
v/s Ratio Perm									0.10			
v/c Ratio	0.42	0.68		0.84	0.72		0.68	0.24	0.42	0.64	0.68	0.66
Uniform Delay, d1	46.9	31.8		35.9	19.7		47.2	35.4	18.2	47.8	39.8	32.4
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	3.5		12.0	2.6		10.0	0.1	0.1	8.7	4.4	2.6
Delay (s)	47.3	35.4		47.9	22.3		57.2	35.5	18.4	56.5	44.1	35.0
Level of Service	D	D		D	C		E	D	B	E	D	D
Approach Delay (s)		36.7			28.4			26.9			40.5	
Approach LOS		D			C			C			D	

Intersection Summary			
HCM 2000 Control Delay	32.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	69.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

APPENDIX E –

Background Queuing

BACKGROUND (2021)

			AM			PM			AM		PM	
No.	Intersection	Lane Group	LOS	Delay	V/C	LOS	Delay	V/C	95th % Queue	Storage	95th % Queue	Storage
1	SW Cedar Hills Blvd at SW Barnes Rd	OVERALL	D	48.7	1.00	D	47.3	0.95				
		EB L	E	60.70	0.46	F	88.10	0.73	50	320	100	320
		EB T	D	35.70	0.54	D	47.40	0.56	275		275	
		EB R	D	58.90	0.96	C	33.00	0.79				
		WB L	E	61.20	0.82	E	61.20	0.86	200	315	**425**	315
		WB T/R	C	25.50	0.39	E	58.20	0.95	200		550	
		NB L	D	85.60	0.93	D	42.50	0.65	175		300	
		NB T	C	32.00	0.60	D	35.70	0.84	350		350	
		NB R	B	16.40	0.28	A	9.70	0.35	**300**	135	**325**	220
		SB L	E	60.50	0.66	F	129.40	0.93	**600**	375	275	375
		SB T/R	F	68.10	0.98	E	63.10	0.91	1425		550	
2	SW Cedar Hills Blvd at US 26 WB Ramps	OVERALL	B	10.3	0.64	B	10.10	0.69				
		WB L	B	13.70	0.51	B	11.80	0.38	200		175	
		WB R	B	12.20	0.21	B	17.10	0.69	75		400	
		NB T	A	7.30	0.42	A	8.70	0.69	225		550	
		SB T	B	10.30	0.72	A	8.8	0.69	225		250	
3	SW Cedar Hills Blvd at US 26 EB Ramps	OVERALL	C	23.5	0.78	B	19.5	0.86				
		EB L/T	D	51.5	0.64	D	51.1	0.71	775		275	
		EB R	D	43.4	0.13	D	41.9	0.41	1000		275	
		NB T/R	B	19.9	0.54	B	12.7	0.81	150		200	
		SB L	D	49.6	0.84	F	82.5	0.95	**375**	375	**450**	375
		SB T	B	12.8	0.64	A	4.8	0.49	375		500	
4	SW Cedar Hills Blvd at SW Butner Rd	OVERALL	C	25.7	0.93	C	31.0	0.83				
		EB L/T/R	D	41.3	0.78	D	48.1	0.85	325		1025	
		WB L/T	D	42.80	0.13	D	40.40	0.29	100		325	
		WB R	D	42.20	0.05	C	25.20	0.19	**75**	25	**75**	25
		NB L	E	55.20	0.27	E	65.00	0.62	50	225	275	225
		NB T	B	19.70	0.38	D	35.40	0.81	250		775	
		NB R	B	16.10	0.01	C	22.20	0.01	25	300	225	300
		SB L	F	87.70	0.81	D	39.90	0.26	**150**	60	**150**	60
		SB T/R	B	16.80	0.88	C	21.70	0.81	150		150	
5	Towne Square West Access at SW Barnes R	OVERALL	A	3.20	0.33	A	9.40	0.51				
		EB T	A	2.70	0.33	A	4.20	0.26	75		125	
		EB R	A	1.10	0.03	A	1.80	0.10	25	240	50	240
		WB L	A	0.80	0.01	A	4.30	0.07	25	135	100	135
		WB T	A	2.30	0.30	A	8.60	0.48	75		350	
		NB L	D	40.90	0.18	D	40.10	0.54	50	155	150	155
		NB R	D	39.40	0.00	C	33.80	0.02	25	155	50	155
6	SW Valeria View Dr at SW Barnes Rd	OVERALL	B	18.60	0.55	B	14.0	0.70				
		EB L	B	10.00	0.19	B	16.40	0.69	75	250	200	250
		EB T	B	14.10	0.43	A	8.80	0.19	200		125	
		EB R	A	9.40	0.01	A	4.20	0.01	25	165	25	165
		WB L	B	10.60	0.08	A	4.90	0.10	50	100	125	100
		WB T	B	13.40	0.33	B	10.80	0.61	175		350	
		WB R	B	11.20	0.05	A	6.80	0.16	50	565	100	565
		NB L	C	22.50	0.04	D	36.40	0.24	50		50	
		NB T/R	C	22.40	0.03	D	35.10	0.11	50		75	
		SB L	D	39.60	0.80	D	38.80	0.49	275	250	125	250
		SB T	C	22.40	0.03	D	44.50	0.67	75		150	
		SB R	C	23.70	0.19	C	34.50	0.02	125	250	50	250
7	Beaverton/Tigard Interchange	OVERALL	B	15.3	0.78	C	33.2	0.90				
		WB L	C	26.4	0.75	D	47.30	0.94	250		500	
		WB L/T	C	25.8	0.75	D	44.20	0.93	325		550	
		WB R	A	3.5	0.08	A	7.30	0.35	175	240	**400**	240
		NB T	C	26.4	0.59	D	44.10	0.88	150		300	
		NB R	A	1.8	0.61	A	0.50	0.33			50	
		SB L	C	26.1	0.74	D	51.90	0.83	250		275	
		SB T	A	7.0	0.13	B	12.60	0.10	100	300	75	300
8	SW Baltic Ave at SW Barnes Rd	OVERALL	C	34.6	0.80	C	32.2	0.77				
		EB L	D	46.9	0.77	D	47.3	0.42	250	200	100	200
		EB T/R	C	26.1	0.71	D	35.4	0.68	350		275	
		WB L	E	70.1	0.82	D	47.9	0.84	175	200	**350**	200
		WB T/R	C	29.3	0.67	C	22.3	0.72	375		875	
		NB L	D	48.2	0.39	E	57.2	0.68	100	325	150	325
		NB T	D	50.6	0.89	D	35.5	0.24	400		125	
		NB R	C	34.3	0.79	B	18.4	0.42	325		175	
		SB L	D	48.4	0.40	E	56.5	0.64	75	75	**125**	75
		SB T	C	27.1	0.14	D	44.1	0.68	100		325	
		SB R	B	14.6	0.11	D	35.0	0.66	100	200	**250**	200

Intersection: 10: SW Cedar Hills Blvd & SW Barnes Rd

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB	SB
Directions Served	L	T	T	L	L	T	TR	L	L	T	R	L
Maximum Queue (ft)	60	293	253	199	225	228	261	184	206	319	235	500
Average Queue (ft)	17	184	165	105	118	90	120	103	101	240	167	238
95th Queue (ft)	48	260	242	169	185	173	215	162	165	362	299	587
Link Distance (ft)		1390	1390			486	486	237	237	237		
Upstream Blk Time (%)									0	18	1	
Queuing Penalty (veh)									0	56	0	
Storage Bay Dist (ft)	320			315	315						135	375
Storage Blk Time (%)		0	0	0	0					37	6	
Queuing Penalty (veh)		0	0	0	0					101	22	

Intersection: 10: SW Cedar Hills Blvd & SW Barnes Rd

Movement	SB
Directions Served	TR
Maximum Queue (ft)	1192
Average Queue (ft)	747
95th Queue (ft)	1413
Link Distance (ft)	1973
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	43
Queuing Penalty (veh)	39

Intersection: 15: SW Cedar Hills Blvd & US 26 WB On Ramp

Movement	NB	NB	SB	SB	SB
Directions Served	T	T	T	TR	R
Maximum Queue (ft)	120	174	170	191	116
Average Queue (ft)	10	57	28	41	8
95th Queue (ft)	55	173	100	137	67
Link Distance (ft)	103	103	237	237	237
Upstream Blk Time (%)	0	12	0	0	
Queuing Penalty (veh)	2	58	0	0	
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 20: SW Cedar Hills Blvd & US 26 WB Off Ramp

Movement	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	L	R	T	T	T	T
Maximum Queue (ft)	262	221	78	101	118	173	181
Average Queue (ft)	121	70	8	65	90	149	147
95th Queue (ft)	196	155	62	113	115	197	194
Link Distance (ft)	1118	1118	1118	40	40	103	103
Upstream Blk Time (%)				14	34	13	14
Queuing Penalty (veh)				50	126	83	90
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 25: SW Cedar Hills Blvd

Movement	NB	NB	SB	SB
Directions Served	T	TR	T	T
Maximum Queue (ft)	245	364	13	14
Average Queue (ft)	50	150	1	0
95th Queue (ft)	168	319	12	0
Link Distance (ft)	491	491	40	40
Upstream Blk Time (%)		0	0	0
Queuing Penalty (veh)		0	2	1
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 30: SW Cedar Hills Blvd & US 26 EB Off Ramp/US 26 EB On Ramp

Movement	EB	EB	NB	NB	SB	SB	SB
Directions Served	LT	R	T	TR	L	T	T
Maximum Queue (ft)	665	810	165	186	379	428	426
Average Queue (ft)	254	442	124	150	231	211	214
95th Queue (ft)	767	983	184	188	361	370	375
Link Distance (ft)	1074	1074	136	136		491	491
Upstream Blk Time (%)	7	8	6	15		1	0
Queuing Penalty (veh)	0	0	25	64		5	3
Storage Bay Dist (ft)					375		
Storage Blk Time (%)					1	1	
Queuing Penalty (veh)					7	3	

Intersection: 40: SW Cedar Hills Blvd & SW Butner Rd

Movement	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	T	R	L	T	TR
Maximum Queue (ft)	374	104	50	50	226	278	26	129	183	165
Average Queue (ft)	194	25	35	15	99	148	6	87	134	148
95th Queue (ft)	314	77	58	43	195	241	22	136	173	174
Link Distance (ft)	914	933			1040	1040			136	136
Upstream Blk Time (%)								1	12	26
Queuing Penalty (veh)								0	97	203
Storage Bay Dist (ft)			25	225			300	60		
Storage Blk Time (%)		23	9		0	0		42	28	
Queuing Penalty (veh)		16	2		0	0		270	36	

Intersection: 50: Town Square West Access & SW Barnes Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB
Directions Served	T	T	R	L	T	T	L	L	R
Maximum Queue (ft)	84	104	31	33	115	98	47	51	30
Average Queue (ft)	16	21	4	2	23	19	12	13	4
95th Queue (ft)	56	73	19	15	72	65	37	39	18
Link Distance (ft)	486	486			542	542		291	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)			240	135			155		155
Storage Blk Time (%)					0				
Queuing Penalty (veh)					0				

Intersection: 60: Town Square East Access/SW Valeria View Dr & SW Barnes Rd

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	T	R	L	TR	L	T
Maximum Queue (ft)	88	220	254	16	46	194	181	54	43	52	287	104
Average Queue (ft)	32	72	78	3	12	78	62	18	10	14	161	11
95th Queue (ft)	72	176	185	12	35	158	138	45	35	41	255	66
Link Distance (ft)		542	542			1048	1048		455	455		704
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	250			165	100			565			250	
Storage Blk Time (%)		0	2			4					1	
Queuing Penalty (veh)		0	0			1					2	

Intersection: 60: Town Square East Access/SW Valeria View Dr & SW Barnes Rd

Movement	SB
Directions Served	R
Maximum Queue (ft)	139
Average Queue (ft)	60
95th Queue (ft)	107
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	250
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 70: OR 217 & SW Barnes Rd

Movement	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	LT	R	T	T	L	T	T
Maximum Queue (ft)	318	356	289	168	132	296	47	88
Average Queue (ft)	142	191	29	90	65	126	14	38
95th Queue (ft)	250	313	172	141	114	230	38	80
Link Distance (ft)	495	495		868	868	437	437	
Upstream Blk Time (%)						0		
Queuing Penalty (veh)						0		
Storage Bay Dist (ft)			240					300
Storage Blk Time (%)		5						
Queuing Penalty (veh)		7						

Intersection: 80: Baltic Ave & SW Barnes Rd

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	L	T	TR	L	T	TR	L	T	R	L	T
Maximum Queue (ft)	211	296	399	438	184	345	436	140	399	383	77	85
Average Queue (ft)	113	139	188	217	86	161	227	24	240	181	22	35
95th Queue (ft)	179	226	316	344	156	293	373	89	378	310	57	76
Link Distance (ft)			495	495		624	624		564	564		483
Upstream Blk Time (%)				0								
Queuing Penalty (veh)				0								
Storage Bay Dist (ft)	200	200			200			325			75	
Storage Blk Time (%)	0	1	5		0	3			3		1	2
Queuing Penalty (veh)	0	3	20		1	4			1		3	4

Intersection: 80: Baltic Ave & SW Barnes Rd

Movement	SB
Directions Served	R
Maximum Queue (ft)	115
Average Queue (ft)	50
95th Queue (ft)	97
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	200
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 1410

Intersection: 90: SW Barnes Rd

Movement	WB	NB
Directions Served	L	LR
Maximum Queue (ft)	39	35
Average Queue (ft)	9	8
95th Queue (ft)	33	30
Link Distance (ft)		310
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	50	
Storage Blk Time (%)	0	
Queuing Penalty (veh)	0	

Network Summary

Network wide Queuing Penalty: 0

Intersection: 10: SW Cedar Hills Blvd & SW Barnes Rd

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB	SB
Directions Served	L	T	T	L	L	T	TR	L	L	T	R	L
Maximum Queue (ft)	94	269	246	313	463	530	500	308	294	332	237	435
Average Queue (ft)	40	157	139	164	229	329	362	205	232	307	206	109
95th Queue (ft)	85	253	228	263	417	522	536	300	300	332	319	268
Link Distance (ft)		1390	1390			486	486	237	237	237		
Upstream Blk Time (%)						2	5	3	10	29	2	
Queuing Penalty (veh)						19	39	15	50	153	0	
Storage Bay Dist (ft)	320			315	315						220	375
Storage Blk Time (%)		1	1	0	1	18				31	1	
Queuing Penalty (veh)		0	4	1	4	87				114	10	

Intersection: 10: SW Cedar Hills Blvd & SW Barnes Rd

Movement	SB
Directions Served	TR
Maximum Queue (ft)	629
Average Queue (ft)	336
95th Queue (ft)	542
Link Distance (ft)	1563
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	11
Queuing Penalty (veh)	9

Intersection: 15: SW Cedar Hills Blvd & US 26 WB On Ramp

Movement	NB	NB	SB	SB	SB
Directions Served	T	T	T	TR	R
Maximum Queue (ft)	159	206	241	284	228
Average Queue (ft)	53	160	27	42	16
95th Queue (ft)	143	226	122	181	107
Link Distance (ft)	103	103	237	237	237
Upstream Blk Time (%)	2	39	0	0	0
Queuing Penalty (veh)	18	308	0	2	1
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 20: SW Cedar Hills Blvd & US 26 WB Off Ramp

Movement	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	L	R	T	T	T	T
Maximum Queue (ft)	199	190	398	115	120	180	184
Average Queue (ft)	100	60	161	93	94	117	123
95th Queue (ft)	160	129	387	106	106	186	188
Link Distance (ft)	1118	1118	1118	40	40	103	103
Upstream Blk Time (%)				34	55	6	7
Queuing Penalty (veh)				208	335	39	44
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 25: SW Cedar Hills Blvd

Movement	NB	NB	SB	SB
Directions Served	T	TR	T	T
Maximum Queue (ft)	527	526	38	14
Average Queue (ft)	364	398	7	1
95th Queue (ft)	613	606	47	9
Link Distance (ft)	491	491	40	40
Upstream Blk Time (%)	4	6	2	0
Queuing Penalty (veh)	27	39	14	0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 30: SW Cedar Hills Blvd & US 26 EB Off Ramp/US 26 EB On Ramp

Movement	EB	EB	NB	NB	SB	SB	SB
Directions Served	LT	R	T	TR	L	T	T
Maximum Queue (ft)	254	328	167	187	378	474	440
Average Queue (ft)	147	117	116	143	278	236	231
95th Queue (ft)	240	260	168	190	426	463	424
Link Distance (ft)	1074	1074	136	136		491	491
Upstream Blk Time (%)			5	18		3	0
Queuing Penalty (veh)			37	133		23	3
Storage Bay Dist (ft)					375		
Storage Blk Time (%)					10	0	
Queuing Penalty (veh)					65	1	

Intersection: 40: SW Cedar Hills Blvd & SW Butner Rd

Movement	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	T	R	L	T	TR
Maximum Queue (ft)	891	336	64	274	759	759	270	129	181	192
Average Queue (ft)	591	140	47	92	458	482	37	68	133	160
95th Queue (ft)	1010	305	60	258	751	758	221	128	197	223
Link Distance (ft)	929	933			1040	1040			136	136
Upstream Blk Time (%)	5							1	7	21
Queuing Penalty (veh)	0							0	52	163
Storage Bay Dist (ft)			25	225			300	60		
Storage Blk Time (%)		44	36		45	48		20	25	
Queuing Penalty (veh)		70	27		18	7		121	21	

Intersection: 50: Town Square West Access & SW Barnes Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB
Directions Served	T	T	R	L	T	T	L	L	R
Maximum Queue (ft)	172	158	50	152	379	398	125	162	40
Average Queue (ft)	45	45	8	24	146	137	41	71	17
95th Queue (ft)	122	111	32	82	334	324	98	138	37
Link Distance (ft)	486	486			542	542		291	
Upstream Blk Time (%)					0	0			
Queuing Penalty (veh)					0	0			
Storage Bay Dist (ft)			240	135			155		155
Storage Blk Time (%)		0			8		0	1	
Queuing Penalty (veh)		0			3		0	2	

Intersection: 60: Town Square East Access/SW Valeria View Dr & SW Barnes Rd

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	T	R	L	TR	L	T
Maximum Queue (ft)	229	148	143	15	199	392	361	108	56	75	129	153
Average Queue (ft)	105	35	48	2	35	196	182	45	17	21	53	88
95th Queue (ft)	184	99	112	9	122	356	334	87	46	54	104	140
Link Distance (ft)		542	542			1048	1048		455	455		704
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	250			165	100			565			250	
Storage Blk Time (%)	0		0		0	19						
Queuing Penalty (veh)	1		0		0	11						

Intersection: 60: Town Square East Access/SW Valeria View Dr & SW Barnes Rd

Movement	SB
Directions Served	R
Maximum Queue (ft)	54
Average Queue (ft)	16
95th Queue (ft)	41
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	250
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 70: OR 217 & SW Barnes Rd

Movement	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	LT	R	T	T	L	T	T
Maximum Queue (ft)	533	549	290	348	286	313	69	114
Average Queue (ft)	296	365	163	205	175	149	13	34
95th Queue (ft)	479	542	399	299	269	256	43	80
Link Distance (ft)	545	545		879	879	417	417	
Upstream Blk Time (%)	0	0						
Queuing Penalty (veh)	0	3						
Storage Bay Dist (ft)			240					300
Storage Blk Time (%)		23	0		1			
Queuing Penalty (veh)		80	0		5			

Intersection: 80: Baltic Ave & SW Barnes Rd

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	L	T	TR	L	T	TR	L	T	R	L	T
Maximum Queue (ft)	87	105	270	331	300	826	841	157	146	206	159	455
Average Queue (ft)	22	51	144	175	266	446	460	72	60	85	54	151
95th Queue (ft)	64	87	238	274	347	868	859	131	115	158	124	310
Link Distance (ft)			545	545		3582	3582		564	564		483
Upstream Blk Time (%)												1
Queuing Penalty (veh)												0
Storage Bay Dist (ft)	200	200			200			325			75	
Storage Blk Time (%)			2		43	9					6	33
Queuing Penalty (veh)			1		255	36					37	137

Intersection: 80: Baltic Ave & SW Barnes Rd

Movement	SB
Directions Served	R
Maximum Queue (ft)	225
Average Queue (ft)	149
95th Queue (ft)	235
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	200
Storage Blk Time (%)	3
Queuing Penalty (veh)	8

Network Summary

Network wide Queuing Penalty: 2860

Intersection: 90: SW Barnes Rd

Movement	WB	NB
Directions Served	L	LR
Maximum Queue (ft)	39	60
Average Queue (ft)	17	17
95th Queue (ft)	42	46
Link Distance (ft)		310
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	50	
Storage Blk Time (%)	0	
Queuing Penalty (veh)	2	

Network Summary

Network wide Queuing Penalty: 2

APPENDIX F –

Traffic and Parking Design Characteristics Report

Life Time Fitness Centers

TRAFFIC & PARKING DESIGN CHARACTERISTICS

TRIP AND PARKING GENERATION RATES FOR LIFE TIME FITNESS CENTERS

Prepared for

Life Time Fitness Centers, Inc.
Eden Prairie, Minnesota

Prepared by

TRC Engineers, Inc.
Hawthorne, New York

November 2007
Project 52703

TABLE OF CONTENTS

SECTION	DESCRIPTION	PAGE
SECTION 1 - INTRODUCTION		**1**
1.0	BACKGROUND	1
1.1	PROGRAM AND PURPOSE	2
1.2	LTF SURVEY LOCATIONS	3
1.3	DESCRIPTION OF SURVEYS	9
SECTION 2 – TRIP GENERATION METHODOLOGY		**11**
2.0	CURRENT SOURCE DATA	11
2.1	TRIP CATAGORIES	11
2.2	SURVEY SITE LOCATIONS AND SIZES	13
2.3	DATA COLLECTION	14
2.4	ANALYSIS	16
2.5	RESULTS	17
SECTION 3 – COMPARISON TO PUBLISHED RATES		**27**
3.0	TRIP GENERATION COMPARISON	27
SECTION 4 – SEASONAL VARIATIONS		**29**
4.0	MEMBER CHECK-IN SURVEYS	29
SECTION 5 – DESIGN PARKING RATIOS		**36**
5.0	PARKING SURVEYS	36
5.1	SURVEY RESULTS	37
SECTION 6 – RECOMMENDED PEAK HOUR DESIGN RATES		**39**
SECTION 7 – TRIP RATES BASED ON MEMBERSHIP		**40**

SECTION 1 - INTRODUCTION

1.0 BACKGROUND

Life Time Fitness Centers (LTF) has retained TRC Engineers, Inc. to develop a set of Traffic Design Standards and Parking Ratios specific to their unique type of land use. Life Time and TRC have recognized that such a set of standards is necessary in support of future applications for new Centers throughout the Country.

Most local municipalities are concerned about the potential traffic impacts on their roadways, and have required Life Time to provide impact studies to identify possible impacts and – more importantly – highway or operational improvements needed to mitigate such impacts. It is for these impact studies that data specific to Life Time Fitness Centers will be most valuable.

Until now, applications for approvals by Life Time Fitness submitted to reviewing agencies have relied on traffic data published by the Institute of Transportation Engineers (ITE) in their report titled "Trip Generation" (7th Edition - 2003), which contains the trip making characteristics of land uses such as Athletic Club (ITE Code 493) and Health/Fitness Club (ITE Code 492). A close review of these ITE land uses indicates that their similarity to Life Time Fitness Centers may be in name only, and that there are significant differences (largely size and membership characteristics) between the ITE data samples and Life Time facilities. Life Time Fitness Centers are larger in floor area than the ITE land uses, and membership levels at LTF are usually significantly higher. LTF Centers also provide other amenities and sports features not typically found in the

ITE surveyed fitness and athletic clubs. These features are unique to LTF Centers, and now that there are a substantial number of them in the United States, together they can be used to develop traffic and parking characteristics unique to Life Time Fitness.

In addition, now that the site specific data have been collected, the resulting standards will be submitted to the Institute of Transportation Engineers to be reviewed, accepted and, ultimately published in a future edition of "Trip Generation." Other reviewing agencies, such as the New Jersey Department of Transportation (and possibly other State and County departments) also will receive the data and apply the various ratios to their reviews of proposed LTF Centers.

1.1 PROGRAM AND PURPOSE

In order to develop the site specific traffic and parking standards, TRC has conducted traffic counts, annual membership sign-in review (seasonal variations), Pass-by Data Interviews and Parking Accumulation Surveys at five (5) Life Time Fitness Centers located in Illinois, Michigan, Arizona and Texas during the months of February, March and April of 2007. The locations of the subject LTF facilities and aerial photos of their immediate surroundings are shown in Figures 1 through 5 in Appendix A of this report.

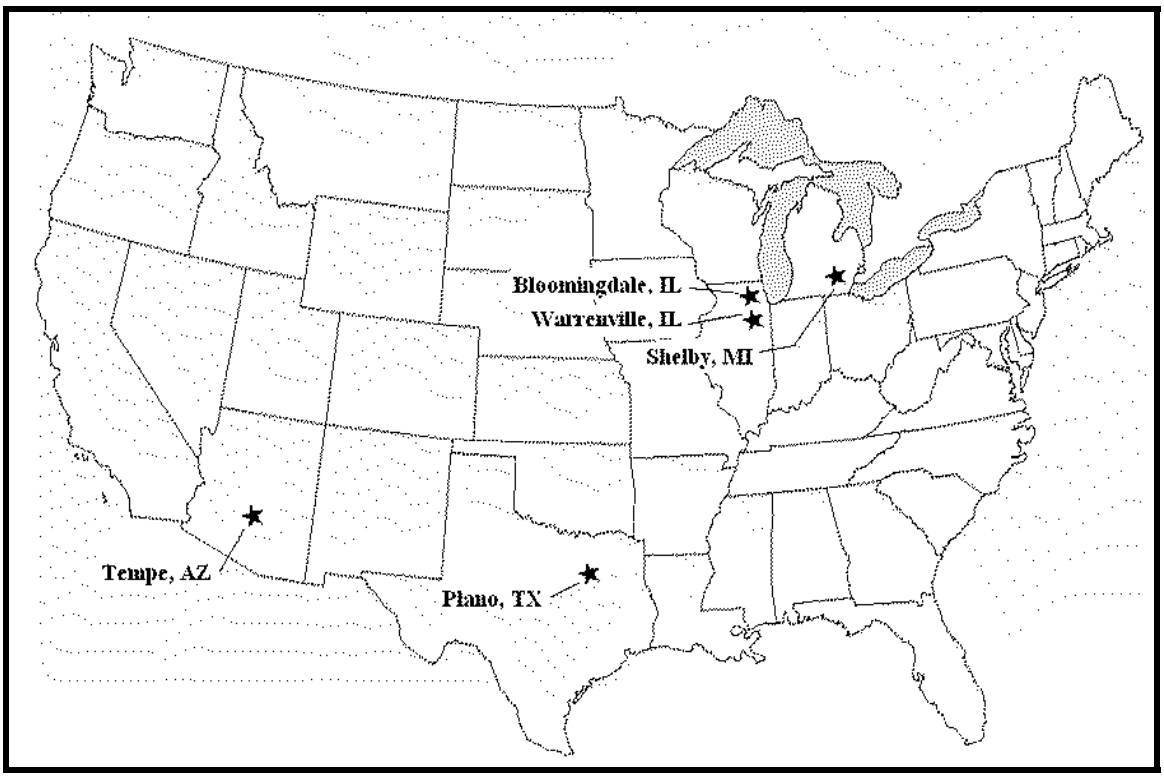
These locations were chosen because they have reached or are close to full membership levels, have been in operation for more than a year in their respective communities and are in four separate States, representing three different regions in the United States. In addition, each has well-defined points of access – driveways that can be observed and

allow for counting of entering and exiting traffic, and observable parking patterns.

This Study has been prepared to develop uniform, representative Peak Hour trip and Parking Ratios that can be used in applications for approvals of new LTF Centers across the United States. It is based on membership data received from the LTF managers, observations and data collected by TRC, as well as TRC's past experience in performing similar studies on behalf of the Institute of Transportation Engineers (ITE) and the International Council of Shopping Centers (ICSC).

1.2 LTF SURVEY LOCATIONS

After a careful review of the various LTF facilities throughout the United States, the following LTF Centers shown below were chosen to conduct this Study, and following is a description of each facility:



a. Warrenville, Illinois – A 114,933 square foot (sf) facility with one full-movement driveway and one right-exit driveway on W. Diehl Road. This LTF Center opened in January of 1993. The Warrenville Center has the following amenities:

Exercise Facilities	**Aquatics Facilities**	**Gymnasium**
Cardio Equipment Resistance Training Free Weights	Outdoor Swimming Pool Indoor Swimming Pools Saunas Water Slides	Basketball Courts Racquetball Courts Indoor Climbing Wall Indoor Volleyball
Convenience	**Child-Friendly Facilities**	**Additional Services**
Free Lockers & Towels Plasma Big-screen TVs	Play Maze Junior Sport Court eMac® Computer Center	Athletic Leagues & Instruction Personal Training Massage LifeCafe (Cafe & Nutrition Store) LifeSpa & Salon

b. Bloomingdale, Illinois – A 108,980 sf facility with three full-movement driveways on Scott Drive. This LTF facility opened in February 2001. The Bloomingdale Center has the following amenities, and is pictured below:

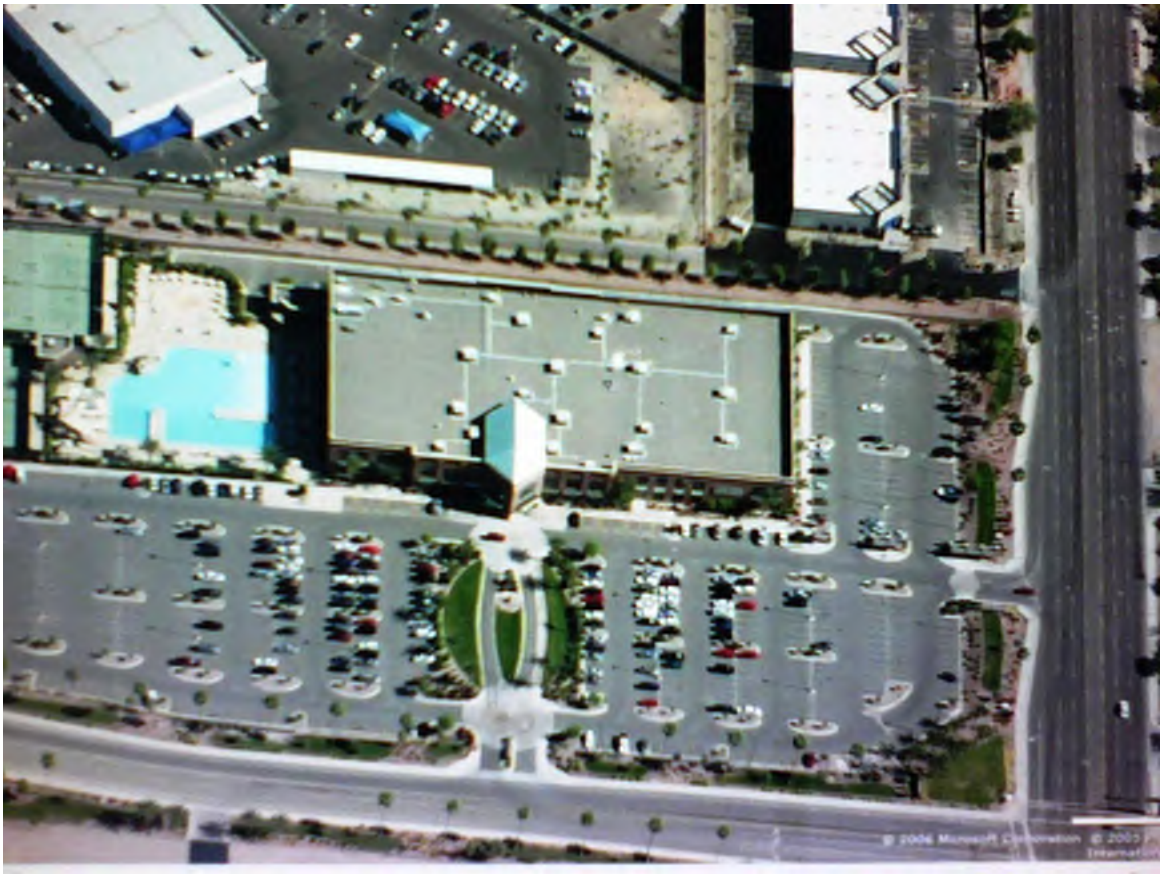
Exercise Facilities	**Aquatics Facilities**	**Gymnasium**
Cardio Equipment Resistance Training Free Weights	Outdoor Swimming Pool Indoor Swimming Pools Saunas Water Slides	Basketball Courts Racquetball Courts Squash Courts Indoor Climbing Wall Indoor Volleyball
Convenience	**Child-Friendly Facilities**	**Additional Services**
Free Lockers & Towels Plasma Big-screen TVs	Play Maze Junior Sport Court eMac® Computer Center	Athletic Leagues & Instruction Personal Training Massage LifeCafe (Cafe & Nutrition Store) LifeSpa & Salon

c. Shelby, Michigan – A 101,000 sf facility with two full-movement driveways along Lakeside Boulevard North. This LTF facility opened in March 2000. The Shelby Center has the following amenities, and is pictured below:

Exercise Facilities	**Aquatics Facilities**	**Gymnasium**
Cardio Equipment Resistance Training Free Weights	Outdoor Swimming Pool Indoor Swimming Pools Saunas Water Slides	Basketball Courts Racquetball Courts Squash Courts Indoor Climbing Wall Indoor Volleyball
Convenience	**Child-Friendly Facilities**	**Additional Services**
Free Lockers & Towels Plasma Big-screen TVs	Play Maze Junior Sport Court eMac® Computer Center	Athletic Leagues & Instruction Personal Training Massage LifeCafe (Cafe & Nutrition Store) LifeSpa & Salon

d. Tempe, Arizona – A 109,000 sf facility with a full-movement driveway on South Priest Drive and two additional entrance/exits on West Ruby Drive. The Tempe LTF opened in April 2003. The Tempe Center has the following amenities, and is pictured below:

Exercise Facilities	**Aquatics Facilities**	**Gymnasium**
Cardio Equipment Resistance Training Free Weights	Outdoor Swimming Pool Indoor Swimming Pools Saunas Water Slides	Basketball Courts Squash Courts Indoor Climbing Wall Indoor Volleyball
Convenience	**Child-Friendly Facilities**	**Additional Services**
Free Lockers & Towels Plasma Big-screen TVs	Play Maze Junior Sport Court eMac® Computer Center	Athletic Leagues & Instruction Tennis Facilities Personal Training Massage - Tanning LifeCafe (Café/Nutrition Store) LifeSpa & Salon



e. Plano, Texas – A 108,890 sf facility with full-movement driveways on Legacy Drive and Ohio Drive and a right-in/right-out driveway on Preston Road. The Plano LTF opened in November 2003. The Plano Center has the following amenities, and is pictured below:

Exercise Facilities	**Aquatics Facilities**	**Gymnasium**
Cardio Equipment Resistance Training Free Weights	Outdoor Swimming Pool Indoor Swimming Pools Saunas Water Slides	Basketball Courts Squash Courts Indoor Climbing Wall Indoor Volleyball
Convenience	**Child-Friendly Facilities**	**Additional Services**
Free Lockers & Towels Plasma Big-screen TVs	Play Maze Junior Sport Court eMac® Computer Center	Athletic Leagues & Instruction Tennis Facilities Personal Training Massage LifeCafe (Café/Nutrition Store) LifeSpa & Salon

1.3 DESCRIPTION OF SURVEYS

The surveys needed to develop specific trip characteristics for Life Time Fitness Centers fell into three categories.

a. Trip Generation – These surveys were traffic counting programs conducted by representatives or sub-contractors of TRC. Vehicle turning movement counts were obtained at each site access manually during the peak hour time periods of both the Center and the adjacent street. This was required in order to identify the distinction between the busiest activity times for the Centers and the typical commuter peaks (i.e. rush hours) of the adjacent streets. In addition to the manual counts, machine counts were conducted over the course of several days to over a week in order to collect a continuous stream of data representative of on-going activity at each center. The vehicle volume counts were carefully examined and summarized in table format in preparation of submittal to ITE and NJDOT.

   Pass-By trip composition also was part of the Trip Generation Surveys. TRC reviewed interview surveys conducted by Facility Managers, and used this information to determine the Trip Composition Percentages (Pass-By Trip, Diverted Link Trip and Primary Trip percentages) at each of the facilities. The interviewers used a questionnaire originally prepared by the Institute of Transportation Engineers and modified by TRC to better reflect the typical Life Time Fitness Center member's travel experience. The surveys also incorporated information on travel distance.

b. Seasonal Variation – This survey was a compilation of sign-in data at each Center over the course of one to two years, resulting in the development of a pattern of the level of membership use on a monthly basis.

c. Parking – The machine count information was used to track the total Parking Accumulation in the lots serving each LTF Center. By calculating the net change in vehicles entering and exiting the site on an hourly basis, TRC was able to determine the hourly and Peak Parking Demand during each weekday and on Saturday and Sunday.

SECTION 2 – TRIP GENERATION METHODOLOGY

2.0 CURRENT SOURCE DATA

The traffic engineering guidelines for estimating trip generation for a proposed facility have been established primarily in the Institute of Transportation Engineers (ITE) publication, "Trip Generation." The recommended procedures utilize actual traffic surveys of existing, exact or very similar type facilities to estimate future traffic projections. The latest edition of "Trip Generation" is the Seventh Edition, published in 2003.

"Trip Generation" has data for two Land Uses that could be used to represent Life Time Fitness facilities; however, upon closer examination it appears that the current ITE data may not be a good match for new LTF facilities. The two ITE Land Uses - Health/Fitness Club (Code 492) and Athletic Club (Code 493) – contain data based on a very limited number of studies (three or fewer performed for each), and have sample sites with Gross Floor Areas of less than 50,000 square feet. For a facility of the nature and size of a LTF Center, the current ITE data base would not provide a reasonably accurate determination of the potential trips to be generated by a proposed Life Time Fitness Center.

2.1 TRIP CATAGORIES

The trip generation rate is the number of vehicle trips per 1,000 square feet of Gross Floor Area. A "trip" is defined simply as a vehicle entering the site – a vehicle exiting

the site is counted as another, separate trip. Trips are determined by multiplying the trip generation rate by the Gross Floor Area. Trip making can be broken down into the following three categories:

- Primary Trips
- Pass-By Trips
- Diverted Link Trips

These trips are defined as follows:

Primary Trips are trips made for the specific purpose of traveling to the location. The destination is the primary reason for the trip. Relative to a Life Time Fitness Center, a member making a primary trip will drive to the site, then immediately return to his/her point of origin upon leaving the facility. For example, a home to LTF Center, then back to home trip constitutes a primary trip.

Not all vehicles generated by a site are new trips on the adjacent roadway system. A significant percentage already may be traveling on the adjacent street as part of the existing traffic flow. A trip to an LTF Center would be made as an intermediate stop on the way to a different primary destination. These trips are called **Pass-By Trips** and do not require a diversion from another roadway as they would have "passed by" the location anyway. For example, a person who leaves work to go home, but first stops at an LTF Center located along the travel route - without diversion - makes a Pass-By Trip. TRC's experience has shown, in general, that a fitness center or exercise club located in an office park exhibits a significant level of Pass-by Trips, with many members also part of the daytime office population.

Another form of pass-by trip is the **Diverted Link Trip**. These trips are attracted from the roadway system in the vicinity of the site, but require a diversion from one roadway to another roadway to gain access to the site – which is not located along the travel route. These roadways can include streets and freeways adjacent to or near the site but with no driveways that provide direct access. For example, a person who leaves work destined for home via a major arterial, first turns off the arterial, travels on side streets to reach an LTF Center, exercises then returns to the arterial to complete the trip home, makes a Diverted Link Trip.

2.2 SURVEY SITE LOCATIONS AND SIZES

The five locations surveyed are located in Illinois, Michigan, Arizona and Texas and are typical examples of free-standing operations with well defined driveways and no other shared uses within the overall parking area. Also, the facilities are all approximately the same size, ranging from 101,000 square feet to just under 115,000 square feet of floor area.

The following is a list of the surveyed LTF facilities and the approximate floor area of each:

TABLE 2.2-1		
LOCATION*		**FLOOR AREA**
1.	Warrenville, Illinois 28151 W. Diehl Road	114,933 sq. ft.
2.	Bloomingdale, Illinois 455 Scott Drive	108,980 sq. ft
3.	Shelby, Michigan 14843 Lakeside Blvd. North	101,000 sq. ft
4.	Tempe, Arizona 1616 W. Ruby Drive	109,000 sq. ft
5.	Plano, Texas 7100 Preston Road	108,890 sq. ft

*See Appendix A for Site Location Maps.

2.3 DATA COLLECTION

For each of the five LTF Centers listed above, the survey included the gathering of traffic volume counts at 15-minute intervals at all driveways to each LTF Center, as well as along the adjacent streets serving the facilities. In addition, interview surveys were conducted between the periods of 6:00 to 9:00 AM and 4:00 PM to 7:00 PM on two weekdays, and from 9:00 AM to 12:00 PM on a Saturday in accordance with the Pass-By Trip and Diverted Link Trip Questionnaire form as prepared by ITE and TRC (a sample Questionnaire is contained in Appendix B). The travel distance for the surveyed patrons also was recorded. The time of the member interviews was recorded to allow isolation of Peak Hour interview results.

To collect the necessary data, TRC performed the following steps in conjunction with the methodology described in the ITE Trip Generation manual:

A. Traffic counts were conducted by representatives of TRC at the five locations as follows:

TABLE 2.3-1			
DATES OF VEHICLE COUNT PROGRAM			
	TYPE OF COUNT		
LOCATION	MACHINE	MANUAL WEEKDAY	MANUAL SATURDAY
1. Warrenville, IL	2/9/07 to 2/18/07	2/15, 2/20, 2/21	2/10, 2/17
2. Bloomingdale, IL	2/17/07 to 2/24/07	2/27, 2/28, 3/1	2/24, 3/3
3. Shelby, MI	2/24/07 to 3/3/07	2/27, 2/28, 3/1	2/24, 3/3
4. Tempe, AZ	4/14/07 to 4/21/07	4/17, 4/18, 4/19	4/14, 4/21
5. Plano, TX	2/17/07 to 2/24/07	2/20, 2/21, 2/22	2/17, 2/24

Machine counts were collected at each site entrance and manual traffic counts were performed at 15-minute intervals at each LTF driveway (entrance and exit) and along the adjacent streets in order to identify the Peak Hour of the Adjacent Street as well as the Peak Hour of the Generator. In the case of Warrenville, continuous machine count data was interrupted by a snow storm. From Monday, February 12 through Wednesday, February 14 the data collected was essentially unusable. However, the remaining, usable weekday counts at Warrenville were acceptable. Together with weekday machine counts at Bloomingdale - the other Illinois site – and the remaining study sites, the daily activity trends, and trip and parking rates could be easily established. Filling in the missing days would not change the results of the rate study.

B. Representatives of Life Time Fitness Centers performed Interview Surveys at each facility between the hours of 6:00 AM and 9:00 AM and 4:00 PM and 7:00 PM on two weekdays, and from 10:00 AM to 1:00 PM on a Saturday. The time of the interviews was recorded to allow isolation of Peak Hour interview results.

Those interviewed were selected at random. These interviews were conducted to determine the Trip Type Composition Percentages and to determine the distance traveled to each of the LTF facilities.

2.4 ANALYSIS

The driveway volume data was analyzed to identify the following nine data groups:

1. AM Weekday Peak Hour of the Adjacent Street
2. PM Weekday Peak Hour of the Adjacent Street
3. AM Weekday Peak Hour of the Generator
4. PM Weekday Peak Hour of the Generator
5. Saturday Peak Hour of the Generator
6. Sunday Peak Hour of the Generator
7. Weekday Total Trips
8. Saturday Total Trips
9. Sunday Total trips

Hourly Trip Generation Rates for each Center and for the Average of the five surveys were determined by dividing the entering and exiting volumes by the floor areas. The data were compiled into summary tables.

The Interview Surveys were analyzed and also compiled into summary tables in the following format:

A. Primary, Pass-By and Diverted Link Trips Percentages were compiled from the surveys during the Weekday Peak AM, Peak PM and Saturday Peak hours and correlated with the adjacent street traffic.

B. The LTF Travel Distance was determined and categorized into ranges of a 5-mile radius, 5 to 10-mile radius, and a trip of 10 miles or more.

2.5 RESULTS

The vehicle count survey data for each of the five LTF Centers was compiled to determine the following:

A. Peak AM, Peak PM, Peak Saturday and Peak Sunday Hourly Trip Generation Rates; Weekday, Saturday and Sunday Daily Trip Generation Rates.

B. Trip Composition Percentages (Primary Trip, Pass-By Trip/Diverted Linked Trip,)

C. Travel Distances

The following is a detailed description of the results of each of these categories:

A. TRIP GENERATION RATES

The Trip Generation Rates (Hourly – HTGR and Daily - DTGR) for the previously

described nine data periods were compiled for each Center for each survey date, for a February/March/April average, and for an overall average. This data is summarized in Tables 2.5-1 through 9.

TABLE 2.5-1
TRIP GENERATION RATE SUMMARY
WEEKDAY AM PEAK HOUR OF THE ADJACENT STREET

Location	Size (1,000sf)	Time	Enter		Exit		Total	
			Trips	HTGR	Trips	HTGR	Trips	HTGR
Warrenville, IL	114.933	7:30	159	1.38	165	1.43	324	2.81
Bloomingdale, IL	108.980	7:45	136	1.25	77	0.71	213	1.96
Shelby, MI	101.000	8:00	177	1.75	94	0.93	293	2.68
Tempe, AZ	109.000	7:00	142	1.30	128	1.18	270	2.48
Plano, TX	108.890	7:30	129	1.18	127	1.17	256	2.35
Average			**149**	**1.37**	**118**	**1.08**	**267**	**2.46**

HTGR: Hourly Trip Generation Rates per 1,000 square feet of Floor Area.

TABLE 2.5-2
TRIP GENERATION RATE SUMMARY
WEEKDAY PM PEAK HOUR OF THE ADJACENT STREET

Location	Size (1,000sf)	Time	Enter		Exit		Total	
			Trips	HTGR	Trips	HTGR	Trips	HTGR
Warrenville, IL	114.933	5:00	418	3.64	254	2.21	672	5.85
Bloomingdale, IL	108.980	5:00	257	2.36	193	1.77	450	4.13
Shelby, MI	101.000	4:45	318	3.15	202	2.00	520	5.15
Tempe, AZ	109.000	4:15	256	2.35	227	2.08	483	4.43
Plano, TX	108.890	5:00	149	1.37	89	0.82	238	2.19
Average			**280**	**2.57**	**193**	**1.78**	**473**	**4.35**

HTGR: Hourly Trip Generation Rates per 1,000 square feet of Floor Area.

TABLE 2.5-3
TRIP GENERATION RATE SUMMARY
WEEKDAY AM PEAK HOUR OF THE GENERATOR

Location	Size (1,000sf)	Time	Enter		Exit		Total	
			Trips	HTGR	Trips	HTGR	Trips	HTGR
Warrenville, IL	114.933	8:45	289	2.51	204	1.77	493	4.29
Bloomingdale, IL	108.980	8:00	156	1.43	97	0.89	253	2.32
Shelby, MI	101.000	8:45	229	2.27	135	1.34	364	3.60
Tempe, AZ	109.000	7:45	226	2.07	198	1.82	424	3.89
Plano, TX	108.890	7:30	258	2.37	198	1.82	456	4.19
Average			**232**	**2.13**	**166**	**1.53**	**398**	**3.66**

HTGR: Hourly Trip Generation Rates per 1,000 square feet of Floor Area.

TABLE 2.5-4
TRIP GENERATION RATE SUMMARY
WEEKDAY PM PEAK HOUR OF THE GENERATOR

Location	Size (1,000sf)	Time	Enter		Exit		Total	
			Trips	HTGR	Trips	HTGR	Trips	HTGR
Warrenville, IL	114.933	5:15	377	3.28	289	2.51	666	5.79
Bloomingdale, IL	108.980	4:30	205	1.88	191	1.75	396	3.63
Shelby, MI	101.000	5:45	337	3.34	309	3.06	646	6.40
Tempe, AZ	109.000	5:00	287	2.63	262	2.40	549	5.04
Plano, TX	108.890	5:00	349	3.21	245	2.25	594	5.46
Average			**311**	**2.87**	**259**	**2.40**	**570**	**5.26**

HTGR: Hourly Trip Generation Rates per 1,000 square feet of Floor Area.

TABLE 2.5-5
TRIP GENERATION RATE SUMMARY
SATURDAY PEAK HOUR OF THE GENERATOR

Location	Size (1,000sf)	Time	Enter		Exit		Total	
			Trips	HTGR	Trips	HTGR	Trips	HTGR
Warrenville, IL	114.933	10:00	384	3.34	307	2.67	691	6.01
Bloomingdale,IL*	108.980	10:15	192	1.76	226	2.07	418	3.84
Shelby, MI	101.000	10:00	279	2.76	329	3.26	608	6.02
Tempe, AZ	109.000	10:00	196	1.80	250	2.29	446	4.08
Plano, TX	108.890	10:15	323	2.97	313	2.87	636	5.84
Average			**275**	**2.53**	**285**	**2.63**	**560**	**5.16**

HTGR: Hourly Trip Generation Rates per 1,000 square feet of Floor Area.
* Saturday Data Partially Extrapolated

TABLE 2.5-6
TRIP GENERATION RATE SUMMARY
SUNDAY PEAK HOUR OF THE GENERATOR

Location	Size (1,000sf)	Time	Enter		Exit		Total	
			Trips	HTGR	Trips	HTGR	Trips	HTGR
Warrenville, IL	114.933	10:00	210	1.83	235	2.04	445	3.87
Bloomingdale, IL	108.980	5:45	242	2.22	188	1.73	430	3.95
Shelby, MI	101.000	4:15	113	1.12	141	1.40	254	2.51
Tempe, AZ	109.000	3:15	163	1.50	171	1.57	334	3.06
Plano, TX	108.890	10:15	229	2.10	205	1.88	343	3.99
Average			**191**	**1.75**	**188**	**1.72**	**379**	**3.48**

HTGR: Hourly Trip Generation Rates per 1,000 square feet of Floor Area.

TABLE 2.5-7
TRIP GENERATION RATE SUMMARY
WEEKDAY TOTAL TRIPS

Location	Size (1,000sf)	Enter		Exit		Total	
		Trips	DTGR	Trips	DTGR	Trips	DTGR
Warrenville, IL	114.933	3,678	32.00	3,680	32.02	7,358	64.02
Bloomingdale, IL	108.980	2,532	23.23	2,569	23.57	5,101	46.81
Shelby, MI	101.000	3,166	30.85	3,316	32.83	6,482	64.18
Tempe, AZ	109.000	3,063	28.10	3,268	29.98	6,331	58.08
Plano, TX	108.890	3,477	31.93	3,460	31.78	6,937	63.71
Average		**3,183**	**29.22**	**3,259**	**30.04**	**6,442**	**59.36**

DTGR: Daily Trip Generation Rates per 1,000 square feet of Floor Area.

TABLE 2.5-8
TRIP GENERATION RATE SUMMARY
SATURDAY TOTAL TRIPS

Location	Size (1,000sf)	Enter		Exit		Total	
		Trips	DTGR	Trips	DTGR	Trips	DTGR
Warrenville, IL	114.933	3,186	27.72	3,162	27.51	6,347	55.23
Bloomingdale, IL*	108.980	2,794	25.64	2,979	25.67	5,591	51.30
Shelby, MI	101.000	2,880	28.51	3,131	31.00	6,010	59.50
Tempe, AZ	109.000	2,244	20.59	2,198	20.17	4,442	40.75
Plano, TX	108.890	2,831	26.00	2,763	25.37	5,594	51.37
Average		**2,787**	**25.69**	**2,810**	**25.94**	**5,597**	**51.64**

DTGR: Daily Trip Generation Rates per 1,000 square feet of Floor Area.
* Saturday Data Partially Extrapolated

TABLE 2.5-9
TRIP GENERATION RATE SUMMARY
SUNDAY TOTAL TRIPS

Location	Size (1,000sf)	Enter		Exit		Total	
		Trips	DTGR	Trips	DTGR	Trips	DTGR
Warrenville, IL	114.933	2,524	21.96	2,550	22.19	5,074	44.15
Bloomingdale, IL	108.980	2,647	24.29	2,678	24.57	5,325	48.86
Shelby, MI	101.000	1,849	18.31	1,864	18.46	3,713	36.76
Tempe, AZ	109.000	1,911	17.53	1,897	17.40	3,808	34.94
Plano, TX	108.890	2,335	21.44	2,321	21.32	4,656	42.76
Average		**2,253**	**20.71**	**2,262**	**20.79**	**4,515**	**41.49**

DTGR: Daily Trip Generation Rates per 1,000 square feet of Floor Area.

Tables 2.5-1 through 9 show the various trip rates for the surveyed LTF Centers at specific time periods and over the course of typical Weekdays, Saturdays and Sundays.

Typically for analysis purposes, it is important to understand the level of trip generation during periods of peak traffic on street adjacent to the project. This is appropriate because the combination of site generated traffic and adjacent street traffic is usually at its peak during these times.

Tables 2.5-1 and 2.5-2 show the hourly trip rates for the AM and PM Peak Hours of the adjacent street. In terms of trips per 1,000 square feet of floor areas, the rates are 2.46 and 4.35 for the AM and PM peaks, respectively. Clearly LTF facilities generate more trips during PM Peak periods.

Tables 2.5-3 and 2.5-4 show the hourly trip rates for the AM and PM Peak Hours of the Generator. In terms of trips per 1,000 square feet of floor area, the trip rates are 3.66 and 5.26 respectively. LTF facilities tend to generate more trips during off-peak periods.

Table 2.5-5 shows the Saturday Peak Hour of the generator, determined to be relatively consistent at 10:00AM. On Saturday and in terms of trips per 1,000 square feet of floor area, the peak generation rate of an LTF facility is at 5.16.

Table 2.5-6 shows the Sunday Peak Hour of the generator, with a peak generation rate of 3.48 trips per 1,000 square feet of floor area.

Tables 2.5-7, 8 and 9 show the resulting Weekday, Saturday and Sunday trip totals, respectively. Note that although the Saturday Peak Hour trip generation is slightly higher than the Weekday PM Peak Hour, the Weekday Daily total is higher than the Saturday total. This is an indication of a pattern of moderate but more consistent activity at the typical LTF Center through the course of a Weekday, while Saturday exhibits a higher activity level but for a smaller portion of the day.

B. TRIP COMPOSITION PERCENTAGES

As previously described, trips can be categorized into three distinct classifications: Primary, Pass-By, and Diverted Link Trips. Primary Trips are comprised of people who return to their point of origin upon leaving the LTF Center. Not all vehicles generated by LTF are new trips to the adjacent roadway system. Interview studies have revealed that a significant number of LTF members are involved in multi-purpose trips, a portion of which are part of the existing flow on the adjacent highway system. These trips are referred to as Pass-By Trips and are not new trips to the adjacent street. In addition, trips comprised of people who deviate from their normal travel routes to visit an LTF Center are referred to as Diverted Link Trips and are new trips to the immediate adjacent street.

The Trip Composition Percentages (the Primary Trip, Pass-By Trip, and Diverted Link Trip percentages) during the Peak AM Hour, Peak PM Hour, and the Peak Saturday Hour were compiled for each Center for each survey date and for an overall average. This data is shown in Table 2.5-10.

TABLE 2.5-10
PRIMARY/DIVERTED LINK/PASS-BY TRIP SUMMARY

Location (Cross-Streets)	Day	Time	Adjacent Traffic	Primary / Diverted Link %	Pass-By %
Warrenville, Illinois (W. Diehl Rd. & Winfield Rd.)	**Weekday**	AM Peak	3128	72.7	27.3
		PM Peak	2562	68.7	31.3
	Saturday	Midday	1517	64.6	35.4
Bloomingdale, Illinois (Scott Dr.)	**Weekday**	AM Peak	136	81.5	18.5
		PM Peak	240	74.6	25.4
	Saturday	Midday	146	77.6	22.4
Shelby, Michigan (Lakeside Blvd. N)	**Weekday**	AM Peak	220	85.5	14.5
		PM Peak	578	79.7	20.3
	Saturday	Midday	744	83.9	16.1
Tempe, Arizona (W Ruby Dr. & S Priest Dr.)	**Weekday**	AM Peak	1607	74.5	25.5
		PM Peak	1736	70.0	30.0
	Saturday	Midday	1442	72.3	27.7
Plano, Texas (Ohio Dr., Legacy Dr., Preston Rd.)	**Weekday**	AM Peak	2187	52.1	47.9
		PM Peak	2311	59.1	40.9
	Saturday	Midday	1646	70.6	29.4

Upon close examination of Table 2.5-10, it is apparent that a key factor in the determination of appropriate Pass-By percentages is the location of the site relative to the type of adjacent roadway and ambient peak hour traffic volumes. The five surveyed LTF sites fall into three location categories:

1. Single Frontage – Low Volume Street: Bloomingdale and Shelby
2. Single or Dual Frontage – At least One High Volume Street: Warrenville and Tempe
3. Multi-Frontage – Multiple High Volume Streets: Plano

Based on these categories, the following Pass-By percentages have been determined:

Category 1	**Weekday AM & PM**	**20.0%**
	Saturday	**20.0%**
Category 2	**Weekday AM & PM**	**29.0%**
	Saturday	**32.0%**
Category 3	**Weekday AM & PM**	**44.0%**
	Saturday	**29.0%**

For weekdays, Pass-by percentages during the Peak Hour ranged from 20% to 44%, depending on the location and adjacent street volumes. On Saturdays, the pass-by percentages during the Peak Hour ranged from 20% to 32%.

C. TRAVEL DISTANCE

As part of the Pass-By Interviews, LTF patrons were asked the distance traveled to each of the LTF Centers. This information was compiled for each Center and for an overall average and is shown in Table 2.5-11.

TABLE 2.5-11
GENERAL LTF TRAVEL SUMMARY
TRAVEL DISTANCE

	0 – 5 Miles	**5 – 10 Miles**	**10+ Miles**	**Total**
LTF Location	**Percent**	**Percent**	**Percent**	**Percent**
Warrenville, IL	41	40	19	100
Bloomingdale, IL	47	30	13	100
Shelby, MI	30	38	32	100
Tempe, AZ	37	45	18	100
Plano, TX	34	50	16	100
Average	**38**	**41**	**21**	

On any part of a trip – primary or pass-by - approximately 80% of Life Time Fitness members travel less than 10 miles to their Centers, while the remaining 20% are traveling more than 10 miles. This is an indication that LTF Centers are typically located in areas with significant levels of either resident or daytime (i.e. workforce) populations. Furthermore, LTF Centers tend to serve a well-defined geographic area – probably not significantly greater than one with a 10-mile radius.

SECTION 3 – COMPARISON TO PUBLISHED RATES

3.0 TRIP GENERATION COMPARISON

Published trip generation data are contained in the ITE reference, "Trip Generation", Seventh Edition for Health/Fitness Clubs (Land Use 492) and Athletic Clubs (Land Use 493). The following Tables compare these published rates to those developed by TRC in this survey, and provides resulting trip volumes based on the average size of the five surveyed sites – 108,560 square feet.

TABLE 3.0-1
LTF AVERAGE BUILDING AREA = 108,560 SF
TIME PERIOD - Peak Hour of the Adjacent Street

ITE Land Use Code	Weekday AM Peak		Weekday PM Peak		Saturday Peak		Sunday Peak	
	HTGR	Trips	HTGR	Trips	HTGR	Trips	HTGR	Trips
492	1.21	131	4.05	440	n/a	n/a	n/a	n/a
493	3.06	332	5.76	625	n/a	n/a	n/a	n/a
LTF	2.46	267	4.35	472				

HTGR: Hourly Trip Generated Rates per 1,000 square feet of Gross Leasable Area.
ITE Land Use Code 492: Health / Fitness Club
ITE Land Use Code 493: Athletic Club

TABLE 3.0-2
LTF AVERAGE BUILDING AREA = 108,560 SF
TIME PERIOD - Peak Hour of the Generator

ITE Land Use Code	Weekday AM Peak		Weekday PM Peak		Saturday Peak		Sunday Peak	
	HTGR	Trips	HTGR	Trips	HTGR	Trips	HTGR	Trips
492	1.41	153	4.06	441	2.60	282	2.47	268
493	3.19	346	5.84	634	3.69	401	3.62	393
LTF	3.66	397	5.26	571	5.16	560	3.48	378

HTGR: Hourly Trip Generated Rates per 1,000 square feet of Gross Leasable Area.
ITE Land Use Code 492: Health / Fitness Club
ITE Land Use Code 493: Athletic Club

As shown in Table 3.0-1, during the peak hour of the adjacent street, LTF Centers generate less traffic than Athletic Clubs and more traffic than Health/Fitness Clubs as established in the ITE reference. Comparative values are not available from ITE for the Peak Hour of the adjacent street on Saturday and Sunday.

Shown in Table 3.0-2 is a comparison of the recent LTF traffic survey Peak Hour of the Generator Rates to the ITE rates for Health/Fitness Clubs and Athletic Clubs. Compared to both ITE Land Uses, LTF Centers generate higher AM and Saturday volumes, and PM and Sunday volumes that are slightly lower than those for the Athletic Club.

SECTION 4 – SEASONAL VARIATIONS

4.0 MEMBER CHECK-IN SURVEYS

Trip generation for the surveyed Life Time Fitness Centers was determined to be seasonal, as proved through reviews of member check-in statistics obtained from various existing Centers. The results of these data are summarized in the following Tables:

TABLE 4.0-1

Warrenville, Illinois

Month	Year	Number of Check-ins
January	2006	37,510
February	2006	29,894
March	2006	30,778
April	2006	23,556
May	2006	26,401
June	2006	26,543
July	2006	26,834
August	2006	25,991
September	2006	23,242
October	2006	25,233
November	2006	26,131
December	2006	24,844
January	2007	28,558
February	2007	23,412
March	2007	25,799
Total Number of Check-ins	**Jan06-Mar07**	**404,726**

TABLE 4.0-2		
Bloomingdale, Illinois		
Month	**Year**	**Number of Check-ins**
January	2006	33,560
February	2006	27,942
March	2006	29,720
April	2006	26,090
May	2006	23,463
June	2006	23,582
July	2006	24,696
August	2006	22,931
September	2006	20,584
October	2006	21,805
November	2006	23,490
December	2006	22,249
January	2007	30,570
February	2007	25,701
March	2007	30,119
Total Number of Check-ins	**Jan06-Mar07**	**386,502**

TABLE 4.0-3		
Shelby, Michigan		
Month	**Year**	**Number of Check-ins**
January	2006	34,625
February	2006	27,074
March	2006	29,984
April	2006	24,277
May	2006	22,430
June	2006	21,893
July	2006	21,935
August	2006	21,145
September	2006	20,595
October	2006	22,482
November	2006	23,112
December	2006	21,729
January	2007	29,003
February	2007	24,524
March	2007	27,515
Total Number of Check-ins	**Jan06-Mar07**	**372,323**

TABLE 4.0-4		
Tempe, Arizona		
Month	**Year**	**Number of Check-ins**
January	2006	30,783
February	2006	25,192
March	2006	26,907
April	2006	27,505
May	2006	27,802
June	2006	27,809
July	2006	27,527
August	2006	30,523
September	2006	25,965
October	2006	23,655
November	2006	22,566
December	2006	20,021
January	2007	26,760
February	2007	25,029
March	2007	26,855
Total Number of Check-ins	**Jan06-Mar07**	**394,899**

TABLE 4.0-5		
Plano, Texas		
Month	**Year**	**Number of Check-ins**
January	2006	38,847
February	2006	30,799
March	2006	32,060
April	2006	30,472
May	2006	30,309
June	2006	29,348
July	2006	31,186
August	2006	31,255
September	2006	27,123
October	2006	25,999
November	2006	25,896
December	2006	24,870
January	2007	31,351
February	2007	28,012
March	2007	29,925
Total Number of Check-ins	**Jan06-Mar07**	**358,165**

TABLE 4.0-6		
All - 12 Month Summary		
Month	**Average Number of Check-ins**	**Percent Avg. Month**
January	32,157	123%
February	26,758	102%
March	28,966	111%
April	26,380	101%
May	26,081	100%
June	25,835	99%
July	26,436	101%
August	26,369	101%
September	23,502	90%
October	23,835	91%
November	24,239	93%
December	22,743	87%
Total	**313,300**	
Avg. Mo.	**26,108**	

Check-in data was collected for the following hours:

- 7-9AM and 4-7PM - Weekdays
- 7AM-1PM and 4PM-7PM - Saturdays

A review of the monthly variation of member check-in indicates that the first three months of the year – January, February and March represent above-average activity. January exhibits the traditional New Year's Resolution "spike" in activity while February and March show activity levels about 10% higher than the typical month, i.e. April through August. (Note: In comparing February to March, the lower February values are due to its having 28 days – three fewer than March. In fact, February's average daily check-in total is similar to that for March.) Activity

during the last four months of the year – September through December can be characterized as below average. From the seasonal variation information, it can be concluded that for most of the year – April through December – Life Time Fitness Centers generate traffic at or below their monthly average. Only January shows a spike in activity, one that rather quickly drops in subsequent months. February and March exhibit increased check-ins; however, TRC's field counts were conducted during these months. Therefore, the resulting rates account for the reasonably elevated February/March check-in period, and would be considered conservatively high values when used in evaluations of adjacent street traffic conditions throughout the year.

SECTION 5 – DESIGN PARKING RATIOS

5.0 PARKING SURVEYS

On-site Parking Accumulation Patterns were developed for the each LTF site based on the Automatic Traffic Recorder data collected at the site driveways. The process is described as follows:

1. Conduct a base parking count at the lot to determine the total number of vehicles parked at a specified time (say 5:00 AM), or assume the parking lot to be essentially empty at such pre-dawn times as 3:00 or 4:00 AM.
2. Conduct machine traffic counts at 15-minute intervals 24 hours per day at each Center Driveway to capture the total amount of entering and exiting vehicles.
3. Based upon the difference in entering and exiting volumes in each 15-minute interval, an on-site Parking Accumulation will be determined (see example table below). The number of parked cars equals the "Demand" at each time interval. The Peak Demand is simply the highest value over the course of the survey.

TABLE 5.0-1

PARKING ACCUMULATION - EXAMPLE SURVEY

Time Period	Enter	Exit	Difference	# Parked Cars
Base Parking Count (5:00 AM)	-	-	-	40
5:00 AM – 5:15 AM	15	10	+5	45
5:15 AM – 5:30 AM	17	11	+6	51
5:30 AM – 5:45 AM	25	10	+15	66

4. Utilizing the observed Peak Parking Demand, determine a Peak Parking Demand Ratio based upon the square-footage of the Center.
5. Appropriately adjust the observed Peak Parking Demand Index to reflect the design condition.

5.1 SURVEY RESULTS

The results of the Parking Accumulation surveys are summarized in the following table:

TABLE 5.1-2							
PARKING DESIGN RATIO RECOMMENDED PEAK RATE							
			WEEKDAY			**SATURDAY**	**SUNDAY**
LOCATION		**PEAK RATE**	**AM**	**MIDDAY**	**PM**		
WARRENVILLE, IL		PARKED CARS	191	296	290	588	352
		TIME	8:45 AM	9:15 AM	5:45 PM	10:15 AM	12:00 PM
KSF	114.933	PEAK RATE		2.58		5.12	3.07
BLOOMINGDALE, IL		PARKED CARS	152	260	270	336	187
		TIME	8:45 AM	10:15 AM	5:00 PM	10:15	9:45 AM
KSF	108.890	PEAK RATE			2.48	3.09	1.72
SHELBY, MI		PARKED CARS	139	189	299	253	243
		TIME	8:45 AM	10:15 AM	6:15 PM	9:30 AM	4:30 PM
KSF	101.000	PEAK RATE			2.96	2.50	2.40
TEMPE, AZ		PARKED CARS	214	240	254	353	240
		TIME	8:45 AM	9:15 AM	4:45 PM	10:15 AM	10:00 AM
KSF	109.000	PEAK RATE			2.33	3.23	2.20
PLANO, TX		PARKED CARS	199	213	368	222	174
		TIME	8:45 AM	9:15 AM	6:45 PM	10:45 AM	10:15 AM
KSF	108.980	PEAK RATE			3.38	2.04	1.60
PEAK RATES				3.38		5.12	3.07
RECOMMENDED DESIGN RATE (Peak plus 10%)				**5.63**	**Parking Spaces Per 1,000 Sq. Ft. Floor Area**		

A review of the table indicates that the weekday peak demand was 3.38 parked cars per 1,000 square feet of building area, the Saturday peak demand was 5.12 parked cars per 1,000 square feet and the Sunday peak demand was 3.07 parked cars per 1,000 square feet of building area.

To establish design ratios, TRC applied a 10% Design Factor to allow for ease of parking under peak demand conditions. For example, as a parking lot nears its predicted peak demand, the 10% added to the design ratio will provide a reasonable number of additional spaces thereby not

forcing some members to find the last possible space. This produced a Design Ratio of 5.63 spaces per 1,000 square feet of building area. Local municipal codes requiring a parking supply for a new LTF based on a Ratio of five to six spaces per thousand square feet of floor area would be consistent with the Design Ratio.

As a minimum, the weekday peak rate of 3.38 spaces per 1,000 square feet of building area factored up by 10% as noted above may be considered at site where the peak demand occurs infrequently. This results in a 3.7 space/1,000 ft^2 ratio to describe the minimum number of spaces while the 5.63 ratio would be used to satisfy the peak demand. For a typical 110,000 ft^2 LTF, this would give a workable parking supply range of between 407 and 620 parking spaces. However, to ensure accommodating the peak demand, the higher rate – say 5.6 spaces/1,000 ft^2 of area - is the design rate recommended to be used in future applications.

In some applications, the local review agency may take the position that a 620 space parking supply for the typical 110,000 ft^2 Center is excessive. TRC would recommend that LTF offer to "land bank" an area within the site to serve as future parking while building fewer spaces at the outset and obtain the necessary site approval. After operating for a time period long enough to build membership to full capacity, and with proof that the Center's resulting parking demand regularly exceeds the initial lot capacity, LTF would then be pre-approved to use all or some of the banked land – heretofore simply landscaped – for additional parking spaces.

A Table comparing "Required" and "Provided" parking supplies from a number of existing LTF facilities in the U.S. is provided in Appendix F.

SECTION 6 – RECOMMENDED PEAK HOUR DESIGN RATES

The following Table summarizes the recommended Design Hourly Trip Rates for proposed Life Time Fitness Centers. The rates are appropriate for all seasons except for the beginning of January – a period when ambient traffic levels are typically lower than other months through the year. The recommended design Pass-by percentages are included as well.

TABLE 6.0-1				
Recommended Design Hourly Trip Generation Rates				
	AM			
	Entering	Exiting	Total	Pass-By %
Adjacent Street Peak Hour	1.37	1.08	2.46	20% - 44%
Generator Peak Hour	2.13	1.53	3.66	n/a
	PM			
	Entering	Exiting	Total	Pass-By %
Adjacent Street Peak Hour	2.57	1.78	4.35	20% - 44%
Generator Peak Hour	2.87	2.40	5.26	n/a
	SAT			
	Entering	Exiting	Total	Pass-By %
Generator Peak Hour	2.53	2.63	5.16	n/a

Note: Pass-By % ranges are based on site location type and ambient adjacent traffic volumes. See Section 2.5 B for details.

The recommended Design Parking Ratio is 5.6 spaces per 1,000 square feet of Gross Floor Area.

SECTION 7 – TRIP RATES BASED ON MEMBERSHIP

The following Tables summarize the same count volume information used in developing the recommended Trip Generation Rates based on the building areas, however, instead of area, these rates are based on membership. LTF provided membership levels at the five surveyed sites that coincided with the timeframes within which the field counts were conducted – generally February to April 2007.

TABLE 7.0-1
TRIP GENERATION RATE SUMMARY
WEEKDAY AM PEAK HOUR OF THE ADJACENT STREET

Location	Members (1,000)	Time	Enter		Exit		Total	
			Trips	HTGR	Trips	HTGR	Trips	HTGR
Warrenville, IL	10.383	7:30	159	15.31	165	15.89	330	31.20
Bloomingdale, IL	10.575	7:45	136	12.86	77	7.28	213	20.14
Shelby, MI	10.096	8:00	177	17.53	94	9.31	293	26.84
Tempe, AZ	9.740	7:00	142	14.58	128	13.14	270	27.72
Plano, TX	8.979	7:30	129	14.37	127	14.14	256	28.51
Average			**149**	**14.93**	**118**	**11.95**	**272**	**26.88**

TABLE 7.0-2
TRIP GENERATION RATE SUMMARY
WEEKDAY AM PEAK HOUR OF THE GENERATOR

Location	Members (1,000)	Time	Enter		Exit		Total	
			Trips	HTGR	Trips	HTGR	Trips	HTGR
Warrenville, IL	10.383	8:45	289	27.83	215	20.71	504	48.54
Bloomingdale, IL	10.575	8:00	156	14.75	97	9.17	253	23.92
Shelby, MI	10.096	8:45	229	22.68	135	13.37	364	36.05
Tempe, AZ	9.740	7:45	226	23.20	198	20.33	424	43.53
Plano, TX	8.979	7:30	129	14.37	127	14.14	256	28.51
Average			**206**	**20.57**	**154**	**15.54**	**360**	**36.11**

TABLE 7.0-3
TRIP GENERATION RATE SUMMARY
WEEKDAY PM PEAK HOUR OF THE ADJACENT STREET

Location	Members (1,000)	Time	Enter		Exit		Total	
			Trips	HTGR	Trips	HTGR	Trips	HTGR
Warrenville, IL	10.383	5:00	418	40.26	262	25.23	680	65.49
Bloomingdale, IL	10.575	5:00	257	24.30	193	18.25	450	42.55
Shelby, MI	10.096	4:45	318	31.50	202	20.01	520	51.51
Tempe, AZ	9.740	4:15	256	26.28	227	23.31	483	49.59
Plano, TX	8.979	5:00	149	16.59	89	9.91	238	26.51
Average			**280**	**27.79**	**195**	**19.34**	**474**	**47.13**

TABLE 7.0-4
TRIP GENERATION RATE SUMMARY
WEEKDAY PM PEAK HOUR OF THE GENERATOR

Location	Members (1,000)	Time	Enter		Exit		Total	
			Trips	HTGR	Trips	HTGR	Trips	HTGR
Warrenville, IL	10.383	5:15	377	36.31	299	28.80	676	65.11
Bloomingdale, IL	10.575	4:30	205	19.39	191	18.06	396	37.45
Shelby, MI	10.096	5:45	337	33.38	309	30.61	646	63.99
Tempe, AZ	9.740	5:00	287	29.47	262	26.90	549	56.37
Plano, TX	8.979	5:00	349	38.87	245	27.29	594	66.15
Average			**311**	**31.48**	**261**	**26.33**	**572**	**57.81**

TABLE 7.0-5
TRIP GENERATION RATE SUMMARY
SATURDAY PEAK HOUR OF THE GENERATOR

Location	Members (1,000)	Time	Enter		Exit		Total	
			Trips	HTGR	Trips	HTGR	Trips	HTGR
Warrenville, IL	10.383	10:00	384	36.98	307	29.57	691	66.55
Bloomingdale, IL*	10.575	10:15	192	18.16	226	21.37	418	39.53
Shelby, MI	10.096	10:00	279	27.63	329	32.59	608	60.22
Tempe, AZ	9.740	10:00	196	20.12	250	25.67	446	45.79
Plano, TX	8.979	10:15	323	35.97	313	34.86	636	70.83
Average			**275**	**27.77**	**285**	**28.81**	**560**	**56.58**

*Saturday Data Partially Extrapolated

TABLE 7.0-6
TRIP GENERATION RATE SUMMARY
SUNDAY PEAK HOUR OF THE GENERATOR

Location	Members (1,000)	Time	Enter		Exit		Total	
			Trips	HTGR	Trips	HTGR	Trips	HTGR
Warrenville, IL	10.383	10:00	210	20.23	235	22.63	445	42.86
Bloomingdale, IL	10.575	5:45	242	22.88	188	17.78	430	40.66
Shelby, MI	10.096	4:15	113	11.19	141	13.97	254	25.16
Tempe, AZ	9.740	3:15	163	16.74	171	17.56	334	34.29
Plano, TX	8.979	10:15	229	25.50	205	22.83	343	48.34
Average			**191**	**19.31**	**188**	**18.95**	**361**	**38.26**

TABLE 7.0-7 TRIP GENERATION RATE SUMMARY WEEKDAY TOTAL TRIPS							
	Members	**Enter**		**Exit**		**Total**	
Location	**(1,000)**	**Trips**	**DTGR**	**Trips**	**DTGR**	**Trips**	**DTGR**
Warrenville, IL	10.383	3,678	354.23	3,680	354.43	7,358	708.66
Bloomingdale, IL	10.575	2,532	239.43	2,569	242.93	5,101	482.36
Shelby, MI	10.096	3,166	313.59	3,316	328.45	6,482	642.04
Tempe, AZ	9.740	3,063	314.48	3,268	335.52	6,331	650.00
Plano, TX	8.979	3,477	387.24	3,460	385.34	6,937	772.58
Average		**3183**	**321.79**	**3259**	**329.33**	**6442**	**651.13**

TABLE 7.0-8 TRIP GENERATION RATE SUMMARY SATURDAY TOTAL TRIPS							
	Members	**Enter**		**Exit**		**Total**	
Location	**(1,000)**	**Trips**	**DTGR**	**Trips**	**DTGR**	**Trips**	**DTGR**
Warrenville, IL	10.383	3,186	306.85	3,162	304.54	6,347	611.38
Bloomingdale, IL*	10.575	2,794	264.21	2,797	264.49	5,591	528.70
Shelby, MI	10.096	2,880	285.26	3,131	310.12	6,010	595.38
Tempe, AZ	9.740	2,244	230.39	2,198	225.67	4,442	456.06
Plano, TX	8.979	2,831	315.29	2,763	307.72	5,594	623.01
Average		**2,787**	**280.40**	**2,810**	**282.51**	**5,597**	**562.91**

*Saturday Data Partially Extrapolated

TABLE 7.0-9 TRIP GENERATION RATE SUMMARY SUNDAY TOTAL TRIPS							
	Members	**Enter**		**Exit**		**Total**	
Location	**(1,000)**	**Trips**	**DTGR**	**Trips**	**DTGR**	**Trips**	**DTGR**
Warrenville, IL	10.383	2,524	243.09	2,550	245.59	5,074	488.68
Bloomingdale, IL	10.575	2,647	250.31	2,678	253.24	5,325	503.55
Shelby, MI	10.096	1,849	183.14	1,864	184.63	3,713	367.77
Tempe, AZ	9.740	1,911	196.20	1,897	194.76	3,808	390.97
Plano, TX	8.979	2,335	260.05	2,321	258.49	4,656	518.54
Average		**2253**	**226.56**	**2262**	**227.34**	**4515**	**453.90**

The manual count sheets, ATR counts and the Interview Surveys are located in Appendices C, D, and E respectively.

Respectfully submitted,

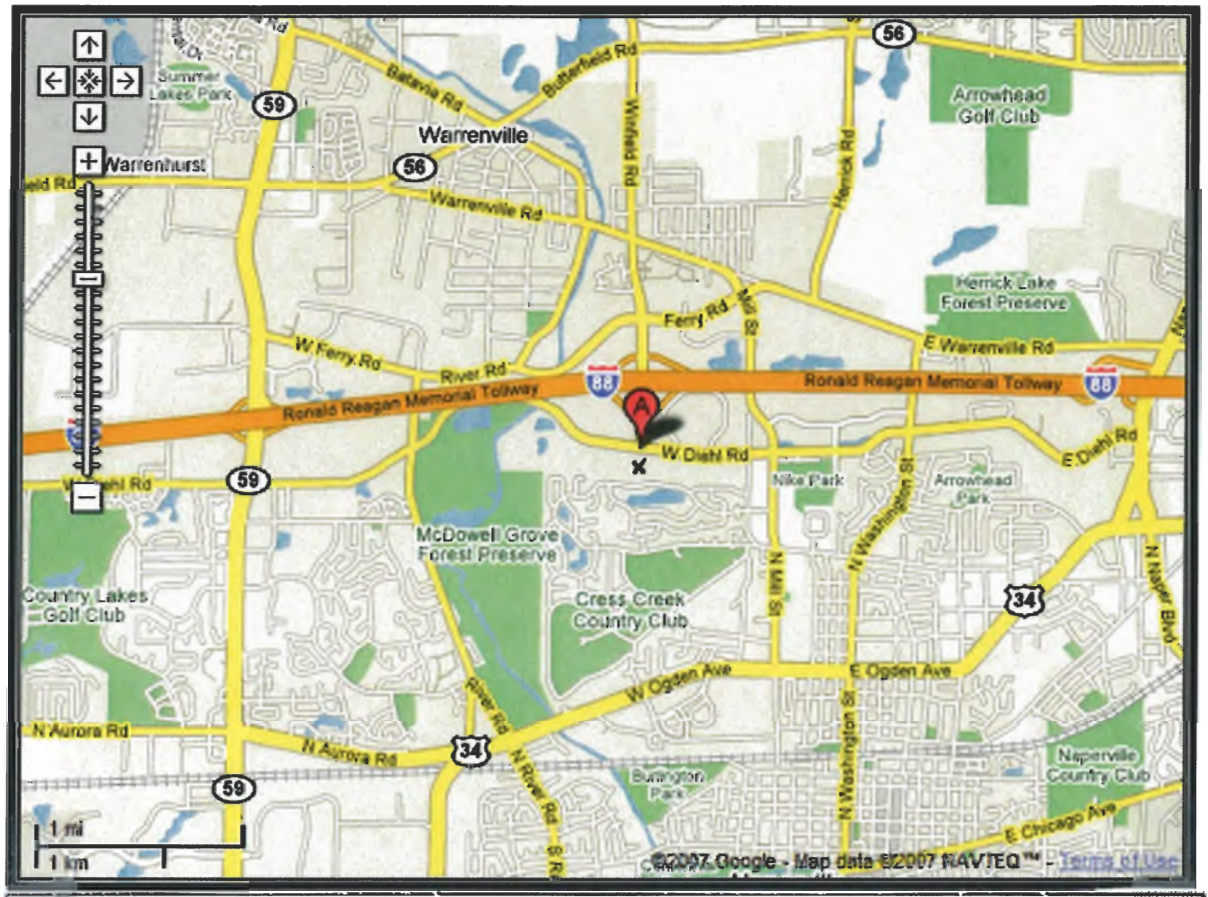
TRC ENGINEERS, INC.

Q:\PROJECTS50\52703\Reports\Traffic\TripGenStudy Nov-07 Final.doc

APPENDIX A
FIGURES

WARRENVILLE, IL

Lifetime Fitness
28151 Diehl Rd,
Warrenville, IL



TRC

SITE LOCATION MAP - WARRENVILLE, IL

TRC Engineers, Inc.

Figure 1

TRC Engineers, Inc.
7 Skyline Drive
Hawthorne, New York 10532
Tel: (914) 592-4040
Fax: (914) 592-5046
www.trcsolutions.com

Warrenville, IL
Life Time Fitness

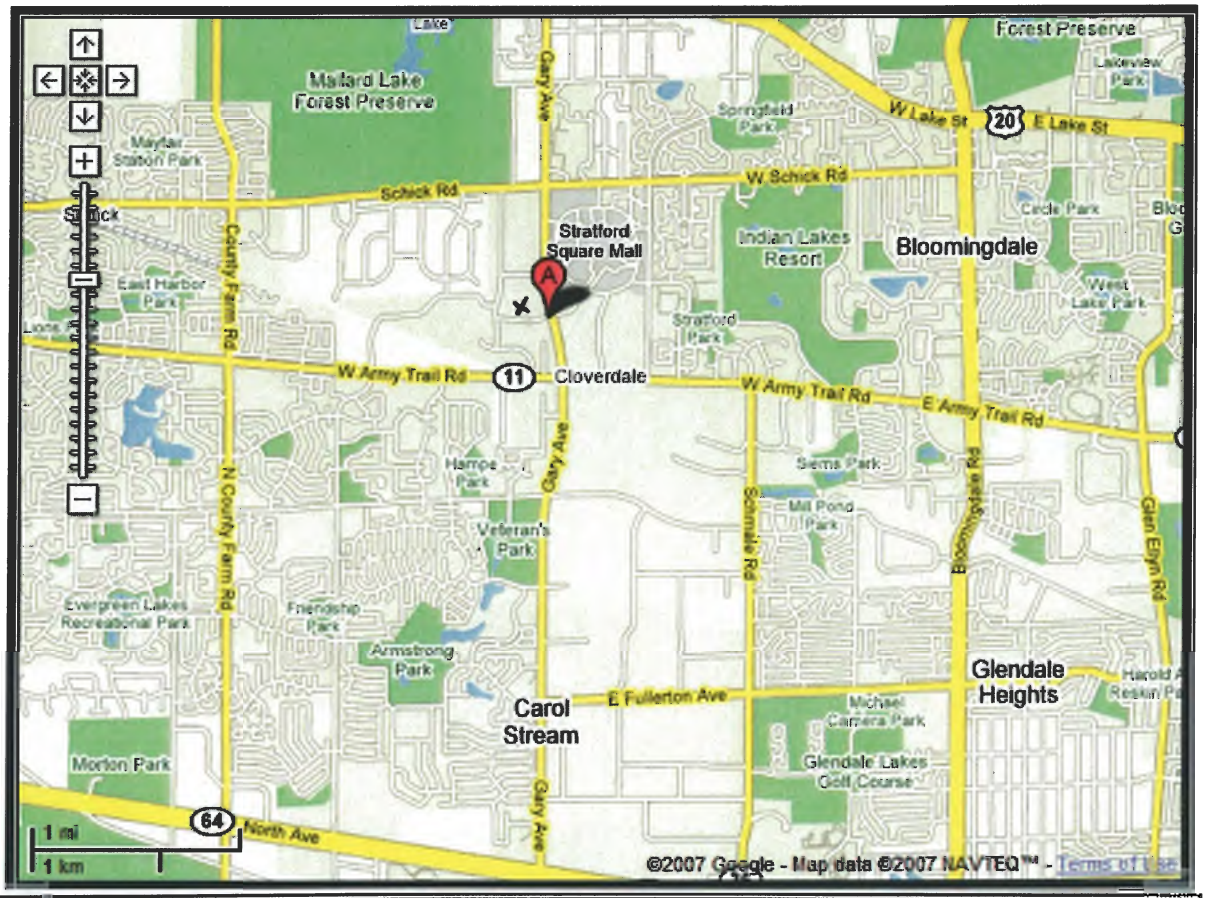
Project No. 52703
Not to Scale
Date: May 2007

© TRC Engineers, Inc.

Figure 1A

BLOOMINGDALE, IL

Life Time Fitness
455 Scott Dr.
Bloomingdale, IL

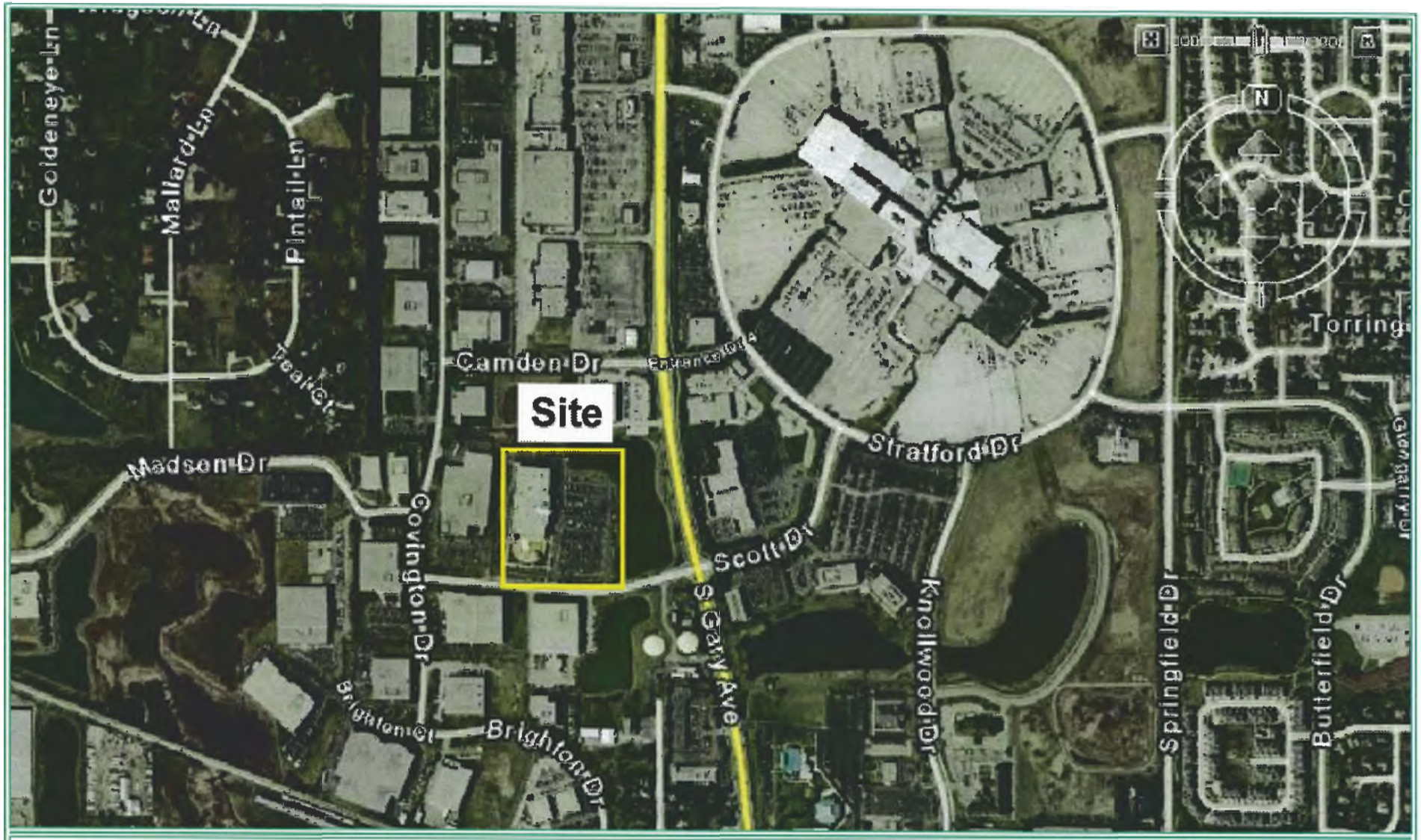


TRC

TRC Engineers, Inc.

SITE LOCATION MAP - BLOOMINGDALE, IL

Figure 2



TRC Engineers, Inc.
7 Skyline Drive
Hawthorne, New York 10532
Tel: (914) 592-4040
Fax: (914) 592-5046
www.trcsolutions.com

Bloomingdale, IL
Life Time Fitness

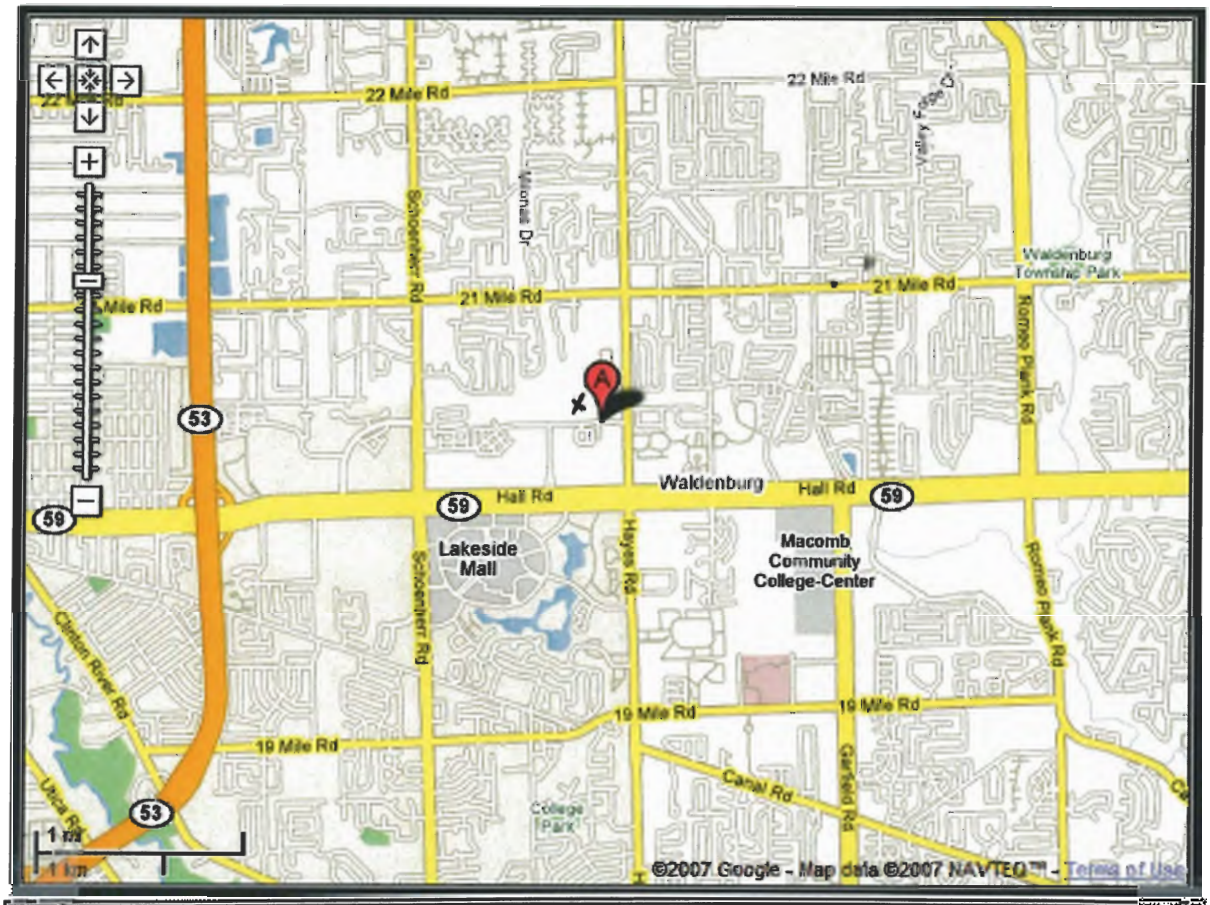
Project No. 52703
Not to Scale
Date: May 2007

© TRC Engineers, Inc.

Figure 2A

SHELBY, MI

Life Time Fitness
14843 Lakeside Blvd N.
Shelby Township, MI



TRC

SITE LOCATION MAP - SHELBY, MI

TRC Engineers, Inc.

Figure 3

TRC Engineers, Inc.
7 Skyline Drive
Hawthorne, New York 10532
Tel: (914) 592-4040
Fax: (914) 592-5046
www.trcsolutions.com

Shelby, MI
Life Time Fitness

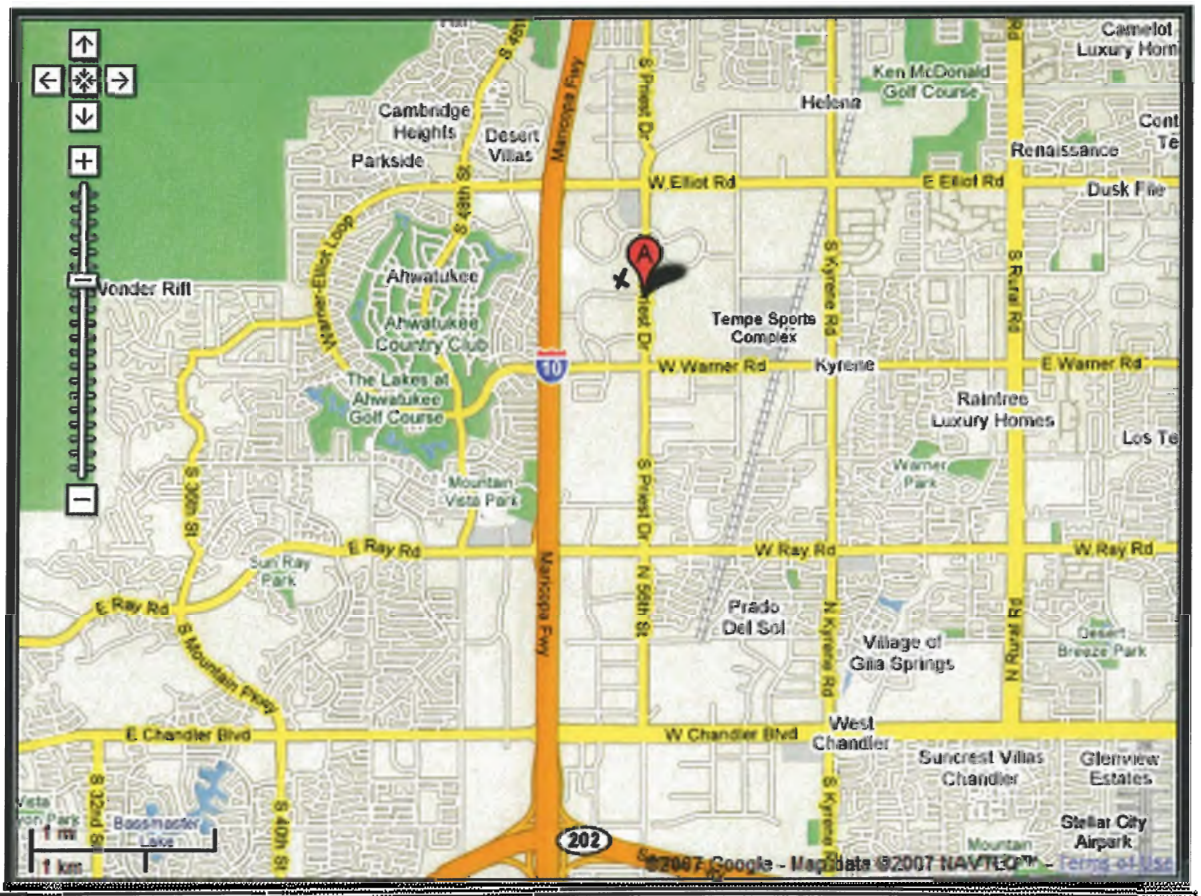
Project No. 52703
Not to Scale
Date: May 2007

© TRC Engineers, Inc.

Figure 3A

TEMPE, AZ

Life Time Fitness
1616 W Ruby Dr.
Tempe, AZ



TRC

SITE LOCATION MAP - TEMPE, AZ

TRC Engineers, Inc.

Figure 4

TRC Engineers, Inc.
7 Skyline Drive
Hawthorne, New York 10532
Tel: (914) 592-4040
Fax: (914) 592-5046
www.trcsolutions.com

Tempe, AZ
Life Time Fitness

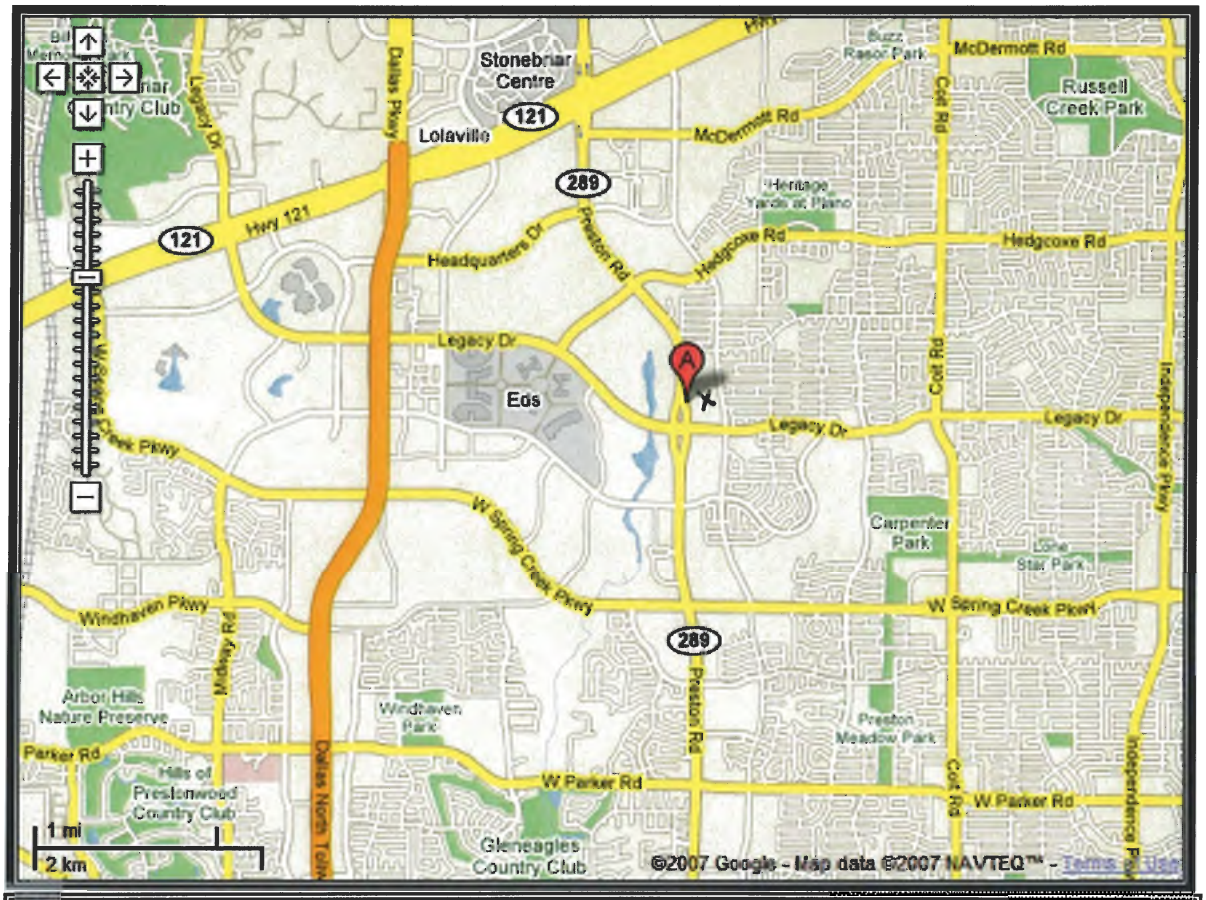
Project No. 52703
Not to Scale
Date: May 2007

© TRC Engineers, Inc.

Figure 4A

PLANO, TX

Life Time Fitness
7100 Preston Rd.
Plano, TX



TRC

SITE LOCATION MAP - PLANO, TX

TRC Engineers, Inc.

Figure 5

TRC Engineers, Inc.
7 Skyline Drive
Hawthorne, New York 10532
Tel: (914) 592-4040
Fax: (914) 592-5046
www.trcsolutions.com

Plano, TX
Life Time Fitness

Project No. 52703
Not to Scale
Date: May 2007

© TRC Engineers, Inc.

Figure 5A

APPENDIX B
SAMPLE QUESTIONNAIRES

Life Time Fitness Center Sign-In Interview Survey Form

Location: _____

Date: _____ **Weekday AM Hours** **6:00 to 9:00 AM**

Please note the time of sign-in and write answers to the following Questions in the Response Boxes below.

1. **Are you going directly to work when you leave LTF?**
2. **How close is work - 1/2 mile, 1 mile, 5 miles, etc - from here?**
3. **How many days per week do you usually use this LTF?**
4. **In driving to work, do you pass by this LTF whether or not you come in?**

Interview Number	Time of Day	Question 1. (Circle Yes or No)	Question 2. (1, 2, 5 miles, etc)	Question 3. (days per week)	Question 4. (Circle Yes or No)
1		Yes : No			Yes : No
2		Yes : No			Yes : No
3		Yes : No			Yes : No
4		Yes : No			Yes : No
5		Yes : No			Yes : No
6		Yes : No			Yes : No
7		Yes : No			Yes : No
8		Yes : No			Yes : No
9		Yes : No			Yes : No
10		Yes : No			Yes : No
11		Yes : No			Yes : No
12		Yes : No			Yes : No
13		Yes : No			Yes : No
14		Yes : No			Yes : No
15		Yes : No			Yes : No
16		Yes : No			Yes : No
17		Yes : No			Yes : No
18		Yes : No			Yes : No
19		Yes : No			Yes : No
20		Yes : No			Yes : No
21		Yes : No			Yes : No
22		Yes : No			Yes : No
23		Yes : No			Yes : No
24		Yes : No			Yes : No
25		Yes : No			Yes : No

Life Time Fitness Center Sign-In Interview Survey Form

Location: _____

Date: _____ **Weekday PM Hours** **4:00 to 7:00 PM**

Please note the time of sign-in and write answers to the following Questions in the Response Boxes below.

1. **Are you going directly home when you leave LTF?**
2. **How close is work - 1/2 mile, 1 mile, 5 miles, etc - from here?**
3. **How many days per week do you usually use this LTF?**
4. **In driving home, do you pass by this LTF whether or not you come in?**

Interview Number	Time of Day	Question 1. (Circle Yes or No)	Question 2. (1, 2, 5 miles, etc)	Question 3. (days per week)	Question 4. (Circle Yes or No)
1		Yes : No			Yes : No
2		Yes : No			Yes : No
3		Yes : No			Yes : No
4		Yes : No			Yes : No
5		Yes : No			Yes : No
6		Yes : No			Yes : No
7		Yes : No			Yes : No
8		Yes : No			Yes : No
9		Yes : No			Yes : No
10		Yes : No			Yes : No
11		Yes : No			Yes : No
12		Yes : No			Yes : No
13		Yes : No			Yes : No
14		Yes : No			Yes : No
15		Yes : No			Yes : No
16		Yes : No			Yes : No
17		Yes : No			Yes : No
18		Yes : No			Yes : No
19		Yes : No			Yes : No
20		Yes : No			Yes : No
21		Yes : No			Yes : No
22		Yes : No			Yes : No
23		Yes : No			Yes : No
24		Yes : No			Yes : No
25		Yes : No			Yes : No

Life Time Fitness Center Sign-In Interview Survey Form

Location: _____

Date: _____ **Saturday Hours 9:00 AM to 12:00 PM**

Please note the time of sign-in and write answers to the following Questions in the Response Boxes below.

1. **Are you going directly home when you leave LTF?**
2. **How close is your home - 1/2 mile, 1 mile, 5 miles, etc - from here?**
3. **How many days per week do you usually use this LTF?**
4. **In driving to/from home, do you pass by this LTF whether or not you come in?**

Interview Number	Time of Day	Question 1. (Circle Yes or No)	Question 2. (1, 2, 5 miles, etc)	Question 3. (days per week)	Question 4. (Circle Yes or No)
1		Yes : No			Yes : No
2		Yes : No			Yes : No
3		Yes : No			Yes : No
4		Yes : No			Yes : No
5		Yes : No			Yes : No
6		Yes : No			Yes : No
7		Yes : No			Yes : No
8		Yes : No			Yes : No
9		Yes : No			Yes : No
10		Yes : No			Yes : No
11		Yes : No			Yes : No
12		Yes : No			Yes : No
13		Yes : No			Yes : No
14		Yes : No			Yes : No
15		Yes : No			Yes : No
16		Yes : No			Yes : No
17		Yes : No			Yes : No
18		Yes : No			Yes : No
19		Yes : No			Yes : No
20		Yes : No			Yes : No
21		Yes : No			Yes : No
22		Yes : No			Yes : No
23		Yes : No			Yes : No
24		Yes : No			Yes : No
25		Yes : No			Yes : No

APPENDIX G –

With Project Operations

PROJECT (2021)

			AM			PM			AM		PM	
No.	Intersection	Lane Group	LOS	Delay	V/C	LOS	Delay	V/C	95th % Queue	Storage	95th % Queue	Storage
1	SW Cedar Hills Blvd at SW Barnes Rd	OVERALL	D	46.9	0.9	E	71.8	1.12				
		EB L	E	61.50	0.64	F	101.30	0.93	150	320	175	320
		EB T	D	39.90	0.68	D	35.10	0.43	550		200	
		EB R	C	27.70	0.59	B	19.60	0.46	**425**	400	275	400
		WB L	F	88.80	0.97	F	111.30	1.06	275	315	**500**	315
		WB T/R	C	34.10	0.57	E	65.10	0.99	300		500	
		NB L	F	88.10	0.97	F	113.70	1.09	350	380	350	380
		NB T	C	25.20	0.50	E	60.50	0.96	350		350	
		NB R	B	13.80	0.26	B	15.90	0.37	**350**	135	350	135
		SB L	E	56.30	0.63	F	129.40	0.93	**675**	375	**675**	375
		SB T/R	E	64.60	0.98	F	138.00	1.16	1825		1925	
2	SW Cedar Hills Blvd at US 26 WB Ramps	OVERALL	B	10.30	0.65	B	12.40	0.74				
		WB L	B	14.40	0.53	B	11.80	0.33	550		550	
		WB R	B	13.00	0.24	B	17.90	0.72	300		1025	
		NB T	A	7.10	0.43	B	11.5	0.75	525		525	
		SB T	B	10.0	0.72	B	11.8	0.76	225		175	
3	SW Cedar Hills Blvd at US 26 EB Ramps	OVERALL	C	27.1	0.75	C	25.2	0.78				
		EB L/T	F	94.3	0.87	D	37.6	0.36	**375**		**550**	
		EB R	D	51.0	0.07	C	34.8	0.09	**350**		**500**	
		NB T/R	B	15.6	0.42	C	25.7	0.84	150		150	
		SB L	D	50.0	0.83	E	62.6	0.87	400	375	375	375
		SB T	B	18.6	0.71	B	15.3	0.63	475		400	
4	SW Cedar Hills Blvd at SW Butner Rd	OVERALL	D	38.1	0.99	D	36.5	1.02				
		EB L/T/R	E	70.90	0.96	E	69.50	0.95	400		975	
		WB L/T	C	26.00	0.05	C	28.50	0.14	100		1100	
		WB R	C	25.90	0.05	C	28.20	0.11	**75**	25	**75**	25
		NB L	D	52.90	0.14	D	46.10	0.17	50	225	**325**	225
		NB T	C	23.90	0.43	C	33.40	0.76	475		1150	
		NB R	C	33.20	0.01	C	25.00	0.01	50	300	**450**	300
		SB L	E	74.90	0.73	E	60.70	0.34	**125**	60	**125**	60
		SB T/R	C	32.20	0.99	C	29.90	0.95	150		150	
5	Towne Square West Access at SW Barnes R	OVERALL	A	3.30	0.34	A	9.60	0.54				
		EB T	A	2.80	0.35	A	4.40	0.29	75		150	
		EB R	A	1.10	0.03	A	1.80	0.10	25	240	50	240
		WB L	A	0.80	0.01	A	4.30	0.08	25	135	**225**	135
		WB T	A	2.60	0.32	A	9.10	0.51	100		550	
		NB L	D	40.90	0.18	D	40.1	0.54	50	155	125	155
		NB R	D	39.40	0.00	C	33.80	0.02	25		50	
6	SW Valeria View Dr at SW Barnes Rd	OVERALL	B	18.80	0.57	B	15.50	0.75				
		EB L	B	10.60	0.27	C	22.60	0.75	100	250	200	250
		EB T	B	14.80	0.44	A	9.00	0.22	200		100	
		EB R	A	9.40	0.01	A	4.30	0.01	25	165	25	165
		WB L	B	10.90	0.09	A	5.50	0.10	50	100	**175**	100
		WB T	B	14.10	0.37	B	12.40	0.65	150		450	
		WB R	B	11.50	0.05	A	7.50	0.16	50	565	150	565
		NB L	C	22.50	0.04	D	36.10	0.24	50		75	
		NB T/R	C	22.4	0.03	C	34.9	0.11	50		75	
		SB L	D	39.6	0.80	D	38.50	0.48	250	250	100	250
		SB L/T	C	22.4	0.03	D	43.60	0.65	75		150	
		SB R	C	23.8	0.20	C	34.50	0.04	125	250	75	250
7	Beaverton/Tigard Interchange	OVERALL	B	15.9	0.78	D	36.10	0.91				
		WB L	C	27.5	0.76	D	50.30	0.94	275		475	
		WB L/T	C	26.9	0.76	D	47.50	0.93	325		550	
		WB R	A	3.5	0.10	A	7.80	0.38	175	240	**425**	240
		NB T	C	28.0	0.64	D	50.6	0.91	150		300	
		NB R	A	1.8	0.61	A	0.5	0.33	0		50	
		SB L	C	26.3	0.75	E	56.3	0.86	250		250	
		SB T	A	7.0	0.13	B	13.2	0.12	75	300	75	300
8	SW Baltic Ave at SW Barnes Rd	OVERALL	C	34.8	0.81	C	33.6	0.78				
		EB L	D	46.9	0.77	D	47.3	0.42	**200**	200	75	200
		EB T/R	C	26.3	0.71	D	39.6	0.76	375		275	
		WB L	E	70.1	0.82	D	48.3	0.84	175	200	**350**	200
		WB T/R	C	29.5	0.68	C	25.0	0.77	375		775	
		NB L	D	48.7	0.50	D	52.9	0.66	125	325	150	325
		NB T	D	51.4	0.89	C	33.6	0.21	400		125	
		NB R	C	34.4	0.80	B	17.0	0.41	350		175	
		SB L	D	48.4	0.40	E	56.5	0.64	75	75	**150**	75
		SB T	C	27.4	0.14	D	42.9	0.67	100		375	
		SB R	B	14.9	0.11	C	34.3	0.65	100	200	**275**	200
9	SW Barnes Road at NW 116th Ave	WORST	F	ERR	ERR	F	ERR	ERR				
		EB T/R	-	0.0	0.49	-	0.0	0.41	200		25	
		WB L	C	18.7	0.51	D	25.4	0.74	175		325	
		WB T	-	0.0	0.42	-	0.0	0.75	25		100	
		NB L/R	F	ERR	>2.0	F	ERR	>2.0	300		350	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	580	725	335	440	145	365	365	275	90	555	100
Future Volume (vph)	65	580	725	335	440	145	365	365	275	90	555	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	5.0	4.0	4.0		4.0	4.0	5.0	4.0	4.0	
Lane Util. Factor	1.00	0.95	0.88	0.97	0.95		0.97	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.96		1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539	2787	3433	3407		3433	1863	1583	1770	1820	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3539	2787	3433	3407		3433	1863	1583	1770	1820	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	68	611	763	353	463	153	384	384	289	95	584	105
RTOR Reduction (vph)	0	0	110	0	27	0	0	0	65	0	5	0
Lane Group Flow (vph)	68	611	653	353	589	0	384	384	224	95	684	0
Turn Type	Prot	NA	pt+ov	Prot	NA		Prot	NA	pt+ov	Prot	NA	
Protected Phases	1	6	6 7	5	2		7	4	4 5	3	8	
Permitted Phases												
Actuated Green, G (s)	6.8	27.9	44.9	11.0	33.1		12.0	45.6	61.6	9.6	42.2	
Effective Green, g (s)	6.8	28.9	44.9	12.0	34.1		13.0	46.6	61.6	9.6	43.2	
Actuated g/C Ratio	0.06	0.26	0.40	0.11	0.30		0.11	0.41	0.54	0.08	0.38	
Clearance Time (s)	4.0	5.0		5.0	5.0		5.0	5.0		4.0	5.0	
Vehicle Extension (s)	1.5	3.1		2.0	3.1		2.0	3.1		1.5	3.1	
Lane Grp Cap (vph)	106	904	1106	364	1027		394	767	862	150	695	
v/s Ratio Prot	0.04	c0.17	0.23	c0.10	0.17		c0.11	c0.21	0.14	0.05	c0.38	
v/s Ratio Perm												
v/c Ratio	0.64	0.68	0.59	0.97	0.57		0.97	0.50	0.26	0.63	0.98	
Uniform Delay, d1	52.0	37.9	26.9	50.4	33.4		49.9	24.6	13.7	50.0	34.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	9.5	2.0	0.9	38.5	0.8		38.2	0.5	0.2	6.3	30.0	
Delay (s)	61.5	39.9	27.7	88.8	34.1		88.1	25.2	13.8	56.3	64.6	
Level of Service	E	D	C	F	C		F	C	B	E	E	
Approach Delay (s)		34.5			54.1			44.9			63.6	
Approach LOS		C			D			D			E	

Intersection Summary			
HCM 2000 Control Delay	46.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	113.1	Sum of lost time (s)	19.0
Intersection Capacity Utilization	84.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	525	235	775	0	0	1305
Future Volume (vph)	525	235	775	0	0	1305
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0			4.0
Lane Util. Factor	0.97	1.00	0.95			0.95
Frt	1.00	0.85	1.00			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	3433	1583	3539			3539
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	3433	1583	3539			3539
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	547	245	807	0	0	1359
RTOR Reduction (vph)	0	129	0	0	0	0
Lane Group Flow (vph)	547	116	807	0	0	1359
Turn Type	Prot	Prot	NA			NA
Protected Phases	8	8	6			2
Permitted Phases						
Actuated Green, G (s)	13.2	13.2	24.4			24.4
Effective Green, g (s)	14.7	14.7	25.9			25.9
Actuated g/C Ratio	0.30	0.30	0.53			0.53
Clearance Time (s)	5.5	5.5	5.5			5.5
Vehicle Extension (s)	2.5	2.5	3.5			3.5
Lane Grp Cap (vph)	1038	478	1886			1886
v/s Ratio Prot	c0.16	0.07	0.23			c0.38
v/s Ratio Perm						
v/c Ratio	0.53	0.24	0.43			0.72
Uniform Delay, d1	14.1	12.8	6.9			8.6
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	0.4	0.2	0.2			1.4
Delay (s)	14.4	13.0	7.1			10.0
Level of Service	B	B	A			B
Approach Delay (s)	14.0		7.1			10.0
Approach LOS	B		A			B

Intersection Summary			
HCM 2000 Control Delay	10.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	48.6	Sum of lost time (s)	8.0
Intersection Capacity Utilization	86.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	160	0	165	0	0	0	0	735	135	420	1410	0
Future Volume (vph)	160	0	165	0	0	0	0	735	135	420	1410	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0					4.0	4.0	4.5	4.0	
Lane Util. Factor	0.95	0.91	0.95					0.95	1.00	1.00	0.95	
Frt	1.00	0.92	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.98	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1681	1519	1504					3539	1583	1770	3539	
Flt Permitted	0.95	0.98	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1681	1519	1504					3539	1583	1770	3539	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	167	0	172	0	0	0	0	766	141	438	1469	0
RTOR Reduction (vph)	0	105	99	0	0	0	0	0	41	0	0	0
Lane Group Flow (vph)	117	9	9	0	0	0	0	766	100	438	1469	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		3						2 4		1 10	5 6	
Permitted Phases	3		3						2 4			
Actuated Green, G (s)	9.6	9.6	9.6					61.9	61.9	35.5	70.0	
Effective Green, g (s)	9.6	9.6	9.6					61.9	61.9	35.5	70.0	
Actuated g/C Ratio	0.08	0.08	0.08					0.52	0.52	0.30	0.59	
Clearance Time (s)	4.0	4.0	4.0									
Vehicle Extension (s)	2.5	2.5	2.5									
Lane Grp Cap (vph)	135	122	120					1833	819	525	2073	
v/s Ratio Prot								c0.22		c0.25	c0.42	
v/s Ratio Perm	c0.07	0.01	0.01						0.06			
v/c Ratio	0.87	0.08	0.07					0.42	0.12	0.83	0.71	
Uniform Delay, d1	54.3	50.8	50.8					17.7	14.8	39.3	17.5	
Progression Factor	1.00	1.00	1.00					0.87	0.86	1.00	1.00	
Incremental Delay, d2	40.0	0.2	0.2					0.1	0.0	10.7	1.0	
Delay (s)	94.3	51.0	51.0					15.6	12.9	50.0	18.6	
Level of Service	F	D	D					B	B	D	B	
Approach Delay (s)		66.0			0.0			15.2			25.8	
Approach LOS		E			A			B			C	

Intersection Summary			
HCM 2000 Control Delay	27.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	119.5	Sum of lost time (s)	21.0
Intersection Capacity Utilization	60.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	230	135	25	10	15	70	15	560	15	130	1295	150
Future Volume (vph)	230	135	25	10	15	70	15	560	15	130	1295	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5			4.0	4.0	4.0	4.0	4.0	4.5	4.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frt		0.99			1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected		0.97			0.98	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1794			1825	1583	1770	3539	1583	1770	3484	
Flt Permitted		0.80			0.85	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1481			1589	1583	1770	3539	1583	1770	3484	
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	267	157	29	12	17	81	17	651	17	151	1506	174
RTOR Reduction (vph)	0	2	0	0	0	53	0	0	13	0	7	0
Lane Group Flow (vph)	0	451	0	0	29	28	17	651	4	151	1673	0
Turn Type	Perm	NA		Perm	NA	Perm	Prot	NA	custom	Prot	NA	
Protected Phases		3 4			8		5	2 10		1	6	
Permitted Phases	3 4			8		8			2			
Actuated Green, G (s)		41.5			41.5	41.5	8.0	51.4	30.5	14.1	58.0	
Effective Green, g (s)		38.0			41.5	41.5	8.0	51.4	30.5	14.1	58.0	
Actuated g/C Ratio		0.32			0.35	0.35	0.07	0.43	0.26	0.12	0.49	
Clearance Time (s)					4.0	4.0	4.0		4.0	4.5	4.0	
Vehicle Extension (s)					2.5	2.5	2.5		2.5	2.4	2.5	
Lane Grp Cap (vph)		470			551	549	118	1522	404	208	1690	
v/s Ratio Prot							0.01	c0.18		0.09	c0.48	
v/s Ratio Perm		c0.30			0.02	0.02			0.00			
v/c Ratio		0.96			0.05	0.05	0.14	0.43	0.01	0.73	0.99	
Uniform Delay, d1		40.0			25.9	25.9	52.5	23.8	33.2	50.8	30.5	
Progression Factor		1.00			1.00	1.00	1.00	1.00	1.00	1.29	0.48	
Incremental Delay, d2		30.9			0.0	0.0	0.4	0.1	0.0	9.4	17.6	
Delay (s)		70.9			26.0	25.9	52.9	23.9	33.2	74.9	32.2	
Level of Service		E			C	C	D	C	C	E	C	
Approach Delay (s)		70.9			25.9			24.9			35.7	
Approach LOS		E			C			C			D	

Intersection Summary			
HCM 2000 Control Delay	38.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	119.5	Sum of lost time (s)	20.0
Intersection Capacity Utilization	81.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	900	45	5	890	30	5
Future Volume (vph)	900	45	5	890	30	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.95	1.00	1.00	0.95	0.97	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1583	1770	3539	3433	1583
Flt Permitted	1.00	1.00	0.26	1.00	0.95	1.00
Satd. Flow (perm)	3539	1583	488	3539	3433	1583
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	989	49	5	978	33	5
RTOR Reduction (vph)	0	8	0	0	0	5
Lane Group Flow (vph)	989	41	5	978	33	0
Turn Type	NA	pm+ov	pm+pt	NA	Prot	pm+ov
Protected Phases	2	8	1	6	8	1
Permitted Phases		2	6			8
Actuated Green, G (s)	71.2	76.0	76.2	76.2	4.8	5.8
Effective Green, g (s)	72.2	76.0	76.2	77.2	4.8	5.8
Actuated g/C Ratio	0.80	0.84	0.85	0.86	0.05	0.06
Clearance Time (s)	5.0	4.0	4.0	5.0	4.0	4.0
Vehicle Extension (s)	3.2	2.0	1.5	3.2	2.0	1.5
Lane Grp Cap (vph)	2839	1336	427	3035	183	172
v/s Ratio Prot	c0.28	0.00	0.00	c0.28	c0.01	0.00
v/s Ratio Perm		0.02	0.01			0.00
v/c Ratio	0.35	0.03	0.01	0.32	0.18	0.00
Uniform Delay, d1	2.4	1.1	1.4	1.3	40.7	39.4
Progression Factor	1.00	1.00	0.59	1.85	1.00	1.00
Incremental Delay, d2	0.3	0.0	0.0	0.3	0.2	0.0
Delay (s)	2.8	1.1	0.8	2.6	40.9	39.4
Level of Service	A	A	A	A	D	D
Approach Delay (s)	2.7			2.6	40.7	
Approach LOS	A			A	D	

Intersection Summary			
HCM 2000 Control Delay	3.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	36.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	105	785	20	25	600	80	15	5	25	300	15	285
Future Volume (vph)	105	785	20	25	600	80	15	5	25	300	15	285
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.87		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1627		1770	1863	1583
Flt Permitted	0.32	1.00	1.00	0.29	1.00	1.00	0.75	1.00		0.74	1.00	1.00
Satd. Flow (perm)	594	3539	1583	534	3539	1583	1392	1627		1372	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	114	853	22	27	652	87	16	5	27	326	16	310
RTOR Reduction (vph)	0	0	10	0	0	43	0	19	0	0	0	218
Lane Group Flow (vph)	114	853	12	27	652	44	16	13	0	326	16	92
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2		2	6		6	8			4		4
Actuated Green, G (s)	53.8	48.0	48.0	46.6	44.4	44.4	26.8	26.8		26.8	26.8	26.8
Effective Green, g (s)	53.8	49.0	49.0	46.6	45.4	45.4	26.8	26.8		26.8	26.8	26.8
Actuated g/C Ratio	0.60	0.54	0.54	0.52	0.50	0.50	0.30	0.30		0.30	0.30	0.30
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	1.5	3.1	3.1	1.5	3.1	3.1	2.5	2.5		3.0	3.0	3.0
Lane Grp Cap (vph)	430	1926	861	306	1785	798	414	484		408	554	471
v/s Ratio Prot	c0.02	c0.24		0.00	0.18			0.01			0.01	
v/s Ratio Perm	0.14		0.01	0.04		0.03	0.01			c0.24		0.06
v/c Ratio	0.27	0.44	0.01	0.09	0.37	0.05	0.04	0.03		0.80	0.03	0.20
Uniform Delay, d1	8.5	12.3	9.4	10.8	13.5	11.4	22.4	22.4		29.1	22.4	23.6
Progression Factor	1.24	1.15	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.1	0.7	0.0	0.0	0.6	0.1	0.0	0.0		10.5	0.0	0.2
Delay (s)	10.6	14.8	9.4	10.9	14.1	11.5	22.5	22.4		39.6	22.4	23.8
Level of Service	B	B	A	B	B	B	C	C		D	C	C
Approach Delay (s)		14.2			13.7			22.4			31.6	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	18.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	59.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	470	305	150	0	370	950	415	260	0
Future Volume (vph)	0	0	0	470	305	150	0	370	950	415	260	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5	4.5	4.5		4.5	4.0	5.0	5.0	
Lane Util. Factor				0.95	0.95	1.00		0.95	1.00	1.00	0.95	
Frt				1.00	1.00	0.85		1.00	0.85	1.00	1.00	
Flt Protected				0.95	0.99	1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)				1681	1750	1583		3539	1583	1770	3539	
Flt Permitted				0.95	0.99	1.00		1.00	1.00	0.95	1.00	
Satd. Flow (perm)				1681	1750	1583		3539	1583	1770	3539	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	0	0	480	311	153	0	378	969	423	265	0
RTOR Reduction (vph)	0	0	0	0	0	47	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	389	402	106	0	378	969	423	265	0
Turn Type				Split	NA	pt+ov		NA	Free	Prot	NA	
Protected Phases				1	1	1 2		8		2	2 8	
Permitted Phases									Free			
Actuated Green, G (s)				20.6	20.6	46.8		11.4	67.7	21.7	38.1	
Effective Green, g (s)				20.6	20.6	46.8		11.4	67.7	21.7	38.1	
Actuated g/C Ratio				0.30	0.30	0.69		0.17	1.00	0.32	0.56	
Clearance Time (s)				4.5	4.5			4.5		5.0		
Vehicle Extension (s)				2.3	2.3			2.3		4.1		
Lane Grp Cap (vph)				511	532	1094		595	1583	567	1991	
v/s Ratio Prot				c0.23	0.23	0.07		0.11		0.24	0.07	
v/s Ratio Perm									c0.61			
v/c Ratio				0.76	0.76	0.10		0.64	0.61	0.75	0.13	
Uniform Delay, d1				21.3	21.3	3.5		26.2	0.0	20.5	7.0	
Progression Factor				1.00	1.00	1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2				6.2	5.6	0.0		1.8	1.8	5.7	0.0	
Delay (s)				27.5	26.9	3.5		28.0	1.8	26.3	7.0	
Level of Service				C	C	A		C	A	C	A	
Approach Delay (s)		0.0			23.3			9.1			18.9	
Approach LOS		A			C			A			B	

Intersection Summary			
HCM 2000 Control Delay	15.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	67.7	Sum of lost time (s)	14.0
Intersection Capacity Utilization	65.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	375	925	65	120	740	60	35	420	565	25	65	155
Future Volume (vph)	375	925	65	120	740	60	35	420	565	25	65	155
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3505		1770	3499		1770	1863	1583	1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3505		1770	3499		1770	1863	1583	1770	1863	1583
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	412	1016	71	132	813	66	38	462	621	27	71	170
RTOR Reduction (vph)	0	5	0	0	5	0	0	0	105	0	0	90
Lane Group Flow (vph)	412	1082	0	132	874	0	38	462	516	27	71	80
Turn Type	Prot	NA		Prot	NA		Prot	NA	pm+ov	Prot	NA	custom
Protected Phases	5	2		1	6		3	8	1	7	4	4 5
Permitted Phases									8			4
Actuated Green, G (s)	15.5	42.2		9.1	35.8		4.3	27.9	37.0	3.8	27.4	46.9
Effective Green, g (s)	15.5	43.2		9.1	36.8		4.3	27.9	37.0	3.8	27.4	46.9
Actuated g/C Ratio	0.16	0.43		0.09	0.37		0.04	0.28	0.37	0.04	0.27	0.47
Clearance Time (s)	4.0	5.0		4.0	5.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	1.5	3.1		1.5	3.1		1.5	2.0	1.5	1.5	2.0	
Lane Grp Cap (vph)	532	1514		161	1287		76	519	649	67	510	742
v/s Ratio Prot	c0.12	c0.31		0.07	0.25		c0.02	c0.25	c0.07	0.02	0.04	0.05
v/s Ratio Perm									0.25			
v/c Ratio	0.77	0.71		0.82	0.68		0.50	0.89	0.80	0.40	0.14	0.11
Uniform Delay, d1	40.6	23.3		44.6	26.6		46.8	34.6	28.1	47.0	27.4	14.8
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.3	2.9		25.5	2.9		1.9	16.8	6.3	1.4	0.0	0.0
Delay (s)	46.9	26.3		70.1	29.5		48.7	51.4	34.4	48.4	27.4	14.9
Level of Service	D	C		E	C		D	D	C	D	C	B
Approach Delay (s)		31.9			34.8			41.9			21.6	
Approach LOS		C			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	34.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	76.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1155	50	245	650	30	210
Future Volume (Veh/h)	1155	50	245	650	30	210
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1255	54	266	707	33	228
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				874		
pX, platoon unblocked					0.85	
vC, conflicting volume			1309		2521	654
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1309		2707	654
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			49		0	44
cM capacity (veh/h)			524		7	409

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	837	472	266	707	261
Volume Left	0	0	266	0	33
Volume Right	0	54	0	0	228
cSH	1700	1700	524	1700	50
Volume to Capacity	0.49	0.28	0.51	0.42	5.21
Queue Length 95th (ft)	0	0	71	0	Err
Control Delay (s)	0.0	0.0	18.7	0.0	Err
Lane LOS			C		F
Approach Delay (s)	0.0		5.1		Err
Approach LOS					F

Intersection Summary			
Average Delay	1028.2		
Intersection Capacity Utilization	71.7%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	160	445	715	470	870	250	635	665	370	80	390	140
Future Volume (vph)	160	445	715	470	870	250	635	665	370	80	390	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	5.0	4.0	4.0		4.0	4.0	5.0	4.0	4.0	
Lane Util. Factor	1.00	0.95	0.88	0.97	0.95		0.97	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539	2787	3433	3421		3433	1863	1583	1770	1789	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3539	2787	3433	3421		3433	1863	1583	1770	1789	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	165	459	737	485	897	258	655	686	381	82	402	144
RTOR Reduction (vph)	0	0	90	0	22	0	0	0	65	0	10	0
Lane Group Flow (vph)	165	459	648	485	1133	0	655	686	316	82	536	0
Turn Type	Prot	NA	pt+ov	Prot	NA		Prot	NA	pt+ov	Prot	NA	
Protected Phases	1	6	6 7	5	2		7	4	4 5	3	8	
Permitted Phases												
Actuated Green, G (s)	12.0	35.0	60.0	15.0	39.0		20.0	45.0	65.0	6.0	30.0	
Effective Green, g (s)	12.0	36.0	60.0	16.0	40.0		21.0	46.0	65.0	6.0	31.0	
Actuated g/C Ratio	0.10	0.30	0.50	0.13	0.33		0.18	0.38	0.54	0.05	0.26	
Clearance Time (s)	4.0	5.0		5.0	5.0		5.0	5.0		4.0	5.0	
Vehicle Extension (s)	1.5	3.1		2.0	3.1		2.0	3.1		1.5	3.1	
Lane Grp Cap (vph)	177	1061	1393	457	1140		600	714	857	88	462	
v/s Ratio Prot	0.09	0.13	0.23	c0.14	c0.33		c0.19	0.37	0.20	0.05	c0.30	
v/s Ratio Perm												
v/c Ratio	0.93	0.43	0.46	1.06	0.99		1.09	0.96	0.37	0.93	1.16	
Uniform Delay, d1	53.6	33.8	19.5	52.0	39.9		49.5	36.1	15.7	56.8	44.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	47.7	1.3	0.1	59.3	25.2		64.2	24.3	0.3	72.6	93.5	
Delay (s)	101.3	35.1	19.6	111.3	65.1		113.7	60.5	16.0	129.4	138.0	
Level of Service	F	D	B	F	E		F	E	B	F	F	
Approach Delay (s)		34.7			78.8			70.9			136.8	
Approach LOS		C			E			E			F	

Intersection Summary			
HCM 2000 Control Delay	71.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.12		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	101.4%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	375	400	1270	0	0	1290
Future Volume (vph)	375	400	1270	0	0	1290
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0			4.0
Lane Util. Factor	0.97	1.00	0.95			0.95
Frt	1.00	0.85	1.00			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	3433	1583	3539			3539
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	3433	1583	3539			3539
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	383	408	1296	0	0	1316
RTOR Reduction (vph)	0	23	0	0	0	0
Lane Group Flow (vph)	383	385	1296	0	0	1316
Turn Type	Prot	Prot	NA			NA
Protected Phases	8	8	6			2
Permitted Phases						
Actuated Green, G (s)	14.7	14.7	21.9			21.9
Effective Green, g (s)	16.2	16.2	23.4			23.4
Actuated g/C Ratio	0.34	0.34	0.49			0.49
Clearance Time (s)	5.5	5.5	5.5			5.5
Vehicle Extension (s)	2.5	2.5	3.5			3.5
Lane Grp Cap (vph)	1168	538	1739			1739
v/s Ratio Prot	0.11	c0.24	0.37			c0.37
v/s Ratio Perm						
v/c Ratio	0.33	0.72	0.75			0.76
Uniform Delay, d1	11.7	13.7	9.7			9.8
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	0.1	4.2	1.8			2.0
Delay (s)	11.8	17.9	11.5			11.8
Level of Service	B	B	B			B
Approach Delay (s)	14.9		11.5			11.8
Approach LOS	B		B			B

Intersection Summary			
HCM 2000 Control Delay	12.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	47.6	Sum of lost time (s)	8.0
Intersection Capacity Utilization	111.0%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	205	0	210	0	0	0	0	1255	275	330	1340	0
Future Volume (vph)	205	0	210	0	0	0	0	1255	275	330	1340	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0					4.0	4.0	4.5	4.0	
Lane Util. Factor	0.95	0.91	0.95					0.95	1.00	1.00	0.95	
Frt	1.00	0.92	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.98	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1681	1520	1504					3539	1583	1770	3539	
Flt Permitted	0.95	0.98	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1681	1520	1504					3539	1583	1770	3539	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	209	0	214	0	0	0	0	1281	281	337	1367	0
RTOR Reduction (vph)	0	108	102	0	0	0	0	0	52	0	0	0
Lane Group Flow (vph)	146	34	33	0	0	0	0	1281	229	337	1367	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		3						2 4		1 10	5 6	
Permitted Phases	3		3						2 4			
Actuated Green, G (s)	28.8	28.8	28.8					51.3	51.3	26.0	72.3	
Effective Green, g (s)	28.8	28.8	28.8					51.3	51.3	26.0	72.3	
Actuated g/C Ratio	0.24	0.24	0.24					0.43	0.43	0.22	0.61	
Clearance Time (s)	4.0	4.0	4.0									
Vehicle Extension (s)	2.5	2.5	2.5									
Lane Grp Cap (vph)	408	369	365					1530	684	388	2157	
v/s Ratio Prot								c0.36		c0.19	0.39	
v/s Ratio Perm	c0.09	0.02	0.02						0.14			
v/c Ratio	0.36	0.09	0.09					0.84	0.34	0.87	0.63	
Uniform Delay, d1	37.2	34.8	34.8					29.9	22.3	44.7	14.7	
Progression Factor	1.00	1.00	1.00					0.76	0.47	1.00	1.00	
Incremental Delay, d2	0.4	0.1	0.1					3.0	0.2	18.0	0.5	
Delay (s)	37.6	34.9	34.8					25.7	10.7	62.6	15.3	
Level of Service	D	C	C					C	B	E	B	
Approach Delay (s)		35.8			0.0			23.0			24.6	
Approach LOS		D			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	25.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	118.6	Sum of lost time (s)	21.0
Intersection Capacity Utilization	71.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	315	65	35	15	60	165	40	1050	15	85	1230	230
Future Volume (vph)	315	65	35	15	60	165	40	1050	15	85	1230	230
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5			4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frt		0.99			1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected		0.96			0.99	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1774			1845	1583	1770	3539	1583	1770	3456	
Flt Permitted		0.73			0.91	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1341			1704	1583	1770	3539	1583	1770	3456	
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	318	66	35	15	61	167	40	1061	15	86	1242	232
RTOR Reduction (vph)	0	3	0	0	0	113	0	0	10	0	13	0
Lane Group Flow (vph)	0	416	0	0	76	54	40	1061	5	86	1461	0
Turn Type	Perm	NA		Perm	NA	Perm	Prot	NA	custom	Prot	NA	
Protected Phases		3 4			8		5	2 10		1	6	
Permitted Phases	3 4			8		8			2			
Actuated Green, G (s)		38.3			38.3	38.3	15.5	51.3	41.8	16.5	52.8	
Effective Green, g (s)		38.8			38.3	38.3	15.5	46.8	41.8	17.0	52.8	
Actuated g/C Ratio		0.33			0.32	0.32	0.13	0.39	0.35	0.14	0.45	
Clearance Time (s)					4.0	4.0	4.0		4.0	4.5	4.0	
Vehicle Extension (s)					2.5	2.5	2.5		2.5	2.4	2.5	
Lane Grp Cap (vph)		438			550	511	231	1396	557	253	1538	
v/s Ratio Prot							0.02	c0.30		0.05	c0.42	
v/s Ratio Perm		c0.31			0.04	0.03			0.00			
v/c Ratio		0.95			0.14	0.11	0.17	0.76	0.01	0.34	0.95	
Uniform Delay, d1		39.0			28.5	28.1	45.9	31.0	24.9	45.7	31.6	
Progression Factor		1.00			1.00	1.00	1.00	1.00	1.00	1.27	0.59	
Incremental Delay, d2		30.6			0.1	0.1	0.3	2.4	0.0	2.8	11.2	
Delay (s)		69.5			28.5	28.2	46.1	33.4	25.0	60.7	29.9	
Level of Service		E			C	C	D	C	C	E	C	
Approach Delay (s)		69.5			28.3			33.8			31.6	
Approach LOS		E			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	36.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	118.6	Sum of lost time (s)	19.5
Intersection Capacity Utilization	84.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	735	160	40	1440	160	45
Future Volume (vph)	735	160	40	1440	160	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.95	1.00	1.00	0.95	0.97	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1583	1770	3539	3433	1583
Flt Permitted	1.00	1.00	0.33	1.00	0.95	1.00
Satd. Flow (perm)	3539	1583	611	3539	3433	1583
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	758	165	41	1485	165	46
RTOR Reduction (vph)	0	31	0	0	0	40
Lane Group Flow (vph)	758	134	41	1485	165	6
Turn Type	NA	pm+ov	pm+pt	NA	Prot	pm+ov
Protected Phases	2	8	1	6	8	1
Permitted Phases		2	6			8
Actuated Green, G (s)	64.9	73.0	72.9	72.9	8.1	12.1
Effective Green, g (s)	65.9	73.0	72.9	73.9	8.1	12.1
Actuated g/C Ratio	0.73	0.81	0.81	0.82	0.09	0.13
Clearance Time (s)	5.0	4.0	4.0	5.0	4.0	4.0
Vehicle Extension (s)	3.2	2.0	1.5	3.2	2.0	1.5
Lane Grp Cap (vph)	2591	1283	546	2905	308	283
v/s Ratio Prot	0.21	0.01	0.00	c0.42	c0.05	0.00
v/s Ratio Perm		0.08	0.06			0.00
v/c Ratio	0.29	0.10	0.08	0.51	0.54	0.02
Uniform Delay, d1	4.1	1.8	1.9	2.5	39.2	33.8
Progression Factor	1.00	1.00	2.19	3.45	1.00	1.00
Incremental Delay, d2	0.3	0.0	0.0	0.5	0.9	0.0
Delay (s)	4.4	1.8	4.3	9.1	40.1	33.8
Level of Service	A	A	A	A	D	C
Approach Delay (s)	3.9			9.0	38.7	
Approach LOS	A			A	D	

Intersection Summary			
HCM 2000 Control Delay	9.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	51.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	245	520	15	60	1395	245	25	20	25	80	150	60
Future Volume (vph)	245	520	15	60	1395	245	25	20	25	80	150	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.92		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1708		1770	1863	1583
Flt Permitted	0.11	1.00	1.00	0.45	1.00	1.00	0.46	1.00		0.73	1.00	1.00
Satd. Flow (perm)	199	3539	1583	843	3539	1583	864	1708		1353	1863	1583
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	253	536	15	62	1438	253	26	21	26	82	155	62
RTOR Reduction (vph)	0	0	5	0	0	96	0	23	0	0	0	54
Lane Group Flow (vph)	253	536	10	62	1438	157	26	24	0	82	155	8
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2		2	6		6	8			4		4
Actuated Green, G (s)	69.5	61.3	61.3	59.1	54.9	54.9	11.5	11.5		11.5	11.5	11.5
Effective Green, g (s)	69.5	62.3	62.3	59.1	55.9	55.9	11.5	11.5		11.5	11.5	11.5
Actuated g/C Ratio	0.77	0.69	0.69	0.66	0.62	0.62	0.13	0.13		0.13	0.13	0.13
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	1.5	3.1	3.1	1.5	3.1	3.1	2.5	2.5		3.0	3.0	3.0
Lane Grp Cap (vph)	338	2449	1095	596	2198	983	110	218		172	238	202
v/s Ratio Prot	c0.09	0.15		0.00	0.41			0.01			c0.08	
v/s Ratio Perm	c0.49		0.01	0.06		0.10	0.03			0.06		0.01
v/c Ratio	0.75	0.22	0.01	0.10	0.65	0.16	0.24	0.11		0.48	0.65	0.04
Uniform Delay, d1	16.6	5.0	4.3	5.5	10.9	7.2	35.3	34.7		36.5	37.3	34.4
Progression Factor	0.90	1.76	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	7.5	0.2	0.0	0.0	1.5	0.3	0.8	0.2		2.1	6.2	0.1
Delay (s)	22.6	9.0	4.3	5.5	12.4	7.5	36.1	34.9		38.5	43.6	34.5
Level of Service	C	A	A	A	B	A	D	C		D	D	C
Approach Delay (s)		13.2			11.5			35.3			40.3	
Approach LOS		B			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	15.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	78.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	785	470	385	0	755	495	305	200	0
Future Volume (vph)	0	0	0	785	470	385	0	755	495	305	200	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5	4.5	4.5		4.5	4.0	5.0	5.0	
Lane Util. Factor				0.95	0.95	1.00		0.95	1.00	1.00	0.95	
Frt				1.00	1.00	0.85		1.00	0.85	1.00	1.00	
Flt Protected				0.95	0.99	1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)				1681	1747	1583		3539	1583	1770	3539	
Flt Permitted				0.95	0.99	1.00		1.00	1.00	0.95	1.00	
Satd. Flow (perm)				1681	1747	1583		3539	1583	1770	3539	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	0	0	818	490	401	0	786	516	318	208	0
RTOR Reduction (vph)	0	0	0	0	0	5	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	646	662	396	0	786	516	318	208	0
Turn Type				Split	NA	pt+ov		NA	Free	Prot	NA	
Protected Phases				1	1	1 2		8		2	2 8	
Permitted Phases									Free			
Actuated Green, G (s)				40.9	40.9	66.5		24.5	100.5	21.1	50.6	
Effective Green, g (s)				40.9	40.9	66.5		24.5	100.5	21.1	50.6	
Actuated g/C Ratio				0.41	0.41	0.66		0.24	1.00	0.21	0.50	
Clearance Time (s)				4.5	4.5			4.5		5.0		
Vehicle Extension (s)				2.3	2.3			2.3		4.1		
Lane Grp Cap (vph)				684	710	1047		862	1583	371	1781	
v/s Ratio Prot				c0.38	0.38	0.25		c0.22		c0.18	0.06	
v/s Ratio Perm									0.33			
v/c Ratio				0.94	0.93	0.38		0.91	0.33	0.86	0.12	
Uniform Delay, d1				28.7	28.5	7.7		36.9	0.0	38.2	13.2	
Progression Factor				1.00	1.00	1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2				21.6	19.0	0.1		13.6	0.5	18.1	0.0	
Delay (s)				50.3	47.5	7.8		50.6	0.5	56.3	13.2	
Level of Service				D	D	A		D	A	E	B	
Approach Delay (s)		0.0			39.2			30.8			39.3	
Approach LOS		A			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	36.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	100.5	Sum of lost time (s)	14.0
Intersection Capacity Utilization	83.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	640	70	375	1200	25	100	80	380	70	220	350
Future Volume (vph)	90	640	70	375	1200	25	100	80	380	70	220	350
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3487		1770	3528		1770	1863	1583	1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3487		1770	3528		1770	1863	1583	1770	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	98	696	76	408	1304	27	109	87	413	76	239	380
RTOR Reduction (vph)	0	9	0	0	1	0	0	0	68	0	0	73
Lane Group Flow (vph)	98	763	0	408	1330	0	109	87	345	76	239	307
Turn Type	Prot	NA		Prot	NA		Prot	NA	pm+ov	Prot	NA	custom
Protected Phases	5	2		1	6		3	8	1	7	4	4 5
Permitted Phases									8			4
Actuated Green, G (s)	7.2	29.2		28.7	50.7		9.9	23.1	51.8	7.0	20.2	31.4
Effective Green, g (s)	7.2	30.2		28.7	51.7		9.9	23.1	51.8	7.0	20.2	31.4
Actuated g/C Ratio	0.07	0.29		0.27	0.49		0.09	0.22	0.49	0.07	0.19	0.30
Clearance Time (s)	4.0	5.0		4.0	5.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	1.5	3.1		1.5	3.1		1.5	2.0	1.5	1.5	2.0	
Lane Grp Cap (vph)	235	1002		483	1737		166	409	841	118	358	473
v/s Ratio Prot	0.03	0.22		c0.23	c0.38		c0.06	0.05	c0.11	0.04	0.13	c0.19
v/s Ratio Perm									0.11			
v/c Ratio	0.42	0.76		0.84	0.77		0.66	0.21	0.41	0.64	0.67	0.65
Uniform Delay, d1	46.9	34.1		36.0	21.7		45.9	33.5	16.9	47.8	39.3	32.0
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	5.5		12.3	3.3		6.9	0.1	0.1	8.7	3.6	2.3
Delay (s)	47.3	39.6		48.3	25.0		52.9	33.6	17.0	56.5	42.9	34.3
Level of Service	D	D		D	C		D	C	B	E	D	C
Approach Delay (s)		40.5			30.5			25.8			39.7	
Approach LOS		D			C			C			D	

Intersection Summary			
HCM 2000 Control Delay	33.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	71.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	955	75	420	1215	75	355
Future Volume (Veh/h)	955	75	420	1215	75	355
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1038	82	457	1321	82	386
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				874		
pX, platoon unblocked					0.67	
vC, conflicting volume			1120		3314	560
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1120		4221	560
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			26		0	18
cM capacity (veh/h)			619		0	472

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	692	428	457	1321	468
Volume Left	0	0	457	0	82
Volume Right	0	82	0	0	386
cSH	1700	1700	619	1700	1
Volume to Capacity	0.41	0.25	0.74	0.78	333.17
Queue Length 95th (ft)	0	0	160	0	Err
Control Delay (s)	0.0	0.0	25.4	0.0	Err
Lane LOS			D		F
Approach Delay (s)	0.0		6.5		Err
Approach LOS					F

Intersection Summary			
Average Delay	1393.7		
Intersection Capacity Utilization	96.7%	ICU Level of Service	F
Analysis Period (min)	15		

APPENDIX H –

With Project Queuing

PROJECT (2021)

			AM			PM			AM		PM	
No.	Intersection	Lane Group	LOS	Delay	V/C	LOS	Delay	V/C	95th % Queue	Storage	95th % Queue	Storage
1	SW Cedar Hills Blvd at SW Barnes Rd	OVERALL	D	46.9	0.9	E	71.8	1.12				
		EB L	E	61.50	0.64	F	101.30	0.93	150	320	175	320
		EB T	D	39.90	0.68	D	35.10	0.43	550		200	
		EB R	C	27.70	0.59	B	19.60	0.46	**425**	400	275	400
		WB L	F	88.80	0.97	F	111.30	1.06	275	315	**500**	315
		WB T/R	C	34.10	0.57	E	65.10	0.99	300		500	
		NB L	F	88.10	0.97	F	113.70	1.09	350	380	350	380
		NB T	C	25.20	0.50	E	60.50	0.96	350		350	
		NB R	B	13.80	0.26	B	15.90	0.37	**350**	135	350	135
		SB L	E	56.30	0.63	F	129.40	0.93	**675**	375	**675**	375
		SB T/R	E	64.60	0.98	F	138.00	1.16	1825		1925	
2	SW Cedar Hills Blvd at US 26 WB Ramps	OVERALL	B	10.30	0.65	B	12.40	0.74				
		WB L	B	14.40	0.53	B	11.80	0.33	550		550	
		WB R	B	13.00	0.24	B	17.90	0.72	300		1025	
		NB T	A	7.10	0.43	B	11.5	0.75	525		525	
		SB T	B	10.0	0.72	B	11.8	0.76	225		175	
3	SW Cedar Hills Blvd at US 26 EB Ramps	OVERALL	C	27.1	0.75	C	25.2	0.78				
		EB L/T	F	94.3	0.87	D	37.6	0.36	**375**		**550**	
		EB R	D	51.0	0.07	C	34.8	0.09	**350**		**500**	
		NB T/R	B	15.6	0.42	C	25.7	0.84	150		150	
		SB L	D	50.0	0.83	E	62.6	0.87	400	375	375	375
		SB T	B	18.6	0.71	B	15.3	0.63	475		400	
4	SW Cedar Hills Blvd at SW Butner Rd	OVERALL	D	38.1	0.99	D	36.5	1.02				
		EB L/T/R	E	70.90	0.96	E	69.50	0.95	400		975	
		WB L/T	C	26.00	0.05	C	28.50	0.14	100		1100	
		WB R	C	25.90	0.05	C	28.20	0.11	**75**	25	**75**	25
		NB L	D	52.90	0.14	D	46.10	0.17	50	225	**325**	225
		NB T	C	23.90	0.43	C	33.40	0.76	475		1150	
		NB R	C	33.20	0.01	C	25.00	0.01	50	300	**450**	300
		SB L	E	74.90	0.73	E	60.70	0.34	**125**	60	**125**	60
		SB T/R	C	32.20	0.99	C	29.90	0.95	150		150	
5	Towne Square West Access at SW Barnes R	OVERALL	A	3.30	0.34	A	9.60	0.54				
		EB T	A	2.80	0.35	A	4.40	0.29	75		150	
		EB R	A	1.10	0.03	A	1.80	0.10	25	240	50	240
		WB L	A	0.80	0.01	A	4.30	0.08	25	135	**225**	135
		WB T	A	2.60	0.32	A	9.10	0.51	100		550	
		NB L	D	40.90	0.18	D	40.1	0.54	50	155	125	155
		NB R	D	39.40	0.00	C	33.80	0.02	25		50	
6	SW Valeria View Dr at SW Barnes Rd	OVERALL	B	18.80	0.57	B	15.50	0.75				
		EB L	B	10.60	0.27	C	22.60	0.75	100	250	200	250
		EB T	B	14.80	0.44	A	9.00	0.22	200		100	
		EB R	A	9.40	0.01	A	4.30	0.01	25	165	25	165
		WB L	B	10.90	0.09	A	5.50	0.10	50	100	**175**	100
		WB T	B	14.10	0.37	B	12.40	0.65	150		450	
		WB R	B	11.50	0.05	A	7.50	0.16	50	565	150	565
		NB L	C	22.50	0.04	D	36.10	0.24	50		75	
		NB T/R	C	22.4	0.03	C	34.9	0.11	50		75	
		SB L	D	39.6	0.80	D	38.50	0.48	250	250	100	250
		SB L/T	C	22.4	0.03	D	43.60	0.65	75		150	
		SB R	C	23.8	0.20	C	34.50	0.04	125	250	75	250
7	Beaverton/Tigard Interchange	OVERALL	B	15.9	0.78	D	36.10	0.91				
		WB L	C	27.5	0.76	D	50.30	0.94	275		475	
		WB L/T	C	26.9	0.76	D	47.50	0.93	325		550	
		WB R	A	3.5	0.10	A	7.80	0.38	175	240	**425**	240
		NB T	C	28.0	0.64	D	50.6	0.91	150		300	
		NB R	A	1.8	0.61	A	0.5	0.33	0		50	
		SB L	C	26.3	0.75	E	56.3	0.86	250		250	
		SB T	A	7.0	0.13	B	13.2	0.12	75	300	75	300
8	SW Baltic Ave at SW Barnes Rd	OVERALL	C	34.8	0.81	C	33.6	0.78				
		EB L	D	46.9	0.77	D	47.3	0.42	**200**	200	75	200
		EB T/R	C	26.3	0.71	D	39.6	0.76	375		275	
		WB L	E	70.1	0.82	D	48.3	0.84	175	200	**350**	200
		WB T/R	C	29.5	0.68	C	25.0	0.77	375		775	
		NB L	D	48.7	0.50	D	52.9	0.66	125	325	150	325
		NB T	D	51.4	0.89	C	33.6	0.21	400		125	
		NB R	C	34.4	0.80	B	17.0	0.41	350		175	
		SB L	D	48.4	0.40	E	56.5	0.64	75	75	**150**	75
		SB T	C	27.4	0.14	D	42.9	0.67	100		375	
		SB R	B	14.9	0.11	C	34.3	0.65	100	200	**275**	200
9	SW Barnes Road at NW 116th Ave	WORST	F	ERR	ERR	F	ERR	ERR				
		EB T/R	-	0.0	0.49	-	0.0	0.41	200		25	
		WB L	C	18.7	0.51	D	25.4	0.74	175		325	
		WB T	-	0.0	0.42	-	0.0	0.75	25		100	
		NB L/R	F	ERR	>2.0	F	ERR	>2.0	300		350	

Intersection: 10: SW Cedar Hills Blvd & SW Barnes Rd

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	T	T	R	R	L	L	T	TR	L	L	T
Maximum Queue (ft)	177	593	638	392	345	270	293	303	344	296	310	308
Average Queue (ft)	59	233	252	297	145	160	158	124	166	224	261	257
95th Queue (ft)	129	488	597	422	383	261	285	264	292	300	346	369
Link Distance (ft)		794	794					486	486	225	225	225
Upstream Blk Time (%)		0	3					0	0	19	52	27
Queuing Penalty (veh)		0	18					2	0	63	173	92
Storage Bay Dist (ft)	320			295	295	315	315					
Storage Blk Time (%)		0	0	16	0	2	3	1				34
Queuing Penalty (veh)		0	1	45	0	4	6	3				92

Intersection: 10: SW Cedar Hills Blvd & SW Barnes Rd

Movement	NB	SB	SB
Directions Served	R	L	TR
Maximum Queue (ft)	225	500	1655
Average Queue (ft)	162	295	1101
95th Queue (ft)	284	660	1810
Link Distance (ft)			1973
Upstream Blk Time (%)	1		4
Queuing Penalty (veh)	0		0
Storage Bay Dist (ft)	135	375	
Storage Blk Time (%)	8		63
Queuing Penalty (veh)	30		56

Intersection: 15: SW Cedar Hills Blvd & US 26 WB On Ramp

Movement	NB	NB	SB	SB	SB
Directions Served	T	T	T	TR	R
Maximum Queue (ft)	166	185	184	174	67
Average Queue (ft)	80	115	36	39	11
95th Queue (ft)	186	230	173	191	76
Link Distance (ft)	103	103	225	225	225
Upstream Blk Time (%)	22	34	3	6	
Queuing Penalty (veh)	111	171	16	33	
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 20: SW Cedar Hills Blvd & US 26 WB Off Ramp

Movement	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	L	R	T	T	T	T
Maximum Queue (ft)	578	562	463	105	116	191	176
Average Queue (ft)	223	175	75	77	90	141	138
95th Queue (ft)	564	522	287	117	113	195	190
Link Distance (ft)	1118	1118	1118	40	40	103	103
Upstream Blk Time (%)	1	0		33	49	18	18
Queuing Penalty (veh)	0	0		128	187	114	118
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 25: SW Cedar Hills Blvd

Movement	NB	NB	SB	SB
Directions Served	T	TR	T	T
Maximum Queue (ft)	505	497	47	47
Average Queue (ft)	167	248	9	8
95th Queue (ft)	477	539	57	52
Link Distance (ft)	485	485	40	40
Upstream Blk Time (%)	5	9	6	6
Queuing Penalty (veh)	22	41	56	57
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 30: SW Cedar Hills Blvd & US 26 EB Off Ramp/US 26 EB On Ramp

Movement	EB	EB	EB	NB	NB	NB	SB	SB	SB
Directions Served	L	LTR	R	T	T	R	L	T	T
Maximum Queue (ft)	318	350	335	164	183	115	386	458	449
Average Queue (ft)	112	188	140	109	126	54	221	263	275
95th Queue (ft)	283	351	333	181	198	145	381	468	472
Link Distance (ft)	1073	1073	1073	130	130			485	485
Upstream Blk Time (%)				9	15	0		7	7
Queuing Penalty (veh)				38	64	0		63	65
Storage Bay Dist (ft)						65	375		
Storage Blk Time (%)					29	0	1	7	
Queuing Penalty (veh)					39	1	9	30	

Intersection: 40: SW Cedar Hills Blvd & SW Butner Rd

Movement	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	T	R	L	T	TR
Maximum Queue (ft)	461	103	50	50	511	521	31	130	170	163
Average Queue (ft)	203	26	32	11	173	211	9	66	98	99
95th Queue (ft)	394	93	58	35	456	479	29	116	172	166
Link Distance (ft)	914	933			1040	1040			130	130
Upstream Blk Time (%)					1	1		2	10	12
Queuing Penalty (veh)					0	0		0	78	94
Storage Bay Dist (ft)			25	225			300	60		
Storage Blk Time (%)		12	13		8	10		33	20	
Queuing Penalty (veh)		9	3		1	1		215	27	

Intersection: 50: Town Square West Access & SW Barnes Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB
Directions Served	T	T	R	L	T	T	L	L	R
Maximum Queue (ft)	101	92	30	36	106	117	43	53	22
Average Queue (ft)	16	22	4	3	24	24	10	14	4
95th Queue (ft)	59	68	19	19	76	78	34	42	17
Link Distance (ft)	486	486			542	542		291	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)			240	135			155		155
Storage Blk Time (%)					0				
Queuing Penalty (veh)					0				

Intersection: 60: Town Square East Access/SW Valeria View Dr & SW Barnes Rd

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	T	R	L	TR	L	T
Maximum Queue (ft)	126	226	238	20	46	163	175	56	46	60	275	88
Average Queue (ft)	39	72	87	2	11	73	64	17	13	14	155	10
95th Queue (ft)	87	176	192	11	36	145	137	45	37	40	246	52
Link Distance (ft)		542	542			1048	1048		455	455		704
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	250			165	100			565			250	
Storage Blk Time (%)		0	2			4					1	
Queuing Penalty (veh)		0	0			1					3	

Intersection: 60: Town Square East Access/SW Valeria View Dr & SW Barnes Rd

Movement	SB
Directions Served	R
Maximum Queue (ft)	126
Average Queue (ft)	63
95th Queue (ft)	110
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	250
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 70: OR 217 & SW Barnes Rd

Movement	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	LT	R	T	T	L	T	T
Maximum Queue (ft)	277	369	290	190	160	264	61	86
Average Queue (ft)	147	197	26	102	72	135	15	36
95th Queue (ft)	252	318	161	161	127	236	43	76
Link Distance (ft)	495	495		868	868	437	437	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)			240					300
Storage Blk Time (%)		5	0					
Queuing Penalty (veh)		7	0					

Intersection: 80: Baltic Ave & SW Barnes Rd

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	L	T	TR	L	T	TR	L	T	R	L	T
Maximum Queue (ft)	170	274	406	415	224	372	426	160	451	407	68	124
Average Queue (ft)	105	137	202	224	87	163	216	32	239	195	23	44
95th Queue (ft)	158	236	341	358	171	303	359	118	387	328	56	97
Link Distance (ft)			495	495		624	624		564	564		483
Upstream Blk Time (%)				0								
Queuing Penalty (veh)				0								
Storage Bay Dist (ft)	200	200			200			325			75	
Storage Blk Time (%)		0	7		0	4			3		2	5
Queuing Penalty (veh)		0	27		0	5			1		4	8

Intersection: 80: Baltic Ave & SW Barnes Rd

Movement	SB
Directions Served	R
Maximum Queue (ft)	102
Average Queue (ft)	45
95th Queue (ft)	87
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	200
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 90: SW Barnes Rd

Movement	EB	EB	WB	WB	NB
Directions Served	T	TR	L	T	LR
Maximum Queue (ft)	96	176	202	20	332
Average Queue (ft)	8	26	91	1	272
95th Queue (ft)	103	178	162	14	403
Link Distance (ft)	477	477	794	794	298
Upstream Blk Time (%)	1	1			71
Queuing Penalty (veh)	0	0			0
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Network Summary

Network wide Queuing Penalty: 2433

Intersection: 10: SW Cedar Hills Blvd & SW Barnes Rd

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	T	T	R	R	L	L	T	TR	L	L	T
Maximum Queue (ft)	201	231	287	363	301	390	465	551	516	296	312	328
Average Queue (ft)	102	120	101	163	40	302	404	465	443	230	281	300
95th Queue (ft)	172	193	197	343	183	452	556	610	572	283	334	323
Link Distance (ft)		794	794					486	486	229	229	229
Upstream Blk Time (%)								16	11	9	35	42
Queuing Penalty (veh)								128	88	49	194	230
Storage Bay Dist (ft)	320			295	295	315	315					
Storage Blk Time (%)				2	0	24	33	22				42
Queuing Penalty (veh)				4	0	102	144	105				157

Intersection: 10: SW Cedar Hills Blvd & SW Barnes Rd

Movement	NB	SB	SB
Directions Served	R	L	TR
Maximum Queue (ft)	229	500	1605
Average Queue (ft)	190	319	1416
95th Queue (ft)	311	675	1911
Link Distance (ft)			1564
Upstream Blk Time (%)	2		56
Queuing Penalty (veh)	0		0
Storage Bay Dist (ft)	220	375	
Storage Blk Time (%)	2		77
Queuing Penalty (veh)	12		62

Intersection: 15: SW Cedar Hills Blvd & US 26 WB On Ramp

Movement	NB	NB	SB	SB
Directions Served	T	T	T	TR
Maximum Queue (ft)	185	198	66	82
Average Queue (ft)	109	169	11	19
95th Queue (ft)	210	209	44	64
Link Distance (ft)	103	103	229	229
Upstream Blk Time (%)	19	55		
Queuing Penalty (veh)	161	456		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 20: SW Cedar Hills Blvd & US 26 WB Off Ramp

Movement	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	L	R	T	T	T	T
Maximum Queue (ft)	458	455	852	112	110	184	183
Average Queue (ft)	150	172	460	93	95	134	140
95th Queue (ft)	429	643	1008	107	104	196	196
Link Distance (ft)	1118	1118	1118	40	40	103	103
Upstream Blk Time (%)	0	3	6	51	69	10	12
Queuing Penalty (veh)	0	0	0	319	435	62	77
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 25: SW Cedar Hills Blvd

Movement	NB	NB	SB
Directions Served	T	TR	T
Maximum Queue (ft)	535	566	20
Average Queue (ft)	492	502	1
95th Queue (ft)	586	574	14
Link Distance (ft)	485	485	40
Upstream Blk Time (%)	25	32	0
Queuing Penalty (veh)	186	230	1
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 30: SW Cedar Hills Blvd & US 26 EB Off Ramp/US 26 EB On Ramp

Movement	EB	EB	EB	NB	NB	NB	SB	SB	SB
Directions Served	L	LTR	R	T	T	R	L	T	T
Maximum Queue (ft)	427	445	406	169	183	115	384	408	402
Average Queue (ft)	222	259	209	139	149	82	224	229	242
95th Queue (ft)	514	527	493	160	175	165	369	387	380
Link Distance (ft)	1073	1073	1073	130	130			485	485
Upstream Blk Time (%)				28	50	1		0	0
Queuing Penalty (veh)				216	382	0		4	0
Storage Bay Dist (ft)						65	375		
Storage Blk Time (%)					69	0	2	0	
Queuing Penalty (veh)					189	0	11	1	

Intersection: 40: SW Cedar Hills Blvd & SW Butner Rd

Movement	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	T	R	L	T	TR
Maximum Queue (ft)	965	740	64	275	1088	1090	425	128	191	196
Average Queue (ft)	941	516	48	109	1050	1053	120	57	134	153
95th Queue (ft)	957	1097	58	309	1134	1129	429	106	203	216
Link Distance (ft)	929	933			1040	1040			130	130
Upstream Blk Time (%)	99	33			65	88		0	17	28
Queuing Penalty (veh)	0	0			0	0		0	129	216
Storage Bay Dist (ft)			25	225			300	60		
Storage Blk Time (%)		15	74		74	84		23	35	
Queuing Penalty (veh)		25	56		30	13		142	30	

Intersection: 50: Town Square West Access & SW Barnes Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB
Directions Served	T	T	R	L	T	T	L	L	R
Maximum Queue (ft)	191	165	56	238	519	539	125	151	43
Average Queue (ft)	58	51	8	61	293	287	39	63	14
95th Queue (ft)	142	123	36	223	593	582	86	117	34
Link Distance (ft)	486	486			542	542		291	
Upstream Blk Time (%)					2	2			
Queuing Penalty (veh)					17	13			
Storage Bay Dist (ft)			240	135			155		155
Storage Blk Time (%)					28		0	0	
Queuing Penalty (veh)					11		0	0	

Intersection: 60: Town Square East Access/SW Valeria View Dr & SW Barnes Rd

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	T	R	L	TR	L	T
Maximum Queue (ft)	231	126	132	19	199	470	475	208	63	62	116	189
Average Queue (ft)	101	22	36	1	49	241	223	46	19	23	51	81
95th Queue (ft)	181	74	92	9	162	455	438	139	52	53	98	150
Link Distance (ft)		542	542			1048	1048		455	455		704
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	250			165	100			565			250	
Storage Blk Time (%)	0		0			27	1					0
Queuing Penalty (veh)	1		0			16	1					0

Intersection: 60: Town Square East Access/SW Valeria View Dr & SW Barnes Rd

Movement	SB
Directions Served	R
Maximum Queue (ft)	87
Average Queue (ft)	25
95th Queue (ft)	58
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	250
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 70: OR 217 & SW Barnes Rd

Movement	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	LT	R	T	T	R	L	T	T
Maximum Queue (ft)	527	562	290	325	302	69	279	62	98
Average Queue (ft)	295	378	184	210	179	2	135	14	38
95th Queue (ft)	474	571	412	297	275	49	242	43	83
Link Distance (ft)	545	545		879	879		417	417	
Upstream Blk Time (%)	0	1							
Queuing Penalty (veh)	0	6							
Storage Bay Dist (ft)			240			250			300
Storage Blk Time (%)		22	0		1				
Queuing Penalty (veh)		83	0		5				

Intersection: 80: Baltic Ave & SW Barnes Rd

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	L	T	TR	L	T	TR	L	T	R	L	T
Maximum Queue (ft)	70	110	287	307	300	877	881	164	159	200	161	425
Average Queue (ft)	18	48	157	185	262	412	427	79	56	94	65	182
95th Queue (ft)	49	87	259	290	347	768	767	140	112	166	140	359
Link Distance (ft)			545	545		3582	3582		564	564		483
Upstream Blk Time (%)												1
Queuing Penalty (veh)												0
Storage Bay Dist (ft)	200	200			200			325			75	
Storage Blk Time (%)		0	3		39	9					9	38
Queuing Penalty (veh)		0	3		238	35					52	161

Intersection: 80: Baltic Ave & SW Barnes Rd

Movement	SB
Directions Served	R
Maximum Queue (ft)	225
Average Queue (ft)	159
95th Queue (ft)	252
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	200
Storage Blk Time (%)	6
Queuing Penalty (veh)	16

Intersection: 90: SW Barnes Rd

Movement	EB	EB	WB	WB	NB
Directions Served	T	TR	L	T	LR
Maximum Queue (ft)	13	28	384	201	341
Average Queue (ft)	0	3	148	7	310
95th Queue (ft)	7	17	309	87	329
Link Distance (ft)	477	477	794	794	298
Upstream Blk Time (%)					100
Queuing Penalty (veh)					0
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Network Summary

Network wide Queuing Penalty: 5304

APPENDIX I –

With Project Mitigation Operations and Queuing and Signal Warrant Analysis

MITIGATED PROJECT (2021)

			AM			PM			AM		PM	
No.	Intersection	Lane Group	LOS	Delay	V/C	LOS	Delay	V/C	95th % Queue	Storage	95th % Queue	Storage
1	SW Cedar Hills Blvd at SW Barnes Rd	OVERALL	D	39.9	0.79	E	53.7	1.01				
		EB L	E	66.00	0.65	F	101.30	0.93	125	320	275	320
		EB T	D	35.20	0.54	D	38.20	0.48	350		225	
		EB R	C	21.00	0.52	C	22.20	0.51	325	400	250	400
		WB L	E	64.10	0.83	F	58.60	0.84	225	315	**325**	315
		WB T/R	C	28.50	0.45	E	59.50	0.97	225		500	
		NB L	E	59.60	0.78	E	60.50	0.89	225	380	350	380
		NB T	D	44.90	0.84	E	67.80	0.98	350		350	
		NB R	A	7.80	0.35	C	21.40	0.37	**350**	135	**350**	135
		SB L	D	43.20	0.30	F	125.60	0.92	300	375	275	375
		SB T/R	E	59.30	0.92	E	64.00	0.91	350		350	
2	SW Cedar Hills Blvd at US 26 WB Ramps	OVERALL	B	10.60	0.63	B	15.00	0.71				
		WB L	C	21.10	0.63	B	15.90	0.35	250		175	
		WB R	B	18.30	0.28	C	25.20	0.77	150		600	
		NB T	A	2.20	0.37	B	16.0	0.67	450		525	
		SB T	B	10.0	0.63	B	10.5	0.68	350		150	
3	SW Cedar Hills Blvd at US 26 EB Ramps	OVERALL	C	20.5	0.70	B	19.5	0.77				
		EB L	E	78.0	0.80	D	43.3	0.45	275	400	400	400
		EB L/T/R	D	50.5	0.08	D	39.7	0.09	300		500	
		EB R	D	50.4	0.07	D	39.7	0.09	275	400	425	400
		NB T/R	B	15.9	0.42	C	21.3	0.81	150		150	
		SB L	D	44.2	0.84	D	43.0	0.75	**475**	375	**425**	375
		SB T	A	7.5	0.54	A	7.8	0.52	525		425	
4	SW Cedar Hills Blvd at SW Butner Rd	OVERALL	D	37.0	0.97	D	36.0	0.96				
		EB L/T/R	E	65.70	0.94	E	56.60	0.89	325		975	
		WB L/T	C	25.60	0.05	C	27.40	0.13	75		225	
		WB R	C	25.60	0.05	C	27.20	0.10	**75**	25	**75**	25
		NB L	E	58.40	0.28	D	54.10	0.32	50	225	**300**	225
		NB T	C	24.40	0.43	D	43.70	0.87	225		1100	
		NB R	C	33.80	0.01	C	29.50	0.01	50	300	**425**	300
		SB L	E	68.70	0.73	D	47.90	0.27	**150**	60	**125**	60
		SB T/R	C	31.80	0.94	C	24.80	0.86	150		150	
5	Towne Square West Access at SW Barnes R	OVERALL	A	3.30	0.34	A	9.60	0.54				
		EB T	A	2.80	0.35	A	4.40	0.29	75		125	
		EB R	A	1.10	0.03	A	1.80	0.10	25	240	25	240
		WB L	A	0.80	0.01	A	4.30	0.08	25	135	100	135
		WB T	A	2.60	0.32	A	9.10	0.51	100		300	
		NB L	D	40.90	0.18	D	40.1	0.54	50	155	125	155
		NB R	D	39.40	0.00	C	33.80	0.02	25		50	
6	SW Valeria View Dr at SW Barnes Rd	OVERALL	B	18.80	0.57	B	15.50	0.75				
		EB L	B	10.60	0.27	C	22.60	0.75	75	250	200	250
		EB T	B	14.80	0.44	A	9.00	0.22	200		125	
		EB R	A	9.40	0.01	A	4.30	0.01	25	165	25	165
		WB L	B	10.90	0.09	A	5.50	0.10	50	100	**175**	100
		WB T	B	14.10	0.37	B	12.40	0.65	175		400	
		WB R	B	11.50	0.05	A	7.50	0.16	50	565	100	565
		NB L	C	22.50	0.04	D	36.10	0.24	50		75	
		NB T/R	C	22.4	0.03	C	34.9	0.11	50		50	
		SB L	D	39.6	0.80	D	38.50	0.48	250	250	100	250
		SB L/T	C	22.4	0.03	D	43.60	0.65	50		150	
		SB R	C	23.8	0.20	C	34.50	0.04	125	250	75	250
7	Beaverton/Tigard Interchange	OVERALL	B	15.9	0.78	D	36.30	0.90				
		WB L	C	27.5	0.76	D	49.80	0.93	275		475	
		WB L/T	C	26.9	0.76	D	47.00	0.92	325		550	
		WB R	A	3.5	0.10	A	8.30	0.38	175	240	**425**	240
		NB T	C	28.0	0.64	D	50.6	0.90	150		300	
		NB R	A	1.8	0.61	A	0.5	0.33	0		50	250
		SB L	C	26.3	0.75	E	59.0	0.86	300		250	
		SB T	A	7.0	0.13	B	14.1	0.12	75	300	75	300
8	SW Baltic Ave at SW Barnes Rd	OVERALL	C	34.8	0.81	C	33.6	0.78				
		EB L	D	46.9	0.77	D	47.3	0.42	**225**	200	75	200
		EB T/R	C	26.3	0.71	D	39.6	0.76	350		300	
		WB L	E	70.1	0.82	D	48.3	0.84	200	200	**350**	200
		WB T/R	C	29.5	0.68	C	25.0	0.77	400		775	
		NB L	D	48.7	0.50	D	52.9	0.66	75	325	150	325
		NB T	D	51.4	0.89	C	33.6	0.21	375		125	
		NB R	C	34.4	0.80	B	17.0	0.41	350		175	
		SB L	D	48.4	0.40	E	56.5	0.64	50	75	**150**	75
		SB T	C	27.4	0.14	D	42.9	0.67	100		250	
		SB R	B	14.9	0.11	C	34.3	0.65	100	200	**250**	200
9	SW Barnes Road at NW 116th Ave	OVERALL	B	14.3	0.65	B	14.8	0.70				
		EB T/R	C	20.7	0.88	C	25.5	0.87	400		600	
		WB L	A	7.2	0.45	B	11.5	0.62	175	275	275	275
		WB T	A	2.2	0.27	A	3.0	0.48	100		175	
		NB L/R	C	22.7	0.18	C	26.2	0.39	125		225	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	580	725	335	440	145	365	365	275	90	555	100
Future Volume (vph)	65	580	725	335	440	145	365	365	275	90	555	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	5.0	4.0	4.0		4.0	4.0	5.0	4.0	4.0	
Lane Util. Factor	1.00	0.95	0.88	0.97	0.95		0.97	1.00	1.00	1.00	*0.73	
Frt	1.00	1.00	0.85	1.00	0.96		1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539	2787	3433	3407		3433	1863	1583	1770	2657	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3539	2787	3433	3407		3433	1863	1583	1770	2657	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	68	611	763	353	463	153	384	384	289	95	584	105
RTOR Reduction (vph)	0	0	55	0	26	0	0	0	97	0	9	0
Lane Group Flow (vph)	68	611	708	353	590	0	384	384	192	95	680	0
Turn Type	Prot	NA	pt+ov	Prot	NA		Prot	NA	pt+ov	Prot	NA	
Protected Phases	1	6	6 7	5	2		7	4	4 5	3	8	
Permitted Phases												
Actuated Green, G (s)	7.1	37.6	58.9	13.8	45.3		16.3	28.4	42.2	21.2	32.3	
Effective Green, g (s)	7.1	38.6	58.9	14.8	46.3		17.3	29.4	42.2	21.2	33.3	
Actuated g/C Ratio	0.06	0.32	0.49	0.12	0.39		0.14	0.24	0.35	0.18	0.28	
Clearance Time (s)	4.0	5.0		5.0	5.0		5.0	5.0		4.0	5.0	
Vehicle Extension (s)	1.5	3.1		2.0	3.1		2.0	3.1		1.5	3.1	
Lane Grp Cap (vph)	104	1138	1367	423	1314		494	456	556	312	737	
v/s Ratio Prot	0.04	0.17	c0.25	c0.10	0.17		0.11	c0.21	0.12	0.05	c0.26	
v/s Ratio Perm												
v/c Ratio	0.65	0.54	0.52	0.83	0.45		0.78	0.84	0.35	0.30	0.92	
Uniform Delay, d1	55.2	33.4	20.9	51.4	27.4		49.5	43.1	28.7	43.0	42.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.07	0.75	0.26	1.00	1.00	
Incremental Delay, d2	10.7	1.8	0.1	12.7	1.1		6.5	12.6	0.4	0.2	17.2	
Delay (s)	66.0	35.2	21.0	64.1	28.5		59.6	44.9	7.8	43.2	59.3	
Level of Service	E	D	C	E	C		E	D	A	D	E	
Approach Delay (s)		29.1			41.5			40.1			57.3	
Approach LOS		C			D			D			E	

Intersection Summary			
HCM 2000 Control Delay	39.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	67.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	470	305	150	0	370	950	415	260	0
Future Volume (vph)	0	0	0	470	305	150	0	370	950	415	260	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5	4.5	4.5		4.5	4.0	5.0	5.0	
Lane Util. Factor				0.95	0.95	1.00		0.95	1.00	1.00	0.95	
Frt				1.00	1.00	0.85		1.00	0.85	1.00	1.00	
Flt Protected				0.95	0.99	1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)				1681	1750	1583		3539	1583	1770	3539	
Flt Permitted				0.95	0.99	1.00		1.00	1.00	0.95	1.00	
Satd. Flow (perm)				1681	1750	1583		3539	1583	1770	3539	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	0	0	480	311	153	0	378	969	423	265	0
RTOR Reduction (vph)	0	0	0	0	0	47	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	389	402	106	0	378	969	423	265	0
Turn Type				Split	NA	pt+ov		NA	Free	Prot	NA	
Protected Phases				1	1	1 2		8		2	2 8	
Permitted Phases									Free			
Actuated Green, G (s)				20.6	20.6	46.8		11.4	67.7	21.7	38.1	
Effective Green, g (s)				20.6	20.6	46.8		11.4	67.7	21.7	38.1	
Actuated g/C Ratio				0.30	0.30	0.69		0.17	1.00	0.32	0.56	
Clearance Time (s)				4.5	4.5			4.5		5.0		
Vehicle Extension (s)				2.3	2.3			2.3		4.1		
Lane Grp Cap (vph)				511	532	1094		595	1583	567	1991	
v/s Ratio Prot				c0.23	0.23	0.07		0.11		0.24	0.07	
v/s Ratio Perm									c0.61			
v/c Ratio				0.76	0.76	0.10		0.64	0.61	0.75	0.13	
Uniform Delay, d1				21.3	21.3	3.5		26.2	0.0	20.5	7.0	
Progression Factor				1.00	1.00	1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2				6.2	5.6	0.0		1.8	1.8	5.7	0.0	
Delay (s)				27.5	26.9	3.5		28.0	1.8	26.3	7.0	
Level of Service				C	C	A		C	A	C	A	
Approach Delay (s)		0.0			23.3			9.1			18.9	
Approach LOS		A			C			A			B	

Intersection Summary			
HCM 2000 Control Delay	15.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	67.7	Sum of lost time (s)	14.0
Intersection Capacity Utilization	65.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1155	50	245	650	30	210
Future Volume (vph)	1155	50	245	650	30	210
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3517		1770	3539	1770	1583
Flt Permitted	1.00		0.15	1.00	0.95	1.00
Satd. Flow (perm)	3517		276	3539	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1255	54	266	707	33	228
RTOR Reduction (vph)	3	0	0	0	0	205
Lane Group Flow (vph)	1306	0	266	707	33	23
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	8		7	4	6	
Permitted Phases			4			6
Actuated Green, G (s)	23.0		40.9	40.9	5.6	5.6
Effective Green, g (s)	23.0		40.9	40.9	5.6	5.6
Actuated g/C Ratio	0.42		0.75	0.75	0.10	0.10
Clearance Time (s)	4.0		4.0	4.0	4.0	4.0
Vehicle Extension (s)	2.5		2.5	2.5	2.5	2.5
Lane Grp Cap (vph)	1484		588	2655	181	162
v/s Ratio Prot	c0.37		c0.12	0.20	c0.02	
v/s Ratio Perm			0.22			0.01
v/c Ratio	0.88		0.45	0.27	0.18	0.14
Uniform Delay, d1	14.5		6.8	2.1	22.4	22.3
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	6.3		0.4	0.0	0.4	0.3
Delay (s)	20.7		7.2	2.2	22.7	22.6
Level of Service	C		A	A	C	C
Approach Delay (s)	20.7			3.5	22.6	
Approach LOS	C			A	C	

Intersection Summary			
HCM 2000 Control Delay	14.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	54.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	60.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	160	445	715	470	870	250	635	665	370	80	390	140
Future Volume (vph)	160	445	715	470	870	250	635	665	370	80	390	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	5.0	4.0	4.0		4.0	4.0	5.0	4.0	4.0	
Lane Util. Factor	1.00	0.95	0.88	0.97	0.95		0.97	1.00	1.00	1.00	*0.77	
Frt	1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539	2787	3433	3421		3433	1863	1583	1770	2755	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3539	2787	3433	3421		3433	1863	1583	1770	2755	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	165	459	737	485	897	258	655	686	381	82	402	144
RTOR Reduction (vph)	0	0	72	0	22	0	0	0	46	0	21	0
Lane Group Flow (vph)	165	459	665	485	1133	0	655	686	335	82	525	0
Turn Type	Prot	NA	pt+ov	Prot	NA		Prot	NA	pt+ov	Prot	NA	
Protected Phases	1	6	6 7	5	2		7	4	4 5	3	8	
Permitted Phases												
Actuated Green, G (s)	12.0	31.7	56.5	19.2	39.9		24.8	44.0	68.2	6.1	24.3	
Effective Green, g (s)	12.0	32.7	56.5	20.2	40.9		25.8	45.0	68.2	6.1	25.3	
Actuated g/C Ratio	0.10	0.27	0.47	0.17	0.34		0.22	0.38	0.57	0.05	0.21	
Clearance Time (s)	4.0	5.0		5.0	5.0		5.0	5.0		4.0	5.0	
Vehicle Extension (s)	1.5	3.1		2.0	3.1		2.0	3.1		1.5	3.1	
Lane Grp Cap (vph)	177	964	1312	577	1165		738	698	899	89	580	
v/s Ratio Prot	0.09	0.13	0.24	c0.14	c0.33		0.19	c0.37	0.21	0.05	c0.19	
v/s Ratio Perm												
v/c Ratio	0.93	0.48	0.51	0.84	0.97		0.89	0.98	0.37	0.92	0.91	
Uniform Delay, d1	53.6	36.5	22.1	48.3	39.0		45.7	37.1	14.2	56.7	46.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.12	1.15	1.50	1.00	1.00	
Incremental Delay, d2	47.7	1.7	0.1	10.2	20.5		9.5	25.1	0.2	68.9	17.8	
Delay (s)	101.3	38.2	22.2	58.6	59.5		60.5	67.8	21.5	125.6	64.0	
Level of Service	F	D	C	E	E		E	E	C	F	E	
Approach Delay (s)		37.2			59.2			54.8			72.0	
Approach LOS		D			E			D			E	

Intersection Summary			
HCM 2000 Control Delay	53.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	93.7%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	785	470	385	0	755	495	305	200	0
Future Volume (vph)	0	0	0	785	470	385	0	755	495	305	200	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5	4.5	4.5		4.5	4.0	5.0	5.0	
Lane Util. Factor				0.95	0.95	1.00		0.95	1.00	1.00	0.95	
Frt				1.00	1.00	0.85		1.00	0.85	1.00	1.00	
Flt Protected				0.95	0.99	1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)				1681	1747	1583		3539	1583	1770	3539	
Flt Permitted				0.95	0.99	1.00		1.00	1.00	0.95	1.00	
Satd. Flow (perm)				1681	1747	1583		3539	1583	1770	3539	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	0	0	818	490	401	0	786	516	318	208	0
RTOR Reduction (vph)	0	0	0	0	0	5	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	646	662	396	0	786	516	318	208	0
Turn Type				Split	NA	pt+ov		NA	Free	Prot	NA	
Protected Phases				1	1	1 2		8		2	2 8	
Permitted Phases									Free			
Actuated Green, G (s)				44.3	44.3	71.4		26.7	107.6	22.6	54.3	
Effective Green, g (s)				44.3	44.3	71.4		26.7	107.6	22.6	54.3	
Actuated g/C Ratio				0.41	0.41	0.66		0.25	1.00	0.21	0.50	
Clearance Time (s)				4.5	4.5			4.5		5.0		
Vehicle Extension (s)				2.3	2.3			2.3		4.1		
Lane Grp Cap (vph)				692	719	1050		878	1583	371	1785	
v/s Ratio Prot				c0.38	0.38	0.25		c0.22		c0.18	0.06	
v/s Ratio Perm									0.33			
v/c Ratio				0.93	0.92	0.38		0.90	0.33	0.86	0.12	
Uniform Delay, d1				30.2	30.0	8.1		39.1	0.0	40.9	14.0	
Progression Factor				1.00	1.00	1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2				19.5	17.0	0.1		11.5	0.5	18.1	0.0	
Delay (s)				49.8	47.0	8.3		50.6	0.5	59.0	14.1	
Level of Service				D	D	A		D	A	E	B	
Approach Delay (s)		0.0			39.0			30.7			41.2	
Approach LOS		A			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	36.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	107.6	Sum of lost time (s)	14.0
Intersection Capacity Utilization	83.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	955	75	420	1215	75	355
Future Volume (vph)	955	75	420	1215	75	355
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3501		1770	3539	1770	1583
Flt Permitted	1.00		0.15	1.00	0.95	1.00
Satd. Flow (perm)	3501		288	3539	1770	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	1005	79	442	1279	79	374
RTOR Reduction (vph)	6	0	0	0	0	330
Lane Group Flow (vph)	1078	0	442	1279	79	44
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	8		7	4	6	
Permitted Phases			4			6
Actuated Green, G (s)	21.9		46.7	46.7	7.2	7.2
Effective Green, g (s)	21.9		46.7	46.7	7.2	7.2
Actuated g/C Ratio	0.35		0.75	0.75	0.12	0.12
Clearance Time (s)	4.0		4.0	4.0	4.0	4.0
Vehicle Extension (s)	2.5		2.5	2.5	2.5	2.5
Lane Grp Cap (vph)	1238		715	2669	205	184
v/s Ratio Prot	c0.31		c0.21	0.36	c0.04	
v/s Ratio Perm			0.26			0.03
v/c Ratio	0.87		0.62	0.48	0.39	0.24
Uniform Delay, d1	18.7		10.1	2.9	25.3	24.9
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	6.9		1.4	0.1	0.9	0.5
Delay (s)	25.5		11.5	3.0	26.2	25.3
Level of Service	C		B	A	C	C
Approach Delay (s)	25.5			5.2	25.5	
Approach LOS	C			A	C	

Intersection Summary			
HCM 2000 Control Delay	14.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	61.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	66.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Intersection: 10: SW Cedar Hills Blvd & SW Barnes Rd

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	T	T	R	R	L	L	T	TR	L	L	T
Maximum Queue (ft)	153	366	509	392	345	221	236	259	273	235	223	319
Average Queue (ft)	58	178	199	174	51	133	122	117	123	135	127	257
95th Queue (ft)	120	304	392	398	247	209	200	209	217	207	206	357
Link Distance (ft)		783	783					486	486	225	225	225
Upstream Blk Time (%)										0	0	25
Queuing Penalty (veh)										1	1	85
Storage Bay Dist (ft)	320			295	295	315	315					
Storage Blk Time (%)		0	1	6	0		0	0				46
Queuing Penalty (veh)		0	5	18	0		0	0				126

Intersection: 10: SW Cedar Hills Blvd & SW Barnes Rd

Movement	NB	SB	SB	SB
Directions Served	R	L	T	TR
Maximum Queue (ft)	225	497	756	300
Average Queue (ft)	171	99	302	230
95th Queue (ft)	297	288	557	328
Link Distance (ft)			1972	
Upstream Blk Time (%)	1			
Queuing Penalty (veh)	0			
Storage Bay Dist (ft)	135	375		200
Storage Blk Time (%)	5		23	19
Queuing Penalty (veh)	19		109	71

Intersection: 15: SW Cedar Hills Blvd & US 26 WB On Ramp

Movement	NB	NB	SB	SB	SB
Directions Served	T	T	T	TR	R
Maximum Queue (ft)	69	183	224	293	100
Average Queue (ft)	10	81	67	85	5
95th Queue (ft)	39	209	199	270	52
Link Distance (ft)	103	103	225	225	225
Upstream Blk Time (%)	0	18	1	5	
Queuing Penalty (veh)	0	91	6	28	
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 20: SW Cedar Hills Blvd & US 26 WB Off Ramp

Movement	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	L	R	T	T	T	T
Maximum Queue (ft)	328	263	230	96	116	201	185
Average Queue (ft)	170	117	25	53	88	148	150
95th Queue (ft)	271	219	138	106	115	214	207
Link Distance (ft)	1118	1118	1118	40	40	103	103
Upstream Blk Time (%)				11	34	27	20
Queuing Penalty (veh)				42	129	172	130
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 25: SW Cedar Hills Blvd

Movement	NB	NB	SB	SB
Directions Served	T	TR	T	T
Maximum Queue (ft)	422	577	124	88
Average Queue (ft)	71	238	40	13
95th Queue (ft)	280	585	118	66
Link Distance (ft)	485	485	40	40
Upstream Blk Time (%)	0	2	14	3
Queuing Penalty (veh)	2	9	124	28
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 30: SW Cedar Hills Blvd & US 26 EB Off Ramp/US 26 EB On Ramp

Movement	EB	EB	EB	NB	NB	NB	SB	SB	SB
Directions Served	L	LTR	R	T	T	R	L	T	T
Maximum Queue (ft)	280	316	277	168	176	115	400	560	538
Average Queue (ft)	123	193	146	120	134	49	340	400	374
95th Queue (ft)	252	295	264	171	177	139	469	654	602
Link Distance (ft)		1073		130	130			485	485
Upstream Blk Time (%)				6	9	0		17	5
Queuing Penalty (veh)				27	40	0		155	46
Storage Bay Dist (ft)	300		300			65	375		
Storage Blk Time (%)	1	2	0		22	0	23	5	
Queuing Penalty (veh)	3	3	0		29	1	159	19	

Intersection: 40: SW Cedar Hills Blvd & SW Butner Rd

Movement	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	T	R	L	T	TR
Maximum Queue (ft)	382	88	54	55	218	273	35	129	206	199
Average Queue (ft)	203	18	32	15	120	164	8	96	170	170
95th Queue (ft)	323	58	58	44	193	241	28	144	206	201
Link Distance (ft)	914	933			1040	1040			130	130
Upstream Blk Time (%)								7	37	36
Queuing Penalty (veh)								0	290	286
Storage Bay Dist (ft)			25	225			300	60		
Storage Blk Time (%)		14	7		0	0		47	33	
Queuing Penalty (veh)		10	2		0	0		305	44	

Intersection: 50: Town Square West Access & SW Barnes Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB
Directions Served	T	T	R	L	T	T	L	L	R
Maximum Queue (ft)	126	146	34	24	113	98	44	54	22
Average Queue (ft)	22	29	4	3	31	22	11	12	3
95th Queue (ft)	74	90	21	17	86	67	34	39	15
Link Distance (ft)	486	486			542	542		291	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)			240	135			155		155
Storage Blk Time (%)					0				
Queuing Penalty (veh)					0				

Intersection: 60: Town Square East Access/SW Valeria View Dr & SW Barnes Rd

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	T	R	L	TR	L	T
Maximum Queue (ft)	93	228	250	24	72	197	158	62	38	56	254	38
Average Queue (ft)	36	80	100	3	11	84	69	18	8	14	152	9
95th Queue (ft)	71	181	211	14	44	165	136	49	31	39	231	30
Link Distance (ft)		542	542			1048	1048		455	455		704
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	250			165	100			565			250	
Storage Blk Time (%)		0	2			5					1	
Queuing Penalty (veh)		0	0			1					2	

Intersection: 60: Town Square East Access/SW Valeria View Dr & SW Barnes Rd

Movement	SB
Directions Served	R
Maximum Queue (ft)	166
Average Queue (ft)	68
95th Queue (ft)	125
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	250
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 70: OR 217 & SW Barnes Rd

Movement	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	LT	R	T	T	L	T	T
Maximum Queue (ft)	286	356	288	177	165	317	67	107
Average Queue (ft)	149	205	27	104	77	151	19	42
95th Queue (ft)	254	316	166	159	134	278	50	89
Link Distance (ft)	495	495		868	868	437	437	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)			240					300
Storage Blk Time (%)		4	0					
Queuing Penalty (veh)		6	0					

Intersection: 80: Baltic Ave & SW Barnes Rd

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	L	T	TR	L	T	TR	L	T	R	L	T
Maximum Queue (ft)	207	292	371	369	256	355	413	74	442	405	57	101
Average Queue (ft)	110	140	184	207	93	168	230	30	230	199	20	39
95th Queue (ft)	180	234	313	326	178	307	376	68	365	339	48	86
Link Distance (ft)			495	495		624	624		564	564		483
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	200	200			200			325			75	
Storage Blk Time (%)	0	1	6		0	4			2		0	3
Queuing Penalty (veh)	2	5	23		0	5			1		1	6

Intersection: 80: Baltic Ave & SW Barnes Rd

Movement	SB
Directions Served	R
Maximum Queue (ft)	126
Average Queue (ft)	48
95th Queue (ft)	96
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	200
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 90: SW Barnes Rd

Movement	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	TR	L	T	T	L	R
Maximum Queue (ft)	313	441	177	104	123	57	146
Average Queue (ft)	143	254	86	35	60	16	70
95th Queue (ft)	243	377	151	82	106	43	123
Link Distance (ft)	2219	2219		783	783		297
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			275			100	
Storage Blk Time (%)			0				3
Queuing Penalty (veh)			0				1

Intersection: 10: SW Cedar Hills Blvd & SW Barnes Rd

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	T	T	R	R	L	L	T	TR	L	L	T
Maximum Queue (ft)	277	221	220	269	30	299	463	498	491	310	282	322
Average Queue (ft)	151	123	126	86	1	175	207	306	338	198	212	301
95th Queue (ft)	261	201	200	242	22	265	361	471	495	310	290	319
Link Distance (ft)		782	782					486	486	229	229	229
Upstream Blk Time (%)								0	1	6	12	37
Queuing Penalty (veh)								3	6	33	64	206
Storage Bay Dist (ft)	320			295	295	315	315					
Storage Blk Time (%)	0			0		0	0	11				39
Queuing Penalty (veh)	1			0		0	1	54				143

Intersection: 10: SW Cedar Hills Blvd & SW Barnes Rd

Movement	NB	SB	SB	SB
Directions Served	R	L	T	TR
Maximum Queue (ft)	229	388	659	300
Average Queue (ft)	205	103	295	230
95th Queue (ft)	302	262	512	327
Link Distance (ft)			1564	
Upstream Blk Time (%)	2			
Queuing Penalty (veh)	0			
Storage Bay Dist (ft)	220	375		200
Storage Blk Time (%)	2	0	21	19
Queuing Penalty (veh)	16	0	89	53

Intersection: 15: SW Cedar Hills Blvd & US 26 WB On Ramp

Movement	NB	NB	SB	SB
Directions Served	T	T	T	TR
Maximum Queue (ft)	168	196	59	77
Average Queue (ft)	53	168	4	7
95th Queue (ft)	143	199	27	36
Link Distance (ft)	103	103	229	229
Upstream Blk Time (%)	3	44		
Queuing Penalty (veh)	23	368		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 20: SW Cedar Hills Blvd & US 26 WB Off Ramp

Movement	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	L	R	T	T	T	T
Maximum Queue (ft)	229	183	662	112	120	174	174
Average Queue (ft)	107	57	277	91	93	111	121
95th Queue (ft)	181	127	581	110	110	174	181
Link Distance (ft)	1118	1118	1118	40	40	103	103
Upstream Blk Time (%)				35	58	9	11
Queuing Penalty (veh)				222	363	57	71
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 25: SW Cedar Hills Blvd

Movement	NB	NB	SB
Directions Served	T	TR	T
Maximum Queue (ft)	534	576	38
Average Queue (ft)	414	474	3
95th Queue (ft)	644	643	26
Link Distance (ft)	485	485	40
Upstream Blk Time (%)	11	14	1
Queuing Penalty (veh)	81	99	6
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 30: SW Cedar Hills Blvd & US 26 EB Off Ramp/US 26 EB On Ramp

Movement	EB	EB	EB	NB	NB	NB	SB	SB	SB
Directions Served	L	LTR	R	T	T	R	L	T	T
Maximum Queue (ft)	379	511	362	164	180	115	397	485	457
Average Queue (ft)	212	279	221	135	140	70	268	252	263
95th Queue (ft)	395	485	401	155	164	160	406	425	406
Link Distance (ft)		1073		130	130			485	485
Upstream Blk Time (%)				17	32	0		1	0
Queuing Penalty (veh)				128	245	0		10	1
Storage Bay Dist (ft)	300		300			65	375		
Storage Blk Time (%)	3	21	12		51	0	4	0	
Queuing Penalty (veh)	11	44	38		141	0	25	1	

Intersection: 40: SW Cedar Hills Blvd & SW Butner Rd

Movement	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	T	R	L	T	TR
Maximum Queue (ft)	981	256	60	274	1092	1086	425	126	197	195
Average Queue (ft)	947	110	47	98	1055	1057	105	69	160	172
95th Queue (ft)	961	219	59	288	1100	1091	402	117	201	196
Link Distance (ft)	929	933			1040	1040			130	130
Upstream Blk Time (%)	95				70	89		0	24	36
Queuing Penalty (veh)	0				0	0		0	188	277
Storage Bay Dist (ft)			25	225			300	60		
Storage Blk Time (%)		24	39		73	82		30	35	
Queuing Penalty (veh)		39	29		29	12		184	30	

Intersection: 50: Town Square West Access & SW Barnes Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB
Directions Served	T	T	R	L	T	T	L	L	R
Maximum Queue (ft)	169	139	37	192	379	334	120	143	44
Average Queue (ft)	46	42	5	30	144	123	49	62	18
95th Queue (ft)	121	105	24	99	294	257	96	117	38
Link Distance (ft)	486	486			542	542		291	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)			240	135			155		155
Storage Blk Time (%)					4			0	
Queuing Penalty (veh)					2			0	

Intersection: 60: Town Square East Access/SW Valeria View Dr & SW Barnes Rd

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	T	R	L	TR	L	T
Maximum Queue (ft)	206	150	182	12	199	443	408	112	78	60	118	183
Average Queue (ft)	107	46	64	1	47	227	203	46	21	22	52	83
95th Queue (ft)	186	115	134	8	156	403	367	87	58	50	99	143
Link Distance (ft)		542	542			1048	1048		455	455		704
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	250			165	100			565			250	
Storage Blk Time (%)	0		0		0	25	0					
Queuing Penalty (veh)	0		0		0	15	0					

Intersection: 60: Town Square East Access/SW Valeria View Dr & SW Barnes Rd

Movement	SB
Directions Served	R
Maximum Queue (ft)	77
Average Queue (ft)	27
95th Queue (ft)	60
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	250
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 70: OR 217 & SW Barnes Rd

Movement	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	LT	R	T	T	R	L	T	T
Maximum Queue (ft)	532	558	290	376	310	69	275	60	92
Average Queue (ft)	294	374	196	222	186	2	141	15	35
95th Queue (ft)	464	564	418	319	276	50	236	43	76
Link Distance (ft)	545	545		879	879		417	417	
Upstream Blk Time (%)	0	1							
Queuing Penalty (veh)	0	8							
Storage Bay Dist (ft)			240			250			300
Storage Blk Time (%)		23	0		1				
Queuing Penalty (veh)		87	0		7				

Intersection: 80: Baltic Ave & SW Barnes Rd

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	L	T	TR	L	T	TR	L	T	R	L	T
Maximum Queue (ft)	73	93	277	294	300	830	846	170	126	232	163	275
Average Queue (ft)	17	48	161	185	261	404	427	74	54	92	61	132
95th Queue (ft)	50	80	256	281	346	775	767	140	102	170	132	226
Link Distance (ft)			545	545		3582	3582		564	564		483
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	200	200			200			325			75	
Storage Blk Time (%)			4		38	9					8	32
Queuing Penalty (veh)			3		225	36					47	134

Intersection: 80: Baltic Ave & SW Barnes Rd

Movement	SB
Directions Served	R
Maximum Queue (ft)	224
Average Queue (ft)	142
95th Queue (ft)	227
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	200
Storage Blk Time (%)	2
Queuing Penalty (veh)	7

Intersection: 90: SW Barnes Rd

Movement	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	TR	L	T	T	L	R
Maximum Queue (ft)	535	709	274	224	187	137	281
Average Queue (ft)	206	377	148	74	92	44	115
95th Queue (ft)	422	594	256	160	161	93	204
Link Distance (ft)	1809	1809		782	782		297
Upstream Blk Time (%)							0
Queuing Penalty (veh)							0
Storage Bay Dist (ft)			275			100	
Storage Blk Time (%)			4	0		0	11
Queuing Penalty (veh)			24	0		1	8

DAVID EVANS AND ASSOCIATES INC.

Received
Planning Division
04/03/2019

ADDENDUM

DATE: February 14, 2019

TO: Jana Fox
City of Beaverton

FROM: Josh Anderson, PE, PTOE

SUBJECT: LifeTime TIA Addendum #1: Peterkort PUD Conditions

PROJECT: LTFR 0000-0001

In 2013, the City of Beaverton (City) approved a Planned Unit Development (PUD) for various J. Peterkort Co. parcels (Order No. 2337, CU2013-0003). The approval included a set of transportation-related mitigation measures, or conditions, which the City anticipated would be constructed incrementally over multiple phases of development of the properties within the PUD area. The approval further specified that, prior to each proposed development within the PUD area, the project applicant shall provide a supplemental transportation impact analysis (TIA) to identify which of the conditions identified in the PUD approval are triggered by the impacts of the proposed development.

The proposed Life Time (LT) Project is within that PUD area. For that reason, a mini TIA was required to determine which of the transportation-related conditions in the PUD are triggered by the proposed LT Project.

The table on the following pages is intended to be a companion to the mini TIA for the LT Project. It is intended to be a living document and will be updated as each portion of development occurs within the PUD. The table includes: the list of conditions for development of the entire PUD; whether each condition has been constructed (and if so, by whom); whether each condition is triggered by the LT Project; for each condition not triggered by the LT Project, a brief explanation for why the condition is not required; and, if applicable, a reference to the location in the supplemental TIA where a detailed discussion of the condition is provided.

2100 Southwest River Parkway Portland Oregon 97201 Telephone: 503.223.6663 Facsimile: 503.223.2701

Peterkort PUD Condition of Approval	Completed By Others? Whom?	Triggered by Lifetime?	If not triggered, Why? If triggered, where is it discussed in the TIA?	Location in TIA
2 Cedar Hills Blvd @ EB US 26				
a New Signal including interconnect between Butner and Barnes	ODOT, WaCo, JPC	N/A		
b Widen to add dedicated NBR (includes bike and ped facilites on east side from Butner to EB US 26)		No	Once the signalization and off-ramp widening occur, the intersection is expected to meet the ODOT standard with a v/c of 0.78 after the addition of the LifeTime trips.	Intersection 3 - Table 6
c Widen to add second SBL (includes bike and ped facilites on west side from WB US 26 to Butner)		No		
d Widen to add third eastbound shard LTR	ODOT, WaCo, JPC	N/A		
3 Cedar Hills Blvd @ Butner				
a Convert existing NBR to NBTR		No	The addition of the LifeTime trips do not cause any of the movements in the intersection to exceed the City of Beaverton's operational standards.	Intersection 4 - Table 6
b Widen to add two EBL's (3 approach lanes)		No		
c Widen to add a WBR		No		
d New Signal (split phasing for east/west)		No		
4 Cedar Hills Blvd @ WB US 26				
a Widen to provide an third NB lane		No	The addition of the LifeTime trips do not cause the overall intersection v/c ratio to exceed the ODOT mobility movements in the intersection to exceed the City of Beaverton's operational standards.	Intersection 2 - Table 6
c Widen to provide a WB left-turn lane, shared left-right-turn lane, and right-turn lane		No		
d Modify signal to accommodate widening		No		
b Construct off-street bi-directional multi-use path from Barnes to New undercrossing (condition 28)		Partially	The portion of the path from Barnes to the sites pedestrian access point will be constructed. The portion of the path from the sites pedestrian access point to the tunnel will be funded, but not constructed. The funds will accompany the $500,000 contribution to the cost to construct the tunnel, which LT has discretion to pay in liey of construction pursuant to Condition 28.	Addendum #2
5 Cedar Hills Blvd @ Barnes				
a Widen to provide 2 NBL's, 2 NBT's, 1 NBR, and 2 NB receiving lanes to Celeste (includes reconstruction of the existing sign bridge)		No	The addition of the LifeTime trips (and resulting increase in lane group v/c's can be mitigated through the construction of portions of this condition. The second eastbound right-turn lane will be included with the Barnes Road frontage improvements with the associated signal modifications. A southbound shared through/right-turn lane of between 180 and 200 feet will be constructed. These improvements allow all of the lane groups in the intersection to operate with a v/c of 0.98 or less.	First paragraph under numbered list on page 20.
d Widen to add a dedicated WBR		No		
b Widen to provide 2 SBL's, 1 SBT, and 1 SBTR (2 SB lanes start at Celeste)		**Partially**		
c Widen to add second EBR		**Yes**		
e Modify signal to accommodate widening		**Partially**		
6 Barnes Road @ 116th Ave				
a New traffic signal (interconnected with Cedar Hills Blvd)		**Partially**	The addition of the LifeTime trips require the widening of Barnes Road to five lanes through the proposed 116th intersection, but does not necessitate the construction of the north leg of the intersection, the dual westbound left-turns, or the interconnect to Cedar Hills Blvd.	Second paragraph under numbered list on page 20.
b Widen to provide an EBL, EBT, and EBTR		**Yes**		
c Widen to provide 2 WBL's, WBT, and WBTR		**Partially**		
d Construct a NBTL, and NBR		**Yes**		
e construct a SBTR, and SBL		No		
7 Barnes Road @ Town Square West				
a Convert existing NBR to NBTR		No	The addition of the LifeTime trips do not cause any of the movements in the intersection to exceed the City of Beaverton's operational standards.	Intersection 5 - Table 6
b Construct SBTR and SBL		No		
c Widen to add EBL and EBR		No		
d Widen to add a WBTR (third WB through lane)		No		
e Modify signal to accommodate widening		No		
8 Cedar Hills Blvd @ Celeste				
a Widen to Provide NBL, NBT, and NBTR (and 2 NB receiving lanes 300' past Celeste)		No	This intersection was not studied in the LifeTime Mini TIA	
b Widen to Provide SBL, SBT, and SBTR (second SBT minimum of 200')		No		
9 Parcel 7 and Parcel 12 Access to Valeria View				
a Provide NBL and NBTR		No	This intersection was not studied in the LifeTime Mini TIA	
b Provide SBL and SBTR		No		
10 Barnes Road @ Highway 217				
a Widen to provide 3 NBT's and 2 NBR's		No	The addition of the LifeTime trips cause the overall intersection v/c ratio to exceed ODOTs mobility standards by 1%. Updating the intersections signal timing to have a cycle length of 120 seconds (110 seconds currently) mitigates the 1% v/c impact. No other mitigations are proposed as the queues expected on the northbound 217 exit ramp are not expected to change with the addition of the LifeTime trips.	Third paragraph on page 20.
b Pay ODOT $250,000 towards a VMS sign for NB 217 to be installed between Walker and Barnes		No		
c Widen to provide 2 SBL's, 1 SBT, and 1 SBTR (Right turn for busses only)		No		
d Widen to provide 2 WBR's, 1 WBT, and 2 WBL's		No		
e Modify signal to accommodate widening and signalization of NBR		No		
11 Barnes Road @ Baltic				
a Widen to Provide 2 NBL's, NBT, NBTR, and NBR		No	The addition of the LifeTime trips do not cause any of the movements in the intersection to exceed the City of Beaverton's operational standards.	Intersection 8 - Table 6
b Widen to provide a SBL, SBT, SBTR, and SBR		No		
c Widen to provide 2 EBL's, EBT, EBTR, and EBR		No		
d Widen to provide 2 WBL's, 2 WBT's, and WBTR		No		
e Reconstruct the ODOT sign bridge across Barnes		No		
f Modify signal to accommodate widening		No		

Peterkort PUD Condition of Approval	Completed By Others? Whom?	Triggered by Lifetime?	If not triggered, Why? If triggered, where is it discussed in the TIA?	Location in TIA
12 Barnes Road @ St. Vincent's Middle Access				
a Widen to provide EBT, EBTR, and median for future EBL		No	This intersection was not studied in the LifeTime Mini TIA	
b Widen to provide 3 WBT's, and WBL		No		
c Modify signal to accommodate widening		No		
13 Barnes Road @ St. Vincent's East Access				
a Widen to provide EBT, EBTR, and median for future EBL		No	This intersection was not studied in the LifeTime Mini TIA	
b Widen to align westbound through lanes with 3 receiving lanes		No		
c Modify signal to accommodate widening		No		
14 Barnes @ Valeria View				
a Restripe to add third WBT		No	The addition of the LifeTime trips do not cause any of the movements in the intersection to exceed the City of Beaverton's operational standards.	Intersection 6 - Table 6
b Modify signal to accommodate widening		No		
15 Barnes Road @ New Parcel 12 Access				
a New Signal (interconnect with Valeria View and Sunset Transit Center)		No	This intersection is not currently constructed.	
b Restripe to add EBL		No		
c Construct SBR and SBL		No		
16 Barnes Road @ Sunset Transit Center				
a Restripe to NBL and NBLR		No	This intersection was not studied in the LifeTime Mini TIA	
b Modify signal to accommodate restripe		No		
17 Barnes Road @ New Parcel 17/Holly Station full Access				
a New Signal		No	This intersection is not currently constructed.	
b Construct new NBL and NBTR		No		
c Construct SBL and SBTR		No		
d Widen to Prove EBL, EBT, and EBTR		No		
e Widen to provide WBL, 2 WBT's, and WBR		No		
18 Barnes Road @ New Parcel 17 RIRO (West of Lois)				
a Construct median barrier		No	This intersection is not currently constructed.	
b Widen to provide 2 WBT's and WBTR (3rd WB lane from Lois Ln to New Full access)		No		
19 Barnes Road @ New Sunset Station RIRO (W of Lois)				
a Construct median barrier		No	This intersection is not currently constructed.	
20 Barnes Road @ Sunset Station RIRO (E of Sunset TC)				
a Construct median barrier		No	This intersection is not currently constructed.	
b Widen to provide an 2 EBT's, and EBR		No		
21 Barnes Road @ Lois Lane				
a Construct NBLT and NBR		No	This intersection was not studied in the LifeTime Mini TIA	
b Restripe to provide SBLT and SBR		No		
c Widen to provide 2 EBT's and EBTR		No		
d Widen to provide 2 WBT's and WBTR (3rd WB lane from 217)		No		
e Modify signal to accommodate widening		No		
22 Half street improvements (to 5-lane) along Barnes at all frontages		**Yes, along frontage**	The LifeTime frontage improvements along Barnes Road will be constructed.	Planned Projects section - Page 12
23 Half street improvements (to 3-lane) along Valeria View frontages		No	The site has no frontage along Valeria View	
24 Half street improvements (to 5-lane) along Cedar Hills		**Yes, along frontage**	The LifeTime frontage improvements along Cedar Hills will be constructed.	Planned Projects section - Page 12
25 Interconnection of signals along Barnes from 217 to Leahy		No	Beyond the study area of the Mini TIA	
26 Pay Washington County $195,000 to future signalization of 107th/Cornell		No	The full costs of these contributions for the PUD have been updated pursuant to Condition 33	Addendum #3
27 Pay Washington County $232,000 to future improvements at Cornell/143rd Ave		No		Addendum #3
28 Pay Washington County $500,000 to future construction of Bike/Ped Tunnel under US 26 WB entrance from Cedar Hills SB		**Yes, See 4(b)**		Addendum #3
29 Pay Washington County $232,900 to future improvements at Cedar Hills/Cornell		No		Addendum #3
30 Pay Washington County $600,000 to future improvements at Barnes Road/ Miller		No		Addendum #3
31 Pay Washington County $166,500 to future improvements at Trail St/Cornell		No		Addendum #3
32 Pay Washington County $600,000 to future improvements at Barnes Road/Leahy		No		Addendum #3
33 For conditions 10.b and 26 through 32, recalculate costs on July 1 of each year		**Yes**	LifeTime will updated the project cost estimates	Addendum #3
34 Design shall be in accordance with design standards		**Yes**	See detailed application	
35 Dedicate ROW along site frontages as needed to accommodate conditions 2 through 32.		**Yes**	See detailed application	
36 Revisions to striping, signing, signals, and sign bridges as necessary		**Yes**	See detailed application	
Provide pedestrian connections throughout the PUD to connect parcels and transit opportunities.		**Yes, on site**	Bicycle and pedestrian connections will be provided on the LifeTime site.	

Received
Planning Division
04/03/2019

DAVID EVANS AND ASSOCIATES INC.

ADDENDUM

DATE: February 22, 2019

TO: Jana Fox
City of Beaverton

FROM: Josh Anderson, PE, PTOE

SUBJECT: LifeTime TIA Addendum #2: Trip Generation

PROJECT: LTFR 0000-0001

This addendum discusses three alternative methods for estimating trip generation for the proposed Life Time (LT) Project in Beaverton, Oregon. The Project includes three elements: 140,000 sq. ft. fitness center, 10 tennis courts, and 31,170 sq. ft. office space.

Alternative trip generation methods include:

1. Use historic data collected by LT at other LT facilities to estimate trips for the fitness center, and scale trips according to the size of the various facilities. Then, use standard rates provided in the Institute of Transportation Engineers (ITE) Trip Generation Manual to estimate trips for the additional unique elements that are proposed for the LT Project (tennis courts and office).
2. Use rates from previously approved TIAs of comparable facilities in Beaverton, Oregon to estimate trips for the fitness center. Then, use ITE rates to estimate trips for the additional unique elements that are proposed for the LT Project (tennis courts and office).
3. Use ITE rates to estimate trips for all of the proposed elements (fitness center, tennis courts, and office space).

Ultimately, the mini-TIA utilizes Option 1 to estimate trips for the LT Project, because Option 1 provides the most conservative estimate of trip generation.

Option 1: Use historic data collected by LT at other LT facilities to estimate trips for the fitness center, and scale trip trips according to the size of the various sites. Then, use ITE rates to estimate trips for the additional unique elements that are proposed for the LT Project, but that are not present at the LT facilities where historic data was collected (tennis courts and office).

In 2007, LT commissioned a trip generation study of five different LT locations through the United States. The facilities were located in Tempe, AZ; Plano, TX; Shelby MI; Warrenville, IL; and Bloomington, IL. The five facilities ranged in trip generation rates from 2.19 to 5.85 per 1,000 square feet, with an average of 4.35 trips per 1,000 square feet. The pass-by percentage ranged from 20.3% to 40.9% with an average of 29%.

DATE: February 22, 2019 **FROM:** Josh Anderson, PE, PTOE

TO: Jana Fox **SUBJECT:** LifeTime TIA Addendum #2: Trip Generation

Table 1 below shows the PM peak hour trip generation totals if this rate were to be used with the ITE rates for tennis courts and office. This method shows a net new PM peak hour trip generation of **506** vehicles.

Table 1: Option 1 Net New Trip Generation

Land Use	ITE LUC	Size		TRIP GEN RATES			TRIPS			Pass By		TRIPS (Without Pass-By)		
				Total	In	Out	Total	In	Out	%	Trips	Total	In	Out
LifeTime	LT study	140	1,000 SF	4.35	0.59	0.41	609	359	250	29%	177	432	255	177
Racquet/Tennis Club	491	10	Courts	3.82	0.50	0.50	38	19	19	NA	0	38	19	19
Office	710	31.17	1,000 SF	1.15	0.16	0.84	36	6	30	NA	0	36	6	30

Total net new trips after pass-by reduction: 506

Option 2: Use rates from previously approved TIAs of comparable facilities in Beaverton, Oregon to estimate trips for the fitness center. Then, use ITE rates to estimate trips for the additional unique elements that are proposed for the LT Project (tennis courts and office).

The only comparable development in the Beaverton, Oregon area is Villa Sport, located on the northeast corner of the intersection of SW Jenkins Rd and SW Murray Blvd. Villa Sport has a similar mixture of internal elements to that of the LT Project, but does not include tennis courts or offices. A letter regarding "VillaSport at 45 Central Commercial Parcel – Trip Generation Estimate and Previous Approval Conformance Analysis - Beaverton, Oregon" was used to obtain the trip generation estimates.

The letter quantified a trip generation study that was conducted for two other VillaSport locations (The Woodlands, Texas and Colorado Springs, Colorado). The study converted the trip generation from the two studied sites to trips per 1,000 square feet and used the scaled rate for the proposed facility in Beaverton. The study determined that PM peak hour trip rate for the other VillaSport locations was 3.86 PM peak hour trips per 1,000 square feet of building space with a pass-by rate of 38%.

Table 2 below shows the PM peak hour trip generation totals if this rate were to be used with the ITE rates for tennis courts and office. This method shows a net new PM peak hour trip generation of **409** vehicles.

Table 2: Option 2 Net New Trip Generation

Land Use	ITE LUC	Size		TRIP GEN RATES			TRIPS			Pass By		TRIPS (Without Pass-By)		
				Total	In	Out	Total	In	Out	%	Trips	Total	In	Out
LifeTime	*VillaSport*	140	1,000 SF	3.86	0.52	0.48	540	281	259	38%	205	335	174	161
Racquet/Tennis Club	491	10	Courts	3.82	0.50	0.50	38	19	19	NA	0	38	19	19
Office	710	31.17	1,000 SF	1.15	0.16	0.84	36	6	30	NA	0	36	6	30

Total net new trips after pass-by reduction: 409

Option 3: Use the standard rates provided in the ITE Trip Generation Manual to estimate trips for the all of the proposed elements (fitness center, tennis courts, and office space).

The rates for Health/Fitness Club (ITE Land use code 492) are 3.45 PM Peak Hour trips per 1,000 square feet of building space. The ITE Trip Generation Handbook does not identify a pass by rate for Health/Fitness Club, as such, the rate of 38% will be assumed as the City of Beaverton accepted this rate for use in the VillaSport TIA. The use Athletic Club (ITE Land use code 493) was not used as it only had a sample size of 3 studies, and the description of the Health/Fitness Club more closely resembles the proposed LT facility as it includes ancillary elements such as small retail and café services.

DATE: February 22, 2019 **FROM:** Josh Anderson, PE, PTOE

TO: Jana Fox **SUBJECT:** LifeTime TIA Addendum #2: Trip Generation

Table 3 below shows the PM peak hour trip generation totals if the ITE rates were to be used for all of the elements. This method shows a net new PM peak hour trip generation of **374** vehicles.

Table 3: Option 3 Net New Trip Generation

				TRIP GEN RATES			TRIPS			Pass By		TRIPS (Without Pass-By)		
Land Use	**ITE LUC**	**Size**		**Total**	**In**	**Out**	**Total**	**In**	**Out**	**%**	**Trips**	**Total**	**In**	**Out**
Health/Fitness Club	492	140	1,000 SF	3.45	0.57	0.43	483	275	208	38%	183	300	171	129
Racquet/Tennis Club	491	10	Courts	3.82	0.50	0.50	38	19	19	NA	0	38	19	19
Office	710	31.17	1,000 SF	1.15	0.16	0.84	36	6	30	NA	0	36	6	30

Total net new trips after pass-by reduction: 374

Conclusion: A comparison of the trip generation methods shows that Option 1 provides the most conservative method for estimating trips. The net new PM peak hour trip generation under Option 1 is 509 vehicles, as compared to 409 vehicles and 374 vehicles for Options 2 and 3, respectively. As such, Option 1 was used in the TIA.

Received
Planning Division
04/03/2019

DAVID EVANS AND ASSOCIATES INC.

ADDENDUM

DATE: February 12, 2019

TO: Jana Fox
City of Beaverton

FROM: Josh Anderson, PE, PTOE

SUBJECT: LifeTime TIA Addendum #3: Proportional Share Cost Updates

PROJECT: LTFR 0000-0001

This addendum updates the proportional share contributions toward multiple projects as identified in the 2013 Peterkort Conditions of Approval.

Condition 33 of the Peterkort PUD conditions of approval stated:

> *For condition 10.b and conditions 26-32 above which require roughly proportional share payments, the dollar amounts specified in the conditions apply if payments are made prior to July 1, 2015. On July 1, 2015 and on the first day of July of each succeeding year, the amount of the payment shall be adjusted and the adjusted payment requirement shall apply to any payment received by Washington County or the Oregon Department of Transportation after that date. The adjusted payment requirement shall be calculated by applying the percentage increase/decrease adopted each year by the Board of County Commissioners for adjustment in Transportation Development Tax in accordance with the Washington county Code.*

The "Washington County Transportation Development Tax Fiscal Year 2017-2018 Annual Report" was obtained from Washington County Staff. This report noted, in the table on page 10, that the County's Weighted Average Index rose by 2.474% in 2014, 2.028% in 2015, 2.875% in 2016, and 2.939% in 2017. The 2018 data is not yet available. The table is shown below.

TDT Index History
Cost Change Index using the National Highway Construction Cost Index 2.0

Year	2011	2012	2013	2014	2015	2016	2017
Materials Component							
National Highway CCI	1.5099	1.6016	1.6130	1.6816	1.6984	1.6616	1.6752
% Annual Change	4.91%	6.07%	0.71%	4.25%	1.00%	-2.17%	0.82%
Ave 5-year Change	-0.08%	1.02%	-0.29%	3.14%	3.39%	1.97%	0.92%
Labor Component							
BLS Employment Cost Index	116.4	117.6	118.6	120.7	123.4	124.9	128.3
% Annual Change	2.46%	1.03%	0.85%	1.77%	2.24%	1.22%	2.72%
Ave 5-year Change	2.36%	1.80%	1.35%	1.56%	1.67%	1.42%	1.76%
Right-of-Way Component							
Ave Total Real Market Value	$ 374,922	$ 365,516	$ 407,690	$ 453,046	$481,670	$ 530,246	$581,558
% Annual Change	-4.35%	-2.51%	11.54%	11.13%	6.32%	10.08%	9.68%
Ave 5-year Change	2.23%	-1.65%	-1.12%	2.18%	4.42%	7.31%	9.75%
Weighted Average Index	**1.117%**	**0.721%**	**0.039%**	**2.474%**	**2.028%**	**2.875%**	**2.939%**

< - - - - - - - - - - - - - - Five-year moving average - - - - - - - - - - - - - - >

DATE: February 12, 2019 **FROM:** Josh Anderson, PE, PTOE

TO: Jana Fox **SUBJECT:** LifeTime TIA Addendum #3: Proportional Share Cost Updates

To update the proportional share payments, the dollar values identified in the conditions will be increased by 10.719%.

$$1.02474 * 1.02028 * 1.02875 * 1.02939 = 1.10719$$

The condition number and paraphrased improvement, original cost, and updated cost are shown in the table below.

Condition	Original Cost	Updated Cost
10b – Pay ODOT towards a VMS sign to be installed for northbound 217 between Walker and Barnes	$250,000	$276,797.50
26 – Pay Washington County for the future signalization of 107th/Cornell	$195,000	$215,902.05
27 – Pay Washington County for the future improvements of 143rd/Cornell	$232,000	$256,868.08
28 – Pay Washington County for the future construction of a Bike/Ped Tunnel under the US 26 Westbound entrance ramp from Cedar Hills southbound	$500,000	$553,595.00
29 – Pay Washington County for the future improvements at Cedar Hills/Cornell	$232,900	$257,864.55
30 – Pay Washington County for the future improvements at Barnes/Miller	$600,000	$664,314.00
31– Pay Washington County for the future improvements at Trail/Cornell	$166,500	$184,347.14
32 – Pay Washington County for the future improvements at Barnes/Leahy	$600,000	$664,314.00