

## **Appendix G: Focused Traffic Study**

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May 10, 2017

Mr. Andrew Hill  
First Carbon Solutions  
1350 Treat Boulevard, Suite 380  
Walnut Creek, CA 94597

## **Focused Traffic Study for the Emerald Isle Assisted Living Project**

Dear Mr. Hill;

As requested, W-Trans has prepared a focused traffic analysis for the proposed Emerald Isle Assisted Living project to be located near Thomas Lake Harris Drive in the City of Santa Rosa. The traffic study was completed in accordance with the criteria established by the City of Santa Rosa, is consistent with standard traffic engineering techniques, and reflects a scope of work reviewed and approved by City staff.

### **Project Description**

The proposed project is an assisted living and memory care facility with 71 beds in 49 units, to be constructed on a currently vacant 12.17-acre site surrounded by the Fountaingrove Golf Course. With respect to streets, the site is generally bounded by Thomas Lake Harris Drive on the west, east, and north. Fountaingrove Lake is located to the south. The project includes construction of a 68,144 square foot building with 76 parking spaces which would be accessed via an eastward extension of a private street called Gullane Drive. A new sidewalk would be included along the extended roadway, connecting to an existing sidewalk at the current terminus of Gullane Drive. A copy of the project site plan on which the analysis was based is enclosed on Figure 1.

### **Study Area and Periods**

The study area includes Thomas Lake Harris Drive near the project site, as well an evaluation of the following intersections:

1. Thomas Lake Harris Drive/Gullane Drive
2. Fountaingrove Parkway/Thomas Lake Harris Drive (West)

Operating conditions during the a.m. and p.m. peak periods were evaluated to capture the highest potential impacts for the proposed project as well as the highest volumes on the local transportation network. The morning peak period is from 7:00 to 9:00 a.m. and reflects conditions during the home to work or school commute, while the p.m. peak period occurs between 4:00 and 6:00 p.m. and typically reflects the highest level of congestion during the homeward bound commute.

### **Circulation Setting**

#### **Vehicular Circulation**

**Thomas Lake Harris Drive** is an approximately 1.75-mile long collector street that forms a loop beginning and ending on Fountaingrove Parkway. The street passes through single- and multi-family residential neighborhoods and has a posted speed limit of 25 mph, conforming to the hillside topography with a series of horizontal and vertical curves. Thomas Lake Harris Drive is generally 40 feet wide with on-street parking and turn pockets at intersections, together with sidewalks and/or parallel multi-use paths on both sides of the street.

**Fountaingrove Parkway/Thomas Lake Harris Drive (West)** is a signalized tee-intersection with protected left-turn phasing on all approaches and a right-turn overlap on the Thomas Lake Harris Drive approach. Marked crosswalks are provided across the south and west legs.

**Thomas Lake Harris Drive/Gullane Drive** is an unsignalized tee-intersection with a left turn pocket on the southbound Thomas Lake Harris Drive approach. A sign is posted at the entry to Gullane Drive indicating that it is a private street. The westbound Gullane Drive approach is stop controlled. There are no marked crosswalks at the intersection.

The current intersection lane configurations at the study intersections are shown on the enclosed Figure 2.

### **Bicycle Circulation**

Bicycle facilities in Santa Rosa consist of Class I pathways, Class II bicycle lanes, and Class III bicycle routes along with support facilities such as bicycle parking, multi-modal transit access, and amenities such as showers, changing areas and storage facilities. In the vicinity of the proposed project, there are existing Class I bicycle paths that run parallel to Fountaingrove Parkway.

### **Pedestrian Circulation**

Sidewalks exist along the existing segment of Gullane Drive that would be extended into the project site, as well as along Thomas Lake Harris Drive in the surrounding vicinity. In general, pedestrian facilities are continuous and connective among neighborhoods in the Fountaingrove community.

### **Transit Operations**

Santa Rosa CityBus is the primary transit provider in Santa Rosa. CityBus provides regularly-scheduled fixed-route service to residential neighborhoods, major activity centers, and transit hubs within the City. Seventeen fixed routes are operated with wheelchair accessible, low-floor buses, which can accommodate up to two bikes on racks attached to the front. CityBus routes are designed around a timed-transfer method where buses serving different routes arrive and depart at designated transfer locations at routine periodic intervals.

CityBus Route 1 includes a stop at Fountaingrove Parkway/Thomas Lake Harris Drive, 0.7 miles from the project site, though as of May 21, 2017, the route is being realigned and will no longer service this stop. The closest bus stop to the project site will then be at Round Bard Boulevard/Unocal Place, approximately one mile from the project site.

Paratransit, also known as dial-a-ride or door-to-door service, is available for those who are unable to independently use the transit system due to a physical or mental disability. Individuals must be registered and certified as ADA eligible before using the service. CityBus currently contracts out paratransit service which provides curb-to-curb transportation for disabled riders within city limits. Service hours are Monday through Friday from 6:00 a.m. to 8:00 p.m., Saturday from 7:00 a.m. to 7:45 p.m. and Sunday from 9:00 a.m. to 5:00 p.m. Ride reservations can be scheduled daily.

### **Collision History**

The collision history for the section of Thomas Lake Harris Drive between its western terminus at Fountaingrove Parkway and Skyfarm Drive (0.30 miles east of the project site) was reviewed to determine any trends or patterns that may indicate a safety issue. Collision records were obtained from the California Highway Patrol as published in their Statewide Integrated Traffic Records System (SWITRS) reports. The most current five-year period available is January 1, 2012 through December 31, 2016. During this five-year period, one reported collision occurred along the study segment, but it was not in the vicinity of the Gullane Drive.

There were seven collisions reported directly at the intersection of Thomas Lake Harris Drive/Fountaingrove Parkway, though the collision data lacks sufficient detail to determine whether collisions occurred at the eastern or western ends of Thomas Lake Harris Drive (the street intersects Fountaingrove Parkway at two locations). Conservatively assuming that all seven reported collisions occurred at the western study intersection, the calculated collision rate would be 0.21 collisions per million vehicles entering (c/mve), which is equal to the Statewide Average for similar facilities. It should be noted four of the seven collisions occurred prior to signalization of the intersection in late 2013.

## Regulatory Framework

The City of Santa Rosa's adopted Level of Service (LOS) Standard is contained in *Santa Rosa General Plan 2035*. Standard TD-1 states that the City will maintain a Level of Service (LOS) D or better along all major corridors. Although the City's standard does not specify criteria for intersections, for the purposes of this study a minimum operation of LOS D for the overall operation of signalized intersections was applied, since intersections are typically where corridor capacity constraints occur; acceptable intersection operation typically translates to acceptable corridor operation.

## Existing Traffic Conditions

Turning movement counts were collected on February 10, 2015 at the Fountaingrove Parkway/Thomas Lake Harris Drive (West) intersection, and on August 25, 2016 at the Thomas Lake Harris Drive/Gullane Drive intersection. All counts were obtained while area schools were in session. Under existing conditions, the study intersections operate acceptably at LOS A during the a.m. and p.m. peak hours. A summary of the level of service calculations is contained in Table 1. Exhibits showing traffic volumes, along with copies of the LOS calculations for all evaluated scenarios, are enclosed on Figure 3.

**Table 1 – Existing Intersection Levels of Service**

Study Intersection <i>Approach</i>	AM Peak		PM Peak	
	Delay	LOS	Delay	LOS
1. Thomas Lake Harris Dr/Gullane Dr <i>Westbound (Gullane Dr) Approach</i>	0.5 <i>9.1</i>	A A	0.2 <i>9.0</i>	A A
2. Fountaingrove Pkwy/Thomas Lake Harris Dr (West)	5.9	A	5.3	A

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; results for minor approaches to two-way stop-controlled intersections are indicated in *italics*

## Baseline Traffic Conditions

Baseline operating conditions were assessed to reflect the addition of traffic associated with known projects that may be constructed and/or become operational in the study area in the next two to three years. Relevant projects used in the Baseline scenario were selected based on the expected impact to the study area from the City's "Permit Santa Rosa" portal (<http://santarosa.civicsight.com>), and confirmed with City Staff in April 2017.

- **Canyon Oaks** – 96 apartment units on Thomas Lake Harris Drive, north of Emerald Isle site
- **Chanate Cottages** – 18 apartment units at 2387 Chanate Road (constructed)
- **Fir Ridge Workforce Housing** – 36 attached residential dwellings at 3700 Fir Ridge Drive
- **Fountaingrove Inn Condos** – 22 attached residential dwellings at 3586 Mendocino Avenue
- **Terrazzo at Fountaingrove** – 19 single-family detached residential dwellings at 1601 Fountaingrove Parkway
- **Skyfarm 3** – 30 single-family detached residential dwellings at 3925 Saint Andrews Drive

- **The Arbors** – 37 single-family detached residential dwellings at 3500 Lake Park Drive
- **Hampton Inn** – 100-room hotel at 3383 Airway Drive

Trip distribution assumptions for the approved projects were based on the project trip distribution, as well as published traffic studies for specific projects, if available.

The anticipated traffic associated with these projects was added to the volumes analyzed in the “Existing Conditions” scenario in order to determine Baseline volumes. Under these conditions, the study intersections are expected to continue operating acceptably at LOS A during the a.m. and p.m. peak hours. The resulting operating conditions are summarized in Table 2.

**Table 2 – Baseline Intersection Levels of Service**

Study Intersection Approach	AM Peak		PM Peak	
	Delay	LOS	Delay	LOS
1. Thomas Lake Harris Dr/Gullane Dr	0.3	A	0.1	A
<i>Westbound (Gullane Dr) Approach</i>	<i>9.6</i>	<i>A</i>	<i>9.7</i>	<i>A</i>
2. Fountaingrove Pkwy/Thomas Lake Harris Dr (West)	8.0	A	7.1	A

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; results for minor approaches to two-way stop-controlled intersections are indicated in *italics*

## Future Traffic Conditions

Future traffic volumes representing year 2040 buildout of the City of Santa Rosa General Plan were obtained from the Sonoma County Transportation Authority’s SCTM\10 travel demand model. The model includes link-based volume projections for Fountaingrove Parkway and Thomas Lake Harris Drive. The “Furness” procedure was used to determine future turning movements at the Fountaingrove Parkway/Thomas Lake Harris Drive (West) intersection, while future volumes at the Thomas Lake Harris Drive/Gullane Drive intersection were developed by adding the model’s incremental growth on Thomas Lake Harris Drive to the intersection’s existing volumes.

Under future conditions, the study intersections are projected to continue operating acceptably at LOS A or B during the a.m. and p.m. peak hours. Future operating conditions are summarized in Table 3.

**Table 3 – Future Intersection Levels of Service**

Study Intersection Approach	AM Peak		PM Peak	
	Delay	LOS	Delay	LOS
1. Thomas Lake Harris Dr/Gullane Dr	0.2	A	0.1	A
<i>Westbound (Gullane Dr) Approach</i>	<i>10.8</i>	<i>B</i>	<i>11.0</i>	<i>B</i>
2. Fountaingrove Pkwy/Thomas Lake Harris Dr (West)	13.4	B	12.5	B

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; results for minor approaches to two-way stop-controlled intersections are indicated in *italics*

## Trip Generation

The anticipated trip generation for the proposed project was estimated using standard rates published by the Institute of Transportation Engineers (ITE) in *Trip Generation Manual*, 9<sup>th</sup> Edition, 2012, for “Assisted Living” (Land Use #254). Trip generation for this land use is based on the number of beds. The proposed assisted living and

memory care facility is expected to generate an average of 189 new trips on a daily basis, including 10 during the a.m. peak hour and 16 during the p.m. peak hour. The applied trip generation rates and estimates are shown in Table 4.

**Table 4 – Trip Generation Summary**

Land Use	Units	Daily		AM Peak Hour				PM Peak Hour			
		Rate	Trips	Rate	Trips	In	Out	Rate	Trips	In	Out
Assisted Living (#254)	71 beds	2.66	189	0.14	10	6	4	0.22	16	7	9

## Trip Distribution

The pattern used to allocate new project trips to the street network was determined by reviewing existing turning movements at the study intersections, observations of neighborhood travel patterns, and knowledge of traffic patterns in the area and surrounding region. The applied trip distribution percentages are shown in Table 5.

**Table 5 – Trip Distribution Assumptions**

Route	Percent
Cross Creek Road – via Thomas Lake Harris Drive northeast of project site	8%
Fountaingrove Parkway East – via Thomas Lake Harris Drive south of project site	22%
Fountaingrove Parkway West - via Thomas Lake Harris Drive south of project site	70%
<b>TOTAL</b>	<b>100%</b>

## Traffic Operation with the Proposed Project

### Existing plus Project Intersection Levels of Service

Completion and occupation of the proposed project would result in a less than significant increase in delay, with all of the study intersections continuing to operate at LOS A during the a.m. and p.m. peak hours. A summary of the level of service calculations is contained in Table 6.

**Table 6 – Existing and Existing plus Project Peak Hour Intersection Levels of Service**

Study Intersection Approach	Existing Conditions				Existing plus Project			
	AM Peak		PM Peak		AM Peak		PM Peak	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1. Thomas Lake Harris Dr/Gullane Dr <i>Westbound (Gullane Dr) Approach</i>	0.5 9.1	A A	0.2 9.0	A A	0.8 9.2	A A	1.0 9.1	A A
2. Fountaingrove Pkwy/Thomas Lake Harris Dr (West)	5.9	A	5.3	A	6.1	A	5.6	A

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; results for minor approaches to two-way stop-controlled intersections are indicated in *italics*

### Baseline plus Project Intersection Levels of Service

Under Baseline plus Project conditions, the study intersections would also experience a less-than-significant increase in delay, with continued LOS A operation during the a.m. and p.m. peak hours. A summary of the level of service calculations is contained in Table 7.

**Table 7 – Baseline and Baseline plus Project Peak Hour Intersection Levels of Service**

Study Intersection <i>Approach</i>	Baseline Conditions				Baseline plus Project			
	AM Peak		PM Peak		AM Peak		PM Peak	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1. Thomas Lake Harris Dr/Gullane Dr <i>Westbound (Gullane Dr) Approach</i>	0.3	A	0.1	A	0.5	A	0.5	A
	9.6	A	9.7	A	9.8	A	9.7	A
2. Fountaingrove Pkwy/Thomas Lake Harris Dr (West)	8.0	A	7.1	A	8.2	A	7.4	A

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; results for minor approaches to two-way stop-controlled intersections are indicated in *italics*

### Future plus Project Intersection Levels of Service

Upon the addition of project-generated traffic to future volumes, the study intersections would continue to operate acceptably at LOS B or better during both peak hours, with less than significant increases in delay. A summary of the future level of service calculations is contained in Table 8.

**Table 8 – Future and Future plus Project Peak Hour Intersection Levels of Service**

Study Intersection <i>Approach</i>	Future Conditions				Future plus Project			
	AM Peak		PM Peak		AM Peak		PM Peak	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1. Thomas Lake Harris Dr/Gullane Dr <i>Westbound (Gullane Dr) Approach</i>	0.2	A	0.1	A	0.3	A	0.3	A
	10.8	B	11.0	B	11.0	B	11.0	B
2. Fountaingrove Pkwy/Thomas Lake Harris Dr (West)	13.4	B	12.5	B	13.6	B	13.2	B

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; results for minor approaches to two-way stop-controlled intersections are indicated in *italics*

**Finding** – The study intersections are expected to operate acceptably upon the addition of project trips to Existing, Baseline, and Future scenarios, resulting in a less-than-significant impact on traffic operation.

### Multimodal Circulation

While residents and patients of the proposed project may not generate pedestrian, bicycle, or transit trips, employees and visitors may use one or more of these modes on an occasional or routine basis.

#### Pedestrian Facilities

The project includes construction of a new sidewalk along the Gullane Drive extension to the project site, connecting to existing sidewalks on Gullane Drive and Thomas Lake Harris Drive.

#### Bicycle Facilities

Bicyclists can access the regional bicycle network via Gullane Drive and Thomas Lake Harris Drive, which connects to the existing Class I bike trail along Fountaingrove Parkway.



## Transit Facilities

Upon implementation of CityBus's updated bus network system in May 2017, the nearest bus stop to the project site will be approximately one mile away on Fountaingrove Parkway. Given the distance and hilly terrain in the area, it is unlikely that project employees or visitors will use transit to access the project site. However, should bus service be reestablished on Fountaingrove Parkway including the stop at Thomas Lake Harris Drive, transit will become a viable option for employees and visitors. Continuous pedestrian facilities exist between the project site and this transit stop. Given the nature of the proposed facility, it is anticipated that most transit trips made by residents would be via existing paratransit services offered by CityBus.

**Finding** – The proposed project will effectively tie into the surrounding multimodal circulation network, making walking and bicycling viable means of travel for the facility's employees and visitors.

**Finding** – Transit use by project employees and visitors would be viable in the future if CityBus reestablishes service to the bus stop on Fountaingrove Parkway/Thomas Lake Harris; most if not all project residents would qualify for door-to-door paratransit service and be adequately served by CityBus's paratransit operations.

## Site Access and Circulation

Access to the site would be provided via an eastward extension of Gullane Drive. Driveways and internal drive aisles use standard configurations and would be navigable by emergency response vehicles. The driveway crosses a narrow portion of the Fountaingrove Golf Course and a paved golf cart/walking path. In tandem with construction of the driveway, the path would be realigned appropriately to cross the road perpendicularly.

**Finding** – Emergency access and on-site circulation are expected to function acceptably at the project site.

## Sight Distance

At unsignalized intersections, a substantially clear line of sight should be maintained between the driver of a vehicle waiting at the crossroad and the driver of an approaching vehicle. Adequate time must be provided for the waiting vehicle to either cross, turn left, or turn right, without requiring the through traffic drivers to radically alter their speed.

Sight distance along Thomas Lake Harris Drive at Gullane Drive was evaluated based on sight distance criteria contained in the Highway Design Manual published by Caltrans. The recommended sight distances for minor street approaches that are either a private roadway or a driveway are based on stopping sight distance.

For the posted 25 mile per hour (mph) speed limit on Thomas Lake Harris Drive, the recommended stopping sight distance is 150 feet. Based on a review of the field conditions, the sight distance at Gullane Drive extends 250 feet to the north, which satisfies requirements for speeds of 35 mph. To the south of Gullane Drive, the available sight distance is approximately 200 feet, which satisfies requirements for speeds up to 30 mph.

Radar speed samples were obtained on the northbound and southbound approaches of Thomas Lake Harris Drive at Gullane Drive. Prevailing speeds were found to exceed the posted 25-mph speed limit in both directions of travel. Based on the speed samples, the average surveyed speed for northbound vehicles was 30 mph, with a peak observed speed of 38 mph. In the southbound direction, the average surveyed speed was also 30 mph, with a peak observed speed of 40 mph.

Sufficient sight distance exists at Gullane Drive for drivers to adequately respond to the observed average speeds on Thomas Lake Harris Drive. Because some drivers have been observed substantially exceeding the posted speed limit on Thomas Lake Harris Drive at speeds in excess of 35 mph near the project site, however, it is recommended that a traffic calming measure be implemented in order to reduce speeds and reduce the potential for sight

distance related safety issues to occur. Currently, Thomas Lake Harris Drive includes a left-turn pocket to the north of Gullane Drive and transitions to a two-lane roadway with no center lane to the south. The effective through traffic lane widths range from 13 to 18 feet. Restriping the street to include a center turn lane would reduce through travel lanes to widths of 10 to 12 feet. The narrowing of travel lanes is a proven traffic calming technique and would be expected to reduce vehicle speeds. Provision of a center turn lane may also improve ease of egress for drivers exiting Gullane Drive. The project applicants should be responsible for designing and implementing this restriping scheme, with design details to be reviewed and approved by the City of Santa Rosa Public Works Department. It should be noted that the City of Santa Rosa has conditioned a similar traffic calming treatment to be implemented on Thomas Lake Harris Drive approximately 0.20 miles north of Gullane Drive as part of the approved Canyon Oaks Apartments project.

**Finding** – Sight distance from Gullane Drive to the north and south at the Thomas Lake Harris intersection is adequate for observed average speeds. However, some drivers on Thomas Lake Harris Drive are exceeding the posted 25 mph posted speed limit, at speeds requiring a greater sight distance than is available at the Gullane Drive intersection.

**Recommendation** – In order to reduce speeds on Thomas Lake Harris Drive and ensure provision of adequate sight distance at Gullane Drive, the project applicants should be responsible for restriping Thomas Lake Harris Drive in the vicinity to include a two-way left-turn lane, the design of which shall be specified and approved by the City of Santa Rosa Public Works Department.

## Conclusions

- The project is expected to generate an average of 189 new daily vehicle trips, including ten trips during the a.m. peak hour and 16 trips during the p.m. peak hour.
- The study intersections currently operate acceptably during the a.m. and p.m. peak hours and are projected to continue operating acceptably under Baseline and Future conditions.
- Upon the addition of project-generated traffic to Existing, Baseline, and Future traffic volumes, the study intersections would be expected to continue operating acceptably at LOS B or better.
- The addition of sidewalks along the extension of Gullane Drive would effectively link the project site to the surrounding pedestrian network.
- The project would effectively tie into the regional bicycle circulation network.
- Transit use by project employees and visitors would be viable in the future if CityBus reestablishes service to the bus stop on Fountaingrove Parkway/Thomas Lake Harris; most if not all project residents would qualify for door-to-door paratransit service and be adequately served by CityBus's paratransit operations.
- Emergency access and on-site circulation would be expected to function acceptably at the project site.
- Sight distance along Thomas Lake Harris Drive at Gullane Drive is adequate for drivers approaching at the posted 25 mph speed limit, as well as speeds up to 35 mph in the southbound direction and 30 mph in the northbound direction. However, some drivers on Thomas Lake Harris Drive are substantially exceeding the posted speed limit, resulting in the need for greater sight distance than exists at the Gullane Drive intersection.

## **Recommendation**

- In order to reduce speeds on Thomas Lake Harris Drive and ensure provision of adequate sight distance at Gullane Drive, the project applicants should be responsible for restriping Thomas Lake Harris Drive in the vicinity to include a two-way left-turn lane, the design of which shall be specified and approved by the City of Santa Rosa Public Works Department.

Thank you for giving W-Trans the opportunity to provide these services. Please call if you have any questions.

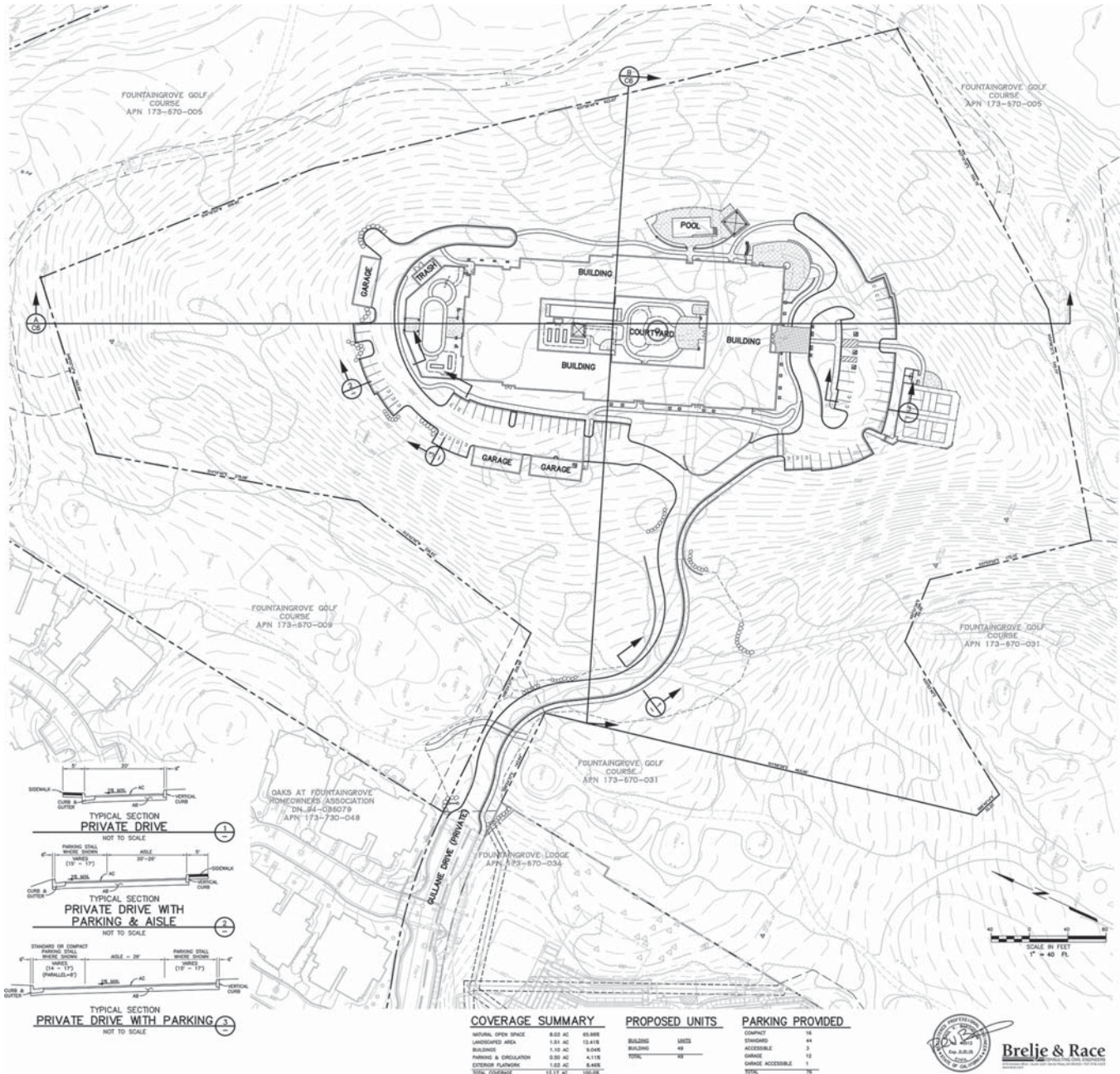
Sincerely,

Lauren Davini, EIT  
Assistant Engineer

Zachary Matley, AICP  
Associate Principal

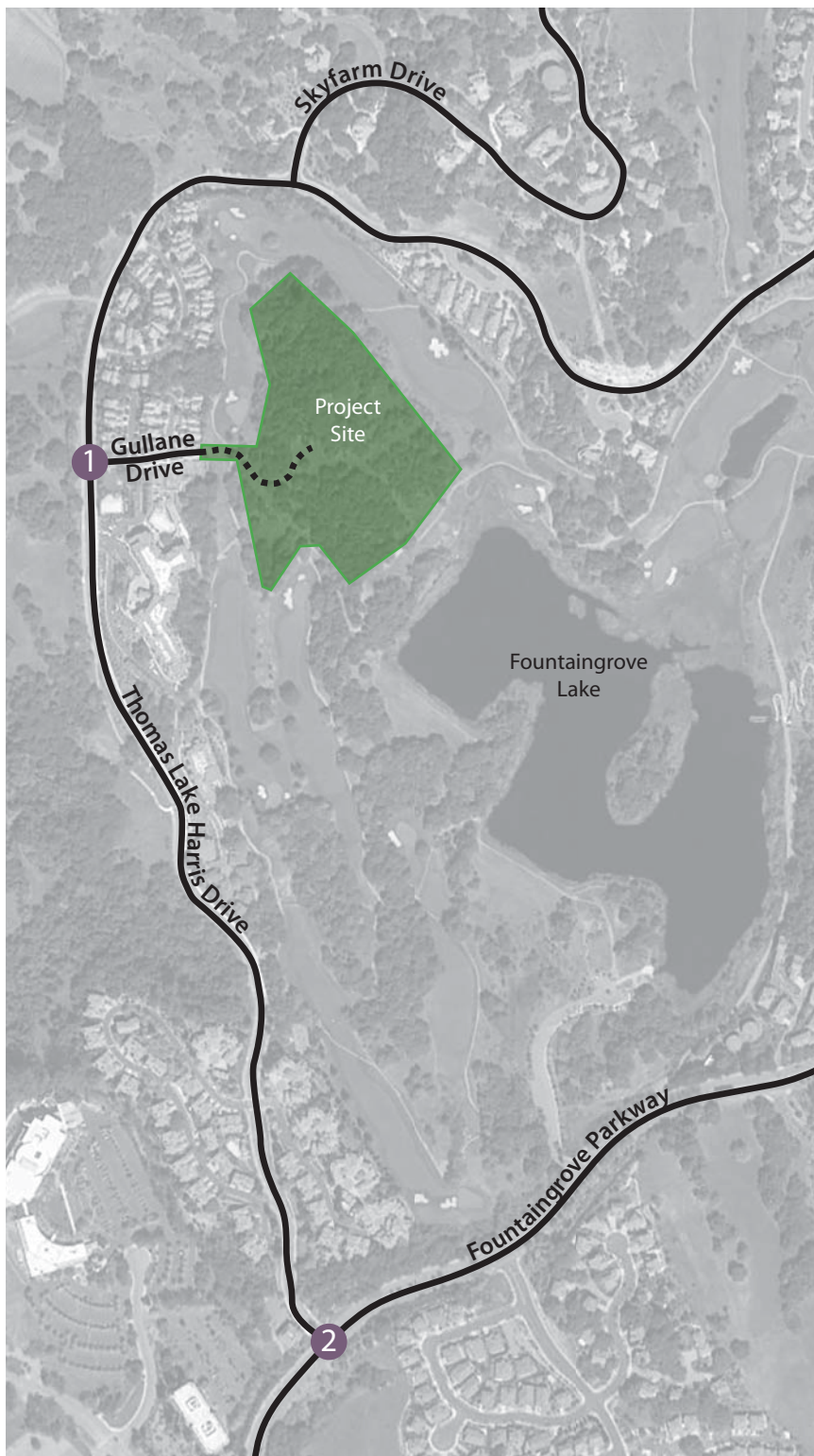
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Enclosures: Figure 1 – Site Plan  
Figure 2 – Existing Volumes and Lane Configurations  
Figure 3 – Baseline, Future, and Project Volumes  
Level of Service Calculations



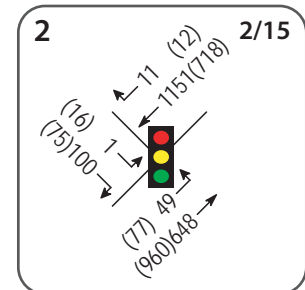
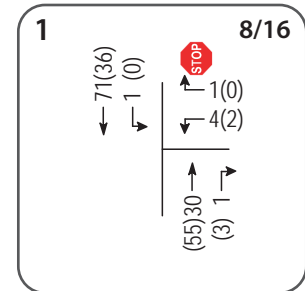
**Focused Traffic Study for the Emerald Isle Assisted Living Project**  
**Figure 1 – Site Plan**



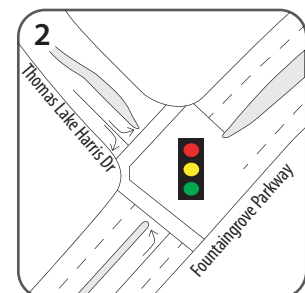
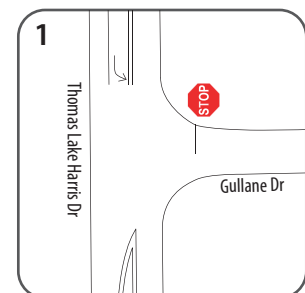


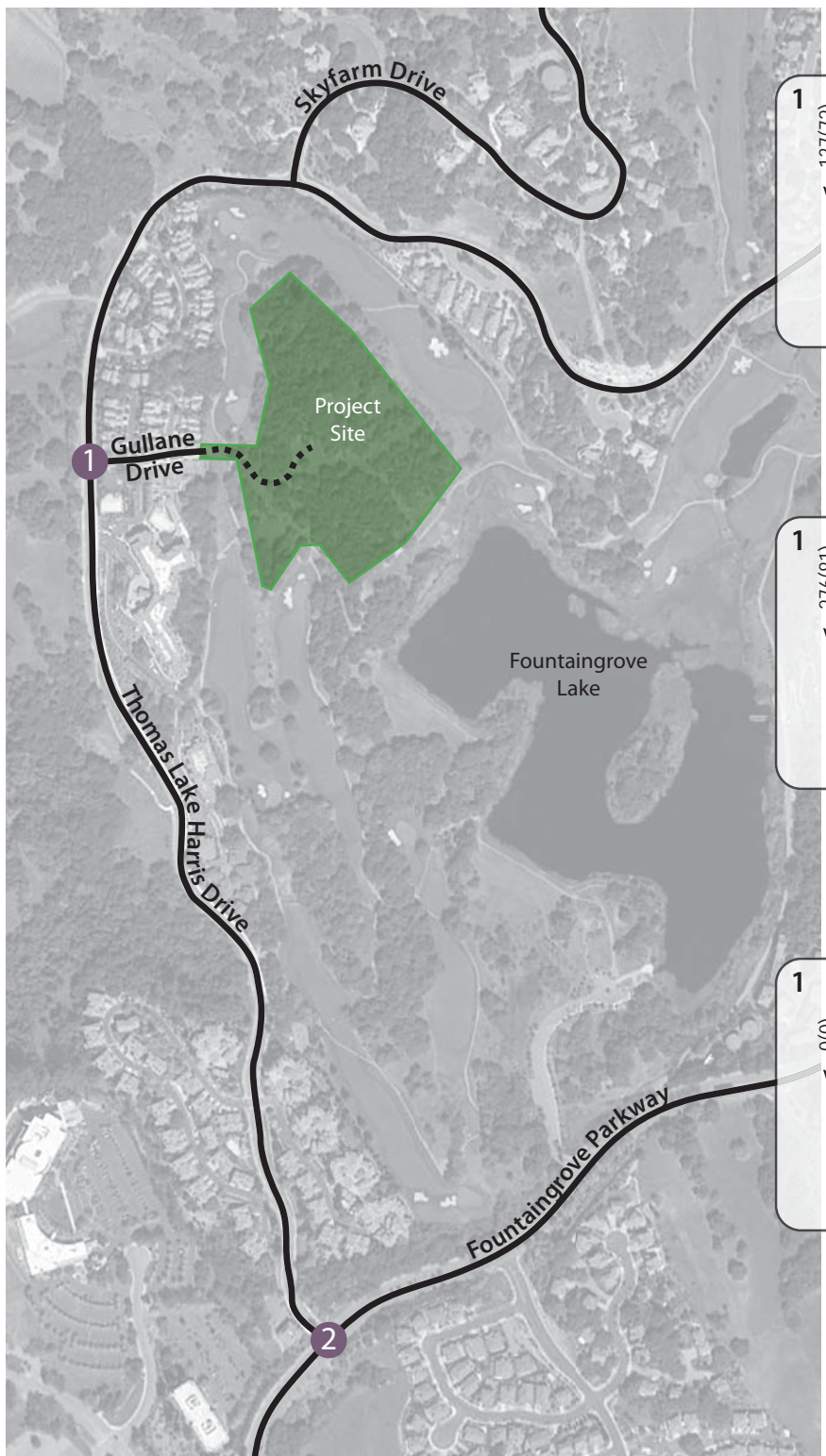
LEGEND	
<span style="color: purple;">●</span>	Study Intersection
xx	AM Peak Hour Volume
(xx)	PM Peak Hour Volume

## Existing Volumes

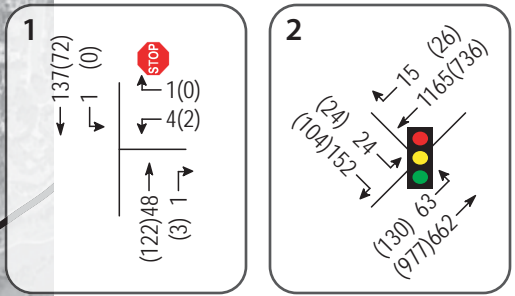


## Existing Lane Configurations

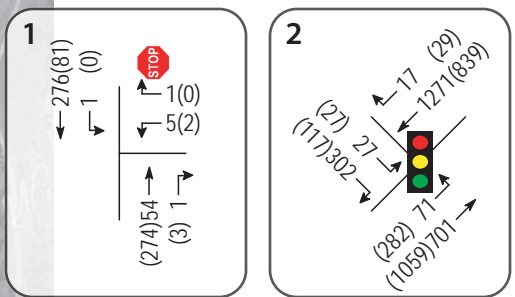




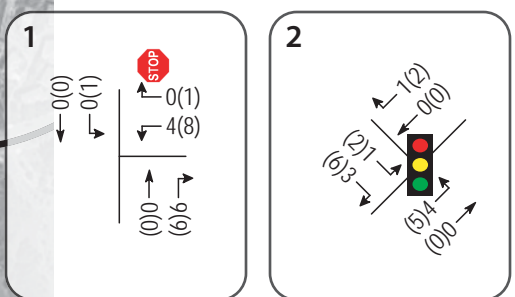
**Baseline Volumes**



**Future Volumes**



**Project Volumes**



North

Not to Scale

**LEGEND**

- Study Intersection
- xx AM Peak Hour Volume
- (xx) PM Peak Hour Volume

**Focused Traffic Study for the Emerald Isle Assisted Living Project**  
**Figure 3 – Baseline, Future, and Project Volumes**



# HCM 2010 TWSC

1: Thomas Lake Harris Drive & Gullane Dr.

9/6/2016

Intersection						
Int Delay, s/veh	0.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W				W	W
Traffic Vol, veh/h	4	1	30	1	1	71
Future Vol, veh/h	4	1	30	1	1	71
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	79	79	79	79	79	79
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	1	38	1	1	90
Major/Minor						
Conflicting Flow All	131	39	0	0	39	0
Stage 1	39	-	-	-	-	-
Stage 2	92	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	863	1033	-	-	1571	-
Stage 1	983	-	-	-	-	-
Stage 2	932	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	862	1033	-	-	1571	-
Mov Cap-2 Maneuver	862	-	-	-	-	-
Stage 1	983	-	-	-	-	-
Stage 2	931	-	-	-	-	-
Approach						
HCM Control Delay, s	9.1		0		0.1	
HCM LOS	A					
Minor Lane/Major Mvmt						
Capacity (veh/h)	-	-	892	1571	-	-
HCM Lane V/C Ratio	-	-	0.007	0.001	-	-
HCM Control Delay (s)	-	-	9.1	7.3	-	-
HCM Lane LOS	-	-	A	A	-	-
HCM 95th %tile Q(veh)	-	-	0	0	-	-

# HCM 2010 TWSC












1: Thomas Lake Harris Drive & Gullane Dr.

9/6/2016

Intersection						
Int Delay, s/veh	0.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W				W	W
Traffic Vol, veh/h	2	0	55	3	0	36
Future Vol, veh/h	2	0	55	3	0	36
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	0	62	3	0	40
Major/Minor						
Conflicting Flow All	103	63	0	0	65	0
Stage 1	63	-	-	-	-	-
Stage 2	40	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	895	1002	-	-	1537	-
Stage 1	960	-	-	-	-	-
Stage 2	982	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	895	1002	-	-	1537	-
Mov Cap-2 Maneuver	895	-	-	-	-	-
Stage 1	960	-	-	-	-	-
Stage 2	982	-	-	-	-	-
Approach						
HCM Control Delay, s	9		0		0	
HCM LOS	A					
Minor Lane/Major Mvmt						
Capacity (veh/h)	-	-	895	1537	-	-
HCM Lane V/C Ratio	-	-	0.003	-	-	-
HCM Control Delay (s)	-	-	9	0	-	-
HCM Lane LOS	-	-	A	A	-	-
HCM 95th %tile Q(veh)	-	-	0	0	-	-












HCM 2010 Signalized Intersection Summary  
2: Fountaingrove Parkway & Thomas Lake Harris Drive (W)

9/6/2016

								
Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Traffic Volume (veh/h)	49	648	1151	11	10	100		
Future Volume (veh/h)	49	648	1151	11	10	100		
Number	5	2	6	16	7	14		
Initial Q (Ob), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00			0.97	1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1863	1863		
Adj Flow Rate, veh/h	52	689	1224	12	11	106		
Adj No. of Lanes	1	2	2	0	1	1		
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	82	2825	2514	25	149	206		
Arrive On Green	0.05	0.80	0.70	0.70	0.08	0.08		
Sat Flow, veh/h	1774	3632	3683	35	1774	1583		
Grp Volume(v), veh/h	52	689	603	633	11	106		
Grp Sat Flow(s),veh/h/ln	1774	1770	1770	1855	1774	1583		
Q Serve(g_s), s	2.0	3.3	10.5	10.5	0.4	4.2		
Cycle Q Clear(g_c), s	2.0	3.3	10.5	10.5	0.4	4.2		
Prop In Lane	1.00			0.02	1.00	1.00		
Lane Grp Cap(c), veh/h	82	2825	1240	1300	149	206		
V/C Ratio(X)	0.64	0.24	0.49	0.49	0.07	0.51		
Avail Cap(c_a), veh/h	379	3280	1240	1300	761	752		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	31.8	1.7	4.6	4.6	28.6	27.5		
Incr Delay (d2), s/veh	3.0	0.0	0.3	0.3	0.1	0.7		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	1.0	1.5	5.1	5.4	0.2	3.8		
LnGrp Delay(d),s/veh	34.9	1.8	4.9	4.9	28.7	28.3		
LnGrp LOS	C	A	A	A	C	C		
Approach Vol, veh/h	741	1236			117			
Approach Delay, s/veh	4.1	4.9			28.3			
Approach LOS	A	A			C			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		58.7		9.2	6.6	52.0		
Change Period (Y+Rc), s		4.5		3.5	3.5	4.5		
Max Green Setting (Gmax), s		62.9		29.1	14.5	44.9		
Max Q Clear Time (g_c+I1), s		5.3		6.2	4.0	12.5		
Green Ext Time (p_c), s		48.9		0.2	0.0	31.2		
Intersection Summary								
HCM 2010 Ctrl Delay			5.9					
HCM 2010 LOS			A					

HCM 2010 Signalized Intersection Summary  
2: Fountaingrove Parkway & Thomas Lake Harris Drive (W)

9/6/2016

								
Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Traffic Volume (veh/h)	77	960	718	12	16	75		
Future Volume (veh/h)	77	960	718	12	16	75		
Number	5	2	6	16	7	14		
Initial Q (Ob), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00			0.97	1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1863	1863		
Adj Flow Rate, veh/h	82	1021	764	13	17	80		
Adj No. of Lanes	1	2	2	0	1	1		
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	106	2891	2512	43	116	198		
Arrive On Green	0.06	0.82	0.71	0.71	0.07	0.07		
Sat Flow, veh/h	1774	3632	3652	61	1774	1583		
Grp Volume(v), veh/h	82	1021	380	397	17	80		
Grp Sat Flow(s),veh/h/ln	1774	1770	1770	1850	1774	1583		
Q Serve(g_s), s	3.1	5.1	5.5	5.5	0.6	3.2		
Cycle Q Clear(g_c), s	3.1	5.1	5.5	5.5	0.6	3.2		
Prop In Lane	1.00			0.03	1.00	1.00		
Lane Grp Cap(c), veh/h	106	2891	1249	1306	116	198		
V/C Ratio(X)	0.78	0.35	0.30	0.30	0.15	0.40		
Avail Cap(c_a), veh/h	378	3271	1249	1306	758	771		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	31.6	1.6	3.7	3.7	30.0	27.4		
Incr Delay (d2), s/veh	4.5	0.1	0.1	0.1	0.2	0.5		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	1.7	2.4	2.7	2.8	0.3	2.9		
LnGrp Delay(d),s/veh	36.1	1.7	3.9	3.9	30.2	27.9		
LnGrp LOS	D	A	A	A	C	C		
Approach Vol, veh/h	1103	777			97			
Approach Delay, s/veh	4.2	3.9			28.3			
Approach LOS	A	A			C			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		60.1		8.0	7.6	52.5		
Change Period (Y+Rc), s		4.5		3.5	3.5	4.5		
Max Green Setting (Gmax), s		62.9		29.1	14.5	44.9		
Max Q Clear Time (g_c+I1), s		7.1		5.2	5.1	7.5		
Green Ext Time (p_c), s		48.6		0.1	0.1	35.1		
Intersection Summary								
HCM 2010 Ctrl Delay			5.3					
HCM 2010 LOS			A					



# HCM 2010 TWSC

1: Thomas Lake Harris Drive & Gullane Dr.

05/02/2017

Intersection						
Int Delay, s/veh	0.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T		T	T
Traffic Vol, veh/h	8	1	30	7	1	71
Future Vol, veh/h	8	1	30	7	1	71
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	79	79	79	79	79	79
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	1	38	9	1	90
Major/Minor						
Conflicting Flow All	134	42	0	0	47	0
Stage 1	42	-	-	-	-	-
Stage 2	92	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	860	1029	-	-	1560	-
Stage 1	980	-	-	-	-	-
Stage 2	932	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	859	1029	-	-	1560	-
Mov Cap-2 Maneuver	859	-	-	-	-	-
Stage 1	980	-	-	-	-	-
Stage 2	931	-	-	-	-	-
Approach						
HCM Control Delay, s	9.2		0		0.1	
HCM LOS	A					
Minor Lane/Major Mvmt						
Capacity (veh/h)	-	-	875	1560	-	-
HCM Lane V/C Ratio	-	-	0.013	0.001	-	-
HCM Control Delay (s)	-	-	9.2	7.3	-	-
HCM Lane LOS	-	-	A	A	-	-
HCM 95th %tile Q(veh)	-	-	0	0	-	-

# HCM 2010 TWSC












1: Thomas Lake Harris Drive & Gullane Dr.

05/02/2017

Intersection						
Int Delay, s/veh	1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T		T	T
Traffic Vol, veh/h	10	1	55	9	1	36
Future Vol, veh/h	10	1	55	9	1	36
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	1	62	10	1	40
Major/Minor						
Conflicting Flow All	110	67	0	0	72	0
Stage 1	67	-	-	-	-	-
Stage 2	43	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	887	997	-	-	1528	-
Stage 1	956	-	-	-	-	-
Stage 2	979	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	886	997	-	-	1528	-
Mov Cap-2 Maneuver	886	-	-	-	-	-
Stage 1	956	-	-	-	-	-
Stage 2	978	-	-	-	-	-
Approach						
HCM Control Delay, s	9.1		0		0.2	
HCM LOS	A					
Minor Lane/Major Mvmt						
Capacity (veh/h)	-	-	895	1528	-	-
HCM Lane V/C Ratio	-	-	0.014	0.001	-	-
HCM Control Delay (s)	-	-	9.1	7.4	-	-
HCM Lane LOS	-	-	A	A	-	-
HCM 95th %tile Q(veh)	-	-	0	0	-	-












HCM 2010 Signalized Intersection Summary  
2: Fountaingrove Parkway & Thomas Lake Harris Drive (W)

05/02/2017

								
Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Traffic Volume (veh/h)	53	648	1151	12	11	103		
Future Volume (veh/h)	53	648	1151	12	11	103		
Number	5	2	6	16	7	14		
Initial Q (Ob), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00			0.97	1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1863	1863		
Adj Flow Rate, veh/h	56	689	1224	13	12	110		
Adj No. of Lanes	1	2	2	0	1	1		
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	85	2816	2497	27	154	214		
Arrive On Green	0.05	0.80	0.70	0.70	0.09	0.09		
Sat Flow, veh/h	1774	3632	3679	38	1774	1583		
Grp Volume(v), veh/h	56	689	604	633	12	110		
Grp Sat Flow(s),veh/h/ln	1774	1770	1770	1855	1774	1583		
Q Serve(g_s), s	2.1	3.4	10.7	10.7	0.4	4.4		
Cycle Q Clear(g_c), s	2.1	3.4	10.7	10.7	0.4	4.4		
Prop In Lane	1.00			0.02	1.00	1.00		
Lane Grp Cap(c), veh/h	85	2816	1232	1292	154	214		
V/C Ratio(X)	0.66	0.24	0.49	0.49	0.08	0.51		
Avail Cap(c_a), veh/h	377	3264	1232	1292	757	752		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	31.9	1.8	4.8	4.8	28.6	27.4		
Incr Delay (d2), s/veh	3.2	0.0	0.3	0.3	0.1	0.7		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	1.1	1.6	5.3	5.6	0.2	3.9		
LnGrp Delay(d),s/veh	35.1	1.8	5.1	5.1	28.7	28.1		
LnGrp LOS	D	A	A	A	C	C		
Approach Vol, veh/h	745	1237		122				
Approach Delay, s/veh	4.3	5.1		28.2				
Approach LOS	A	A		C				
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		58.8		9.4	6.8	52.0		
Change Period (Y+Rc), s		4.5		3.5	3.5	4.5		
Max Green Setting (G_max), s		62.9		29.1	14.5	44.9		
Max Q Clear Time (g_c+I1), s		5.4		6.4	4.1	12.7		
Green Ext Time (p_c), s		48.9		0.2	0.0	31.0		
Intersection Summary								
HCM 2010 Ctrl Delay			6.1					
HCM 2010 LOS			A					

HCM 2010 Signalized Intersection Summary  
2: Fountaingrove Parkway & Thomas Lake Harris Drive (W)

05/02/2017

								
Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Traffic Volume (veh/h)	82	960	718	14	18	81		
Future Volume (veh/h)	82	960	718	14	18	81		
Number	5	2	6	16	7	14		
Initial Q (Ob), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00			0.97	1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1863	1863		
Adj Flow Rate, veh/h	87	1021	764	15	19	86		
Adj No. of Lanes	1	2	2	0	1	1		
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	112	2878	2479	49	124	211		
Arrive On Green	0.06	0.81	0.70	0.70	0.07	0.07		
Sat Flow, veh/h	1774	3632	3641	70	1774	1583		
Grp Volume(v), veh/h	87	1021	381	398	19	86		
Grp Sat Flow(s),veh/h/ln	1774	1770	1770	1848	1774	1583		
Q Serve(g_s), s	3.3	5.2	5.7	5.7	0.7	3.4		
Cycle Q Clear(g_c), s	3.3	5.2	5.7	5.7	0.7	3.4		
Prop In Lane	1.00			0.04	1.00	1.00		
Lane Grp Cap(c), veh/h	112	2878	1237	1291	124	211		
V/C Ratio(X)	0.77	0.35	0.31	0.31	0.15	0.41		
Avail Cap(c_a), veh/h	375	3247	1237	1291	753	772		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	31.6	1.7	4.0	4.0	30.0	27.2		
Incr Delay (d2), s/veh	4.2	0.1	0.1	0.1	0.2	0.5		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	1.8	2.4	2.8	2.9	0.3	3.1		
LnGrp Delay(d),s/veh	35.9	1.8	4.1	4.1	30.2	27.7		
LnGrp LOS	D	A	A	A	C	C		
Approach Vol, veh/h	1108	779		105				
Approach Delay, s/veh	4.4	4.1		28.1				
Approach LOS	A	A		C				
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		60.3		8.3	7.8	52.4		
Change Period (Y+Rc), s		4.5		3.5	3.5	4.5		
Max Green Setting (Gmax), s		62.9		29.1	14.5	44.9		
Max Q Clear Time (g_c+I1), s		7.2		5.4	5.3	7.7		
Green Ext Time (p_c), s		48.6		0.1	0.1	34.9		
Intersection Summary								
HCM 2010 Ctrl Delay			5.6					
HCM 2010 LOS			A					

# HCM 2010 TWSC

1: Thomas Lake Harris Drive & Gullane Dr.

05/02/2017

Intersection						
Int Delay, s/veh	0.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W				W	W
Traffic Vol, veh/h	4	1	48	1	1	137
Future Vol, veh/h	4	1	48	1	1	137
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	79	79	79	79	79	79
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	1	61	1	1	173
Major/Minor						
Conflicting Flow All	237	61	0	0	62	0
Stage 1	61	-	-	-	-	-
Stage 2	176	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	751	1004	-	-	1541	-
Stage 1	962	-	-	-	-	-
Stage 2	855	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	751	1004	-	-	1541	-
Mov Cap-2 Maneuver	751	-	-	-	-	-
Stage 1	962	-	-	-	-	-
Stage 2	854	-	-	-	-	-
Approach						
HCM Control Delay, s	9.6		0		0.1	
HCM LOS	A					
Minor Lane/Major Mvmt						
Capacity (veh/h)	-	-	791	1541	-	-
HCM Lane V/C Ratio	-	-	0.008	0.001	-	-
HCM Control Delay (s)	-	-	9.6	7.3	-	-
HCM Lane LOS	-	-	A	A	-	-
HCM 95th %tile Q(veh)	-	-	0	0	-	-

# HCM 2010 TWSC












1: Thomas Lake Harris Drive & Gullane Dr.

05/02/2017

Intersection						
Int Delay, s/veh	0.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W				W	W
Traffic Vol, veh/h	2	0	122	3	0	72
Future Vol, veh/h	2	0	122	3	0	72
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	0	137	3	0	81
Major/Minor						
Conflicting Flow All	220	139	0	0	140	0
Stage 1	139	-	-	-	-	-
Stage 2	81	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	768	909	-	-	1443	-
Stage 1	888	-	-	-	-	-
Stage 2	942	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	768	909	-	-	1443	-
Mov Cap-2 Maneuver	768	-	-	-	-	-
Stage 1	888	-	-	-	-	-
Stage 2	942	-	-	-	-	-
Approach						
HCM Control Delay, s	9.7		0		0	
HCM LOS	A					
Minor Lane/Major Mvmt						
Capacity (veh/h)	-	-	768	1443	-	-
HCM Lane V/C Ratio	-	-	0.003	-	-	-
HCM Control Delay (s)	-	-	9.7	0	-	-
HCM Lane LOS	-	-	A	A	-	-
HCM 95th %tile Q(veh)	-	-	0	0	-	-












HCM 2010 Signalized Intersection Summary  
2: Fountaingrove Parkway & Thomas Lake Harris Drive (W)

05/02/2017

								
Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Traffic Volume (veh/h)	63	662	1165	15	24	152		
Future Volume (veh/h)	63	662	1165	15	24	152		
Number	5	2	6	16	7	14		
Initial Q (Ob), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00			0.97	1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1863	1863		
Adj Flow Rate, veh/h	67	704	1239	16	26	162		
Adj No. of Lanes	1	2	2	0	1	1		
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	91	2707	2376	31	218	276		
Arrive On Green	0.05	0.76	0.66	0.66	0.12	0.12		
Sat Flow, veh/h	1774	3632	3669	46	1774	1583		
Grp Volume(v), veh/h	67	704	613	642	26	162		
Grp Sat Flow(s),veh/h/ln	1774	1770	1770	1853	1774	1583		
Q Serve(g_s), s	2.7	4.2	12.7	12.7	0.9	6.7		
Cycle Q Clear(g_c), s	2.7	4.2	12.7	12.7	0.9	6.7		
Prop In Lane	1.00			0.02	1.00	1.00		
Lane Grp Cap(c), veh/h	91	2707	1176	1231	218	276		
V/C Ratio(X)	0.73	0.26	0.52	0.52	0.12	0.59		
Avail Cap(c_a), veh/h	360	3115	1176	1231	722	726		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	33.4	2.5	6.2	6.2	27.9	27.1		
Incr Delay (d2), s/veh	4.2	0.1	0.4	0.4	0.1	0.7		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	1.4	2.0	6.3	6.6	0.5	5.9		
LnGrp Delay(d),s/veh	37.6	2.5	6.6	6.6	28.0	27.9		
LnGrp LOS	D	A	A	A	C	C		
Approach Vol, veh/h	771	1255		188				
Approach Delay, s/veh	5.6	6.6		27.9				
Approach LOS	A	A		C				
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		59.2		12.3	7.2	52.0		
Change Period (Y+Rc), s		4.5		3.5	3.5	4.5		
Max Green Setting (Gmax), s		62.9		29.1	14.5	44.9		
Max Q Clear Time (g_c+I1), s		6.2		8.7	4.7	14.7		
Green Ext Time (p_c), s		48.5		0.3	0.0	29.2		
Intersection Summary								
HCM 2010 Ctrl Delay			8.0					
HCM 2010 LOS			A					

HCM 2010 Signalized Intersection Summary  
2: Fountaingrove Parkway & Thomas Lake Harris Drive (W)





05/02/2017

								
Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Traffic Volume (veh/h)	130	977	736	26	24	104		
Future Volume (veh/h)	130	977	736	26	24	104		
Number	5	2	6	16	7	14		
Initial Q (Ob), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00			0.97	1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1863	1863		
Adj Flow Rate, veh/h	138	1039	783	28	26	111		
Adj No. of Lanes	1	2	2	0	1	1		
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	175	2838	2278	81	153	292		
Arrive On Green	0.10	0.80	0.65	0.65	0.09	0.09		
Sat Flow, veh/h	1774	3632	3574	124	1774	1583		
Grp Volume(v), veh/h	138	1039	398	413	26	111		
Grp Sat Flow(s),veh/h/ln	1774	1770	1770	1836	1774	1583		
Q Serve(g_s), s	5.4	5.9	7.2	7.2	1.0	4.4		
Cycle Q Clear(g_c), s	5.4	5.9	7.2	7.2	1.0	4.4		
Prop In Lane	1.00			0.07	1.00	1.00		
Lane Grp Cap(c), veh/h	175	2838	1158	1201	153	292		
V/C Ratio(X)	0.79	0.37	0.34	0.34	0.17	0.38		
Avail Cap(c_a), veh/h	360	3116	1158	1201	723	801		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	31.5	2.0	5.5	5.5	30.3	25.5		
Incr Delay (d2), s/veh	3.0	0.1	0.2	0.2	0.2	0.3		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	2.8	2.8	3.5	3.6	0.5	4.0		
LnGrp Delay(d),s/veh	34.5	2.1	5.7	5.7	30.5	25.8		
LnGrp LOS	C	A	A	A	C	C		
Approach Vol, veh/h	1177	811		137				
Approach Delay, s/veh	5.9	5.7		26.7				
Approach LOS	A	A		C				
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		61.8		9.7	10.5	51.2		
Change Period (Y+Rc), s		4.5		3.5	3.5	4.5		
Max Green Setting (Gmax), s		62.9		29.1	14.5	44.9		
Max Q Clear Time (g_c+I1), s		7.9		6.4	7.4	9.2		
Green Ext Time (p_c), s		49.4		0.2	0.1	33.8		
Intersection Summary								
HCM 2010 Ctrl Delay			7.1					
HCM 2010 LOS			A					

# HCM 2010 TWSC

1: Thomas Lake Harris Drive & Gullane Dr.












05/02/2017

Intersection						
Int Delay, s/veh	0.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	8	1	48	7	1	137
Future Vol, veh/h	8	1	48	7	1	137
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	79	79	79	79	79	79
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	1	61	9	1	173
Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	241	65	0	0	70	0
Stage 1	65	-	-	-	-	-
Stage 2	176	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	747	999	-	-	1531	-
Stage 1	958	-	-	-	-	-
Stage 2	855	-	-	-	-	-
Platoon blocked, %			-	-	-	-
Mov Cap-1 Maneuver	747	999	-	-	1531	-
Mov Cap-2 Maneuver	747	-	-	-	-	-
Stage 1	958	-	-	-	-	-
Stage 2	854	-	-	-	-	-
Approach	WB		NB		SB	
HCM Control Delay, s	9.8		0		0.1	
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	- 769	1531	-		
HCM Lane V/C Ratio	-	- 0.015	0.001	-		
HCM Control Delay (s)	-	- 9.8	7.4	-		
HCM Lane LOS	-	- A	A	-		
HCM 95th %tile Q(veh)	-	- 0	0	-		

# HCM 2010 Signalized Intersection Summary












2: Fountaingrove Parkway & Thomas Lake Harris Drive (W)

05/02/2017

								
Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Traffic Volume (veh/h)	135	977	736	14	26	110		
Future Volume (veh/h)	135	977	736	14	26	110		
Number	5	2	6	16	7	14		
Initial Q (Ob), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00			0.97	1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1863	1863		
Adj Flow Rate, veh/h	144	1039	783	15	28	117		
Adj No. of Lanes	1	2	2	0	1	1		
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	181	2826	2299	44	160	305		
Arrive On Green	0.10	0.80	0.65	0.65	0.09	0.09		
Sat Flow, veh/h	1774	3632	3643	68	1774	1583		
Grp Volume(v), veh/h	144	1039	390	408	28	117		
Grp Sat Flow(s),veh/h/ln	1774	1770	1770	1848	1774	1583		
Q Serve(g_s), s	5.7	6.0	7.2	7.2	1.0	4.6		
Cycle Q Clear(g_c), s	5.7	6.0	7.2	7.2	1.0	4.6		
Prop In Lane	1.00			0.04	1.00	1.00		
Lane Grp Cap(c), veh/h	181	2826	1146	1197	160	305		
V/C Ratio(X)	0.79	0.37	0.34	0.34	0.18	0.38		
Avail Cap(c_a), veh/h	358	3100	1146	1197	719	804		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	31.5	2.1	5.7	5.7	30.2	25.3		
Incr Delay (d2), s/veh	3.0	0.1	0.2	0.2	0.2	0.3		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	2.9	2.9	3.5	3.7	0.5	4.2		
LnGrp Delay(d),s/veh	34.5	2.1	5.9	5.9	30.4	25.6		
LnGrp LOS	C	A	A	A	C	C		
Approach Vol, veh/h		1183	798		145			
Approach Delay, s/veh		6.1	5.9		26.5			
Approach LOS		A	A		C			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		61.9		10.0	10.8	51.0		
Change Period (Y+Rc), s		4.5		3.5	3.5	4.5		
Max Green Setting (Gmax), s		62.9		29.1	14.5	44.9		
Max Q Clear Time (g_c+I1), s		8.0		6.6	7.7	9.2		
Green Ext Time (p_c), s		49.3		0.2	0.1	33.8		
Intersection Summary								
HCM 2010 Ctrl Delay	7.4							
HCM 2010 LOS	A							

HCM 2010 Signalized Intersection Summary  
2: Fountaingrove Parkway & Thomas Lake Harris Drive (W)

05/02/2017

								
Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Traffic Volume (veh/h)	67	662	1165	17	25	155		
Future Volume (veh/h)	67	662	1165	17	25	155		
Number	5	2	6	16	7	14		
Initial Q (Ob), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00			0.97	1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1863	1863		
Adj Flow Rate, veh/h	71	704	1239	18	27	165		
Adj No. of Lanes	1	2	2	0	1	1		
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	94	2702	2363	34	222	281		
Arrive On Green	0.05	0.76	0.66	0.66	0.12	0.12		
Sat Flow, veh/h	1774	3632	3662	52	1774	1583		
Grp Volume(v), veh/h	71	704	614	643	27	165		
Grp Sat Flow(s),veh/h/ln	1774	1770	1770	1852	1774	1583		
Q Serve(g_s), s	2.8	4.2	12.9	12.9	1.0	6.9		
Cycle Q Clear(g_c), s	2.8	4.2	12.9	12.9	1.0	6.9		
Prop In Lane	1.00			0.03	1.00	1.00		
Lane Grp Cap(c), veh/h	94	2702	1171	1226	222	281		
V/C Ratio(X)	0.76	0.26	0.52	0.52	0.12	0.59		
Avail Cap(c_a), veh/h	359	3105	1171	1226	720	726		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	33.5	2.5	6.3	6.3	27.9	27.1		
Incr Delay (d2), s/veh	4.6	0.1	0.4	0.4	0.1	0.7		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	1.5	2.0	6.3	6.6	0.5	6.0		
LnGrp Delay(d),s/veh	38.2	2.6	6.7	6.7	28.0	27.8		
LnGrp LOS	D	A	A	A	C	C		
Approach Vol, veh/h		775	1257		192			
Approach Delay, s/veh		5.8	6.7		27.8			
Approach LOS		A	A		C			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		59.2		12.5	7.3	52.0		
Change Period (Y+Rc), s		4.5		3.5	3.5	4.5		
Max Green Setting (Gmax), s		62.9		29.1	14.5	44.9		
Max Q Clear Time (g_c+I1), s		6.2		8.9	4.8	14.9		
Green Ext Time (p_c), s		48.5		0.3	0.0	29.0		
Intersection Summary								
HCM 2010 Ctrl Delay			8.2					
HCM 2010 LOS			A					

HCM 2010 TWSC  
1: Thomas Lake Harris Drive & Gullane Dr.

05/02/2017

<b>Intersection</b>							
Int Delay, s/veh	0.5						
Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	↖		↗		↖	↗	
Traffic Vol, veh/h	10	1	122	9	0	72	
Future Vol, veh/h	10	1	122	9	0	72	
Conflicting Peds, #/hr	0	0	0	0	0	0	
Sign Control	Stop	Stop	Free	Free	Free	Free	
RT Channelized	-	None	-	None	-	None	
Storage Length	0	-	-	-	50	-	
Veh in Median Storage, #	0	-	0	-	-	0	
Grade, %	0	-	0	-	-	0	
Peak Hour Factor	89	89	89	89	89	89	
Heavy Vehicles, %	2	2	2	2	2	2	
Mvmt Flow	11	1	137	10	0	81	
<b>Major/Minor</b>							
Minor1			Major1		Major2		
Conflicting Flow All	223	142	0	0	147	0	
Stage 1	142	-	-	-	-	-	
Stage 2	81	-	-	-	-	-	
Critical Hdwy	6.42	6.22	-	-	4.12	-	
Critical Hdwy Stg 1	5.42	-	-	-	-	-	
Critical Hdwy Stg 2	5.42	-	-	-	-	-	
Follow-up Hdwy	3.518	3.318	-	-	2.218	-	
Pot Cap-1 Maneuver	765	906	-	-	1435	-	
Stage 1	885	-	-	-	-	-	
Stage 2	942	-	-	-	-	-	
Platoon blocked, %	-	-	-	-	-	-	
Mov Cap-1 Maneuver	765	906	-	-	1435	-	
Mov Cap-2 Maneuver	765	-	-	-	-	-	
Stage 1	885	-	-	-	-	-	
Stage 2	942	-	-	-	-	-	
<b>Approach</b>							
WB			NB		SB		
HCM Control Delay, s	9.7		0		0		
HCM LOS	A						
<b>Minor Lane/Major Mvmt</b>							
NBT	NBRWBLn1	SBL	SBT				
Capacity (veh/h)	-	776	1435	-			
HCM Lane V/C Ratio	-	0.016	-	-			
HCM Control Delay (s)	-	9.7	0	-			
HCM Lane LOS	-	A	A	-			
HCM 95th %tile Q(veh)	-	0	0	-			

# HCM 2010 TWSC

1: Thomas Lake Harris Drive & Gullane Dr.

05/02/2017

Intersection						
Int Delay, s/veh	0.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T		T	T
Traffic Vol, veh/h	5	1	54	1	1	276
Future Vol, veh/h	5	1	54	1	1	276
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	79	79	79	79	79	79
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	1	68	1	1	349
Major/Minor						
Conflicting Flow All	421	69	0	0	70	0
Stage 1	69	-	-	-	-	-
Stage 2	352	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	589	994	-	-	1531	-
Stage 1	954	-	-	-	-	-
Stage 2	712	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	589	994	-	-	1531	-
Mov Cap-2 Maneuver	589	-	-	-	-	-
Stage 1	954	-	-	-	-	-
Stage 2	712	-	-	-	-	-
Approach						
HCM Control Delay, s	10.8		0		0	
HCM LOS	B					
Minor Lane/Major Mvmt						
Capacity (veh/h)	-	-	632	1531	-	-
HCM Lane V/C Ratio	-	-	0.012	0.001	-	-
HCM Control Delay (s)	-	-	10.8	7.4	-	-
HCM Lane LOS	-	-	B	A	-	-
HCM 95th %tile Q(veh)	-	-	0	0	-	-

# HCM 2010 TWSC












1: Thomas Lake Harris Drive & Gullane Dr.

05/02/2017

Intersection						
Int Delay, s/veh	0.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T		T	T
Traffic Vol, veh/h	2	0	274	3	0	81
Future Vol, veh/h	2	0	274	3	0	81
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	0	308	3	0	91
Major/Minor						
Conflicting Flow All	401	310	0	0	311	0
Stage 1	310	-	-	-	-	-
Stage 2	91	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	605	730	-	-	1249	-
Stage 1	744	-	-	-	-	-
Stage 2	933	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	605	730	-	-	1249	-
Mov Cap-2 Maneuver	605	-	-	-	-	-
Stage 1	744	-	-	-	-	-
Stage 2	933	-	-	-	-	-
Approach						
HCM Control Delay, s	11		0		0	
HCM LOS	B					
Minor Lane/Major Mvmt						
Capacity (veh/h)	-	-	605	1249	-	-
HCM Lane V/C Ratio	-	-	0.004	-	-	-
HCM Control Delay (s)	-	-	11	0	-	-
HCM Lane LOS	-	-	B	A	-	-
HCM 95th %tile Q(veh)	-	-	0	0	-	-












HCM 2010 Signalized Intersection Summary  
2: Fountaingrove Parkway & Thomas Lake Harris Drive (W)

05/02/2017

								
Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Traffic Volume (veh/h)	71	701	1271	17	27	302		
Future Volume (veh/h)	71	701	1271	17	27	302		
Number	5	2	6	16	7	14		
Initial Q (Ob), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00			0.97	1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1863	1863		
Adj Flow Rate, veh/h	76	746	1352	18	29	321		
Adj No. of Lanes	1	2	2	0	1	1		
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	98	2424	2097	28	384	430		
Arrive On Green	0.06	0.69	0.59	0.59	0.22	0.22		
Sat Flow, veh/h	1774	3632	3668	48	1774	1583		
Grp Volume(v), veh/h	76	746	669	701	29	321		
Grp Sat Flow(s),veh/h/ln	1774	1770	1770	1852	1774	1583		
Q Serve(g_s), s	3.4	6.8	20.4	20.4	1.1	15.0		
Cycle Q Clear(g_c), s	3.4	6.8	20.4	20.4	1.1	15.0		
Prop In Lane	1.00			0.03	1.00	1.00		
Lane Grp Cap(c), veh/h	98	2424	1038	1087	384	430		
V/C Ratio(X)	0.77	0.31	0.64	0.65	0.08	0.75		
Avail Cap(c_a), veh/h	317	2744	1038	1087	636	656		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	37.8	5.1	11.1	11.2	25.3	27.0		
Incr Delay (d2), s/veh	4.8	0.1	1.4	1.3	0.0	1.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	1.8	3.3	10.2	10.7	0.5	12.6		
LnGrp Delay(d),s/veh	42.7	5.2	12.5	12.5	25.4	28.0		
LnGrp LOS	D	A	B	B	C	C		
Approach Vol, veh/h	822	1370		350				
Approach Delay, s/veh	8.6	12.5		27.8				
Approach LOS	A	B		C				
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		60.1		21.1	8.0	52.1		
Change Period (Y+Rc), s		4.5		3.5	3.5	4.5		
Max Green Setting (Gmax), s		62.9		29.1	14.5	44.9		
Max Q Clear Time (g_c+I1), s		8.8		17.0	5.4	22.4		
Green Ext Time (p_c), s		46.7		0.5	0.0	22.1		
Intersection Summary								
HCM 2010 Ctrl Delay				13.4				
HCM 2010 LOS				B				

HCM 2010 Signalized Intersection Summary  
2: Fountaingrove Parkway & Thomas Lake Harris Drive (W)

05/02/2017

								
Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Traffic Volume (veh/h)	282	1059	839	29	27	117		
Future Volume (veh/h)	282	1059	839	29	27	117		
Number	5	2	6	16	7	14		
Initial Q (Ob), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00			0.97	1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1863	1863		
Adj Flow Rate, veh/h	300	1127	893	31	29	124		
Adj No. of Lanes	1	2	2	0	1	1		
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	335	2862	2000	69	155	437		
Arrive On Green	0.19	0.81	0.57	0.57	0.09	0.09		
Sat Flow, veh/h	1774	3632	3578	121	1774	1583		
Grp Volume(v), veh/h	300	1127	453	471	29	124		
Grp Sat Flow(s),veh/h/ln	1774	1770	1770	1836	1774	1583		
Q Serve(g_s), s	12.7	6.9	11.3	11.3	1.2	4.7		
Cycle Q Clear(g_c), s	12.7	6.9	11.3	11.3	1.2	4.7		
Prop In Lane	1.00			0.07	1.00	1.00		
Lane Grp Cap(c), veh/h	335	2862	1016	1054	155	437		
V/C Ratio(X)	0.89	0.39	0.45	0.45	0.19	0.28		
Avail Cap(c_a), veh/h	335	2903	1036	1075	673	900		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	30.3	2.1	9.4	9.4	32.5	21.8		
Incr Delay (d2), s/veh	24.3	0.1	0.3	0.3	0.2	0.1		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	8.4	3.3	5.5	5.7	0.6	4.5		
LnGrp Delay(d),s/veh	54.6	2.2	9.7	9.7	32.7	21.9		
LnGrp LOS	D	A	A	A	C	C		
Approach Vol, veh/h	1427	924		153				
Approach Delay, s/veh	13.2	9.7		24.0				
Approach LOS	B	A		C				
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		66.5		10.2	18.0	48.5		
Change Period (Y+Rc), s		4.5		3.5	3.5	4.5		
Max Green Setting (Gmax), s		62.9		29.1	14.5	44.9		
Max Q Clear Time (g_c+I1), s		8.9		6.7	14.7	13.3		
Green Ext Time (p_c), s		51.6		0.2	0.0	30.8		
Intersection Summary								
HCM 2010 Ctrl Delay			12.5					
HCM 2010 LOS			B					



# HCM 2010 TWSC

1: Thomas Lake Harris Drive & Gullane Dr.

05/05/2017

Intersection						
Int Delay, s/veh	0.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W				W	W
Traffic Vol, veh/h	9	1	54	7	1	276
Future Vol, veh/h	9	1	54	7	1	276
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	79	79	79	79	79	79
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	1	68	9	1	349
Major/Minor						
Conflicting Flow All	425	73	0	0	77	0
Stage 1	73	-	-	-	-	-
Stage 2	352	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	586	989	-	-	1522	-
Stage 1	950	-	-	-	-	-
Stage 2	712	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	586	989	-	-	1522	-
Mov Cap-2 Maneuver	586	-	-	-	-	-
Stage 1	950	-	-	-	-	-
Stage 2	712	-	-	-	-	-
Approach						
HCM Control Delay, s	11		0		0	
HCM LOS	B					
Minor Lane/Major Mvmt						
Capacity (veh/h)	-	-	611	1522	-	-
HCM Lane V/C Ratio	-	-	0.021	0.001	-	-
HCM Control Delay (s)	-	-	11	7.4	-	-
HCM Lane LOS	-	-	B	A	-	-
HCM 95th %tile Q(veh)	-	-	0.1	0	-	-

# HCM 2010 TWSC












1: Thomas Lake Harris Drive & Gullane Dr.

05/02/2017

Intersection						
Int Delay, s/veh	0.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W				W	W
Traffic Vol, veh/h	10	1	274	9	1	81
Future Vol, veh/h	10	1	274	9	1	81
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	1	308	10	1	91
Major/Minor						
Conflicting Flow All	406	313	0	0	318	0
Stage 1	313	-	-	-	-	-
Stage 2	93	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	601	727	-	-	1242	-
Stage 1	741	-	-	-	-	-
Stage 2	931	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	601	727	-	-	1242	-
Mov Cap-2 Maneuver	601	-	-	-	-	-
Stage 1	741	-	-	-	-	-
Stage 2	930	-	-	-	-	-
Approach						
HCM Control Delay, s	11		0		0.1	
HCM LOS	B					
Minor Lane/Major Mvmt						
Capacity (veh/h)	-	-	611	1242	-	-
HCM Lane V/C Ratio	-	-	0.02	0.001	-	-
HCM Control Delay (s)	-	-	11	7.9	-	-
HCM Lane LOS	-	-	B	A	-	-
HCM 95th %tile Q(veh)	-	-	0.1	0	-	-












HCM 2010 Signalized Intersection Summary  
2: Fountaingrove Parkway & Thomas Lake Harris Drive (W)

05/05/2017

								
Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Traffic Volume (veh/h)	75	703	1271	19	28	305		
Future Volume (veh/h)	75	703	1271	19	28	305		
Number	5	2	6	16	7	14		
Initial Q (Ob), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00			0.97	1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1863	1863		
Adj Flow Rate, veh/h	80	748	1352	20	30	324		
Adj No. of Lanes	1	2	2	0	1	1		
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	103	2422	2081	31	386	436		
Arrive On Green	0.06	0.68	0.58	0.58	0.22	0.22		
Sat Flow, veh/h	1774	3632	3661	53	1774	1583		
Grp Volume(v), veh/h	80	748	670	702	30	324		
Grp Sat Flow(s),veh/h/ln	1774	1770	1770	1851	1774	1583		
Q Serve(g_s), s	3.6	6.9	20.7	20.7	1.1	15.2		
Cycle Q Clear(g_c), s	3.6	6.9	20.7	20.7	1.1	15.2		
Prop In Lane	1.00			0.03	1.00	1.00		
Lane Grp Cap(c), veh/h	103	2422	1032	1080	386	436		
V/C Ratio(X)	0.77	0.31	0.65	0.65	0.08	0.74		
Avail Cap(c_a), veh/h	316	2732	1032	1080	634	658		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	37.8	5.1	11.4	11.4	25.4	26.9		
Incr Delay (d2), s/veh	4.6	0.1	1.4	1.4	0.0	0.9		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	1.9	3.3	10.5	10.9	0.5	12.7		
LnGrp Delay(d),s/veh	42.4	5.2	12.8	12.8	25.4	27.8		
LnGrp LOS	D	A	B	B	C	C		
Approach Vol, veh/h		828	1372		354			
Approach Delay, s/veh		8.8	12.8		27.6			
Approach LOS		A	B		C			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		60.3		21.2	8.2	52.0		
Change Period (Y+Rc), s		4.5		3.5	3.5	4.5		
Max Green Setting (Gmax), s		62.9		29.1	14.5	44.9		
Max Q Clear Time (g_c+I1), s		8.9		17.2	5.6	22.7		
Green Ext Time (p_c), s		46.9		0.5	0.0	21.8		
Intersection Summary								
HCM 2010 Ctrl Delay			13.6					
HCM 2010 LOS			B					

HCM 2010 Signalized Intersection Summary  
2: Fountaingrove Parkway & Thomas Lake Harris Drive (W)

05/02/2017

								
Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Traffic Volume (veh/h)	287	1059	839	31	29	123		
Future Volume (veh/h)	287	1059	839	31	29	123		
Number	5	2	6	16	7	14		
Initial Q (Ob), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00			0.96	1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1863	1863		
Adj Flow Rate, veh/h	305	1127	893	33	31	131		
Adj No. of Lanes	1	2	2	0	1	1		
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	334	2849	1986	73	162	442		
Arrive On Green	0.19	0.80	0.57	0.57	0.09	0.09		
Sat Flow, veh/h	1774	3632	3569	128	1774	1583		
Grp Volume(v), veh/h	305	1127	455	471	31	131		
Grp Sat Flow(s),veh/h/ln	1774	1770	1770	1835	1774	1583		
Q Serve(g_s), s	13.0	7.0	11.4	11.4	1.2	5.0		
Cycle Q Clear(g_c), s	13.0	7.0	11.4	11.4	1.2	5.0		
Prop In Lane	1.00			0.07	1.00	1.00		
Lane Grp Cap(c), veh/h	334	2849	1011	1048	162	442		
V/C Ratio(X)	0.91	0.40	0.45	0.45	0.19	0.30		
Avail Cap(c_a), veh/h	334	2889	1031	1069	670	896		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	30.7	2.2	9.5	9.5	32.4	21.8		
Incr Delay (d2), s/veh	27.9	0.1	0.3	0.3	0.2	0.1		
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	8.9	3.3	5.6	5.8	0.6	4.8		
LnGrp Delay(d),s/veh	58.6	2.2	9.8	9.8	32.6	21.9		
LnGrp LOS	E	A	A	A	C	C		
Approach Vol, veh/h		1432	926		162			
Approach Delay, s/veh		14.2	9.8		24.0			
Approach LOS		B	A		C			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		66.5		10.5	18.0	48.5		
Change Period (Y+Rc), s		4.5		3.5	3.5	4.5		
Max Green Setting (Gmax), s		62.9		29.1	14.5	44.9		
Max Q Clear Time (g_c+I1), s		9.0		7.0	15.0	13.4		
Green Ext Time (p_c), s		51.5		0.2	0.0	30.6		
Intersection Summary								
HCM 2010 Ctrl Delay			13.2					
HCM 2010 LOS			B					