

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*, 9th 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% |
| TOTAL | 100% |

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.

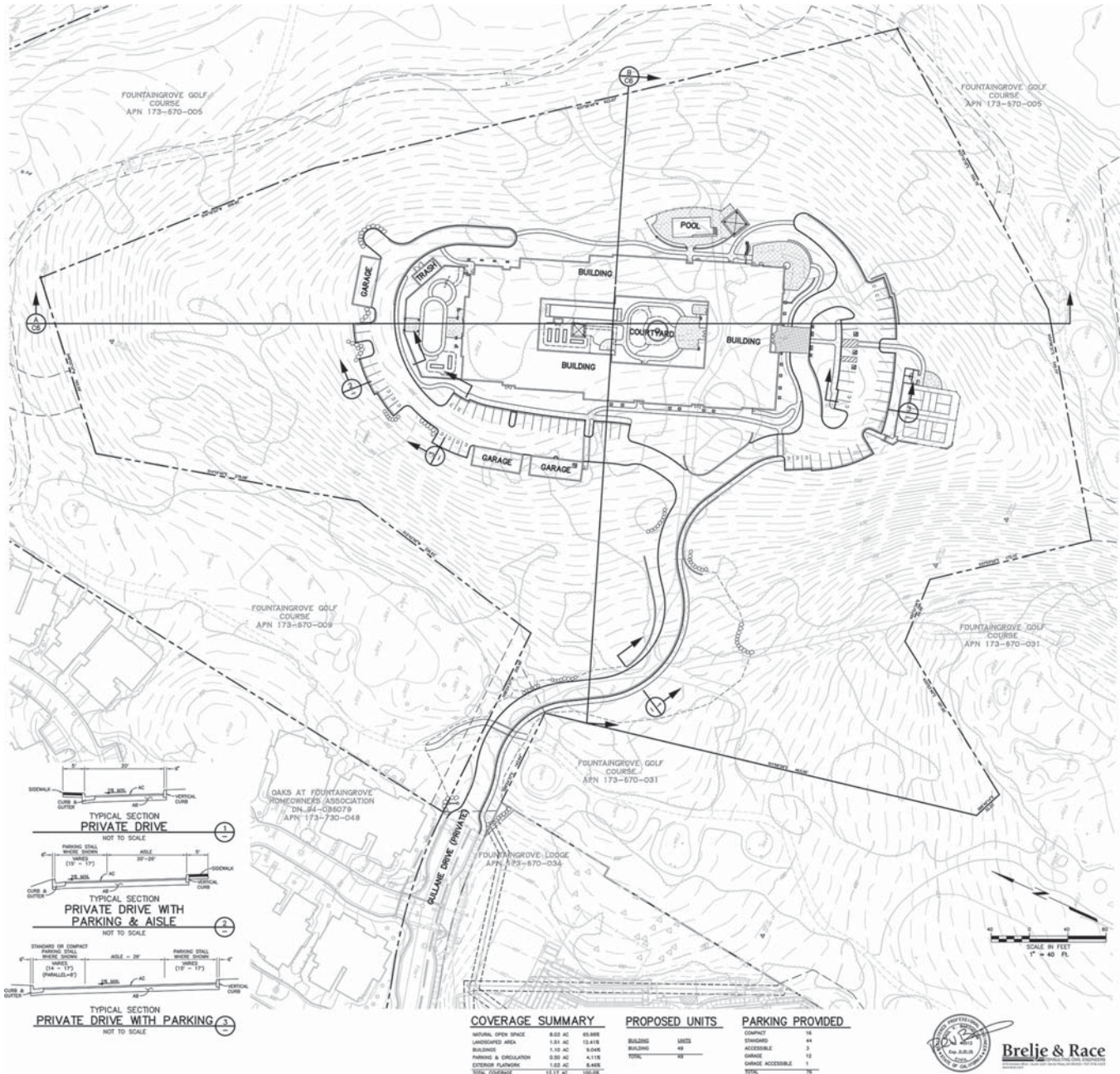
Sincerely,

Lauren Davini, EIT
Assistant Engineer

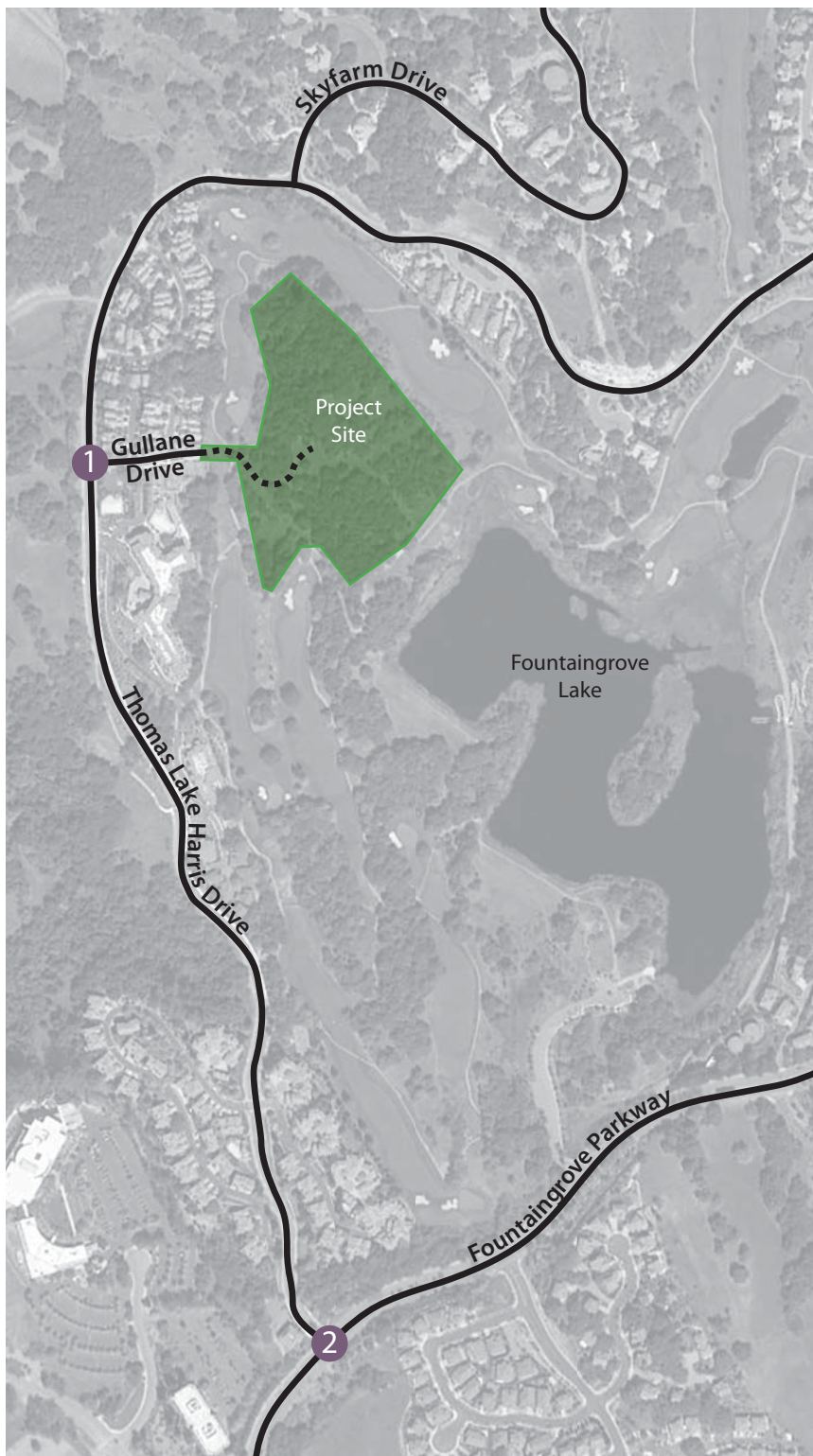
Zachary Matley, AICP
Associate Principal

CN/jzm/SRO399.L1

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

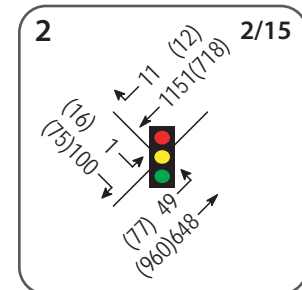
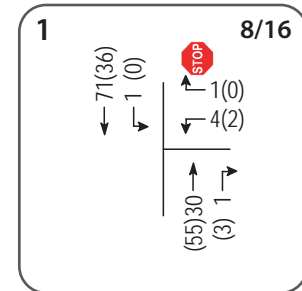


Focused Traffic Study for the Emerald Isle Assisted Living Project
Figure 1 – Site Plan

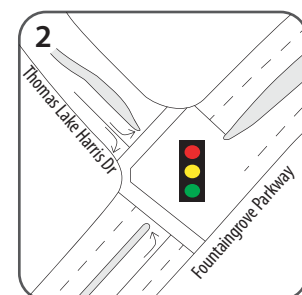
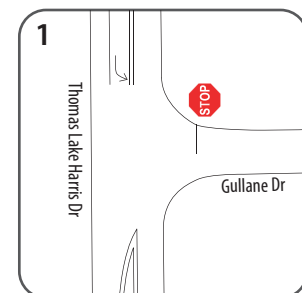


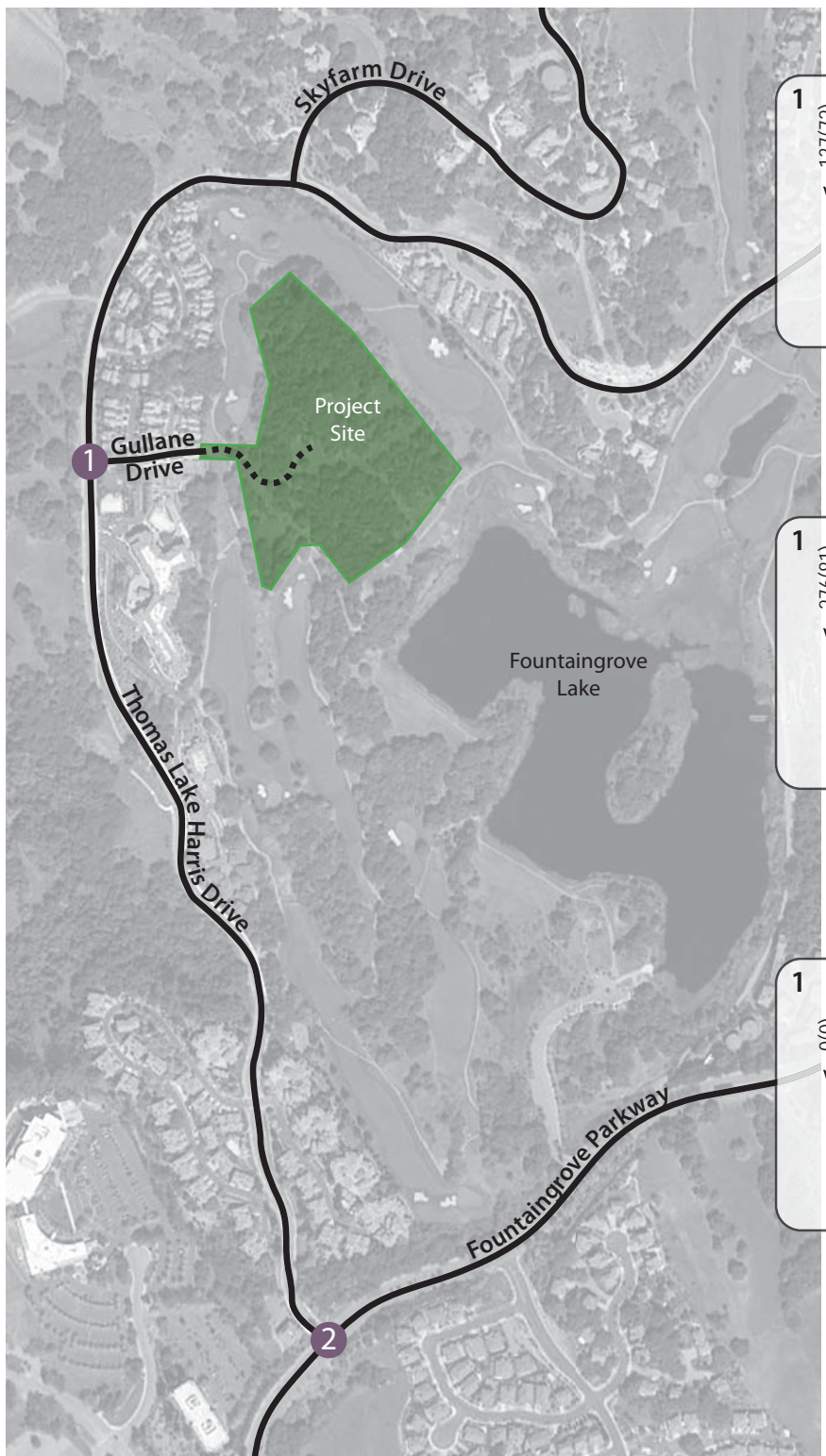
| LEGEND | |
|---|---------------------|
| | Study Intersection |
| xx | AM Peak Hour Volume |
| (xx) | PM Peak Hour Volume |

Existing Volumes

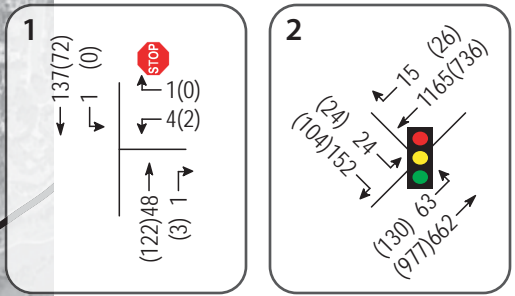


Existing Lane Configurations

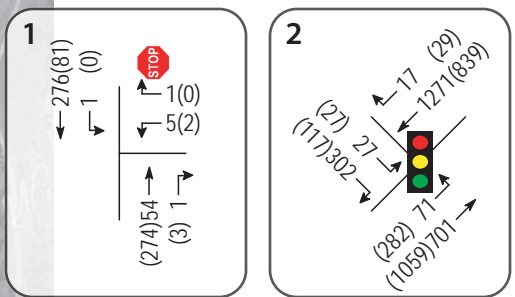




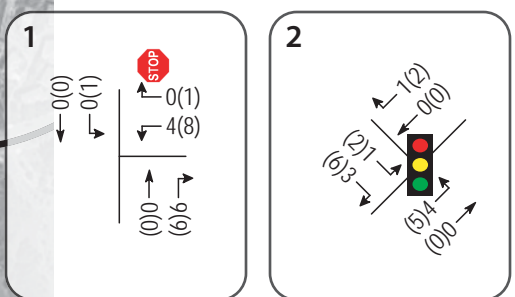
Baseline Volumes



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 (G_max), 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 | | | | W | W |
| 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 | Minor1 | | Major1 | | Major2 | |
|----------------------|--------|-------|--------|---|--------|---|
| 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 | WB | | NB | | SB | |
|----------------------|-----|--|----|--|-----|--|
| HCM Control Delay, s | 9.2 | | 0 | | 0.1 | |
| HCM LOS | A | | | | | |

| Minor Lane/Major Mvmt | NBT | NBRWBLn1 | SBL | SBT |
|-----------------------|-----|----------|-------|-----|
| 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 | | | | W | W |
| 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 | Minor1 | | Major1 | | Major2 | |
|----------------------|--------|-------|--------|---|--------|---|
| 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 | WB | | NB | | SB | |
|----------------------|-----|--|----|--|-----|--|
| HCM Control Delay, s | 9.1 | | 0 | | 0.2 | |
| HCM LOS | A | | | | | |

| Minor Lane/Major Mvmt | NBT | NBRWBLn1 | SBL | SBT |
|-----------------------|-----|----------|-------|-----|
| 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 (Gmax), 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 | | | | | | | |
| | Minor1 | | Major1 | | Major2 | | |
| 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 | | | | | | | |
| | WB | | NB | | SB | | |
| HCM Control Delay, s | 9.6 | | 0 | | 0.1 | | |
| HCM LOS | A | | | | | | |
| Minor Lane/Major Mvmt | | | | | | | |
| | NBT | NBRWBLn1 | SBL | SBT | | | |
| 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 | | | | | | | |
| | Minor1 | | Major1 | | Major2 | | |
| 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 | | | | | | | |
| | WB | | NB | | SB | | |
| HCM Control Delay, s | 9.7 | | 0 | | 0 | | |
| HCM LOS | A | | | | | | |
| Minor Lane/Major Mvmt | | | | | | | |
| | NBT | NBRWBLn1 | SBL | SBT | | | |
| 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 | W | | | | W | W |
| 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 (G_max), 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

| | | | | | | | |
|------------------------------|----------|-------|--------|------|--------|------|--|
| Intersection | | | | | | | |
| 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 | |
| Major/Minor | | | | | | | |
| 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 | - | - | - | - | - | |
| Approach | | | | | | | |
| WB | | | NB | | SB | | |
| HCM Control Delay, s | 9.7 | | 0 | | 0 | | |
| HCM LOS | A | | | | | | |
| Minor Lane/Major Mvmt | | | | | | | |
| 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 | | | | | |