March 16, 2022

Mr. Thomas LeBeau
Accretive Santa Rosa Partners, LLC
301 Shipyard Way, Suite B
Newport Beach, CA 92663

RECEIVED
By Susie Murray at 3:05 pm, Mar 23, 2022

Addendum to the *Traffic Impact Study for the Brookwood Medical Office Project*

Dear Mr. LeBeau;

In response to comments from City staff as contained in *Notification of Staff Position & Issue*, February 16, 2022, City of Santa Rosa, the Parking chapter of the *Traffic Impact Study for the Brookwood Medical Office Project*, January 19, 2022, has been expanded. The following text completely replaces the text on Page 22 of the final study.

Parking

The project was analyzed to determine whether the proposed parking supply would be sufficient for the anticipated parking demand. The project site as proposed would provide a total of 325 parking spaces for the 93,270 square foot medical office building, including 283 garage parking spaces and 42 surface parking spaces. Because the lack of parking at nearby Memorial Hospital has been an ongoing concern for residents of the surrounding neighborhood, it is understood that providing an adequate supply of parking on-site has been a particular goal in designing the proposed project.

Because the project site is within the Downtown Specific Plan Area, the parking requirements are based on that Plan. To encourage denser development in the Downtown area and a greater mix of uses, the Specific Plan sets no minimum parking requirements for development. While no parking is technically required, it is clear that patients who need medical services are generally not able to walk, bicycle or ride transit to the medical office, and because this project site is located on the perimeter of the Specific Plan Area the options for transit are not as extensive as is the case for the core Downtown area. While not technically required, on-site parking is clearly needed to serve this specific use.

Applicable parking supply requirements based on the City of Santa Rosa Municipal Code, Chapter 20-36.040; Number of Parking Spaces Required, were therefore consulted. The municipal code requires the "integrated medical health center" land use to provide parking at a rate of one space per 300 square feet of medical clinic/office space. This translates to 311 required parking spaces and the proposed parking supply has a surplus of 14 spaces compared to the code requirement, which exceeds City requirements by 4.5 percent. The proposed parking supply, and typical City requirements are shown in Table 1.

Table 1 – Parking Analysis Summary

Land Use	Units	Supply (spaces)	City Requirements	
			Rate	Spaces Required
Integrated Medical Health Center	93.27 ksf	325	1.0 per 300 sf	311

Notes: ksf = 1000 square feet; sf = square feet

Consideration was also given to standard parking demand rates as published by the Institute of Transportation Engineers in *Parking Generation*, 5th Edition, 2019. Application of the 85th percentile peak demand rate for a medical office building indicates that under such infrequent conditions the demand would be nearly 428 spaces during the weekday, which is greater than the proposed supply of 325 spaces. While providing adequate spaces

for such an unusual peak demand is not recommended, because there is a potential for demand to exceed the supply proposed, the limited number of spaces in excess of the minimum supply appears to be reasonable.

The peak demand for full use of the anticipated services at the proposed building was also estimated. For the two approximately 23,300 square foot floors (2nd and 3rd floors) that would house examination rooms, it is estimated that there would be approximately 50 such rooms and that one patient would be in each room. It was further assumed that each physician would have four rooms assigned for their use, with one nurse assisting, or twelve physicians and twelve nurses. Additionally, ten other support staff were assumed. Finally, it would be typical for each physician to have one additional patient in the waiting room. This would equate to 62 patients, 12 physicians and 22 other staff. Further, conservatively assuming that occupants for the 1st and 4th floor would each need 70 percent of the peak demand for 2nd or 3rd floor, a peak parking demand of 67 spaces for each floor is estimated; it is noted less parking demand is assumed for 1st and 4th floor as these floors would be used as research center and offices for executive staff. Altogether, a peak parking demand of 326 spaces is anticipated, including 67 parking spaces each for 1st and 4th floor and 96 parking spaces each for 2nd and 3rd floor. Based on the anticipated peak parking demand, the proposed supply of 325 spaces would be reasonably considered adequate for the proposed project.

While a parking supply as proposed slightly exceeds that required under the City Code, the project is a large medical office that would generate trips not only from within the City but also from surrounding cities and communities and the patients may have physical discomfort that would not allow them to travel by transportation modes other than private automobile. Therefore, the parking would be imperative to accommodate the patients visiting the proposed medical office.

Finding – While the proposed parking supply exceeds the minimum City requirements, it appears to be reasonable to accommodate peak demand and avoid any overflow into the adjacent neighborhood.

We hope the above information is of use to the City in evaluating the need for the proposed parking supply.

Sincerely,

Jade Kim
Assistant Planner

Dalene J. Whitlock, PE, PTOE
Senior Principal

DJW/jk/SRO579.L1

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By Susie Murray at 3:06 pm, Mar 23, 2022

Traffic Impact Study for the Brookwood Medical Office Project

Prepared for the City of Santa Rosa

Submitted by
W-Trans

January 19, 2022

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Executive Summary

The proposed Brookwood Medical Office Project includes the development of 93,270 square feet of medical office space at 101 Brookwood Avenue, 1000 2nd Street, and 884 2nd Street in the City of Santa Rosa. The project site is currently occupied by a 13,079 square foot medical office building and 1,346 square foot of general office space, both of which would be demolished to make way for construction of the proposed project. The project would be expected to result in 2,778 new daily trips on average with 221 new trips during a.m. peak hour and 276 new p.m. peak hour trips.

Analysis indicates that the study intersections along Brookwood Avenue, including those at College Avenue, 4th Street, 3rd Street, 2nd Street, and Sonoma Avenue, operate acceptably per the applicable City standards under Existing volumes and would continue to do so with the addition of project-generated traffic. Upon adding traffic associated with a proposed 107-unit multi-family residential development at 888 4th Street to existing volumes, acceptable operation would be maintained either without or with the proposed project.

Upon completion of the project, there would be adequate pedestrian facilities serving the project site. The existing bicycle facilities are adequate and would improve upon the construction of planned bicycle projects in the project vicinity. There are adequate transit facilities, including the Santa Rosa Transit Mall, within a walkable distance of the project site.

The project would be accessed via proposed driveways on Brookwood Avenue and 2nd Street; the northerly driveway on Brookwood Avenue would only serve right-in and right-out traffic due to a raised median. Adequate sight distances are available from all the proposed driveway locations. A left-turn lane is not warranted on 2nd Street at the project driveway based on Baseline plus Project volumes, but a turn pocket is warranted at the Brookwood Avenue driveway. On-site circulation and access should meet the City Design Standards and would therefore be expected to function acceptably for emergency response vehicles.

The proposed parking supply was determined to be adequate to satisfy the City requirements and would also be reasonable to accommodate the anticipated peak demands.

Introduction

This report presents an analysis of the potential traffic impacts that would be associated with the proposed development of a 93,270-square-foot medical office building on three parcels located at 101 Brookwood Avenue, 1000 2nd Street, and 884 2nd Street in the City of Santa Rosa. The traffic study reflects a scope of work and study area reviewed and approved by City staff, it was completed in accordance with the criteria established by the City of Santa Rosa, and it is consistent with standard traffic engineering techniques.

Prelude

The purpose of a traffic impact study is to provide City staff and policy makers with data they can use to make an informed decision regarding the potential traffic impacts and adverse effects on traffic operation of a proposed project, and any associated improvements that would be required to mitigate these impacts to a level of insignificance and address adverse effects as defined by the City of Santa Rosa General Plan or other policies. Impacts relative to access for pedestrians, bicyclists, to transit and for emergency responders are addressed. Potential adverse effects on vehicular traffic were evaluated by determining the number of new trips that the proposed use would be expected to generate, distributing these trips to the surrounding street system based on existing travel patterns or anticipated travel patterns specific to the proposed project, then analyzing how the new traffic would be expected to effect operation of critical intersections or roadway segments.

Project Profile

The proposed project includes the development of a 93,270-square-foot medical office building. There are currently two existing buildings at the project site including a 13,079-square-foot medical office building and a 1,346-square-foot general office building, both of which are planned to be demolished to make way for the construction of the proposed project. The project site is located at 101 Brookwood Avenue, 1000 2nd Street, and 884 2nd Street, as shown in Figure 1.

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Traffic Impact Study for the Brookwood Medical Office Project

Figure 1 – Study Area and Existing Lane Configurations

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Transportation Setting

Operational Analysis

Study Area and Periods

The study area consists of the following intersections:

1. Brookwood Avenue/College Avenue
2. Brookwood Avenue/4th Street
3. Brookwood Avenue/3rd Street
4. Brookwood Avenue/2nd Street
5. Brookwood Avenue/Sonoma Avenue

It is noted that the project driveway was not considered as a study intersection. The *California Vehicle Code* defines an intersection as "the area embraced within the prolongation of the lateral curb lines, or, if none, then the lateral boundary lines of the roadways, of two highways which join one another at approximately right angles or the area within which vehicles traveling upon different highways joining at any other angle may come in conflict." This definition specifies that intersections are created where two "highways," or public streets, intersect. As driveways are not public streets, where they connect with a public road is not an intersection, so it would be unreasonable to evaluate it as such. The driveway connection should, however, be evaluated for operational issues such as adequacy of sight distance, need for turn lanes, and delay may be relevant in some cases, though it would not be associated with a Level of Service.

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 hour occurs between 7:00 and 9:00 a.m. and reflects conditions during the home to work or school commute, while the p.m. peak hour occurs between 4:00 and 6:00 p.m. and typically reflects the highest level of congestion during the homeward-bound commute.

Study Intersections

Brookwood Avenue/College Avenue is a signalized four-legged intersection. All approaches have protected left-turn phasing, and the southbound Brookwood Avenue approach has a right-turn overlap phase. Crosswalks are provided on all intersection legs.

Brookwood Avenue/4th Street is a signalized four-legged intersection. All approaches include protected left-turn phasing, and the northbound Brookwood Avenue approach has a right-turn overlap phase. Crosswalks are provided on all intersection legs.

Brookwood Avenue/3rd Street is a signalized four-legged intersection with protected left-turn phasing on all four approaches and marked crosswalks across the east, west, and south legs.

Brookwood Avenue/2nd Street is a signalized four-legged intersection with protected left-turn phasing on southbound and northbound approaches. Crosswalks are provided on all intersection legs.

Brookwood Avenue/Sonoma Avenue is a signalized intersection with protected left-turn phasing on the northbound and southbound Brookwood Avenue approaches, a right-turn overlap on the southbound approach, and protected-permitted left-turn phasing on the eastbound-westbound Sonoma Avenue approaches. There are marked crosswalks on all four legs of the intersection.

The locations of the study intersections and the existing lane configurations and controls are shown in Figure 1.

Collision History

The collision history for the study area was reviewed to determine any trends or patterns that may indicate a safety issue. Collision rates were calculated based on records available from the California Highway Patrol as published in their Statewide Integrated Traffic Records System (SWITRS) reports. The most current five-year period available is October 1, 2015, through September 30, 2020.

As presented in Table 1, the calculated collision rates for the study intersections were compared to average collision rates for similar facilities statewide, as indicated in *2018 Collision Data on California State Highways*, California Department of Transportation (Caltrans). These average rates statewide are for signalized intersections with the four approaches in an urban environment. Calculated collision rates for three study intersections, including Brookwood Avenue/4th Street, Brookwood Avenue/3rd Street, and Brookwood Avenue/Sonoma Avenue, were above the statewide average so were further analyzed. The collision rate calculations are provided in Appendix A.

Table 1 – Collision Rates for the Study Intersections

Study Intersection	Number of Collisions (2015-2020)	Calculated Collision Rate (c/mve)	Statewide Average Collision Rate (c/mve)
1. Brookwood Ave/College Ave	7	0.15	0.24
2. Brookwood Ave/4th St	15	**0.35**	0.24
3. Brookwood Ave/3rd St	10	**0.29**	0.24
4. Brookwood Ave/2nd St	6	0.23	0.24
5. Brookwood Ave/Sonoma Ave	26	**0.63**	0.24

Note: c/mve = collisions per million vehicles entering; **Bold** text indicates higher than statewide average

At Brookwood Avenue/4th Street, there were eight right-angle, three rear-end, one sideswipe, one vehicle-pedestrian, and one hit object collision. The right-angle collisions were attributed to improper turning, right-of-way violations, and "traffic signal and sign" violations. Further, three out of eight right-angle collisions involved bicyclists, and the remaining five involved only motorists. Given that right-angle collisions were the primary collision type, it is suggested that the City review the signal timing and consider the need for increased clearance times.

Collisions recorded at Brookwood Avenue/3rd Street included seven right-angles, one sideswipe, one head-on, and one rear-end. The primary collision factors for all the right-angle collisions were "traffic signals and signs" violations, which indicates that the City should review the signal timing for this intersection as well to reduce potential for conflicts.

At Sonoma Avenue/Brookwood Avenue, there were 26 reported collisions, including 14 right-angles, five hit objects, three head-ons, two vehicle-pedestrian, one sideswipe, and one rear-end. The right-angle collisions occurred due to auto right-of-way violations, unsafe speed, and "traffic signal and signs" violations. To increase safety and reduce collision, it is suggested that the City review signal timing as well as intersection conditions.

Alternative Modes

Pedestrian Facilities

Pedestrian facilities include sidewalks, crosswalks, pedestrian signal phases, curb ramps, curb extensions, and various streetscape amenities such as lighting, benches, etc. Continuous sidewalks are provided on both sides of 2nd Street between E Street and Brookwood Avenue. Brookwood Avenue also has continuous sidewalks on the east side, across from the project site. On the project (west) side, the sidewalk is present between 2nd Street and about 150 feet south and between Sonoma Avenue and about 400 feet north; between these segments, the sidewalk is missing for nearly 600 feet along the project frontage but is planned to be constructed as part of the project. Lighting is provided by overhead streetlights on both 2nd Street and Brookwood Avenue. Additionally, marked crosswalks with pedestrian phasing are available on all four legs of the Brookwood Avenue/2nd Street and Brookwood Avenue/Sonoma Ave intersections.

Bicycle Facilities

The *Highway Design Manual*, Caltrans, 2017, classifies bikeways into four categories:

- **Class I Multi-Use Path** – a completely separated right-of-way for the exclusive use of bicycles and pedestrians with cross flows of motorized traffic minimized.
- **Class II Bike Lane** – a striped and signed lane for one-way bike travel on a street or highway.
- **Class III Bike Route** – signing only for shared use with motor vehicles within the same travel lane on a street or highway.
- **Class IV Bikeway** – also known as a separated bikeway, a Class IV Bikeway is for the exclusive use of bicycles and includes a separation between the bikeway and the motor vehicle traffic lane. The separation may include but is not limited to, grade separation, flexible posts, inflexible physical barriers, or on-street parking.

In the project area, Class II bike lanes exist along Brookwood Avenue as well as Sonoma Avenue. Further, Class II bicycle lanes are planned on E Street and 2nd Street, and a Class I multi-use path, the Santa Rosa Creek Trail, is planned to be built in the project vicinity based on the City of Santa Rosa *Bicycle and Pedestrian Master Plan*, 2018. Bicyclists ride in the roadway and/or on sidewalks along all other streets within the project study area. Table 2 summarizes the existing and planned bicycle facilities in the project vicinity.

Table 2 – Bicycle Facility Summary

Status Facility	Class	Length (miles)	Begin Point	End Point
Existing				
Brookwood Ave	II	0.30	3rd St	Sonoma Ave
Sonoma Ave	II	1.60	Santa Rosa Ave	Hahman Dr
Planned				
Santa Rosa Creek Trail	I	0.66	Doyle Park Dr	E St
2nd St	II	0.33	D St	Montgomery Dr
E St	IIB	0.05	College Ave	Sonoma Ave
E St	II	0.40	Sonoma Ave	Bennett Valley Rd

Source: *City of Santa Rosa Bicycle & Pedestrian Master Plan Update 2018*, City of Santa Rosa, 2018

Transit Facilities

The transit stops nearest the project site are located on 3rd Street at Brookwood Avenue, 4th Street at Brookwood Avenue and are served by either Santa Rosa CityBus or Sonoma County Transit (SCT). Additionally, the Santa Rosa Transit Mall on 2nd Street near Santa Rosa Avenue is approximately 0.5 miles west of the project site; this is a major transit hub as all the Santa Rosa CityBus routes serve this location.

Santa Rosa CityBus provides fixed-route bus service in Santa Rosa. CityBus Route 8 provides loop service to destinations throughout the southeast part of the City and stops on 4th Street at Brookwood Avenue. Route 8 operates Monday through Friday with approximately one-half-hour headways between 6:45 a.m. and 8:20 p.m. Weekend service operates with approximately one-hour headways from 6:15 a.m. to 7:50 p.m. on Saturday and 10:30 a.m. to 5:00 p.m. on Sunday.

Routes 4 and 4B provide loop service throughout the northeast part of the City and stop on Sonoma Avenue at Brookwood Avenue. Routes 4 and 4B operate Monday through Friday with approximately one-hour headways between 6:00 a.m. and 8:20 p.m. Additionally, the operational hours are between 6:00 a.m. and 7:50 p.m. on Saturday and 10:00 a.m. and 4:50 p.m. on Sunday, both with one-hour headways.

Routes 30 and 34 of SCT provide regional service between Santa Rosa and surrounding communities and stop on 3rd Street at Brookwood Avenue. The operational period for Route 30 is between 6:15 a.m. and 9:00 p.m. with approximately one- to two-hour headways, though Route 30X provides extended late service to westbound Route 30 between 7:35 p.m. and 9:30 p.m. The buses for Route 34 only operate two times a day, including a morning service between 6:45 a.m. and 7:50 a.m. and an afternoon service between 3:50 p.m. and 5:00 p.m.

Two bicycles can be carried on most CityBus and SCT buses. Bike rack space is on a first come, first served basis. Additional bicycles are allowed on buses at the discretion of the driver.

Dial-a-ride, also known as paratransit, 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. Santa Rosa Paratransit is designed to serve the needs of individuals with disabilities within Santa Rosa and the greater Santa Rosa area.

Capacity Analysis

Intersection Level of Service Methodologies

Level of Service (LOS) is used to rank traffic operation on various types of facilities based on traffic volumes and roadway capacity using a series of letter designations ranging from A to F. Generally, Level of Service A represents free-flow conditions and Level of Service F represents forced flow or breakdown conditions. A unit of measure that indicates a level of delay generally accompanies the LOS designation.

All the study intersections were evaluated using the signalized methodology from the *Highway Capacity Manual* (HCM), Transportation Research Board, 6th, 2018. This methodology is based on factors including traffic volumes, green time for each movement, phasing, whether the signals are coordinated or not, truck traffic, and pedestrian activity. Average stopped delay per vehicle in seconds is used as the basis for evaluation in this LOS methodology. For purposes of this study, delays were calculated using signal timing obtained from the City of Santa Rosa.

The ranges of delay associated with the various levels of service are indicated in Table 3.

Table 3 – Signalized Intersection Level of Service Criteria	
LOS A	Delay of 0 to 10 seconds. Most vehicles arrive during the green phase, so do not stop at all.
LOS B	Delay of 10 to 20 seconds. More vehicles stop than with LOS A, but many drivers still do not have to stop.
LOS C	Delay of 20 to 35 seconds. The number of vehicles stopping is significant, although many still pass through without stopping.
LOS D	Delay of 35 to 55 seconds. The influence of congestion is noticeable, and most vehicles have to stop.
LOS E	Delay of 55 to 80 seconds. Most, if not all, vehicles must stop and drivers consider the delay excessive.
LOS F	Delay of more than 80 seconds. Vehicles may wait through more than one cycle to clear the intersection.

Reference: *Highway Capacity Manual*, Transportation Research Board, 6th, 2018

Traffic Operation Standards

City of Santa Rosa

Section 5.8 Transportation Goals & Policy of the City of Santa Rosa General Plan contains the following policies and standards.

T-D-1 *Maintain a Level of Service (LOS) D or better along all major corridors. Exceptions to meeting the standard include:*

- Within downtown;
- Where attainment would result in significant degradation;
- Where topography or impacts makes the improvement impossible; or
- Where attainment would ensure loss of an area's unique character.

The LOS is to be calculated using the average traffic demand over the highest 60-minute period.

Traffic Engineering Division will require a level of service evaluation of arterial and collector corridors if deemed necessary.

T-D-2 *Monitor level of service at intersections to assure that improvements or alterations to improve corridor level of service do not cause severe impacts at any single intersection.*

General interpretation of Policy T-D-2. The impact to an intersection is considered adverse if the project related and/or future trips result in:

1. The level of service (LOS) at an intersection degrading from LOS D or better to LOS E or F, OR
2. An increase in average vehicle delay of greater than 5 seconds at a signalized intersection where the current LOS is either LOS E or F.
3. Queuing impacts based on a comparative analysis between the design queue length and the available queue storage capacity. Impacts include, but are not limited to, spillback queue at project access locations (both ingress and egress), turn lanes at intersections, lane drops, spill back that impacts upstream intersections or interchange ramps.
4. Exceptions may be granted under the following conditions:
   a. Within downtown,
   b. Where attainment would result in significant degradation,
   c. Where topography or impacts makes the improvement impossible; or
   d. Where attainment would ensure loss of an area's unique character.

T-C-3 *Implement traffic calming techniques on streets subject to high speed and/or cut-through traffic, in order to improve neighborhood livability, Techniques Include:*

- Narrow Streets
- On-street parking
- Choker or diverters
- Decorative crosswalks
- Planted islands

General interpretation of Policy T-C-3. An impact is considered adverse if the project has the potential to alter community character by significantly increasing cut-through traffic, unexpected vehicle maneuvers or commercial vehicle trips in a residential area.

T-H-3 *Require new development to provide transit improvements, where a rough proportionality to demand from the project is established. Transit improvements may include:*

- Direct and paved pedestrian access to transit stops
- Bus turnouts and shelters
- Lane width to accommodate buses.

General interpretation of Policy T-H-3. An impact is considered adverse if the project has the potential to disrupt existing transit operations or establishes transit facilities and equipment such that it creates a sight distance deficiency or vehicle conflict point.

T-J *Provide attractive and safe streets for pedestrian and bicyclists.*

General interpretation of Policy T-J. An impact is considered adverse if the project generates 20 pedestrians in any single hour at an unsignalized intersection, mid-block crossing or where no crossing has been established.

An impact is further considered significant if the project interrupts existing or proposed pedestrian, bicycle and transit facilities, path or travel, direct access resulting in excessive rerouting or creates a vehicle conflict condition which affects the safety of other roadway users.

Reporting of Peak Hour Delay

Per the City of Santa Rosa's General Plan Policy T-D-1, LOS is calculated based on the average traffic demand over the hour, rather than the peak 15 minutes within the hour; therefore, a peak hour factor (PHF) of 1.0 was used in the analysis.

Existing Conditions

The Existing Conditions scenario provides an evaluation of current operation based on existing traffic volumes during the a.m. and p.m. peak periods. This condition does not include project-generated traffic volumes. Volume data for Brookwood Avenue/College Avenue, Brookwood Avenue/2nd Street, and Brookwood Avenue/Sonoma Avenue were collected on May 8, 2018, and the counts for Brookwood Avenue/3rd Street and Brookwood Avenue/4th Street were collected on February 19, 2019. It is noted that all the counts were obtained from the City website and were not adjusted as they were collected before the Covid-19 Pandemic and were determined to reflect the "normal" conditions without any effects of the pandemic.

Under existing conditions, all the study intersections operate acceptably at LOS C or better. The existing traffic volumes are shown in Figure 2. A summary of the intersection Level of Service calculations is contained in Table 4, and copies of the calculations are provided in Appendix B.

Table 4 – Existing Peak Hour Intersection Levels of Service

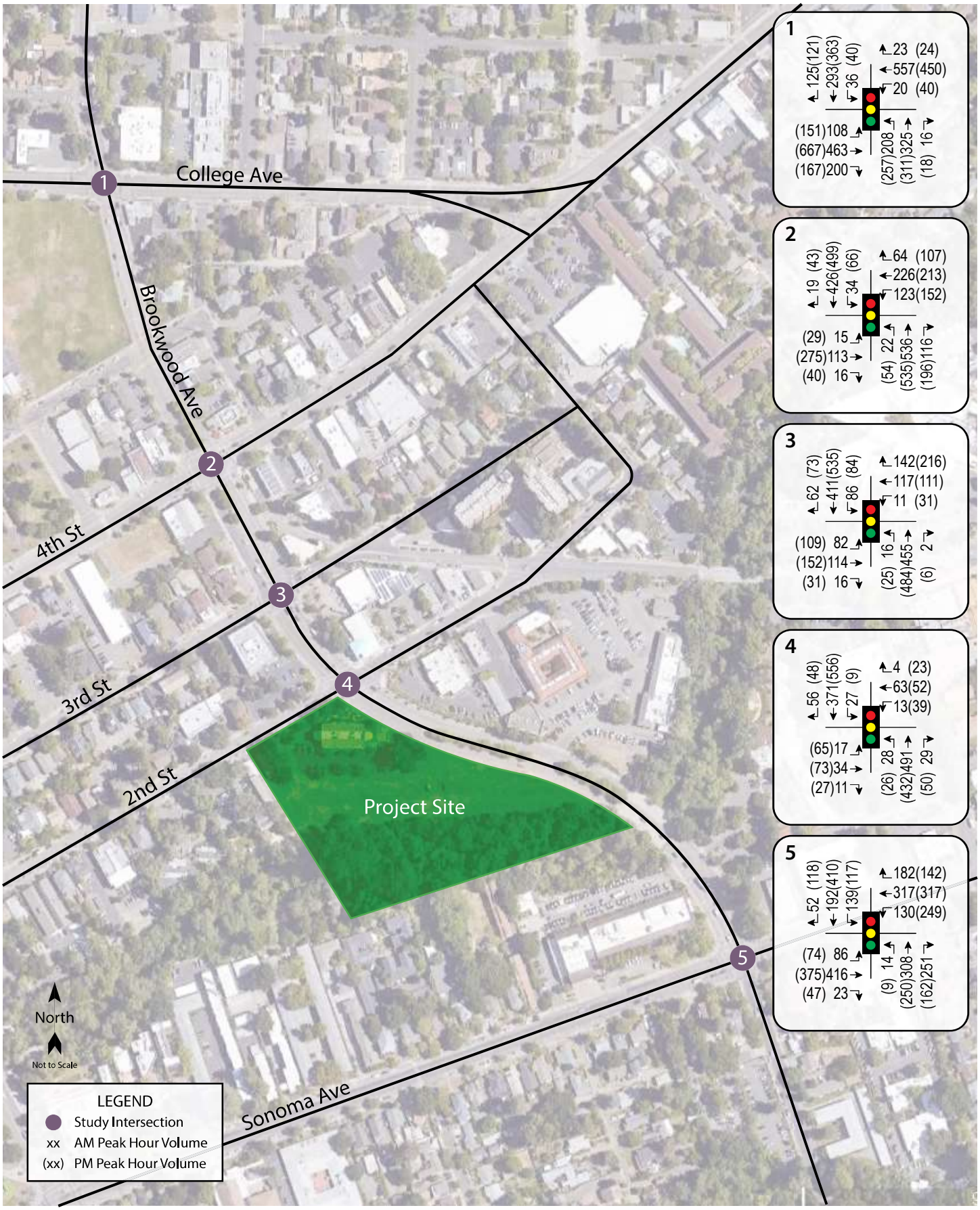
Study Intersection	AM Peak		PM Peak	
	Delay	LOS	Delay	LOS
1. Brookwood Ave/College Ave	16.6	B	20.4	C
2. Brookwood Ave/4th St	19.3	B	24.2	C
3. Brookwood Ave/3rd St	23.3	C	27.9	C
4. Brookwood Ave/2nd St	9.3	A	9.7	A
5. Brookwood Ave/Sonoma Ave	25.7	C	18.7	B

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service

Baseline Conditions

As directed by City staff, one approved project in the study area that would add trips to the study intersections was included in the Baseline Conditions scenario. The project at 888 4th Street is a 107-unit multi-family residential development. Based on the standard rates published by the Institute of Transportation Engineers (ITE) in the *Trip Generation Manual*, 10th Edition for "Multifamily Housing (Mid-Rise)" (LU 221), the project would generate 582 daily trips on average, including 39 trips during the a.m. peak hour and 47 p.m. peak hour trips. The assumed trip distribution for this project includes 10 percent to/from the east on Montgomery Drive, 20 percent to/from the south on Brookwood Avenue, 15 percent to/from the west on College Avenue, 10 percent to/from the north on Brookwood Avenue, and the remaining 45 percent to/from the west on 4th Street.

Under the resulting Baseline volumes all the study intersections would be expected to operate acceptably at LOS C or better. These results are shown in Table 5 and Baseline traffic volumes are shown in Figure 3.



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Traffic Impact Study for the Brookwood Medical Office Project

Figure 2 – Existing Traffic Volumes

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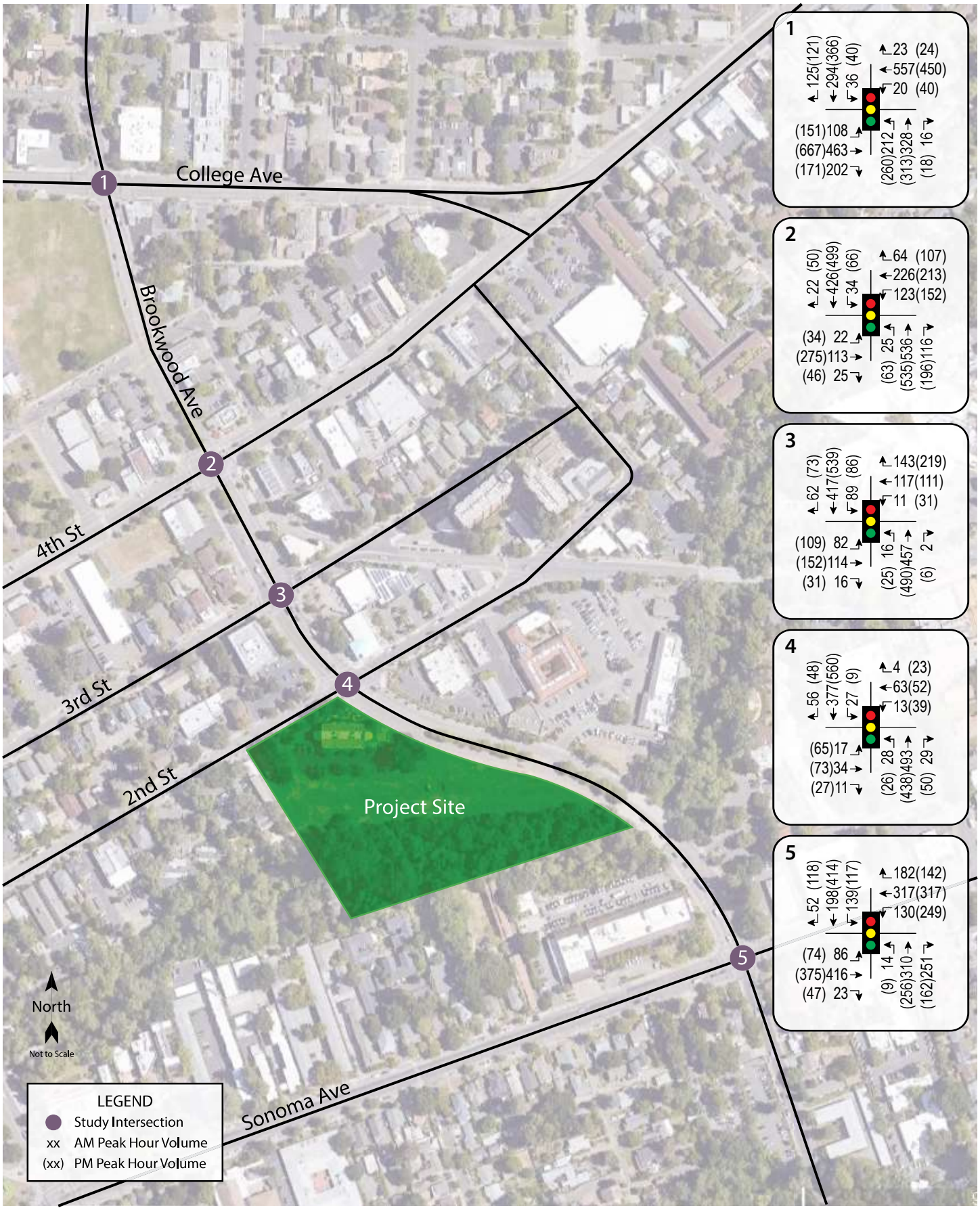

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Traffic Impact Study for the Brookwood Medical Office Project

Figure 3 – Baseline Traffic Volumes

W-Trans

Table 5 – Baseline Peak Hour Intersection Levels of Service				
Study Intersection	**AM Peak**		**PM Peak**	
	Delay	**LOS**	**Delay**	**LOS**
1. Brookwood Ave/College Ave	16.6	B	20.6	C
2. Brookwood Ave/4th St	19.9	B	24.6	C
3. Brookwood Ave/3rd St	23.3	C	28.0	C
4. Brookwood Ave/2nd St	9.3	A	9.7	A
5. Brookwood Ave/Sonoma Ave	25.8	C	18.9	B

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service

Project Description

The project includes 93,270 square feet of medical office building use. The project site is currently occupied with a 13,079-square-foot medical office building and a 1,346-square-foot general office building, both of which would be demolished for construction of the proposed project.

The proposed project site plan is shown in Figure 4.

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*, 10th Edition, 2017 for "Medical Dental Office" (ITE LU 720); this land use was chosen as the project would provide outpatient care services. Similarly, the trip generation for the existing uses of the site was estimated using trip rates for "Medical-Dental Office Building" and "General Office Building" (ITE LU 710). As shown in Table 6, the project would be expected to generate 3,246 trips on a daily basis, including 259 trips during the morning peak hour and 323 trips during the evening peak hour. After accounting for the trips associated with the existing use of the site that would cease, the project would be expected to result in 2,778 new daily trips on average with 221 new trips during a.m. peak hour and 276 new p.m. peak hour trips.

Table 6 – Trip Generation Summary											
Land Use	**Units**	**Daily**		**AM Peak Hour**				**PM Peak Hour**			
		Rate	**Trips**	**Rate**	**Trips**	**In**	**Out**	**Rate**	**Trips**	**In**	**Out**
Existing											
Medical-Dental Office	-13.08 ksf	34.80	-455	2.78	-36	-28	-8	3.46	-45	-13	-32
General Office	-1.35 ksf	9.74	-13	1.16	-2	-1	-1	1.15	-2	-0	-2
Subtotal			**-468**		**-38**	**-29**	**-9**		**-47**	**-13**	**-34**
Proposed											
Medical-Dental Office	93.27 ksf	34.80	3,246	2.78	259	202	57	3.46	323	90	233
Net New Trips (Proposed-Existing)			**2,778**		**221**	**173**	**48**		**276**	**77**	**199**

Note: ksf = 1,000 square feet

Source: Carlile Macy 10/22 sro579.ai 7/21

Traffic Impact Study for the Brookwood Medical Office Project

Figure 4 – Site Plan

Trip Distribution

The pattern used to allocate new project trips to the street network was based on knowledge of the area and the surrounding region. The applied distribution assumptions are shown in Table 7.

Table 7 – Trip Distribution Assumptions

Route	Percent
From/to west via College Ave	20%
From/to north via Brookwood Ave	10%
From/to east via 4th St	15%
From/to east via 3rd St	10%
From/to west via 3rd St	10%
From/to west via 2nd St	5%
From/to east via Sonoma Ave	10%
From/to west via Sonoma Ave	5%
From/to south via Brookwood Ave	15%
TOTAL	**100%**

Plus Project Intersection Operation

Existing plus Project Conditions

Upon the addition of project-related traffic to the existing volumes, the study intersections are expected to continue operating acceptably at LOS C or better. Project traffic volumes and the distribution are shown in Figure 5. These results are summarized in Table 8.

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

Study Intersection	Existing Conditions				Existing plus Project			
	AM Peak		PM Peak		AM Peak		PM Peak	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1. Brookwood Ave/College Ave	16.6	B	20.4	C	16.9	B	21.5	C
2. Brookwood Ave/4th St	19.3	B	24.2	C	19.7	B	24.0	C
3. Brookwood Ave/3rd St	23.3	C	27.9	C	23.3	C	28.1	C
4. Brookwood Ave/2nd St	9.3	A	9.7	A	9.2	A	9.9	A
5. Brookwood Ave/Sonoma Ave	25.7	C	18.7	B	27.4	C	19.3	B

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service

It should be noted that with the addition of project-related traffic volumes, the average delay at Brookwood Avenue/2nd Street decreases during the a.m. peak hour. While this is counter-intuitive, this condition occurs when a project adds trips to movements that are currently underutilized or have delays that are below the intersection average, resulting in a better balance between approaches and lower overall average delay. The project adds traffic predominantly to the northbound through movement, which has an average delay that is lower than the

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Figure 5 – Project Traffic Volumes and Trip Distribution

W-Trans

average for the intersection as a whole, resulting in a slight reduction in the overall average delay. The conclusion could incorrectly be drawn that the project actually improves operation based on this data alone; however, it is more appropriate to conclude that the project trips are expected to make use of excess capacity, so drivers will experience little, if any, change in conditions as a result of the project.

Finding – The study intersections are expected to continue operating acceptably upon the addition of project-generated traffic to existing volumes.

Baseline plus Project Conditions

Under Baseline plus Project volumes the study intersections are expected to continue operating acceptably at LOS C or better with minor increases to the intersection delays. Again, the average delay at Brookwood Avenue/2nd Street slightly decreases during the morning peak hour as the northbound through movements generated from the project would be added to the approach with lower overall average delay and result in a better balance between the approaches. These results are summarized in Table 9.

Table 9 – Baseline and Baseline plus Project Peak Hour Intersection Levels of Service

Study Intersection	Baseline Conditions				Baseline plus Project			
	AM Peak		PM Peak		AM Peak		PM Peak	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1. Brookwood Ave/College Ave	16.6	B	20.6	C	17.0	B	21.7	C
2. Brookwood Ave/4th St	19.9	B	24.6	C	20.4	C	24.3	C
3. Brookwood Ave/3rd St	23.3	C	28.0	C	23.4	C	28.3	C
4. Brookwood Ave/2nd St	9.3	A	9.7	A	9.2	A	9.9	A
5. Brookwood Ave/Sonoma Ave	25.8	C	18.9	B	27.5	C	19.5	B

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service

Finding – The study intersections are expected to continue operating acceptably under Baseline Conditions with or without the project.

Vehicle Miles Traveled

Background and Threshold of Significance

Senate Bill (SB) 743 established a change in the metric to be applied to determining transportation impacts associated with development projects. Rather than the delay-based criteria associated with a Level of Service (LOS) analysis, the change in Vehicle Miles Traveled (VMT) as a result of a project is now the basis for determining impacts with respect to transportation and traffic under the California Environmental Quality Act (CEQA). The City of Santa Rosa issued guidelines for VMT analysis, as outlined in *Vehicle Miles Traveled (VMT) Guidelines Final Draft*, dated June 5, 2020. Many of the VMT significance criteria in these guidelines are consistent with guidance provided by the California Governor's Office of Planning and Research (OPR) in the publication *Transportation Impacts (SB 743) CEQA Guidelines Update and Technical Advisory*, 2018.

Project Impact

The proposed medical office is an employment-based land use for which the City of Santa Rosa uses a metric of VMT per employee for the VMT analysis. A project exceeding a level of 15 percent below the existing regional average VMT per employee may indicate a significant transportation impact. Both the *Technical Advisory* and Santa Rosa's *VMT Guidelines* encourage the use of screening maps to identify geographic areas for which the anticipated VMT would be 15 percent below regional average thresholds, allowing jurisdictions to "screen" projects in those areas from quantitative VMT analysis since impacts can be presumed to be less than significant. The Sonoma County Transportation Authority (SCTA) prepared a draft screening map for the City of Santa Rosa and the project site is located within a screened area so it is therefore reasonable to conclude that the project would be expected to have a less-than-significant VMT impact.

Finding – Based on the draft screening map published by the SCTA and included in the City's guidance, the project can be anticipated to result in a less-than-significant transportation impact on VMT.

Alternative Modes

Pedestrian Facilities

Given the proximity of the downtown area and commercial, retail, and residential land uses surrounding the project site, it is reasonable to assume that some project trips would occur by foot, bicycle, or public transit. There are adequate sidewalks and pedestrian crossings in the study area except for the missing sidewalks along the project frontage on Brookwood Avenue, which would be provided as part of the project. Additionally, within the project site, a crosswalk would be provided to connect the building's entry point to the parking garage. Therefore, it is reasonable to conclude that there would be adequate access for pedestrians upon the completion of the project.

Finding – Pedestrian facilities serving the project site are expected to be adequate upon completion of the project.

Bicycle Facilities

Existing and planned bicycle facilities, including bike lanes on Brookwood Avenue and Sonoma Avenue, together with shared use of minor streets provide adequate access for bicyclists.

Bicycle Storage

The project includes a total of 23 bicycle parking spaces. The Santa Rosa City Code stipulates that a minimum bicycle requirement for an "Integrated Medical Health Center" land use is one space per 4,000 square feet. At that rate, 23 bicycle parking spaces are required to be provided on-site, which is equal to the proposed bicycle parking supply. Therefore, the proposed parking supply is adequate to meet the City requirements.

Finding –The bicycle facilities and proposed bicycle parking supply serving the project site would be adequate.

Transit

Existing transit routes as well as the proximity to Santa Rosa Transit Mall are adequate to accommodate project-generated transit trips. Existing stops are within acceptable walking distance of the site.

Finding – Existing transit facilities serving the project site are adequate.

Access and Circulation

Site Access

The project site would be accessed via two proposed driveways on Brookwood Avenue and one proposed driveway on 2nd Street. It is noted that the existing northerly driveway on Brookwood Avenue would be relocated approximately 40 feet to the south and the existing driveway on 2nd Street would be relocated nearly 40 feet to the west. While the northerly driveway on Brookwood Avenue only serves right-in and right-out traffic due to a raised median, the proposed southerly driveway on Brookwood would serve both northbound and southbound traffic as the driveway would align with the median break located nearly 500 feet south of 2nd street, directly across from the Creekside Center driveway. The driveway on 2nd Street serves both eastbound and westbound traffic.

Along the project frontage, Brookwood Avenue has a posted speed limit of 30 miles per hour (mph) and is nearly 80 feet wide with two through lanes in each direction and a raised median that transitions to a left-turn lane on the northbound approach to the intersection with 2nd Street. 2nd Street is approximately 38 feet wide and has one lane with on-street parking in each direction along the project frontage. The roadway has a posted speed limit of 25 mph.

Sight Distance

Sight distances along Brookwood Avenue and 2nd Street at the project driveways were 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 driveways are based on stopping sight distance with approach travel speed used as the basis for determining the recommended sight distance. Additionally, the stopping sight distance needed for the following driver to stop if there is a vehicle waiting to turn into a side street or driveway is evaluated based on the stopping sight distance criterion and the approach speed on the major street.

For the posted speed limit of 30 mph for Brookwood Avenue, the minimum stopping sight distance needed is 200 feet. Based on the review of field conditions, sight lines to and from the two driveways on Brookwood Avenue were measured to be more than 300 feet in each direction, which is adequate for approach speeds in excess of 40 mph. It is noted that the sight lines to the south from the northerly driveway on Brookwood Avenue were not evaluated since left turns are restricted at this location by a raised median.

For the posted speed limit of 25 mph on 2nd Street, the minimum stopping sight distance needed is 150 feet. Sight lines to and from the project driveway were measured to be more than 200 feet in each direction, which are also more than adequate. It is noted that while the driveway on 2nd Street is located adjacent to the intersection with Brookwood Avenue, clear sight lines are available from the driveway to all four approaches, so motorists can watch for any potential conflicts before exiting the site.

Additionally, due to the straight and flat roadway geometry of 2nd Street, adequate stopping sight distance is available for a following driver to notice and react to a preceding motorist slowing to enter the project site. Similarly, there is adequate stopping distance on Brookwood Avenue for a following driver to notice and react to the preceding driver slowing to turn right or left into the project driveways.

Access Analysis

Left-Turn Lane Warrants

The need for a left-turn lane on Brookwood Avenue and 2nd Street at project driveways was evaluated based on criteria contained in the *Intersection Channelization Design Guide*, National Cooperative Highway Research Program (NCHRP) Report No. 279, Transportation Research Board, 1985, as well as an update of the methodology developed by the Washington State Department of Transportation and published in the *Method For Prioritizing Intersection Improvements*, January 1997. The NCHRP report references a methodology developed by M. D. Harmelink that includes equations that can be applied to expected or actual traffic volumes in order to determine the need for a left-turn pocket based on safety issues. It is noted that the methodology is generally applied to two-lane roadways; however, as the need would be less on a four-lane roadway for the same volumes, the methodology provides conservative results for Brookwood Avenue.

Under Baseline plus Project volumes, which include project-related trips, a left-turn lane is warranted on Brookwood Avenue at the southerly driveway during the a.m. peak period; note that the northerly driveway on Brookwood was not evaluated as left turns are restricted by the raised median. A left-turn lane is not warranted on 2nd Street at the project driveway during either peak period under Baseline plus Project Conditions. The segment volumes for Brookwood Avenue were collected in February 2019 and 2nd Street in May 2017. Although the segment volumes for 2nd Street are somewhat outdated, given that the volumes would need to increase substantially before triggering the warrant, the analysis appears to be adequate to address the issue. Copies of the warrant spreadsheets are provided in Appendix C.

Emergency Access

The project includes a 20-foot-wide driveway on 2nd Street and 26-foot-wide driveways on Brookwood Avenue, which meet current City standards. The proposed site circulation and access design should also meet City design criteria, including the width of the drive aisles and turning radii. Assuming these criteria are met, the proposed project site would be expected to function acceptably for emergency response vehicles.

Finding – The proposed site access and on-site circulation would function acceptably for emergency response vehicles based on incorporation of applicable standards in the design.

Parking

The project was analyzed to determine whether the proposed parking supply would be sufficient for the anticipated parking demand. The project site as proposed would provide a total of 325 parking spaces for the 93,270 square foot medical office building, including 283 garage parking spaces and 42 surface parking spaces.

Applicable parking supply requirements are based on the City of Santa Rosa Municipal Code, Chapter 20-36.040; Number of Parking Spaces Required. The municipal code requires the "integrated medical health center" land use to provide parking at a rate of one space per 300 square feet of medical clinic/office space. This translates to 311 required parking spaces and the proposed parking supply has a surplus of 14 spaces compared to the code requirement, which exceeds City requirements. However, application of the 85th percentile peak demand rate for a medical office building as published by ITE in *Parking Generation*, 5th Edition, indicates that under such infrequent conditions the demand would be nearly 428 spaces during the weekday, which is greater than the proposed supply of 325 spaces. While providing adequate spaces for such an unusual peak demand is not recommended, because there is a potential for demand to exceed the supply proposed, the limited number of spaces in excess of the minimum supply appears to be reasonable.

The proposed parking supply, and City requirements are shown in Table 10.

Table 10 – Parking Analysis Summary

Land Use	Units	Supply (spaces)	City Requirements	
			Rate	Spaces Required
Integrated Medical Health Center	93.27 ksf	325	1.0 per 300 sf	311

Notes: ksf = 1000 square feet; sf = square feet

While a parking supply as proposed slightly exceeds that required, the project includes a large medical office that would generate trips not only from the City but also from surrounding Cities and communities and the patients may have physical discomfort that would not allow them to travel by transportation modes other than private automobiles. Therefore, the parking would be imperative to accommodate the patients visiting the proposed medical office.

Finding – The proposed parking supply for the project is adequate to meet the City requirements and appears to be reasonable to accommodate high peak demands.

Conclusions

Conclusions

- The project would be expected to generate 2,778 new daily trips on average, including 221 new trips during the morning peak hour and 276 trips in the evening peak hour.
- Under both Existing and Baseline conditions, the study intersections would continue operating acceptably at LOS C or better with the addition of project-generated traffic.
- The project is presumed to result in a less-than-significant impact on VMT based on the SCTA draft screening map and the City's guidelines.
- There would be adequate pedestrian facilities upon completion of the project. Existing transit facilities are adequate to accommodate project-generated transit trips.
- Existing bicycle facilities are adequate and would improve with the construction of planned bicycle projects in the vicinity. The proposed supply of bicycle parking spaces is adequate to satisfy the City requirements.
- Adequate sight lines are available on 2nd Street and Brookwood Avenue at project driveways.
- Under Baseline plus project volumes, a left-turn lane is warranted on Brookwood Avenue at the proposed southerly driveway. On 2nd Street, a left-turn lane is not warranted at the project driveway.
- The proposed site access, as well as on-site circulation, are expected to function acceptably for emergency response vehicles.
- The proposed parking supply is more than adequate to meet the City requirements but appears to be reasonable for the potential peak parking demand.

Study Participants and References

Study Participants

Principal in Charge	Dalene J. Whitlock, PE, PTOE
Assistant Planner	Jade Kim
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Editing/Formatting	Alex Scrobonia, Hannah Yung-Boxdell
Quality Control	Dalene J. Whitlock, PE, PTOE

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Appendix A

Collision Rate Calculations

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Intersection Collision Rate Worksheet

Traffic Impact Study for the Brookwood Medical Office

Intersection # 1: Brookwood Ave & College Ave
Date of Count: Tuesday, May 8, 2018

Number of Collisions: 7
Number of Injuries: 5
Number of Fatalities: 0
Average Daily Traffic (ADT): 26100
Start Date: October 1, 2015
End Date: September 30, 2020
Number of Years: 5

Intersection Type: Four-Legged
Control Type: Signals
Area: Urban

$$\text{Collision Rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x Days per Year x Number of Years}}$$

$$\text{Collision Rate} = \frac{7 \times 1{,}000{,}000}{26{,}100 \times 365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	**0.15 c/mve**	**0.0%**	**71.4%**
Statewide Average*	**0.24 c/mve**	**0.5%**	**46.9%**

Notes
ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2016 Collision Data on California State Highways, Caltrans

Intersection # 2: Brookwood Ave & 4th St
Date of Count: Tuesday, February 19, 2019

Number of Collisions: 15
Number of Injuries: 9
Number of Fatalities: 0
Average Daily Traffic (ADT): 22100
Start Date: October 1, 2015
End Date: September 30, 2020
Number of Years: 5

Intersection Type: Four-Legged
Control Type: Signals
Area: Urban

$$\text{Collision Rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x Days per Year x Number of Years}}$$

$$\text{Collision Rate} = \frac{15 \times 1{,}000{,}000}{22{,}100 \times 365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	**0.37 c/mve**	**0.0%**	**60.0%**
Statewide Average*	**0.24 c/mve**	**0.5%**	**46.9%**

Notes
ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2016 Collision Data on California State Highways, Caltrans

Intersection Collision Rate Worksheet

Traffic Impact Study for the Brookwood Medical Office

Intersection # 3: Brookwood Ave & 3rd St
Date of Count: Tuesday, February 19, 2019

Number of Collisions: 10
Number of Injuries: 6
Number of Fatalities: 0
Average Daily Traffic (ADT): 18600
Start Date: October 1, 2015
End Date: September 30, 2020
Number of Years: 5

Intersection Type: Four-Legged
Control Type: Signals
Area: Urban

$$\text{Collision Rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x Days per Year x Number of Years}}$$

$$\text{Collision Rate} = \frac{10 \times 1{,}000{,}000}{18{,}600 \times 365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	**0.29 c/mve**	**0.0%**	**60.0%**
Statewide Average*	**0.24 c/mve**	**0.5%**	**46.9%**

Notes
ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2016 Collision Data on California State Highways, Caltrans

Intersection # 4: Brookwood Ave & 2nd St
Date of Count: Tuesday, May 8, 2018

Number of Collisions: 6
Number of Injuries: 2
Number of Fatalities: 0
Average Daily Traffic (ADT): 14000
Start Date: October 1, 2015
End Date: September 30, 2020
Number of Years: 5

Intersection Type: Four-Legged
Control Type: Signals
Area: Urban

$$\text{Collision Rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x Days per Year x Number of Years}}$$

$$\text{Collision Rate} = \frac{6 \times 1{,}000{,}000}{14{,}000 \times 365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	**0.23 c/mve**	**0.0%**	**33.3%**
Statewide Average*	**0.24 c/mve**	**0.5%**	**46.9%**

Notes
ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2016 Collision Data on California State Highways, Caltrans

Intersection Collision Rate Worksheet

Traffic Impact Study for the Brookwood Medical Office

Intersection # 5: Brookwood Ave & Sonoma Ave
Date of Count: Tuesday, May 8, 2018

Number of Collisions: 26
Number of Injuries: 16
Number of Fatalities: 0
Average Daily Traffic (ADT): 22700
Start Date: October 1, 2015
End Date: September 30, 2020
Number of Years: 5

Intersection Type: Four-Legged
Control Type: Signals
Area: Urban

$$\text{Collision Rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x Days per Year x Number of Years}}$$

$$\text{Collision Rate} = \frac{26 \times 1{,}000{,}000}{22{,}700 \times 365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	**0.63 c/mve**	**0.0%**	**61.5%**
Statewide Average*	**0.24 c/mve**	**0.5%**	**46.9%**

Notes
ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2016 Collision Data on California State Highways, Caltrans

Intersection # 6: &
Date of Count: Saturday, January 0, 1900

Number of Collisions: 0
Number of Injuries: 0
Number of Fatalities: 0
Average Daily Traffic (ADT): 0
Start Date: January 0, 1900
End Date: January 0, 1900
Number of Years: 0

Intersection Type: 0
Control Type: 0
Area: 0

$$\text{Collision Rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x Days per Year x Number of Years}}$$

$$\text{Collision Rate} = \frac{0 \times 1{,}000{,}000}{0 \times 365 \times 0}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	**0.00 c/mve**	**0.0%**	**0.0%**
Statewide Average*	**0.26 c/mve**	**1.5%**	**41.4%**

Notes
ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2016 Collision Data on California State Highways, Caltrans

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Appendix B

Intersection Level of Service Calculations

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HCM 6th Signalized Intersection Summary
1: Brookwood Ave & College Ave

09/16/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	108	463	200	20	557	23	208	325	16	36	293	125
Future Volume (veh/h)	108	463	200	20	557	23	208	325	16	36	293	125
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	108	463	200	20	557	23	208	325	16	36	293	125
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	170	807	346	52	928	38	407	554	27	85	456	538
Arrive On Green	0.10	0.33	0.33	0.03	0.27	0.27	0.12	0.31	0.31	0.05	0.24	0.24
Sat Flow, veh/h	1781	2422	1038	1781	3478	143	3456	1768	87	1781	1870	1585
Grp Volume(v), veh/h	108	339	324	20	284	296	208	0	341	36	293	125
Grp Sat Flow(s),veh/h/ln	1781	1777	1683	1781	1777	1845	1728	0	1855	1781	1870	1585
Q Serve(g_s), s	2.8	7.5	7.6	0.5	6.7	6.7	2.7	0.0	7.4	0.9	6.7	2.7
Cycle Q Clear(g_c), s	2.8	7.5	7.6	0.5	6.7	6.7	2.7	0.0	7.4	0.9	6.7	2.7
Prop In Lane	1.00		0.62	1.00		0.08	1.00		0.05	1.00		1.00
Lane Grp Cap(c), veh/h	170	592	561	52	474	492	407	0	582	85	456	538
V/C Ratio(X)	0.63	0.57	0.58	0.38	0.60	0.60	0.51	0.00	0.59	0.42	0.64	0.23
Avail Cap(c_a), veh/h	970	2098	1988	336	1466	1521	1013	0	1064	522	1073	1061
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.8	13.1	13.2	22.8	15.3	15.3	19.8	0.0	13.8	22.1	16.2	11.3
Incr Delay (d2), s/veh	3.9	0.9	0.9	4.6	1.2	1.2	1.0	0.0	1.3	3.3	2.2	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	2.7	2.6	0.3	2.6	2.7	1.0	0.0	2.8	0.4	2.8	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.7	14.0	14.1	27.3	16.5	16.5	20.8	0.0	15.1	25.4	18.4	11.6
LnGrp LOS	C	B	B	C	B	B	C	A	B	C	B	B
Approach Vol, veh/h		771			600			549			454	
Approach Delay, s/veh		15.5			16.9			17.3			17.1	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	4.4	19.5	8.6	15.2	7.6	16.3	5.3	18.6
Change Period (Y+Rc), s	3.0	3.6	3.0	3.6	3.0	3.6	3.0	3.6
Max Green Setting (Gmax), s	9.0	56.4	14.0	27.4	26.0	39.4	14.0	27.4
Max Q Clear Time (g_c+I1), s	2.5	9.6	4.7	8.7	4.8	8.7	2.9	9.4
Green Ext Time (p_c), s	0.0	5.2	0.4	2.9	0.3	4.1	0.0	2.7

Intersection Summary	
HCM 6th Ctrl Delay	16.6
HCM 6th LOS	B

HCM 6th Signalized Intersection Summary
2: Brookwood Ave & 4th St

09/16/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	113	16	123	226	64	22	536	116	34	426	19
Future Volume (veh/h)	15	113	16	123	226	64	22	536	116	34	426	19
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	15	113	16	123	226	64	22	536	116	34	426	19
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	63	369	51	198	362	307	76	1991	1064	116	2018	90
Arrive On Green	0.04	0.12	0.12	0.11	0.19	0.19	0.04	0.56	0.56	0.06	0.58	0.58
Sat Flow, veh/h	1781	3133	436	1781	1870	1585	1781	3554	1585	1781	3465	154
Grp Volume(v), veh/h	15	63	66	123	226	64	22	536	116	34	218	227
Grp Sat Flow(s),veh/h/ln	1781	1777	1792	1781	1870	1585	1781	1777	1585	1781	1777	1843
Q Serve(g_s), s	0.7	2.8	2.9	5.6	9.4	2.9	1.0	6.6	2.2	1.5	5.0	5.0
Cycle Q Clear(g_c), s	0.7	2.8	2.9	5.6	9.4	2.9	1.0	6.6	2.2	1.5	5.0	5.0
Prop In Lane	1.00		0.24	1.00		1.00	1.00		1.00	1.00		0.08
Lane Grp Cap(c), veh/h	63	209	211	198	362	307	76	1991	1064	116	1035	1073
V/C Ratio(X)	0.24	0.30	0.31	0.62	0.62	0.21	0.29	0.27	0.11	0.29	0.21	0.21
Avail Cap(c_a), veh/h	231	560	565	231	590	500	231	1991	1064	231	1035	1073
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.9	34.3	34.4	36.1	31.4	28.8	39.4	9.7	4.9	37.9	8.4	8.5
Incr Delay (d2), s/veh	2.0	2.9	3.0	3.9	6.2	1.2	2.0	0.3	0.2	1.4	0.5	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	1.3	1.4	2.6	4.8	1.2	0.5	2.5	0.7	0.7	1.9	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.9	37.2	37.4	40.0	37.7	30.0	41.5	10.0	5.2	39.3	8.9	8.9
LnGrp LOS	D	D	D	D	D	C	D	B	A	D	A	A
Approach Vol, veh/h		144			413			674			479	
Approach Delay, s/veh		37.8			37.2			10.2			11.1	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.5	13.2	6.6	52.7	6.0	19.7	8.5	50.8
Change Period (Y+Rc), s	3.0	3.2	3.0	3.2	3.0	3.2	3.0	3.2
Max Green Setting (Gmax), s	11.0	26.8	11.0	23.8	11.0	26.8	11.0	23.8
Max Q Clear Time (g_c+I1), s	7.6	4.9	3.0	7.0	2.7	11.4	3.5	8.6
Green Ext Time (p_c), s	0.1	1.5	0.0	5.3	0.0	3.0	0.0	7.3

Intersection Summary	
HCM 6th Ctrl Delay	19.3
HCM 6th LOS	B

Notes
User approved pedestrian interval to be less than phase max green.
User approved changes to right turn type.

HCM 6th Signalized Intersection Summary
3: Brookwood Ave & 3rd St

09/16/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	82	114	16	11	117	142	16	455	2	86	411	62
Future Volume (veh/h)	82	114	16	11	117	142	16	455	2	86	411	62
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	82	114	16	11	117	142	16	455	2	86	411	62
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	126	376	53	34	141	171	33	1731	8	111	1615	242
Arrive On Green	0.07	0.23	0.23	0.02	0.18	0.18	0.02	0.48	0.48	0.06	0.52	0.52
Sat Flow, veh/h	1781	1605	225	1781	769	933	1781	3628	16	1781	3099	464
Grp Volume(v), veh/h	82	0	130	11	0	259	16	223	234	86	234	239
Grp Sat Flow(s),veh/h/ln	1781	0	1830	1781	0	1702	1781	1777	1867	1781	1777	1787
Q Serve(g_s), s	3.8	0.0	5.0	0.5	0.0	12.5	0.8	6.4	6.4	4.0	6.2	6.3
Cycle Q Clear(g_c), s	3.8	0.0	5.0	0.5	0.0	12.5	0.8	6.4	6.4	4.0	6.2	6.3
Prop In Lane	1.00		0.12	1.00		0.55	1.00		0.01	1.00		0.26
Lane Grp Cap(c), veh/h	126	0	429	34	0	311	33	848	891	111	926	931
V/C Ratio(X)	0.65	0.00	0.30	0.33	0.00	0.83	0.49	0.26	0.26	0.77	0.25	0.26
Avail Cap(c_a), veh/h	205	0	534	205	0	497	197	848	891	260	926	931
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.5	0.0	26.8	41.2	0.0	33.5	41.3	13.3	13.3	39.2	11.2	11.2
Incr Delay (d2), s/veh	5.6	0.0	0.4	5.6	0.0	6.6	10.6	0.8	0.7	10.7	0.7	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	2.2	0.3	0.0	5.6	0.4	2.6	2.7	2.1	2.4	2.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.1	0.0	27.2	46.7	0.0	40.0	51.9	14.0	14.0	49.9	11.9	11.9
LnGrp LOS	D	A	C	D	A	D	D	B	B	D	B	B
Approach Vol, veh/h		212			270			473			559	
Approach Delay, s/veh		33.7			40.3			15.3			17.7	
Approach LOS		C			D			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.8	24.1	6.2	48.9	10.2	19.7	9.9	45.1
Change Period (Y+Rc), s	* 4.2	* 4.2	4.6	4.6	* 4.2	* 4.2	4.6	4.6
Max Green Setting (Gmax), s	* 9.8	* 25	9.4	23.4	* 9.8	* 25	12.4	20.4
Max Q Clear Time (g_c+I1), s	2.5	7.0	2.8	8.3	5.8	14.5	6.0	8.4
Green Ext Time (p_c), s	0.0	0.6	0.0	2.5	0.1	1.1	0.1	2.1

Intersection Summary	
HCM 6th Ctrl Delay	23.3
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

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

HCM 6th Signalized Intersection Summary
4: Brookwood Ave & 2nd St

09/16/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	34	11	13	63	4	28	491	29	27	371	56
Future Volume (veh/h)	17	34	11	13	63	4	28	491	29	27	371	56
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	17	34	11	13	63	4	28	491	29	27	371	56
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	211	217	58	177	293	17	75	1021	60	72	924	138
Arrive On Green	0.19	0.19	0.19	0.19	0.19	0.19	0.04	0.30	0.30	0.04	0.30	0.30
Sat Flow, veh/h	263	1143	303	158	1547	90	1781	3410	201	1781	3100	464
Grp Volume(v), veh/h	62	0	0	80	0	0	28	255	265	27	211	216
Grp Sat Flow(s),veh/h/ln	1710	0	0	1795	0	0	1781	1777	1834	1781	1777	1787
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.4	3.3	3.4	0.4	2.7	2.7
Cycle Q Clear(g_c), s	0.8	0.0	0.0	1.0	0.0	0.0	0.4	3.3	3.4	0.4	2.7	2.7
Prop In Lane	0.27		0.18	0.16		0.05	1.00		0.11	1.00		0.26
Lane Grp Cap(c), veh/h	485	0	0	487	0	0	75	532	549	72	530	533
V/C Ratio(X)	0.13	0.00	0.00	0.16	0.00	0.00	0.38	0.48	0.48	0.37	0.40	0.40
Avail Cap(c_a), veh/h	1658	0	0	1740	0	0	651	1585	1636	651	1897	1907
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	9.7	0.0	0.0	9.8	0.0	0.0	13.3	8.2	8.2	13.3	8.0	8.0
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.2	0.0	0.0	3.1	0.7	0.7	3.2	0.7	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.0	0.3	0.0	0.0	0.2	0.9	0.9	0.2	0.7	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.8	0.0	0.0	9.9	0.0	0.0	16.4	8.8	8.8	16.5	8.7	8.7
LnGrp LOS	A	A	A	A	A	A	B	A	A	B	A	A
Approach Vol, veh/h		62			80			548			454	
Approach Delay, s/veh		9.8			9.9			9.2			9.1	
Approach LOS		A			A			A			A	

Timer - Assigned Phs	2	3	4	6	7	8
Phs Duration (G+Y+Rc), s	9.6	5.8	13.1	9.6	5.8	13.1
Change Period (Y+Rc), s	* 4.2	4.6	4.6	* 4.2	4.6	4.6
Max Green Setting (Gmax), s	* 26	10.4	30.4	* 26	10.4	25.4
Max Q Clear Time (g_c+I1), s	2.8	2.4	4.7	3.0	2.4	5.4
Green Ext Time (p_c), s	0.2	0.0	3.7	0.3	0.0	3.1

Intersection Summary	
HCM 6th Ctrl Delay	9.3
HCM 6th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

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

HCM 6th Signalized Intersection Summary
5: Brookwood Ave & Sonoma Ave

09/16/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	86	416	23	130	317	182	14	308	251	139	192	52
Future Volume (veh/h)	86	416	23	130	317	182	14	308	251	139	192	52
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	86	416	23	130	317	182	14	308	251	139	192	52
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	372	482	409	315	613	344	48	351	286	178	826	823
Arrive On Green	0.08	0.26	0.26	0.10	0.28	0.28	0.03	0.37	0.37	0.10	0.44	0.44
Sat Flow, veh/h	1781	1870	1585	1781	2194	1231	1781	953	777	1781	1870	1585
Grp Volume(v), veh/h	86	416	23	130	255	244	14	0	559	139	192	52
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1777	1649	1781	0	1730	1781	1870	1585
Q Serve(g_s), s	2.5	16.0	0.8	3.8	9.1	9.4	0.6	0.0	22.8	5.8	4.8	1.2
Cycle Q Clear(g_c), s	2.5	16.0	0.8	3.8	9.1	9.4	0.6	0.0	22.8	5.8	4.8	1.2
Prop In Lane	1.00		1.00	1.00		0.75	1.00		0.45	1.00		1.00
Lane Grp Cap(c), veh/h	372	482	409	315	496	461	48	0	637	178	826	823
V/C Ratio(X)	0.23	0.86	0.06	0.41	0.51	0.53	0.29	0.00	0.88	0.78	0.23	0.06
Avail Cap(c_a), veh/h	517	777	659	421	738	685	189	0	843	283	1272	1201
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.0	26.8	21.1	18.6	22.9	23.0	36.1	0.0	22.3	33.2	13.1	9.0
Incr Delay (d2), s/veh	0.1	3.2	0.0	0.3	0.3	0.4	1.2	0.0	8.3	2.8	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	7.2	0.3	1.5	3.6	3.5	0.3	0.0	10.0	2.5	1.9	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.1	30.0	21.1	18.9	23.2	23.4	37.3	0.0	30.5	36.0	13.3	9.1
LnGrp LOS	B	C	C	B	C	C	D	A	C	D	B	A
Approach Vol, veh/h		525			629			573			383	
Approach Delay, s/veh		27.7			22.4			30.7			20.9	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.5	23.1	5.0	37.0	8.8	24.7	10.6	31.4
Change Period (Y+Rc), s	3.0	3.6	3.0	3.6	3.0	3.6	3.0	* 3.6
Max Green Setting (Gmax), s	12.0	31.4	8.0	51.4	12.0	31.4	12.0	* 37
Max Q Clear Time (g_c+I1), s	5.8	18.0	2.6	6.8	4.5	11.4	7.8	24.8
Green Ext Time (p_c), s	0.1	1.4	0.0	1.4	0.0	1.8	0.1	3.1

Intersection Summary	
HCM 6th Ctrl Delay	25.7
HCM 6th LOS	C

Notes

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

HCM 6th Signalized Intersection Summary
1: Brookwood Ave & College Ave

09/16/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	151	667	167	40	450	24	257	311	18	40	363	121
Future Volume (veh/h)	151	667	167	40	450	24	257	311	18	40	363	121
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	151	667	167	40	450	24	257	311	18	40	363	121
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	199	983	246	87	982	52	389	582	34	87	502	602
Arrive On Green	0.11	0.35	0.35	0.05	0.29	0.29	0.11	0.33	0.33	0.05	0.27	0.27
Sat Flow, veh/h	1781	2816	704	1781	3432	183	3456	1751	101	1781	1870	1585
Grp Volume(v), veh/h	151	421	413	40	232	242	257	0	329	40	363	121
Grp Sat Flow(s),veh/h/ln	1781	1777	1744	1781	1777	1837	1728	0	1852	1781	1870	1585
Q Serve(g_s), s	4.9	12.1	12.1	1.3	6.4	6.4	4.3	0.0	8.6	1.3	10.5	3.1
Cycle Q Clear(g_c), s	4.9	12.1	12.1	1.3	6.4	6.4	4.3	0.0	8.6	1.3	10.5	3.1
Prop In Lane	1.00		0.40	1.00		0.10	1.00		0.05	1.00		1.00
Lane Grp Cap(c), veh/h	199	621	609	87	509	526	389	0	615	87	502	602
V/C Ratio(X)	0.76	0.68	0.68	0.46	0.46	0.46	0.66	0.00	0.53	0.46	0.72	0.20
Avail Cap(c_a), veh/h	716	1559	1530	268	1113	1151	868	0	943	447	952	984
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.7	16.6	16.6	27.6	17.5	17.5	25.4	0.0	16.2	27.6	19.8	12.4
Incr Delay (d2), s/veh	5.8	1.3	1.3	3.8	0.6	0.6	1.9	0.0	1.0	3.8	2.8	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	4.7	4.6	0.6	2.5	2.6	1.7	0.0	3.4	0.6	4.6	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.6	17.9	17.9	31.4	18.1	18.1	27.3	0.0	17.2	31.4	22.7	12.7
LnGrp LOS	C	B	B	C	B	B	C	A	B	C	C	B
Approach Vol, veh/h		985			514			586			524	
Approach Delay, s/veh		20.0			19.2			21.6			21.0	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.9	24.5	9.7	19.6	9.7	20.7	5.9	23.4
Change Period (Y+Rc), s	3.0	3.6	3.0	3.6	3.0	3.6	3.0	3.6
Max Green Setting (Gmax), s	9.0	52.4	15.0	30.4	24.0	37.4	15.0	30.4
Max Q Clear Time (g_c+I1), s	3.3	14.1	6.3	12.5	6.9	8.4	3.3	10.6
Green Ext Time (p_c), s	0.0	6.8	0.6	3.5	0.4	3.2	0.0	2.6

Intersection Summary	
HCM 6th Ctrl Delay	20.4
HCM 6th LOS	C

HCM 6th Signalized Intersection Summary
2: Brookwood Ave & 4th St

09/16/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	275	40	152	213	107	54	535	196	66	499	43
Future Volume (veh/h)	29	275	40	152	213	107	54	535	196	66	499	43
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	29	275	40	152	213	107	54	535	196	66	499	43
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	102	457	66	193	370	314	132	1838	992	160	1764	152
Arrive On Green	0.06	0.15	0.15	0.11	0.20	0.20	0.07	0.52	0.52	0.09	0.53	0.53
Sat Flow, veh/h	1781	3118	448	1781	1870	1585	1781	3554	1585	1781	3311	285
Grp Volume(v), veh/h	29	155	160	152	213	107	54	535	196	66	267	275
Grp Sat Flow(s),veh/h/ln	1781	1777	1790	1781	1870	1585	1781	1777	1585	1781	1777	1819
Q Serve(g_s), s	1.4	7.4	7.5	7.5	9.3	5.2	2.6	7.7	4.8	3.2	7.4	7.5
Cycle Q Clear(g_c), s	1.4	7.4	7.5	7.5	9.3	5.2	2.6	7.7	4.8	3.2	7.4	7.5
Prop In Lane	1.00		0.25	1.00		1.00	1.00		1.00	1.00		0.16
Lane Grp Cap(c), veh/h	102	261	263	193	370	314	132	1838	992	160	947	969
V/C Ratio(X)	0.28	0.60	0.61	0.79	0.58	0.34	0.41	0.29	0.20	0.41	0.28	0.28
Avail Cap(c_a), veh/h	218	529	533	317	661	560	218	1838	992	238	947	969
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.7	35.9	36.0	39.1	32.7	31.0	39.8	12.4	7.2	38.7	11.6	11.6
Incr Delay (d2), s/veh	1.5	7.7	8.0	6.9	5.0	2.3	2.0	0.4	0.4	1.7	0.7	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	3.7	3.8	3.6	4.6	2.2	1.2	3.1	1.6	1.4	3.0	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.2	43.6	44.0	46.0	37.7	33.4	41.8	12.8	7.6	40.4	12.3	12.3
LnGrp LOS	D	D	D	D	D	C	D	B	A	D	B	B
Approach Vol, veh/h		344			472			785			608	
Approach Delay, s/veh		43.7			39.4			13.5			15.4	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.8	16.4	9.7	51.2	8.2	21.0	11.1	49.7
Change Period (Y+Rc), s	3.0	3.2	3.0	3.2	3.0	3.2	3.0	3.2
Max Green Setting (Gmax), s	16.0	26.8	11.0	23.8	11.0	31.8	12.0	22.8
Max Q Clear Time (g_c+I1), s	9.5	9.5	4.6	9.5	3.4	11.3	5.2	9.7
Green Ext Time (p_c), s	0.2	3.7	0.0	5.8	0.0	3.8	0.1	7.1

Intersection Summary	
HCM 6th Ctrl Delay	24.2
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.
User approved changes to right turn type.

HCM 6th Signalized Intersection Summary
3: Brookwood Ave & 3rd St

09/16/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	109	152	31	31	111	216	25	484	6	84	535	73
Future Volume (veh/h)	109	152	31	31	111	216	25	484	6	84	535	73
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	109	152	31	31	111	216	25	484	6	84	535	73
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	138	390	80	75	127	247	46	1589	20	109	1501	204
Arrive On Green	0.08	0.26	0.26	0.04	0.22	0.22	0.03	0.44	0.44	0.06	0.48	0.48
Sat Flow, veh/h	1781	1508	307	1781	567	1104	1781	3595	45	1781	3143	427
Grp Volume(v), veh/h	109	0	183	31	0	327	25	239	251	84	302	306
Grp Sat Flow(s),veh/h/ln	1781	0	1815	1781	0	1672	1781	1777	1862	1781	1777	1793
Q Serve(g_s), s	5.4	0.0	7.5	1.5	0.0	17.0	1.2	7.8	7.8	4.2	9.6	9.7
Cycle Q Clear(g_c), s	5.4	0.0	7.5	1.5	0.0	17.0	1.2	7.8	7.8	4.2	9.6	9.7
Prop In Lane	1.00		0.17	1.00		0.66	1.00		0.02	1.00		0.24
Lane Grp Cap(c), veh/h	138	0	470	75	0	373	46	786	823	109	849	857
V/C Ratio(X)	0.79	0.00	0.39	0.41	0.00	0.88	0.54	0.30	0.30	0.77	0.36	0.36
Avail Cap(c_a), veh/h	194	0	520	194	0	479	186	786	823	344	849	857
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.8	0.0	27.5	42.0	0.0	33.7	43.3	16.2	16.2	41.6	14.8	14.8
Incr Delay (d2), s/veh	13.4	0.0	0.5	3.6	0.0	13.7	9.6	1.0	1.0	10.6	1.2	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	0.0	3.3	0.7	0.0	8.1	0.7	3.3	3.4	2.1	4.0	4.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.2	0.0	28.0	45.7	0.0	47.4	52.9	17.2	17.1	52.2	16.0	16.0
LnGrp LOS	D	A	C	D	A	D	D	B	B	D	B	B
Approach Vol, veh/h		292			358			515			692	
Approach Delay, s/veh		37.8			47.3			18.9			20.4	
Approach LOS		D			D			B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.0	27.5	6.9	47.6	11.2	24.3	10.1	44.4
Change Period (Y+Rc), s	* 4.2	* 4.2	4.6	4.6	* 4.2	* 4.2	4.6	4.6
Max Green Setting (Gmax), s	* 9.8	* 26	9.4	27.4	* 9.8	* 26	17.4	19.4
Max Q Clear Time (g_c+I1), s	3.5	9.5	3.2	11.7	7.4	19.0	6.2	9.8
Green Ext Time (p_c), s	0.0	0.9	0.0	3.4	0.1	1.1	0.1	2.0

Intersection Summary	
HCM 6th Ctrl Delay	27.9
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
4: Brookwood Ave & 2nd St

09/16/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	65	73	27	39	52	23	26	432	50	9	556	48
Future Volume (veh/h)	65	73	27	39	52	23	26	432	50	9	556	48
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	65	73	27	39	52	23	26	432	50	9	556	48
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	247	199	58	217	214	73	68	1201	138	26	1159	100
Arrive On Green	0.22	0.22	0.22	0.22	0.22	0.22	0.04	0.37	0.37	0.01	0.35	0.35
Sat Flow, veh/h	457	910	267	344	981	335	1781	3211	370	1781	3311	285
Grp Volume(v), veh/h	165	0	0	114	0	0	26	238	244	9	298	306
Grp Sat Flow(s),veh/h/ln	1634	0	0	1661	0	0	1781	1777	1804	1781	1777	1819
Q Serve(g_s), s	0.8	0.0	0.0	0.0	0.0	0.0	0.5	3.3	3.3	0.2	4.5	4.5
Cycle Q Clear(g_c), s	2.8	0.0	0.0	1.8	0.0	0.0	0.5	3.3	3.3	0.2	4.5	4.5
Prop In Lane	0.39		0.16	0.34		0.20	1.00		0.20	1.00		0.16
Lane Grp Cap(c), veh/h	504	0	0	504	0	0	68	665	675	26	622	637
V/C Ratio(X)	0.33	0.00	0.00	0.23	0.00	0.00	0.38	0.36	0.36	0.35	0.48	0.48
Avail Cap(c_a), veh/h	1350	0	0	1353	0	0	544	1325	1345	544	1586	1624
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.5	0.0	0.0	11.1	0.0	0.0	16.0	7.7	7.7	16.6	8.6	8.7
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.2	0.0	0.0	3.4	0.3	0.3	8.0	0.8	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	0.0	0.6	0.0	0.0	0.2	0.9	0.9	0.1	1.3	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.8	0.0	0.0	11.3	0.0	0.0	19.4	8.0	8.0	24.6	9.5	9.5
LnGrp LOS	B	A	A	B	A	A	B	A	A	C	A	A
Approach Vol, veh/h		165			114			508			613	
Approach Delay, s/veh		11.8			11.3			8.6			9.7	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	2	3	4		6	7	8					
Phs Duration (G+Y+Rc), s	11.6	5.9	16.5		11.6	5.1	17.3					
Change Period (Y+Rc), s	* 4.2	4.6	4.6		* 4.2	4.6	4.6					
Max Green Setting (Gmax), s	* 26	10.4	30.4		* 26	10.4	25.4					
Max Q Clear Time (g_c+I1), s	4.8	2.5	6.5		3.8	2.2	5.3					
Green Ext Time (p_c), s	0.9	0.0	5.4		0.6	0.0	2.8					

Intersection Summary	
HCM 6th Ctrl Delay	9.7
HCM 6th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

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

HCM 6th Signalized Intersection Summary
5: Brookwood Ave & Sonoma Ave

09/16/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	74	375	47	249	317	142	9	250	162	117	410	118
Future Volume (veh/h)	74	375	47	249	317	142	9	250	162	117	410	118
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	74	375	47	249	317	142	9	250	162	117	410	118
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	436	460	390	404	705	309	33	312	202	202	728	747
Arrive On Green	0.08	0.25	0.25	0.13	0.29	0.29	0.02	0.29	0.29	0.11	0.39	0.39
Sat Flow, veh/h	1781	1870	1585	1781	2403	1054	1781	1060	687	1781	1870	1585
Grp Volume(v), veh/h	74	375	47	249	233	226	9	0	412	117	410	118
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1777	1681	1781	0	1747	1781	1870	1585
Q Serve(g_s), s	1.8	11.5	1.4	5.9	6.5	6.7	0.3	0.0	13.3	3.8	10.4	2.6
Cycle Q Clear(g_c), s	1.8	11.5	1.4	5.9	6.5	6.7	0.3	0.0	13.3	3.8	10.4	2.6
Prop In Lane	1.00		1.00	1.00		0.63	1.00		0.39	1.00		1.00
Lane Grp Cap(c), veh/h	436	460	390	404	521	493	33	0	514	202	728	747
V/C Ratio(X)	0.17	0.82	0.12	0.62	0.45	0.46	0.27	0.00	0.80	0.58	0.56	0.16
Avail Cap(c_a), veh/h	640	965	817	524	916	867	234	0	1056	351	1579	1468
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.5	21.7	17.8	14.4	17.5	17.6	29.5	0.0	19.8	25.6	14.5	9.2
Incr Delay (d2), s/veh	0.1	1.4	0.1	0.6	0.2	0.2	1.6	0.0	2.9	1.0	0.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	4.8	0.5	2.1	2.4	2.3	0.1	0.0	5.3	1.6	4.0	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.5	23.0	17.9	15.0	17.7	17.8	31.1	0.0	22.8	26.6	15.2	9.3
LnGrp LOS	B	C	B	B	B	B	C	A	C	C	B	A
Approach Vol, veh/h		496			708			421			645	
Approach Delay, s/veh		21.3			16.8			23.0			16.2	
Approach LOS		C			B			C			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.9	18.6	4.1	27.3	8.0	21.5	9.9	21.5				
Change Period (Y+Rc), s	3.0	3.6	3.0	3.6	3.0	3.6	3.0	* 3.6				
Max Green Setting (Gmax), s	12.0	31.4	8.0	51.4	12.0	31.4	12.0	* 37				
Max Q Clear Time (g_c+I1), s	7.9	13.5	2.3	12.4	3.8	8.7	5.8	15.3				
Green Ext Time (p_c), s	0.1	1.4	0.0	3.2	0.0	1.7	0.1	2.7				

Intersection Summary	
HCM 6th Ctrl Delay	18.7
HCM 6th LOS	B

Notes

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

HCM 6th Signalized Intersection Summary
1: Brookwood Ave & College Ave

01/17/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	108	463	235	20	557	23	218	330	16	36	310	125
Future Volume (veh/h)	108	463	235	20	557	23	218	330	16	36	310	125
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	108	463	235	20	557	23	218	330	16	36	310	125
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	169	755	381	52	921	38	404	569	28	85	472	550
Arrive On Green	0.09	0.33	0.33	0.03	0.26	0.26	0.12	0.32	0.32	0.05	0.25	0.25
Sat Flow, veh/h	1781	2287	1153	1781	3478	143	3456	1769	86	1781	1870	1585
Grp Volume(v), veh/h	108	359	339	20	284	296	218	0	346	36	310	125
Grp Sat Flow(s),veh/h/ln	1781	1777	1663	1781	1777	1845	1728	0	1855	1781	1870	1585
Q Serve(g_s), s	2.8	8.2	8.3	0.5	6.8	6.8	2.9	0.0	7.6	1.0	7.2	2.7
Cycle Q Clear(g_c), s	2.8	8.2	8.3	0.5	6.8	6.8	2.9	0.0	7.6	1.0	7.2	2.7
Prop In Lane	1.00		0.69	1.00		0.08	1.00		0.05	1.00		1.00
Lane Grp Cap(c), veh/h	169	587	549	52	471	488	404	0	597	85	472	550
V/C Ratio(X)	0.64	0.61	0.62	0.38	0.60	0.61	0.54	0.00	0.58	0.43	0.66	0.23
Avail Cap(c_a), veh/h	952	2060	1928	330	1439	1494	995	0	1045	513	1054	1043
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.2	13.7	13.7	23.2	15.7	15.7	20.2	0.0	13.8	22.5	16.3	11.3
Incr Delay (d2), s/veh	4.0	1.0	1.1	4.6	1.3	1.2	1.1	0.0	1.3	3.4	2.2	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	3.0	2.9	0.3	2.6	2.7	1.1	0.0	2.9	0.4	3.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.2	14.7	14.8	27.8	16.9	16.9	21.4	0.0	15.0	25.9	18.5	11.6
LnGrp LOS	C	B	B	C	B	B	C	A	B	C	B	B
Approach Vol, veh/h		806			600			564			471	
Approach Delay, s/veh		16.2			17.2			17.5			17.2	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	4.4	19.7	8.7	15.9	7.6	16.5	5.3	19.2
Change Period (Y+Rc), s	3.0	3.6	3.0	3.6	3.0	3.6	3.0	3.6
Max Green Setting (Gmax), s	9.0	56.4	14.0	27.4	26.0	39.4	14.0	27.4
Max Q Clear Time (g_c+I1), s	2.5	10.3	4.9	9.2	4.8	8.8	3.0	9.6
Green Ext Time (p_c), s	0.0	5.6	0.5	3.0	0.3	4.1	0.0	2.7

Intersection Summary	
HCM 6th Ctrl Delay	16.9
HCM 6th LOS	B

HCM 6th Signalized Intersection Summary
2: Brookwood Ave & 4th St

01/17/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	113	16	149	226	64	22	551	123	34	478	19
Future Volume (veh/h)	15	113	16	149	226	64	22	551	123	34	478	19
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	15	113	16	149	226	64	22	551	123	34	478	19
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	63	369	51	203	368	312	76	1981	1064	116	2019	80
Arrive On Green	0.04	0.12	0.12	0.11	0.20	0.20	0.04	0.56	0.56	0.06	0.58	0.58
Sat Flow, veh/h	1781	3133	436	1781	1870	1585	1781	3554	1585	1781	3484	138
Grp Volume(v), veh/h	15	63	66	149	226	64	22	551	123	34	243	254
Grp Sat Flow(s),veh/h/ln	1781	1777	1792	1781	1870	1585	1781	1777	1585	1781	1777	1845
Q Serve(g_s), s	0.7	2.8	2.9	6.9	9.4	2.9	1.0	6.9	2.3	1.5	5.7	5.7
Cycle Q Clear(g_c), s	0.7	2.8	2.9	6.9	9.4	2.9	1.0	6.9	2.3	1.5	5.7	5.7
Prop In Lane	1.00		0.24	1.00		1.00	1.00		1.00	1.00		0.07
Lane Grp Cap(c), veh/h	63	209	211	203	368	312	76	1981	1064	116	1030	1069
V/C Ratio(X)	0.24	0.30	0.31	0.73	0.61	0.21	0.29	0.28	0.12	0.29	0.24	0.24
Avail Cap(c_a), veh/h	231	560	565	231	590	500	231	1981	1064	231	1030	1069
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.9	34.3	34.4	36.4	31.2	28.6	39.4	9.9	5.0	37.9	8.7	8.7
Incr Delay (d2), s/veh	2.0	2.9	3.0	10.0	5.9	1.2	2.0	0.3	0.2	1.4	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	1.3	1.4	3.5	4.7	1.2	0.5	2.6	0.7	0.7	2.1	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.9	37.2	37.4	46.4	37.1	29.7	41.5	10.2	5.2	39.3	9.3	9.2
LnGrp LOS	D	D	D	D	D	C	D	B	A	D	A	A
Approach Vol, veh/h		144			439			696			531	
Approach Delay, s/veh		37.8			39.2			10.3			11.2	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.7	13.2	6.6	52.5	6.0	19.9	8.5	50.6
Change Period (Y+Rc), s	3.0	3.2	3.0	3.2	3.0	3.2	3.0	3.2
Max Green Setting (Gmax), s	11.0	26.8	11.0	23.8	11.0	26.8	11.0	23.8
Max Q Clear Time (g_c+I1), s	8.9	4.9	3.0	7.7	2.7	11.4	3.5	8.9
Green Ext Time (p_c), s	0.1	1.5	0.0	5.8	0.0	3.0	0.0	7.4

Intersection Summary	
HCM 6th Ctrl Delay	19.7
HCM 6th LOS	B

Notes
User approved pedestrian interval to be less than phase max green.
User approved changes to right turn type.

HCM 6th Signalized Intersection Summary
3: Brookwood Ave & 3rd St

01/17/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	82	114	33	28	117	142	21	477	7	86	489	62
Future Volume (veh/h)	82	114	33	28	117	142	21	477	7	86	489	62
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	82	114	33	28	117	142	21	477	7	86	489	62
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	126	298	86	71	141	171	41	1710	25	111	1640	207
Arrive On Green	0.07	0.21	0.21	0.04	0.18	0.18	0.02	0.48	0.48	0.06	0.52	0.52
Sat Flow, veh/h	1781	1394	404	1781	769	933	1781	3585	53	1781	3174	401
Grp Volume(v), veh/h	82	0	147	28	0	259	21	236	248	86	273	278
Grp Sat Flow(s),veh/h/ln	1781	0	1798	1781	0	1702	1781	1777	1861	1781	1777	1798
Q Serve(g_s), s	3.8	0.0	6.0	1.3	0.0	12.5	1.0	6.8	6.8	4.0	7.5	7.5
Cycle Q Clear(g_c), s	3.8	0.0	6.0	1.3	0.0	12.5	1.0	6.8	6.8	4.0	7.5	7.5
Prop In Lane	1.00		0.22	1.00		0.55	1.00		0.03	1.00		0.22
Lane Grp Cap(c), veh/h	126	0	384	71	0	311	41	848	888	111	918	929
V/C Ratio(X)	0.65	0.00	0.38	0.39	0.00	0.83	0.51	0.28	0.28	0.77	0.30	0.30
Avail Cap(c_a), veh/h	205	0	525	205	0	497	197	848	888	260	918	929
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.5	0.0	28.6	39.8	0.0	33.5	41.1	13.4	13.4	39.2	11.7	11.7
Incr Delay (d2), s/veh	5.6	0.0	0.6	3.5	0.0	6.6	9.6	0.8	0.8	10.7	0.8	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	2.6	0.6	0.0	5.6	0.5	2.8	2.9	2.1	3.0	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.1	0.0	29.3	43.3	0.0	40.0	50.6	14.2	14.2	49.9	12.6	12.6
LnGrp LOS	D	A	C	D	A	D	D	B	B	D	B	B
Approach Vol, veh/h		229			287			505			637	
Approach Delay, s/veh		34.6			40.4			15.7			17.6	
Approach LOS		C			D			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.6	22.3	6.6	48.5	10.2	19.7	9.9	45.1
Change Period (Y+Rc), s	* 4.2	* 4.2	4.6	4.6	* 4.2	* 4.2	4.6	4.6
Max Green Setting (Gmax), s	* 9.8	* 25	9.4	23.4	* 9.8	* 25	12.4	20.4
Max Q Clear Time (g_c+I1), s	3.3	8.0	3.0	9.5	5.8	14.5	6.0	8.8
Green Ext Time (p_c), s	0.0	0.7	0.0	2.8	0.1	1.1	0.1	2.2

Intersection Summary	
HCM 6th Ctrl Delay	23.3
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

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

HCM 6th Signalized Intersection Summary
4: Brookwood Ave & 2nd St

01/17/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	34	11	13	63	4	28	515	29	27	455	84
Future Volume (veh/h)	25	34	11	13	63	4	28	515	29	27	455	84
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	25	34	11	13	63	4	28	515	29	27	455	84
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	224	198	49	163	291	17	74	1167	66	72	1019	187
Arrive On Green	0.19	0.19	0.19	0.19	0.19	0.19	0.04	0.34	0.34	0.04	0.34	0.34
Sat Flow, veh/h	356	1060	264	153	1554	90	1781	3420	192	1781	2998	550
Grp Volume(v), veh/h	70	0	0	80	0	0	28	267	277	27	268	271
Grp Sat Flow(s),veh/h/ln	1680	0	0	1797	0	0	1781	1777	1836	1781	1777	1771
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.5	3.6	3.6	0.5	3.6	3.7
Cycle Q Clear(g_c), s	1.0	0.0	0.0	1.1	0.0	0.0	0.5	3.6	3.6	0.5	3.6	3.7
Prop In Lane	0.36		0.16	0.16		0.05	1.00		0.10	1.00		0.31
Lane Grp Cap(c), veh/h	472	0	0	471	0	0	74	606	626	72	604	602
V/C Ratio(X)	0.15	0.00	0.00	0.17	0.00	0.00	0.38	0.44	0.44	0.38	0.44	0.45
Avail Cap(c_a), veh/h	1500	0	0	1597	0	0	597	1454	1502	597	1740	1735
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.7	0.0	0.0	10.7	0.0	0.0	14.5	7.9	7.9	14.5	8.0	8.0
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.2	0.0	0.0	3.2	0.5	0.5	3.3	0.7	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.0	0.4	0.0	0.0	0.2	1.0	1.0	0.2	1.0	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.8	0.0	0.0	10.9	0.0	0.0	17.7	8.4	8.4	17.8	8.7	8.7
LnGrp LOS	B	A	A	B	A	A	B	A	A	B	A	A
Approach Vol, veh/h		70			80			572			566	
Approach Delay, s/veh		10.8			10.9			8.9			9.1	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	2	3	4	6	7	8
Phs Duration (G+Y+Rc), s	10.0	5.9	15.1	10.0	5.8	15.2
Change Period (Y+Rc), s	* 4.2	4.6	4.6	* 4.2	4.6	4.6
Max Green Setting (Gmax), s	* 26	10.4	30.4	* 26	10.4	25.4
Max Q Clear Time (g_c+I1), s	3.0	2.5	5.7	3.1	2.5	5.6
Green Ext Time (p_c), s	0.3	0.0	4.9	0.3	0.0	3.2

Intersection Summary	
HCM 6th Ctrl Delay	9.2
HCM 6th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

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

HCM 6th Signalized Intersection Summary
5: Brookwood Ave & Sonoma Ave

01/17/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	95	416	23	130	317	199	14	334	251	144	199	54
Future Volume (veh/h)	95	416	23	130	317	199	14	334	251	144	199	54
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	95	416	23	130	317	199	14	334	251	144	199	54
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	357	479	406	304	580	356	48	375	282	180	846	841
Arrive On Green	0.08	0.26	0.26	0.10	0.27	0.27	0.03	0.38	0.38	0.10	0.45	0.45
Sat Flow, veh/h	1781	1870	1585	1781	2116	1298	1781	991	745	1781	1870	1585
Grp Volume(v), veh/h	95	416	23	130	265	251	14	0	585	144	199	54
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1777	1637	1781	0	1736	1781	1870	1585
Q Serve(g_s), s	2.9	16.7	0.9	4.0	10.0	10.3	0.6	0.0	24.8	6.2	5.1	1.3
Cycle Q Clear(g_c), s	2.9	16.7	0.9	4.0	10.0	10.3	0.6	0.0	24.8	6.2	5.1	1.3
Prop In Lane	1.00		1.00	1.00		0.79	1.00		0.43	1.00		1.00
Lane Grp Cap(c), veh/h	357	479	406	304	487	449	48	0	657	180	846	841
V/C Ratio(X)	0.27	0.87	0.06	0.43	0.54	0.56	0.29	0.00	0.89	0.80	0.24	0.06
Avail Cap(c_a), veh/h	491	749	635	406	712	656	182	0	815	273	1227	1163
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.9	27.9	22.0	19.6	24.3	24.4	37.4	0.0	22.8	34.5	13.2	8.9
Incr Delay (d2), s/veh	0.1	4.2	0.0	0.4	0.4	0.4	1.2	0.0	10.3	5.1	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	7.7	0.3	1.5	4.0	3.8	0.3	0.0	11.3	2.9	2.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.1	32.1	22.0	20.0	24.6	24.8	38.7	0.0	33.1	39.5	13.3	9.0
LnGrp LOS	B	C	C	B	C	C	D	A	C	D	B	A
Approach Vol, veh/h		534			646			599			397	
Approach Delay, s/veh		29.3			23.7			33.2			22.2	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.5	23.7	5.1	39.1	9.1	25.1	10.9	33.3
Change Period (Y+Rc), s	3.0	3.6	3.0	3.6	3.0	3.6	3.0	* 3.6
Max Green Setting (Gmax), s	12.0	31.4	8.0	51.4	12.0	31.4	12.0	* 37
Max Q Clear Time (g_c+I1), s	6.0	18.7	2.6	7.1	4.9	12.3	8.2	26.8
Green Ext Time (p_c), s	0.1	1.4	0.0	1.4	0.1	1.9	0.1	2.9

Intersection Summary	
HCM 6th Ctrl Delay	27.4
HCM 6th LOS	C

Notes

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

HCM 6th Signalized Intersection Summary
1: Brookwood Ave & College Ave

01/17/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	151	667	182	40	450	24	296	331	18	40	371	121
Future Volume (veh/h)	151	667	182	40	450	24	296	331	18	40	371	121
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	151	667	182	40	450	24	296	331	18	40	371	121
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	198	965	263	85	983	52	426	605	33	85	502	602
Arrive On Green	0.11	0.35	0.35	0.05	0.29	0.29	0.12	0.34	0.34	0.05	0.27	0.27
Sat Flow, veh/h	1781	2759	752	1781	3432	183	3456	1758	96	1781	1870	1585
Grp Volume(v), veh/h	151	429	420	40	232	242	296	0	349	40	371	121
Grp Sat Flow(s),veh/h/ln	1781	1777	1735	1781	1777	1837	1728	0	1853	1781	1870	1585
Q Serve(g_s), s	5.2	13.0	13.0	1.4	6.7	6.8	5.2	0.0	9.6	1.4	11.4	3.2
Cycle Q Clear(g_c), s	5.2	13.0	13.0	1.4	6.7	6.8	5.2	0.0	9.6	1.4	11.4	3.2
Prop In Lane	1.00		0.43	1.00		0.10	1.00		0.05	1.00		1.00
Lane Grp Cap(c), veh/h	198	622	607	85	509	527	426	0	637	85	502	602
V/C Ratio(X)	0.76	0.69	0.69	0.47	0.46	0.46	0.69	0.00	0.55	0.47	0.74	0.20
Avail Cap(c_a), veh/h	681	1483	1448	255	1059	1095	826	0	897	426	906	944
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.1	17.5	17.5	29.1	18.4	18.4	26.4	0.0	16.6	29.1	20.9	13.1
Incr Delay (d2), s/veh	6.0	1.4	1.4	3.9	0.6	0.6	2.0	0.0	1.0	3.9	3.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	5.2	5.0	0.7	2.7	2.8	2.1	0.0	3.9	0.7	5.0	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.1	18.9	18.9	33.0	19.0	19.0	28.4	0.0	17.7	33.0	24.0	13.3
LnGrp LOS	C	B	B	C	B	B	C	A	B	C	C	B
Approach Vol, veh/h		1000			514			645			532	
Approach Delay, s/veh		21.0			20.1			22.6			22.2	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.0	25.6	10.7	20.5	10.0	21.6	6.0	25.2
Change Period (Y+Rc), s	3.0	3.6	3.0	3.6	3.0	3.6	3.0	3.6
Max Green Setting (Gmax), s	9.0	52.4	15.0	30.4	24.0	37.4	15.0	30.4
Max Q Clear Time (g_c+I1), s	3.4	15.0	7.2	13.4	7.2	8.8	3.4	11.6
Green Ext Time (p_c), s	0.0	6.9	0.6	3.5	0.4	3.2	0.0	2.8

Intersection Summary	
HCM 6th Ctrl Delay	21.5
HCM 6th LOS	C

HCM 6th Signalized Intersection Summary
2: Brookwood Ave & 4th St

01/17/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	275	40	164	213	107	54	594	226	66	522	43
Future Volume (veh/h)	29	275	40	164	213	107	54	594	226	66	522	43
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	29	275	40	164	213	107	54	594	226	66	522	43
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	102	457	66	201	378	320	132	1824	992	160	1758	144
Arrive On Green	0.06	0.15	0.15	0.11	0.20	0.20	0.07	0.51	0.51	0.09	0.53	0.53
Sat Flow, veh/h	1781	3118	448	1781	1870	1585	1781	3554	1585	1781	3325	273
Grp Volume(v), veh/h	29	155	160	164	213	107	54	594	226	66	278	287
Grp Sat Flow(s),veh/h/ln	1781	1777	1790	1781	1870	1585	1781	1777	1585	1781	1777	1821
Q Serve(g_s), s	1.4	7.4	7.5	8.1	9.2	5.2	2.6	8.8	5.6	3.2	7.9	7.9
Cycle Q Clear(g_c), s	1.4	7.4	7.5	8.1	9.2	5.2	2.6	8.8	5.6	3.2	7.9	7.9
Prop In Lane	1.00		0.25	1.00		1.00	1.00		1.00	1.00		0.15
Lane Grp Cap(c), veh/h	102	261	263	201	378	320	132	1824	992	160	940	963
V/C Ratio(X)	0.28	0.60	0.61	0.82	0.56	0.33	0.41	0.33	0.23	0.41	0.30	0.30
Avail Cap(c_a), veh/h	218	529	533	317	661	560	218	1824	992	238	940	963
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.7	35.9	36.0	39.0	32.3	30.7	39.8	12.8	7.4	38.7	11.8	11.9
Incr Delay (d2), s/veh	1.5	7.7	8.0	8.9	4.7	2.2	2.0	0.5	0.5	1.7	0.8	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	3.7	3.8	4.0	4.6	2.2	1.2	3.5	1.9	1.4	3.1	3.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.2	43.6	44.0	47.9	37.1	32.9	41.8	13.3	7.9	40.4	12.6	12.6
LnGrp LOS	D	D	D	D	D	C	D	B	A	D	B	B
Approach Vol, veh/h		344			484			874			631	
Approach Delay, s/veh		43.7			39.8			13.6			15.5	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.1	16.4	9.7	50.8	8.2	21.4	11.1	49.4
Change Period (Y+Rc), s	3.0	3.2	3.0	3.2	3.0	3.2	3.0	3.2
Max Green Setting (Gmax), s	16.0	26.8	11.0	23.8	11.0	31.8	12.0	22.8
Max Q Clear Time (g_c+I1), s	10.1	9.5	4.6	9.9	3.4	11.2	5.2	10.8
Green Ext Time (p_c), s	0.2	3.7	0.0	6.0	0.0	3.8	0.1	7.3

Intersection Summary	
HCM 6th Ctrl Delay	24.0
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.
User approved changes to right turn type.

HCM 6th Signalized Intersection Summary
3: Brookwood Ave & 3rd St

01/17/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	109	152	39	39	111	216	45	573	26	84	570	73
Future Volume (veh/h)	109	152	39	39	111	216	45	573	26	84	570	73
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	109	152	39	39	111	216	45	573	26	84	570	73
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	138	362	93	86	127	247	67	1531	69	109	1477	189
Arrive On Green	0.08	0.25	0.25	0.05	0.22	0.22	0.04	0.44	0.44	0.06	0.47	0.47
Sat Flow, veh/h	1781	1436	368	1781	567	1104	1781	3462	157	1781	3169	405
Grp Volume(v), veh/h	109	0	191	39	0	327	45	294	305	84	319	324
Grp Sat Flow(s),veh/h/ln	1781	0	1804	1781	0	1672	1781	1777	1842	1781	1777	1797
Q Serve(g_s), s	5.4	0.0	8.0	1.9	0.0	17.0	2.2	9.9	10.0	4.2	10.5	10.6
Cycle Q Clear(g_c), s	5.4	0.0	8.0	1.9	0.0	17.0	2.2	9.9	10.0	4.2	10.5	10.6
Prop In Lane	1.00		0.20	1.00		0.66	1.00		0.09	1.00		0.23
Lane Grp Cap(c), veh/h	138	0	455	86	0	373	67	786	814	109	828	838
V/C Ratio(X)	0.79	0.00	0.42	0.45	0.00	0.88	0.67	0.37	0.37	0.77	0.39	0.39
Avail Cap(c_a), veh/h	194	0	517	194	0	479	186	786	814	344	828	838
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.8	0.0	28.1	41.7	0.0	33.7	42.8	16.8	16.8	41.6	15.6	15.7
Incr Delay (d2), s/veh	13.4	0.0	0.6	3.7	0.0	13.7	11.1	1.4	1.3	10.6	1.4	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	0.0	3.5	0.9	0.0	8.1	1.2	4.2	4.4	2.1	4.4	4.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.2	0.0	28.7	45.3	0.0	47.4	53.9	18.1	18.1	52.2	17.0	17.0
LnGrp LOS	D	A	C	D	A	D	D	B	B	D	B	B
Approach Vol, veh/h		300			366			644			727	
Approach Delay, s/veh		38.0			47.2			20.6			21.1	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.6	26.9	8.0	46.5	11.2	24.3	10.1	44.4
Change Period (Y+Rc), s	* 4.2	* 4.2	4.6	4.6	* 4.2	* 4.2	4.6	4.6
Max Green Setting (Gmax), s	* 9.8	* 26	9.4	27.4	* 9.8	* 26	17.4	19.4
Max Q Clear Time (g_c+I1), s	3.9	10.0	4.2	12.6	7.4	19.0	6.2	12.0
Green Ext Time (p_c), s	0.0	0.9	0.0	3.5	0.1	1.1	0.1	2.2

Intersection Summary	
HCM 6th Ctrl Delay	28.1
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
4: Brookwood Ave & 2nd St

01/17/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	97	73	27	39	52	23	26	529	50	9	594	61
Future Volume (veh/h)	97	73	27	39	52	23	26	529	50	9	594	61
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	97	73	27	39	52	23	26	529	50	9	594	61
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	288	161	47	213	215	74	68	1282	121	26	1193	122
Arrive On Green	0.22	0.22	0.22	0.22	0.22	0.22	0.04	0.39	0.39	0.01	0.37	0.37
Sat Flow, veh/h	632	747	219	354	995	341	1781	3282	309	1781	3254	334
Grp Volume(v), veh/h	197	0	0	114	0	0	26	286	293	9	324	331
Grp Sat Flow(s),veh/h/ln	1598	0	0	1690	0	0	1781	1777	1815	1781	1777	1810
Q Serve(g_s), s	1.8	0.0	0.0	0.0	0.0	0.0	0.5	4.1	4.1	0.2	5.0	5.0
Cycle Q Clear(g_c), s	3.7	0.0	0.0	1.9	0.0	0.0	0.5	4.1	4.1	0.2	5.0	5.0
Prop In Lane	0.49		0.14	0.34		0.20	1.00		0.17	1.00		0.18
Lane Grp Cap(c), veh/h	497	0	0	501	0	0	68	694	709	26	652	664
V/C Ratio(X)	0.40	0.00	0.00	0.23	0.00	0.00	0.38	0.41	0.41	0.35	0.50	0.50
Avail Cap(c_a), veh/h	1281	0	0	1311	0	0	524	1278	1305	524	1529	1558
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.2	0.0	0.0	11.6	0.0	0.0	16.6	7.8	7.8	17.2	8.7	8.7
Incr Delay (d2), s/veh	0.5	0.0	0.0	0.2	0.0	0.0	3.5	0.4	0.4	8.0	0.8	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	0.0	0.6	0.0	0.0	0.2	1.1	1.2	0.1	1.5	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.7	0.0	0.0	11.8	0.0	0.0	20.1	8.2	8.2	25.3	9.5	9.5
LnGrp LOS	B	A	A	B	A	A	C	A	A	C	A	A
Approach Vol, veh/h		197			114			605			664	
Approach Delay, s/veh		12.7			11.8			8.7			9.7	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	2	3	4		6	7	8					
Phs Duration (G+Y+Rc), s	11.8	6.0	17.6		11.8	5.1	18.4					
Change Period (Y+Rc), s	* 4.2	4.6	4.6		* 4.2	4.6	4.6					
Max Green Setting (Gmax), s	* 26	10.4	30.4		* 26	10.4	25.4					
Max Q Clear Time (g_c+I1), s	5.7	2.5	7.0		3.9	2.2	6.1					
Green Ext Time (p_c), s	1.1	0.0	5.9		0.6	0.0	3.4					

Intersection Summary		
HCM 6th Ctrl Delay	9.9	
HCM 6th LOS	A	

Notes

User approved pedestrian interval to be less than phase max green.

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

HCM 6th Signalized Intersection Summary
5: Brookwood Ave & Sonoma Ave

01/17/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	78	375	47	249	317	150	9	262	162	137	440	128
Future Volume (veh/h)	78	375	47	249	317	150	9	262	162	137	440	128
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	78	375	47	249	317	150	9	262	162	137	440	128
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	427	457	387	398	686	318	33	324	200	207	742	761
Arrive On Green	0.08	0.24	0.24	0.13	0.29	0.29	0.02	0.30	0.30	0.12	0.40	0.40
Sat Flow, veh/h	1781	1870	1585	1781	2359	1092	1781	1081	669	1781	1870	1585
Grp Volume(v), veh/h	78	375	47	249	237	230	9	0	424	137	440	128
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1777	1674	1781	0	1750	1781	1870	1585
Q Serve(g_s), s	1.9	11.9	1.4	6.1	6.8	7.1	0.3	0.0	14.0	4.6	11.6	2.9
Cycle Q Clear(g_c), s	1.9	11.9	1.4	6.1	6.8	7.1	0.3	0.0	14.0	4.6	11.6	2.9
Prop In Lane	1.00		1.00	1.00		0.65	1.00		0.38	1.00		1.00
Lane Grp Cap(c), veh/h	427	457	387	398	517	487	33	0	524	207	742	761
V/C Ratio(X)	0.18	0.82	0.12	0.63	0.46	0.47	0.27	0.00	0.81	0.66	0.59	0.17
Avail Cap(c_a), veh/h	621	938	795	509	891	839	228	0	1028	341	1535	1432
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.0	22.4	18.4	14.9	18.2	18.3	30.3	0.0	20.3	26.5	14.9	9.2
Incr Delay (d2), s/veh	0.1	1.4	0.1	0.6	0.2	0.3	1.6	0.0	3.0	1.4	0.8	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	5.0	0.5	2.2	2.6	2.5	0.1	0.0	5.6	1.9	4.5	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.0	23.8	18.5	15.5	18.4	18.5	32.0	0.0	23.3	27.9	15.6	9.3
LnGrp LOS	B	C	B	B	B	B	C	A	C	C	B	A
Approach Vol, veh/h		500			716			433			705	
Approach Delay, s/veh		21.9			17.4			23.5			16.9	
Approach LOS		C			B			C			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.1	18.9	4.2	28.5	8.2	21.8	10.3	22.4				
Change Period (Y+Rc), s	3.0	3.6	3.0	3.6	3.0	3.6	3.0	* 3.6				
Max Green Setting (Gmax), s	12.0	31.4	8.0	51.4	12.0	31.4	12.0	* 37				
Max Q Clear Time (g_c+I1), s	8.1	13.9	2.3	13.6	3.9	9.1	6.6	16.0				
Green Ext Time (p_c), s	0.1	1.4	0.0	3.5	0.0	1.7	0.1	2.7				

Intersection Summary		
HCM 6th Ctrl Delay	19.3	
HCM 6th LOS	B	

Notes

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

HCM 6th Signalized Intersection Summary
1: Brookwood Ave & College Ave

01/17/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	108	463	202	20	557	23	212	328	16	36	294	125
Future Volume (veh/h)	108	463	202	20	557	23	212	328	16	36	294	125
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	108	463	202	20	557	23	212	328	16	36	294	125
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	170	803	348	52	927	38	407	556	27	85	456	538
Arrive On Green	0.10	0.33	0.33	0.03	0.27	0.27	0.12	0.31	0.31	0.05	0.24	0.24
Sat Flow, veh/h	1781	2414	1045	1781	3478	143	3456	1769	86	1781	1870	1585
Grp Volume(v), veh/h	108	340	325	20	284	296	212	0	344	36	294	125
Grp Sat Flow(s),veh/h/ln	1781	1777	1682	1781	1777	1845	1728	0	1855	1781	1870	1585
Q Serve(g_s), s	2.8	7.6	7.6	0.5	6.7	6.7	2.8	0.0	7.5	0.9	6.7	2.7
Cycle Q Clear(g_c), s	2.8	7.6	7.6	0.5	6.7	6.7	2.8	0.0	7.5	0.9	6.7	2.7
Prop In Lane	1.00		0.62	1.00		0.08	1.00		0.05	1.00		1.00
Lane Grp Cap(c), veh/h	170	591	560	52	474	492	407	0	583	85	456	538
V/C Ratio(X)	0.63	0.57	0.58	0.38	0.60	0.60	0.52	0.00	0.59	0.42	0.64	0.23
Avail Cap(c_a), veh/h	968	2095	1983	335	1463	1519	1011	0	1062	521	1071	1059
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.8	13.2	13.2	22.8	15.3	15.3	19.8	0.0	13.8	22.1	16.2	11.3
Incr Delay (d2), s/veh	3.9	0.9	1.0	4.6	1.2	1.2	1.0	0.0	1.4	3.3	2.2	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	2.8	2.7	0.3	2.6	2.7	1.1	0.0	2.9	0.4	2.8	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.7	14.1	14.2	27.4	16.5	16.5	20.9	0.0	15.2	25.5	18.4	11.6
LnGrp LOS	C	B	B	C	B	B	C	A	B	C	B	B
Approach Vol, veh/h		773			600			556			455	
Approach Delay, s/veh		15.6			16.9			17.3			17.1	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	4.4	19.5	8.6	15.3	7.6	16.4	5.3	18.6
Change Period (Y+Rc), s	3.0	3.6	3.0	3.6	3.0	3.6	3.0	3.6
Max Green Setting (Gmax), s	9.0	56.4	14.0	27.4	26.0	39.4	14.0	27.4
Max Q Clear Time (g_c+I1), s	2.5	9.6	4.8	8.7	4.8	8.7	2.9	9.5
Green Ext Time (p_c), s	0.0	5.2	0.5	2.9	0.3	4.1	0.0	2.7

Intersection Summary	
HCM 6th Ctrl Delay	16.6
HCM 6th LOS	B

HCM 6th Signalized Intersection Summary
2: Brookwood Ave & 4th St

01/17/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	113	25	123	226	64	25	536	116	34	426	22
Future Volume (veh/h)	22	113	25	123	226	64	25	536	116	34	426	22
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	22	113	25	123	226	64	25	536	116	34	426	22
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	85	342	74	198	339	287	84	1991	1064	116	1988	102
Arrive On Green	0.05	0.12	0.12	0.11	0.18	0.18	0.05	0.56	0.56	0.06	0.58	0.58
Sat Flow, veh/h	1781	2908	626	1781	1870	1585	1781	3554	1585	1781	3438	177
Grp Volume(v), veh/h	22	68	70	123	226	64	25	536	116	34	220	228
Grp Sat Flow(s),veh/h/ln	1781	1777	1758	1781	1870	1585	1781	1777	1585	1781	1777	1838
Q Serve(g_s), s	1.0	3.0	3.1	5.6	9.6	2.9	1.2	6.6	2.2	1.5	5.1	5.1
Cycle Q Clear(g_c), s	1.0	3.0	3.1	5.6	9.6	2.9	1.2	6.6	2.2	1.5	5.1	5.1
Prop In Lane	1.00		0.36	1.00		1.00	1.00		1.00	1.00		0.10
Lane Grp Cap(c), veh/h	85	209	207	198	339	287	84	1991	1064	116	1027	1063
V/C Ratio(X)	0.26	0.32	0.34	0.62	0.67	0.22	0.30	0.27	0.11	0.29	0.21	0.21
Avail Cap(c_a), veh/h	231	560	554	231	590	500	231	1991	1064	231	1027	1063
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.0	34.4	34.5	36.1	32.4	29.7	39.1	9.7	4.9	37.9	8.6	8.6
Incr Delay (d2), s/veh	1.6	3.2	3.5	3.9	7.9	1.4	1.9	0.3	0.2	1.4	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	1.5	1.5	2.6	5.0	1.2	0.5	2.5	0.7	0.7	1.9	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.6	37.6	37.9	40.0	40.4	31.1	41.1	10.0	5.2	39.3	9.1	9.1
LnGrp LOS	D	D	D	D	D	C	D	B	A	D	A	A
Approach Vol, veh/h		160			413			677			482	
Approach Delay, s/veh		38.2			38.8			10.3			11.2	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.5	13.2	7.0	52.3	7.1	18.6	8.5	50.8
Change Period (Y+Rc), s	3.0	3.2	3.0	3.2	3.0	3.2	3.0	3.2
Max Green Setting (Gmax), s	11.0	26.8	11.0	23.8	11.0	26.8	11.0	23.8
Max Q Clear Time (g_c+I1), s	7.6	5.1	3.2	7.1	3.0	11.6	3.5	8.6
Green Ext Time (p_c), s	0.1	1.6	0.0	5.3	0.0	3.0	0.0	7.3

Intersection Summary	
HCM 6th Ctrl Delay	19.9
HCM 6th LOS	B

Notes
User approved pedestrian interval to be less than phase max green.
User approved changes to right turn type.

HCM 6th Signalized Intersection Summary
3: Brookwood Ave & 3rd St

01/17/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	82	114	16	11	117	143	16	457	2	89	417	62
Future Volume (veh/h)	82	114	16	11	117	143	16	457	2	89	417	62
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	82	114	16	11	117	143	16	457	2	89	417	62
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	126	377	53	34	141	172	33	1721	8	115	1617	239
Arrive On Green	0.07	0.24	0.24	0.02	0.18	0.18	0.02	0.47	0.47	0.06	0.52	0.52
Sat Flow, veh/h	1781	1605	225	1781	766	936	1781	3628	16	1781	3106	459
Grp Volume(v), veh/h	82	0	130	11	0	260	16	224	235	89	237	242
Grp Sat Flow(s),veh/h/ln	1781	0	1830	1781	0	1702	1781	1777	1868	1781	1777	1788
Q Serve(g_s), s	3.8	0.0	5.0	0.5	0.0	12.5	0.8	6.4	6.4	4.2	6.3	6.4
Cycle Q Clear(g_c), s	3.8	0.0	5.0	0.5	0.0	12.5	0.8	6.4	6.4	4.2	6.3	6.4
Prop In Lane	1.00		0.12	1.00		0.55	1.00		0.01	1.00		0.26
Lane Grp Cap(c), veh/h	126	0	430	34	0	312	33	843	886	115	925	930
V/C Ratio(X)	0.65	0.00	0.30	0.33	0.00	0.83	0.49	0.27	0.27	0.77	0.26	0.26
Avail Cap(c_a), veh/h	205	0	534	205	0	497	197	843	886	260	925	930
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.5	0.0	26.8	41.2	0.0	33.4	41.3	13.4	13.4	39.1	11.3	11.3
Incr Delay (d2), s/veh	5.6	0.0	0.4	5.6	0.0	6.7	10.6	0.8	0.7	10.4	0.7	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	2.2	0.3	0.0	5.6	0.4	2.6	2.7	2.1	2.5	2.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.1	0.0	27.2	46.7	0.0	40.1	51.9	14.2	14.2	49.5	12.0	12.0
LnGrp LOS	D	A	C	D	A	D	D	B	B	D	B	B
Approach Vol, veh/h		212			271			475			568	
Approach Delay, s/veh		33.7			40.4			15.5			17.8	
Approach LOS		C			D			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.8	24.2	6.2	48.8	10.2	19.8	10.1	44.9
Change Period (Y+Rc), s	* 4.2	* 4.2	4.6	4.6	* 4.2	* 4.2	4.6	4.6
Max Green Setting (Gmax), s	* 9.8	* 25	9.4	23.4	* 9.8	* 25	12.4	20.4
Max Q Clear Time (g_c+I1), s	2.5	7.0	2.8	8.4	5.8	14.5	6.2	8.4
Green Ext Time (p_c), s	0.0	0.6	0.0	2.5	0.1	1.1	0.1	2.1

Intersection Summary	
HCM 6th Ctrl Delay	23.3
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

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

HCM 6th Signalized Intersection Summary
4: Brookwood Ave & 2nd St

01/17/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	34	11	13	63	4	28	493	29	27	377	56
Future Volume (veh/h)	17	34	11	13	63	4	28	493	29	27	377	56
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	17	34	11	13	63	4	28	493	29	27	377	56
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	210	216	57	176	293	17	75	1029	60	72	933	138
Arrive On Green	0.19	0.19	0.19	0.19	0.19	0.19	0.04	0.30	0.30	0.04	0.30	0.30
Sat Flow, veh/h	263	1143	303	158	1547	90	1781	3411	200	1781	3107	458
Grp Volume(v), veh/h	62	0	0	80	0	0	28	256	266	27	214	219
Grp Sat Flow(s),veh/h/ln	1710	0	0	1795	0	0	1781	1777	1834	1781	1777	1788
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.4	3.4	3.4	0.4	2.7	2.8
Cycle Q Clear(g_c), s	0.8	0.0	0.0	1.0	0.0	0.0	0.4	3.4	3.4	0.4	2.7	2.8
Prop In Lane	0.27		0.18	0.16		0.05	1.00		0.11	1.00		0.26
Lane Grp Cap(c), veh/h	484	0	0	486	0	0	75	536	553	72	534	537
V/C Ratio(X)	0.13	0.00	0.00	0.16	0.00	0.00	0.38	0.48	0.48	0.37	0.40	0.41
Avail Cap(c_a), veh/h	1652	0	0	1733	0	0	648	1578	1629	648	1889	1901
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	9.7	0.0	0.0	9.8	0.0	0.0	13.3	8.1	8.2	13.4	8.0	8.0
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.2	0.0	0.0	3.1	0.7	0.6	3.2	0.7	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.0	0.3	0.0	0.0	0.2	0.9	0.9	0.2	0.8	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.9	0.0	0.0	10.0	0.0	0.0	16.4	8.8	8.8	16.6	8.7	8.7
LnGrp LOS	A	A	A	A	A	A	B	A	A	B	A	A
Approach Vol, veh/h		62			80			550			460	
Approach Delay, s/veh		9.9			10.0			9.2			9.1	
Approach LOS		A			A			A			A	

Timer - Assigned Phs	2	3	4	6	7	8
Phs Duration (G+Y+Rc), s	9.6	5.8	13.2	9.6	5.8	13.2
Change Period (Y+Rc), s	* 4.2	4.6	4.6	* 4.2	4.6	4.6
Max Green Setting (Gmax), s	* 26	10.4	30.4	* 26	10.4	25.4
Max Q Clear Time (g_c+I1), s	2.8	2.4	4.8	3.0	2.4	5.4
Green Ext Time (p_c), s	0.2	0.0	3.8	0.3	0.0	3.1

Intersection Summary	
HCM 6th Ctrl Delay	9.3
HCM 6th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

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

HCM 6th Signalized Intersection Summary
5: Brookwood Ave & Sonoma Ave

01/17/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	86	416	23	130	317	182	14	310	251	139	198	52
Future Volume (veh/h)	86	416	23	130	317	182	14	310	251	139	198	52
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	86	416	23	130	317	182	14	310	251	139	198	52
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	371	482	409	314	613	344	48	353	286	178	827	823
Arrive On Green	0.08	0.26	0.26	0.10	0.28	0.28	0.03	0.37	0.37	0.10	0.44	0.44
Sat Flow, veh/h	1781	1870	1585	1781	2194	1231	1781	957	774	1781	1870	1585
Grp Volume(v), veh/h	86	416	23	130	255	244	14	0	561	139	198	52
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1777	1649	1781	0	1731	1781	1870	1585
Q Serve(g_s), s	2.6	16.1	0.8	3.8	9.2	9.5	0.6	0.0	22.9	5.8	5.0	1.2
Cycle Q Clear(g_c), s	2.6	16.1	0.8	3.8	9.2	9.5	0.6	0.0	22.9	5.8	5.0	1.2
Prop In Lane	1.00		1.00	1.00		0.75	1.00		0.45	1.00		1.00
Lane Grp Cap(c), veh/h	371	482	409	314	496	460	48	0	639	178	827	823
V/C Ratio(X)	0.23	0.86	0.06	0.41	0.51	0.53	0.29	0.00	0.88	0.78	0.24	0.06
Avail Cap(c_a), veh/h	516	775	657	421	737	684	188	0	841	282	1269	1198
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.0	26.8	21.2	18.6	23.0	23.1	36.1	0.0	22.3	33.3	13.2	9.0
Incr Delay (d2), s/veh	0.1	3.3	0.0	0.3	0.3	0.4	1.2	0.0	8.4	2.8	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	7.3	0.3	1.5	3.6	3.5	0.3	0.0	10.1	2.6	2.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.2	30.1	21.2	18.9	23.3	23.4	37.4	0.0	30.7	36.1	13.3	9.1
LnGrp LOS	B	C	C	B	C	C	D	A	C	D	B	A
Approach Vol, veh/h		525			629			575			389	
Approach Delay, s/veh		27.8			22.4			30.8			20.9	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.5	23.1	5.0	37.1	8.9	24.7	10.6	31.6
Change Period (Y+Rc), s	3.0	3.6	3.0	3.6	3.0	3.6	3.0	* 3.6
Max Green Setting (Gmax), s	12.0	31.4	8.0	51.4	12.0	31.4	12.0	* 37
Max Q Clear Time (g_c+I1), s	5.8	18.1	2.6	7.0	4.6	11.5	7.8	24.9
Green Ext Time (p_c), s	0.1	1.4	0.0	1.4	0.0	1.8	0.1	3.1

Intersection Summary	
HCM 6th Ctrl Delay	25.8
HCM 6th LOS	C

Notes

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

HCM 6th Signalized Intersection Summary
1: Brookwood Ave & College Ave

01/17/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	151	667	171	40	450	24	260	313	18	40	366	121
Future Volume (veh/h)	151	667	171	40	450	24	260	313	18	40	366	121
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	151	667	171	40	450	24	260	313	18	40	366	121
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	199	980	251	87	984	52	392	585	34	87	504	604
Arrive On Green	0.11	0.35	0.35	0.05	0.29	0.29	0.11	0.33	0.33	0.05	0.27	0.27
Sat Flow, veh/h	1781	2801	717	1781	3432	183	3456	1752	101	1781	1870	1585
Grp Volume(v), veh/h	151	423	415	40	232	242	260	0	331	40	366	121
Grp Sat Flow(s),veh/h/ln	1781	1777	1741	1781	1777	1837	1728	0	1852	1781	1870	1585
Q Serve(g_s), s	5.0	12.2	12.3	1.3	6.5	6.5	4.3	0.0	8.7	1.3	10.7	3.1
Cycle Q Clear(g_c), s	5.0	12.2	12.3	1.3	6.5	6.5	4.3	0.0	8.7	1.3	10.7	3.1
Prop In Lane	1.00		0.41	1.00		0.10	1.00		0.05	1.00		1.00
Lane Grp Cap(c), veh/h	199	622	609	87	510	527	392	0	619	87	504	604
V/C Ratio(X)	0.76	0.68	0.68	0.46	0.46	0.46	0.66	0.00	0.54	0.46	0.73	0.20
Avail Cap(c_a), veh/h	709	1545	1514	266	1103	1140	860	0	934	443	943	977
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.0	16.7	16.7	27.9	17.6	17.6	25.6	0.0	16.3	27.9	20.0	12.5
Incr Delay (d2), s/veh	5.8	1.3	1.4	3.8	0.6	0.6	1.9	0.0	1.0	3.8	2.9	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	4.8	4.7	0.6	2.6	2.7	1.8	0.0	3.5	0.6	4.7	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.8	18.0	18.1	31.7	18.3	18.3	27.6	0.0	17.3	31.7	22.9	12.7
LnGrp LOS	C	B	B	C	B	B	C	A	B	C	C	B
Approach Vol, veh/h		989			514			591			527	
Approach Delay, s/veh		20.2			19.3			21.8			21.2	
Approach LOS		C			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.9	24.7	9.8	19.8	9.7	20.9	5.9	23.7
Change Period (Y+Rc), s	3.0	3.6	3.0	3.6	3.0	3.6	3.0	3.6
Max Green Setting (Gmax), s	9.0	52.4	15.0	30.4	24.0	37.4	15.0	30.4
Max Q Clear Time (g_c+I1), s	3.3	14.3	6.3	12.7	7.0	8.5	3.3	10.7
Green Ext Time (p_c), s	0.0	6.8	0.6	3.5	0.4	3.2	0.0	2.7

Intersection Summary	
HCM 6th Ctrl Delay	20.6
HCM 6th LOS	C

HCM 6th Signalized Intersection Summary
2: Brookwood Ave & 4th St

01/17/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	34	275	46	152	213	107	63	535	196	66	499	50
Future Volume (veh/h)	34	275	46	152	213	107	63	535	196	66	499	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	34	275	46	152	213	107	63	535	196	66	499	50
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	113	456	75	193	363	308	141	1829	988	160	1713	171
Arrive On Green	0.06	0.15	0.15	0.11	0.19	0.19	0.08	0.51	0.51	0.09	0.53	0.53
Sat Flow, veh/h	1781	3052	504	1781	1870	1585	1781	3554	1585	1781	3263	326
Grp Volume(v), veh/h	34	159	162	152	213	107	63	535	196	66	271	278
Grp Sat Flow(s),veh/h/ln	1781	1777	1780	1781	1870	1585	1781	1777	1585	1781	1777	1812
Q Serve(g_s), s	1.6	7.5	7.7	7.5	9.3	5.2	3.0	7.7	4.8	3.2	7.7	7.7
Cycle Q Clear(g_c), s	1.6	7.5	7.7	7.5	9.3	5.2	3.0	7.7	4.8	3.2	7.7	7.7
Prop In Lane	1.00		0.28	1.00		1.00	1.00		1.00	1.00		0.18
Lane Grp Cap(c), veh/h	113	265	266	193	363	308	141	1829	988	160	933	951
V/C Ratio(X)	0.30	0.60	0.61	0.79	0.59	0.35	0.45	0.29	0.20	0.41	0.29	0.29
Avail Cap(c_a), veh/h	218	529	530	317	661	560	218	1829	988	238	933	951
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.2	35.8	35.8	39.1	33.0	31.3	39.5	12.5	7.3	38.7	12.0	12.0
Incr Delay (d2), s/veh	1.5	7.6	8.0	6.9	5.4	2.4	2.2	0.4	0.5	1.7	0.8	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	3.8	3.9	3.6	4.7	2.2	1.4	3.1	1.6	1.4	3.1	3.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.7	43.4	43.9	46.0	38.3	33.8	41.7	12.9	7.7	40.4	12.8	12.8
LnGrp LOS	D	D	D	D	D	C	D	B	A	D	B	B
Approach Vol, veh/h		355			472			794			615	
Approach Delay, s/veh		43.4			39.8			13.9			15.7	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.8	16.6	10.1	50.5	8.7	20.7	11.1	49.5
Change Period (Y+Rc), s	3.0	3.2	3.0	3.2	3.0	3.2	3.0	3.2
Max Green Setting (Gmax), s	16.0	26.8	11.0	23.8	11.0	31.8	12.0	22.8
Max Q Clear Time (g_c+I1), s	9.5	9.7	5.0	9.7	3.6	11.3	5.2	9.7
Green Ext Time (p_c), s	0.2	3.7	0.0	5.9	0.0	3.8	0.1	7.1

Intersection Summary	
HCM 6th Ctrl Delay	24.6
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.
User approved changes to right turn type.

HCM 6th Signalized Intersection Summary
3: Brookwood Ave & 3rd St

01/17/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	109	152	31	31	111	219	25	490	6	86	539	73
Future Volume (veh/h)	109	152	31	31	111	219	25	490	6	86	539	73
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	109	152	31	31	111	219	25	490	6	86	539	73
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	138	393	80	75	127	250	46	1578	19	112	1497	202
Arrive On Green	0.08	0.26	0.26	0.04	0.23	0.23	0.03	0.44	0.44	0.06	0.48	0.48
Sat Flow, veh/h	1781	1508	307	1781	562	1109	1781	3595	44	1781	3146	425
Grp Volume(v), veh/h	109	0	183	31	0	330	25	242	254	86	304	308
Grp Sat Flow(s),veh/h/ln	1781	0	1815	1781	0	1671	1781	1777	1862	1781	1777	1794
Q Serve(g_s), s	5.4	0.0	7.5	1.5	0.0	17.2	1.2	8.0	8.0	4.3	9.7	9.8
Cycle Q Clear(g_c), s	5.4	0.0	7.5	1.5	0.0	17.2	1.2	8.0	8.0	4.3	9.7	9.8
Prop In Lane	1.00		0.17	1.00		0.66	1.00		0.02	1.00		0.24
Lane Grp Cap(c), veh/h	138	0	473	75	0	376	46	780	817	112	846	854
V/C Ratio(X)	0.79	0.00	0.39	0.41	0.00	0.88	0.54	0.31	0.31	0.77	0.36	0.36
Avail Cap(c_a), veh/h	194	0	520	194	0	479	186	780	817	344	846	854
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.8	0.0	27.4	42.0	0.0	33.7	43.3	16.4	16.4	41.5	14.9	14.9
Incr Delay (d2), s/veh	13.4	0.0	0.5	3.6	0.0	14.0	9.6	1.0	1.0	10.4	1.2	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	0.0	3.2	0.7	0.0	8.2	0.7	3.3	3.5	2.2	4.0	4.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.2	0.0	27.9	45.7	0.0	47.6	52.9	17.4	17.4	52.0	16.1	16.1
LnGrp LOS	D	A	C	D	A	D	D	B	B	D	B	B
Approach Vol, veh/h		292			361			521			698	
Approach Delay, s/veh		37.7			47.5			19.1			20.5	
Approach LOS		D			D			B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.0	27.7	6.9	47.4	11.2	24.5	10.3	44.1
Change Period (Y+Rc), s	* 4.2	* 4.2	4.6	4.6	* 4.2	* 4.2	4.6	4.6
Max Green Setting (Gmax), s	* 9.8	* 26	9.4	27.4	* 9.8	* 26	17.4	19.4
Max Q Clear Time (g_c+I1), s	3.5	9.5	3.2	11.8	7.4	19.2	6.3	10.0
Green Ext Time (p_c), s	0.0	0.9	0.0	3.4	0.1	1.1	0.1	2.0

Intersection Summary	
HCM 6th Ctrl Delay	28.0
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
4: Brookwood Ave & 2nd St

01/17/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	65	73	27	39	52	23	26	438	50	9	560	48
Future Volume (veh/h)	65	73	27	39	52	23	26	438	50	9	560	48
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	65	73	27	39	52	23	26	438	50	9	560	48
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	246	198	58	217	214	73	68	1207	137	26	1164	100
Arrive On Green	0.22	0.22	0.22	0.22	0.22	0.22	0.04	0.38	0.38	0.01	0.35	0.35
Sat Flow, veh/h	457	910	267	345	981	335	1781	3216	365	1781	3313	283
Grp Volume(v), veh/h	165	0	0	114	0	0	26	241	247	9	300	308
Grp Sat Flow(s),veh/h/ln	1634	0	0	1661	0	0	1781	1777	1805	1781	1777	1819
Q Serve(g_s), s	0.9	0.0	0.0	0.0	0.0	0.0	0.5	3.3	3.4	0.2	4.5	4.5
Cycle Q Clear(g_c), s	2.8	0.0	0.0	1.8	0.0	0.0	0.5	3.3	3.4	0.2	4.5	4.5
Prop In Lane	0.39		0.16	0.34		0.20	1.00		0.20	1.00		0.16
Lane Grp Cap(c), veh/h	503	0	0	503	0	0	68	667	677	26	624	639
V/C Ratio(X)	0.33	0.00	0.00	0.23	0.00	0.00	0.38	0.36	0.36	0.35	0.48	0.48
Avail Cap(c_a), veh/h	1347	0	0	1350	0	0	543	1322	1343	543	1582	1620
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.5	0.0	0.0	11.2	0.0	0.0	16.0	7.7	7.7	16.7	8.6	8.6
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.2	0.0	0.0	3.4	0.3	0.3	8.0	0.8	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	0.0	0.6	0.0	0.0	0.2	0.9	0.9	0.1	1.3	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.9	0.0	0.0	11.4	0.0	0.0	19.5	8.0	8.0	24.7	9.5	9.4
LnGrp LOS	B	A	A	B	A	A	B	A	A	C	A	A
Approach Vol, veh/h		165			114			514			617	
Approach Delay, s/veh		11.9			11.4			8.6			9.7	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	2	3	4		6	7	8					
Phs Duration (G+Y+Rc), s	11.6	5.9	16.6		11.6	5.1	17.4					
Change Period (Y+Rc), s	* 4.2	4.6	4.6		* 4.2	4.6	4.6					
Max Green Setting (Gmax), s	* 26	10.4	30.4		* 26	10.4	25.4					
Max Q Clear Time (g_c+I1), s	4.8	2.5	6.5		3.8	2.2	5.4					
Green Ext Time (p_c), s	0.9	0.0	5.5		0.6	0.0	2.9					

Intersection Summary	
HCM 6th Ctrl Delay	9.7
HCM 6th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

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

HCM 6th Signalized Intersection Summary
5: Brookwood Ave & Sonoma Ave

01/17/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	74	375	47	249	317	142	9	256	162	117	414	118
Future Volume (veh/h)	74	375	47	249	317	142	9	256	162	117	414	118
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	74	375	47	249	317	142	9	256	162	117	414	118
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	434	459	389	402	705	309	33	318	202	201	732	750
Arrive On Green	0.08	0.25	0.25	0.13	0.29	0.29	0.02	0.30	0.30	0.11	0.39	0.39
Sat Flow, veh/h	1781	1870	1585	1781	2403	1054	1781	1071	678	1781	1870	1585
Grp Volume(v), veh/h	74	375	47	249	233	226	9	0	418	117	414	118
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1777	1681	1781	0	1748	1781	1870	1585
Q Serve(g_s), s	1.8	11.6	1.4	5.9	6.5	6.8	0.3	0.0	13.5	3.8	10.6	2.6
Cycle Q Clear(g_c), s	1.8	11.6	1.4	5.9	6.5	6.8	0.3	0.0	13.5	3.8	10.6	2.6
Prop In Lane	1.00		1.00	1.00		0.63	1.00		0.39	1.00		1.00
Lane Grp Cap(c), veh/h	434	459	389	402	521	493	33	0	520	201	732	750
V/C Ratio(X)	0.17	0.82	0.12	0.62	0.45	0.46	0.27	0.00	0.80	0.58	0.57	0.16
Avail Cap(c_a), veh/h	636	957	811	520	909	860	232	0	1048	348	1566	1457
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.6	21.9	18.0	14.5	17.6	17.7	29.7	0.0	19.9	25.9	14.6	9.2
Incr Delay (d2), s/veh	0.1	1.4	0.1	0.6	0.2	0.2	1.6	0.0	3.0	1.0	0.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	4.9	0.5	2.1	2.4	2.4	0.1	0.0	5.4	1.6	4.1	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.7	23.2	18.1	15.1	17.9	18.0	31.3	0.0	22.9	26.9	15.3	9.3
LnGrp LOS	B	C	B	B	B	B	C	A	C	C	B	A
Approach Vol, veh/h		496			708			427			649	
Approach Delay, s/veh		21.5			16.9			23.1			16.3	
Approach LOS		C			B			C			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.0	18.7	4.1	27.6	8.0	21.6	9.9	21.9				
Change Period (Y+Rc), s	3.0	3.6	3.0	3.6	3.0	3.6	3.0	* 3.6				
Max Green Setting (Gmax), s	12.0	31.4	8.0	51.4	12.0	31.4	12.0	* 37				
Max Q Clear Time (g_c+I1), s	7.9	13.6	2.3	12.6	3.8	8.8	5.8	15.5				
Green Ext Time (p_c), s	0.1	1.4	0.0	3.3	0.0	1.7	0.1	2.7				

Intersection Summary	
HCM 6th Ctrl Delay	18.9
HCM 6th LOS	B

Notes

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

HCM 6th Signalized Intersection Summary
1: Brookwood Ave & College Ave

01/17/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	108	463	237	20	557	23	222	333	16	36	311	125
Future Volume (veh/h)	108	463	237	20	557	23	222	333	16	36	311	125
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	108	463	237	20	557	23	222	333	16	36	311	125
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	169	752	382	52	920	38	404	571	27	85	473	551
Arrive On Green	0.09	0.33	0.33	0.03	0.26	0.26	0.12	0.32	0.32	0.05	0.25	0.25
Sat Flow, veh/h	1781	2280	1159	1781	3478	143	3456	1770	85	1781	1870	1585
Grp Volume(v), veh/h	108	360	340	20	284	296	222	0	349	36	311	125
Grp Sat Flow(s),veh/h/ln	1781	1777	1662	1781	1777	1845	1728	0	1855	1781	1870	1585
Q Serve(g_s), s	2.8	8.3	8.4	0.5	6.8	6.8	3.0	0.0	7.7	1.0	7.3	2.7
Cycle Q Clear(g_c), s	2.8	8.3	8.4	0.5	6.8	6.8	3.0	0.0	7.7	1.0	7.3	2.7
Prop In Lane	1.00		0.70	1.00		0.08	1.00		0.05	1.00		1.00
Lane Grp Cap(c), veh/h	169	586	548	52	470	488	404	0	598	85	473	551
V/C Ratio(X)	0.64	0.61	0.62	0.38	0.60	0.61	0.55	0.00	0.58	0.43	0.66	0.23
Avail Cap(c_a), veh/h	951	2057	1924	329	1437	1492	993	0	1043	512	1052	1041
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.3	13.7	13.7	23.2	15.7	15.7	20.3	0.0	13.8	22.6	16.3	11.3
Incr Delay (d2), s/veh	4.0	1.0	1.1	4.6	1.3	1.2	1.2	0.0	1.3	3.4	2.2	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	3.1	2.9	0.3	2.6	2.7	1.1	0.0	2.9	0.4	3.0	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.3	14.8	14.9	27.8	16.9	16.9	21.5	0.0	15.1	25.9	18.5	11.6
LnGrp LOS	C	B	B	C	B	B	C	A	B	C	B	B
Approach Vol, veh/h		808			600			571			472	
Approach Delay, s/veh		16.2			17.3			17.6			17.3	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	4.4	19.7	8.7	15.9	7.6	16.5	5.3	19.3
Change Period (Y+Rc), s	3.0	3.6	3.0	3.6	3.0	3.6	3.0	3.6
Max Green Setting (Gmax), s	9.0	56.4	14.0	27.4	26.0	39.4	14.0	27.4
Max Q Clear Time (g_c+I1), s	2.5	10.4	5.0	9.3	4.8	8.8	3.0	9.7
Green Ext Time (p_c), s	0.0	5.6	0.5	3.1	0.3	4.1	0.0	2.7

Intersection Summary	
HCM 6th Ctrl Delay	17.0
HCM 6th LOS	B

HCM 6th Signalized Intersection Summary
2: Brookwood Ave & 4th St

01/17/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	113	25	149	226	64	25	551	123	34	478	22
Future Volume (veh/h)	22	113	25	149	226	64	25	551	123	34	478	22
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	22	113	25	149	226	64	25	551	123	34	478	22
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	85	342	74	203	344	292	84	1981	1064	116	1990	91
Arrive On Green	0.05	0.12	0.12	0.11	0.18	0.18	0.05	0.56	0.56	0.06	0.58	0.58
Sat Flow, veh/h	1781	2908	626	1781	1870	1585	1781	3554	1585	1781	3460	159
Grp Volume(v), veh/h	22	68	70	149	226	64	25	551	123	34	245	255
Grp Sat Flow(s),veh/h/ln	1781	1777	1758	1781	1870	1585	1781	1777	1585	1781	1777	1842
Q Serve(g_s), s	1.0	3.0	3.1	6.9	9.5	2.9	1.2	6.9	2.3	1.5	5.8	5.8
Cycle Q Clear(g_c), s	1.0	3.0	3.1	6.9	9.5	2.9	1.2	6.9	2.3	1.5	5.8	5.8
Prop In Lane	1.00		0.36	1.00		1.00	1.00		1.00	1.00		0.09
Lane Grp Cap(c), veh/h	85	209	207	203	344	292	84	1981	1064	116	1022	1059
V/C Ratio(X)	0.26	0.32	0.34	0.73	0.66	0.22	0.30	0.28	0.12	0.29	0.24	0.24
Avail Cap(c_a), veh/h	231	560	554	231	590	500	231	1981	1064	231	1022	1059
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.0	34.4	34.5	36.4	32.2	29.5	39.1	9.9	5.0	37.9	8.9	8.9
Incr Delay (d2), s/veh	1.6	3.2	3.5	10.0	7.5	1.4	1.9	0.3	0.2	1.4	0.6	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	1.5	1.5	3.5	4.9	1.2	0.5	2.6	0.7	0.7	2.2	2.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.6	37.6	37.9	46.4	39.7	30.8	41.1	10.2	5.2	39.3	9.5	9.4
LnGrp LOS	D	D	D	D	D	C	D	B	A	D	A	A
Approach Vol, veh/h		160			439			699			534	
Approach Delay, s/veh		38.2			40.7			10.4			11.3	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.7	13.2	7.0	52.1	7.1	18.9	8.5	50.6
Change Period (Y+Rc), s	3.0	3.2	3.0	3.2	3.0	3.2	3.0	3.2
Max Green Setting (Gmax), s	11.0	26.8	11.0	23.8	11.0	26.8	11.0	23.8
Max Q Clear Time (g_c+I1), s	8.9	5.1	3.2	7.8	3.0	11.5	3.5	8.9
Green Ext Time (p_c), s	0.1	1.6	0.0	5.8	0.0	3.0	0.0	7.4

Intersection Summary	
HCM 6th Ctrl Delay	20.4
HCM 6th LOS	C

Notes
User approved pedestrian interval to be less than phase max green.
User approved changes to right turn type.

HCM 6th Signalized Intersection Summary
3: Brookwood Ave & 3rd St

01/17/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	82	114	33	28	117	143	21	479	7	89	495	62
Future Volume (veh/h)	82	114	33	28	117	143	21	479	7	89	495	62
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	82	114	33	28	117	143	21	479	7	89	495	62
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	126	299	86	71	141	172	41	1700	25	115	1640	205
Arrive On Green	0.07	0.21	0.21	0.04	0.18	0.18	0.02	0.47	0.47	0.06	0.52	0.52
Sat Flow, veh/h	1781	1394	404	1781	766	936	1781	3585	52	1781	3179	397
Grp Volume(v), veh/h	82	0	147	28	0	260	21	237	249	89	276	281
Grp Sat Flow(s),veh/h/ln	1781	0	1798	1781	0	1702	1781	1777	1861	1781	1777	1799
Q Serve(g_s), s	3.8	0.0	5.9	1.3	0.0	12.5	1.0	6.9	6.9	4.2	7.6	7.6
Cycle Q Clear(g_c), s	3.8	0.0	5.9	1.3	0.0	12.5	1.0	6.9	6.9	4.2	7.6	7.6
Prop In Lane	1.00		0.22	1.00		0.55	1.00		0.03	1.00		0.22
Lane Grp Cap(c), veh/h	126	0	385	71	0	312	41	843	883	115	917	928
V/C Ratio(X)	0.65	0.00	0.38	0.39	0.00	0.83	0.51	0.28	0.28	0.77	0.30	0.30
Avail Cap(c_a), veh/h	205	0	525	205	0	497	197	843	883	260	917	928
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.5	0.0	28.6	39.8	0.0	33.4	41.1	13.6	13.6	39.1	11.8	11.8
Incr Delay (d2), s/veh	5.6	0.0	0.6	3.5	0.0	6.7	9.6	0.8	0.8	10.4	0.8	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	2.6	0.6	0.0	5.6	0.5	2.8	2.9	2.1	3.0	3.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.1	0.0	29.2	43.3	0.0	40.1	50.6	14.4	14.4	49.5	12.6	12.6
LnGrp LOS	D	A	C	D	A	D	D	B	B	D	B	B
Approach Vol, veh/h		229			288			507			646	
Approach Delay, s/veh		34.5			40.4			15.9			17.7	
Approach LOS		C			D			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.6	22.4	6.6	48.5	10.2	19.8	10.1	44.9
Change Period (Y+Rc), s	* 4.2	* 4.2	4.6	4.6	* 4.2	* 4.2	4.6	4.6
Max Green Setting (Gmax), s	* 9.8	* 25	9.4	23.4	* 9.8	* 25	12.4	20.4
Max Q Clear Time (g_c+I1), s	3.3	7.9	3.0	9.6	5.8	14.5	6.2	8.9
Green Ext Time (p_c), s	0.0	0.7	0.0	2.9	0.1	1.1	0.1	2.2

Intersection Summary	
HCM 6th Ctrl Delay	23.4
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

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

HCM 6th Signalized Intersection Summary
4: Brookwood Ave & 2nd St

01/17/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	34	11	13	63	4	28	517	29	27	461	84
Future Volume (veh/h)	25	34	11	13	63	4	28	517	29	27	461	84
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	25	34	11	13	63	4	28	517	29	27	461	84
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	223	198	49	163	290	17	74	1174	66	71	1028	186
Arrive On Green	0.19	0.19	0.19	0.19	0.19	0.19	0.04	0.34	0.34	0.04	0.34	0.34
Sat Flow, veh/h	356	1060	264	153	1554	90	1781	3421	192	1781	3005	544
Grp Volume(v), veh/h	70	0	0	80	0	0	28	268	278	27	271	274
Grp Sat Flow(s),veh/h/ln	1680	0	0	1797	0	0	1781	1777	1836	1781	1777	1772
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.5	3.6	3.7	0.5	3.7	3.7
Cycle Q Clear(g_c), s	1.0	0.0	0.0	1.1	0.0	0.0	0.5	3.6	3.7	0.5	3.7	3.7
Prop In Lane	0.36		0.16	0.16		0.05	1.00		0.10	1.00		0.31
Lane Grp Cap(c), veh/h	470	0	0	470	0	0	74	610	630	71	608	606
V/C Ratio(X)	0.15	0.00	0.00	0.17	0.00	0.00	0.38	0.44	0.44	0.38	0.45	0.45
Avail Cap(c_a), veh/h	1494	0	0	1591	0	0	594	1448	1496	594	1733	1729
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.7	0.0	0.0	10.8	0.0	0.0	14.5	7.9	7.9	14.6	8.0	8.0
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.2	0.0	0.0	3.2	0.5	0.5	3.3	0.7	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.0	0.4	0.0	0.0	0.2	1.0	1.0	0.2	1.0	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.9	0.0	0.0	10.9	0.0	0.0	17.7	8.4	8.4	17.8	8.7	8.7
LnGrp LOS	B	A	A	B	A	A	B	A	A	B	A	A
Approach Vol, veh/h		70			80			574			572	
Approach Delay, s/veh		10.9			10.9			8.9			9.1	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	2	3	4	6	7	8
Phs Duration (G+Y+Rc), s	10.0	5.9	15.3	10.0	5.9	15.3
Change Period (Y+Rc), s	* 4.2	4.6	4.6	* 4.2	4.6	4.6
Max Green Setting (Gmax), s	* 26	10.4	30.4	* 26	10.4	25.4
Max Q Clear Time (g_c+I1), s	3.0	2.5	5.7	3.1	2.5	5.7
Green Ext Time (p_c), s	0.3	0.0	4.9	0.3	0.0	3.2

Intersection Summary	
HCM 6th Ctrl Delay	9.2
HCM 6th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

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

HCM 6th Signalized Intersection Summary
5: Brookwood Ave & Sonoma Ave

01/17/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	95	416	23	130	317	199	14	336	251	144	205	54
Future Volume (veh/h)	95	416	23	130	317	199	14	336	251	144	205	54
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	95	416	23	130	317	199	14	336	251	144	205	54
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	357	479	406	304	580	356	48	377	282	180	848	842
Arrive On Green	0.08	0.26	0.26	0.10	0.27	0.27	0.03	0.38	0.38	0.10	0.45	0.45
Sat Flow, veh/h	1781	1870	1585	1781	2116	1298	1781	994	743	1781	1870	1585
Grp Volume(v), veh/h	95	416	23	130	265	251	14	0	587	144	205	54
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1777	1637	1781	0	1737	1781	1870	1585
Q Serve(g_s), s	2.9	16.7	0.9	4.0	10.0	10.3	0.6	0.0	24.9	6.2	5.3	1.3
Cycle Q Clear(g_c), s	2.9	16.7	0.9	4.0	10.0	10.3	0.6	0.0	24.9	6.2	5.3	1.3
Prop In Lane	1.00		1.00	1.00		0.79	1.00		0.43	1.00		1.00
Lane Grp Cap(c), veh/h	357	479	406	304	487	449	48	0	659	180	848	842
V/C Ratio(X)	0.27	0.87	0.06	0.43	0.54	0.56	0.29	0.00	0.89	0.80	0.24	0.06
Avail Cap(c_a), veh/h	490	747	633	405	710	654	181	0	813	272	1223	1160
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.0	28.0	22.1	19.7	24.3	24.4	37.5	0.0	22.9	34.6	13.2	8.9
Incr Delay (d2), s/veh	0.1	4.3	0.0	0.4	0.4	0.4	1.2	0.0	10.4	5.2	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	7.7	0.3	1.6	4.0	3.8	0.3	0.0	11.4	2.9	2.1	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.1	32.2	22.1	20.0	24.7	24.9	38.8	0.0	33.3	39.7	13.3	9.0
LnGrp LOS	B	C	C	C	C	C	D	A	C	D	B	A
Approach Vol, veh/h		534			646			601			403	
Approach Delay, s/veh		29.4			23.8			33.4			22.2	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.5	23.7	5.1	39.2	9.1	25.1	10.9	33.4
Change Period (Y+Rc), s	3.0	3.6	3.0	3.6	3.0	3.6	3.0	* 3.6
Max Green Setting (Gmax), s	12.0	31.4	8.0	51.4	12.0	31.4	12.0	* 37
Max Q Clear Time (g_c+I1), s	6.0	18.7	2.6	7.3	4.9	12.3	8.2	26.9
Green Ext Time (p_c), s	0.1	1.4	0.0	1.5	0.1	1.9	0.1	2.9

Intersection Summary	
HCM 6th Ctrl Delay	27.5
HCM 6th LOS	C

Notes

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

HCM 6th Signalized Intersection Summary
1: Brookwood Ave & College Ave

01/17/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	151	667	186	40	450	24	299	333	18	40	374	121
Future Volume (veh/h)	151	667	186	40	450	24	299	333	18	40	374	121
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	151	667	186	40	450	24	299	333	18	40	374	121
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	198	962	268	85	985	52	428	608	33	85	504	603
Arrive On Green	0.11	0.35	0.35	0.05	0.29	0.29	0.12	0.35	0.35	0.05	0.27	0.27
Sat Flow, veh/h	1781	2745	765	1781	3432	183	3456	1758	95	1781	1870	1585
Grp Volume(v), veh/h	151	432	421	40	232	242	299	0	351	40	374	121
Grp Sat Flow(s),veh/h/ln	1781	1777	1733	1781	1777	1837	1728	0	1853	1781	1870	1585
Q Serve(g_s), s	5.2	13.2	13.2	1.4	6.8	6.8	5.3	0.0	9.7	1.4	11.6	3.2
Cycle Q Clear(g_c), s	5.2	13.2	13.2	1.4	6.8	6.8	5.3	0.0	9.7	1.4	11.6	3.2
Prop In Lane	1.00		0.44	1.00		0.10	1.00		0.05	1.00		1.00
Lane Grp Cap(c), veh/h	198	623	607	85	510	528	428	0	640	85	504	603
V/C Ratio(X)	0.76	0.69	0.69	0.47	0.46	0.46	0.70	0.00	0.55	0.47	0.74	0.20
Avail Cap(c_a), veh/h	675	1469	1433	253	1049	1084	818	0	889	422	897	936
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.4	17.7	17.7	29.4	18.5	18.5	26.6	0.0	16.7	29.4	21.1	13.2
Incr Delay (d2), s/veh	6.0	1.4	1.4	4.0	0.6	0.6	2.1	0.0	1.0	4.0	3.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	5.2	5.1	0.7	2.7	2.8	2.2	0.0	3.9	0.7	5.1	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.3	19.1	19.1	33.4	19.2	19.2	28.7	0.0	17.8	33.4	24.2	13.4
LnGrp LOS	C	B	B	C	B	B	C	A	B	C	C	B
Approach Vol, veh/h		1004			514			650			535	
Approach Delay, s/veh		21.2			20.3			22.8			22.5	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.0	25.8	10.9	20.7	10.0	21.8	6.0	25.5
Change Period (Y+Rc), s	3.0	3.6	3.0	3.6	3.0	3.6	3.0	3.6
Max Green Setting (Gmax), s	9.0	52.4	15.0	30.4	24.0	37.4	15.0	30.4
Max Q Clear Time (g_c+I1), s	3.4	15.2	7.3	13.6	7.2	8.8	3.4	11.7
Green Ext Time (p_c), s	0.0	7.0	0.6	3.5	0.4	3.2	0.0	2.8

Intersection Summary	
HCM 6th Ctrl Delay	21.7
HCM 6th LOS	C

HCM 6th Signalized Intersection Summary
2: Brookwood Ave & 4th St

01/17/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	34	275	46	164	213	107	63	594	226	66	522	50
Future Volume (veh/h)	34	275	46	164	213	107	63	594	226	66	522	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	34	275	46	164	213	107	63	594	226	66	522	50
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	113	456	75	201	371	314	141	1815	988	160	1708	163
Arrive On Green	0.06	0.15	0.15	0.11	0.20	0.20	0.08	0.51	0.51	0.09	0.52	0.52
Sat Flow, veh/h	1781	3052	504	1781	1870	1585	1781	3554	1585	1781	3278	313
Grp Volume(v), veh/h	34	159	162	164	213	107	63	594	226	66	282	290
Grp Sat Flow(s),veh/h/ln	1781	1777	1780	1781	1870	1585	1781	1777	1585	1781	1777	1814
Q Serve(g_s), s	1.6	7.5	7.7	8.1	9.3	5.2	3.0	8.8	5.6	3.2	8.1	8.2
Cycle Q Clear(g_c), s	1.6	7.5	7.7	8.1	9.3	5.2	3.0	8.8	5.6	3.2	8.1	8.2
Prop In Lane	1.00		0.28	1.00		1.00	1.00		1.00	1.00		0.17
Lane Grp Cap(c), veh/h	113	265	266	201	371	314	141	1815	988	160	926	945
V/C Ratio(X)	0.30	0.60	0.61	0.82	0.57	0.34	0.45	0.33	0.23	0.41	0.30	0.31
Avail Cap(c_a), veh/h	218	529	530	317	661	560	218	1815	988	238	926	945
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.2	35.8	35.8	39.0	32.6	31.0	39.5	12.9	7.5	38.7	12.3	12.3
Incr Delay (d2), s/veh	1.5	7.6	8.0	8.9	5.0	2.3	2.2	0.5	0.5	1.7	0.9	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	3.8	3.9	4.0	4.6	2.2	1.4	3.5	1.9	1.4	3.3	3.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.7	43.4	43.9	47.9	37.7	33.3	41.7	13.4	8.0	40.4	13.1	13.1
LnGrp LOS	D	D	D	D	D	C	D	B	A	D	B	B
Approach Vol, veh/h		355			484			883			638	
Approach Delay, s/veh		43.4			40.2			14.1			15.9	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.1	16.6	10.1	50.1	8.7	21.0	11.1	49.2
Change Period (Y+Rc), s	3.0	3.2	3.0	3.2	3.0	3.2	3.0	3.2
Max Green Setting (Gmax), s	16.0	26.8	11.0	23.8	11.0	31.8	12.0	22.8
Max Q Clear Time (g_c+I1), s	10.1	9.7	5.0	10.2	3.6	11.3	5.2	10.8
Green Ext Time (p_c), s	0.2	3.7	0.0	6.0	0.0	3.8	0.1	7.3

Intersection Summary	
HCM 6th Ctrl Delay	24.3
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.
User approved changes to right turn type.

HCM 6th Signalized Intersection Summary
3: Brookwood Ave & 3rd St

01/17/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	109	152	39	39	111	219	45	579	26	86	574	73
Future Volume (veh/h)	109	152	39	39	111	219	45	579	26	86	574	73
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	109	152	39	39	111	219	45	579	26	86	574	73
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	138	365	94	86	127	250	67	1520	68	112	1473	187
Arrive On Green	0.08	0.25	0.25	0.05	0.23	0.23	0.04	0.44	0.44	0.06	0.46	0.46
Sat Flow, veh/h	1781	1436	368	1781	562	1109	1781	3464	155	1781	3172	402
Grp Volume(v), veh/h	109	0	191	39	0	330	45	297	308	86	321	326
Grp Sat Flow(s),veh/h/ln	1781	0	1804	1781	0	1671	1781	1777	1842	1781	1777	1798
Q Serve(g_s), s	5.4	0.0	7.9	1.9	0.0	17.2	2.2	10.1	10.1	4.3	10.6	10.7
Cycle Q Clear(g_c), s	5.4	0.0	7.9	1.9	0.0	17.2	2.2	10.1	10.1	4.3	10.6	10.7
Prop In Lane	1.00		0.20	1.00		0.66	1.00		0.08	1.00		0.22
Lane Grp Cap(c), veh/h	138	0	459	86	0	376	67	780	809	112	825	835
V/C Ratio(X)	0.79	0.00	0.42	0.45	0.00	0.88	0.67	0.38	0.38	0.77	0.39	0.39
Avail Cap(c_a), veh/h	194	0	517	194	0	479	186	780	809	344	825	835
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.8	0.0	28.0	41.7	0.0	33.7	42.8	17.0	17.0	41.5	15.8	15.8
Incr Delay (d2), s/veh	13.4	0.0	0.6	3.7	0.0	14.0	11.1	1.4	1.4	10.4	1.4	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	0.0	3.4	0.9	0.0	8.2	1.2	4.3	4.4	2.2	4.4	4.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.2	0.0	28.6	45.3	0.0	47.6	53.9	18.4	18.4	52.0	17.1	17.2
LnGrp LOS	D	A	C	D	A	D	D	B	B	D	B	B
Approach Vol, veh/h		300			369			650			733	
Approach Delay, s/veh		37.9			47.4			20.9			21.2	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.6	27.1	8.0	46.4	11.2	24.5	10.3	44.1
Change Period (Y+Rc), s	* 4.2	* 4.2	4.6	4.6	* 4.2	* 4.2	4.6	4.6
Max Green Setting (Gmax), s	* 9.8	* 26	9.4	27.4	* 9.8	* 26	17.4	19.4
Max Q Clear Time (g_c+I1), s	3.9	9.9	4.2	12.7	7.4	19.2	6.3	12.1
Green Ext Time (p_c), s	0.0	0.9	0.0	3.5	0.1	1.1	0.1	2.1

Intersection Summary	
HCM 6th Ctrl Delay	28.3
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
4: Brookwood Ave & 2nd St

01/17/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	97	73	27	39	52	23	26	535	50	9	598	61
Future Volume (veh/h)	97	73	27	39	52	23	26	535	50	9	598	61
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	97	73	27	39	52	23	26	535	50	9	598	61
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	288	161	47	213	214	73	68	1288	120	26	1198	122
Arrive On Green	0.22	0.22	0.22	0.22	0.22	0.22	0.04	0.39	0.39	0.01	0.37	0.37
Sat Flow, veh/h	633	746	219	355	995	341	1781	3286	306	1781	3256	332
Grp Volume(v), veh/h	197	0	0	114	0	0	26	289	296	9	326	333
Grp Sat Flow(s),veh/h/ln	1598	0	0	1690	0	0	1781	1777	1815	1781	1777	1811
Q Serve(g_s), s	1.8	0.0	0.0	0.0	0.0	0.0	0.5	4.2	4.2	0.2	5.0	5.0
Cycle Q Clear(g_c), s	3.7	0.0	0.0	1.9	0.0	0.0	0.5	4.2	4.2	0.2	5.0	5.0
Prop In Lane	0.49		0.14	0.34		0.20	1.00		0.17	1.00		0.18
Lane Grp Cap(c), veh/h	496	0	0	500	0	0	68	696	711	26	654	666
V/C Ratio(X)	0.40	0.00	0.00	0.23	0.00	0.00	0.38	0.41	0.42	0.35	0.50	0.50
Avail Cap(c_a), veh/h	1278	0	0	1308	0	0	523	1275	1302	523	1526	1555
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.3	0.0	0.0	11.6	0.0	0.0	16.6	7.8	7.8	17.3	8.7	8.7
Incr Delay (d2), s/veh	0.5	0.0	0.0	0.2	0.0	0.0	3.5	0.4	0.4	8.0	0.8	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	0.0	0.6	0.0	0.0	0.2	1.1	1.2	0.1	1.5	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.8	0.0	0.0	11.9	0.0	0.0	20.1	8.2	8.2	25.3	9.5	9.5
LnGrp LOS	B	A	A	B	A	A	C	A	A	C	A	A
Approach Vol, veh/h		197			114			611			668	
Approach Delay, s/veh		12.8			11.9			8.7			9.7	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	2	3	4		6	7	8					
Phs Duration (G+Y+Rc), s	11.8	6.0	17.6		11.8	5.1	18.5					
Change Period (Y+Rc), s	* 4.2	4.6	4.6		* 4.2	4.6	4.6					
Max Green Setting (Gmax), s	* 26	10.4	30.4		* 26	10.4	25.4					
Max Q Clear Time (g_c+I1), s	5.7	2.5	7.0		3.9	2.2	6.2					
Green Ext Time (p_c), s	1.1	0.0	6.0		0.6	0.0	3.5					

Intersection Summary		
HCM 6th Ctrl Delay	9.9	
HCM 6th LOS	A	

Notes

User approved pedestrian interval to be less than phase max green.

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

HCM 6th Signalized Intersection Summary
5: Brookwood Ave & Sonoma Ave

01/17/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	78	375	47	249	317	150	9	268	162	137	444	128
Future Volume (veh/h)	78	375	47	249	317	150	9	268	162	137	444	128
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	78	375	47	249	317	150	9	268	162	137	444	128
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	426	456	387	397	685	317	33	330	200	205	747	764
Arrive On Green	0.08	0.24	0.24	0.13	0.29	0.29	0.02	0.30	0.30	0.12	0.40	0.40
Sat Flow, veh/h	1781	1870	1585	1781	2359	1092	1781	1092	660	1781	1870	1585
Grp Volume(v), veh/h	78	375	47	249	237	230	9	0	430	137	444	128
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1777	1674	1781	0	1752	1781	1870	1585
Q Serve(g_s), s	1.9	12.0	1.5	6.1	6.9	7.1	0.3	0.0	14.3	4.7	11.8	2.9
Cycle Q Clear(g_c), s	1.9	12.0	1.5	6.1	6.9	7.1	0.3	0.0	14.3	4.7	11.8	2.9
Prop In Lane	1.00		1.00	1.00		0.65	1.00		0.38	1.00		1.00
Lane Grp Cap(c), veh/h	426	456	387	397	516	486	33	0	530	205	747	764
V/C Ratio(X)	0.18	0.82	0.12	0.63	0.46	0.47	0.27	0.00	0.81	0.67	0.59	0.17
Avail Cap(c_a), veh/h	617	930	788	505	884	833	226	0	1021	339	1523	1422
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.1	22.6	18.6	15.1	18.3	18.4	30.6	0.0	20.4	26.8	14.9	9.2
Incr Delay (d2), s/veh	0.1	1.4	0.1	0.6	0.2	0.3	1.6	0.0	3.1	1.4	0.8	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	5.0	0.5	2.2	2.6	2.5	0.1	0.0	5.8	2.0	4.6	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.2	24.0	18.6	15.7	18.6	18.7	32.2	0.0	23.4	28.2	15.7	9.3
LnGrp LOS	B	C	B	B	B	B	C	A	C	C	B	A
Approach Vol, veh/h		500			716			439			709	
Approach Delay, s/veh		22.1			17.6			23.6			17.0	
Approach LOS		C			B			C			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.2	19.0	4.2	28.8	8.2	21.9	10.3	22.7				
Change Period (Y+Rc), s	3.0	3.6	3.0	3.6	3.0	3.6	3.0	* 3.6				
Max Green Setting (Gmax), s	12.0	31.4	8.0	51.4	12.0	31.4	12.0	* 37				
Max Q Clear Time (g_c+I1), s	8.1	14.0	2.3	13.8	3.9	9.1	6.7	16.3				
Green Ext Time (p_c), s	0.1	1.4	0.0	3.6	0.0	1.7	0.1	2.8				

Intersection Summary	
HCM 6th Ctrl Delay	19.5
HCM 6th LOS	B

Notes

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

Appendix C

Turn Lane Warrants

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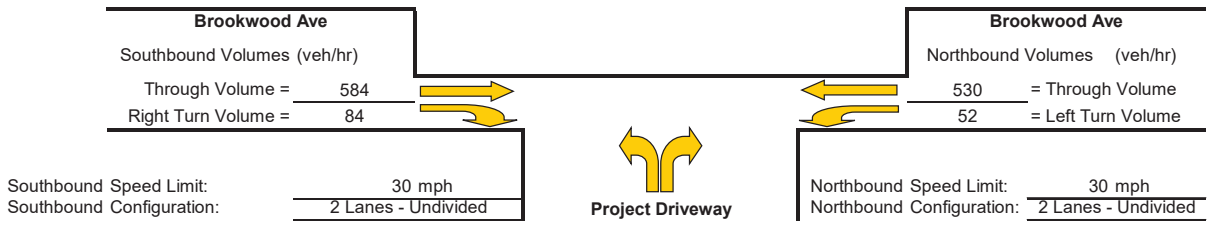
Turn Lane Warrant Analysis - Tee Intersections

Study Intersection: Brookwood Avenue/Southerly Project Driveway
Study Scenario: Baseline plus Project AM

Direction of Analysis Street: North/South
Cross Street Intersects: From the West



Southbound Speed Limit: 30 mph
Southbound Configuration: 2 Lanes - Undivided

Northbound Speed Limit: 30 mph
Northbound Configuration: 2 Lanes - Undivided

Southbound Right Turn Lane Warrants

1. Check for right turn volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold	AV =	420
Advancing Volume	Va =	668
If AV<Va then warrant is met		Yes

Right Turn Lane Warranted: **YES**

Southbound Right Turn Taper Warrants
(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

N/A

2. Check advance volume threshold criteria for taper

Advancing Volume Threshold	AV =	-
Advancing Volume	Va =	-
If AV<Va then warrant is met		-

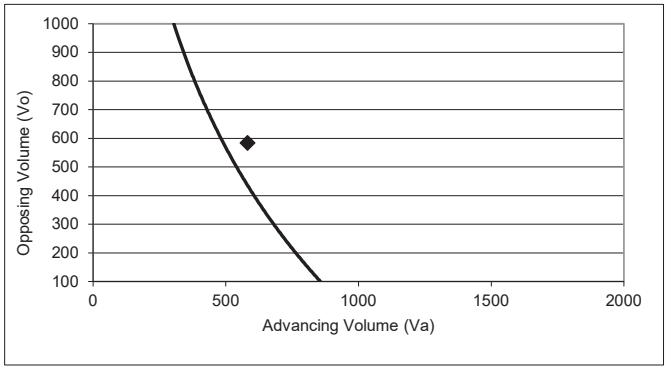
Right Turn Taper Warranted: **N/A**

Northbound Left Turn Lane Warrants

Percentage Left Turns %lt 8.9 %

Advancing Volume Threshold AV 491 veh/hr

If AV<Va then warrant is met



◆ Study Intersection

Two lane roadway warrant threshold for: 30 mph

Turn lane warranted if point falls to right of warrant threshold line

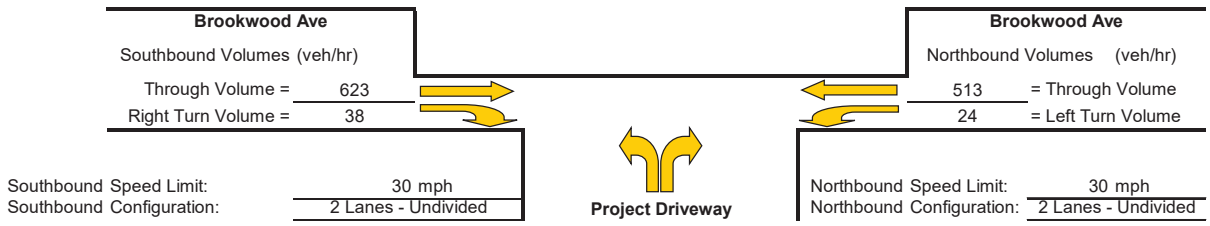
Left Turn Lane Warranted: **YES**

Methodology based on Washington State Transportation Center Research Report *Method For Prioritizing Intersection Improvements*, January 1997.
The right turn lane and taper analysis is based on work conducted by Cottrell in 1981.
The left turn lane analysis is based on work conducted by M.D. Harmelink in 1967, and modified by Kikuchi and Chakroborty in 1991.

Turn Lane Warrant Analysis - Tee Intersections

Study Intersection: Brookwood Avenue/Southerly Project Driveway
Study Scenario: Baseline plus Project PM

Direction of Analysis Street: North/South
Cross Street Intersects: From the West



Southbound Speed Limit: 30 mph
Southbound Configuration: 2 Lanes - Undivided

Northbound Speed Limit: 30 mph
Northbound Configuration: 2 Lanes - Undivided

Southbound Right Turn Lane Warrants

1. Check for right turn volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold	AV =	765
Advancing Volume	Va =	661
If AV<Va then warrant is met		No

Right Turn Lane Warranted: **NO**

Southbound Right Turn Taper Warrants
(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for taper

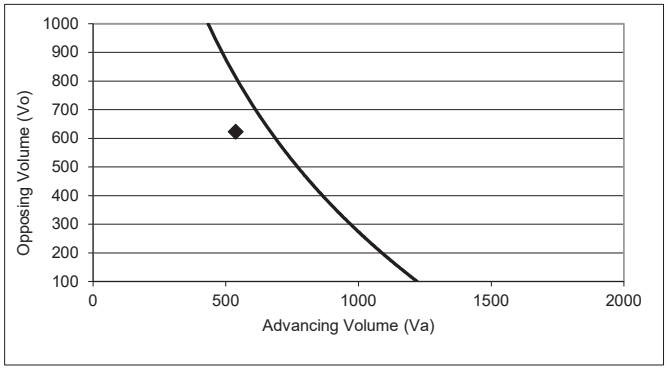
Advancing Volume Threshold	AV =	520
Advancing Volume	Va =	661
If AV<Va then warrant is met		Yes

Right Turn Taper Warranted: **YES**

Northbound Left Turn Lane Warrants

Percentage Left Turns	%lt	4.5 %
Advancing Volume Threshold	AV	669 veh/hr

If AV<Va then warrant is met



◆ Study Intersection
Two lane roadway warrant threshold for: 30 mph
Turn lane warranted if point falls to right of warrant threshold line

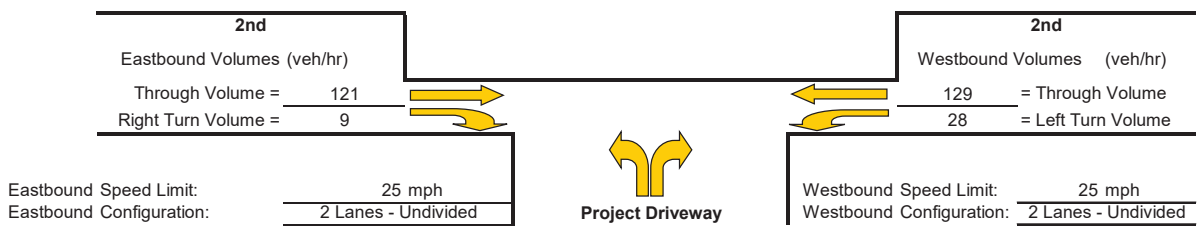
Left Turn Lane Warranted: **NO**

Methodology based on Washington State Transportation Center Research Report *Method For Prioritizing Intersection Improvements*, January 1997.
The right turn lane and taper analysis is based on work conducted by Cottrell in 1981.
The left turn lane analysis is based on work conducted by M.D. Harmelink in 1967, and modified by Kikuchi and Chakroborty in 1991.

Turn Lane Warrant Analysis - Tee Intersections

Study Intersection: 2nd Street/Project Driveway
Study Scenario: Baseline plus Project AM

Direction of Analysis Street: East/West
Cross Street Intersects: From the South



Eastbound Speed Limit: 25 mph
Eastbound Configuration: 2 Lanes - Undivided

Westbound Speed Limit: 25 mph
Westbound Configuration: 2 Lanes - Undivided

Eastbound Right Turn Lane Warrants

1. Check for right turn volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold	AV =	982.6
Advancing Volume	Va =	130
If AV<Va then warrant is met		No

Right Turn Lane Warranted: **NO**

Eastbound Right Turn Taper Warrants
(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

NOT WARRANTED - Less than 20 vehicles

2. Check advance volume threshold criteria for taper

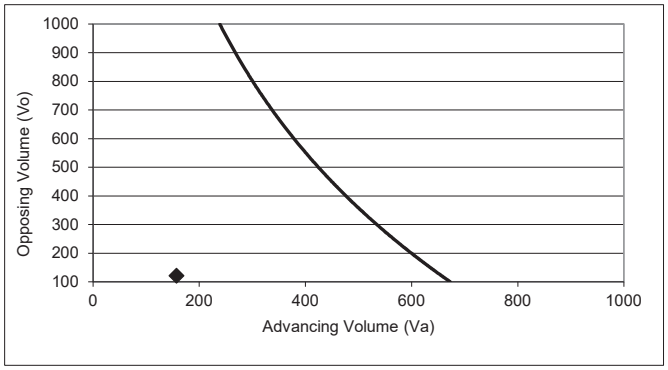
Advancing Volume Threshold	AV =	-
Advancing Volume	Va =	130
If AV<Va then warrant is met		-

Right Turn Taper Warranted: **NO**

Westbound Left Turn Lane Warrants

Percentage Left Turns	%lt	17.8 %
Advancing Volume Threshold	AV	657 veh/hr

If AV<Va then warrant is met



◆ Study Intersection
Two lane roadway warrant threshold for: 25 mph
Turn lane warranted if point falls to right of warrant threshold line

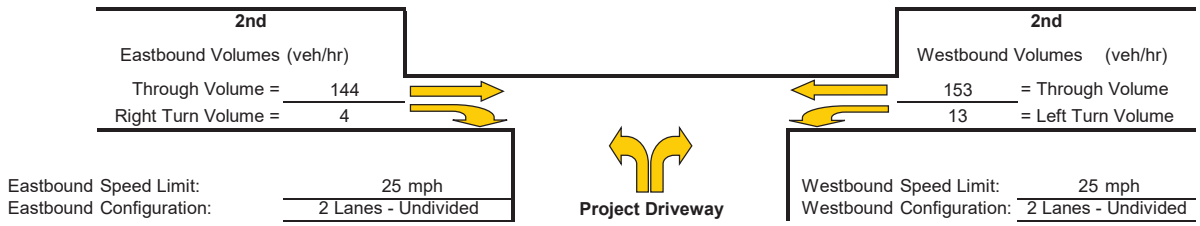
Left Turn Lane Warranted: **NO**

Methodology based on Washington State Transportation Center Research Report *Method For Prioritizing Intersection Improvements*, January 1997.
The right turn lane and taper analysis is based on work conducted by Cottrell in 1981.
The left turn lane analysis is based on work conducted by M.D. Harmelink in 1967, and modified by Kikuchi and Chakroborty in 1991.

Turn Lane Warrant Analysis - Tee Intersections

Study Intersection: 2nd Street/Project Driveway
Study Scenario: Baseline plus Project PM

Direction of Analysis Street: East/West
Cross Street Intersects: From the South



Eastbound Speed Limit: 25 mph
Eastbound Configuration: 2 Lanes - Undivided

Westbound Speed Limit: 25 mph
Westbound Configuration: 2 Lanes - Undivided

Eastbound Right Turn Lane Warrants

1. Check for right turn volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold	AV =	1020.1
Advancing Volume	Va =	148
If AV<Va then warrant is met		No

Right Turn Lane Warranted: **NO**

Eastbound Right Turn Taper Warrants
(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

NOT WARRANTED - Less than 20 vehicles

2. Check advance volume threshold criteria for taper

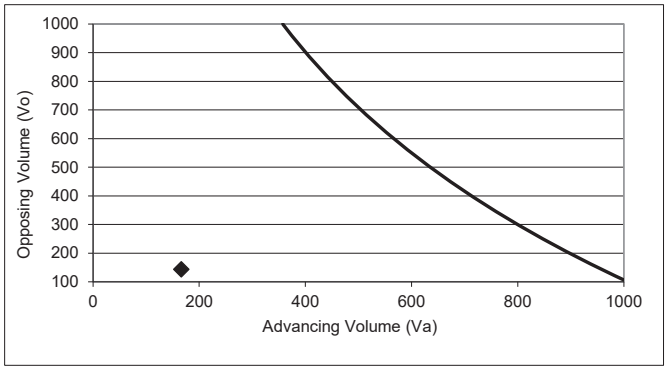
Advancing Volume Threshold	AV =	-
Advancing Volume	Va =	148
If AV<Va then warrant is met		-

Right Turn Taper Warranted: **NO**

Westbound Left Turn Lane Warrants

Percentage Left Turns	%lt	7.8 %
Advancing Volume Threshold	AV	957 veh/hr

If AV<Va then warrant is met



◆ Study Intersection

Two lane roadway warrant threshold for: 25 mph

Turn lane warranted if point falls to right of warrant threshold line

Left Turn Lane Warranted: **NO**

Methodology based on Washington State Transportation Center Research Report *Method For Prioritizing Intersection Improvements*, January 1997.
The right turn lane and taper analysis is based on work conducted by Cottrell in 1981.
The left turn lane analysis is based on work conducted by M.D. Harmelink in 1967, and modified by Kikuchi and Chakroborty in 1991.