DRAFT
Supplemental Environmental Impact Report for
METRO GOLD LINE FOOTHILL EXTENSION

Azusa to Montclair (SCH No. 2010121069)

Evaluating Station Area Parking Modifications at Glendora, San Dimas, La Verne, Pomona and Claremont

Appendix B - Traffic Analysis Tecnical Memorandum

September 2020

Gold Line Rail Corridor (shared with freight) | Metrolink Rail Corridor | Gold Line Station | Gold Line Station and Metrolink Station (not shared) | Planned Grade Separation for Gold Line Trains Only

Foothill Gold Line

Metro Gold Line Foothill Extension Construction Authority

Appendix B - Traffic Analysis Technical Memorandum

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Memorandum

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Subject	**Transportation Technical Memorandum for Project Modifications**
Project	**Foothill Gold Line Extension Project Phase 2B (Azusa to Montclair)**
Attention	Chris Burner, Foothill Gold Line Extension Construction Authority Denis Cournoyer, Foothill Gold Line Extension Construction Authority Robert Hertz, AECOM John Swartz, AECOM
From	Loren Bloomberg, Jacobs Jose Herrera, Jacobs
Date	August 18, 2020
Copies to	**File**

The purpose of this memorandum is to document the findings and conclusions of the transportation system evaluation performed as a result of the project modifications (Project Modifications) proposed by the Los Angeles Metropolitan Transportation Authority (Metro) Gold Line Foothill Extension Construction Authority to the Foothill Gold Line Extension Project Phase 2B (Azusa to Montclair). The findings and conclusions in this memorandum will be used to develop the Transportation Section of the Supplemental Environmental Impact Report.

The Metro Gold Line Foothill Extension Construction Authority proposes to modify the Approved Project by reconfiguring the parking facilities at the proposed Gold Line stations. The parking reconfigurations were considered in response to Metro's updated parking guidelines. In general, the proposed parking structures that were in the Approved Project are redesigned surface parking lots as a result of the Project Modifications at the Glendora, San Dimas, La Verne, Pomona, and Claremont stations. The proposed surface parking lots have lower capacities which are expected to reduce the parking demand and daily vehicular trips (park-and-ride and kiss-and-ride) to each station. The access points and connections to the existing roadway network will remain the same with the exception of the parking facility at the Pomona Station.

In addition to the conversion of parking facilities, the Metro Gold Line Foothill Extension Construction Authority proposes to modify the Approved Project by relocating the proposed Pomona Station parking facility from south of Bonita Avenue and west of Garey Avenue (north of the Gold Line Station) to a location south of existing Santa Fe Street and west of Garey Avenue (south of the existing at-grade crossing, south of the Gold Line Station). The relocation of the parking facility results in the following changes to the roadway network:

- Permanent closure of Santa Fe Street between Pine Street and Garey Avenue
- Permanent closure of Magnolia Street between Pine Street and Garey Avenue
- Signalization of the Garey Avenue/Grevillia Street intersection and reconfiguration of the existing raised median

All other project features are assumed unchanged from the 2013 Final Environmental Impact Report (2013 FEIR) and addenda (see Sections 1.5.1, 1.5.2, and 1.5.3 for details).

1. Methodology

This section describes the methodology for travel demand forecasting, study area determination, vehicle-miles traveled (VMT) analysis, pedestrian and bicycle facilities, and traffic operational analysis. Results of the methodology application are summarized in the subsequent subsections.

1.1 Regional Forecasting

Metro's "Measure R" regional travel demand model was applied for this study's forecasting analysis. The Federal Transit Agency (FTA) reviewed the model (the Corridors Base Model, called CBM09) in September 2009 and encouraged Metro to move forward with forecasts for the projects in the Los Angeles region, concurring that the model was ready for forecasting. This model represents all Measure R projects anticipated to be operational by the year 2035, as well as other projects included in the approved Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) and is the same one used in the 2013 FEIR. The Measure R travel demand model demographic data was updated in 2013 subsequent to the certification of the 2013 FEIR. This updated version of the model was used to prepare ridership forecasts for the Project Modifications for the full construction of the build alternative (to Montclair). The travel demand model was coded to reflect the number of parking spaces in the proposed surface lots. Ridership forecasts with the Project Modifications were compared with the original 2013 FEIR Approved Project forecasts.

The Measure R travel demand model, like nearly all transit forecasting models, uses official socioeconomic projections for the region adopted by the applicable Metropolitan Planning Organization (here, the Southern California Association of Governments [SCAG]) and the transportation network (i.e., roads, highways, bus, and rail transit) described in the approved RTP/SCS to develop estimates of the amount of travel (i.e., trips) occurring between different locations in the area, the market share of each transportation mode, and the routing of these trips over the highway and transit networks. The model projects trips by mode (i.e., auto, bus, and rail) and by facility including usage of individual transit routes or station (ridership).

1.2 Project Modification Study Area Determination

The model output indicated measurable changes in station demand in all stations, except for Montclair, due to the Project Modifications. However, since the Montclair study intersections are relatively close to the Claremont station, the full 2013 FIER study area (study intersections) was used to assess potential impacts and to evaluate traffic operations. For the traffic operations evaluations, **Table 1** is a summary of the intersections used in the evaluation of the Project Modifications. It includes the original intersection list in the 2013 FEIR. Additional intersections were identified, because focused traffic studies were conducted after the 2013 FEIR on new intersections. Of the 112 intersections noted, 90 were included in the 2013 FEIR and 22 new intersections were added.

Table 1: Project Modifications Study Area Intersections

Number	Study Area Intersection
1	Barranca Avenue / Bennett Avenue
2	Barranca Avenue / Foothill Boulevard
3	Grand Avenue / Foothill Boulevard
4	Vermont Avenue E / Ada Avenue
5	Vermont Avenue / Route 66
6	Vermont Avenue / Foothill Boulevard
7	Vermont Avenue W / Ada Avenue
8	Glendora Avenue / Foothill Boulevard
9	Glendora Avenue / Ada Avenue
10	Glendora Avenue / Route 66
11	Pasadena Avenue / Lemon Avenue
12	Pasadena Avenue / Route 66
13	Glenwood Avenue / Lemon Avenue
14	Glenwood Avenue / Route 66
15	Elwood Avenue / Lemon Avenue
16	Elwood Avenue / Route 66
17	Lorraine Avenue / Lemon Avenue
18	Lorraine Avenue / Route 66
19	Lone Hill Avenue / Auto Centre Drive
20	Barranca Avenue / Sierra Madre Avenue
21	Glendora Avenue / Sierra Madre Avenue
22	Lone Hill Avenue / Glendora Marketplace
101	Barranca Avenue / Elderberry Drive
102	Grand Avenue / Ada Avenue
103	Grand Avenue / Route 66
104	Vermont Avenue / Carroll Avenue
105	Glendora Avenue / Carroll Avenue
106	Glendora Avenue / Avalon Apartments
107	Glendora Avenue / Walnut Avenue
108	Walnut Avenue / Vista Bonita Avenue
109	Glenwood Avenue / Foothill Boulevard
110	Elwood Avenue / Foothill Boulevard
23	Lone Hill Avenue / Gladstone Street
24	SR 57 SB / Arrow Highway
25	SR 57 NB / Arrow Highway & Bonita Avenue
26	Eucla Avenue / Fifth Street
27	Eucla Avenue / Second Street
28	Eucla Avenue / Bonita Avenue
29	Eucla Avenue / Arrow Highway
30	Acacia Street / Fifth Street
31	Acacia Street / Second Street
32	Acacia Street / Bonita Avenue
33	Cataract Avenue / Second Street
34	Cataract Avenue / Bonita Avenue
35	Monte Vista Avenue / Second Street

Table 1: Project Modifications Study Area Intersections

Number	Study Area Intersection
36	Monte Vista Avenue / Bonita Avenue
37	San Dimas Avenue / Second Street
38	San Dimas Avenue / Bonita Avenue
39	San Dimas Avenue / Arrow Highway
40	Walnut Avenue / Bonita Avenue
41	Walnut Avenue / Arrow Highway
42	San Dimas Canyon Rd / Bonita Avenue
43	San Dimas Canyon Rd / Arrow Highway
201	San Dimas Avenue / First Street
202	San Dimas Avenue / Railway Street
203	San Dimas Avenue / Commercial Street
44	Wheeler Avenue / Third Street
45	Arrow Highway / Wheeler Avenue
46	A Street / Third Street
47	A Street / First Street
48	Arrow Highway / A Street
49	D Street / Third Street
50	D Street / First Street
51	D Street / Arrow Highway
52	E Street / Third Street
53	E Street / Second Street
54	E Street / First Street
55	Fairplex Drive/E Street & Arrow Highway
56	White Avenue / Third Street
57	White Avenue / Second Street
58	White Avenue / First Street
59	White Avenue / Sierra Way
60	White Avenue / Arrow Highway
61	D Street / Bonita Avenue
62	White Avenue / Foothill Boulevard
63	White Avenue / Bonita Avenue
64	La Verne Avenue / Arrow Highway
65	White Avenue / McKinley Avenue
66	N. Fulton Rd / Bonita Avenue
67	Fulton Rd / Arrow Highway
68	Garey Avenue / Bonita Avenue
69	Garey Avenue / Santa Fe Street
70	Garey Avenue / Arrow Highway
71	Towne Avenue / Bonita Avenue
72	Towne Avenue / Towne Center Drive
73	Towne Avenue / Arrow Highway
74	Garey Avenue / Harrison Avenue
1001	S. Fulton Rd / Metrolink W Driveway
1002	Santa Fe Street / Metrolink S Driveway
1003	Bonita Avenue / Jacaranda Way

Table 1: Project Modifications Study Area Intersections

Number	Study Area Intersection
1004	Arrow Highway / Pine Street
1005	Garey Avenue / Street B
1006	Street A / Bonita Avenue
1007	Garey Avenue / Grevillia Street
1008	Pine Street / Grevillia Street
1009	Arrow Highway / Amberson Street
75	Indian Hill Boulevard / Bonita Avenue
76	Indian Hill Boulevard / First Street
77	Indian Hill Boulevard / Santa Fe Street
78	Indian Hill Boulevard / Arrow Highway
79	College Avenue / Bonita Avenue
80	College Avenue / First Street
81	College Avenue / Arrow Highway
82	Claremont Boulevard / First Street
83	Mills Avenue & Claremont Boulevard / Arrow Highway
84	Monte Vista Avenue / Arrow Route
85	Monte Vista Avenue / Richton Street
86	Monte Vista Avenue / Arrow Highway
87	Fremont Avenue / Arrow Highway
88	Central Avenue / Arrow Route
89	Central Avenue / Richton Street & 9th Street
90	Central Avenue / Arrow Highway

Note: The numbering system has been retained from the 2013 FIER for consistency. The added intersections have an assigned number greater than 100.

1.3 Vehicle-Miles Traveled

Section 15064.3 of the CEQA Guidelines provides for the use of VMT to evaluate the transportation impacts of transit projects, instead of level of service (LOS) and other measures of traffic flow, under CEQA. Section 15064.3(c) states that "a lead agency may elect to be governed by the provisions of this section immediately. Beginning on July 1, 2020, the provisions of this section shall apply statewide."

The guidelines authorize lead agencies to use VMT as the measure of transportation impacts as of December 2018.

The Governor's Office of Planning and Research issued a "Technical Advisory on Evaluating Transportation Impacts" (December 2018). It includes a specific directive that:

> *Transit and active transportation projects generally reduce VMT and therefore are presumed to cause a less-than-significant impact on transportation. This presumption may apply to all passenger rail projects, bus and bus rapid transit projects, and bicycle and pedestrian infrastructure projects. Streamlining transit and active transportation projects aligns with each of*

the three statutory goals contained in SB 743 by reducing GHG emissions, increasing multimodal transportation networks, and facilitating mixed use development.

The presumption of a less-than-significant impact suggests that detailed VMT analysis is not required for the Metro Gold Line Foothill Extension. However, to confirm that assumption, the Measure R travel demand model was used to assess whether the Project Modifications would reduce VMT. That assessment was conducted on a regional level for the reduced parking demand. It is appropriate to assess VMT at a regional level because the purpose of using VMT as a measure of transportation impacts is to assess the extent to which a project (or as here the Project Modifications) would reduce or increase regional travel and thus regional GHG emissions.

VMT was also evaluated for the study area, using a two-mile buffer around the proposed Gold Line stations, as illustrated in **Figure 1**. The focused VMT analysis captures the effects of travel changes specific to the affected area.

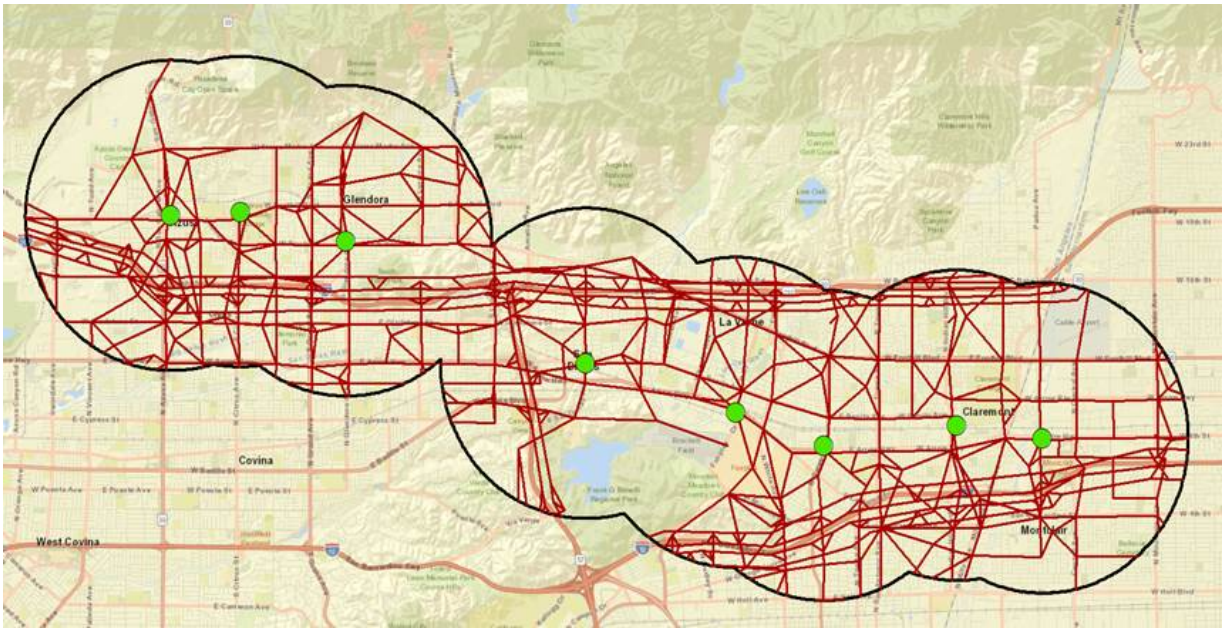

Figure 1: Vehicle-Miles Traveled Study Area Evaluation

1.4 Traffic Operations Analysis

Traffic operations analysis was performed using the same methodology used in the 2013 FEIR and addenda. Signalized intersection delay was evaluated, and LOS was based on the overall intersection average delay. For all-way, stop-controlled (unsignalized) intersections, the overall intersection delay and LOS were reported. For one-way or two-way stop-controlled intersections, the delay and LOS for the worst approach were reported. LOS and delay were calculated using the Highway Capacity Manual (HCM) 2000 report outputs from Synchro (version 10). At some intersections, limitations of the HCM 2000 methodology were encountered. For those intersections, HCM 2010 methodologies were used for reporting.

The 2013 FEIR and addenda used Los Angeles County thresholds, which use numerical impact thresholds to evaluate impacts of a project as compared to the future No Build condition for determining the impacts of the Project Modifications. The methodology is based on the *Los Angeles County Traffic Impact Study Guidelines* (County of Los Angeles, 1997). Using that methodology, an intersection is considered to have significant impacts if the change in delay from the No Build scenario is equal to or greater than the values shown in **Table 2**.

Table 2: Los Angeles County Intersection Impact Thresholds

Control Type	Final LOS with Project	Increase in Delay from No Build (seconds/vehicle)
Unsignalized	C	4 or more
	D	2 or more
	E/F	1.5 or more
Signalized	C	6 or more
	D	4 or more
	E/F	2.5 or more

Source: Los Angeles County, 1997

The 2019 Supplemental Environmental Impact Report (2019 SEIR) also used the City of Pomona criteria. These guidelines for traffic impact analysis are based on the *Pomona Traffic Impact Study Guidelines* (City of Pomona, 2012), which describe the criteria for project impacts as follows:

Signalized intersections: Impact occurs if an intersection is projected to operate at LOS D or better in the No Build scenario and degrades to LOS E or worse in the Build scenario;

- or, an intersection operating at LOS E or F in the No Build scenario has an increase in delay in the Build scenario.

Unsignalized intersections: Impact occurs if an intersection is projected to operate at LOS D or better in the No Build scenario and degrades to LOS E or worse in the Build scenario;

- or, the project contributes additional traffic to an intersection operating at LOS E or F in the No Build scenario;
- and, one or both of the following are met:
  - the project adds 10 or more trips to any approach
  - the intersection meets peak hour traffic signal warrants after the project added trips

The December 2018 revisions to the CEQA Guidelines eliminate intersection delay as a CEQA impact criterion. However, LOS and delay were used in the traffic operational analysis to allow an “apples to apples” comparison of the traffic operations for the Project Modifications against the traffic operations for the Approved Project, as compared to the No Build scenario.

The year 2035 was retained as the Project planning horizon for the Project Modifications. A technical consideration is that the updates for the 2035 scenarios resulted in LOS projections that were different

than the 2013 FEIR. The Synchro software is the calculation tool for determining LOS and delay based on intersection geometrics, signal timing, and traffic volumes. The software uses methodologies from the Transportation Research Board's HCM standard reference, developed by researchers to predict intersection delay. The Synchro software implements those methodologies and includes additional steps to improve the predicted values when estimating delay. The software goes through continuous updates to the coding and methodologies, and these updates change the results. The traffic analysis for the 2013 FEIR used version 7 of the Synchro software but a more recent release (version 10) was used for the updated analysis.

To obtain a clear assessment of the operational differences between the traffic analysis conducted for the 2013 FEIR and the analysis summarized in this memorandum for the Project Modifications, it was necessary to further refine the models prior to drawing direct comparisons. Sections 1.4.1, 1.4.2, and 1.4.3 provide the details on the model refinements to get to the 2013 FEIR Build Alternative and to the Project Modifications Build Alternative.

1.4.1 No Build Alternative

The No Build scenario that was studied in the 2019 SEIR was retained for the analysis in this memorandum. That scenario was updated from the 2013 FEIR No Build scenario to include updated information regarding lane geometrics and phasing of intersection signals since the completion of the 2013 FEIR. Additional updates were made to the 2019 SEIR No Build scenario model to reflect current plans. All of these modifications are described in detail in Section 1.4.2. The intersections not analyzed as part of the 2019 SEIR in the City of Claremont and City of Montclair were also updated to be able to determine potential impacts. This overall updated No Build baseline allowed for a more appropriate assessment of intersection impacts to reflect updated No Build conditions. Detailed LOS worksheets for the study area intersections that were updated since the 2019 SEIR are provided in **Attachment A.**

1.4.2 FEIR Build Alternative

The original 2013 FEIR traffic forecasts (turning movement volumes) for the Build Alternative were used to create a new Synchro model. In the new Synchro model, changes in the roadway network and signal timing done as improvements outside of the Approved Project since 2013 were included. Some examples include roadway widenings, modified lane channelizations, lane reconfigurations at intersections, and changes to left-turn phasing. Where major housing developments were built since 2013, trips were added to the 2013 FEIR traffic forecasts. This approach eliminated the potential to have major differences in LOS and delay calculations that could be interpreted as operational effects from the Project Modifications.

A second step that was needed to model the FEIR Build Alternative was to include any improvements identified in the four FEIR addenda and the SEIR that became project improvements since the 2013 FEIR traffic analysis. The focused technical studies that were support documentation for these improvements were reviewed. Any changes to original traffic patterns and/or any new analysis (specifically new intersections) were captured in this FEIR Build Alternative to represent the most recent version of the Approved Project.

These model changes to reflect major developments and transportation improvements, organized by city, include the following:

- Glendora background projects:
  - Near the proposed Gold Line station, a new transit-oriented housing development, the Glendora Village Townhomes, includes 53 townhome units. The development is located on the west side of Glendora Avenue, between the at-grade crossing and E Ada Avenue. The development is fully constructed and occupied. Trip generation, trip distribution, and trip assignment efforts were performed to capture the effects of this development in the surrounding study intersections in Glendora.
  - Near the proposed Gold Line station, a new transit-oriented housing development, the Moreton Place by Watt Communities, includes 40 detached single-family houses. The development is located adjacent to the tracks and west of Vermont Avenue. The project is assumed to be completed and fully occupied prior to the construction of the Gold Line extension. Trip generation, trip distribution, and trip assignment efforts were performed to capture the effects of this development in the surrounding study intersections.
  - Near the Barranca Avenue at-grade crossing, the La Colina (former Monrovia Nursery) includes 74 single-family detached dwelling units within an area of 39.7 acres. Trip generation, trip distribution, and trip assignment efforts were performed to capture the effects of this development in the surrounding study intersections in Glendora. Details on the methodology and conclusions were presented in the *Metro Gold Line Foothill Extension – Barranca Avenue Grade Crossing Queueing Analysis*.
  - The Barranca Avenue/Bennett Avenue intersection was signalized. As part of this improvement, dedicated left-turn lanes in the northbound and southbound approaches are provided.
- Glendora project features:
  - Near the Vermont Avenue at-grade crossing, the W Ada Avenue west leg will be closed, and the E Ada Avenue intersection will be signalized. The trips currently using the future restricted movements were redistributed along the surrounding study intersections. Details on the methodology and conclusions were presented in the *Metro Gold Line Foothill Extension –Ada Avenue Circulation Analysis*.
  - The at-grade crossing along Glenwood Avenue will be closed, and the Foothill Boulevard/Elwood Avenue intersection will be signalized. The trips currently using the closed at-grade crossing were redistributed along the surrounding study intersections. Details on the methodology and conclusions were presented in the *Glenwood Avenue and Elwood Avenue Closure Circulation Analysis*.
  - At the Barranca Avenue/Elderberry Drive intersection, the northbound left-turns and eastbound left-turns will be restricted due to the proposed raised median.
  - At the Grand Avenue/Foothill Boulevard intersection, an eastbound right-turn lane will be added.
  - At the Lone Hill Avenue/Auto Centre Drive intersection, a northbound shared through-right lane will be added.
- San Dimas background project:

- The San Dimas Canyon Road/Bonita Avenue intersection, the southbound approach was reconfigured.

- San Dimas project features:
  - The at-grade crossing along Monte Vista Avenue will be closed. The trips currently using the closed at-grade crossing were redistributed along the surrounding study intersections.
  - At the San Dimas Avenue/Bonita Avenue intersection, the northbound and southbound approaches will be reconfigured.
  - At the Arrow Highway/San Dimas Avenue intersection, a northbound through lane will be added.
  - At the 1st Street/San Dimas Avenue intersection, a northbound through lane will be added.
  - At the Railway Street/San Dimas Avenue intersection, a northbound through lane will be added.
  - At the Commercial Street/San Dimas Avenue intersection, a northbound through lane will be added and the intersection will be signalized.
- La Verne background project:
  - At the White Avenue/McKinley Avenue intersection, the southbound approach was reconfigured.
- La Verne project features:
  - At the D Street/Arrow Highway intersection, a westbound right-turn lane will be added.
  - At the E Street/Fairplex Drive/Arrow Highway intersection, a 185-foot dual northbound left-turn lane, a northbound through lane with a second receiving lane, and a 180-foot westbound right-turn lane will be added.
  - At the White Avenue/Arrow Highway intersection, northbound and southbound right-turn pockets will be added.
  - At the White Avenue/Foothill Boulevard intersection, the westbound approach will be reconfigured.
  - The La Verne Avenue/Arrow Highway intersection will be signalized.
- Pomona background project:
  - At the Pomona Station study intersections, a new transit-oriented housing development north of Pomona Station will be constructed. The Waterford Group is proposing an 8.44-acre development that will include 648 dwelling units, two parking structures, amenities, and some retail space. The Waterford Group housing development's current site plan proposed two access points. One access point (future Street A) is a proposed intersection on Bonita Avenue, immediately east of Jacaranda Street, and the other access point (future Street B) is a proposed intersection on Garey Avenue, north of the relocated freight tracks. It was assumed that the Waterford Group housing development will be completed prior to the construction of the Pomona Station parking facility. Trip generation, trip distribution, and trip assignment efforts were performed to capture the effects of this development in the surrounding study intersections in Pomona. Details on the methodology and conclusions were presented in the *Metro Gold Line Extension – Pomona Station (South) Traffic Feasibility Study*. Since nine

intersections were added that were not part of the original FEIR evaluation. The changes in travel patterns captured around the nine original FEIR intersections were integrated with the nine new intersections, as applicable.

- Pomona project features:
  - At the Towne Avenue/Towne Center Drive intersection, the westbound left turns will be restricted during the peak hours.
  - The S. Fulton Rd / Metrolink W Driveway intersection will be signalized and the southbound left-turns and westbound left-turns will be restricted.
- Claremont background project:
  - The westbound approach at the Claremont Boulevard/First Street intersection was reconfigured.
- Claremont project feature:
  - The College Avenue/First Street intersection will be signalized.
- Montclair background projects:
  - At the Monte Vista Avenue/Richton Street intersection, the northbound and westbound approaches was reconfigured.
  - At the Central Avenue/Arrow Highway intersection, the westbound approach was reconfigured.

1.4.3 Project Modifications Build Alternative

The Build Alternative for the Project Modifications includes all the intersection geometry and signal timing details from the FEIR Build (with model updates) as described in Section 1.4.2. Two additional modifications to the geometric coding of the model were introduced for the Project Modifications Build Alternative:

- the permanent closure of Intersection 69 (Garey Avenue/Santa Fe Street)
- the signalization of Intersection 1007 (Garey Avenue/Grevillia Street)

At the Glendora, San Dimas, La Verne, Claremont, and Montclair study intersections, the traffic forecasts for this alternative were updated to reflect the changing travel patterns at the study intersections with the reduced parking capacities at the surface lots and changes in ridership as a result. Detailed forecasting and traffic analysis were conducted for the intersections in the vicinity of the stations.

At the Pomona Station study intersections, a new trip generation, trip distribution, and trip assignment effort was performed based on the new location of the parking lot facility and the updated parking spaces available.

1.4.4 Project Modifications Build Alternative for Phase 1

The Project Modifications Build Alternative for Phase 1 (with the Gold Line extension terminus at the Pomona Station) includes the intersection geometry and signal timing details from the Build Alternative for the Project Modifications as described in Section 1.4.3. Similar to the Build Alternative for the Project

Modifications, the ridership, automobile trips, and daily parking demand forecasts were reviewed to determine the need for traffic analysis for Phase 1. After travel demand modeling review, it was determined that with the Project Modifications for Phase 1, the daily station vehicular demands were 20% to 36% lower at the Glendora, San Dimas, and La Verne stations compared to the demands reported in the 2019 SEIR. Daily station vehicular demands around the Pomona station were only 9% lower. Due to the reduction in vehicular demand around the Glendora, San Dimas, and La Verne stations, traffic analysis was not conducted for those study intersections since the analysis done for the 2019 SEIR remains a conservative approach. At Pomona, the study intersections were evaluated due to the relocation of the parking facility and the smaller change in vehicular demand as a result of the Project Modifications.

1.4.5 Project Modifications Build Alternative for Phase 2

A similar evaluation of the travel demand modeling outputs was conducted for the Project Modifications Build Alternative for Phase 2 (with the Gold Line extension terminus at the Claremont Station). After travel demand modeling review, it was determined that with the Project Modifications for Phase 2, the daily station vehicular demands were 25% to 49% lower at the Glendora, San Dimas, La Verne, Pomona, and Claremont stations compared to the demands reported in Addendum No. 2. Due to the reduction in vehicular demand around all stations, traffic analysis was not conducted for Project Modifications Build Alternative for Phase 2 since the analysis done for the Addendum No. 2 remains a conservative approach.

2. Regional Forecasting Results

Table 3 provides a comparison of the projected ridership at each of the proposed station. **Tables 4 and 5** provide similar comparisons for Phase 1 and Phase 2 of the Project Modifications.

Table 3: Projected Ridership of the Approved Project and Project Modifications

Projected Ridership (Full Build to Montclair)			
Station	**Approved Project**	**Project Modifications**	**Project Modifications Change**
Glendora	1,860	1,663	-198
San Dimas	1,780	1,484	-296
La Verne	1,840	1,793	-48
Pomona	3,010	3,414	+404
Claremont	2,840	2,371	-469
Montclair	6,440	6,479	+39
Total	17,770	17,203	-567

Source: AECOM, 2020; WSP, 2018

Table 4: Projected Ridership of the Approved Project and Project Modifications (Phase 1 to Pomona)

Projected Ridership (Partial Build to Pomona)			
Station	**Approved Project**	**Project Modifications**	**Project Modifications Change**
Glendora	1,860	1,739	-121
San Dimas	1,640	1,479	-162
La Verne	2,190	1,929	-261
Pomona	5,950	5,757	-193
Total	11,640	10,904	-737

Source: AECOM, 2020; WSP, 2018

Table 5: Projected Ridership of the Approved Project and Project Modifications (Phase 2 to Claremont)

Projected Ridership (Partial Build to Claremont)			
Station	**Approved Project**	**Project Modifications**	**Project Modifications Change**
Glendora	1,798	1,658	-140
San Dimas	1,611	1,459	-152
La Verne	2,097	1,839	-259
Pomona	4,187	3,984	-203
Claremont	4,343	4,278	-66
Total	14,035	13,217	-819

Source: AECOM, 2020; WSP, 2018

The model delineates trips to and from the stations based on their arrival mode: walk, bus/shuttle, park-and-ride, and kiss-and-ride. For the latter two modes, Gold Line passengers would arrive at the station by automobile. **Table 6** provides a comparison of daily automobile trips to and from each proposed station. The total daily automobile trips include the sum of park-and-ride and kiss-and-ride modes of access to the stations. For the shared station at Pomona, Claremont, and Montclair, the automobile access would be for both Metro Gold Line and Metrolink service because they share facilities at these stations. **Tables 7 and 8** provide similar comparisons for Phase 1 and Phase 2 of the Project Modifications.

Table 6: Automobile Access of Approved Project and Project Modifications

Total Automobile Trips (Full Build to Montclair)			
Station	**Approved Project**	**Project Modifications**	**Project Modifications Change**
Glendora	407	364	-43
San Dimas	477	362	-115
La Verne	679	373	-306
Pomona	1,571	1,081	-490
Claremont	1,154	856	-298

Table 6: Automobile Access of Approved Project and Project Modifications

Total Automobile Trips (Full Build to Montclair)			
Station	**Approved Project**	**Project Modifications**	**Project Modifications Change**
Montclair	1,855	1,853	-2
Total	6,142	4,889	-1,253

Source: AECOM, 2020; WSP 2018

Table 7: Automobile Access of Approved Project and Project Modifications (Phase 1 to Pomona)

Total Automobile Trips (Partial Build to Pomona)			
Station	**Approved Project**	**Project Modifications**	**Project Modifications Change**
Glendora	480	370	-110
San Dimas	527	378	-149
La Verne	692	430	-262
Pomona	1,294	1,180	-114
Total	2,993	2,358	-635

Source: AECOM, 2020; WSP 2018

Table 8: Automobile Access of Approved Project and Project Modifications (Phase 2 to Claremont)

Total Automobile Trips (Partial Build to Claremont)			
Station	**Approved Project**	**Project Modifications**	**Project Modifications Change**
Glendora	494	362	-132
San Dimas	551	381	-170
La Verne	697	408	-289
Pomona	1,819	1,150	-669
Claremont	1,653	937	-716
Total	5,214	3,239	-1,976

Source: AECOM, 2020; WSP 2018

To assess traffic operations changes, the percentage decreases in auto trips due to the Project Modifications were applied to the "Project Only" volumes from the Approved Project at the intersections near the affected stations (Glendora, San Dimas, La Verne, Pomona, Claremont, and Montclair). These adjusted Project Only volumes were added to the 2035 background traffic volumes to obtain the 2035 Build Alternative peak hour volumes for the Project Modifications. More details are provided in Section 5.

3. Parking

The Metro travel demand model was also used to identify which stations would have changes in parking demand as a result of the Project Modifications. **Table 9** is a summary of the comparison between parking conditions of the Approved Project and the Project Modifications. **Tables 10 and 11** provide similar comparisons for Phase 1 and Phase 2 of the Project Modifications.

Table 9: Parking Demand and Parking Supply of Approved Project and Project Modifications

Station	Approved Project			Project Modifications (Full Build to Montclair)		
	Daily Parking Demand	Parking Supply	Surplus/Deficit	Daily Parking Demand	Parking Supply	Surplus/Deficit
Glendora	317	420	103	288	302	14
San Dimas	382	450	68	284	289	5
La Verne	579	600	21	296	299	3
Pomona	1,064	1,000	-64	539	550	11
Claremont	852	1,100	248	542	539	-3
Montclair	1,550	1,600	50	1,521	1,600	79
Total	4745	5170	425	3,471	3,579	108

Source: AECOM, 2020; WSP 2018

Table 10: Parking Demand and Parking Supply of Approved Project and Project Modifications (Phase 1 to Pomona)

Station	Approved Project			Project Modifications (Partial Build to Pomona)		
	Daily Parking Demand	Parking Supply	Surplus/Deficit	Daily Parking Demand	Parking Supply	Surplus/Deficit
Glendora	399	420	21	292	302	10
San Dimas	427	450	23	275	289	14
La Verne	573	600	27	303	299	-4
Pomona	1,063	1,000	-63	545	550	5
Total	2,462	2,470	8	1,415	1,440	25

Source: AECOM, 2020; WSP 2018

Table 11: Parking Demand and Parking Supply of Approved Project and Project Modifications (Phase 2 to Claremont)

Station	Approved Project			Project Modifications (Partial Build to Claremont)		
	Daily Parking Demand	Parking Supply	Surplus/Deficit	Daily Parking Demand	Parking Supply	Surplus/Deficit
Glendora	392	420	28	287	302	15
San Dimas	431	450	19	287	289	2
La Verne	570	600	30	313	299	-14
Pomona	1,109	1,000	-109	556	550	-6
Claremont	1,194	1,100	-94	561	539	-22
Total	3,696	3,570	-126	2,005	1,979	-26

Source: AECOM, 2020; WSP 2018

As summarized in Table 9, due to the Project Modifications, the daily parking demand is reduced in all stations compared to the 2013 FEIR. There would be a negligible change at the Montclair Station. There would be sufficient parking capacity for riders at all stations. The referenced model used (WSP, 2018) to conduct the transportation analysis, and specifically parking, was the same one used for the 2013 FEIR, to provide and maintain consistency with the original analysis. In the Los Angeles metropolitan area, forecasting models are developed and maintained by regional transportation agencies (e.g., SCAG and Metro) and accepted as the standard practice for forecasting and analysis by transit agencies.

The model is documented in Los Angeles Mode Choice Model: Calibration/Validation Report, (Parsons Brinckerhoff, 2011). The socioeconomic and demographic data are based on the 2008 Regional Transportation Plan data developed and maintained by SCAG. The model used the socioeconomic and demographic data updated in 2014 as an input to reflect the 2035 horizon year.

For the parking analysis, the model is specific to the stations studied, including land use and local network inputs. The model is coded with information about existing and proposed transit routes, as well as the local and regional network. Land use then creates travel demand, which is assigned to different modes (auto, transit, etc.). The mode and route assignment is then iteratively adjusted as travel times on roads increase (which then can result in shifts to transit).

The model is set up to constrain the station parking demand to approximately the available capacity (i.e., the number of parking spaces). The modeling process iteratively computes and adjusts demand for parking to achieve a balance between supply and demand at each station's park-and-ride lot. That standard iterative process moves riders from excess parking demands to other access modes (walk, bus, kiss-and-ride), to other park-and-ride lots, or even changing their mode away from transit to autos (i.e., not taking the Gold Line at all). The model seeks to replicate the logic of individual travelers as they make decisions about trips. The base model (existing conditions) is validated by comparing the model predicted trips against field observations, and statistical analysis is conducted to confirm that the two sets of data match within accepted ranges.

4. Vehicle-Miles Traveled Analysis Results

Table 12 is a summary of the projected VMT for the Southern California region and study area (a two-mile buffer around the Gold Line stations). The Project Modifications would reduce VMT (including Phase 1 and Phase 2). Those reductions are associated with the shift in mode from automobile to transit trips with the increased Gold Line service and the reduced parking demand at all stations. Based on these reductions, there would be no significant impacts to VMT.

Table 12: Summary of Vehicle-Miles Traveled (Southern California Region and Study Area)

Vehicle-Miles Traveled (miles per day)		
Alternative	**Region**	**Study Area**
Existing Conditions (2013)	463,245,800	N/A
No Build (to Azusa)	537,968,460	10,563,900
Approved Project	537,473,260	10,517,100
Project Modifications	537,597,655	10,523,826
Project Modifications (Phase 1 to Pomona)	537,805,631	10,546,303
Project Modifications (Phase 2 to Claremont)	537,755,392	10,539,739
Difference – Approved Project vs. No Build	-495,200	-46,800
Difference – Project Modifications vs. No Build	-370,805	-40,074
Difference – Project Modifications (Phase 1) vs. No Build	-162,829	-17,597
Difference – Project Modifications (Phase 2) vs. No Build	-213,068	-24,161

Source: AECOM, 2020; WSP 2018; SCAG, 2016

The VMT analysis confirms that the Project Modifications are consistent with the regional strategy to reduce VMT to meet the regional VMT emission reductions needed to achieve the CARB 3B 375 GHG emission reduction targets and the site GHG emissions reduction goals (e.g., transit reduces auto trips by providing alternatives to cars and by facilitating land use changes to reduce VMT).

5. Traffic Operations Analysis Results

5.1 Level of Service Analysis

Tables 13 and 14 are delay and LOS summary of three scenarios:

- the original 2013 FEIR Build alternative
- the FEIR Build Alternative with the model updates discussed in Section 1.4.2
- the Build Alternative with Project Modifications

Detailed LOS worksheets for the FEIR Build Alternative with the model updates are provided in **Attachment B**. Detailed LOS worksheets for the FEIR Build Alternative with the Project Modifications are provided in **Attachment C**.

Table 13: Comparison of Approved Project, Approved Project (with Model Updates), and Project Modifications for AM Peak Hour Intersection Operations

Number	Study Area Intersection	Control	FEIR Approved Project		FEIR Approved Project with Model Updates		Project Modifications	
			LOS	Delay[a]	LOS	Delay[a]	LOS	Delay[a]
1	Barranca Avenue / Bennett Avenue	S	C	20.9	A	9.7	A	9.7
2	Barranca Avenue / Foothill Boulevard	S	B	11.1	B	13.1	B	13.2
3	Grand Avenue / Foothill Boulevard	S	C	29.9	C	28.4	C	28.4
4	Vermont Avenue E / Ada Avenue	U	B	13.3	A	8.6	A	8.6
5	Vermont Avenue / Route 66	S	A	7.5	B	19.3	B	19.3
6	Vermont Avenue / Foothill Boulevard	S	A	7.5	B	12.4	B	12.4
7	Vermont Avenue W / Ada Avenue	U	B	12.3				
8	Glendora Avenue / Foothill Boulevard	S	C	28.1	C	20.4	C	20.4
9	Glendora Avenue / Ada Avenue	U	B	12.3	B	12.3	B	12.3
10	Glendora Avenue / Route 66	S	C	22.8	C	31.6	C	31.6
11	Pasadena Avenue / Lemon Avenue	U	A	7.9	A	7.9	A	7.9
12	Pasadena Avenue / Route 66	S	B	12.4	C	22.7	C	23.2
13	Glenwood Avenue / Lemon Avenue	U	B	10.1	B	11.7	B	11.7
14	Glenwood Avenue / Route 66	S	B	14.7	B	18.4	B	18.4
15	Elwood Avenue / Lemon Avenue	U	B	10.8	B	13.2	B	13.2
16	Elwood Avenue / Route 66	S	B	15.5	C	24.7	C	24.7
17	Lorraine Avenue / Lemon Avenue	U	C	19.8	C	21.9	C	21.9
18	Lorraine Avenue / Route 66	S	B	19.1	C	24.6	C	24.6
19	Lone Hill Avenue / Auto Centre Drive	S	B	15.4	B	17.8	B	17.8
20	Barranca Avenue / Sierra Madre Avenue	U	C	19.8	C	16.7	C	16.7
21	Glendora Avenue / Sierra Madre Avenue	U	E	43.3	E	44.9	E	45.1
22	Lone Hill Avenue / Glendora Marketplace	S	B	15.2	B	13.4	B	13.4
101	Barranca Avenue / Elderberry Drive	U			B	11.0	B	11.0
102	Grand Avenue / Ada Avenue	S			A	4.4	A	4.4
103	Grand Avenue / Route 66	S			D	41.8	D	41.9
104	Vermont Avenue / Carroll Avenue	U			B	11.1	B	11.1
105	Glendora Avenue / Carroll Avenue	U			C	19.1	C	19.1
106	Glendora Avenue / Avalon Apartments	U			B	11.6	B	11.6
107	Glendora Avenue / Walnut Avenue	U			B	14.8	B	14.8
108	Walnut Avenue / Vista Bonita Avenue	U			B	10.6	B	10.6

Table 13: Comparison of Approved Project, Approved Project (with Model Updates), and Project Modifications for AM Peak Hour Intersection Operations

Number	Study Area Intersection	Control	FEIR Approved Project		FEIR Approved Project with Model Updates		Project Modifications	
			LOS	Delay[a]	LOS	Delay[a]	LOS	Delay[a]
109	Glenwood Avenue / Foothill Boulevard[b]	U			F	51.0	F	51.0
110	Elwood Avenue / Foothill Boulevard	U/S			A	8.8	A	8.8
23	Lone Hill Avenue / Gladstone Street	S	B	18.6	C	23.4	C	23.5
24	SR 57 SB / Arrow Highway	S	A	7.4	C	29.6	C	29.7
25	SR 57 NB / Arrow Highway & Bonita Avenue	S	C	27.5	D	42.9	D	42.7
26	Eucla Avenue / Fifth Street	U	A	7.4	A	7.8	A	7.8
27	Eucla Avenue / Second Street	U	A	9.8	A	9.8	A	9.8
28	Eucla Avenue / Bonita Avenue	S	A	4.8	B	13.1	B	13.1
29	Eucla Avenue / Arrow Highway	S	A	8.8	B	18.3	B	18.3
30	Acacia Street / Fifth Street	U	A	9.2	A	9.2	A	9.2
31	Acacia Street / Second Street	U	A	9.1	A	9.1	A	9.1
32	Acacia Street / Bonita Avenue	U	B	10.6	A	9.9	A	9.9
33	Cataract Avenue / Second Street	U	B	10.0	B	10.0	A	10.0
34	Cataract Avenue / Bonita Avenue[b]	U/S	A	6.1	B	20.0	B	19.9
35	Monte Vista Avenue / Second Street	U	A	9.5	A	9.5	A	9.4
36	Monte Vista Avenue / Bonita Avenue	U	C	17.7	B	14.0	B	14.0
37	San Dimas Avenue / Second Street	U	C	20.5	B	13.9	B	13.9
38	San Dimas Avenue / Bonita Avenue	S	B	12.2	C	20.6	C	20.7
39	San Dimas Avenue / Arrow Highway	S	C	34.1	D	35.2	C	34.5
40	Walnut Avenue / Bonita Avenue	S	A	6.8	B	12.1	B	12.1
41	Walnut Avenue / Arrow Highway	S	B	13.5	C	21.7	C	21.8
42	San Dimas Canyon Rd / Bonita Avenue	S	A	7.3	C	26.8	C	26.8
43	San Dimas Canyon Rd / Arrow Highway	S	C	27.6	C	33.7	C	33.9
201	San Dimas Avenue / First Street	U						
202	San Dimas Avenue / Railway Street	U/S						
203	San Dimas Avenue / Commercial Street	U/S						
44	Wheeler Avenue / Third Street	U	C	16.7	C	18.2	C	18.2
45	Arrow Highway / Wheeler Avenue	S	D	50.6	D	35.1	C	34.9
46	A Street / Third Street	U	B	10.4	B	10.4	B	10.4
47	A Street / First Street	U	A	9.5	A	9.5	A	9.4
48	Arrow Highway / A Street	U/S	A	9.8	B	14.9	B	13.5
49	D Street / Third Street	U	B	10.2	B	10.2	A	9.9
50	D Street / First Street	U	A	9.9	A	9.9	A	9.7
51	D Street / Arrow Highway	S	C	22.2	C	30.2	C	28.1

Table 13: Comparison of Approved Project, Approved Project (with Model Updates), and Project Modifications for AM Peak Hour Intersection Operations

Number	Study Area Intersection	Control	FEIR Approved Project		FEIR Approved Project with Model Updates		Project Modifications	
			LOS	Delay[a]	LOS	Delay[a]	LOS	Delay[a]
52	E Street / Third Street	U	B	10.6	B	10.7	B	10.4
53	E Street / Second Street	U	C	15.6	B	10.9	B	10.5
54	E Street / First Street	U	B	13.6	B	13.5	B	12.5
55	Fairplex Drive/E Street & Arrow Highway	S	C	27.3	C	28.7	C	28.2
56	White Avenue / Third Street	U	E	39.8	C	16.9	C	15.7
57	White Avenue / Second Street	U	D	28.0	B	14.8	B	14.6
58	White Avenue / First Street	U	D	33.1	C	16.2	C	15.9
59	White Avenue / Sierra Way	U	B	14.8	B	14.3	B	12.9
60	White Avenue / Arrow Highway	S	C	31.9	C	32.5	D	35.3
61	D Street / Bonita Avenue	S	A	8.2	C	33.5	C	33.5
62	White Avenue / Foothill Boulevard	S	C	29.4	C	28.3	C	28.3
63	White Avenue / Bonita Avenue	S	B	14.3	C	33.6	C	33.1
64	La Verne Avenue / Arrow Highway	U/S	F	141.3	B	14.9	B	14.9
65	White Avenue / McKinley Avenue	S	B	10.8	C	20.4	C	20.4
66	N. Fulton Rd / Bonita Avenue	U	D	31.2	B	14.5	B	13.1
67	Fulton Rd / Arrow Highway	U	D	28.4	D	25.9	C	19.7
68	Garey Avenue / Bonita Avenue	S	C	36.7	D	44.4	C	21.8
69	Garey Avenue / Santa Fe Street	U	A	9.3	A	9.7		
70	Garey Avenue / Arrow Highway	S	C	30.1	C	30.0	C	29.3
71	Towne Avenue / Bonita Avenue	S	B	24.5	C	21.6	A	9.7
72	Towne Avenue / Towne Center Drive	U	D	29.7	A	9.6	A	9.4
73	Towne Avenue / Arrow Highway	S	D	45.5	D	46.4	D	49.1
74	Garey Avenue / Harrison Avenue	S	A	8.7	A	8.4	A	8.2
1001	S. Fulton Rd / Metrolink W Driveway	U/S			A	3.1	A	1.6
1002	Santa Fe Street / Metrolink S Driveway	U			A	9.0	A	8.9
1003	Bonita Avenue / Jacaranda Way	U			F	> 100.0	C	18.1
1004	Arrow Highway / Pine Street[b]	U			B	12.8	B	12.6
1005	Garey Avenue / Street B	U			B	13.2	B	11.9
1006	Street A / Bonita Avenue	U			C	22.9	C	15.2
1007	Garey Avenue / Grevillia Street	U/S			B	12.5	A	2.0
1008	Pine Street / Grevillia Street	U			A	9.0	A	9.1
1009	Arrow Highway / Amberson Street	S			C	20.0	C	19.6
75	Indian Hill Boulevard / Bonita Avenue	S	A	8.0	C	20.4	C	20.4
76	Indian Hill Boulevard / First Street	S	B	10.9	B	10.8	B	10.9
77	Indian Hill Boulevard / Santa Fe Street	U	B	11.2	B	12.1	B	11.9

Table 13: Comparison of Approved Project, Approved Project (with Model Updates), and Project Modifications for AM Peak Hour Intersection Operations

Number	Study Area Intersection	Control	FEIR Approved Project		FEIR Approved Project with Model Updates		Project Modifications	
			LOS	Delay[a]	LOS	Delay[a]	LOS	Delay[a]
78	Indian Hill Boulevard / Arrow Highway	S	C	21.8	C	25.1	C	24.9
79	College Avenue / Bonita Avenue	U	B	10.9	B	10.4	B	10.3
80	College Avenue / First Street[b]	U/S	C	19.9	C	18.2	B	17.0
81	College Avenue / Arrow Highway	S	B	11.1	B	11.7	B	11.4
82	Claremont Boulevard / First Street	S	A	4.3	A	7.0	A	6.8
83	Mills Avenue & Claremont Boulevard / Arrow Highway	S	C	22.4	C	25.1	C	25.3
84	Monte Vista Avenue / Arrow Route	S	B	13.3	B	16.7	B	16.7
85	Monte Vista Avenue / Richton Street	S	A	5.4	A	7.1	A	7.1
86	Monte Vista Avenue / Arrow Highway	S	B	19.1	C	23.8	C	23.8
87	Fremont Avenue / Arrow Highway	S	A	1.7	B	12.8	B	12.8
88	Central Avenue / Arrow Route	S	B	13.0	B	18.8	B	18.8
89	Central Avenue / Richton Street & 9th Street	S	B	13.1	B	19.4	B	19.4
90	Central Avenue / Arrow Highway	S	B	15.8	B	19.0	B	19.0

Notes:
-Shaded cells are shown for intersections that were not evaluated in the 2013 FEIR (Intersections 101 to 110, 201 to 203, and 1001 to 1009), intersections that were only evaluated in the higher volume PM peak period (Intersections 201 to 203), or intersections that will be closed as part of the Project Modifications (Intersection 7 and 69).
-In Pomona and Claremont, for intersections 66 to 83, the LOS and delay for the FEIR Approved Project are from Addendum No. 2.

[a] Delay is reported in seconds per vehicle using HCM 2000 methodologies for signalized and unsignalized intersections.
[b] HCM 2010 methodology was applied due to HCM 2000 limitations with intersection geometry or to maintain technical consistency.
S = Signalized
U = Unsignalized
U/S = an intersection that is unsignalized for the No Build and will be signalized as part of the Approved Project and/or Project Modifications.

Table 14: Comparison of Approved Project, Approved Project (with Model Updates), and Project Modifications for PM Peak Hour Intersection Operations

Number	Study Area Intersection	Control	FEIR Approved Project		FEIR Approved Project with Model Updates		Project Modifications	
			LOS	Delay[a]	LOS	Delay[a]	LOS	Delay[a]
1	Barranca Avenue / Bennett Avenue	S	B	12.4	A	6.1	A	6.1
2	Barranca Avenue / Foothill Boulevard	S	A	8.4	B	11.3	B	11.3

Table 14: Comparison of Approved Project, Approved Project (with Model Updates), and Project Modifications for PM Peak Hour Intersection Operations

Number	Study Area Intersection	Control	FEIR Approved Project		FEIR Approved Project with Model Updates		Project Modifications	
			LOS	Delay[a]	LOS	Delay[a]	LOS	Delay[a]
3	Grand Avenue / Foothill Boulevard	S	C	28.5	C	27.8	C	27.9
4	Vermont Avenue E / Ada Avenue	U	C	15.3	B	10.3	B	12.2
5	Vermont Avenue / Route 66	S	A	9.1	B	19.4	B	19.4
6	Vermont Avenue / Foothill Boulevard	S	A	7.7	B	13.9	B	13.5
7	Vermont Avenue W / Ada Avenue	U	B	13.2				
8	Glendora Avenue / Foothill Boulevard	S	C	28.1	C	22.1	C	22.0
9	Glendora Avenue / Ada Avenue	U	C	15.3	C	15.4	C	15.3
10	Glendora Avenue / Route 66	S	C	32.4	D	49.7	D	49.3
11	Pasadena Avenue / Lemon Avenue	U	A	7.8	A	7.8	A	7.8
12	Pasadena Avenue / Route 66	S	B	11.2	B	17.4	B	17.4
13	Glenwood Avenue / Lemon Avenue	U	B	11.3	B	13.1	B	13.1
14	Glenwood Avenue / Route 66	S	B	13.0	B	18.3	B	17.6
15	Elwood Avenue / Lemon Avenue	U	B	11.0	C	15.6	C	15.6
16	Elwood Avenue / Route 66	S	B	18.1	C	20.4	C	20.4
17	Lorraine Avenue / Lemon Avenue	U	B	13.7	C	15.3	C	15.3
18	Lorraine Avenue / Route 66	S	B	11.6	C	23.3	C	20.9
19	Lone Hill Avenue / Auto Centre Drive	S	C	22.7	C	27.0	C	27.1
20	Barranca Avenue / Sierra Madre Avenue	U	C	15.5	B	14.1	B	14.1
21	Glendora Avenue / Sierra Madre Avenue	U	B	14.2	B	14.3	B	14.3
22	Lone Hill Avenue / Glendora Marketplace	S	C	23.1	C	21.2	C	21.2
101	Barranca Avenue / Elderberry Drive	U			B	10.5	B	10.5
102	Grand Avenue / Ada Avenue	S			A	6.9	A	6.8
103	Grand Avenue / Route 66	S			D	40.9	D	40.9
104	Vermont Avenue / Carroll Avenue	U			B	12.8	B	12.7
105	Glendora Avenue / Carroll Avenue	U			D	25.7	D	25.7
106	Glendora Avenue / Avalon Apartments	U			B	12.0	B	12.0
107	Glendora Avenue / Walnut Avenue	U			C	20.8	C	20.8
108	Walnut Avenue / Vista Bonita Avenue	U			B	11.3	B	11.3
109	Glenwood Avenue / Foothill Boulevard[b]	U			D	34.0	D	34.0
110	Elwood Avenue / Foothill Boulevard	U/S			A	7.9	A	7.9
23	Lone Hill Avenue / Gladstone Street	S	C	25.5	C	28.5	C	28.5

Table 14: Comparison of Approved Project, Approved Project (with Model Updates), and Project Modifications for PM Peak Hour Intersection Operations

Number	Study Area Intersection	Control	FEIR Approved Project		FEIR Approved Project with Model Updates		Project Modifications	
			LOS	Delay[a]	LOS	Delay[a]	LOS	Delay[a]
24	SR 57 SB / Arrow Highway	S	B	19.4	E	78.2	E	76.2
25	SR 57 NB / Arrow Highway & Bonita Avenue	S	C	29.1	F	96.4	F	95.9
26	Eucla Avenue / Fifth Street	U	A	7.4	A	8.0	A	8.0
27	Eucla Avenue / Second Street	U	B	10.5	B	10.6	B	10.6
28	Eucla Avenue / Bonita Avenue	S	A	8.0	B	12.9	B	13.0
29	Eucla Avenue / Arrow Highway	S	B	11.7	C	20.9	C	20.9
30	Acacia Street / Fifth Street	U	A	9.3	A	9.3	A	9.3
31	Acacia Street / Second Street	U	A	9.1	A	9.1	A	9.1
32	Acacia Street / Bonita Avenue	U	C	24.4	B	12.2	B	12.2
33	Cataract Avenue / Second Street	U	B	10.3	B	10.3	B	10.2
34	Cataract Avenue / Bonita Avenue[b]	U/S	A	5.2	C	23.9	C	23.9
35	Monte Vista Avenue / Second Street	U	A	9.9	A	9.9	A	9.9
36	Monte Vista Avenue / Bonita Avenue	U	E	47.9	C	20.3	C	20.4
37	San Dimas Avenue / Second Street	U	E	38.2	C	17.0	C	16.9
38	San Dimas Avenue / Bonita Avenue	S	B	19.2	C	28.4	C	28.5
39	San Dimas Avenue / Arrow Highway	S	D	48.3	D	41.6	D	41.4
40	Walnut Avenue / Bonita Avenue	S	B	14.4	B	15.5	B	15.5
41	Walnut Avenue / Arrow Highway	S	B	12.9	C	20.5	B	19.7
42	San Dimas Canyon Rd / Bonita Avenue	S	A	9.0	C	28.3	C	28.3
43	San Dimas Canyon Rd / Arrow Highway	S	C	28.1	C	31.8	C	31.8
201	San Dimas Avenue / First Street	U			C	19.7	C	19.8
202	San Dimas Avenue / Railway Street	U/S			A	3.6	A	3.6
203	San Dimas Avenue / Commercial Street	U/S			A	3.0	A	3.0
44	Wheeler Avenue / Third Street	U	C	15.7	C	17.6	C	17.6
45	Arrow Highway / Wheeler Avenue	S	D	37.8	C	32.2	C	32.4
46	A Street / Third Street	U	B	10.8	B	10.8	B	10.8
47	A Street / First Street	U	B	10.0	B	10.1	B	10.1
48	Arrow Highway / A Street	U/S	D	39.9	B	14.8	B	14.7
49	D Street / Third Street	U	C	15.4	C	15.4	B	14.5
50	D Street / First Street	U	B	12.7	B	12.5	B	12.0
51	D Street / Arrow Highway	S	C	30.4	C	28.0	C	28.0
52	E Street / Third Street	U	C	16.0	B	10.7	B	11.3
53	E Street / Second Street	U	C	16.9	C	15.9	B	14.2
54	E Street / First Street	U	B	13.7	B	12.4	B	11.9

Table 14: Comparison of Approved Project, Approved Project (with Model Updates), and Project Modifications for PM Peak Hour Intersection Operations

Number	Study Area Intersection	Control	FEIR Approved Project		FEIR Approved Project with Model Updates		Project Modifications	
			LOS	Delay[a]	LOS	Delay[a]	LOS	Delay[a]
55	Fairplex Drive/E Street & Arrow Highway	S	C	33.3	C	33.8	C	29.8
56	White Avenue / Third Street	U	F	95.9	C	22.9	C	22.2
57	White Avenue / Second Street	U	F	121.4	C	20.6	C	19.9
58	White Avenue / First Street	U	F	142.2	D	28.1	C	24.2
59	White Avenue / Sierra Way	U	C	19.6	C	19.5	C	18.8
60	White Avenue / Arrow Highway	S	C	31.7	D	37.5	D	36.2
61	D Street / Bonita Avenue	S	B	10.8	C	34.0	C	33.8
62	White Avenue / Foothill Boulevard	S	D	39.6	D	37.4	D	37.6
63	White Avenue / Bonita Avenue	S	B	17.9	D	48.0	D	46.6
64	La Verne Avenue / Arrow Highway	U/S	F	652.8	C	25.5	C	23.9
65	White Avenue / McKinley Avenue	S	B	14.1	C	22.7	C	22.7
66	N. Fulton Rd / Bonita Avenue	U	F	161.0	C	22.3	C	18.0
67	Fulton Rd / Arrow Highway	U	E	47.0	C	23.7	C	19.2
68	Garey Avenue / Bonita Avenue	S	C	20.3	E	62.7	C	27.0
69	Garey Avenue / Santa Fe Street	U	B	11.8	B	11.0		
70	Garey Avenue / Arrow Highway	S	C	31.9	D	52.5	D	44.0
71	Towne Avenue / Bonita Avenue	S	B	15.3	B	14.3	B	12.2
72	Towne Avenue / Towne Center Drive	U	E	46.0	B	10.3	A	9.6
73	Towne Avenue / Arrow Highway	S	D	46.8	D	47.6	D	47.4
74	Garey Avenue / Harrison Avenue	S	A	5.7	A	6.5	A	6.6
1001	S. Fulton Rd / Metrolink W Driveway	U/S			A	4.1	A	2.9
1002	Santa Fe Street / Metrolink S Driveway	U			A	9.0	A	8.9
1003	Bonita Avenue / Jacaranda Way	U			F	> 100.0	C	18.2
1004	Arrow Highway / Pine Street[b]	U			B	11.4	B	11.5
1005	Garey Avenue / Street B	U			C	15.1	B	11.3
1006	Street A / Bonita Avenue	U			E	41.7	C	19.8
1007	Garey Avenue / Grevillia Street	U/S			B	13.4	A	6.9
1008	Pine Street / Grevillia Street	U			A	8.8	A	9.2
1009	Arrow Highway / Amberson Street	S			F	85.8	F	64.3
75	Indian Hill Boulevard / Bonita Avenue	S	B	10.5	C	24.3	C	24.3
76	Indian Hill Boulevard / First Street	S	B	17.5	B	16.5	B	16.5
77	Indian Hill Boulevard / Santa Fe Street	U	B	13.2	B	13.2	B	13.2
78	Indian Hill Boulevard / Arrow Highway	S	D	37.5	D	41.1	D	41.1
79	College Avenue / Bonita Avenue	U	C	15.5	B	14.2	B	13.7

Table 14: Comparison of Approved Project, Approved Project (with Model Updates), and Project Modifications for PM Peak Hour Intersection Operations

Number	Study Area Intersection	Control	FEIR Approved Project		FEIR Approved Project with Model Updates		Project Modifications	
			LOS	Delay[a]	LOS	Delay[a]	LOS	Delay[a]
80	College Avenue / First Street[b]	U/S	F	80.0	B	17.0	B	16.3
81	College Avenue / Arrow Highway	S	B	12.0	B	12.5	B	12.5
82	Claremont Boulevard / First Street	S	B	13.3	B	13.6	B	12.8
83	Mills Avenue & Claremont Boulevard / Arrow Highway	S	C	28.7	C	34.7	C	33.7
84	Monte Vista Avenue / Arrow Route	S	B	14.7	B	18.7	B	18.7
85	Monte Vista Avenue / Richton Street	S	A	10.0	B	17.6	B	17.6
86	Monte Vista Avenue / Arrow Highway	S	C	32.9	D	36.5	D	36.5
87	Fremont Avenue / Arrow Highway	S	A	4.1	B	15.4	B	15.4
88	Central Avenue / Arrow Route	S	C	21.8	C	24.8	C	24.8
89	Central Avenue / Richton Street & 9th Street	S	B	15.2	B	17.2	B	17.2
90	Central Avenue / Arrow Highway	S	C	31.3	C	25.7	C	25.7

Notes:
-Shaded cells are shown for intersections that were not evaluated in the 2013 FEIR (Intersections 101 to 110, 201 to 203, and 1001 to 1009), intersections that were only evaluated in the higher volume PM peak period (Intersections 201 to 203), or intersections that will be closed as part of the Project Modifications (Intersection 7 and 69).
-In Pomona and Claremont, for intersections 66 to 83, the LOS and delay for the FEIR Approved Project are from Addendum No. 2.

[a] Delay is reported in seconds per vehicle using HCM 2000 methodologies for signalized and unsignalized intersections.
[b] HCM 2010 methodology was applied due to HCM 2000 limitations with intersection geometry or to maintain technical consistency.
S = Signalized
U = Unsignalized
U/S = an intersection that is unsignalized for the No Build and will be signalized as part of the Approved Project and/or Project Modifications.

As summarized in Table 13, all intersections are projected to operate at an acceptable LOS (D or better) in the AM peak hour with the Project Modifications, with the exception of:

- Glendora Avenue/Sierra Madre Avenue (LOS E)
- Glenwood Avenue/Foothill Boulevard (LOS F)

As summarized in Table 14, all intersections are projected to operate at an acceptable LOS (D or better) in the AM peak hour with the Project Modifications, with the exception of:

- Glenwood Avenue/Foothill Boulevard (LOS E)
- SR 57 SB/Arrow Highway (LOS E)
- SR 57 NB/Arrow Highway and Bonita Avenue (LOS F)
- Arrow Highway/Amberson Street (LOS F)

5.2 Impact Analysis

Using the Los Angeles County thresholds, the intersection operating conditions with the Project Modifications were compared to the No Build scenario to identify locations with potential impacts. **Tables 15 and 16** provide summaries of AM and PM peak hour conditions for the Project Modifications and No Build scenarios.

As summarized in Table 15, three intersections were identified as having potential impacts with the Project Modifications in the AM peak hour:

- Intersection 43 – San Dimas Canyon Rd/Arrow Highway
- Intersection 45 – Arrow Highway/Wheeler Avenue
- Intersection 51 – D Street/Arrow Highway

As summarized in Table 16, six intersections were identified as having potential impacts with the Project Modifications in the PM peak hour:

- Intersection 10 – Glendora Avenue/Route 66
- Intersection 15 – Elwood Avenue/Lemon Avenue
- Intersection 43 – San Dimas Canyon Rd/Arrow Highway
- Intersection 45 – Arrow Highway/Wheeler Avenue
- Intersection 51 – D Street/Arrow Highway
- Intersection 70 – Garey Avenue/Arrow Highway

From the six intersections that were identified as potential impacts in one or both peak periods, four intersections (San Dimas Canyon Road/Arrow Highway, Arrow Highway/Wheeler Avenue, D Street/Arrow Highway, and Glendora Avenue/Route 66) were also identified as potential impacts in the Approved Project (2013 FEIR plus addenda and supplements).

In Glendora, San Dimas, and La Verne, four intersections (Elwood Avenue/Lemon Avenue, San Dimas Canyon Road/Arrow Highway, Arrow Highway/Wheeler Avenue, and D Street/Arrow Highway) meet the Los Angeles County impact criteria. However, in both No Build and for the Project Modifications, the intersections are projected to operate at LOS C or better (for both AM and PM peak hours). It is standard traffic engineering practice to consider an intersection (signalized or unsignalized) performing at LOS C or better acceptable[1]. Because these intersections are projected to operate at LOS C or better, a new or more severe significant impact was not identified.

In Pomona, the Garey Avenue/Arrow Highway intersection meets the Los Angeles County impact criteria. However, using the City of Pomona traffic analysis methodology, the impact criteria would not be met or exceeded because the intersection would still operate at LOS D or better (acceptable by the City of Pomona's guidelines). For this reason, a new or more severe significant impact was not identified.

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[1] Caltrans identifies the transition of LOS C and LOS D as the target LOS in state highway facilities in the *Guide for the Preparation of Traffic Impact Studies* (2002). LOS C in signalized intersections, per the HCM, corresponds to traffic conditions where volume-to-capacity ratio is less than 1.0, vehicle progression is still favorable, and intersection control delay is between 20 and 35 seconds per vehicle. LOS C in unsignalized intersections, per the HCM, corresponds to traffic conditions where volume-to-capacity ratio is less than 1.0 and intersection control delay is between 15 and 25 seconds per vehicle.

Considering the Los Angeles County impact criteria, the standard traffic engineering practices, and the City of Pomona guidelines, the only intersection that has been identified as a potential impact with the Project Modifications is Intersection 10 – Glendora Avenue/Route 66 (for the PM peak hour).

This potential impact was previously identified in the 2019 SEIR as a result of the Gold Line temporary terminus at the Pomona Station. In the 2019 SEIR, this intersection was projected to operate at LOS D and the delay was projected to increase by approximately 6 seconds when compared to No Build. For the Project Modifications this intersection is also projected to operate at LOS D but only have a delay increase of approximately 5 seconds. In either case, per the Los Angeles County criteria, this represents a significant impact. The 2019 SEIR concluded that the proposed mitigation would result in negligible improvement in LOS and the impact would remain after significant after mitigation. Although Los Angeles County might consider the Project Modifications to have a significant impact on traffic operations, this is not a significant impact per CEQA Guidelines. However, the Construction Authority will implement all mitigation measures as previously committed and identified in section 3.2.5.

Table 15: AM Peak Hour Intersection Impacts Summary

Number	Intersection Name	Control	Jurisdiction	No Build[c]		FEIR Approved Project		FEIR Approved Project (with updated model)		Project Modifications		Change in Delay (vs. Model Updated No Build)[c]	Change in Delay (vs. Model Updated No Build)[c]	Change in Delay (vs. Model Updated Approved Project)	Approved Build vs. No Build Original Impact?[d]	Project Modifications (vs. Model Updated No Build)[c,d]
				LOS	Delay[a]	LOS	Delay[a]	LOS	Delay[a]	LOS	Delay[a]	2020 FEIR	Project Modifications			
1	Barranca Ave / Bennett Ave	S	Glendora	A	9.4	C	20.9	A	9.7	A	9.7	0.3	0.3	0.0	NO	NO
2	Barranca Ave / Foothill Blvd	S	Glendora	B	13.5	B	11.1	B	13.1	B	13.2	-0.4	-0.3	0.1	NO	NO
3	Grand Ave / Foothill Blvd	S	Glendora	C	30.5	C	29.9	C	28.4	C	28.4	-2.1	-2.1	0.0	NO	NO
4	Vermont Ave E / Ada Ave	U	Glendora	B	12.2	B	13.3	A	8.6	A	8.6	-3.6	-3.6	0.0	NO	NO
5	Vermont Ave / Route 66	S	Glendora	B	18.5	A	7.5	B	19.3	B	19.3	0.8	0.8	0.0	NO	NO
6	Vermont Ave / Foothill Blvd	S	Glendora	B	13.0	A	7.5	B	12.4	B	12.4	-0.6	-0.6	0.0	NO	NO
7	Vermont Ave W / Ada Ave	U	Glendora	B	11.6	B	12.3								NO	
8	Glendora Ave / Foothill Blvd	S	Glendora	C	20.5	C	28.1	C	20.4	C	20.4	-0.1	-0.1	0.0	NO	NO
9	Glendora Ave / Ada Ave	U	Glendora	B	12.3	B	12.3	B	12.3	B	12.3	0.0	0.0	0.0	NO	NO
10	Glendora Ave / Route 66	S	Glendora	C	32.5	C	22.8	C	31.6	C	31.6	-0.9	-0.9	0.0	NO	NO
11	Pasadena Ave / Lemon Ave	U	Glendora	A	7.9	A	7.9	A	7.9	A	7.9	0.0	0.0	0.0	NO	NO
12	Pasadena Ave / Route 66	S	Glendora	C	22.7	B	12.4	C	22.7	C	23.2	0.0	0.5	0.5	NO	NO
13	Glenwood Ave / Lemon Ave	U	Glendora	B	10.0	B	10.1	B	11.7	B	11.7	1.7	1.7	0.0	NO	NO
14	Glenwood Ave / Route 66	S	Glendora	C	21.6	B	14.7	B	18.4	B	18.4	-3.2	-3.2	0.0	NO	NO
15	Elwood Ave / Lemon Ave	U	Glendora	B	10.7	B	10.8	B	13.2	B	13.2	2.5	2.5	0.0	NO	NO
16	Elwood Ave / Route 66	S	Glendora	C	21.2	B	15.5	C	24.7	C	24.7	3.5	3.5	0.0	NO	NO
17	Lorraine Ave / Lemon Ave	U	Glendora	C	20.0	C	19.8	C	21.9	C	21.9	1.9	1.9	0.0	NO	NO
18	Lorraine Ave / Route 66	S	Glendora	C	24.2	B	19.1	C	24.6	C	24.6	0.4	0.4	0.0	NO	NO
19	Lone Hill Ave / Auto Centre Dr	S	Glendora	B	20.0	B	15.4	B	17.8	B	17.8	-2.2	-2.2	0.0	NO	NO
20	Barranca Ave / Sierra Madre Ave	U	Glendora	C	16.5	C	19.8	C	16.7	C	16.7	0.2	0.2	0.0	NO	NO
21	Glendora Ave / Sierra Madre Ave	U	Glendora	E	49.2	E	43.3	E	44.9	E	45.1	-4.3	-4.1	0.2	NO	NO
22	Lone Hill Ave / Glendora Marketplace	S	Glendora	B	13.5	B	15.2	B	13.4	B	13.4	-0.1	-0.1	0.0	NO	NO
101	Barranca Ave / Elderberry Dr	U	Glendora	B	10.8			B	11.0	B	11.0	0.2	0.2	0.0		NO
102	Grand Ave / Ada Ave	S	Glendora	A	5.4			A	4.4	A	4.4	-1.0	-1.0	0.0		NO
103	Grand Ave / Route 66	S	Glendora	D	39.7			D	41.8	D	41.9	2.1	2.2	0.1		NO
104	Vermont Ave / Carroll Ave	U	Glendora	B	11.1			B	11.1	B	11.1	0.0	0.0	0.0		NO
105	Glendora Ave / Carroll Ave	U	Glendora	C	19.0			C	19.1	C	19.1	0.1	0.1	0.0		NO
106	Glendora Ave / Avalon Apartments	U	Glendora	B	10.7			B	11.6	B	11.6	0.9	0.9	0.0		NO
107	Glendora Ave / Walnut Ave	U	Glendora	B	14.6			B	14.8	B	14.8	0.2	0.2	0.0		NO
108	Walnut Ave / Vista Bonita Ave	U	Glendora	B	10.5			B	10.6	B	10.6	0.1	0.1	0.0		NO
109	Glenwood Ave / Foothill Blvd[b]	U	Glendora	F	58.6			F	51.0	F	51.0	-7.6	-7.6	0.0		NO
110	Elwood Ave / Foothill Blvd	U/S	Glendora	F	190.0			A	8.8	A	8.8	-181.2	-181.2	0.0		NO
23	Lone Hill Ave / Gladstone St	S	San Dimas	C	24.0	B	18.6	C	23.4	C	23.5	-0.6	-0.5	0.1	NO	NO
24	SR 57 SB / Arrow Hwy	S	San Dimas	C	29.9	A	7.4	C	29.6	C	29.7	-0.3	-0.2	0.1	NO	NO
25	SR 57 NB / Arrow Hwy & Bonita Ave	S	San Dimas	D	42.5	C	27.5	D	42.9	D	42.7	0.4	0.2	-0.2	NO	NO
26	Eucla Ave / Fifth St	U	San Dimas	A	7.8	A	7.4	A	7.8	A	7.8	0.0	0.0	0.0	NO	NO
27	Eucla Ave / Second St	U	San Dimas	A	9.7	A	9.8	A	9.8	A	9.8	0.1	0.1	0.0	NO	NO
28	Eucla Ave / Bonita Ave	S	San Dimas	B	13.1	A	4.8	B	13.1	B	13.1	0.0	0.0	0.0	NO	NO

Table 15: AM Peak Hour Intersection Impacts Summary

Number	Intersection Name	Control	Jurisdiction	No Build[c]		FEIR Approved Project		FEIR Approved Project (with updated model)		Project Modifications		Change in Delay (vs. Model Updated No Build)[c]	Change in Delay (vs. Model Updated No Build)[c]	Change in Delay (vs. Model Updated Approved Project)	Approved Build vs. No Build Original Impact?[d]	Project Modifications (vs. Model Updated No Build)[c,d]
				LOS	Delay[a]	LOS	Delay[a]	LOS	Delay[a]	LOS	Delay[a]	2020 FEIR	Project Modifications			
29	Eucla Ave / Arrow Hwy	S	San Dimas	B	17.9	A	8.8	B	18.3	B	18.3	0.4	0.4	0.0	NO	NO
30	Acacia St / Fifth St	U	San Dimas	A	9.2	A	9.2	A	9.2	A	9.2	0.0	0.0	0.0	NO	NO
31	Acacia St / Second St	U	San Dimas	A	9.1	A	9.1	A	9.1	A	9.1	0.0	0.0	0.0	NO	NO
32	Acacia St / Bonita Ave	U	San Dimas	B	10.2	B	10.6	A	9.9	A	9.9	-0.3	-0.3	0.0	NO	NO
33	Cataract Ave / Second St	U	San Dimas	A	9.9	B	10.0	B	10.0	A	10.0	0.1	0.1	0.0	NO	NO
34	Cataract Ave / Bonita Ave[b]	U/S	San Dimas	B	12.8	A	6.1	B	20.0	B	19.9	7.2	7.1	-0.1	NO	NO
35	Monte Vista Ave / Second St	U	San Dimas	A	9.3	A	9.5	A	9.5	A	9.4	0.2	0.1	-0.1	NO	NO
36	Monte Vista Ave / Bonita Ave	U	San Dimas	B	14.1	C	17.7	B	14.0	B	14.0	-0.1	-0.1	0.0	NO	NO
37	San Dimas Ave / Second St	U	San Dimas	B	14.0	C	20.5	B	13.9	B	13.9	-0.1	-0.1	0.0	NO	NO
38	San Dimas Ave / Bonita Ave	S	San Dimas	C	25.5	B	12.2	C	20.6	C	20.7	-4.9	-4.8	0.1	NO	NO
39	San Dimas Ave / Arrow Hwy	S	San Dimas	D	36.6	C	34.1	D	35.2	C	34.5	-1.4	-2.1	-0.7	NO	NO
40	Walnut Ave / Bonita Ave	S	San Dimas	B	11.8	A	6.8	B	12.1	B	12.1	0.3	0.3	0.0	NO	NO
41	Walnut Ave / Arrow Hwy	S	San Dimas	C	21.5	B	13.5	C	21.7	C	21.8	0.2	0.3	0.1	NO	NO
42	San Dimas Canyon Rd / Bonita Ave	S	San Dimas	C	27.0	A	7.3	C	26.8	C	26.8	-0.2	-0.2	0.0	NO	NO
43	San Dimas Canyon Rd / Arrow Hwy	S	San Dimas	C	22.3	C	27.6	C	33.7	C	33.9	11.4	11.6	0.2	YES	YES/NO[e]
201	San Dimas Ave / First St	U	San Dimas													
202	San Dimas Ave / Railway St	U/S	San Dimas													
203	San Dimas Ave / Commercial St	U/S	San Dimas													
44	Wheeler Ave / Third St	U	La Verne	C	18.0	C	16.7	C	18.2	C	18.2	0.2	0.2	0.0	NO	NO
45	Arrow Hwy / Wheeler Ave	S	La Verne	C	22.7	D	50.6	D	35.1	C	34.9	12.4	12.2	-0.2	YES	YES/NO[e]
46	A St / Third St	U	La Verne	B	10.3	B	10.4	B	10.4	B	10.4	0.1	0.1	0.0	NO	NO
47	A St / First St	U	La Verne	A	9.3	A	9.5	A	9.5	A	9.4	0.2	0.1	-0.1	NO	NO
48	Arrow Hwy / A St	U/S	La Verne	F	273.1	A	9.8	B	14.9	B	13.5	-258.2	-259.6	-1.4	NO	NO
49	D St / Third St	U	La Verne	A	9.6	B	10.2	B	10.2	A	9.9	0.6	0.3	-0.3	NO	NO
50	D St / First St	U	La Verne	A	9.6	A	9.9	A	9.9	A	9.7	0.3	0.1	-0.2	NO	NO
51	D St / Arrow Hwy	S	La Verne	B	18.8	C	22.2	C	30.2	C	28.1	11.4	9.3	-2.1	YES	YES/NO[e]
52	E St / Third St	U	La Verne	B	10.1	B	10.6	B	10.7	B	10.4	0.6	0.3	-0.3	NO	NO
53	E St / Second St	U	La Verne	B	10.0	C	15.6	B	10.9	B	10.5	0.9	0.5	-0.4	NO	NO
54	E Street / First St	U	La Verne	B	11.6	B	13.6	B	13.5	B	12.5	1.9	0.9	-1.0	NO	NO
55	Fairplex Dr/E St & Arrow Hwy	S	La Verne	C	29.0	C	27.3	C	28.7	C	28.2	-0.3	-0.8	-0.5	NO	NO
56	White Ave / Third St	U	La Verne	B	14.9	E	39.8	C	16.9	C	15.7	2.0	0.8	-1.2	YES	NO
57	White Ave / Second St	U	La Verne	B	14.8	D	28.0	B	14.8	B	14.6	0.0	-0.2	-0.2	NO	NO
58	White Ave / First St	U	La Verne	C	15.6	D	33.1	C	16.2	C	15.9	0.6	0.3	-0.3	YES	NO
59	White Ave / Sierra Way	U	La Verne	B	10.7	B	14.8	B	14.3	B	12.9	3.6	2.2	-1.4	NO	NO
60	White Ave / Arrow Hwy	S	La Verne	C	31.7	C	31.9	C	32.5	D	35.3	0.8	3.6	2.8	NO	NO
61	D St / Bonita Ave	S	La Verne	C	33.5	A	8.2	C	33.5	C	33.5	0.0	0.0	0.0	NO	NO
62	White Ave / Foothill Blvd	S	La Verne	C	28.1	C	29.4	C	28.3	C	28.3	0.2	0.2	0.0	NO	NO
63	White Ave / Bonita Ave	S	La Verne	C	32.2	B	14.3	C	33.6	C	33.1	1.4	0.9	-0.5	NO	NO

Table 15: AM Peak Hour Intersection Impacts Summary

Number	Intersection Name	Control	Jurisdiction	No Build[c]		FEIR Approved Project		FEIR Approved Project (with updated model)		Project Modifications		Change in Delay (vs. Model Updated No Build)[c]	Change in Delay (vs. Model Updated No Build)[c]	Change in Delay (vs. Model Updated Approved Project)	Approved Build vs. No Build Original Impact?[d]	Project Modifications (vs. Model Updated No Build)[c,d]
				LOS	Delay[a]	LOS	Delay[a]	LOS	Delay[a]	LOS	Delay[a]	2020 FEIR	Project Modifications			
64	La Verne Ave / Arrow Hwy	U/S	La Verne	E	41.0	F	141.3	B	14.9	B	14.9	-26.1	-26.1	0.0	YES	NO
65	White Ave / McKinley Ave	S	La Verne	B	17.2	B	10.8	C	20.4	C	20.4	3.2	3.2	0.0	NO	NO
66A	N. Fulton Rd / Bonita Ave	U	Pomona	C	22.1	D	31.2	B	14.5	B	13.1	-7.6	-9.0	-1.4	YES	NO
67	Fulton Rd / Arrow Hwy	U	Pomona	C	20.8	D	28.4	D	25.9	C	19.7	5.1	-1.1	-6.2	YES	NO
68	Garey Ave / Bonita Ave	S	Pomona	B	19.4	C	36.7	D	44.4	C	21.8	25.0	2.4	-22.6	YES	NO
69	Garey Ave / Santa Fe St	U	Pomona	B	10.3	A	9.3	A	9.7						NO	
70	Garey Ave / Arrow Hwy	S	Pomona	C	28.4	C	30.1	C	30.0	C	29.3	1.6	0.9	-0.7	NO	NO
71	Towne Ave / Bonita Ave	S	Pomona	A	9.6	B	24.5	C	21.6	A	9.7	12.0	0.1	-11.9	YES	NO
72	Towne Ave / Towne Center Dr	U	Pomona	D	26.0	D	29.7	A	9.6	A	9.4	-16.4	-16.6	-0.2	YES	NO
73	Towne Ave / Arrow Hwy	S	Pomona	D	45.3	D	45.5	D	46.4	D	49.1	1.1	3.8	2.7	NO	NO
74	Garey Ave / Harrison Ave	S	Pomona	A	8.6	A	8.7	A	8.4	A	8.2	-0.2	-0.4	-0.2	NO	NO
1001	S. Fulton Rd / Metrolink W Driveway	U/S	Pomona	A	9.5			A	3.1	A	1.6	-6.4	-7.9	-1.5		NO
1002	Santa Fe St / Metrolink S Driveway	U	Pomona	A	8.9			A	9.0	A	8.9	0.1	0.0	-0.1		NO
1003	Bonita Ave / Jacaranda Way	U	Pomona	C	17.6			F	> 100.0[g]	C	18.1	> 100.0[g]	0.5	-100.0[g]		NO
1004	Arrow Hwy / Pine Street[b]	U	Pomona	B	12.4			B	12.8	B	12.6	0.4	0.2	-0.2		NO
1005	Garey Ave / Street B	U	Pomona	B	11.8			B	13.2	B	11.9	1.4	0.1	-1.3		NO
1006	Street A / Bonita Ave	U	Pomona	B	14.8			C	22.9	C	15.2	8.1	0.4	-7.7		NO
1007	Garey Ave / Grevillia St	U/S	Pomona	B	12.5			B	12.5	A	2.0	0.0	-10.5	-10.5		NO
1008	Pine Street / Grevillia St	U	Pomona	A	8.9			A	9.0	A	9.1	0.1	0.2	0.1		NO
1009	Arrow Hwy / Amberson St	S	Pomona	C	19.1			C	20.0	C	19.6	0.9	0.5	-0.4		NO
75	Indian Hill Blvd / Bonita Ave	S	Claremont	C	20.3	A	8.0	C	20.4	C	20.4	0.1	0.1	0.0	NO	NO
76	Indian Hill Blvd / First St	S	Claremont	B	11.1	B	10.9	B	10.8	B	10.9	-0.3	-0.2	0.1	NO	NO
77	Indian Hill Blvd / Santa Fe St	U	Claremont	B	11.2	B	11.2	B	12.1	B	11.9	0.9	0.7	-0.2	NO	NO
78	Indian Hill Blvd / Arrow Hwy	S	Claremont	C	25.2	C	21.8	C	25.1	C	24.9	-0.1	-0.3	-0.2	NO	NO
79	College Ave / Bonita Ave	U	Claremont	A	9.9	B	10.9	B	10.4	B	10.3	0.5	0.4	-0.1	NO	NO
80	College Ave / First St[b]	U/S	Claremont	B	12.5	C	19.9	B	18.2	B	17.0	5.7	4.5	-1.2	NO	NO
81	College Ave / Arrow Hwy	S	Claremont	B	12.3	B	11.1	B	11.7	B	11.4	-0.6	-0.9	-0.3	NO	NO
82	Claremont Blvd / First St	S	Claremont	A	6.7	A	4.3	A	7.0	A	6.8	0.3	0.1	-0.2	NO	NO
83	Mills Ave & Claremont Blvd / Arrow Hwy	S	Claremont	C	23.6	C	22.4	C	25.1	C	25.3	1.5	1.7	0.2	NO	NO

Table 15: AM Peak Hour Intersection Impacts Summary

Number	Intersection Name	Control	Jurisdiction	No Build[c]		FEIR Approved Project		FEIR Approved Project (with updated model)		Project Modifications		Change in Delay (vs. Model Updated No Build)[c]	Change in Delay (vs. Model Updated No Build)[c]	Change in Delay (vs. Model Updated Approved Project)	Approved Build vs. No Build Original Impact?[d]	Project Modifications (vs. Model Updated No Build)[c,d]
				LOS	Delay[a]	LOS	Delay[a]	LOS	Delay[a]	LOS	Delay[a]	2020 FEIR	Project Modifications			
84	Monte Vista Ave / Arrow Rte	S	Montclair	B	16.6	B	13.3	B	16.7	B	16.7	0.1	0.1	0.0	NO	NO
85	Monte Vista Ave / Richton St	S	Montclair	A	5.5	A	5.4	A	7.1	A	7.1	1.6	1.6	0.0	NO	NO
86	Monte Vista Ave / Arrow Hwy	S	Montclair	C	22.5	B	19.1	C	23.8	C	23.8	1.3	1.3	0.0	NO	NO
87	Fremont Ave / Arrow Hwy	S	Montclair	B	12.8	A	1.7	B	12.8	B	12.8	0.0	0.0	0.0	NO	NO
88	Central Ave / Arrow Rte	S	Montclair	B	18.1	B	13.0	B	18.8	B	18.8	0.7	0.7	0.0	NO	NO
89	Central Ave / Richton St & 9th St	S	Montclair	B	11.0	B	13.1	B	19.4	B	19.4	8.4	8.4	0.0	NO	NO
90	Central Ave / Arrow Hwy	S	Montclair	B	19.0	B	15.8	B	19.0	B	19.0	0.0	0.0	0.0	NO	NO

Notes:

-Shaded cells are shown for intersections that were not evaluated in the 2013 FEIR2013 FEIR (Intersections 101 to 110, 201 to 203, and 1001 to 1009), intersections that were only evaluated in the higher volume PM peak period (Intersections 201 to 203), or intersections that will be closed as part of the Project Modifications (Intersection 7 and 69).

-In Pomona and Claremont, for intersections 66 to 83, the LOS and delay for the FEIR Approved Project are from Addendum No. 2.

[a] Delay is reported in seconds per vehicle using HCM 2000 methodologies for signalized and unsignalized intersections.

[b] HCM 2010 methodology was applied due to HCM 2000 limitations with intersection geometry or to maintain technical consistency.

[c] No Build scenario results were reported from the 2019 SEIR which was updated from what was reported in the 2013 FEIR based on updated geometry and/or change in signal phasing. Intersections in Glendora were updated from what was reported in the 2019 SEIR to include recently constructed housing developments.

[d] Impact criteria based on County of Los Angeles thresholds.

[e] The intersection would have significant impacts using Los Angeles County thresholds. However, it is standard traffic engineering practice to consider an intersection (signalized or unsignalized) performing at LOS C or better acceptable. Because these intersections are projected to operate at LOS C, a significant impact was not identified.

[f] The intersection would have significant impacts using Los Angeles County thresholds. However, using the City of Pomona traffic analysis methodology, parameters, and impact criteria, there would not be an impact since the intersection would still operate at LOS D or better (deemed acceptable by the City of Pomona traffic guidelines).

[g] Overflow (excessive) delay projected at the Bonita Avenue and Jacaranda Way intersection with the Approved Project parking facility entrance located south of the intersection while remaining unsignalized. With the Project Modifications (relocation to the south), there will be an excessive improvement.

S = Signalized

U = Unsignalized

U/S = an intersection that is unsignalized for the No Build and will be signalized as part of the Approved Project and/or Project Modifications.

Table 16: PM Peak Hour Intersection Impacts Summary

Number	Intersection Name	Control	Jurisdiction	No Build[c]		FEIR Approved Project		FEIR Approved Project (with updated model)		Project Modifications		Change in Delay (vs. Model Updated No Build)[c]	Change in Delay (vs. Model Updated No Build)[c]	Change in Delay (vs. Model Updated Approved Project)	Approved Build vs. No Build Original Impact?[d]	Project Modifications (vs. Model Updated No Build)[c,d]
				LOS	Delay[a]	LOS	Delay[a]	LOS	Delay[a]	LOS	Delay[a]	2020 FEIR	Project Modifications			
1	Barranca Ave / Bennett Ave	S	Glendora	A	5.9	B	12.4	A	6.1	A	6.1	0.2	0.2	0.0	NO	NO
2	Barranca Ave / Foothill Blvd	S	Glendora	B	11.2	A	8.4	B	11.3	B	11.3	0.1	0.1	0.0	NO	NO
3	Grand Ave / Foothill Blvd	S	Glendora	C	30.7	C	28.5	C	27.8	C	27.9	-2.9	-2.8	0.1	NO	NO
4	Vermont Ave E / Ada Ave	U	Glendora	B	14.4	C	15.3	B	10.3	B	12.2	-4.1	-2.2	1.9	NO	NO
5	Vermont Ave / Route 66	S	Glendora	B	19.5	A	9.1	B	19.4	B	19.4	-0.1	-0.1	0.0	NO	NO
6	Vermont Ave / Foothill Blvd	S	Glendora	B	12.6	A	7.7	B	13.9	B	13.5	1.3	0.9	-0.4	NO	NO
7	Vermont Ave W / Ada Ave	U	Glendora	B	12.4	B	13.2								NO	
8	Glendora Ave / Foothill Blvd	S	Glendora	C	22.2	C	28.1	C	22.1	C	22.0	-0.1	-0.2	-0.1	NO	NO
9	Glendora Ave / Ada Ave	U	Glendora	B	15.0	C	15.3	C	15.4	C	15.3	0.4	0.3	-0.1	NO	NO
10	Glendora Ave / Route 66	S	Glendora	D	44.1	C	32.4	D	49.7	D	49.3	5.6	5.2	-0.4	NO	YES
11	Pasadena Ave / Lemon Ave	U	Glendora	A	7.7	A	7.8	A	7.8	A	7.8	0.1	0.1	0.0	NO	NO
12	Pasadena Ave / Route 66	S	Glendora	B	17.1	B	11.2	B	17.4	B	17.4	0.3	0.3	0.0	NO	NO
13	Glenwood Ave / Lemon Ave	U	Glendora	B	11.2	B	11.3	B	13.1	B	13.1	1.9	1.9	0.0	NO	NO
14	Glenwood Ave / Route 66	S	Glendora	C	20.1	B	13.0	B	18.3	B	17.6	-1.8	-2.5	-0.7	NO	NO
15	Elwood Ave / Lemon Ave	U	Glendora	B	11.0	B	11.0	C	15.6	C	15.6	4.6	4.6	0.0	NO	YES/NO[e]
16	Elwood Ave / Route 66	S	Glendora	C	20.1	B	18.1	C	20.4	C	20.4	0.3	0.3	0.0	NO	NO
17	Lorraine Ave / Lemon Ave	U	Glendora	B	13.7	B	13.7	C	15.3	C	15.3	1.6	1.6	0.0	NO	NO
18	Lorraine Ave / Route 66	S	Glendora	C	21.7	B	11.6	C	23.3	C	20.9	1.6	-0.8	-2.4	NO	NO
19	Lone Hill Ave / Auto Centre Dr	S	Glendora	C	30.4	C	22.7	C	27.0	C	27.1	-3.4	-3.3	0.1	NO	NO
20	Barranca Ave / Sierra Madre Ave	U	Glendora	B	14.1	C	15.5	B	14.1	B	14.1	0.0	0.0	0.0	NO	NO
21	Glendora Ave / Sierra Madre Ave	U	Glendora	B	14.7	B	14.2	B	14.3	B	14.3	-0.4	-0.4	0.0	NO	NO
22	Lone Hill Ave / Glendora Marketplace	S	Glendora	C	21.2	C	23.1	C	21.2	C	21.2	0.0	0.0	0.0	NO	NO
101	Barranca Ave / Elderberry Dr	U	Glendora	B	10.3			B	10.5	B	10.5	0.2	0.2	0.0		NO
102	Grand Ave / Ada Ave	S	Glendora	A	6.5			A	6.9	A	6.8	0.4	0.3	-0.1		NO
103	Grand Ave / Route 66	S	Glendora	D	40.4			D	40.9	D	40.9	0.5	0.5	0.0		NO
104	Vermont Ave / Carroll Ave	U	Glendora	B	12.7			B	12.8	B	12.7	0.1	0.0	-0.1		NO
105	Glendora Ave / Carroll Ave	U	Glendora	D	26.0			D	25.7	D	25.7	-0.3	-0.3	0.0		NO
106	Glendora Ave / Avalon Apartments	U	Glendora	B	12.0			B	12.0	B	12.0	0.0	0.0	0.0		NO
107	Glendora Ave / Walnut Ave	U	Glendora	C	20.5			C	20.8	C	20.8	0.3	0.3	0.0		NO
108	Walnut Ave / Vista Bonita Ave	U	Glendora	B	11.3			B	11.3	B	11.3	0.0	0.0	0.0		NO
109	Glenwood Ave / Foothill Blvd[b]	U	Glendora	E	35.6			D	34.0	D	34.0	-1.6	-1.6	0.0		NO
110	Elwood Ave / Foothill Blvd	U/S	Glendora	F	69.1			A	7.9	A	7.9	-61.2	-61.2	0.0		NO
23	Lone Hill Ave / Gladstone St	S	San Dimas	C	28.5	C	25.5	C	28.5	C	28.5	0.0	0.0	0.0	NO	NO
24	SR 57 SB / Arrow Hwy	S	San Dimas	F	83.1	B	19.4	E	78.2	E	76.2	-4.9	-6.9	-2.0	NO	NO
25	SR 57 NB / Arrow Hwy & Bonita Ave	S	San Dimas	F	95.8	C	29.1	F	96.4	F	95.9	0.6	0.1	-0.5	NO	NO
26	Eucla Ave / Fifth St	U	San Dimas	A	8.0	A	7.4	A	8.0	A	8.0	0.0	0.0	0.0	NO	NO
27	Eucla Ave / Second St	U	San Dimas	B	10.6	B	10.5	B	10.6	B	10.6	0.0	0.0	0.0	NO	NO
28	Eucla Ave / Bonita Ave	S	San Dimas	B	13.0	A	8.0	B	12.9	B	13.0	-0.1	0.0	0.1	NO	NO

Table 16: PM Peak Hour Intersection Impacts Summary

Number	Intersection Name	Control	Jurisdiction	No Build[c]		FEIR Approved Project		FEIR Approved Project (with updated model)		Project Modifications		Change in Delay (vs. Model Updated No Build)[c]	Change in Delay (vs. Model Updated No Build)[c]	Change in Delay (vs. Model Updated Approved Project)	Approved Build vs. No Build Original Impact?[d]	Project Modifications (vs. Model Updated No Build)[c,d]
				LOS	Delay[a]	LOS	Delay[a]	LOS	Delay[a]	LOS	Delay[a]	2020 FEIR	Project Modifications			
29	Eucla Ave / Arrow Hwy	S	San Dimas	C	21.0	B	11.7	C	20.9	C	20.9	-0.1	-0.1	0.0	NO	NO
30	Acacia St / Fifth St	U	San Dimas	A	9.3	A	9.3	A	9.3	A	9.3	0.0	0.0	0.0	NO	NO
31	Acacia St / Second St	U	San Dimas	A	9.2	A	9.1	A	9.1	A	9.1	-0.1	-0.1	0.0	NO	NO
32	Acacia St / Bonita Ave	U	San Dimas	B	13.5	C	24.4	B	12.2	B	12.2	-1.3	-1.3	0.0	NO	NO
33	Cataract Ave / Second St	U	San Dimas	B	10.0	B	10.3	B	10.3	B	10.2	0.3	0.2	-0.1	NO	NO
34	Cataract Ave / Bonita Ave[b]	U/S	San Dimas	E	37.5	A	5.2	C	23.9	C	23.9	-13.6	-13.6	0.0	NO	NO
35	Monte Vista Ave / Second St	U	San Dimas	A	9.9	A	9.9	A	9.9	A	9.9	0.0	0.0	0.0	NO	NO
36	Monte Vista Ave / Bonita Ave	U	San Dimas	C	23.4	E	47.9	C	20.3	C	20.4	-3.1	-3.0	0.1	NO	NO
37	San Dimas Ave / Second St	U	San Dimas	C	16.8	E	38.2	C	17.0	C	16.9	0.2	0.1	-0.1	YES	NO
38	San Dimas Ave / Bonita Ave	S	San Dimas	D	40.4	B	19.2	C	28.4	C	28.5	-12.0	-11.9	0.1	NO	NO
39	San Dimas Ave / Arrow Hwy	S	San Dimas	D	39.9	D	48.3	D	41.6	D	41.4	1.7	1.5	-0.2	NO	NO
40	Walnut Ave / Bonita Ave	S	San Dimas	B	15.1	B	14.4	B	15.5	B	15.5	0.4	0.4	0.0	NO	NO
41	Walnut Ave / Arrow Hwy	S	San Dimas	B	18.0	B	12.9	C	20.5	B	19.7	2.5	1.7	-0.8	NO	NO
42	San Dimas Canyon Rd / Bonita Ave	S	San Dimas	C	28.4	A	9.0	C	28.3	C	28.3	-0.1	-0.1	0.0	NO	NO
43	San Dimas Canyon Rd / Arrow Hwy	S	San Dimas	C	23.9	C	28.1	C	31.8	C	31.8	7.9	7.9	0.0	YES	YES/NO[e]
201	San Dimas Ave / First St	U	San Dimas	C	20.3			C	19.7	C	19.8	-0.6	-0.5	0.1		NO
202	San Dimas Ave / Railway St	U/S	San Dimas	C	15.6			A	3.6	A	3.6	-12.0	-12.0	0.0		NO
203	San Dimas Ave / Commercial St	U/S	San Dimas	C	18.1			A	3.0	A	3.0	-15.1	-15.1	0.0		NO
44	Wheeler Ave / Third St	U	La Verne	C	17.4	C	15.7	C	17.6	C	17.6	0.2	0.2	0.0	NO	NO
45	Arrow Hwy / Wheeler Ave	S	La Verne	C	20.2	D	37.8	C	32.2	C	32.4	12.0	12.2	0.2	YES	YES/NO[e]
46	A St / Third St	U	La Verne	B	10.6	B	10.8	B	10.8	B	10.8	0.2	0.2	0.0	NO	NO
47	A St / First St	U	La Verne	B	10.0	B	10.0	B	10.1	B	10.1	0.1	0.1	0.0	NO	NO
48	Arrow Hwy / A St	U/S	La Verne	F	54.8	D	39.9	B	14.8	B	14.7	-40.0	-40.1	-0.1	NO	NO
49	D St / Third St	U	La Verne	B	13.5	C	15.4	C	15.4	B	14.5	1.9	1.0	-0.9	NO	NO
50	D St / First St	U	La Verne	B	11.3	B	12.7	B	12.5	B	12.0	1.2	0.7	-0.5	NO	NO
51	D St / Arrow Hwy	S	La Verne	B	18.8	C	30.4	C	28.0	C	28.0	9.2	9.2	0.0	YES	YES/NO[e]
52	E St / Third St	U	La Verne	B	12.7	C	16.0	B	10.7	B	11.3	-2.0	-1.4	0.6	NO	NO
53	E St / Second St	U	La Verne	B	12.6	C	16.9	C	15.9	B	14.2	3.3	1.6	-1.7	NO	NO
54	E Street / First St	U	La Verne	B	13.0	B	13.7	B	12.4	B	11.9	-0.6	-1.1	-0.5	NO	NO
55	Fairplex Dr/E St & Arrow Hwy	S	La Verne	C	33.8	C	33.3	C	33.8	C	29.8	0.0	-4.0	-4.0	NO	NO
56	White Ave / Third St	U	La Verne	C	21.5	F	95.9	C	22.9	C	22.2	1.4	0.7	-0.7	YES	NO
57	White Ave / Second St	U	La Verne	C	19.0	F	121.4	C	20.6	C	19.9	1.6	0.9	-0.7	YES	NO
58	White Ave / First St	U	La Verne	C	21.2	F	142.2	D	28.1	C	24.2	6.9	3.0	-3.9	YES	NO
59	White Ave / Sierra Way	U	La Verne	C	16.7	C	19.6	C	19.5	C	18.8	2.8	2.1	-0.7	NO	NO
60	White Ave / Arrow Hwy	S	La Verne	C	33.5	C	31.7	D	37.5	D	36.2	4.0	2.7	-1.3	NO	NO
61	D St / Bonita Ave	S	La Verne	C	33.5	B	10.8	C	34.0	C	33.8	0.5	0.3	-0.2	NO	NO
62	White Ave / Foothill Blvd	S	La Verne	D	39.1	D	39.6	D	37.4	D	37.6	-1.7	-1.5	0.2	NO	NO
63	White Ave / Bonita Ave	S	La Verne	D	46.9	B	17.9	D	48.0	D	46.6	1.1	-0.3	-1.4	NO	NO

Table 16: PM Peak Hour Intersection Impacts Summary

Number	Intersection Name	Control	Jurisdiction	No Build[c]		FEIR Approved Project		FEIR Approved Project (with updated model)		Project Modifications		Change in Delay (vs. Model Updated No Build)[c]	Change in Delay (vs. Model Updated No Build)[c]	Change in Delay (vs. Model Updated Approved Project)	Approved Build vs. No Build Original Impact?[d]	Project Modifications (vs. Model Updated No Build)[c,d]
				LOS	Delay[a]	LOS	Delay[a]	LOS	Delay[a]	LOS	Delay[a]	2020 FEIR	Project Modifications			
64	La Verne Ave / Arrow Hwy	U/S	La Verne	F	343.2	F	652.8	C	25.5	C	23.9	-317.7	-319.3	-1.6	YES	NO
65	White Ave / McKinley Ave	S	La Verne	B	19.2	B	14.1	C	22.7	C	22.7	3.5	3.5	0.0	NO	NO
66A	N. Fulton Rd / Bonita Ave	U	Pomona	F	58.1	F	161.0	C	22.3	C	18.0	-35.8	-40.1	-4.3	YES	NO
67	Fulton Rd / Arrow Hwy	U	Pomona	D	34.0	E	47.0	C	23.7	C	19.2	-10.3	-14.8	-4.5	YES	NO
68	Garey Ave / Bonita Ave	S	Pomona	C	26.7	C	20.3	E	62.7	C	27.0	36.0	0.3	-35.7	NO	NO
69	Garey Ave / Santa Fe St	U	Pomona	B	10.3	B	11.8	B	11.0						NO	
70	Garey Ave / Arrow Hwy	S	Pomona	D	36.9	C	31.9	D	52.5	D	44.0	15.6	7.1	-8.5	NO	YES/NO[f]
71	Towne Ave / Bonita Ave	S	Pomona	B	11.3	B	15.3	B	14.3	B	12.2	3.0	0.9	-2.1	NO	NO
72	Towne Ave / Towne Center Dr	U	Pomona	F	51.4	E	46.0	B	10.3	A	9.6	-41.1	-41.8	-0.7	NO	NO
73	Towne Ave / Arrow Hwy	S	Pomona	D	45.2	D	46.8	D	47.6	D	47.4	2.4	2.2	-0.2	NO	NO
74	Garey Ave / Harrison Ave	S	Pomona	A	6.5	A	5.7	A	6.5	A	6.6	0.0	0.1	0.1	NO	NO
1001	S. Fulton Rd / Metrolink W Driveway	U/S	Pomona	A	9.4			A	4.1	A	2.9	-5.3	-6.5	-1.2		NO
1002	Santa Fe St / Metrolink S Driveway	U	Pomona	A	8.8			A	9.0	A	8.9	0.2	0.1	-0.1		NO
1003	Bonita Ave / Jacaranda Way	U	Pomona	C	17.9			F	> 100.0[g]	C	18.2	> 100.0[g]	0.3	-100.0[g]		NO
1004	Arrow Hwy / Pine Street[b]	U	Pomona	B	11.3			B	11.4	B	11.5	0.1	0.2	0.1		NO
1005	Garey Ave / Street B	U	Pomona	B	13.1			C	15.1	B	11.3	2.0	-1.8	-3.8		NO
1006	Street A / Bonita Ave	U	Pomona	C	19.5			E	41.7	C	19.8	22.2	0.3	-21.9		NO
1007	Garey Ave / Grevillia St	S	Pomona	B	12.2			B	13.4	A	6.9	1.2	-5.3	-6.5		NO
1008	Pine Street / Grevillia St	U	Pomona	A	8.9			A	8.8	A	9.2	-0.1	0.3	0.4		NO
1009	Arrow Hwy / Amberson St	S	Pomona	F	63.6			F	85.8	F	64.3	22.2	0.7	-21.5		NO
75	Indian Hill Blvd / Bonita Ave	S	Claremont	C	20.7	B	10.5	C	24.3	C	24.3	3.6	3.6	0.0	NO	NO
76	Indian Hill Blvd / First St	S	Claremont	B	16.2	B	17.5	B	16.5	B	16.5	0.3	0.3	0.0	NO	NO
77	Indian Hill Blvd / Santa Fe St	U	Claremont	B	13.2	B	13.2	B	13.2	B	13.2	0.0	0.0	0.0	NO	NO
78	Indian Hill Blvd / Arrow Hwy	S	Claremont	D	41.6	D	37.5	D	41.1	D	41.1	-0.5	-0.5	0.0	NO	NO
79	College Ave / Bonita Ave	U	Claremont	B	12.5	C	15.5	B	14.2	B	13.7	1.7	1.2	-0.5	NO	NO
80	College Ave / First St[b]	U/S	Claremont	C	15.7	F	80.0	B	17.0	B	16.3	1.3	0.6	-0.7	YES	NO
81	College Ave / Arrow Hwy	S	Claremont	B	12.0	B	12.0	B	12.5	B	12.5	0.5	0.5	0.0	NO	NO
82	Claremont Blvd / First St	S	Claremont	A	10.0	B	13.3	B	13.6	B	12.8	3.6	2.8	-0.8	NO	NO
83	Mills Ave & Claremont Blvd / Arrow Hwy	S	Claremont	C	29.8	C	28.7	C	34.7	C	33.7	4.9	3.9	-1.0	NO	NO

Table 16: PM Peak Hour Intersection Impacts Summary

Number	Intersection Name	Control	Jurisdiction	No Build[c]		FEIR Approved Project		FEIR Approved Project (with updated model)		Project Modifications		Change in Delay (vs. Model Updated No Build)[c]	Change in Delay (vs. Model Updated No Build)[c]	Change in Delay (vs. Model Updated Approved Project)	Approved Build vs. No Build Original Impact?[d]	Project Modifications (vs. Model Updated No Build)[c,d]
				LOS	Delay[a]	LOS	Delay[a]	LOS	Delay[a]	LOS	Delay[a]	2020 FEIR	Project Modifications			
84	Monte Vista Ave / Arrow Rte	S	Montclair	B	18.4	B	14.7	B	18.7	B	18.7	0.3	0.3	0.0	NO	NO
85	Monte Vista Ave / Richton St	S	Montclair	B	10.7	A	10.0	B	17.6	B	17.6	6.9	6.9	0.0	NO	NO
86	Monte Vista Ave / Arrow Hwy	S	Montclair	C	33.0	C	32.9	D	36.5	D	36.5	3.5	3.5	0.0	NO	NO
87	Fremont Ave / Arrow Hwy	S	Montclair	B	14.1	A	4.1	B	15.4	B	15.4	1.3	1.3	0.0	NO	NO
88	Central Ave / Arrow Rte	S	Montclair	C	24.1	C	21.8	C	24.8	C	24.8	0.7	0.7	0.0	NO	NO
89	Central Ave / Richton St & 9th St	S	Montclair	B	13.4	B	15.2	B	17.2	B	17.2	3.8	3.8	0.0	NO	NO
90	Central Ave / Arrow Hwy	S	Montclair	C	25.3	C	31.3	C	25.7	C	25.7	0.4	0.4	0.0	NO	NO

Notes:

-Shaded cells are shown for intersections that were not evaluated in the 2013 FEIR2013 FEIR (Intersections 101 to 110, 201 to 203, and 1001 to 1009), intersections that were only evaluated in the higher volume PM peak period (Intersections 201 to 203), or intersections that will be closed as part of the Project Modifications (Intersection 7 and 69).

-In Pomona and Claremont, for intersections 66 to 83, the LOS and delay for the FEIR Approved Project are from Addendum No. 2.

[a] Delay is reported in seconds per vehicle using HCM 2000 methodologies for signalized and unsignalized intersections.

[b] HCM 2010 methodology was applied due to HCM 2000 limitations with intersection geometry or to maintain technical consistency.

[c] No Build scenario results were reported from the 2019 SEIR which was updated from what was reported in the 2013 FEIR based on updated geometry and/or change in signal phasing. Intersections in Glendora were updated from what was reported in the 2019 SEIR to include recently constructed housing developments.

[d] Impact criteria based on County of Los Angeles thresholds.

[e] The intersection would have significant impacts using Los Angeles County thresholds. However, it is standard traffic engineering practice to consider an intersection (signalized or unsignalized) performing at LOS C or better acceptable. Because these intersections are projected to operate at LOS C, a significant impact was not identified.

[f] The intersection would have significant impacts using Los Angeles County thresholds. However, using the City of Pomona traffic analysis methodology, parameters, and impact criteria, there would not be an impact since the intersection would still operate at LOS D or better (deemed acceptable by the City of Pomona traffic guidelines).

[g] Overflow (excessive) delay projected at the Bonita Avenue and Jacaranda Way intersection with the Approved Project parking facility entrance located south of the intersection while remaining unsignalized. With the Project Modifications (relocation to the south), there will be an excessive improvement.

S = Signalized

U = Unsignalized

U/S = an intersection that is unsignalized for the No Build and will be signalized as part of the Approved Project and/or Project Modifications.

5.3 Level of Service Analysis and Impact Analysis for the Project Modifications (Phase 1)

Using the Los Angeles County thresholds, the intersection operating conditions with the Project Modifications for Phase 1 were compared to the No Build scenario to identify locations with potential impacts. **Tables 17 and 18** provide summaries of AM and PM peak hour conditions for the Project Modifications for Phase 1 and No Build scenarios. Detailed LOS worksheets for the FEIR Build Alternative with the Project Modifications for Phase 1 are provided in **Attachment D**.

As summarized in Table 17, all intersections are projected to operate at an acceptable LOS (D or better) in the AM peak hour with the Project Modifications for Phase 1.

As summarized in Table 18, all intersections are projected to operate at an acceptable LOS (D or better) in the PM peak hour with the Project Modifications for Phase 1, with the exception of Arrow Highway/Amberson Street (LOS F).

As summarized in Table 17, the Towne Avenue/Arrow Highway intersection was identified as a potential impact with the Project Modifications for Phase 1 in the AM peak hour per the Los Angeles County thresholds. As summarized in Table 18, the Garey Avenue/Arrow Highway intersection was identified as a potential impact with the Project Modifications for Phase 1 in the PM peak hour per the Los Angeles County thresholds. However, using the City of Pomona traffic analysis methodology, the impact criteria would not be met or exceeded because both intersections would still operate at LOS D or better (acceptable by the City of Pomona's guidelines). For this reason, no new or more severe significant impacts were identified for the Project Modifications for Phase 1.

Table 17: AM Peak Hour Intersection Impacts Summary for Phase 1

Number	Intersection Name	Control	Jurisdiction	No Build[c]		FEIR Approved Project		FEIR Approved Project (with updated model)		Project Modifications (Phase 1)		Change in Delay (vs. Model Updated No Build)[c]	Change in Delay (vs. Model Updated No Build)[c]	Change in Delay (vs. Model Updated Approved Project)	Approved Build vs. No Build Original Impact?[d]	Project Modifications, Phase 1 (vs. Model Updated No Build)[c,d]
				LOS	Delay[a]	LOS	Delay[a]	LOS	Delay[a]	LOS	Delay[a]	2020 FEIR	Project Modifications (Phase 1)			
64	La Verne Ave / Arrow Hwy	U/S	La Verne	E	41.0	F	141.3	B	14.9	B	14.9	-26.1	-26.1	0.0	YES	NO
66A	N. Fulton Rd / Bonita Ave	U	Pomona	C	22.1	D	31.2	B	14.5	B	13.2	-7.6	-8.9	-1.3	YES	NO
67	Fulton Rd / Arrow Hwy	U	Pomona	C	20.8	D	28.4	D	25.9	C	17.8	5.1	-3.0	-8.1	YES	NO
68	Garey Ave / Bonita Ave	S	Pomona	B	19.4	C	36.7	D	44.4	C	22.4	25.0	3.0	-22.0	YES	NO
69	Garey Ave / Santa Fe St	U	Pomona	B	10.3	A	9.3	A	9.7						NO	
70	Garey Ave / Arrow Hwy	S	Pomona	C	28.4	C	30.1	C	30.0	C	29.9	1.6	1.5	-0.1	NO	NO
71	Towne Ave / Bonita Ave	S	Pomona	A	9.6	B	24.5	C	21.6	A	9.8	12.0	0.2	-11.8	YES	NO
72	Towne Ave / Towne Center Dr	U	Pomona	D	26.0	D	29.7	A	9.6	A	9.4	-16.4	-16.6	-0.2	YES	NO
73	Towne Ave / Arrow Hwy	S	Pomona	D	45.3	D	45.5	D	46.4	D	49.5	1.1	4.2	3.1	NO	YES/NO[f]
74	Garey Ave / Harrison Ave	S	Pomona	A	8.6	A	8.7	A	8.4	A	8.2	-0.2	-0.4	-0.2	NO	NO
1001	S. Fulton Rd / Metrolink W Driveway	U/S	Pomona	A	9.5			A	3.1	A	1.6	-6.4	-7.9	-1.5		NO
1002	Santa Fe St / Metrolink S Driveway	U	Pomona	A	8.9			A	9.0	A	8.9	0.1	0.0	-0.1		NO
1003	Bonita Ave / Jacaranda Way	U	Pomona	C	17.6			F	> 100.0[g]	C	18.2	> 100.0[g]	0.6	-100.0[g]		NO
1004	Arrow Hwy / Pine Street[b]	U	Pomona	B	12.4			B	12.8	B	12.6	0.4	0.2	-0.2		NO
1005	Garey Ave / Street B	U	Pomona	B	11.8			B	13.2	B	11.9	1.4	0.1	-1.3		NO
1006	Street A / Bonita Ave	U	Pomona	B	14.8			C	22.9	C	15.2	8.1	0.4	-7.7		NO
1007	Garey Ave / Grevillia St	U/S	Pomona	B	12.5			B	12.5	A	2.4	0.0	-10.1	-10.1		NO
1008	Pine Street / Grevillia St	U	Pomona	A	8.9			A	9.0	A	9.1	0.1	0.2	0.1		NO
1009	Arrow Hwy / Amberson St	S	Pomona	C	19.1			C	20.0	C	19.6	0.9	0.5	-0.4		NO

Notes:

-Shaded cells are shown for intersections that were not evaluated in the 2013 FEIR (Intersections 101 to 110, 201 to 203, and 1001 to 1009), intersections that were only evaluated in the higher volume PM peak period (Intersections 201 to 203), or intersections that will be closed as part of the Project Modifications (Intersection 7 and 69).

-Intersection 64 was evaluated due to the close proximity to the Pomona study intersections.

a No Build scenario was updated from what was reported in the 2013 FEIR based on updated geometry and/or change in signal phasing.

b Delay is reported in seconds per vehicle using HCM 2000 methodologies for signalized and unsignalized intersections.

c Impact criteria based on County of Los Angeles thresholds.

d Intersection was not analyzed in the FEIR, but LOS evaluations have been conducted for consistency.

e Intersection was analyzed in the FEIR, but the operations associated with the Proposed Project have been modified, given the change in location for the Pomona parking structure and other local development.

f The intersection would have significant impacts using Los Angeles County thresholds. However, using the City of Pomona traffic analysis methodology, parameters, and impact criteria, there would not be an impact since the intersection would still operate at LOS D or better (deemed acceptable by the City of Pomona traffic guidelines).HCM 2010 methodology was applied due to HCM 2000 limitations with intersection geometry.

g Overflow (excessive) delay projected at the Bonita Avenue and Jacaranda Way intersection with the approved Project parking facility entrance located south of the intersection while remaining unsignalized. With the Project Modifications (relocation to the south), there will be an excessive improvement.

-S = Signalized

-U = Unsignalized

-U/S = an intersection that is unsignalized for the No Build and will be signalized as part of the approved Project and/or Project Modifications.

Table 18: PM Peak Hour Intersection Impacts Summary for Phase 1

Number	Intersection Name	Control	Jurisdiction	No Build[c]		FEIR Approved Project		FEIR Approved Project (with updated model)		Project Modifications (Phase 1)		Change in Delay (vs. Model Updated No Build)[c]	Change in Delay (vs. Model Updated No Build)[c]	Change in Delay (vs. Model Updated Approved Project)	Approved Build vs. No Build Original Impact?[d]	Project Modifications, Phase 1 (vs. Model Updated No Build)[c,d]
				LOS	Delay[a]	LOS	Delay[a]	LOS	Delay[a]	LOS	Delay[a]	2020 FEIR	Project Modifications (Phase 1)			
64	La Verne Ave / Arrow Hwy	U/S	La Verne	F	343.2	F	652.8	C	25.5	C	23.9	-317.7	-319.3	-1.6	YES	NO
66A	N. Fulton Rd / Bonita Ave	U	Pomona	F	58.1	F	161.0	C	22.3	C	18.0	-35.8	-40.1	-4.3	YES	NO
67	Fulton Rd / Arrow Hwy	U	Pomona	D	34.0	E	47.0	C	23.7	C	19.2	-10.3	-14.8	-4.5	YES	NO
68	Garey Ave / Bonita Ave	S	Pomona	C	26.7	C	20.3	E	62.7	C	27.0	36.0	0.3	-35.7	NO	NO
69	Garey Ave / Santa Fe St	U	Pomona	B	10.3	B	11.8	B	11.0						NO	
70	Garey Ave / Arrow Hwy	S	Pomona	D	36.9	C	31.9	D	52.5	D	44.3	15.6	7.4	-8.2	NO	YES/NO[f]
71	Towne Ave / Bonita Ave	S	Pomona	B	11.3	B	15.3	B	14.3	B	12.1	3.0	0.8	-2.2	NO	NO
72	Towne Ave / Towne Center Dr	U	Pomona	F	51.4	E	46.0	B	10.3	A	9.6	-41.1	-41.8	-0.7	NO	NO
73	Towne Ave / Arrow Hwy	S	Pomona	D	45.2	D	46.8	D	47.6	D	47.8	2.4	2.6	0.2	NO	NO
74	Garey Ave / Harrison Ave	S	Pomona	A	6.5	A	5.7	A	6.5	A	6.6	0.0	0.1	0.1	NO	NO
1001	S. Fulton Rd / Metrolink W Driveway	U/S	Pomona	A	9.4			A	4.1	A	2.9	-5.3	-6.5	-1.2		NO
1002	Santa Fe St / Metrolink S Driveway	U	Pomona	A	8.8			A	9.0	A	8.9	0.2	0.1	-0.1		NO
1003	Bonita Ave / Jacaranda Way	U	Pomona	C	17.9			F	> 100.0[g]	C	18.3	> 100.0[g]	0.4	-100.0[g]		NO
1004	Arrow Hwy / Pine Street[b]	U	Pomona	B	11.3			B	11.4	B	11.5	0.1	0.2	0.1		NO
1005	Garey Ave / Street B	U	Pomona	B	13.1			C	15.1	B	11.4	2.0	-1.7	-3.7		NO
1006	Street A / Bonita Ave	U	Pomona	C	19.5			E	41.7	C	19.8	22.2	0.3	-21.9		NO
1007	Garey Ave / Grevillia St	S	Pomona	B	12.2			B	13.4	A	7.1	1.2	-5.1	-6.3		NO
1008	Pine Street / Grevillia St	U	Pomona	A	8.9			A	8.8	A	9.2	-0.1	0.3	0.4		NO
1009	Arrow Hwy / Amberson St	S	Pomona	F	63.6			F	85.8	F	64.3	22.2	0.7	-21.5		NO

Notes:

-Shaded cells are shown for intersections that were not evaluated in the 2013 FEIR (Intersections 101 to 110, 201 to 203, and 1001 to 1009), intersections that were only evaluated in the higher volume PM peak period (Intersections 201 to 203), or intersections that will be closed as part of the Project Modifications (Intersection 7 and 69).

-Intersection 64 was evaluated due to the close proximity to the Pomona study intersections.

a No Build scenario was updated from what was reported in the 2013 FEIR based on updated geometry and/or change in signal phasing.

b Delay is reported in seconds per vehicle using HCM 2000 methodologies for signalized and unsignalized intersections.

c Impact criteria based on County of Los Angeles thresholds.

d Intersection was not analyzed in the FEIR, but LOS evaluations have been conducted for consistency.

e Intersection was analyzed in the FEIR, but the operations associated with the Proposed Project have been modified, given the change in location for the Pomona parking structure and other local development.

-f The intersection would have significant impacts using Los Angeles County thresholds. However, using the City of Pomona traffic analysis methodology, parameters, and impact criteria, there would not be an impact since the intersection would still operate at LOS D or better (deemed acceptable by the City of Pomona traffic guidelines).HCM 2010 methodology was applied due to HCM 2000 limitations with intersection geometry.

-g Overflow (excessive) delay projected at the Bonita Avenue and Jacaranda Way intersection with the approved Project parking facility entrance located south of the intersection while remaining unsignalized. With the Project Modifications (relocation to the south), there will be an excessive improvement.

-S = Signalized

-U = Unsignalized

-U/S = an intersection that is unsignalized for the No Build and will be signalized as part of the approved Project and/or Project Modifications.

6. Additional Evaluations

6.1.1 Planned Long-Term Mitigations

The 2013 FEIR plus addenda and supplements has identified nine long-term (LTR) mitigation strategies as a result of previously-identified impacts. Eight of these proposed mitigation strategies are from the original 2013 FEIR and one is from the 2019 SEIR. An evaluation was conducted to ensure that these mitigation strategies are still applicable with the changes in ridership and parking demands or updates to the project features. For each mitigation, as applicable, a summary table is provided that includes (1) results from the original 2013 FEIR No Build/Build and (2) the summaries presented in this memorandum (for Project Modifications with updated models) to maintain consistency with the comparison approach. For mitigation evaluations for the Project Modifications Build Alternative, the No Build summaries from the 2019 SEIR were reported since they represent the No Build with the same updated intersection geometries and signal timing phasing that were done to the models in this memorandum.

LTR-1 – In San Dimas, the Construction Authority shall cooperatively work with the City, and contribute funding as necessary, to ensure the signalization at the intersection of San Dimas Avenue and Second Street when warranted.

Table 19: Mitigation Evaluation for LTR-1

San Dimas Avenue and Second Street					
Scenario	**No Build Delay**	**No Build LOS**	**Build Delay**	**Build LOS**	**Impact**
Approved Project (AM)	C	21.2	C	20.7	NO
Project Modifications (AM)	B	14.0	B	13.9	NO
Approved Project (PM)	E	36.2	E	38.2	**YES**
Project Modifications (PM)	C	16.8	C	16.9	NO

The traffic analysis for the Project Modifications indicates that this intersection is projected to operate at LOS C or better during both peak hours with the updated modeling and the reduction in vehicular demand. Since the traffic analysis does not explicitly indicate a need for mitigation, the Construction Authority should evaluate the need for signalization at the San Dimas Avenue/Second Street intersection (as mitigation or a project feature) based on other factors.

LTR-2 – In La Verne, the Construction Authority shall cooperatively work with the City, and contribute funding as necessary, to ensure the signalization at the intersections of White Avenue and First Street, White Avenue and Second Street, Arrow Highway at the Metrolink crossing, Arrow Highway and E Street, and La Verne Avenue and Arrow Highway, when warranted.

Table 20: Mitigation Evaluation for LTR-2

Scenario	No Build Delay	No Build LOS	Build Delay	Build LOS	Impact
White Avenue and First Street					
Approved Project (AM)	D	28.4	D	33.1	**YES**
Project Modifications (AM)	C	15.6	C	15.9	NO
Approved Project (PM)	E	49.5	F	142.2	**YES**
Project Modifications (PM)	C	21.2	C	24.2	NO

Table 20: Mitigation Evaluation for LTR-2

Scenario	No Build Delay	No Build LOS	Build Delay	Build LOS	Impact
White Avenue and Second Street					
Approved Project (AM)	C	24.8	D	28.0	NO
Project Modifications (AM)	B	14.8	B	14.6	NO
Approved Project (PM)	F	56.4	F	121.4	YES
Project Modifications (PM)	C	19.0	C	19.9	NO
Arrow Highway and E Street					
Approved Project (AM)	C	22.5	C	27.3	NO
Project Modifications (AM)	C	29.0	C	28.2	NO
Approved Project (PM)	C	27.6	C	33.3	NO
Project Modifications (PM)	C	33.8	C	29.8	NO
La Verne Avenue and Arrow Highway *					
Approved Project (AM)	F	50.6	F	141.3	YES
Project Modifications (AM)	E	41.0	B	14.9	NO
Approved Project (PM)	F	471.1	F	652.8	YES
Project Modifications (PM)	F	343.2	C	23.9	NO

Notes:
- Arrow Highway at the Metrolink crossing not part of the study intersections in 2013 FEIR or this memorandum.
* La Verne and Arrow Highway was analyzed as a project feature in the updated modeling.

The traffic analysis for the Project Modifications indicates that these intersections are projected to operate at LOS C or better during both peak hours with the updated modeling and the reduction in vehicular demand. Since the traffic analysis does not explicitly indicate a need for mitigation, the Construction Authority should evaluate the need for signalization at the White Avenue/First Street, White Avenue/Second Street, Arrow Highway/E Street intersections (as mitigation or a project feature) based on other factors. At the La Verne Avenue/Arrow Highway intersection the analysis confirms that additional mitigation is not needed when the signal is added as a project feature.

LTR-3 – In La Verne, the Construction Authority shall cooperatively work with the City, and contribute funding as necessary, to ensure the signalization at the intersection of Fulton Road and Bonita Avenue when warranted.

At the Fulton Road and Bonita Avenue intersection, there is an offset of approximately 250 feet between the northbound and southbound approach. The 2013 FEIR evaluated this condition as a single intersection which combines conflicting movements that may not necessarily exist. For the evaluation in this memorandum, this intersection was analyzed as two separate one-way stop-controlled intersections and the worse delay and LOS from the northbound and southbound approach was reported.

Table 21: Mitigation Evaluation for LTR-3

Fulton Road and Bonita Avenue					
Scenario	No Build Delay	No Build LOS	Build Delay	Build LOS	Impact
Approved Project (AM)	C	22.1	D	29.4	YES
Project Modifications (AM)	C	22.1	B	13.1	NO

Table 21: Mitigation Evaluation for LTR-3

Fulton Road and Bonita Avenue					
Scenario	**No Build Delay**	**No Build LOS**	**Build Delay**	**Build LOS**	**Impact**
Approved Project (PM)	F	58.1	F	137.4	**YES**
Project Modifications (PM)	F	58.1	C	18.0	NO

The traffic analysis for the Project Modifications indicates that this intersection is projected to operate at LOS C or better during both peak hours with the updated modeling and the reduction in vehicular demand. Since the traffic analysis does not explicitly indicate a need for mitigation, the Construction Authority should evaluate the need for signalization at the Fulton Road/Bonita Avenue intersection (as mitigation or a project feature) based on other factors.

LTR-4 – In Pomona, the Construction Authority shall cooperatively work with the City, and contribute funding as necessary, to modify the Garey Avenue and Bonita intersection within the existing right-of-way. The proposed modification is a restriping of the northbound approach to provide two exclusive left-turn lanes, one through lane, and one shared right-turn/through lane. The "receiving leg" would also be restriped to provide two through lanes.

Table 22: Mitigation Evaluation for LTR-4

Garey Avenue and Bonita Avenue					
Scenario	**No Build Delay**	**No Build LOS**	**Build Delay**	**Build LOS**	**Impact**
Approved Project (AM)	B	16.0	C	32.6	**YES**
Project Modifications (AM)	B	19.4	C	21.8	NO
Approved Project (PM)	B	15.8	B	18.5	NO
Project Modifications (PM)	C	26.7	C	27.0	NO

The traffic analysis for the Project Modifications indicates that this intersection is projected to operate at LOS C or better during both peak hours with the updated modeling and the reduction in vehicular demand. Since the traffic analysis does not explicitly indicate a need for mitigation, the Construction Authority should evaluate the need for reconfiguring the Garey Avenue/Bonita Avenue intersection (as mitigation or a project feature) based on other factors.

LTR-5 – In Pomona, the Construction Authority shall cooperatively work with the City, and contribute funding as necessary, to ensure the signalization at the intersection of College Avenue and First Street when warranted.

Table 23: Mitigation Evaluation for LTR-5

College Avenue and First Street *					
Scenario	**No Build Delay**	**No Build LOS**	**Build Delay**	**Build LOS**	**Impact**
Approved Project (AM)	B	10.8	C	15.2	NO
Project Modifications (AM)	B	12.5	B	16.1	NO
Approved Project (PM)	B	12.6	E	35.6	**YES**
Project Modifications (PM)	C	15.7	B	14.9	NO

Table 23: Mitigation Evaluation for LTR-5

College Avenue and First Street *					
Scenario	**No Build Delay**	**No Build LOS**	**Build Delay**	**Build LOS**	**Impact**

Notes:
- The results for 2020 model evaluation scenarios are reported based on the HCM 2010 methodology due to HCM 2000 limitations with the intersection geometry at this location.
* The signalization of College Avenue and First Street was analyzed as a project feature in the updated modeling

The analysis confirms that additional mitigation is not needed at the College Avenue/First Street when the signal is added as a project feature.

LTR-6 – At the Garey Avenue crossing, the existing Metrolink track circuitry shall be recalibrated to eliminate false gate closures.

This long-term mitigation strategy was identified outside of the traffic operational analysis results and was not evaluated in this memorandum. The need for this mitigation strategy is independent of traffic conditions at the study area intersections surrounding the Garey Avenue crossing and the Project Modifications do not eliminate the need for this mitigation.

LTR-7 – The signal at the intersection of Garey Avenue and Bonita Avenue shall be interconnected with the railroad signaling to allow for preemption when trains are present.

This long-term mitigation strategy was identified outside of the traffic operational analysis results and was not evaluated in this memorandum. The need for this mitigation strategy is independent of traffic conditions at the study area intersections surrounding the Garey Avenue crossing and the Project Modifications do not eliminate the need for this mitigation.

LTR-8 – Bonita Avenue shall be protected/permitted in the east/west direction.

Table 24: Mitigation Evaluation for LTR-8

Scenario	No Build Delay	No Build LOS	Build Delay	Build LOS	Impact
Garey Avenue and Bonita Avenue					
Approved Project (AM)	B	16.0	C	32.6	**YES**
Project Modifications (AM)	B	19.4	C	21.8	NO
Approved Project (PM)	B	15.8	C	18.5	NO
Project Modifications (PM)	C	26.7	C	27.0	NO
Towne Avenue and Bonita Avenue					
Approved Project (AM)	A	9.9	B	18.5	NO
Project Modifications (AM)	A	9.6	A	9.7	NO
Approved Project (PM)	B	11.2	B	15.9	NO
Project Modifications (PM)	B	11.3	B	12.2	NO

The traffic analysis for the Project Modifications indicates that these intersections are projected to operate at LOS C or better during both peak hours with the existing/no build signal configuration (with permissive left-turn phasing). The relocation of the parking facility resulted in a decrease in the total trips entering these intersections compared to the 2013 FEIR. Converting the left-turn phasing to protected/permissive may enhance safety at the intersection with the projected increase of trips (including an increase in

pedestrian activity and transit trips to the station) due to the Gold Line extension, but those benefits are not included in this evaluation. The Construction Authority shall work with the City on whether this mitigation strategy is still needed for reasons outside of intersection operations (LOS and delay).

LTR-9 – Restripe White Avenue to include two lanes in the northbound direction and one lane in the southbound direction, including a dedicated median turn lane.

As reported in the 2019 SEIR, this long-term mitigation strategy was identified as a result of multiple technical studies that analyzed the White Avenue at-grade crossing in detail (including a microsimulation). Table 20 provided a summary of intersection operations at two study intersections that were identified as impacts in the 2013 FEIR (White Avenue/First Street and White Avenue/Second Street). Both intersections are projected to operate better (LOS C or better) in both peak periods in the updated modeling and the reduction of parking demand. However, the technical studies identified safety concerns related to queueing during train operations that could potentially reach the at-grade crossing. LTR-9 provides the necessary queueing storage to address the safety concern. Since intersection performance was not the driver for this mitigation strategy, it is recommended that LTR-9 remains as planned with the Project Modifications.

Jacobs

Memorandum

ATTACHMENT A. FEIR No Build Alternative with Model Updates Synchro Output Worksheets

Note: The 2019 SEIR did not evaluate study intersections in Claremont and Montclair, therefore, the No Build results for those intersections are included in this attachment.

Jacobs

Memorandum

2035 FEIR No Build Alternative (with Model Updates) – AM Peak Hour

HCM Signalized Intersection Capacity Analysis
1: Barranca Ave & Bennett Ave

08/10/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	328	0	73	0	184	196	66	395	0
Future Volume (vph)	0	0	0	328	0	73	0	184	196	66	395	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5		4.5		4.5		4.5	4.5	
Lane Util. Factor				0.97		1.00		0.95		1.00	0.95	
Frt				1.00		0.85		0.92		1.00	1.00	
Flt Protected				0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)				3433		1583		3265		1770	3539	
Flt Permitted				0.95		1.00		1.00		0.95	1.00	
Satd. Flow (perm)				3433		1583		3265		1770	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	357	0	79	0	200	213	72	429	0
RTOR Reduction (vph)	0	0	0	0	0	51	0	154	0	0	0	0
Lane Group Flow (vph)	0	0	0	357	0	28	0	259	0	72	429	0
Turn Type				Prot		pm+ov	Prot	NA		Prot	NA	
Protected Phases				8		1	5	2		1	6	
Permitted Phases						8						
Actuated Green, G (s)				9.5		13.2		10.2		3.7	18.4	
Effective Green, g (s)				9.5		13.2		10.2		3.7	18.4	
Actuated g/C Ratio				0.26		0.36		0.28		0.10	0.50	
Clearance Time (s)				4.5		4.5		4.5		4.5	4.5	
Vehicle Extension (s)				3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)				883		759		902		177	1764	
v/s Ratio Prot				c0.10		0.00		0.08		c0.04	c0.12	
v/s Ratio Perm						0.01						
v/c Ratio				0.40		0.04		0.29		0.41	0.24	
Uniform Delay, d1				11.4		7.7		10.5		15.6	5.3	
Progression Factor				1.00		1.00		1.00		1.00	1.00	
Incremental Delay, d2				0.3		0.0		0.2		1.5	0.1	
Delay (s)				11.7		7.7		10.7		17.1	5.3	
Level of Service				B		A		B		B	A	
Approach Delay (s)		0.0			10.9			10.7			7.0	
Approach LOS		A			B			B			A	

Intersection Summary			
HCM 2000 Control Delay	9.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	36.9	Sum of lost time (s)	13.5
Intersection Capacity Utilization	35.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	187	176	208	641	35	175	303	122	114	445	173
Future Volume (vph)	85	187	176	208	641	35	175	303	122	114	445	173
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.93		1.00	0.99		1.00	0.96		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3282		1770	3512		1770	3386		1770	3391	
Flt Permitted	0.26	1.00		0.51	1.00		0.36	1.00		0.49	1.00	
Satd. Flow (perm)	483	3282		947	3512		676	3386		906	3391	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	92	203	191	226	697	38	190	329	133	124	484	188
RTOR Reduction (vph)	0	127	0	0	7	0	0	66	0	0	46	0
Lane Group Flow (vph)	92	267	0	226	728	0	190	396	0	124	626	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	19.2	19.2		19.2	19.2		28.7	28.7		28.7	28.7	
Effective Green, g (s)	19.2	19.2		19.2	19.2		28.7	28.7		28.7	28.7	
Actuated g/C Ratio	0.34	0.34		0.34	0.34		0.50	0.50		0.50	0.50	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	162	1107		319	1185		340	1707		456	1710	
v/s Ratio Prot		0.08			0.21			0.12			0.18	
v/s Ratio Perm	0.19			c0.24			c0.28			0.14		
v/c Ratio	0.57	0.24		0.71	0.61		0.56	0.23		0.27	0.37	
Uniform Delay, d1	15.5	13.6		16.4	15.8		9.7	7.9		8.1	8.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.5	0.1		7.0	1.0		6.5	0.3		1.5	0.6	
Delay (s)	20.0	13.7		23.4	16.7		16.2	8.2		9.6	9.2	
Level of Service	B	B		C	B		B	A		A	A	
Approach Delay (s)		14.9			18.3			10.6			9.2	
Approach LOS		B			B			B			A	

Intersection Summary			
HCM 2000 Control Delay	13.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	56.9	Sum of lost time (s)	9.0
Intersection Capacity Utilization	66.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	68	297	101	272	557	108	136	617	231	105	486	105
Future Volume (vph)	68	297	101	272	557	108	136	617	231	105	486	105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.96		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3404		1770	3453		1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3404		1770	3453		1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	74	323	110	296	605	117	148	671	251	114	528	114
RTOR Reduction (vph)	0	43	0	0	20	0	0	0	177	0	0	84
Lane Group Flow (vph)	74	390	0	296	702	0	148	671	74	114	528	30
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Actuated Green, G (s)	6.5	15.0		15.4	23.9		8.4	22.7	22.7	5.8	20.1	20.1
Effective Green, g (s)	6.5	15.0		15.4	23.9		8.4	22.7	22.7	5.8	20.1	20.1
Actuated g/C Ratio	0.08	0.20		0.20	0.31		0.11	0.30	0.30	0.08	0.26	0.26
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	149	663		354	1073		193	1044	467	133	925	413
v/s Ratio Prot	0.04	0.11		c0.17	c0.20		c0.08	c0.19		0.06	0.15	
v/s Ratio Perm									0.05			0.02
v/c Ratio	0.50	0.59		0.84	0.65		0.77	0.64	0.16	0.86	0.57	0.07
Uniform Delay, d1	33.6	28.1		29.5	22.9		33.3	23.6	20.0	35.1	24.7	21.4
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.6	1.3		15.6	1.4		16.5	3.0	0.7	38.6	2.6	0.3
Delay (s)	36.2	29.5		45.1	24.4		49.8	26.6	20.8	73.7	27.2	21.7
Level of Service	D	C		D	C		D	C	C	E	C	C
Approach Delay (s)		30.5			30.4			28.5			33.4	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	30.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	76.9	Sum of lost time (s)	18.0
Intersection Capacity Utilization	64.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Volume (veh/h)	101	58	128	33	29	164
Future Volume (Veh/h)	101	58	128	33	29	164
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	110	63	139	36	32	178
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						1253
pX, platoon unblocked						
vC, conflicting volume	399	157			175	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	399	157			175	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	81	93			98	
cM capacity (veh/h)	593	889			1401	

Direction, Lane #	NW 1	NE 1	SW 1
Volume Total	173	175	210
Volume Left	110	0	32
Volume Right	63	36	0
cSH	675	1700	1401
Volume to Capacity	0.26	0.10	0.02
Queue Length 95th (ft)	25	0	2
Control Delay (s)	12.2	0.0	1.3
Lane LOS	B		A
Approach Delay (s)	12.2	0.0	1.3
Approach LOS	B		

Intersection Summary			
Average Delay	4.3		
Intersection Capacity Utilization	38.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	519	10	10	1384	113	9	41	12	28	33	70
Future Volume (vph)	41	519	10	10	1384	113	9	41	12	28	33	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.5		4.0	4.5			4.5			4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frt	1.00	1.00		1.00	0.99			0.97			0.93	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1770	3529		1770	3499			1801			1710	
Flt Permitted	0.95	1.00		0.95	1.00			0.96			0.94	
Satd. Flow (perm)	1770	3529		1770	3499			1740			1616	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	45	564	11	11	1504	123	10	45	13	30	36	76
RTOR Reduction (vph)	0	2	0	0	7	0	0	10	0	0	51	0
Lane Group Flow (vph)	45	573	0	11	1620	0	0	58	0	0	91	0
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)	3.2	43.5		1.0	41.3			19.8			19.8	
Effective Green, g (s)	3.2	43.5		1.0	41.3			19.8			19.8	
Actuated g/C Ratio	0.04	0.56		0.01	0.53			0.26			0.26	
Clearance Time (s)	4.0	4.5		4.0	4.5			4.5			4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	73	1985		22	1869			445			413	
v/s Ratio Prot	c0.03	0.16		0.01	c0.46							
v/s Ratio Perm								0.03			c0.06	
v/c Ratio	0.62	0.29		0.50	0.87			0.13			0.22	
Uniform Delay, d1	36.4	8.8		37.9	15.6			22.1			22.7	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	14.5	0.1		16.8	4.5			0.6			1.2	
Delay (s)	50.9	8.9		54.7	20.1			22.7			23.9	
Level of Service	D	A		D	C			C			C	
Approach Delay (s)		12.0			20.4			22.7			23.9	
Approach LOS		B			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	18.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	77.3	Sum of lost time (s)	13.0
Intersection Capacity Utilization	61.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	354	23	62	832	77	62	106	34	35	105	70
Future Volume (vph)	23	354	23	62	832	77	62	106	34	35	105	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frt	1.00	0.99		1.00	0.99			0.98			0.95	
Flt Protected	0.95	1.00		0.95	1.00			0.98			0.99	
Satd. Flow (prot)	1770	3507		1770	3494			1793			1764	
Flt Permitted	0.18	1.00		0.51	1.00			0.86			0.93	
Satd. Flow (perm)	332	3507		953	3494			1558			1653	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	25	385	25	67	904	84	67	115	37	38	114	76
RTOR Reduction (vph)	0	8	0	0	12	0	0	11	0	0	28	0
Lane Group Flow (vph)	25	402	0	67	976	0	0	208	0	0	200	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	22.8	22.8		22.8	22.8			23.7			23.7	
Effective Green, g (s)	22.8	22.8		22.8	22.8			23.7			23.7	
Actuated g/C Ratio	0.41	0.41		0.41	0.41			0.43			0.43	
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	136	1440		391	1435			665			705	
v/s Ratio Prot		0.11			c0.28							
v/s Ratio Perm	0.08			0.07				c0.13			0.12	
v/c Ratio	0.18	0.28		0.17	0.68			0.31			0.28	
Uniform Delay, d1	10.4	10.9		10.4	13.4			10.5			10.4	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.7	0.1		0.2	1.3			1.2			1.0	
Delay (s)	11.1	11.0		10.6	14.7			11.7			11.4	
Level of Service	B	B		B	B			B			B	
Approach Delay (s)		11.0			14.4			11.7			11.4	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	13.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	55.5	Sum of lost time (s)	9.0
Intersection Capacity Utilization	60.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (veh/h)	64	16	35	90	150	101
Future Volume (Veh/h)	64	16	35	90	150	101
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	70	17	38	98	163	110
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				1274		
pX, platoon unblocked						
vC, conflicting volume	392	218	273			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	392	218	273			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	88	98	97			
cM capacity (veh/h)	594	822	1290			

Direction, Lane #	SE 1	NE 1	SW 1
Volume Total	87	136	273
Volume Left	70	38	0
Volume Right	17	0	110
cSH	628	1290	1700
Volume to Capacity	0.14	0.03	0.16
Queue Length 95th (ft)	12	2	0
Control Delay (s)	11.6	2.4	0.0
Lane LOS	B	A	
Approach Delay (s)	11.6	2.4	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	35.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	339	74	152	700	61	192	189	35	58	186	64
Future Volume (vph)	29	339	74	152	700	61	192	189	35	58	186	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.97		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3444		1770	3497		1770	1863	1583	1770	1863	1583
Flt Permitted	0.24	1.00		0.31	1.00		0.50	1.00	1.00	0.63	1.00	1.00
Satd. Flow (perm)	438	3444		580	3497		926	1863	1583	1172	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	32	368	80	165	761	66	209	205	38	63	202	70
RTOR Reduction (vph)	0	27	0	0	9	0	0	0	25	0	0	49
Lane Group Flow (vph)	32	421	0	165	818	0	209	205	13	63	202	21
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	18.9	17.0		28.5	22.1		31.1	24.6	24.6	23.9	21.0	21.0
Effective Green, g (s)	18.9	17.0		28.5	22.1		31.1	24.6	24.6	23.9	21.0	21.0
Actuated g/C Ratio	0.27	0.24		0.41	0.32		0.45	0.35	0.35	0.34	0.30	0.30
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	155	842		357	1111		493	659	560	427	562	478
v/s Ratio Prot	0.01	0.12		c0.05	c0.23		c0.04	0.11		0.01	0.11	
v/s Ratio Perm	0.05			0.14			c0.15		0.01	0.04		0.01
v/c Ratio	0.21	0.50		0.46	0.74		0.42	0.31	0.02	0.15	0.36	0.04
Uniform Delay, d1	19.0	22.6		13.9	21.1		12.3	16.3	14.6	15.5	19.0	17.2
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	0.5		0.9	2.6		0.6	1.2	0.1	0.2	1.8	0.2
Delay (s)	19.7	23.1		14.8	23.7		12.9	17.5	14.7	15.7	20.8	17.3
Level of Service	B	C		B	C		B	B	B	B	C	B
Approach Delay (s)		22.8			22.2			15.1			19.1	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	20.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	69.5	Sum of lost time (s)	18.0
Intersection Capacity Utilization	60.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL2	SBL	SBR	NWL	NWR	NWR2
Lane Configurations												
Sign Control		Stop			Stop			Stop		Stop		
Traffic Volume (vph)	30	23	87	27	56	44	30	317	9	55	452	3
Future Volume (vph)	30	23	87	27	56	44	30	317	9	55	452	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	33	25	95	29	61	48	33	345	10	60	491	3

Direction, Lane #	EB 1	WB 1	SB 1	SB 2	NW 1	NW 2
Volume Total (vph)	153	138	206	183	306	249
Volume Left (vph)	33	29	33	0	60	0
Volume Right (vph)	95	48	0	10	0	3
Hadj (s)	-0.30	-0.13	0.11	0.00	0.13	0.03
Departure Headway (s)	6.1	6.3	6.4	6.2	6.2	6.0
Degree Utilization, x	0.26	0.24	0.36	0.32	0.52	0.42
Capacity (veh/h)	531	512	540	550	560	577
Control Delay (s)	11.3	11.3	11.7	10.9	14.5	12.1
Approach Delay (s)	11.3	11.3	11.3		13.4	
Approach LOS	B	B	B		B	

Intersection Summary			
Delay	12.3		
Level of Service	B		
Intersection Capacity Utilization	Err%	ICU Level of Service	H
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	510	12	266	1202	159	139	554	372	111	352	56
Future Volume (vph)	39	510	12	266	1202	159	139	554	372	111	352	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3466	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3466	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	42	554	13	289	1307	173	151	602	404	121	383	61
RTOR Reduction (vph)	0	0	10	0	0	86	0	0	45	0	16	0
Lane Group Flow (vph)	42	554	3	289	1307	87	151	602	359	121	428	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases			4			8			2			
Actuated Green, G (s)	2.9	19.0	19.0	15.6	31.7	31.7	7.8	20.0	35.6	6.5	18.7	
Effective Green, g (s)	2.9	19.0	19.0	15.6	31.7	31.7	7.8	20.0	35.6	6.5	18.7	
Actuated g/C Ratio	0.04	0.24	0.24	0.20	0.40	0.40	0.10	0.25	0.45	0.08	0.24	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	64	850	380	349	1418	634	174	894	802	145	819	
v/s Ratio Prot	0.02	0.16		c0.16	c0.37		c0.09	c0.17	0.09	0.07	0.12	
v/s Ratio Perm			0.00			0.06			0.14			
v/c Ratio	0.66	0.65	0.01	0.83	0.92	0.14	0.87	0.67	0.45	0.83	0.52	
Uniform Delay, d1	37.6	27.1	22.9	30.5	22.5	15.0	35.1	26.6	15.0	35.8	26.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	21.7	1.8	0.0	14.8	10.1	0.1	33.7	4.0	0.4	31.9	2.4	
Delay (s)	59.3	28.9	22.9	45.3	32.6	15.1	68.8	30.6	15.4	67.7	28.7	
Level of Service	E	C	C	D	C	B	E	C	B	E	C	
Approach Delay (s)		30.8			33.0			30.3			37.0	
Approach LOS		C			C			C			D	

Intersection Summary			
HCM 2000 Control Delay	32.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	79.1	Sum of lost time (s)	18.0
Intersection Capacity Utilization	73.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	5	5	12	35	10	29	7	78	15	20	99	5
Future Volume (vph)	5	5	12	35	10	29	7	78	15	20	99	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	5	13	38	11	32	8	85	16	22	108	5

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	23	81	109	135
Volume Left (vph)	5	38	8	22
Volume Right (vph)	13	32	16	5
Hadj (s)	-0.26	-0.11	-0.04	0.04
Departure Headway (s)	4.3	4.4	4.2	4.3
Degree Utilization, x	0.03	0.10	0.13	0.16
Capacity (veh/h)	787	771	816	814
Control Delay (s)	7.4	7.8	7.9	8.1
Approach Delay (s)	7.4	7.8	7.9	8.1
Approach LOS	A	A	A	A

Intersection Summary			
Delay	7.9		
Level of Service	A		
Intersection Capacity Utilization	26.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	117	899	28	35	1528	76	43	22	58	45	24	76
Future Volume (vph)	117	899	28	35	1528	76	43	22	58	45	24	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Lane Util. Factor	1.00	0.95		0.91	0.91			1.00			1.00	
Frt	1.00	1.00		1.00	0.99			0.94			0.93	
Flt Protected	0.95	1.00		0.95	1.00			0.98			0.98	
Satd. Flow (prot)	1770	3523		1610	3366			1714			1704	
Flt Permitted	0.95	1.00		0.95	0.95			0.70			0.76	
Satd. Flow (perm)	1770	3523		1610	3210			1214			1324	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	127	977	30	38	1661	83	47	24	63	49	26	83
RTOR Reduction (vph)	0	1	0	0	2	0	0	22	0	0	27	0
Lane Group Flow (vph)	127	1006	0	34	1746	0	0	112	0	0	131	0
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)	11.5	110.3		6.6	112.0			20.5			20.5	
Effective Green, g (s)	11.5	110.3		6.6	112.0			20.5			20.5	
Actuated g/C Ratio	0.08	0.73		0.04	0.74			0.14			0.14	
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	134	2575		70	2389			164			179	
v/s Ratio Prot	c0.07	0.29		0.02	0.03							
v/s Ratio Perm					c0.51			0.09			c0.10	
v/c Ratio	0.95	0.39		0.49	0.73			0.69			0.73	
Uniform Delay, d1	69.4	7.6		70.5	11.0			62.1			62.6	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	61.2	0.1		5.2	1.2			20.8			23.1	
Delay (s)	130.6	7.7		75.7	12.1			83.0			85.7	
Level of Service	F	A		E	B			F			F	
Approach Delay (s)		21.5			13.3			83.0			85.7	
Approach LOS		C			B			F			F	

Intersection Summary			
HCM 2000 Control Delay	22.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	150.9	Sum of lost time (s)	13.5
Intersection Capacity Utilization	90.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	13	15	3	6	5	9	75	3	9	110	6
Future Volume (Veh/h)	2	13	15	3	6	5	9	75	3	9	110	6
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	14	16	3	7	5	10	82	3	10	120	7
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								564				
pX, platoon unblocked												
vC, conflicting volume	256	248	124	270	250	84	127			85		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	256	248	124	270	250	84	127			85		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	98	98	100	99	99	99			99		
cM capacity (veh/h)	681	645	927	653	644	976	1459			1512		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	32	15	95	137
Volume Left	2	3	10	10
Volume Right	16	5	3	7
cSH	764	728	1459	1512
Volume to Capacity	0.04	0.02	0.01	0.01
Queue Length 95th (ft)	3	2	1	0
Control Delay (s)	9.9	10.0	0.8	0.6
Lane LOS	A	B	A	A
Approach Delay (s)	9.9	10.0	0.8	0.6
Approach LOS	A	B		

Intersection Summary				
Average Delay		2.3		
Intersection Capacity Utilization		18.1%	ICU Level of Service	A
Analysis Period (min)		15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	887	7	19	1631	41	12	3	6	87	1	51
Future Volume (vph)	47	887	7	19	1631	41	12	3	6	87	1	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frt	1.00	1.00		1.00	1.00			0.96			0.95	
Flt Protected	0.95	1.00		0.95	1.00			0.97			0.97	
Satd. Flow (prot)	1770	3535		1770	3526			1737			1717	
Flt Permitted	0.95	1.00		0.95	1.00			0.86			0.80	
Satd. Flow (perm)	1770	3535		1770	3526			1527			1414	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	51	964	8	21	1773	45	13	3	7	95	1	55
RTOR Reduction (vph)	0	1	0	0	2	0	0	5	0	0	26	0
Lane Group Flow (vph)	51	971	0	21	1816	0	0	18	0	0	125	0
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)	3.0	44.6		1.9	43.5			18.8			18.8	
Effective Green, g (s)	3.0	44.6		1.9	43.5			18.8			18.8	
Actuated g/C Ratio	0.04	0.57		0.02	0.55			0.24			0.24	
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	67	2000		42	1946			364			337	
v/s Ratio Prot	c0.03	0.27		0.01	c0.51							
v/s Ratio Perm								0.01			c0.09	
v/c Ratio	0.76	0.49		0.50	0.93			0.05			0.37	
Uniform Delay, d1	37.5	10.2		38.0	16.3			23.1			25.1	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	39.2	0.2		9.1	8.9			0.3			3.1	
Delay (s)	76.7	10.4		47.0	25.2			23.4			28.2	
Level of Service	E	B		D	C			C			C	
Approach Delay (s)		13.7			25.4			23.4			28.2	
Approach LOS		B			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	21.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	78.8	Sum of lost time (s)	13.5
Intersection Capacity Utilization	63.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	23	8	7	12	0	1	100	2	7	108	0
Future Volume (Veh/h)	1	23	8	7	12	0	1	100	2	7	108	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	25	9	8	13	0	1	109	2	8	117	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								560				
pX, platoon unblocked												
vC, conflicting volume	252	246	117	266	245	110	117			111		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	252	246	117	266	245	110	117			111		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	96	99	99	98	100	100			99		
cM capacity (veh/h)	688	652	935	657	653	943	1471			1479		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	35	21	112	125
Volume Left	1	8	1	8
Volume Right	9	0	2	0
cSH	708	654	1471	1479
Volume to Capacity	0.05	0.03	0.00	0.01
Queue Length 95th (ft)	4	2	0	0
Control Delay (s)	10.3	10.7	0.1	0.5
Lane LOS	B	B	A	A
Approach Delay (s)	10.3	10.7	0.1	0.5
Approach LOS	B	B		

Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	21.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	52	849	24	23	1614	36	14	5	13	63	7	52
Future Volume (vph)	52	849	24	23	1614	36	14	5	13	63	7	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frt	1.00	1.00		1.00	1.00			0.94			0.94	
Flt Protected	0.95	1.00		0.95	1.00			0.98			0.98	
Satd. Flow (prot)	1770	3525		1770	3528			1721			1711	
Flt Permitted	0.95	1.00		0.95	1.00			0.88			0.84	
Satd. Flow (perm)	1770	3525		1770	3528			1548			1470	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	57	923	26	25	1754	39	15	5	14	68	8	57
RTOR Reduction (vph)	0	2	0	0	2	0	0	11	0	0	34	0
Lane Group Flow (vph)	57	947	0	25	1791	0	0	23	0	0	99	0
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)	3.0	44.4		2.1	43.5			18.8			18.8	
Effective Green, g (s)	3.0	44.4		2.1	43.5			18.8			18.8	
Actuated g/C Ratio	0.04	0.56		0.03	0.55			0.24			0.24	
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	67	1986		47	1947			369			350	
v/s Ratio Prot	c0.03	0.27		0.01	c0.51							
v/s Ratio Perm								0.02			c0.07	
v/c Ratio	0.85	0.48		0.53	0.92			0.06			0.28	
Uniform Delay, d1	37.7	10.3		37.9	16.1			23.2			24.5	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	61.0	0.2		11.1	7.5			0.3			2.0	
Delay (s)	98.7	10.4		48.9	23.6			23.5			26.5	
Level of Service	F	B		D	C			C			C	
Approach Delay (s)		15.4			23.9			23.5			26.5	
Approach LOS		B			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	21.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	78.8	Sum of lost time (s)	13.5
Intersection Capacity Utilization	62.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	5	28	12	26	10	9	330	3	7	563	2
Future Volume (Veh/h)	13	5	28	12	26	10	9	330	3	7	563	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	14	5	30	13	28	11	10	359	3	8	612	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								542				
pX, platoon unblocked												
vC, conflicting volume	854	1011	307	735	1010	181	614			362		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	854	1011	307	735	1010	181	614			362		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	94	98	96	95	88	99	99			99		
cM capacity (veh/h)	223	234	689	286	234	831	961			1193		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	49	52	190	182	314	308
Volume Left	14	13	10	0	8	0
Volume Right	30	11	0	3	0	2
cSH	384	292	961	1700	1193	1700
Volume to Capacity	0.13	0.18	0.01	0.11	0.01	0.18
Queue Length 95th (ft)	11	16	1	0	1	0
Control Delay (s)	15.7	20.0	0.6	0.0	0.3	0.0
Lane LOS	C	C	A		A	
Approach Delay (s)	15.7	20.0	0.3		0.1	
Approach LOS	C	C				

Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	31.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	126	849	1392	189	393	178
Future Volume (vph)	126	849	1392	189	393	178
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5	4.5
Lane Util. Factor	1.00	0.95	0.95		0.97	1.00
Frt	1.00	1.00	0.98		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3476		3433	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3476		3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	137	923	1513	205	427	193
RTOR Reduction (vph)	0	0	12	0	0	151
Lane Group Flow (vph)	137	923	1706	0	427	42
Turn Type	Prot	NA	NA		Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	9.2	61.1	47.4		19.5	19.5
Effective Green, g (s)	9.2	61.1	47.4		19.5	19.5
Actuated g/C Ratio	0.10	0.68	0.53		0.22	0.22
Clearance Time (s)	4.5	4.5	4.5		4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	181	2413	1838		747	344
v/s Ratio Prot	c0.08	0.26	c0.49		c0.12	
v/s Ratio Perm						0.03
v/c Ratio	0.76	0.38	0.93		0.57	0.12
Uniform Delay, d1	39.1	6.1	19.5		31.3	28.2
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	16.4	0.1	8.7		3.2	0.7
Delay (s)	55.5	6.2	28.2		34.5	28.9
Level of Service	E	A	C		C	C
Approach Delay (s)		12.6	28.2		32.7	
Approach LOS		B	C		C	

Intersection Summary			
HCM 2000 Control Delay	24.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	89.6	Sum of lost time (s)	13.5
Intersection Capacity Utilization	73.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	360	412	563	218	736	996
Future Volume (vph)	360	412	563	218	736	996
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5	4.5
Lane Util. Factor	0.97	1.00	0.91		0.97	0.95
Frt	1.00	0.85	0.96		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	3090	1425	4385		3090	3185
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	3090	1425	4385		3090	3185
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	391	448	612	237	800	1083
RTOR Reduction (vph)	0	353	97	0	0	0
Lane Group Flow (vph)	391	95	752	0	800	1083
Turn Type	Prot	Perm	NA		Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8				
Actuated Green, G (s)	14.0	14.0	18.1		20.5	43.1
Effective Green, g (s)	14.0	14.0	18.1		20.5	43.1
Actuated g/C Ratio	0.21	0.21	0.27		0.31	0.65
Clearance Time (s)	4.5	4.5	4.5		4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	654	301	1200		958	2076
v/s Ratio Prot	c0.13		c0.17		c0.26	0.34
v/s Ratio Perm		0.07				
v/c Ratio	0.60	0.32	0.63		0.84	0.52
Uniform Delay, d1	23.5	22.0	21.0		21.2	6.1
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	1.5	0.6	2.5		8.5	0.9
Delay (s)	25.0	22.6	23.5		29.8	7.0
Level of Service	C	C	C		C	A
Approach Delay (s)	23.7		23.5			16.7
Approach LOS	C		C			B

Intersection Summary			
HCM 2000 Control Delay	20.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	66.1	Sum of lost time (s)	13.5
Intersection Capacity Utilization	63.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	212	94	207	477	36	118
Future Volume (Veh/h)	212	94	207	477	36	118
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	230	102	225	518	39	128
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						1
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			332		1249	281
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			332		1249	281
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			82		75	83
cM capacity (veh/h)			1227		156	758

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	332	743	167
Volume Left	0	225	39
Volume Right	102	0	128
cSH	1700	1227	668
Volume to Capacity	0.20	0.18	0.25
Queue Length 95th (ft)	0	17	25
Control Delay (s)	0.0	4.2	16.5
Lane LOS		A	C
Approach Delay (s)	0.0	4.2	16.5
Approach LOS			C

Intersection Summary			
Average Delay	4.7		
Intersection Capacity Utilization	66.8%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	9	290	42	87	503	1	132	8	36	7	12	9
Future Volume (vph)	9	290	42	87	503	1	132	8	36	7	12	9
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	10	315	46	95	547	1	143	9	39	8	13	10

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	SB 1
Volume Total (vph)	371	642	1	152	39	31
Volume Left (vph)	10	95	0	143	0	8
Volume Right (vph)	46	0	1	0	39	10
Hadj (s)	-0.04	0.11	-0.67	0.50	-0.67	-0.11
Departure Headway (s)	6.2	6.0	5.2	7.7	6.6	7.7
Degree Utilization, x	0.64	1.07	0.00	0.33	0.07	0.07
Capacity (veh/h)	563	596	674	449	524	425
Control Delay (s)	19.8	79.1	7.0	13.2	8.9	11.3
Approach Delay (s)	19.8	79.0		12.4		11.3
Approach LOS	C	F		B		B

Intersection Summary			
Delay	49.2		
Level of Service	E		
Intersection Capacity Utilization	74.0%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	230	2	84	6	0	2	48	512	6	38	816	405
Future Volume (vph)	230	2	84	6	0	2	48	512	6	38	816	405
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5		4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	0.95	0.95	0.88		1.00		0.97	0.91		1.00	0.95	1.00
Frt	1.00	1.00	0.85		0.97		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	0.95	1.00		0.96		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1687	2787		1739		3433	5076		1770	3539	1583
Flt Permitted	0.95	0.95	1.00		0.96		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1681	1687	2787		1739		3433	5076		1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	250	2	91	7	0	2	52	557	7	41	887	440
RTOR Reduction (vph)	0	0	75	0	9	0	0	1	0	0	0	241
Lane Group Flow (vph)	125	127	16	0	0	0	52	563	0	41	887	199
Turn Type	Split	NA	Perm	Split	NA		Prot	NA		Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4									6
Actuated Green, G (s)	9.4	9.4	9.4		0.8		1.7	24.3		2.1	24.7	24.7
Effective Green, g (s)	9.4	9.4	9.4		0.8		1.7	24.3		2.1	24.7	24.7
Actuated g/C Ratio	0.17	0.17	0.17		0.01		0.03	0.45		0.04	0.45	0.45
Clearance Time (s)	4.5	4.5	4.5		4.5		4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	289	290	479		25		106	2259		68	1600	716
v/s Ratio Prot	0.07	c0.08			c0.00		0.02	0.11		c0.02	c0.25	
v/s Ratio Perm			0.01									0.13
v/c Ratio	0.43	0.44	0.03		0.01		0.49	0.25		0.60	0.55	0.28
Uniform Delay, d1	20.2	20.2	18.8		26.5		26.0	9.5		25.8	10.9	9.4
Progression Factor	1.00	1.00	1.00		1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.0	1.1	0.0		0.1		3.5	0.3		14.2	1.4	1.0
Delay (s)	21.3	21.3	18.8		26.6		29.6	9.7		40.0	12.3	10.3
Level of Service	C	C	B		C		C	A		D	B	B
Approach Delay (s)		20.6			26.6			11.4			12.5	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	13.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	54.6	Sum of lost time (s)	18.0
Intersection Capacity Utilization	45.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	34	13	467	734	17
Future Volume (Veh/h)	0	34	13	467	734	17
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	37	14	508	798	18
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				1038	287	
pX, platoon unblocked	0.96	0.96	0.96			
vC, conflicting volume	1089	408	816			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1018	312	735			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	94	98			
cM capacity (veh/h)	221	659	835			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	37	183	339	532	284
Volume Left	0	14	0	0	0
Volume Right	37	0	0	0	18
cSH	659	835	1700	1700	1700
Volume to Capacity	0.06	0.02	0.20	0.31	0.17
Queue Length 95th (ft)	4	1	0	0	0
Control Delay (s)	10.8	0.9	0.0	0.0	0.0
Lane LOS	B	A			
Approach Delay (s)	10.8	0.3		0.0	
Approach LOS	B				

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	30.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	44	53	0	921	79	14	748
Future Volume (vph)	44	53	0	921	79	14	748
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5			4.5		4.5	4.5
Lane Util. Factor	1.00			0.91		1.00	0.91
Frt	0.93			0.99		1.00	1.00
Flt Protected	0.98			1.00		0.95	1.00
Satd. Flow (prot)	1687			5025		1770	5085
Flt Permitted	0.98			1.00		0.95	1.00
Satd. Flow (perm)	1687			5025		1770	5085
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	48	58	0	1001	86	15	813
RTOR Reduction (vph)	51	0	0	10	0	0	0
Lane Group Flow (vph)	55	0	0	1077	0	15	813
Turn Type	Prot		Prot	NA		Prot	NA
Protected Phases	8		5	2		1	6
Permitted Phases							
Actuated Green, G (s)	5.9			31.5		1.0	37.0
Effective Green, g (s)	5.9			31.5		1.0	37.0
Actuated g/C Ratio	0.11			0.61		0.02	0.71
Clearance Time (s)	4.5			4.5		4.5	4.5
Vehicle Extension (s)	3.0			3.0		3.0	3.0
Lane Grp Cap (vph)	191			3049		34	3625
v/s Ratio Prot	c0.03			c0.21		0.01	c0.16
v/s Ratio Perm							
v/c Ratio	0.29			0.35		0.44	0.22
Uniform Delay, d1	21.1			5.1		25.2	2.5
Progression Factor	1.00			1.00		1.00	1.00
Incremental Delay, d2	0.8			0.3		8.9	0.1
Delay (s)	21.9			5.4		34.1	2.7
Level of Service	C			A		C	A
Approach Delay (s)	21.9			5.4			3.3
Approach LOS	C			A			A

Intersection Summary			
HCM 2000 Control Delay	5.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	51.9	Sum of lost time (s)	13.5
Intersection Capacity Utilization	32.7%	ICU Level of Service	A
Analysis Period (min)	15		
Description: Existing to No Build			
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	326	159	264	881	120	214	866	236	70	718	85
Future Volume (vph)	85	326	159	264	881	120	214	866	236	70	718	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	3433	3476		1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	3433	3476		1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	92	354	173	287	958	130	233	941	257	76	780	92
RTOR Reduction (vph)	0	0	130	0	13	0	0	0	167	0	0	68
Lane Group Flow (vph)	92	354	43	287	1075	0	233	941	90	76	780	24
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4						2			6
Actuated Green, G (s)	5.3	19.9	19.9	10.7	25.3		11.6	28.2	28.2	4.1	20.7	20.7
Effective Green, g (s)	5.3	19.9	19.9	10.7	25.3		11.6	28.2	28.2	4.1	20.7	20.7
Actuated g/C Ratio	0.07	0.25	0.25	0.13	0.31		0.14	0.35	0.35	0.05	0.26	0.26
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	115	870	389	454	1087		253	1233	551	89	905	405
v/s Ratio Prot	0.05	0.10		c0.08	c0.31		c0.13	0.27		0.04	c0.22	
v/s Ratio Perm			0.03						0.06			0.01
v/c Ratio	0.80	0.41	0.11	0.63	0.99		0.92	0.76	0.16	0.85	0.86	0.06
Uniform Delay, d1	37.3	25.6	23.6	33.2	27.7		34.2	23.4	18.2	38.1	28.7	22.7
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	31.5	0.3	0.1	2.9	24.3		35.9	4.5	0.6	50.7	10.6	0.3
Delay (s)	68.8	25.9	23.8	36.1	52.0		70.1	27.9	18.8	88.8	39.3	23.0
Level of Service	E	C	C	D	D		E	C	B	F	D	C
Approach Delay (s)		31.7			48.7			33.1			41.7	
Approach LOS		C			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	39.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	80.9	Sum of lost time (s)	18.0
Intersection Capacity Utilization	79.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	3	15	6	7	8	10	164	8	7	164	4
Future Volume (Veh/h)	11	3	15	6	7	8	10	164	8	7	164	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	3	16	7	8	9	11	178	9	8	178	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											647	
pX, platoon unblocked												
vC, conflicting volume	414	405	180	418	402	182	182			187		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	414	405	180	418	402	182	182			187		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	99	98	99	98	99	99			99		
cM capacity (veh/h)	531	528	863	527	529	860	1393			1387		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	31	24	198	190
Volume Left	12	7	11	8
Volume Right	16	9	9	4
cSH	662	618	1393	1387
Volume to Capacity	0.05	0.04	0.01	0.01
Queue Length 95th (ft)	4	3	1	0
Control Delay (s)	10.7	11.1	0.5	0.4
Lane LOS	B	B	A	A
Approach Delay (s)	10.7	11.1	0.5	0.4
Approach LOS	B	B		

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	23.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	5	11	16	7	20	20	463	5	6	383	5
Future Volume (Veh/h)	5	5	11	16	7	20	20	463	5	6	383	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	5	12	17	8	22	22	503	5	7	416	5
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											650	
pX, platoon unblocked	0.92	0.92	0.92	0.92	0.92		0.92					
vC, conflicting volume	754	984	418	996	984	254	421			508		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	689	940	325	953	940	254	328			508		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	98	98	91	97	97	98			99		
cM capacity (veh/h)	283	235	617	186	235	745	1131			1053		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	22	47	274	256	428
Volume Left	5	17	22	0	7
Volume Right	12	22	0	5	5
cSH	377	303	1131	1700	1053
Volume to Capacity	0.06	0.15	0.02	0.15	0.01
Queue Length 95th (ft)	5	14	1	0	1
Control Delay (s)	15.1	19.0	0.8	0.0	0.2
Lane LOS	C	C	A		A
Approach Delay (s)	15.1	19.0	0.4		0.2
Approach LOS	C	C			

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	35.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	22	9	457	10	0	433
Future Volume (Veh/h)	22	9	457	10	0	433
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	24	10	497	11	0	471
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			None
Median storage veh)			2			
Upstream signal (ft)			430			
pX, platoon unblocked	0.93	0.93			0.93	
vC, conflicting volume	738	254			508	
vC1, stage 1 conf vol	502					
vC2, stage 2 conf vol	236					
vCu, unblocked vol	580	62			333	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	96	99			100	
cM capacity (veh/h)	592	926			1143	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	34	331	177	236	236
Volume Left	24	0	0	0	0
Volume Right	10	0	11	0	0
cSH	663	1700	1700	1700	1700
Volume to Capacity	0.05	0.19	0.10	0.14	0.14
Queue Length 95th (ft)	4	0	0	0	0
Control Delay (s)	10.7	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	10.7	0.0		0.0	
Approach LOS	B				

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	23.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	SEL	SET	NWT	NWR
Lane Configurations						
Traffic Volume (veh/h)	117	10	3	303	320	0
Future Volume (Veh/h)	117	10	3	303	320	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	127	11	3	329	348	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	518	174	348			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	518	174	348			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	74	99	100			
cM capacity (veh/h)	486	839	1208			

Direction, Lane #	WB 1	WB 2	SE 1	SE 2	SE 3	NW 1	NW 2
Volume Total	127	11	3	164	164	174	174
Volume Left	127	0	3	0	0	0	0
Volume Right	0	11	0	0	0	0	0
cSH	486	839	1208	1700	1700	1700	1700
Volume to Capacity	0.26	0.01	0.00	0.10	0.10	0.10	0.10
Queue Length 95th (ft)	26	1	0	0	0	0	0
Control Delay (s)	15.0	9.3	8.0	0.0	0.0	0.0	0.0
Lane LOS	C	A	A				
Approach Delay (s)	14.6		0.1			0.0	
Approach LOS	B						

Intersection Summary			
Average Delay	2.5		
Intersection Capacity Utilization	22.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	1	0	25	8	3	0	129	14	5	92	2
Future Volume (Veh/h)	2	1	0	25	8	3	0	129	14	5	92	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	1	0	27	9	3	0	140	15	5	100	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	266	266	101	259	260	148	102			155		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	266	266	101	259	260	148	102			155		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	96	99	100	100			100		
cM capacity (veh/h)	675	637	954	691	643	899	1490			1425		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	3	39	155	107
Volume Left	2	27	0	5
Volume Right	0	3	15	2
cSH	662	692	1700	1425
Volume to Capacity	0.00	0.06	0.09	0.00
Queue Length 95th (ft)	0	4	0	0
Control Delay (s)	10.5	10.5	0.0	0.4
Lane LOS	B	B		A
Approach Delay (s)	10.5	10.5	0.0	0.4
Approach LOS	B	B		

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	19.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	563	48	70	812	41	95
Future Volume (Veh/h)	563	48	70	812	41	95
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	612	52	76	883	45	103
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			664		1673	638
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			664		1673	638
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			92		53	78
cM capacity (veh/h)			925		97	477

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	664	959	148
Volume Left	0	76	45
Volume Right	52	0	103
cSH	1700	925	217
Volume to Capacity	0.39	0.08	0.68
Queue Length 95th (ft)	0	7	107
Control Delay (s)	0.0	2.2	51.1
Lane LOS		A	F
Approach Delay (s)	0.0	2.2	51.1
Approach LOS			F

Intersection Summary			
Average Delay	5.5		
Intersection Capacity Utilization	97.3%	ICU Level of Service	F
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	610	16	20	828	15	25	27	29	6	23	36
Future Volume (Veh/h)	31	610	16	20	828	15	25	27	29	6	23	36
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	34	663	17	22	900	16	27	29	32	7	25	39
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	916			680			1743	1700	672	1738	1700	908
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	916			680			1743	1700	672	1738	1700	908
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	95			98			39	66	93	84	71	88
cM capacity (veh/h)	745			912			44	86	456	45	86	334

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	714	938	88	71
Volume Left	34	22	27	7
Volume Right	17	16	32	39
cSH	745	912	86	126
Volume to Capacity	0.05	0.02	1.02	0.57
Queue Length 95th (ft)	4	2	146	69
Control Delay (s)	1.2	0.7	190.0	65.8
Lane LOS	A	A	F	F
Approach Delay (s)	1.2	0.7	190.0	65.8
Approach LOS			F	F

Intersection Summary			
Average Delay	12.6		
Intersection Capacity Utilization	68.6%	ICU Level of Service	C
Analysis Period (min)	15		

HCM Signalized Intersection Capacity Analysis
75: Indian Hill Blvd & Bonita Ave

08/10/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	66	111	149	16	80	29	112	477	27	43	521	40
Future Volume (vph)	66	111	149	16	80	29	112	477	27	43	521	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. 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
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	1863	1583	1770	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.24	1.00	1.00	0.32	1.00	1.00
Satd. Flow (perm)	1770	1863	1583	1770	1863	1583	453	1863	1583	597	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	72	121	162	17	87	32	122	518	29	47	566	43
RTOR Reduction (vph)	0	0	126	0	0	26	0	0	16	0	0	24
Lane Group Flow (vph)	72	121	36	17	87	6	122	518	13	47	566	19
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8	2		2	6		6
Actuated Green, G (s)	3.9	14.4	14.4	0.9	11.4	11.4	33.3	29.4	29.4	31.3	28.4	28.4
Effective Green, g (s)	3.9	14.4	14.4	0.9	11.4	11.4	33.3	29.4	29.4	31.3	28.4	28.4
Actuated g/C Ratio	0.06	0.22	0.22	0.01	0.17	0.17	0.51	0.45	0.45	0.48	0.43	0.43
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	105	408	347	24	323	275	308	834	709	336	806	685
v/s Ratio Prot	c0.04	c0.06		0.01	0.05		c0.02	0.28		0.01	c0.30	
v/s Ratio Perm			0.02			0.00	0.18		0.01	0.06		0.01
v/c Ratio	0.69	0.30	0.10	0.71	0.27	0.02	0.40	0.62	0.02	0.14	0.70	0.03
Uniform Delay, d1	30.2	21.4	20.4	32.2	23.5	22.5	10.2	13.8	10.1	9.9	15.2	10.7
Progression 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
Incremental Delay, d2	17.0	0.4	0.1	65.6	0.5	0.0	0.8	3.5	0.0	0.2	5.1	0.1
Delay (s)	47.2	21.8	20.6	97.8	23.9	22.5	11.0	17.3	10.1	10.1	20.2	10.7
Level of Service	D	C	C	F	C	C	B	B	B	B	C	B
Approach Delay (s)		26.4			32.8			15.9			18.9	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	20.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	65.6	Sum of lost time (s)	18.0
Intersection Capacity Utilization	55.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	13	54	88	19	49	42	536	139	43	600	18
Future Volume (vph)	2	13	54	88	19	49	42	536	139	43	600	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	1863	1583	1770	1854	
Flt Permitted	0.74	1.00	1.00	0.75	1.00	1.00	0.28	1.00	1.00	0.34	1.00	
Satd. Flow (perm)	1385	1863	1583	1394	1863	1583	518	1863	1583	640	1854	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2	14	59	96	21	53	46	583	151	47	652	20
RTOR Reduction (vph)	0	0	50	0	0	45	0	0	67	0	1	0
Lane Group Flow (vph)	2	14	9	96	21	8	46	583	84	47	671	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		
Actuated Green, G (s)	7.5	7.5	7.5	7.5	7.5	7.5	30.1	28.3	28.3	30.1	28.3	
Effective Green, g (s)	7.5	7.5	7.5	7.5	7.5	7.5	30.1	28.3	28.3	30.1	28.3	
Actuated g/C Ratio	0.15	0.15	0.15	0.15	0.15	0.15	0.59	0.55	0.55	0.59	0.55	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	203	273	232	204	273	232	349	1031	876	416	1026	
v/s Ratio Prot		0.01			0.01		c0.00	0.31		0.00	c0.36	
v/s Ratio Perm	0.00		0.01	c0.07		0.00	0.07		0.05	0.06		
v/c Ratio	0.01	0.05	0.04	0.47	0.08	0.03	0.13	0.57	0.10	0.11	0.65	
Uniform Delay, d1	18.6	18.7	18.7	20.0	18.8	18.7	5.3	7.4	5.4	4.9	8.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.0	0.1	0.1	1.7	0.1	0.1	0.2	2.2	0.2	0.1	3.2	
Delay (s)	18.6	18.8	18.8	21.7	18.9	18.8	5.5	9.7	5.6	5.0	11.2	
Level of Service	B	B	B	C	B	B	A	A	A	A	B	
Approach Delay (s)		18.8			20.4			8.6			10.8	
Approach LOS		B			C			A			B	

Intersection Summary			
HCM 2000 Control Delay	11.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	51.1	Sum of lost time (s)	13.5
Intersection Capacity Utilization	54.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	16	0	0	11	44	723	7	0	707	40
Future Volume (Veh/h)	0	0	16	0	0	11	44	723	7	0	707	40
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	17	0	0	12	48	786	8	0	768	43
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											312	
pX, platoon unblocked												
vC, conflicting volume	1290	1680	406	1287	1697	397	811			794		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1290	1680	406	1287	1697	397	811			794		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	97	100	100	98	94			100		
cM capacity (veh/h)	113	88	595	113	86	602	811			823		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	17	12	48	524	270	384	427
Volume Left	0	0	48	0	0	0	0
Volume Right	17	12	0	0	8	0	43
cSH	595	602	811	1700	1700	823	1700
Volume to Capacity	0.03	0.02	0.06	0.31	0.16	0.00	0.25
Queue Length 95th (ft)	2	2	5	0	0	0	0
Control Delay (s)	11.2	11.1	9.7	0.0	0.0	0.0	0.0
Lane LOS	B	B	A				
Approach Delay (s)	11.2	11.1	0.6			0.0	
Approach LOS	B	B					

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	39.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	48	333	135	91	439	48	172	654	113	66	573	53
Future Volume (vph)	48	333	135	91	439	48	172	654	113	66	573	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3494	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3494	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	52	362	147	99	477	52	187	711	123	72	623	58
RTOR Reduction (vph)	0	0	115	0	0	40	0	0	75	0	10	0
Lane Group Flow (vph)	52	362	32	99	477	12	187	711	48	72	671	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			
Actuated Green, G (s)	2.8	14.5	14.5	4.2	15.9	15.9	9.3	25.8	25.8	3.9	20.4	
Effective Green, g (s)	2.8	14.5	14.5	4.2	15.9	15.9	9.3	25.8	25.8	3.9	20.4	
Actuated g/C Ratio	0.04	0.22	0.22	0.06	0.24	0.24	0.14	0.39	0.39	0.06	0.31	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	74	772	345	111	847	379	247	1375	615	103	1073	
v/s Ratio Prot	0.03	0.10		c0.06	c0.13		c0.11	0.20		0.04	c0.19	
v/s Ratio Perm			0.02			0.01			0.03			
v/c Ratio	0.70	0.47	0.09	0.89	0.56	0.03	0.76	0.52	0.08	0.70	0.63	
Uniform Delay, d1	31.4	22.6	20.7	30.9	22.2	19.4	27.5	15.5	12.8	30.7	19.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	26.0	0.5	0.1	52.8	0.9	0.0	12.4	1.4	0.2	18.7	2.8	
Delay (s)	57.4	23.0	20.8	83.7	23.1	19.4	39.9	16.9	13.0	49.4	22.5	
Level of Service	E	C	C	F	C	B	D	B	B	D	C	
Approach Delay (s)		25.6			32.3			20.7			25.1	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	25.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	66.4	Sum of lost time (s)	18.0
Intersection Capacity Utilization	58.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	34	19	36	6	7	16	50	229	34	18	152	36
Future Volume (vph)	34	19	36	6	7	16	50	229	34	18	152	36
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	37	21	39	7	8	17	54	249	37	20	165	39

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total (vph)	97	32	303	37	224
Volume Left (vph)	37	7	54	0	20
Volume Right (vph)	39	17	0	37	39
Hadj (s)	-0.13	-0.24	0.12	-0.67	-0.05
Departure Headway (s)	5.2	5.2	5.2	4.4	4.7
Degree Utilization, x	0.14	0.05	0.44	0.04	0.29
Capacity (veh/h)	629	612	678	793	733
Control Delay (s)	9.0	8.4	10.9	6.4	9.6
Approach Delay (s)	9.0	8.4	10.4		9.6
Approach LOS	A	A	B		A

Intersection Summary				
Delay	9.9			
Level of Service	A			
Intersection Capacity Utilization	41.2%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Intersection Delay, s/veh	12.5
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	22	57	34	59	96	78	20	247	27	30	142	16
Future Vol, veh/h	22	57	34	59	96	78	20	247	27	30	142	16
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	24	62	37	64	104	85	22	268	29	33	154	17
Number of Lanes	1	1	1	1	1	1	0	1	1	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	3	3
HCM Control Delay	10.3	10.6	14.9	12.6
HCM LOS	B	B	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	7%	0%	100%	0%	0%	100%	0%	0%	17%	0%
Vol Thru, %	93%	0%	0%	100%	0%	0%	100%	0%	83%	0%
Vol Right, %	0%	100%	0%	0%	100%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	267	27	22	57	34	59	96	78	172	16
LT Vol	20	0	22	0	0	59	0	0	30	0
Through Vol	247	0	0	57	0	0	96	0	142	0
RT Vol	0	27	0	0	34	0	0	78	0	16
Lane Flow Rate	290	29	24	62	37	64	104	85	187	17
Geometry Grp	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.51	0.046	0.05	0.12	0.064	0.128	0.193	0.14	0.345	0.028
Departure Headway (Hd)	6.328	5.589	7.5	6.99	6.276	7.183	6.674	5.962	6.645	5.854
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	569	638	475	510	567	497	535	599	538	609
Service Time	4.086	3.346	5.28	4.77	4.055	4.953	4.444	3.731	4.41	3.618
HCM Lane V/C Ratio	0.51	0.045	0.051	0.122	0.065	0.129	0.194	0.142	0.348	0.028
HCM Control Delay	15.5	8.6	10.7	10.7	9.5	11	11	9.7	12.9	8.8
HCM Lane LOS	C	A	B	B	A	B	B	A	B	A
HCM 95th-tile Q	2.9	0.1	0.2	0.4	0.2	0.4	0.7	0.5	1.5	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	76	377	29	32	574	91	28	106	11	51	97	80
Future Volume (vph)	76	377	29	32	574	91	28	106	11	51	97	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.98			1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.99	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3501		1770	3467			1844	1583	1770	1863	1583
Flt Permitted	0.28	1.00		0.49	1.00			0.94	1.00	0.66	1.00	1.00
Satd. Flow (perm)	518	3501		904	3467			1755	1583	1238	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	83	410	32	35	624	99	30	115	12	55	105	87
RTOR Reduction (vph)	0	12	0	0	26	0	0	0	6	0	0	45
Lane Group Flow (vph)	83	430	0	35	697	0	0	145	6	55	105	42
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	16.3	16.3		16.3	16.3			23.7	23.7	23.7	23.7	23.7
Effective Green, g (s)	16.3	16.3		16.3	16.3			23.7	23.7	23.7	23.7	23.7
Actuated g/C Ratio	0.33	0.33		0.33	0.33			0.48	0.48	0.48	0.48	0.48
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	172	1164		300	1153			848	765	598	901	765
v/s Ratio Prot		0.12			c0.20						0.06	
v/s Ratio Perm	0.16			0.04				c0.08	0.00	0.04		0.03
v/c Ratio	0.48	0.37		0.12	0.60			0.17	0.01	0.09	0.12	0.06
Uniform Delay, d1	13.0	12.4		11.4	13.7			7.1	6.6	6.8	6.9	6.7
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.1	0.2		0.2	0.9			0.4	0.0	0.3	0.3	0.1
Delay (s)	15.1	12.6		11.5	14.6			7.6	6.6	7.1	7.2	6.8
Level of Service	B	B		B	B			A	A	A	A	A
Approach Delay (s)		13.0			14.4			7.5			7.1	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM 2000 Control Delay	12.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	49.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	48.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	53	1	53	1	4	0	113	236	4	2	296	150
Future Volume (vph)	53	1	53	1	4	0	113	236	4	2	296	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00		1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85		1.00		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00		0.99		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583		1844		1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00	1.00		0.99		0.56	1.00	1.00	0.59	1.00	1.00
Satd. Flow (perm)	1770	1863	1583		1844		1037	3539	1583	1104	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	58	1	58	1	4	0	123	257	4	2	322	163
RTOR Reduction (vph)	0	0	51	0	0	0	0	0	2	0	0	68
Lane Group Flow (vph)	58	1	7	0	5	0	123	257	2	2	322	95
Turn Type	Split	NA	Perm	Split	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	4	4		8	8			2			6	
Permitted Phases			4			8	2		2	6	6	6
Actuated Green, G (s)	5.7	5.7	5.7		1.1		28.1	28.1	28.1	28.1	28.1	28.1
Effective Green, g (s)	5.7	5.7	5.7		1.1		28.1	28.1	28.1	28.1	28.1	28.1
Actuated g/C Ratio	0.12	0.12	0.12		0.02		0.58	0.58	0.58	0.58	0.58	0.58
Clearance Time (s)	4.5	4.5	4.5		4.5		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	208	219	186		41		602	2054	919	640	2054	919
v/s Ratio Prot	c0.03	0.00			c0.00			0.07			0.09	
v/s Ratio Perm			0.00				c0.12		0.00	0.00		0.06
v/c Ratio	0.28	0.00	0.04		0.12		0.20	0.13	0.00	0.00	0.16	0.10
Uniform Delay, d1	19.5	18.8	18.9		23.2		4.8	4.6	4.3	4.3	4.7	4.5
Progression Factor	1.00	1.00	1.00		1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	0.0	0.1		1.3		0.8	0.1	0.0	0.0	0.2	0.2
Delay (s)	20.2	18.9	19.0		24.5		5.6	4.7	4.3	4.3	4.8	4.8
Level of Service	C	B	B		C		A	A	A	A	A	A
Approach Delay (s)		19.6			24.5			5.0			4.8	
Approach LOS		B			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	6.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.21		
Actuated Cycle Length (s)	48.4	Sum of lost time (s)	13.5
Intersection Capacity Utilization	35.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	84	291	27	34	398	83	75	187	18	34	180	130
Future Volume (vph)	84	291	27	34	398	83	75	187	18	34	180	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.97		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3495		1770	3448		1770	3492		1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	3495		1770	3448		1770	3492		1770	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	91	316	29	37	433	90	82	203	20	37	196	141
RTOR Reduction (vph)	0	10	0	0	26	0	0	9	0	0	0	94
Lane Group Flow (vph)	91	335	0	37	497	0	82	214	0	37	196	47
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												6
Actuated Green, G (s)	5.5	19.4		2.0	15.9		5.4	25.7		2.0	22.3	22.3
Effective Green, g (s)	5.5	19.4		2.0	15.9		5.4	25.7		2.0	22.3	22.3
Actuated g/C Ratio	0.08	0.29		0.03	0.24		0.08	0.38		0.03	0.33	0.33
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	145	1010		52	817		142	1337		52	619	526
v/s Ratio Prot	c0.05	c0.10		0.02	c0.14		c0.05	c0.06		0.02	c0.11	
v/s Ratio Perm												0.03
v/c Ratio	0.63	0.33		0.71	0.61		0.58	0.16		0.71	0.32	0.09
Uniform Delay, d1	29.8	18.8		32.3	22.8		29.7	13.6		32.3	16.7	15.4
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	8.2	0.2		36.8	1.3		5.6	0.3		36.8	1.3	0.3
Delay (s)	38.0	18.9		69.1	24.1		35.3	13.9		69.1	18.1	15.7
Level of Service	D	B		E	C		D	B		E	B	B
Approach Delay (s)		22.9			27.1			19.6			22.2	
Approach LOS		C			C			B			C	

Intersection Summary			
HCM 2000 Control Delay	23.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	67.1	Sum of lost time (s)	18.0
Intersection Capacity Utilization	46.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
84: Monte Vista Ave & Arrow Route

08/10/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	43	78	19	56	181	40	71	522	58	23	806	44
Future Volume (vph)	43	78	19	56	181	40	71	522	58	23	806	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00	0.97	0.91		1.00	0.91	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3434		1770	1863	1583	3433	5009		1770	5046	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3434		1770	1863	1583	3433	5009		1770	5046	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	47	85	21	61	197	43	77	567	63	25	876	48
RTOR Reduction (vph)	0	17	0	0	0	35	0	16	0	0	7	0
Lane Group Flow (vph)	47	89	0	61	197	8	77	614	0	25	917	0
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						
Actuated Green, G (s)	3.4	11.6		3.5	11.7	11.7	2.9	27.5		1.9	26.5	
Effective Green, g (s)	3.4	11.6		3.5	11.7	11.7	2.9	27.5		1.9	26.5	
Actuated g/C Ratio	0.05	0.19		0.06	0.19	0.19	0.05	0.44		0.03	0.42	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	96	637		99	348	296	159	2203		53	2139	
v/s Ratio Prot	0.03	0.03		c0.03	c0.11		c0.02	0.12		0.01	c0.18	
v/s Ratio Perm						0.01						
v/c Ratio	0.49	0.14		0.62	0.57	0.03	0.48	0.28		0.47	0.43	
Uniform Delay, d1	28.7	21.3		28.8	23.1	20.8	29.1	11.2		29.8	12.7	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.9	0.1		10.9	2.1	0.0	2.3	0.3		6.5	0.6	
Delay (s)	32.6	21.4		39.7	25.2	20.8	31.4	11.5		36.3	13.3	
Level of Service	C	C		D	C	C	C	B		D	B	
Approach Delay (s)		24.8			27.5			13.7			13.9	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	16.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	62.5	Sum of lost time (s)	18.0
Intersection Capacity Utilization	49.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	78	0	39	0	614	87	38	833	0
Future Volume (vph)	0	0	0	78	0	39	0	614	87	38	833	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5		4.5		4.5	4.5	4.5	4.5	
Lane Util. Factor				1.00		1.00		0.95	1.00	0.97	0.91	
Frt				1.00		0.85		1.00	0.85	1.00	1.00	
Flt Protected				0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)				1770		1583		3539	1583	3433	5085	
Flt Permitted				0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (perm)				1770		1583		3539	1583	3433	5085	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	85	0	42	0	667	95	41	905	0
RTOR Reduction (vph)	0	0	0	0	0	38	0	0	40	0	0	0
Lane Group Flow (vph)	0	0	0	85	0	4	0	667	55	41	905	0
Turn Type	Perm		Perm	Prot		Perm	Prot	NA	Perm	Prot	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4			8			2			
Actuated Green, G (s)				4.7		4.7		27.5	27.5	1.8	33.8	
Effective Green, g (s)				4.7		4.7		27.5	27.5	1.8	33.8	
Actuated g/C Ratio				0.10		0.10		0.58	0.58	0.04	0.71	
Clearance Time (s)				4.5		4.5		4.5	4.5	4.5	4.5	
Vehicle Extension (s)				3.0		3.0		3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)				175		156		2048	916	130	3618	
v/s Ratio Prot				c0.05				c0.19		0.01	c0.18	
v/s Ratio Perm						0.00			0.03			
v/c Ratio				0.49		0.03		0.33	0.06	0.32	0.25	
Uniform Delay, d1				20.3		19.3		5.2	4.4	22.3	2.4	
Progression Factor				1.00		1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2				2.1		0.1		0.4	0.1	1.4	0.2	
Delay (s)				22.4		19.4		5.6	4.5	23.6	2.6	
Level of Service				C		B		A	A	C	A	
Approach Delay (s)		0.0			21.4			5.5			3.5	
Approach LOS		A			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	5.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	47.5	Sum of lost time (s)	18.0
Intersection Capacity Utilization	28.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	66	261	71	30	461	74	138	579	42	65	720	119
Future Volume (vph)	66	261	71	30	461	74	138	579	42	65	720	119
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	0.97	0.95		0.97	0.95	1.00	1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.97		1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3426		3433	3539	1583	1770	3503		1770	3539	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3426		3433	3539	1583	1770	3503		1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	72	284	77	33	501	80	150	629	46	71	783	129
RTOR Reduction (vph)	0	35	0	0	0	61	0	7	0	0	0	85
Lane Group Flow (vph)	72	326	0	33	501	19	150	668	0	71	783	44
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						6
Actuated Green, G (s)	2.6	16.3		1.7	15.4	15.4	7.0	25.4		3.7	22.1	22.1
Effective Green, g (s)	2.6	16.3		1.7	15.4	15.4	7.0	25.4		3.7	22.1	22.1
Actuated g/C Ratio	0.04	0.25		0.03	0.24	0.24	0.11	0.39		0.06	0.34	0.34
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	137	857		89	837	374	190	1366		100	1201	537
v/s Ratio Prot	c0.02	0.10		0.01	c0.14		c0.08	c0.19		0.04	c0.22	
v/s Ratio Perm						0.01						0.03
v/c Ratio	0.53	0.38		0.37	0.60	0.05	0.79	0.49		0.71	0.65	0.08
Uniform Delay, d1	30.6	20.2		31.2	22.1	19.2	28.3	15.0		30.2	18.2	14.6
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	3.6	0.3		2.6	1.2	0.1	19.3	1.3		20.6	2.8	0.3
Delay (s)	34.3	20.5		33.8	23.3	19.3	47.6	16.2		50.7	21.0	14.9
Level of Service	C	C		C	C	B	D	B		D	C	B
Approach Delay (s)		22.8			23.3			21.9			22.3	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	22.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	65.1	Sum of lost time (s)	18.0
Intersection Capacity Utilization	59.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	352	17	14	470	15	13
Future Volume (vph)	352	17	14	470	15	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1583	1770	3539	1770	1583
Flt Permitted	1.00	1.00	0.38	1.00	0.95	1.00
Satd. Flow (perm)	3539	1583	705	3539	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	383	18	15	511	16	14
RTOR Reduction (vph)	0	14	0	0	0	8
Lane Group Flow (vph)	383	4	15	511	16	6
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases		4	8			2
Actuated Green, G (s)	11.6	11.6	17.0	17.0	20.9	20.9
Effective Green, g (s)	11.6	11.6	17.0	17.0	20.9	20.9
Actuated g/C Ratio	0.25	0.25	0.36	0.36	0.45	0.45
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	875	391	275	1282	788	705
v/s Ratio Prot	0.11		0.00	c0.14	c0.01	
v/s Ratio Perm		0.00	0.02			0.00
v/c Ratio	0.44	0.01	0.05	0.40	0.02	0.01
Uniform Delay, d1	14.9	13.3	9.8	11.1	7.3	7.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	0.0	0.1	0.2	0.0	0.0
Delay (s)	15.2	13.3	9.9	11.3	7.3	7.3
Level of Service	B	B	A	B	A	A
Approach Delay (s)	15.2			11.3	7.3	
Approach LOS	B			B	A	

Intersection Summary			
HCM 2000 Control Delay	12.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.22		
Actuated Cycle Length (s)	46.9	Sum of lost time (s)	13.5
Intersection Capacity Utilization	24.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	111	37	71	249	33	67	417	91	22	452	82
Future Volume (vph)	47	111	37	71	249	33	67	417	91	22	452	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3458	
Flt Permitted	0.42	1.00	1.00	0.67	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	779	1863	1583	1247	1863	1583	1770	3539	1583	1770	3458	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	51	121	40	77	271	36	73	453	99	24	491	89
RTOR Reduction (vph)	0	0	31	0	0	28	0	0	57	0	18	0
Lane Group Flow (vph)	51	121	9	77	271	8	73	453	42	24	562	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8			2			
Actuated Green, G (s)	16.2	13.6	13.6	16.6	13.8	13.8	3.9	26.8	26.8	1.7	24.6	
Effective Green, g (s)	16.2	13.6	13.6	16.6	13.8	13.8	3.9	26.8	26.8	1.7	24.6	
Actuated g/C Ratio	0.26	0.22	0.22	0.26	0.22	0.22	0.06	0.43	0.43	0.03	0.39	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	241	402	342	352	408	347	109	1507	674	47	1352	
v/s Ratio Prot	0.01	0.06		c0.01	c0.15		c0.04	0.13		0.01	c0.16	
v/s Ratio Perm	0.05		0.01	0.05		0.00			0.03			
v/c Ratio	0.21	0.30	0.03	0.22	0.66	0.02	0.67	0.30	0.06	0.51	0.42	
Uniform Delay, d1	18.0	20.7	19.4	17.8	22.4	19.3	28.9	11.9	10.6	30.2	13.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.4	0.4	0.0	0.3	4.0	0.0	14.5	0.5	0.2	9.1	0.9	
Delay (s)	18.4	21.1	19.5	18.1	26.5	19.3	43.4	12.4	10.8	39.2	14.9	
Level of Service	B	C	B	B	C	B	D	B	B	D	B	
Approach Delay (s)		20.1			24.1			15.8			15.8	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	18.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	62.9	Sum of lost time (s)	18.0
Intersection Capacity Utilization	51.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	18	19	62	82	24	95	548	47	52	517	26
Future Volume (vph)	12	18	19	62	82	24	95	548	47	52	517	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95	1.00	1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1800		1770	3539	1583	1770	5049	
Flt Permitted	0.68	1.00	1.00	0.74	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1272	1863	1583	1386	1800		1770	3539	1583	1770	5049	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	13	20	21	67	89	26	103	596	51	57	562	28
RTOR Reduction (vph)	0	0	18	0	22	0	0	0	24	0	7	0
Lane Group Flow (vph)	13	20	3	67	93	0	103	596	27	57	583	0
Turn Type	Perm	NA	Perm	Perm	NA		Prot	NA	Perm	Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8					2			
Actuated Green, G (s)	6.7	6.7	6.7	6.7	6.7		4.9	26.3	26.3	3.5	24.9	
Effective Green, g (s)	6.7	6.7	6.7	6.7	6.7		4.9	26.3	26.3	3.5	24.9	
Actuated g/C Ratio	0.13	0.13	0.13	0.13	0.13		0.10	0.53	0.53	0.07	0.50	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	170	249	212	185	241		173	1861	832	123	2514	
v/s Ratio Prot		0.01			c0.05		c0.06	c0.17		0.03	0.12	
v/s Ratio Perm	0.01		0.00	0.05					0.02			
v/c Ratio	0.08	0.08	0.01	0.36	0.39		0.60	0.32	0.03	0.46	0.23	
Uniform Delay, d1	18.9	19.0	18.8	19.7	19.8		21.6	6.8	5.7	22.3	7.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.2	0.1	0.0	1.2	1.0		5.4	0.5	0.1	2.7	0.2	
Delay (s)	19.1	19.1	18.8	20.9	20.8		27.0	7.2	5.8	25.1	7.3	
Level of Service	B	B	B	C	C		C	A	A	C	A	
Approach Delay (s)		19.0			20.8			9.8			8.9	
Approach LOS		B			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	11.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	50.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	40.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	248	80	91	382	24	140	616	72	21	507	42
Future Volume (vph)	35	248	80	91	382	24	140	616	72	21	507	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	5006		1770	5027	
Flt Permitted	0.50	1.00	1.00	0.51	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	923	3539	1583	951	3539	1583	1770	5006		1770	5027	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	38	270	87	99	415	26	152	670	78	23	551	46
RTOR Reduction (vph)	0	0	69	0	0	20	0	18	0	0	12	0
Lane Group Flow (vph)	38	270	18	99	415	6	152	730	0	23	585	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	15.3	13.6	13.6	19.3	15.6	15.6	7.5	28.3		1.7	22.5	
Effective Green, g (s)	15.3	13.6	13.6	19.3	15.6	15.6	7.5	28.3		1.7	22.5	
Actuated g/C Ratio	0.23	0.21	0.21	0.30	0.24	0.24	0.11	0.43		0.03	0.34	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	238	737	329	327	845	378	203	2169		46	1732	
v/s Ratio Prot	0.00	0.08		c0.02	c0.12		c0.09	c0.15		0.01	0.12	
v/s Ratio Perm	0.03		0.01	0.07		0.00						
v/c Ratio	0.16	0.37	0.06	0.30	0.49	0.02	0.75	0.34		0.50	0.34	
Uniform Delay, d1	19.6	22.2	20.7	17.2	21.4	19.0	28.0	12.3		31.4	15.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	0.3	0.1	0.5	0.5	0.0	14.0	0.4		8.3	0.5	
Delay (s)	19.9	22.5	20.8	17.7	21.9	19.0	42.0	12.7		39.7	16.4	
Level of Service	B	C	C	B	C	B	D	B		D	B	
Approach Delay (s)		21.8			21.0			17.6			17.3	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	19.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	65.3	Sum of lost time (s)	18.0
Intersection Capacity Utilization	48.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Jacobs

Memorandum

2035 FEIR No Build Alternative (with Model Updates) – PM Peak Hour

HCM Signalized Intersection Capacity Analysis
1: Barranca Ave & Bennett Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	57	0	22	0	283	97	31	208	0
Future Volume (vph)	0	0	0	57	0	22	0	283	97	31	208	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5		4.5		4.5		4.5	4.5	
Lane Util. Factor				0.97		1.00		0.95		1.00	0.95	
Frt				1.00		0.85		0.96		1.00	1.00	
Flt Protected				0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)				3433		1583		3404		1770	3539	
Flt Permitted				0.95		1.00		1.00		0.95	1.00	
Satd. Flow (perm)				3433		1583		3404		1770	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	62	0	24	0	308	105	34	226	0
RTOR Reduction (vph)	0	0	0	0	0	21	0	42	0	0	0	0
Lane Group Flow (vph)	0	0	0	62	0	3	0	371	0	34	226	0
Turn Type				Prot		pm+ov	Prot	NA		Prot	NA	
Protected Phases				8		1	5	2		1	6	
Permitted Phases						8						
Actuated Green, G (s)				2.2		4.3		19.1		2.1	25.7	
Effective Green, g (s)				2.2		4.3		19.1		2.1	25.7	
Actuated g/C Ratio				0.06		0.12		0.52		0.06	0.70	
Clearance Time (s)				4.5		4.5		4.5		4.5	4.5	
Vehicle Extension (s)				3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)				204		377		1761		100	2464	
v/s Ratio Prot				c0.02		0.00		c0.11		c0.02	0.06	
v/s Ratio Perm						0.00						
v/c Ratio				0.30		0.01		0.21		0.34	0.09	
Uniform Delay, d1				16.6		14.4		4.8		16.7	1.8	
Progression Factor				1.00		1.00		1.00		1.00	1.00	
Incremental Delay, d2				0.8		0.0		0.1		2.0	0.0	
Delay (s)				17.5		14.4		4.9		18.8	1.8	
Level of Service				B		B		A		B	A	
Approach Delay (s)		0.0			16.6			4.9			4.0	
Approach LOS		A			B			A			A	

Intersection Summary			
HCM 2000 Control Delay	5.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.23		
Actuated Cycle Length (s)	36.9	Sum of lost time (s)	13.5
Intersection Capacity Utilization	29.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
2: Barranca Ave & Foothill Blvd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	115	560	187	143	478	28	119	219	187	19	175	64
Future Volume (vph)	115	560	187	143	478	28	119	219	187	19	175	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.96		1.00	0.99		1.00	0.93		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3406		1770	3510		1770	3295		1770	3396	
Flt Permitted	0.43	1.00		0.27	1.00		0.59	1.00		0.50	1.00	
Satd. Flow (perm)	795	3406		506	3510		1101	3295		924	3396	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	125	609	203	155	520	30	129	238	203	21	190	70
RTOR Reduction (vph)	0	70	0	0	9	0	0	122	0	0	42	0
Lane Group Flow (vph)	125	742	0	155	541	0	129	319	0	21	218	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	19.8	19.8		19.8	19.8		19.0	19.0		19.0	19.0	
Effective Green, g (s)	19.8	19.8		19.8	19.8		19.0	19.0		19.0	19.0	
Actuated g/C Ratio	0.41	0.41		0.41	0.41		0.40	0.40		0.40	0.40	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	329	1410		209	1453		437	1309		367	1349	
v/s Ratio Prot		0.22			0.15			0.10			0.06	
v/s Ratio Perm	0.16			c0.31			c0.12			0.02		
v/c Ratio	0.38	0.53		0.74	0.37		0.30	0.24		0.06	0.16	
Uniform Delay, d1	9.7	10.5		11.8	9.7		9.8	9.6		8.9	9.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	0.4		13.2	0.2		1.7	0.4		0.3	0.3	
Delay (s)	10.5	10.8		25.1	9.9		11.5	10.0		9.2	9.5	
Level of Service	B	B		C	A		B	B		A	A	
Approach Delay (s)		10.8			13.2			10.4			9.5	
Approach LOS		B			B			B			A	

Intersection Summary			
HCM 2000 Control Delay	11.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	47.8	Sum of lost time (s)	9.0
Intersection Capacity Utilization	60.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	94	502	100	276	325	85	93	529	289	77	338	58
Future Volume (vph)	94	502	100	276	325	85	93	529	289	77	338	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.98		1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3451		1770	3429		1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3451		1770	3429		1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	102	546	109	300	353	92	101	575	314	84	367	63
RTOR Reduction (vph)	0	21	0	0	28	0	0	0	232	0	0	47
Lane Group Flow (vph)	102	634	0	300	417	0	101	575	82	84	367	16
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Actuated Green, G (s)	7.3	18.1		16.0	26.8		5.5	20.1	20.1	4.9	19.5	19.5
Effective Green, g (s)	7.3	18.1		16.0	26.8		5.5	20.1	20.1	4.9	19.5	19.5
Actuated g/C Ratio	0.09	0.23		0.21	0.35		0.07	0.26	0.26	0.06	0.25	0.25
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	167	810		367	1191		126	922	412	112	895	400
v/s Ratio Prot	0.06	c0.18		c0.17	0.12		c0.06	c0.16		0.05	0.10	
v/s Ratio Perm									0.05			0.01
v/c Ratio	0.61	0.78		0.82	0.35		0.80	0.62	0.20	0.75	0.41	0.04
Uniform Delay, d1	33.5	27.7		29.2	18.7		35.3	25.2	22.2	35.5	24.0	21.7
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.5	5.0		13.2	0.2		29.5	3.2	1.1	24.2	1.4	0.2
Delay (s)	40.0	32.6		42.3	18.9		64.8	28.3	23.3	59.7	25.4	21.9
Level of Service	D	C		D	B		E	C	C	E	C	C
Approach Delay (s)		33.6			28.3			30.5			30.6	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	30.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	77.1	Sum of lost time (s)	18.0
Intersection Capacity Utilization	66.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Volume (veh/h)	104	98	175	73	57	162
Future Volume (Veh/h)	104	98	175	73	57	162
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	113	107	190	79	62	176
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						1253
pX, platoon unblocked						
vC, conflicting volume	530	230			269	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	530	230			269	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	77	87			95	
cM capacity (veh/h)	485	810			1295	

Direction, Lane #	NW 1	NE 1	SW 1
Volume Total	220	269	238
Volume Left	113	0	62
Volume Right	107	79	0
cSH	603	1700	1295
Volume to Capacity	0.36	0.16	0.05
Queue Length 95th (ft)	42	0	4
Control Delay (s)	14.4	0.0	2.4
Lane LOS	B		A
Approach Delay (s)	14.4	0.0	2.4
Approach LOS	B		

Intersection Summary			
Average Delay	5.1		
Intersection Capacity Utilization	47.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	64	1164	16	24	823	85	3	24	10	60	41	131
Future Volume (vph)	64	1164	16	24	823	85	3	24	10	60	41	131
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.5		4.0	4.5			4.5			4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frt	1.00	1.00		1.00	0.99			0.96			0.92	
Flt Protected	0.95	1.00		0.95	1.00			1.00			0.99	
Satd. Flow (prot)	1770	3532		1770	3490			1787			1699	
Flt Permitted	0.95	1.00		0.95	1.00			0.98			0.92	
Satd. Flow (perm)	1770	3532		1770	3490			1757			1577	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	70	1265	17	26	895	92	3	26	11	65	45	142
RTOR Reduction (vph)	0	1	0	0	13	0	0	7	0	0	77	0
Lane Group Flow (vph)	70	1281	0	26	974	0	0	33	0	0	175	0
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)	3.1	24.7		2.1	23.7			18.8			18.8	
Effective Green, g (s)	3.1	24.7		2.1	23.7			18.8			18.8	
Actuated g/C Ratio	0.05	0.42		0.04	0.40			0.32			0.32	
Clearance Time (s)	4.0	4.5		4.0	4.5			4.5			4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	93	1488		63	1411			563			505	
v/s Ratio Prot	c0.04	c0.36		0.01	0.28							
v/s Ratio Perm								0.02			c0.11	
v/c Ratio	0.75	0.86		0.41	0.69			0.06			0.35	
Uniform Delay, d1	27.4	15.4		27.6	14.4			13.8			15.2	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	28.6	5.3		4.3	1.5			0.2			1.9	
Delay (s)	56.0	20.7		32.0	15.9			14.0			17.1	
Level of Service	E	C		C	B			B			B	
Approach Delay (s)		22.6			16.3			14.0			17.1	
Approach LOS		C			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	19.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	58.6	Sum of lost time (s)	13.0
Intersection Capacity Utilization	67.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
6: Vermont Ave E & Foothill Blvd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	648	60	36	518	76	85	72	38	47	76	91
Future Volume (vph)	85	648	60	36	518	76	85	72	38	47	76	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frt	1.00	0.99		1.00	0.98			0.97			0.94	
Flt Protected	0.95	1.00		0.95	1.00			0.98			0.99	
Satd. Flow (prot)	1770	3494		1770	3471			1775			1737	
Flt Permitted	0.34	1.00		0.26	1.00			0.79			0.91	
Satd. Flow (perm)	630	3494		491	3471			1441			1590	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	92	704	65	39	563	83	92	78	41	51	83	99
RTOR Reduction (vph)	0	13	0	0	23	0	0	13	0	0	39	0
Lane Group Flow (vph)	92	756	0	39	623	0	0	198	0	0	194	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	18.6	18.6		18.6	18.6			23.7			23.7	
Effective Green, g (s)	18.6	18.6		18.6	18.6			23.7			23.7	
Actuated g/C Ratio	0.36	0.36		0.36	0.36			0.46			0.46	
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	228	1266		178	1258			665			734	
v/s Ratio Prot		c0.22			0.18							
v/s Ratio Perm	0.15			0.08				c0.14			0.12	
v/c Ratio	0.40	0.60		0.22	0.50			0.30			0.26	
Uniform Delay, d1	12.2	13.3		11.3	12.7			8.6			8.5	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	1.2	0.8		0.6	0.3			1.1			0.9	
Delay (s)	13.4	14.1		11.9	13.0			9.8			9.3	
Level of Service	B	B		B	B			A			A	
Approach Delay (s)		14.0			13.0			9.8			9.3	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM 2000 Control Delay	12.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	51.3	Sum of lost time (s)	9.0
Intersection Capacity Utilization	55.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (veh/h)	76	0	19	141	189	63
Future Volume (Veh/h)	76	0	19	141	189	63
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	83	0	21	153	205	68
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				1274		
pX, platoon unblocked						
vC, conflicting volume	434	239	273			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	434	239	273			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	85	100	98			
cM capacity (veh/h)	570	800	1290			

Direction, Lane #	SE 1	NE 1	SW 1
Volume Total	83	174	273
Volume Left	83	21	0
Volume Right	0	0	68
cSH	570	1290	1700
Volume to Capacity	0.15	0.02	0.16
Queue Length 95th (ft)	13	1	0
Control Delay (s)	12.4	1.1	0.0
Lane LOS	B	A	
Approach Delay (s)	12.4	1.1	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	2.3		
Intersection Capacity Utilization	34.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	71	522	161	177	438	69	148	190	89	66	197	76
Future Volume (vph)	71	522	161	177	438	69	148	190	89	66	197	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.96		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3414		1770	3467		1770	1863	1583	1770	1863	1583
Flt Permitted	0.40	1.00		0.19	1.00		0.52	1.00	1.00	0.62	1.00	1.00
Satd. Flow (perm)	738	3414		345	3467		975	1863	1583	1156	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	77	567	175	192	476	75	161	207	97	72	214	83
RTOR Reduction (vph)	0	42	0	0	17	0	0	0	66	0	0	58
Lane Group Flow (vph)	77	700	0	192	534	0	161	207	31	72	214	25
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	23.2	18.7		29.0	21.6		28.4	22.9	22.9	25.4	21.4	21.4
Effective Green, g (s)	23.2	18.7		29.0	21.6		28.4	22.9	22.9	25.4	21.4	21.4
Actuated g/C Ratio	0.33	0.26		0.41	0.30		0.40	0.32	0.32	0.36	0.30	0.30
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	306	899		289	1054		451	600	510	448	561	477
v/s Ratio Prot	0.02	c0.21		c0.07	0.15		c0.03	0.11		0.01	0.11	
v/s Ratio Perm	0.07			0.20			c0.11		0.02	0.05		0.02
v/c Ratio	0.25	0.78		0.66	0.51		0.36	0.34	0.06	0.16	0.38	0.05
Uniform Delay, d1	16.9	24.2		15.4	20.3		14.2	18.3	16.6	15.3	19.6	17.6
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	4.3		5.7	0.4		0.5	1.6	0.2	0.2	2.0	0.2
Delay (s)	17.3	28.5		21.1	20.7		14.7	19.9	16.9	15.4	21.5	17.8
Level of Service	B	C		C	C		B	B	B	B	C	B
Approach Delay (s)		27.5			20.8			17.5			19.5	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	22.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	71.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	62.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
9: Glendora Ave & Ada Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL2	SBL	SBR	NWL	NWR	NWR2
Lane Configurations												
Sign Control		Stop			Stop			Stop		Stop		
Traffic Volume (vph)	56	52	157	29	31	35	20	410	38	49	429	3
Future Volume (vph)	56	52	157	29	31	35	20	410	38	49	429	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	61	57	171	32	34	38	22	446	41	53	466	3

Direction, Lane #	EB 1	WB 1	SB 1	SB 2	NW 1	NW 2
Volume Total (vph)	289	104	245	264	286	236
Volume Left (vph)	61	32	22	0	53	0
Volume Right (vph)	171	38	0	41	0	3
Hadj (s)	-0.28	-0.12	0.08	-0.07	0.13	0.03
Departure Headway (s)	6.4	7.2	6.9	6.7	6.9	6.8
Degree Utilization, x	0.51	0.21	0.47	0.49	0.55	0.44
Capacity (veh/h)	522	441	506	519	500	513
Control Delay (s)	16.0	12.0	14.5	14.8	16.6	13.9
Approach Delay (s)	16.0	12.0	14.7		15.4	
Approach LOS	C	B	B		C	

Intersection Summary			
Delay	15.0		
Level of Service	B		
Intersection Capacity Utilization	Err%	ICU Level of Service	H
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	68	986	0	219	644	116	105	469	370	233	468	64
Future Volume (vph)	68	986	0	219	644	116	105	469	370	233	468	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539		1770	3539	1583	1770	3539	1583	1770	3475	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3539		1770	3539	1583	1770	3539	1583	1770	3475	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	74	1072	0	238	700	126	114	510	402	253	509	70
RTOR Reduction (vph)	0	0	0	0	0	79	0	0	82	0	12	0
Lane Group Flow (vph)	74	1072	0	238	700	47	114	510	320	253	567	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases			4			8			2			
Actuated Green, G (s)	7.1	27.5		13.4	33.8	33.8	8.7	18.5	31.9	13.5	23.3	
Effective Green, g (s)	7.1	27.5		13.4	33.8	33.8	8.7	18.5	31.9	13.5	23.3	
Actuated g/C Ratio	0.08	0.30		0.15	0.37	0.37	0.10	0.20	0.35	0.15	0.26	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	138	1070		260	1315	588	169	720	555	262	890	
v/s Ratio Prot	0.04	c0.30		c0.13	0.20		0.06	0.14	0.08	c0.14	c0.16	
v/s Ratio Perm						0.03			0.12			
v/c Ratio	0.54	1.00		0.92	0.53	0.08	0.67	0.71	0.58	0.97	0.64	
Uniform Delay, d1	40.3	31.7		38.2	22.4	18.5	39.7	33.7	24.0	38.5	30.0	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	4.0	28.0		33.9	0.4	0.1	10.2	5.8	1.5	45.7	3.5	
Delay (s)	44.3	59.7		72.1	22.8	18.5	49.9	39.5	25.4	84.2	33.5	
Level of Service	D	E		E	C	B	D	D	C	F	C	
Approach Delay (s)		58.7			33.3			35.1			48.9	
Approach LOS		E			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	44.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	90.9	Sum of lost time (s)	18.0
Intersection Capacity Utilization	80.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
11: Pasadena Ave & Lemon Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	9	8	15	9	1	21	13	82	30	22	69	0
Future Volume (vph)	9	8	15	9	1	21	13	82	30	22	69	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	10	9	16	10	1	23	14	89	33	24	75	0

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	35	34	136	99
Volume Left (vph)	10	10	14	24
Volume Right (vph)	16	23	33	0
Hadj (s)	-0.18	-0.31	-0.09	0.08
Departure Headway (s)	4.3	4.1	4.1	4.3
Degree Utilization, x	0.04	0.04	0.15	0.12
Capacity (veh/h)	795	808	860	823
Control Delay (s)	7.5	7.3	7.8	7.8
Approach Delay (s)	7.5	7.3	7.8	7.8
Approach LOS	A	A	A	A

Intersection Summary			
Delay	7.7		
Level of Service	A		
Intersection Capacity Utilization	19.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	94	1406	42	34	892	51	21	24	50	57	26	69
Future Volume (vph)	94	1406	42	34	892	51	21	24	50	57	26	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Lane Util. Factor	1.00	0.95		0.91	0.91			1.00			1.00	
Frt	1.00	1.00		1.00	0.99			0.93			0.94	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.98	
Satd. Flow (prot)	1770	3524		1610	3362			1712			1716	
Flt Permitted	0.95	1.00		0.95	0.95			0.92			0.87	
Satd. Flow (perm)	1770	3524		1610	3197			1601			1515	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	102	1528	46	37	970	55	23	26	54	62	28	75
RTOR Reduction (vph)	0	2	0	0	4	0	0	42	0	0	34	0
Lane Group Flow (vph)	102	1572	0	33	1025	0	0	61	0	0	131	0
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)	7.2	55.2		3.3	54.6			19.7			19.7	
Effective Green, g (s)	7.2	55.2		3.3	54.6			19.7			19.7	
Actuated g/C Ratio	0.08	0.60		0.04	0.60			0.21			0.21	
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	138	2121		57	1909			343			325	
v/s Ratio Prot	c0.06	c0.45		0.02	0.02							
v/s Ratio Perm					0.30			0.04			c0.09	
v/c Ratio	0.74	0.74		0.58	0.54			0.18			0.40	
Uniform Delay, d1	41.3	13.1		43.5	11.0			29.4			31.0	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	18.6	1.4		13.5	0.3			1.1			3.7	
Delay (s)	59.9	14.5		57.0	11.3			30.5			34.7	
Level of Service	E	B		E	B			C			C	
Approach Delay (s)		17.3			12.7			30.5			34.7	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	17.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	91.7	Sum of lost time (s)	13.5
Intersection Capacity Utilization	91.1%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	15	9	5	6	3	19	118	8	17	124	5
Future Volume (Veh/h)	15	15	9	5	6	3	19	118	8	17	124	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	16	16	10	5	7	3	21	128	9	18	135	5
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								564				
pX, platoon unblocked												
vC, conflicting volume	354	352	138	366	350	132	140			137		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	354	352	138	366	350	132	140			137		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	97	97	99	99	99	100	99			99		
cM capacity (veh/h)	581	557	911	559	558	917	1443			1447		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	42	15	158	158
Volume Left	16	5	21	18
Volume Right	10	3	9	5
cSH	625	606	1443	1447
Volume to Capacity	0.07	0.02	0.01	0.01
Queue Length 95th (ft)	5	2	1	1
Control Delay (s)	11.2	11.1	1.1	0.9
Lane LOS	B	B	A	A
Approach Delay (s)	11.2	11.1	1.1	0.9
Approach LOS	B	B		

Intersection Summary			
Average Delay	2.6		
Intersection Capacity Utilization	20.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	76	1466	10	36	865	63	3	3	8	65	6	48
Future Volume (vph)	76	1466	10	36	865	63	3	3	8	65	6	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frt	1.00	1.00		1.00	0.99			0.92			0.95	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.97	
Satd. Flow (prot)	1770	3536		1770	3503			1695			1715	
Flt Permitted	0.95	1.00		0.95	1.00			0.96			0.84	
Satd. Flow (perm)	1770	3536		1770	3503			1647			1481	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	83	1593	11	39	940	68	3	3	9	71	7	52
RTOR Reduction (vph)	0	0	0	0	6	0	0	7	0	0	29	0
Lane Group Flow (vph)	83	1604	0	39	1002	0	0	8	0	0	101	0
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)	6.8	39.2		2.9	35.3			20.0			20.0	
Effective Green, g (s)	6.8	39.2		2.9	35.3			20.0			20.0	
Actuated g/C Ratio	0.09	0.52		0.04	0.47			0.26			0.26	
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	159	1833		67	1635			435			391	
v/s Ratio Prot	c0.05	c0.45		0.02	0.29							
v/s Ratio Perm								0.01			c0.07	
v/c Ratio	0.52	0.87		0.58	0.61			0.02			0.26	
Uniform Delay, d1	32.8	16.0		35.8	15.0			20.6			21.9	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	3.1	5.0		12.2	0.7			0.1			1.6	
Delay (s)	35.9	21.0		48.0	15.7			20.6			23.5	
Level of Service	D	C		D	B			C			C	
Approach Delay (s)		21.8			16.9			20.6			23.5	
Approach LOS		C			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	20.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	75.6	Sum of lost time (s)	13.5
Intersection Capacity Utilization	69.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
15: Elwood Ave & Lemon Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	24	13	8	2	2	7	148	6	8	98	5
Future Volume (Veh/h)	2	24	13	8	2	2	7	148	6	8	98	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	26	14	9	2	2	8	161	7	9	107	5
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								560				
pX, platoon unblocked												
vC, conflicting volume	311	312	110	335	310	164	112			168		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	311	312	110	335	310	164	112			168		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	96	99	98	100	100	99			99		
cM capacity (veh/h)	633	596	944	584	597	880	1478			1410		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	42	13	176	121
Volume Left	2	9	8	9
Volume Right	14	2	7	5
cSH	682	618	1478	1410
Volume to Capacity	0.06	0.02	0.01	0.01
Queue Length 95th (ft)	5	2	0	0
Control Delay (s)	10.6	11.0	0.4	0.6
Lane LOS	B	B	A	A
Approach Delay (s)	10.6	11.0	0.4	0.6
Approach LOS	B	B		

Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	20.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	76	1374	34	33	848	68	43	17	22	50	15	51
Future Volume (vph)	76	1374	34	33	848	68	43	17	22	50	15	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frt	1.00	1.00		1.00	0.99			0.96			0.94	
Flt Protected	0.95	1.00		0.95	1.00			0.97			0.98	
Satd. Flow (prot)	1770	3526		1770	3500			1749			1715	
Flt Permitted	0.95	1.00		0.95	1.00			0.82			0.85	
Satd. Flow (perm)	1770	3526		1770	3500			1468			1492	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	83	1493	37	36	922	74	47	18	24	54	16	55
RTOR Reduction (vph)	0	3	0	0	8	0	0	17	0	0	40	0
Lane Group Flow (vph)	83	1527	0	36	988	0	0	72	0	0	85	0
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)	6.5	33.9		1.9	29.3			19.0			19.0	
Effective Green, g (s)	6.5	33.9		1.9	29.3			19.0			19.0	
Actuated g/C Ratio	0.10	0.50		0.03	0.43			0.28			0.28	
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	168	1750		49	1501			408			415	
v/s Ratio Prot	c0.05	c0.43		0.02	0.28							
v/s Ratio Perm								0.05			c0.06	
v/c Ratio	0.49	0.87		0.73	0.66			0.18			0.21	
Uniform Delay, d1	29.3	15.3		32.9	15.5			18.7			18.9	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	2.3	5.1		43.4	1.1			0.9			1.1	
Delay (s)	31.6	20.4		76.4	16.6			19.6			20.0	
Level of Service	C	C		E	B			B			B	
Approach Delay (s)		21.0			18.7			19.6			20.0	
Approach LOS		C			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	20.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	68.3	Sum of lost time (s)	13.5
Intersection Capacity Utilization	62.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
17: Lorraine Ave & Lemon Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	6	27	8	5	10	15	330	14	8	360	3
Future Volume (Veh/h)	3	6	27	8	5	10	15	330	14	8	360	3
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	7	29	9	5	11	16	359	15	9	391	3
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								542				
pX, platoon unblocked												
vC, conflicting volume	636	816	197	644	810	187	394			374		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	636	816	197	644	810	187	394			374		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	98	96	97	98	99	99			99		
cM capacity (veh/h)	348	303	811	333	306	823	1161			1181		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	39	25	196	194	204	198
Volume Left	3	9	16	0	9	0
Volume Right	29	11	0	15	0	3
cSH	578	441	1161	1700	1181	1700
Volume to Capacity	0.07	0.06	0.01	0.11	0.01	0.12
Queue Length 95th (ft)	5	4	1	0	1	0
Control Delay (s)	11.7	13.7	0.8	0.0	0.4	0.0
Lane LOS	B	B	A		A	
Approach Delay (s)	11.7	13.7	0.4		0.2	
Approach LOS	B	B				

Intersection Summary				
Average Delay	1.2			
Intersection Capacity Utilization	30.8%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	156	1172	782	209	295	103
Future Volume (vph)	156	1172	782	209	295	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5	4.5
Lane Util. Factor	1.00	0.95	0.95		0.97	1.00
Frt	1.00	1.00	0.97		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3427		3433	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3427		3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	170	1274	850	227	321	112
RTOR Reduction (vph)	0	0	40	0	0	76
Lane Group Flow (vph)	170	1274	1037	0	321	36
Turn Type	Prot	NA	NA		Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	7.5	31.5	19.5		19.5	19.5
Effective Green, g (s)	7.5	31.5	19.5		19.5	19.5
Actuated g/C Ratio	0.12	0.52	0.32		0.32	0.32
Clearance Time (s)	4.5	4.5	4.5		4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	221	1857	1113		1115	514
v/s Ratio Prot	0.10	c0.36	c0.30		c0.09	
v/s Ratio Perm						0.02
v/c Ratio	0.77	0.69	0.93		0.29	0.07
Uniform Delay, d1	25.4	10.6	19.6		15.1	14.0
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	14.8	1.1	13.6		0.7	0.3
Delay (s)	40.2	11.6	33.2		15.7	14.3
Level of Service	D	B	C		B	B
Approach Delay (s)		15.0	33.2		15.3	
Approach LOS		B	C		B	

Intersection Summary			
HCM 2000 Control Delay	21.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	56.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	448	518	1048	457	645	1161
Future Volume (vph)	448	518	1048	457	645	1161
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5	4.5
Lane Util. Factor	0.97	1.00	0.91		0.97	0.95
Frt	1.00	0.85	0.95		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	3090	1425	4368		3090	3185
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	3090	1425	4368		3090	3185
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	487	563	1139	497	701	1262
RTOR Reduction (vph)	0	353	87	0	0	0
Lane Group Flow (vph)	487	211	1549	0	701	1262
Turn Type	Prot	Perm	NA		Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8				
Actuated Green, G (s)	17.9	17.9	34.5		22.5	61.5
Effective Green, g (s)	17.9	17.9	34.5		22.5	61.5
Actuated g/C Ratio	0.20	0.20	0.39		0.25	0.70
Clearance Time (s)	4.5	4.5	4.5		4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	625	288	1704		786	2215
v/s Ratio Prot	c0.16		c0.35		c0.23	0.40
v/s Ratio Perm		0.15				
v/c Ratio	0.78	0.73	0.91		0.89	0.57
Uniform Delay, d1	33.4	33.0	25.5		31.8	6.8
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	6.1	9.2	8.7		14.5	1.1
Delay (s)	39.5	42.2	34.2		46.3	7.9
Level of Service	D	D	C		D	A
Approach Delay (s)	40.9		34.2			21.6
Approach LOS	D		C			C

Intersection Summary			
HCM 2000 Control Delay	30.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	88.4	Sum of lost time (s)	13.5
Intersection Capacity Utilization	79.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	351	96	49	157	64	64
Future Volume (Veh/h)	351	96	49	157	64	64
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	382	104	53	171	70	70
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						1
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			486		711	434
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			486		711	434
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			95		82	89
cM capacity (veh/h)			1077		380	622

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	486	224	140
Volume Left	0	53	70
Volume Right	104	0	70
cSH	1700	1077	760
Volume to Capacity	0.29	0.05	0.18
Queue Length 95th (ft)	0	4	17
Control Delay (s)	0.0	2.4	14.1
Lane LOS		A	B
Approach Delay (s)	0.0	2.4	14.1
Approach LOS			B

Intersection Summary			
Average Delay	2.9		
Intersection Capacity Utilization	48.8%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
21: Glendora Ave & Sierra Madre Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	5	373	63	36	166	8	29	16	47	3	12	7
Future Volume (vph)	5	373	63	36	166	8	29	16	47	3	12	7
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	405	68	39	180	9	32	17	51	3	13	8

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	SB 1
Volume Total (vph)	478	219	9	49	51	24
Volume Left (vph)	5	39	0	32	0	3
Volume Right (vph)	68	0	9	0	51	8
Hadj (s)	-0.05	0.12	-0.67	0.36	-0.67	-0.14
Departure Headway (s)	5.1	5.5	4.7	6.7	5.7	6.4
Degree Utilization, x	0.68	0.33	0.01	0.09	0.08	0.04
Capacity (veh/h)	478	627	734	487	567	491
Control Delay (s)	18.5	10.0	6.5	9.2	8.0	9.7
Approach Delay (s)	18.5	9.9		8.6		9.7
Approach LOS	C	A		A		A

Intersection Summary			
Delay	14.7		
Level of Service	B		
Intersection Capacity Utilization	47.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	624	1	182	7	0	22	113	835	0	3	714	721
Future Volume (vph)	624	1	182	7	0	22	113	835	0	3	714	721
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5		4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	0.95	0.95	0.88		1.00		0.97	0.91		1.00	0.95	1.00
Frt	1.00	1.00	0.85		0.90		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	0.95	1.00		0.99		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1686	2787		1653		3433	5085		1770	3539	1583
Flt Permitted	0.95	0.95	1.00		0.99		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1681	1686	2787		1653		3433	5085		1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	678	1	198	8	0	24	123	908	0	3	776	784
RTOR Reduction (vph)	0	0	146	0	31	0	0	0	0	0	0	456
Lane Group Flow (vph)	339	340	52	0	1	0	123	908	0	3	776	328
Turn Type	Split	NA	Perm	Split	NA		Prot	NA		Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4									6
Actuated Green, G (s)	19.3	19.3	19.3		1.9		3.8	33.8		0.9	30.9	30.9
Effective Green, g (s)	19.3	19.3	19.3		1.9		3.8	33.8		0.9	30.9	30.9
Actuated g/C Ratio	0.26	0.26	0.26		0.03		0.05	0.46		0.01	0.42	0.42
Clearance Time (s)	4.5	4.5	4.5		4.5		4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	439	440	727		42		176	2325		21	1479	661
v/s Ratio Prot	c0.20	0.20			c0.00		c0.04	c0.18		0.00	c0.22	
v/s Ratio Perm			0.02									0.21
v/c Ratio	0.77	0.77	0.07		0.02		0.70	0.39		0.14	0.52	0.50
Uniform Delay, d1	25.3	25.3	20.6		35.1		34.5	13.2		36.1	16.0	15.8
Progression Factor	1.00	1.00	1.00		1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	8.2	8.2	0.0		0.2		11.5	0.5		3.1	1.3	2.6
Delay (s)	33.5	33.5	20.6		35.3		46.0	13.7		39.2	17.4	18.4
Level of Service	C	C	C		D		D	B		D	B	B
Approach Delay (s)		30.6			35.3			17.6			17.9	
Approach LOS		C			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	21.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	73.9	Sum of lost time (s)	18.0
Intersection Capacity Utilization	64.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	22	39	452	490	51
Future Volume (Veh/h)	0	22	39	452	490	51
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	24	42	491	533	55
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				1038	287	
pX, platoon unblocked						
vC, conflicting volume	890	294	588			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	890	294	588			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	97	96			
cM capacity (veh/h)	270	702	983			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	24	206	327	355	233
Volume Left	0	42	0	0	0
Volume Right	24	0	0	0	55
cSH	702	983	1700	1700	1700
Volume to Capacity	0.03	0.04	0.19	0.21	0.14
Queue Length 95th (ft)	3	3	0	0	0
Control Delay (s)	10.3	2.1	0.0	0.0	0.0
Lane LOS	B	A			
Approach Delay (s)	10.3	0.8		0.0	
Approach LOS	B				

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	35.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	119	40	0	712	113	12	899
Future Volume (vph)	119	40	0	712	113	12	899
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5			4.5		4.5	4.5
Lane Util. Factor	1.00			0.91		1.00	0.91
Frt	0.97			0.98		1.00	1.00
Flt Protected	0.96			1.00		0.95	1.00
Satd. Flow (prot)	1735			4981		1770	5085
Flt Permitted	0.96			1.00		0.95	1.00
Satd. Flow (perm)	1735			4981		1770	5085
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	129	43	0	774	123	13	977
RTOR Reduction (vph)	25	0	0	25	0	0	0
Lane Group Flow (vph)	147	0	0	872	0	13	977
Turn Type	Prot		Prot	NA		Prot	NA
Protected Phases	8		5	2		1	6
Permitted Phases							
Actuated Green, G (s)	7.8			27.5		0.9	32.9
Effective Green, g (s)	7.8			27.5		0.9	32.9
Actuated g/C Ratio	0.16			0.55		0.02	0.66
Clearance Time (s)	4.5			4.5		4.5	4.5
Vehicle Extension (s)	3.0			3.0		3.0	3.0
Lane Grp Cap (vph)	272			2756		32	3366
v/s Ratio Prot	c0.08			0.18		0.01	c0.19
v/s Ratio Perm							
v/c Ratio	0.54			0.32		0.41	0.29
Uniform Delay, d1	19.3			6.0		24.1	3.5
Progression Factor	1.00			1.00		1.00	1.00
Incremental Delay, d2	2.1			0.3		8.2	0.2
Delay (s)	21.4			6.3		32.4	3.7
Level of Service	C			A		C	A
Approach Delay (s)	21.4			6.3			4.1
Approach LOS	C			A			A

Intersection Summary			
HCM 2000 Control Delay	6.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	49.7	Sum of lost time (s)	13.5
Intersection Capacity Utilization	33.9%	ICU Level of Service	A
Analysis Period (min)	15		
Description: Existing to No Build			
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	120	781	279	321	457	87	190	709	262	71	870	120
Future Volume (vph)	120	781	279	321	457	87	190	709	262	71	870	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	3433	3454		1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	3433	3454		1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	130	849	303	349	497	95	207	771	285	77	946	130
RTOR Reduction (vph)	0	0	140	0	18	0	0	0	177	0	0	90
Lane Group Flow (vph)	130	849	163	349	574	0	207	771	108	77	946	40
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4						2			6
Actuated Green, G (s)	9.5	22.6	22.6	10.5	23.6		11.5	34.5	34.5	5.3	28.3	28.3
Effective Green, g (s)	9.5	22.6	22.6	10.5	23.6		11.5	34.5	34.5	5.3	28.3	28.3
Actuated g/C Ratio	0.10	0.25	0.25	0.12	0.26		0.13	0.38	0.38	0.06	0.31	0.31
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	184	879	393	396	896		223	1343	600	103	1101	492
v/s Ratio Prot	0.07	c0.24		c0.10	0.17		c0.12	0.22		0.04	c0.27	
v/s Ratio Perm			0.10						0.07			0.03
v/c Ratio	0.71	0.97	0.42	0.88	0.64		0.93	0.57	0.18	0.75	0.86	0.08
Uniform Delay, d1	39.4	33.8	28.6	39.6	29.9		39.3	22.4	18.8	42.1	29.4	22.1
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	11.7	22.2	0.7	19.9	1.6		40.4	1.8	0.7	25.2	8.8	0.3
Delay (s)	51.0	56.0	29.3	59.5	31.5		79.7	24.2	19.4	67.4	38.2	22.4
Level of Service	D	E	C	E	C		E	C	B	E	D	C
Approach Delay (s)		49.2			41.8			32.2			38.4	
Approach LOS		D			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	40.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	90.9	Sum of lost time (s)	18.0
Intersection Capacity Utilization	80.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
104: Vermont Ave E & Carroll Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	9	11	14	18	6	19	193	11	14	160	5
Future Volume (Veh/h)	9	9	11	14	18	6	19	193	11	14	160	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	10	10	12	15	20	7	21	210	12	15	174	5
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											647	
pX, platoon unblocked												
vC, conflicting volume	482	470	176	482	467	216	179			222		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	482	470	176	482	467	216	179			222		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	98	99	97	96	99	98			99		
cM capacity (veh/h)	466	478	867	471	481	824	1397			1347		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	32	42	243	194
Volume Left	10	15	21	15
Volume Right	12	7	12	5
cSH	569	512	1397	1347
Volume to Capacity	0.06	0.08	0.02	0.01
Queue Length 95th (ft)	4	7	1	1
Control Delay (s)	11.7	12.7	0.8	0.7
Lane LOS	B	B	A	A
Approach Delay (s)	11.7	12.7	0.8	0.7
Approach LOS	B	B		

Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	25.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	8	36	31	8	22	17	387	14	17	453	2
Future Volume (Veh/h)	8	8	36	31	8	22	17	387	14	17	453	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	9	39	34	9	24	18	421	15	18	492	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											650	
pX, platoon unblocked	0.92	0.92	0.92	0.92	0.92		0.92					
vC, conflicting volume	804	1001	493	1037	994	218	494			436		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	739	955	400	994	948	218	401			436		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	96	96	93	79	96	97	98			98		
cM capacity (veh/h)	256	227	549	160	230	786	1056			1120		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	57	67	228	226	512
Volume Left	9	34	18	0	18
Volume Right	39	24	0	15	2
cSH	391	238	1056	1700	1120
Volume to Capacity	0.15	0.28	0.02	0.13	0.02
Queue Length 95th (ft)	13	28	1	0	1
Control Delay (s)	15.8	26.0	0.8	0.0	0.5
Lane LOS	C	D	A		A
Approach Delay (s)	15.8	26.0	0.4		0.5
Approach LOS	C	D			

Intersection Summary				
Average Delay	2.8			
Intersection Capacity Utilization	53.3%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	7	0	621	19	1	597
Future Volume (Veh/h)	7	0	621	19	1	597
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	8	0	675	21	1	649
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			None
Median storage veh)			2			
Upstream signal (ft)			430			
pX, platoon unblocked	0.87	0.87			0.87	
vC, conflicting volume	1012	348			696	
vC1, stage 1 conf vol	686					
vC2, stage 2 conf vol	326					
vCu, unblocked vol	721	0			359	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	100			100	
cM capacity (veh/h)	519	946			1044	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	8	450	246	217	433
Volume Left	8	0	0	1	0
Volume Right	0	0	21	0	0
cSH	519	1700	1700	1044	1700
Volume to Capacity	0.02	0.26	0.14	0.00	0.25
Queue Length 95th (ft)	1	0	0	0	0
Control Delay (s)	12.0	0.0	0.0	0.0	0.0
Lane LOS	B			A	
Approach Delay (s)	12.0	0.0		0.0	
Approach LOS	B				

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	27.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	SEL	SET	NWT	NWR
Lane Configurations						
Traffic Volume (veh/h)	89	5	1	532	472	0
Future Volume (Veh/h)	89	5	1	532	472	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	97	5	1	578	513	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	804	256	513			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	804	256	513			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	70	99	100			
cM capacity (veh/h)	320	743	1049			

Direction, Lane #	WB 1	WB 2	SE 1	SE 2	SE 3	NW 1	NW 2
Volume Total	97	5	1	289	289	256	256
Volume Left	97	0	1	0	0	0	0
Volume Right	0	5	0	0	0	0	0
cSH	320	743	1049	1700	1700	1700	1700
Volume to Capacity	0.30	0.01	0.00	0.17	0.17	0.15	0.15
Queue Length 95th (ft)	31	1	0	0	0	0	0
Control Delay (s)	21.1	9.9	8.4	0.0	0.0	0.0	0.0
Lane LOS	C	A	A				
Approach Delay (s)	20.5		0.0			0.0	
Approach LOS	C						

Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	26.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1	0	23	5	3	0	211	41	1	66	0
Future Volume (Veh/h)	0	1	0	23	5	3	0	211	41	1	66	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1	0	25	5	3	0	229	45	1	72	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	331	348	72	326	326	252	72			274		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	331	348	72	326	326	252	72			274		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	96	99	100	100			100		
cM capacity (veh/h)	616	575	990	626	592	787	1528			1289		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	1	33	274	73
Volume Left	0	25	0	1
Volume Right	0	3	45	0
cSH	575	632	1700	1289
Volume to Capacity	0.00	0.05	0.16	0.00
Queue Length 95th (ft)	0	4	0	0
Control Delay (s)	11.3	11.0	0.0	0.1
Lane LOS	B	B		A
Approach Delay (s)	11.3	11.0	0.0	0.1
Approach LOS	B	B		

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	28.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	778	43	34	575	28	51
Future Volume (Veh/h)	778	43	34	575	28	51
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	846	47	37	625	30	55
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			893		1568	870
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			893		1568	870
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			95		74	84
cM capacity (veh/h)			759		116	351

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	893	662	85
Volume Left	0	37	30
Volume Right	47	0	55
cSH	1700	759	205
Volume to Capacity	0.53	0.05	0.42
Queue Length 95th (ft)	0	4	47
Control Delay (s)	0.0	1.3	34.5
Lane LOS		A	D
Approach Delay (s)	0.0	1.3	34.5
Approach LOS			D

Intersection Summary			
Average Delay	2.3		
Intersection Capacity Utilization	69.4%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	39	753	32	8	573	18	19	18	15	10	9	15
Future Volume (Veh/h)	39	753	32	8	573	18	19	18	15	10	9	15
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	42	818	35	9	623	20	21	20	16	11	10	16
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	643			853			1592	1580	836	1596	1588	633
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	643			853			1592	1580	836	1596	1588	633
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	96			99			72	81	96	84	90	97
cM capacity (veh/h)	942			786			74	103	367	67	102	480

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	895	652	57	37
Volume Left	42	9	21	11
Volume Right	35	20	16	16
cSH	942	786	109	125
Volume to Capacity	0.04	0.01	0.52	0.30
Queue Length 95th (ft)	3	1	60	29
Control Delay (s)	1.2	0.3	69.1	45.4
Lane LOS	A	A	F	E
Approach Delay (s)	1.2	0.3	69.1	45.4
Approach LOS			F	E

Intersection Summary			
Average Delay	4.2		
Intersection Capacity Utilization	75.6%	ICU Level of Service	D
Analysis Period (min)	15		

HCM Signalized Intersection Capacity Analysis
75: Indian Hill Blvd & Bonita Ave

08/10/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	99	153	130	64	144	82	101	600	47	49	517	59
Future Volume (vph)	99	153	130	64	144	82	101	600	47	49	517	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. 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
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	1863	1583	1770	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.26	1.00	1.00	0.20	1.00	1.00
Satd. Flow (perm)	1770	1863	1583	1770	1863	1583	478	1863	1583	381	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	108	166	141	70	157	89	110	652	51	53	562	64
RTOR Reduction (vph)	0	0	113	0	0	74	0	0	27	0	0	35
Lane Group Flow (vph)	108	166	28	70	157	15	110	652	24	53	562	29
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8	2		2	6		6
Actuated Green, G (s)	6.6	14.6	14.6	4.5	12.5	12.5	38.5	34.7	34.7	36.5	33.7	33.7
Effective Green, g (s)	6.6	14.6	14.6	4.5	12.5	12.5	38.5	34.7	34.7	36.5	33.7	33.7
Actuated g/C Ratio	0.09	0.20	0.20	0.06	0.17	0.17	0.52	0.47	0.47	0.49	0.45	0.45
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	156	364	309	106	312	265	312	866	736	238	841	715
v/s Ratio Prot	c0.06	c0.09		0.04	0.08		c0.02	c0.35		0.01	0.30	
v/s Ratio Perm			0.02			0.01	0.16		0.01	0.10		0.02
v/c Ratio	0.69	0.46	0.09	0.66	0.50	0.06	0.35	0.75	0.03	0.22	0.67	0.04
Uniform Delay, d1	33.0	26.5	24.6	34.3	28.2	26.1	11.1	16.4	10.8	12.1	16.1	11.4
Progression 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
Incremental Delay, d2	12.5	0.9	0.1	14.4	1.3	0.1	0.7	6.0	0.1	0.5	4.2	0.1
Delay (s)	45.5	27.4	24.7	48.7	29.5	26.2	11.8	22.4	10.9	12.6	20.3	11.5
Level of Service	D	C	C	D	C	C	B	C	B	B	C	B
Approach Delay (s)		31.2			32.8			20.3			18.8	
Approach LOS		C			C			C			B	

Intersection Summary			
HCM 2000 Control Delay	23.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	74.6	Sum of lost time (s)	18.0
Intersection Capacity Utilization	63.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	30	81	170	48	130	82	601	213	44	619	53
Future Volume (vph)	20	30	81	170	48	130	82	601	213	44	619	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	1863	1583	1770	1841	
Flt Permitted	0.72	1.00	1.00	0.74	1.00	1.00	0.20	1.00	1.00	0.29	1.00	
Satd. Flow (perm)	1347	1863	1583	1370	1863	1583	382	1863	1583	538	1841	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	33	88	185	52	141	89	653	232	48	673	58
RTOR Reduction (vph)	0	0	70	0	0	113	0	0	102	0	4	0
Lane Group Flow (vph)	22	33	18	185	52	28	89	653	130	48	727	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		
Actuated Green, G (s)	13.7	13.7	13.7	13.7	13.7	13.7	42.5	38.4	38.4	40.1	37.2	
Effective Green, g (s)	13.7	13.7	13.7	13.7	13.7	13.7	42.5	38.4	38.4	40.1	37.2	
Actuated g/C Ratio	0.20	0.20	0.20	0.20	0.20	0.20	0.62	0.56	0.56	0.59	0.54	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	269	372	316	274	372	316	320	1044	887	367	999	
v/s Ratio Prot		0.02			0.03		c0.02	0.35		0.01	c0.40	
v/s Ratio Perm	0.02		0.01	c0.14		0.02	0.16		0.08	0.07		
v/c Ratio	0.08	0.09	0.06	0.68	0.14	0.09	0.28	0.63	0.15	0.13	0.73	
Uniform Delay, d1	22.3	22.3	22.2	25.3	22.6	22.3	7.9	10.2	7.2	7.1	11.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.1	0.1	0.1	6.4	0.2	0.1	0.5	2.8	0.3	0.2	4.6	
Delay (s)	22.4	22.4	22.2	31.8	22.7	22.4	8.4	13.0	7.6	7.2	16.5	
Level of Service	C	C	C	C	C	C	A	B	A	A	B	
Approach Delay (s)		22.3			27.0			11.3			15.9	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	16.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	68.5	Sum of lost time (s)	13.5
Intersection Capacity Utilization	67.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	91	0	0	21	12	879	2	0	861	5
Future Volume (Veh/h)	0	0	91	0	0	21	12	879	2	0	861	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	99	0	0	23	13	955	2	0	936	5
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											312	
pX, platoon unblocked												
vC, conflicting volume	1465	1922	470	1549	1923	478	941			957		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1465	1922	470	1549	1923	478	941			957		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	82	100	100	96	98			100		
cM capacity (veh/h)	84	65	540	62	65	533	724			714		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	99	23	13	637	320	468	473
Volume Left	0	0	13	0	0	0	0
Volume Right	99	23	0	0	2	0	5
cSH	540	533	724	1700	1700	714	1700
Volume to Capacity	0.18	0.04	0.02	0.37	0.19	0.00	0.28
Queue Length 95th (ft)	17	3	1	0	0	0	0
Control Delay (s)	13.2	12.1	10.1	0.0	0.0	0.0	0.0
Lane LOS	B	B	B				
Approach Delay (s)	13.2	12.1	0.1			0.0	
Approach LOS	B	B					

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	36.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	135	1092	157	128	443	62	140	700	137	122	626	94
Future Volume (vph)	135	1092	157	128	443	62	140	700	137	122	626	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3470	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3470	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	147	1187	171	139	482	67	152	761	149	133	680	102
RTOR Reduction (vph)	0	0	83	0	0	46	0	0	109	0	13	0
Lane Group Flow (vph)	147	1187	88	139	482	21	152	761	40	133	769	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			
Actuated Green, G (s)	12.2	31.5	31.5	8.5	27.8	27.8	8.9	24.1	24.1	7.9	23.1	
Effective Green, g (s)	12.2	31.5	31.5	8.5	27.8	27.8	8.9	24.1	24.1	7.9	23.1	
Actuated g/C Ratio	0.14	0.35	0.35	0.09	0.31	0.31	0.10	0.27	0.27	0.09	0.26	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	239	1238	554	167	1093	488	175	947	423	155	890	
v/s Ratio Prot	0.08	c0.34		c0.08	0.14		c0.09	0.22		0.08	c0.22	
v/s Ratio Perm			0.06			0.01			0.03			
v/c Ratio	0.62	0.96	0.16	0.83	0.44	0.04	0.87	0.80	0.09	0.86	0.86	
Uniform Delay, d1	36.7	28.6	20.1	40.0	24.9	21.8	40.0	30.7	24.8	40.5	31.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	4.6	16.5	0.1	28.3	0.3	0.0	33.6	7.2	0.4	34.6	10.9	
Delay (s)	41.3	45.1	20.3	68.4	25.2	21.8	73.6	37.9	25.2	75.1	42.8	
Level of Service	D	D	C	E	C	C	E	D	C	E	D	
Approach Delay (s)		41.9			33.6			41.3			47.5	
Approach LOS		D			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	41.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	80.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	76	14	53	46	42	78	32	235	11	8	243	34
Future Volume (vph)	76	14	53	46	42	78	32	235	11	8	243	34
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	83	15	58	50	46	85	35	255	12	9	264	37

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total (vph)	156	181	290	12	310
Volume Left (vph)	83	50	35	0	9
Volume Right (vph)	58	85	0	12	37
Hadj (s)	-0.08	-0.19	0.09	-0.67	-0.03
Departure Headway (s)	5.9	5.8	6.0	5.3	5.5
Degree Utilization, x	0.26	0.29	0.49	0.02	0.48
Capacity (veh/h)	535	554	558	637	613
Control Delay (s)	11.0	11.1	13.5	7.2	13.4
Approach Delay (s)	11.0	11.1	13.2		13.4
Approach LOS	B	B	B		B

Intersection Summary			
Delay	12.5		
Level of Service	B		
Intersection Capacity Utilization	49.3%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Intersection Delay, s/veh	15.7
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	49	124	64	28	122	46	23	198	49	48	239	49
Future Vol, veh/h	49	124	64	28	122	46	23	198	49	48	239	49
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	53	135	70	30	133	50	25	215	53	52	260	53
Number of Lanes	1	1	1	1	1	1	0	1	1	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	3	3
HCM Control Delay	12.5	12.7	15.8	19.5
HCM LOS	B	B	C	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	10%	0%	100%	0%	0%	100%	0%	0%	17%	0%
Vol Thru, %	90%	0%	0%	100%	0%	0%	100%	0%	83%	0%
Vol Right, %	0%	100%	0%	0%	100%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	221	49	49	124	64	28	122	46	287	49
LT Vol	23	0	49	0	0	28	0	0	48	0
Through Vol	198	0	0	124	0	0	122	0	239	0
RT Vol	0	49	0	0	64	0	0	46	0	49
Lane Flow Rate	240	53	53	135	70	30	133	50	312	53
Geometry Grp	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.492	0.098	0.121	0.287	0.134	0.07	0.287	0.098	0.624	0.095
Departure Headway (Hd)	7.367	6.608	8.182	7.669	6.95	8.301	7.787	7.067	7.202	6.413
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	490	541	438	468	515	431	460	506	502	558
Service Time	5.118	4.36	5.94	5.426	4.706	6.061	5.547	4.827	4.952	4.163
HCM Lane V/C Ratio	0.49	0.098	0.121	0.288	0.136	0.07	0.289	0.099	0.622	0.095
HCM Control Delay	17.1	10.1	12.1	13.5	10.8	11.7	13.7	10.6	21.2	9.8
HCM Lane LOS	C	B	B	B	B	B	B	B	C	A
HCM 95th-tile Q	2.7	0.3	0.4	1.2	0.5	0.2	1.2	0.3	4.2	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	76	1049	32	25	583	76	16	49	33	110	104	116
Future Volume (vph)	76	1049	32	25	583	76	16	49	33	110	104	116
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00		1.00	0.98			1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.99	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3523		1770	3478			1840	1583	1770	1863	1583
Flt Permitted	0.33	1.00		0.15	1.00			0.94	1.00	0.71	1.00	1.00
Satd. Flow (perm)	615	3523		284	3478			1747	1583	1325	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	83	1140	35	27	634	83	17	53	36	120	113	126
RTOR Reduction (vph)	0	4	0	0	18	0	0	0	23	0	0	79
Lane Group Flow (vph)	83	1171	0	27	699	0	0	70	13	120	113	47
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	26.2	26.2		26.2	26.2			20.7	20.7	20.7	20.7	20.7
Effective Green, g (s)	26.2	26.2		26.2	26.2			20.7	20.7	20.7	20.7	20.7
Actuated g/C Ratio	0.47	0.47		0.47	0.47			0.37	0.37	0.37	0.37	0.37
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	288	1651		133	1630			646	586	490	689	586
v/s Ratio Prot		c0.33			0.20						0.06	
v/s Ratio Perm	0.13			0.09				0.04	0.01	c0.09		0.03
v/c Ratio	0.29	0.71		0.20	0.43			0.11	0.02	0.24	0.16	0.08
Uniform Delay, d1	9.1	11.8		8.7	9.9			11.5	11.2	12.2	11.8	11.4
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.6	1.4		0.8	0.2			0.3	0.1	1.2	0.5	0.3
Delay (s)	9.7	13.2		9.5	10.1			11.9	11.2	13.4	12.3	11.7
Level of Service	A	B		A	B			B	B	B	B	B
Approach Delay (s)		13.0			10.0			11.7			12.4	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	12.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	55.9	Sum of lost time (s)	9.0
Intersection Capacity Utilization	58.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	165	2	150	4	2	0	73	262	4	4	280	92
Future Volume (vph)	165	2	150	4	2	0	73	262	4	4	280	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00		1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85		1.00		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00		0.97		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583		1803		1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00	1.00		0.97		0.57	1.00	1.00	0.58	1.00	1.00
Satd. Flow (perm)	1770	1863	1583		1803		1055	3539	1583	1075	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	179	2	163	4	2	0	79	285	4	4	304	100
RTOR Reduction (vph)	0	0	129	0	0	0	0	0	2	0	0	52
Lane Group Flow (vph)	179	2	34	0	6	0	79	285	2	4	304	48
Turn Type	Split	NA	Perm	Split	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	4	4		8	8			2			6	
Permitted Phases			4			8	2		2	6	6	6
Actuated Green, G (s)	9.8	9.8	9.8		1.0		22.7	22.7	22.7	22.7	22.7	22.7
Effective Green, g (s)	9.8	9.8	9.8		1.0		22.7	22.7	22.7	22.7	22.7	22.7
Actuated g/C Ratio	0.21	0.21	0.21		0.02		0.48	0.48	0.48	0.48	0.48	0.48
Clearance Time (s)	4.5	4.5	4.5		4.5		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	369	388	330		38		509	1709	764	519	1709	764
v/s Ratio Prot	c0.10	0.00			c0.00			0.08			c0.09	
v/s Ratio Perm			0.02				0.07		0.00	0.00		0.03
v/c Ratio	0.49	0.01	0.10		0.16		0.16	0.17	0.00	0.01	0.18	0.06
Uniform Delay, d1	16.4	14.7	15.0		22.6		6.8	6.8	6.3	6.3	6.9	6.5
Progression Factor	1.00	1.00	1.00		1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.0	0.0	0.1		1.9		0.6	0.2	0.0	0.0	0.2	0.2
Delay (s)	17.4	14.7	15.2		24.5		7.4	7.0	6.3	6.3	7.1	6.6
Level of Service	B	B	B		C		A	A	A	A	A	A
Approach Delay (s)		16.3			24.5			7.1			7.0	
Approach LOS		B			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	10.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	47.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	39.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	116	1007	50	42	450	85	62	165	27	95	154	109
Future Volume (vph)	116	1007	50	42	450	85	62	165	27	95	154	109
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.98		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3514		1770	3455		1770	3465		1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	3514		1770	3455		1770	3465		1770	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	126	1095	54	46	489	92	67	179	29	103	167	118
RTOR Reduction (vph)	0	4	0	0	19	0	0	16	0	0	0	82
Lane Group Flow (vph)	126	1145	0	46	562	0	67	192	0	103	167	36
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												6
Actuated Green, G (s)	8.1	27.8		2.7	22.4		3.9	21.3		5.6	23.0	23.0
Effective Green, g (s)	8.1	27.8		2.7	22.4		3.9	21.3		5.6	23.0	23.0
Actuated g/C Ratio	0.11	0.37		0.04	0.30		0.05	0.28		0.07	0.31	0.31
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	190	1295		63	1026		91	978		131	568	482
v/s Ratio Prot	c0.07	c0.33		0.03	0.16		0.04	0.06		c0.06	c0.09	
v/s Ratio Perm												0.02
v/c Ratio	0.66	0.88		0.73	0.55		0.74	0.20		0.79	0.29	0.07
Uniform Delay, d1	32.3	22.3		36.0	22.2		35.2	20.5		34.3	20.0	18.6
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	8.4	7.5		34.9	0.6		26.3	0.4		26.0	1.3	0.3
Delay (s)	40.8	29.8		70.9	22.8		61.5	21.0		60.3	21.3	18.9
Level of Service	D	C		E	C		E	C		E	C	B
Approach Delay (s)		30.9			26.4			30.9			30.9	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	29.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	75.4	Sum of lost time (s)	18.0
Intersection Capacity Utilization	60.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
84: Monte Vista Ave & Arrow Route

08/10/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	221	74	90	148	56	55	835	99	40	632	22
Future Volume (vph)	41	221	74	90	148	56	55	835	99	40	632	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00	0.97	0.91		1.00	0.91	
Frt	1.00	0.96		1.00	1.00	0.85	1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3406		1770	1863	1583	3433	5004		1770	5060	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3406		1770	1863	1583	3433	5004		1770	5060	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	45	240	80	98	161	61	60	908	108	43	687	24
RTOR Reduction (vph)	0	51	0	0	0	47	0	18	0	0	4	0
Lane Group Flow (vph)	45	269	0	98	161	14	60	998	0	43	707	0
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						
Actuated Green, G (s)	3.1	11.0		6.0	13.9	13.9	2.6	23.1		1.9	22.4	
Effective Green, g (s)	3.1	11.0		6.0	13.9	13.9	2.6	23.1		1.9	22.4	
Actuated g/C Ratio	0.05	0.18		0.10	0.23	0.23	0.04	0.39		0.03	0.37	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	91	624		177	431	366	148	1926		56	1889	
v/s Ratio Prot	0.03	0.08		c0.06	c0.09		0.02	c0.20		c0.02	0.14	
v/s Ratio Perm						0.01						
v/c Ratio	0.49	0.43		0.55	0.37	0.04	0.41	0.52		0.77	0.37	
Uniform Delay, d1	27.7	21.7		25.7	19.4	17.9	27.9	14.2		28.8	13.7	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.2	0.5		3.7	0.5	0.0	1.8	1.0		46.0	0.6	
Delay (s)	31.9	22.2		29.4	19.9	17.9	29.8	15.2		74.9	14.3	
Level of Service	C	C		C	B	B	C	B		E	B	
Approach Delay (s)		23.4			22.5			16.0			17.7	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	18.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	51.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	0	103	0	104	1	879	70	51	753	1
Future Volume (vph)	1	0	0	103	0	104	1	879	70	51	753	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5			4.5		4.5	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00			1.00		1.00	1.00	0.95	1.00	0.97	0.91	
Frt	1.00			1.00		0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95			0.95		1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770			1770		1583	1770	3539	1583	3433	5084	
Flt Permitted	1.00			0.95		1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1863			1770		1583	1770	3539	1583	3433	5084	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1	0	0	112	0	113	1	955	76	55	818	1
RTOR Reduction (vph)	0	0	0	0	0	91	0	0	37	0	0	0
Lane Group Flow (vph)	1	0	0	112	0	22	1	955	39	55	819	0
Turn Type	Perm		Perm	Prot		Perm	Prot	NA	Perm	Prot	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4			8			2			
Actuated Green, G (s)	0.9			5.2		10.6	0.8	27.8	27.8	1.7	28.7	
Effective Green, g (s)	0.9			5.2		10.6	0.8	27.8	27.8	1.7	28.7	
Actuated g/C Ratio	0.02			0.10		0.20	0.01	0.52	0.52	0.03	0.54	
Clearance Time (s)	4.5			4.5		4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0			3.0		3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	31			171		313	26	1835	821	108	2722	
v/s Ratio Prot				c0.06			0.00	c0.27		c0.02	0.16	
v/s Ratio Perm	0.00					c0.01			0.02			
v/c Ratio	0.03			0.65		0.07	0.04	0.52	0.05	0.51	0.30	
Uniform Delay, d1	25.9			23.3		17.5	26.0	8.5	6.4	25.5	6.9	
Progression Factor	1.00			1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.4			8.7		0.1	0.6	1.1	0.1	3.7	0.3	
Delay (s)	26.3			32.0		17.6	26.6	9.6	6.5	29.3	7.2	
Level of Service	C			C		B	C	A	A	C	A	
Approach Delay (s)		26.3			24.8			9.4			8.6	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	10.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	53.6	Sum of lost time (s)	18.0
Intersection Capacity Utilization	46.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	157	833	218	46	337	99	144	683	60	104	661	107
Future Volume (vph)	157	833	218	46	337	99	144	683	60	104	661	107
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	0.97	0.95		0.97	0.95	1.00	1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.97		1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3429		3433	3539	1583	1770	3496		1770	3539	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3429		3433	3539	1583	1770	3496		1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	171	905	237	50	366	108	157	742	65	113	718	116
RTOR Reduction (vph)	0	29	0	0	0	77	0	8	0	0	0	84
Lane Group Flow (vph)	171	1113	0	50	366	31	157	799	0	113	718	32
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						6
Actuated Green, G (s)	7.9	27.3		2.8	22.2	22.2	8.5	23.1		6.5	21.1	21.1
Effective Green, g (s)	7.9	27.3		2.8	22.2	22.2	8.5	23.1		6.5	21.1	21.1
Actuated g/C Ratio	0.10	0.35		0.04	0.29	0.29	0.11	0.30		0.08	0.27	0.27
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	349	1204		123	1011	452	193	1039		148	961	429
v/s Ratio Prot	c0.05	c0.32		0.01	0.10		c0.09	c0.23		0.06	0.20	
v/s Ratio Perm						0.02						0.02
v/c Ratio	0.49	0.92		0.41	0.36	0.07	0.81	0.77		0.76	0.75	0.07
Uniform Delay, d1	33.0	24.2		36.6	22.1	20.2	33.8	24.9		34.8	25.9	21.0
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.1	11.8		2.2	0.2	0.1	22.4	5.5		20.5	5.3	0.3
Delay (s)	34.1	36.0		38.8	22.3	20.3	56.2	30.4		55.4	31.2	21.4
Level of Service	C	D		D	C	C	E	C		E	C	C
Approach Delay (s)		35.8			23.5			34.6			32.8	
Approach LOS		D			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	33.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	77.7	Sum of lost time (s)	18.0
Intersection Capacity Utilization	75.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	918	74	50	404	63	78
Future Volume (vph)	918	74	50	404	63	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1583	1770	3539	1770	1583
Flt Permitted	1.00	1.00	0.16	1.00	0.95	1.00
Satd. Flow (perm)	3539	1583	295	3539	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	998	80	54	439	68	85
RTOR Reduction (vph)	0	28	0	0	0	57
Lane Group Flow (vph)	998	52	54	439	68	28
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases		4	8			2
Actuated Green, G (s)	20.8	20.8	28.0	28.0	18.5	18.5
Effective Green, g (s)	20.8	20.8	28.0	28.0	18.5	18.5
Actuated g/C Ratio	0.37	0.37	0.50	0.50	0.33	0.33
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1326	593	220	1785	590	527
v/s Ratio Prot	c0.28		0.01	c0.12	c0.04	
v/s Ratio Perm		0.03	0.11			0.02
v/c Ratio	0.75	0.09	0.25	0.25	0.12	0.05
Uniform Delay, d1	15.1	11.2	9.0	7.8	12.8	12.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.5	0.1	0.6	0.1	0.4	0.2
Delay (s)	17.6	11.3	9.6	7.9	13.2	12.8
Level of Service	B	B	A	A	B	B
Approach Delay (s)	17.1			8.0	13.0	
Approach LOS	B			A	B	

Intersection Summary			
HCM 2000 Control Delay	14.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	55.5	Sum of lost time (s)	13.5
Intersection Capacity Utilization	45.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	62	268	101	209	320	44	63	738	208	68	828	75
Future Volume (vph)	62	268	101	209	320	44	63	738	208	68	828	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3495	
Flt Permitted	0.41	1.00	1.00	0.34	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	767	1863	1583	634	1863	1583	1770	3539	1583	1770	3495	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	67	291	110	227	348	48	68	802	226	74	900	82
RTOR Reduction (vph)	0	0	83	0	0	34	0	0	148	0	10	0
Lane Group Flow (vph)	67	291	27	227	348	14	68	802	78	74	972	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8			2			
Actuated Green, G (s)	19.7	16.9	16.9	25.3	19.7	19.7	3.9	23.6	23.6	4.0	23.7	
Effective Green, g (s)	19.7	16.9	16.9	25.3	19.7	19.7	3.9	23.6	23.6	4.0	23.7	
Actuated g/C Ratio	0.29	0.25	0.25	0.37	0.29	0.29	0.06	0.35	0.35	0.06	0.35	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	263	462	392	328	538	457	101	1226	548	103	1216	
v/s Ratio Prot	0.01	0.16		c0.06	0.19		0.04	0.23		c0.04	c0.28	
v/s Ratio Perm	0.06		0.02	c0.20		0.01			0.05			
v/c Ratio	0.25	0.63	0.07	0.69	0.65	0.03	0.67	0.65	0.14	0.72	0.80	
Uniform Delay, d1	18.0	22.8	19.6	16.8	21.2	17.4	31.5	18.8	15.3	31.5	20.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.5	2.7	0.1	6.2	2.7	0.0	16.3	2.7	0.5	21.2	5.6	
Delay (s)	18.5	25.5	19.7	23.0	23.8	17.4	47.7	21.5	15.8	52.7	25.6	
Level of Service	B	C	B	C	C	B	D	C	B	D	C	
Approach Delay (s)		23.1			23.0			22.0			27.5	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	24.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	68.1	Sum of lost time (s)	18.0
Intersection Capacity Utilization	70.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	96	69	110	99	117	43	101	877	58	45	1039	34
Future Volume (vph)	96	69	110	99	117	43	101	877	58	45	1039	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95	1.00	1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.96		1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1787		1770	3539	1583	1770	5061	
Flt Permitted	0.61	1.00	1.00	0.71	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1144	1863	1583	1319	1787		1770	3539	1583	1770	5061	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	104	75	120	108	127	47	110	953	63	49	1129	37
RTOR Reduction (vph)	0	0	101	0	27	0	0	0	28	0	5	0
Lane Group Flow (vph)	104	75	19	108	147	0	110	953	35	49	1161	0
Turn Type	Perm	NA	Perm	Perm	NA		Prot	NA	Perm	Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8					2			
Actuated Green, G (s)	8.5	8.5	8.5	8.5	8.5		6.3	30.6	30.6	2.0	26.3	
Effective Green, g (s)	8.5	8.5	8.5	8.5	8.5		6.3	30.6	30.6	2.0	26.3	
Actuated g/C Ratio	0.16	0.16	0.16	0.16	0.16		0.12	0.56	0.56	0.04	0.48	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	178	290	246	205	278		204	1983	887	64	2437	
v/s Ratio Prot		0.04			0.08		c0.06	c0.27		0.03	0.23	
v/s Ratio Perm	c0.09		0.01	0.08					0.02			
v/c Ratio	0.58	0.26	0.08	0.53	0.53		0.54	0.48	0.04	0.77	0.48	
Uniform Delay, d1	21.4	20.3	19.7	21.2	21.2		22.8	7.2	5.4	26.1	9.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	4.8	0.5	0.1	2.4	1.8		2.7	0.8	0.1	41.2	0.7	
Delay (s)	26.2	20.8	19.8	23.6	23.0		25.5	8.1	5.5	67.3	10.2	
Level of Service	C	C	B	C	C		C	A	A	E	B	
Approach Delay (s)		22.3			23.3			9.6			12.5	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM 2000 Control Delay	13.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	54.6	Sum of lost time (s)	13.5
Intersection Capacity Utilization	57.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	157	601	203	163	282	55	127	858	114	89	939	100
Future Volume (vph)	157	601	203	163	282	55	127	858	114	89	939	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	4996		1770	5012	
Flt Permitted	0.56	1.00	1.00	0.23	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1036	3539	1583	428	3539	1583	1770	4996		1770	5012	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	171	653	221	177	307	60	138	933	124	97	1021	109
RTOR Reduction (vph)	0	0	141	0	0	45	0	23	0	0	18	0
Lane Group Flow (vph)	171	653	80	177	307	15	138	1034	0	97	1112	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	23.3	17.0	17.0	24.1	17.4	17.4	7.8	22.9		5.1	20.2	
Effective Green, g (s)	23.3	17.0	17.0	24.1	17.4	17.4	7.8	22.9		5.1	20.2	
Actuated g/C Ratio	0.33	0.24	0.24	0.35	0.25	0.25	0.11	0.33		0.07	0.29	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	412	863	386	276	883	395	198	1641		129	1452	
v/s Ratio Prot	0.04	c0.18		c0.06	0.09		c0.08	c0.21		0.05	c0.22	
v/s Ratio Perm	0.10		0.05	0.16		0.01						
v/c Ratio	0.42	0.76	0.21	0.64	0.35	0.04	0.70	0.63		0.75	0.77	
Uniform Delay, d1	17.1	24.4	21.0	17.2	21.5	19.8	29.8	19.8		31.7	22.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	3.8	0.3	5.0	0.2	0.0	10.2	1.8		21.6	3.9	
Delay (s)	17.8	28.3	21.2	22.2	21.7	19.8	40.0	21.7		53.3	26.5	
Level of Service	B	C	C	C	C	B	D	C		D	C	
Approach Delay (s)		25.1			21.7			23.8			28.6	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	25.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	69.7	Sum of lost time (s)	18.0
Intersection Capacity Utilization	68.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

ATTACHMENT B. FEIR Build Alternative with Model Updates Synchro Output Worksheets

Jacobs

Memorandum

2035 FEIR Build Alternative (with Model Updates) – AM Peak Hour

HCM Signalized Intersection Capacity Analysis
1: Barranca Ave & Bennett Ave

08/10/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	0	0	0	333	0	72	13	0	181	192	74	399
Future Volume (vph)	0	0	0	333	0	72	13	0	181	192	74	399
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5		4.5		4.5	4.5		4.5	4.5
Lane Util. Factor				0.97		1.00		1.00	0.95		1.00	0.95
Frt				1.00		0.85		1.00	0.92		1.00	1.00
Flt Protected				0.95		1.00		0.95	1.00		0.95	1.00
Satd. Flow (prot)				3433		1583		1770	3266		1770	3539
Flt Permitted				0.95		1.00		0.50	1.00		0.95	1.00
Satd. Flow (perm)				3433		1583		931	3266		1770	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	362	0	78	14	0	197	209	80	434
RTOR Reduction (vph)	0	0	0	0	0	48	0	0	154	0	0	0
Lane Group Flow (vph)	0	0	0	362	0	30	0	14	252	0	80	434
Turn Type				Prot		pm+ov	Prot	Perm	NA		Prot	NA
Protected Phases				8		1	5		2		1	6
Permitted Phases						8		2				
Actuated Green, G (s)				9.4		14.7		10.0	10.0		5.3	19.8
Effective Green, g (s)				9.4		14.7		10.0	10.0		5.3	19.8
Actuated g/C Ratio				0.25		0.38		0.26	0.26		0.14	0.52
Clearance Time (s)				4.5		4.5		4.5	4.5		4.5	4.5
Vehicle Extension (s)				3.0		3.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)				844		795		243	854		245	1834
v/s Ratio Prot				c0.11		0.01			0.08		0.05	c0.12
v/s Ratio Perm						0.01		0.02				
v/c Ratio				0.43		0.04		0.06	0.29		0.33	0.24
Uniform Delay, d1				12.1		7.3		10.6	11.3		14.8	5.1
Progression Factor				1.00		1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2				0.4		0.0		0.1	0.2		0.8	0.1
Delay (s)				12.5		7.4		10.7	11.5		15.6	5.1
Level of Service				B		A		B	B		B	A
Approach Delay (s)		0.0			11.6				11.4			6.8
Approach LOS		A			B				B			A

Intersection Summary			
HCM 2000 Control Delay	9.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	38.2	Sum of lost time (s)	13.5
Intersection Capacity Utilization	35.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	0
Future Volume (vph)	0
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	0
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	205	173	135	630	34	172	311	135	131	473	170
Future Volume (vph)	80	205	173	135	630	34	172	311	135	131	473	170
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.93		1.00	0.99		1.00	0.95		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3296		1770	3512		1770	3378		1770	3399	
Flt Permitted	0.25	1.00		0.48	1.00		0.36	1.00		0.48	1.00	
Satd. Flow (perm)	461	3296		903	3512		663	3378		886	3399	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	87	223	188	147	685	37	187	338	147	142	514	185
RTOR Reduction (vph)	0	130	0	0	7	0	0	68	0	0	35	0
Lane Group Flow (vph)	87	281	0	147	715	0	187	417	0	142	664	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	17.7	17.7		17.7	17.7		30.6	30.6		30.6	30.6	
Effective Green, g (s)	17.7	17.7		17.7	17.7		30.6	30.6		30.6	30.6	
Actuated g/C Ratio	0.31	0.31		0.31	0.31		0.53	0.53		0.53	0.53	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	142	1018		278	1084		354	1803		473	1815	
v/s Ratio Prot		0.09			c0.20			0.12			0.20	
v/s Ratio Perm	0.19			0.16			c0.28			0.16		
v/c Ratio	0.61	0.28		0.53	0.66		0.53	0.23		0.30	0.37	
Uniform Delay, d1	16.9	15.0		16.4	17.2		8.7	7.1		7.4	7.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	7.6	0.1		1.8	1.5		5.5	0.3		1.6	0.6	
Delay (s)	24.5	15.1		18.2	18.7		14.2	7.4		9.0	8.3	
Level of Service	C	B		B	B		B	A		A	A	
Approach Delay (s)		16.7			18.6			9.3			8.4	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM 2000 Control Delay	13.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	57.3	Sum of lost time (s)	9.0
Intersection Capacity Utilization	66.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	66	347	100	267	547	107	134	606	285	105	478	103
Future Volume (vph)	66	347	100	267	547	107	134	606	285	105	478	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3453		1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	1770	3453		1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	72	377	109	290	595	116	146	659	310	114	520	112
RTOR Reduction (vph)	0	0	88	0	21	0	0	0	83	0	0	73
Lane Group Flow (vph)	72	377	21	290	690	0	146	659	227	114	520	39
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2	3	1	6	7
Permitted Phases			4						2			6
Actuated Green, G (s)	6.4	14.9	14.9	15.2	23.7		8.4	22.2	37.4	6.4	20.2	26.6
Effective Green, g (s)	6.4	14.9	14.9	15.2	23.7		8.4	22.2	37.4	6.4	20.2	26.6
Actuated g/C Ratio	0.08	0.19	0.19	0.20	0.31		0.11	0.29	0.49	0.08	0.26	0.35
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	147	687	307	350	1066		193	1024	864	147	932	641
v/s Ratio Prot	0.04	0.11		c0.16	c0.20		c0.08	c0.19	0.05	0.06	0.15	0.01
v/s Ratio Perm			0.01						0.09			0.02
v/c Ratio	0.49	0.55	0.07	0.83	0.65		0.76	0.64	0.26	0.78	0.56	0.06
Uniform Delay, d1	33.6	27.9	25.2	29.5	22.9		33.2	23.8	11.5	34.4	24.4	16.7
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.6	0.9	0.1	14.8	1.4		15.5	3.1	0.2	22.1	2.4	0.0
Delay (s)	36.1	28.8	25.3	44.3	24.3		48.6	26.9	11.7	56.6	26.8	16.8
Level of Service	D	C	C	D	C		D	C	B	E	C	B
Approach Delay (s)		29.0			30.1			25.5			29.8	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	28.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	76.7	Sum of lost time (s)	18.0
Intersection Capacity Utilization	62.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Volume (vph)	127	57	75	32	29	241
Future Volume (vph)	127	57	75	32	29	241
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5	4.5
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frt	1.00	0.85	0.96		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1583	1788		1770	1863
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	1583	1788		1770	1863
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	138	62	82	35	32	262
RTOR Reduction (vph)	0	38	27	0	0	0
Lane Group Flow (vph)	138	24	90	0	32	262
Turn Type	Prot	pm+ov	NA		Prot	NA
Protected Phases	2	3	4		3	8
Permitted Phases		2				
Actuated Green, G (s)	10.3	13.7	8.1		3.4	16.0
Effective Green, g (s)	10.3	13.7	8.1		3.4	16.0
Actuated g/C Ratio	0.29	0.39	0.23		0.10	0.45
Clearance Time (s)	4.5	4.5	4.5		4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	516	816	410		170	844
v/s Ratio Prot	c0.08	0.00	0.05		0.02	c0.14
v/s Ratio Perm		0.01				
v/c Ratio	0.27	0.03	0.22		0.19	0.31
Uniform Delay, d1	9.6	6.7	11.0		14.7	6.1
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.3	0.0	0.3		0.5	0.2
Delay (s)	9.9	6.7	11.3		15.2	6.4
Level of Service	A	A	B		B	A
Approach Delay (s)	8.9		11.3			7.3
Approach LOS	A		B			A

Intersection Summary			
HCM 2000 Control Delay	8.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	35.3	Sum of lost time (s)	13.5
Intersection Capacity Utilization	27.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	51	510	37	10	1360	147	55	8	11	28	5	162
Future Volume (vph)	51	510	37	10	1360	147	55	8	11	28	5	162
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.5		4.0	4.5			4.5			4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frt	1.00	0.99		1.00	0.99			0.98			0.89	
Flt Protected	0.95	1.00		0.95	1.00			0.96			0.99	
Satd. Flow (prot)	1770	3503		1770	3487			1760			1641	
Flt Permitted	0.95	1.00		0.95	1.00			0.68			0.95	
Satd. Flow (perm)	1770	3503		1770	3487			1248			1575	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	55	554	40	11	1478	160	60	9	12	30	5	176
RTOR Reduction (vph)	0	6	0	0	10	0	0	7	0	0	112	0
Lane Group Flow (vph)	55	588	0	11	1628	0	0	74	0	0	99	0
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)	3.2	43.7		1.0	41.5			19.6			19.6	
Effective Green, g (s)	3.2	43.7		1.0	41.5			19.6			19.6	
Actuated g/C Ratio	0.04	0.57		0.01	0.54			0.25			0.25	
Clearance Time (s)	4.0	4.5		4.0	4.5			4.5			4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	73	1980		22	1872			316			399	
v/s Ratio Prot	c0.03	0.17		0.01	c0.47							
v/s Ratio Perm								0.06			c0.06	
v/c Ratio	0.75	0.30		0.50	0.87			0.23			0.25	
Uniform Delay, d1	36.7	8.8		37.9	15.6			22.9			23.0	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	35.0	0.1		16.8	4.6			1.7			1.5	
Delay (s)	71.6	8.9		54.7	20.2			24.6			24.5	
Level of Service	E	A		D	C			C			C	
Approach Delay (s)		14.2			20.4			24.6			24.5	
Approach LOS		B			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	19.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	77.3	Sum of lost time (s)	13.0
Intersection Capacity Utilization	65.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	348	87	70	818	76	61	53	33	34	109	69
Future Volume (vph)	23	348	87	70	818	76	61	53	33	34	109	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frt	1.00	0.97		1.00	0.99			0.97			0.96	
Flt Protected	0.95	1.00		0.95	1.00			0.98			0.99	
Satd. Flow (prot)	1770	3433		1770	3494			1770			1767	
Flt Permitted	0.19	1.00		0.47	1.00			0.82			0.94	
Satd. Flow (perm)	351	3433		873	3494			1476			1675	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	25	378	95	76	889	83	66	58	36	37	118	75
RTOR Reduction (vph)	0	42	0	0	13	0	0	16	0	0	27	0
Lane Group Flow (vph)	25	431	0	76	959	0	0	144	0	0	203	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	22.4	22.4		22.4	22.4			22.7			22.7	
Effective Green, g (s)	22.4	22.4		22.4	22.4			22.7			22.7	
Actuated g/C Ratio	0.41	0.41		0.41	0.41			0.42			0.42	
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	145	1421		361	1446			619			702	
v/s Ratio Prot		0.13			c0.27							
v/s Ratio Perm	0.07			0.09				0.10			c0.12	
v/c Ratio	0.17	0.30		0.21	0.66			0.23			0.29	
Uniform Delay, d1	10.0	10.6		10.2	12.8			10.1			10.4	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.6	0.1		0.3	1.2			0.9			1.0	
Delay (s)	10.6	10.7		10.5	14.0			11.0			11.4	
Level of Service	B	B		B	B			B			B	
Approach Delay (s)		10.7			13.7			11.0			11.4	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	12.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	54.1	Sum of lost time (s)	9.0
Intersection Capacity Utilization	58.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	28	333	73	157	696	60	189	185	34	57	193	64
Future Volume (vph)	28	333	73	157	696	60	189	185	34	57	193	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.97		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3444		1770	3497		1770	1863	1583	1770	1863	1583
Flt Permitted	0.24	1.00		0.32	1.00		0.49	1.00	1.00	0.63	1.00	1.00
Satd. Flow (perm)	441	3444		588	3497		906	1863	1583	1177	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	30	362	79	171	757	65	205	201	37	62	210	70
RTOR Reduction (vph)	0	28	0	0	9	0	0	0	24	0	0	49
Lane Group Flow (vph)	30	413	0	171	813	0	205	201	13	62	210	21
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	18.8	16.9		28.5	22.1		31.1	24.6	24.6	23.9	21.0	21.0
Effective Green, g (s)	18.8	16.9		28.5	22.1		31.1	24.6	24.6	23.9	21.0	21.0
Actuated g/C Ratio	0.27	0.24		0.41	0.32		0.45	0.35	0.35	0.34	0.30	0.30
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	155	837		361	1111		486	659	560	429	562	478
v/s Ratio Prot	0.01	0.12		c0.05	c0.23		c0.04	0.11		0.01	0.11	
v/s Ratio Perm	0.05			0.15			c0.15		0.01	0.04		0.01
v/c Ratio	0.19	0.49		0.47	0.73		0.42	0.31	0.02	0.14	0.37	0.04
Uniform Delay, d1	19.0	22.6		13.9	21.1		12.3	16.3	14.6	15.5	19.1	17.2
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.6	0.5		1.0	2.5		0.6	1.2	0.1	0.2	1.9	0.2
Delay (s)	19.6	23.1		14.9	23.6		12.9	17.5	14.7	15.7	21.0	17.3
Level of Service	B	C		B	C		B	B	B	B	C	B
Approach Delay (s)		22.9			22.1			15.1			19.3	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	20.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	69.5	Sum of lost time (s)	18.0
Intersection Capacity Utilization	60.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL2	SBL	SBR	NWL	NWR	NWR2
Lane Configurations												
Sign Control		Stop			Stop			Stop		Stop		
Traffic Volume (vph)	30	23	86	26	60	44	30	311	28	58	444	3
Future Volume (vph)	30	23	86	26	60	44	30	311	28	58	444	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	33	25	93	28	65	48	33	338	30	63	483	3

Direction, Lane #	EB 1	WB 1	SB 1	SB 2	NW 1	NW 2
Volume Total (vph)	151	141	202	199	305	245
Volume Left (vph)	33	28	33	0	63	0
Volume Right (vph)	93	48	0	30	0	3
Hadj (s)	-0.29	-0.13	0.12	-0.07	0.14	0.03
Departure Headway (s)	6.2	6.3	6.4	6.2	6.2	6.1
Degree Utilization, x	0.26	0.25	0.36	0.34	0.52	0.41
Capacity (veh/h)	528	511	539	556	557	574
Control Delay (s)	11.3	11.4	11.6	11.1	14.6	12.1
Approach Delay (s)	11.3	11.4	11.4		13.5	
Approach LOS	B	B	B		B	

Intersection Summary			
Delay	12.3		
Level of Service	B		
Intersection Capacity Utilization	Err%	ICU Level of Service	H
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	501	11	261	1181	250	136	571	365	109	346	56
Future Volume (vph)	40	501	11	261	1181	250	136	571	365	109	346	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3465	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3465	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	43	545	12	284	1284	272	148	621	397	118	376	61
RTOR Reduction (vph)	0	0	9	0	0	123	0	0	45	0	16	0
Lane Group Flow (vph)	43	545	3	284	1284	149	148	621	352	118	421	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases			4			8			2			
Actuated Green, G (s)	2.9	19.0	19.0	15.3	31.4	31.4	7.7	20.1	35.4	6.5	18.9	
Effective Green, g (s)	2.9	19.0	19.0	15.3	31.4	31.4	7.7	20.1	35.4	6.5	18.9	
Actuated g/C Ratio	0.04	0.24	0.24	0.19	0.40	0.40	0.10	0.25	0.45	0.08	0.24	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	65	852	381	343	1408	629	172	901	800	145	830	
v/s Ratio Prot	0.02	0.15		c0.16	c0.36		c0.08	c0.18	0.09	0.07	0.12	
v/s Ratio Perm			0.00			0.09			0.14			
v/c Ratio	0.66	0.64	0.01	0.83	0.91	0.24	0.86	0.69	0.44	0.81	0.51	
Uniform Delay, d1	37.5	26.9	22.8	30.5	22.4	15.8	35.1	26.6	14.9	35.6	26.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	22.5	1.6	0.0	15.1	9.2	0.2	32.9	4.3	0.4	28.2	2.2	
Delay (s)	60.0	28.5	22.8	45.6	31.6	16.0	67.9	30.9	15.3	63.8	28.2	
Level of Service	E	C	C	D	C	B	E	C	B	E	C	
Approach Delay (s)		30.6			31.5			30.3			35.8	
Approach LOS		C			C			C			D	

Intersection Summary			
HCM 2000 Control Delay	31.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	78.9	Sum of lost time (s)	18.0
Intersection Capacity Utilization	73.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	5	5	13	38	10	29	7	77	15	10	108	5
Future Volume (vph)	5	5	13	38	10	29	7	77	15	10	108	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	5	14	41	11	32	8	84	16	11	117	5

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	24	84	108	133
Volume Left (vph)	5	41	8	11
Volume Right (vph)	14	32	16	5
Hadj (s)	-0.27	-0.10	-0.04	0.03
Departure Headway (s)	4.3	4.4	4.2	4.3
Degree Utilization, x	0.03	0.10	0.13	0.16
Capacity (veh/h)	790	770	814	804
Control Delay (s)	7.4	7.9	7.9	8.1
Approach Delay (s)	7.4	7.9	7.9	8.1
Approach LOS	A	A	A	A

Intersection Summary			
Delay	7.9		
Level of Service	A		
Intersection Capacity Utilization	24.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	115	884	27	74	1576	34	46	22	57	45	24	90
Future Volume (vph)	115	884	27	74	1576	34	46	22	57	45	24	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Lane Util. Factor	1.00	0.95		0.91	0.91			1.00			1.00	
Frt	1.00	1.00		1.00	1.00			0.94			0.92	
Flt Protected	0.95	1.00		0.95	1.00			0.98			0.99	
Satd. Flow (prot)	1770	3524		1610	3379			1717			1696	
Flt Permitted	0.95	1.00		0.95	0.95			0.66			0.79	
Satd. Flow (perm)	1770	3524		1610	3213			1155			1366	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	125	961	29	80	1713	37	50	24	62	49	26	98
RTOR Reduction (vph)	0	1	0	0	1	0	0	20	0	0	32	0
Lane Group Flow (vph)	125	989	0	72	1757	0	0	116	0	0	141	0
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)	11.5	103.4		11.6	115.1			21.5			21.5	
Effective Green, g (s)	11.5	103.4		11.6	115.1			21.5			21.5	
Actuated g/C Ratio	0.08	0.69		0.08	0.77			0.14			0.14	
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	135	2429		124	2478			165			195	
v/s Ratio Prot	c0.07	0.28		0.04	0.05							
v/s Ratio Perm					c0.49			0.10			c0.10	
v/c Ratio	0.93	0.41		0.58	0.71			0.70			0.72	
Uniform Delay, d1	68.8	10.1		66.9	8.9			61.2			61.4	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	54.9	0.1		6.8	0.9			22.3			20.8	
Delay (s)	123.7	10.2		73.6	9.9			83.5			82.2	
Level of Service	F	B		E	A			F			F	
Approach Delay (s)		22.9			12.4			83.5			82.2	
Approach LOS		C			B			F			F	

Intersection Summary			
HCM 2000 Control Delay	22.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	91.4%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	27	0	0	11	73	0	0	0	129	0	6
Future Volume (Veh/h)	2	27	0	0	11	73	0	0	0	129	0	6
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	29	0	0	12	79	0	0	0	140	0	7
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								564				
pX, platoon unblocked												
vC, conflicting volume	368	284	4	298	287	0	7			0		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	368	284	4	298	287	0	7			0		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	95	100	100	98	93	100			91		
cM capacity (veh/h)	501	572	1080	588	569	1085	1614			1623		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	31	91	0	147
Volume Left	2	0	0	140
Volume Right	0	79	0	7
cSH	566	969	1700	1623
Volume to Capacity	0.05	0.09	0.00	0.09
Queue Length 95th (ft)	4	8	0	7
Control Delay (s)	11.7	9.1	0.0	7.1
Lane LOS	B	A		A
Approach Delay (s)	11.7	9.1	0.0	7.1
Approach LOS	B	A		

Intersection Summary			
Average Delay	8.3		
Intersection Capacity Utilization	19.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	906	7	24	1711	4	11	0	12	0	0	0
Future Volume (vph)	11	906	7	24	1711	4	11	0	12	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5				
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00				
Frt	1.00	1.00		1.00	1.00			0.93				
Flt Protected	0.95	1.00		0.95	1.00			0.98				
Satd. Flow (prot)	1770	3535		1770	3538			1691				
Flt Permitted	0.95	1.00		0.95	1.00			0.92				
Satd. Flow (perm)	1770	3535		1770	3538			1585				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	12	985	8	26	1860	4	12	0	13	0	0	0
RTOR Reduction (vph)	0	1	0	0	0	0	0	19	0	0	0	0
Lane Group Flow (vph)	12	992	0	26	1864	0	0	6	0	0	0	0
Turn Type	Prot	NA		Prot	NA		Perm	NA				
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)	0.9	42.4		2.1	43.6			18.0				
Effective Green, g (s)	0.9	42.4		2.1	43.6			18.0				
Actuated g/C Ratio	0.01	0.56		0.03	0.57			0.24				
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5				
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0				
Lane Grp Cap (vph)	20	1972		48	2029			375				
v/s Ratio Prot	0.01	0.28		c0.01	c0.53							
v/s Ratio Perm								c0.00				
v/c Ratio	0.60	0.50		0.54	0.92			0.02				
Uniform Delay, d1	37.4	10.3		36.5	14.6			22.2				
Progression Factor	1.00	1.00		1.00	1.00			1.00				
Incremental Delay, d2	40.2	0.2		11.9	7.2			0.1				
Delay (s)	77.5	10.5		48.4	21.8			22.3				
Level of Service	E	B		D	C			C				
Approach Delay (s)		11.3			22.1			22.3			0.0	
Approach LOS		B			C			C			A	

Intersection Summary			
HCM 2000 Control Delay	18.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	59.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	55	111	8	31	0	54	99	6	7	117	0
Future Volume (Veh/h)	1	55	111	8	31	0	54	99	6	7	117	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	60	121	9	34	0	59	108	7	8	127	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								560				
pX, platoon unblocked												
vC, conflicting volume	390	376	127	524	372	112	127			115		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	390	376	127	524	372	112	127			115		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	89	87	97	94	100	96			99		
cM capacity (veh/h)	523	530	923	356	532	942	1459			1474		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	182	43	174	135
Volume Left	1	9	59	8
Volume Right	121	0	7	0
cSH	739	482	1459	1474
Volume to Capacity	0.25	0.09	0.04	0.01
Queue Length 95th (ft)	24	7	3	0
Control Delay (s)	11.5	13.2	2.8	0.5
Lane LOS	B	B	A	A
Approach Delay (s)	11.5	13.2	2.8	0.5
Approach LOS	B	B		

Intersection Summary			
Average Delay	6.0		
Intersection Capacity Utilization	31.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	93	763	24	23	1587	52	24	5	13	98	7	130
Future Volume (vph)	93	763	24	23	1587	52	24	5	13	98	7	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frt	1.00	1.00		1.00	1.00			0.96			0.93	
Flt Protected	0.95	1.00		0.95	1.00			0.97			0.98	
Satd. Flow (prot)	1770	3523		1770	3522			1734			1689	
Flt Permitted	0.95	1.00		0.95	1.00			0.79			0.84	
Satd. Flow (perm)	1770	3523		1770	3522			1406			1455	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	101	829	26	25	1725	57	26	5	14	107	8	141
RTOR Reduction (vph)	0	2	0	0	3	0	0	11	0	0	49	0
Lane Group Flow (vph)	101	853	0	25	1779	0	0	34	0	0	207	0
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)	5.8	52.7		2.1	49.0			20.7			20.7	
Effective Green, g (s)	5.8	52.7		2.1	49.0			20.7			20.7	
Actuated g/C Ratio	0.07	0.59		0.02	0.55			0.23			0.23	
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	115	2086		41	1939			327			338	
v/s Ratio Prot	c0.06	c0.24		0.01	c0.51							
v/s Ratio Perm								0.02			c0.14	
v/c Ratio	0.88	0.41		0.61	0.92			0.10			0.61	
Uniform Delay, d1	41.2	9.8		43.0	18.2			26.9			30.6	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	47.8	0.1		23.0	7.4			0.6			8.0	
Delay (s)	89.0	9.9		66.1	25.6			27.5			38.6	
Level of Service	F	A		E	C			C			D	
Approach Delay (s)		18.3			26.1			27.5			38.6	
Approach LOS		B			C			C			D	

Intersection Summary			
HCM 2000 Control Delay	24.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	89.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	77.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	5	64	12	25	10	29	324	3	7	565	2
Future Volume (Veh/h)	13	5	64	12	25	10	29	324	3	7	565	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	14	5	70	13	27	11	32	352	3	8	614	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								542				
pX, platoon unblocked												
vC, conflicting volume	896	1050	308	813	1050	178	616			355		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	896	1050	308	813	1050	178	616			355		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	93	98	90	94	88	99	97			99		
cM capacity (veh/h)	204	217	688	231	217	835	960			1200		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	89	51	208	179	315	309
Volume Left	14	13	32	0	8	0
Volume Right	70	11	0	3	0	2
cSH	460	263	960	1700	1200	1700
Volume to Capacity	0.19	0.19	0.03	0.11	0.01	0.18
Queue Length 95th (ft)	18	18	3	0	1	0
Control Delay (s)	14.7	21.9	1.6	0.0	0.3	0.0
Lane LOS	B	C	A		A	
Approach Delay (s)	14.7	21.9	0.9		0.1	
Approach LOS	B	C				

Intersection Summary			
Average Delay	2.5		
Intersection Capacity Utilization	41.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	124	799	1372	206	422	187
Future Volume (vph)	124	799	1372	206	422	187
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5	4.5
Lane Util. Factor	1.00	0.95	0.95		0.97	1.00
Frt	1.00	1.00	0.98		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3470		3433	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3470		3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	135	868	1491	224	459	203
RTOR Reduction (vph)	0	0	13	0	0	157
Lane Group Flow (vph)	135	868	1702	0	459	46
Turn Type	Prot	NA	NA		Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	9.2	61.0	47.3		19.5	19.5
Effective Green, g (s)	9.2	61.0	47.3		19.5	19.5
Actuated g/C Ratio	0.10	0.68	0.53		0.22	0.22
Clearance Time (s)	4.5	4.5	4.5		4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	181	2412	1833		747	344
v/s Ratio Prot	c0.08	0.25	c0.49		c0.13	
v/s Ratio Perm						0.03
v/c Ratio	0.75	0.36	0.93		0.61	0.13
Uniform Delay, d1	39.0	6.0	19.5		31.6	28.2
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	15.3	0.1	8.7		3.8	0.8
Delay (s)	54.4	6.1	28.3		35.4	29.0
Level of Service	D	A	C		D	C
Approach Delay (s)		12.6	28.3		33.4	
Approach LOS		B	C		C	

Intersection Summary			
HCM 2000 Control Delay	24.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	89.5	Sum of lost time (s)	13.5
Intersection Capacity Utilization	74.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	354	404	553	214	723	978
Future Volume (vph)	354	404	553	214	723	978
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5	4.5
Lane Util. Factor	0.97	1.00	0.91		0.97	0.95
Frt	1.00	0.85	0.96		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	3090	1425	4385		3090	3185
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	3090	1425	4385		3090	3185
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	385	439	601	233	786	1063
RTOR Reduction (vph)	0	23	97	0	0	0
Lane Group Flow (vph)	385	416	737	0	786	1063
Turn Type	Prot	pm+ov	NA		Prot	NA
Protected Phases	8	1	2		1	6
Permitted Phases		8				
Actuated Green, G (s)	13.2	33.7	18.1		20.5	43.1
Effective Green, g (s)	13.2	33.7	18.1		20.5	43.1
Actuated g/C Ratio	0.20	0.52	0.28		0.31	0.66
Clearance Time (s)	4.5	4.5	4.5		4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	624	833	1215		970	2102
v/s Ratio Prot	c0.12	0.16	c0.17		c0.25	0.33
v/s Ratio Perm		0.14				
v/c Ratio	0.62	0.50	0.61		0.81	0.51
Uniform Delay, d1	23.7	10.3	20.5		20.6	5.7
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	1.8	0.5	2.3		7.3	0.9
Delay (s)	25.6	10.8	22.8		27.9	6.5
Level of Service	C	B	C		C	A
Approach Delay (s)	17.7		22.8			15.6
Approach LOS	B		C			B

Intersection Summary			
HCM 2000 Control Delay	17.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	65.3	Sum of lost time (s)	13.5
Intersection Capacity Utilization	62.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	207	98	208	466	37	112
Future Volume (Veh/h)	207	98	208	466	37	112
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	225	107	226	507	40	122
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						1
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			332		1238	278
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			332		1238	278
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			82		75	84
cM capacity (veh/h)			1227		158	760

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	332	733	162
Volume Left	0	226	40
Volume Right	107	0	122
cSH	1700	1227	641
Volume to Capacity	0.20	0.18	0.25
Queue Length 95th (ft)	0	17	25
Control Delay (s)	0.0	4.2	16.7
Lane LOS		A	C
Approach Delay (s)	0.0	4.2	16.7
Approach LOS			C

Intersection Summary			
Average Delay	4.7		
Intersection Capacity Utilization	66.2%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	9	285	41	86	494	1	129	8	36	7	11	9
Future Volume (vph)	9	285	41	86	494	1	129	8	36	7	11	9
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	10	310	45	93	537	1	140	9	39	8	12	10

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	SB 1
Volume Total (vph)	365	630	1	149	39	30
Volume Left (vph)	10	93	0	140	0	8
Volume Right (vph)	45	0	1	0	39	10
Hadj (s)	-0.03	0.11	-0.67	0.50	-0.67	-0.11
Departure Headway (s)	6.2	6.0	5.2	7.7	6.6	7.7
Degree Utilization, x	0.63	1.04	0.00	0.32	0.07	0.06
Capacity (veh/h)	565	598	679	451	525	428
Control Delay (s)	19.2	71.1	7.0	13.1	8.9	11.2
Approach Delay (s)	19.2	71.0		12.2		11.2
Approach LOS	C	F		B		B

Intersection Summary			
Delay	44.9		
Level of Service	E		
Intersection Capacity Utilization	73.0%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	226	2	82	6	0	2	47	503	6	38	802	397
Future Volume (vph)	226	2	82	6	0	2	47	503	6	38	802	397
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5		4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	0.95	0.95	0.88		1.00		0.97	0.91		1.00	0.95	1.00
Frt	1.00	1.00	0.85		0.97		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	0.95	1.00		0.96		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1687	2787		1739		3433	5076		1770	3539	1583
Flt Permitted	0.95	0.95	1.00		0.96		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1681	1687	2787		1739		3433	5076		1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	246	2	89	7	0	2	51	547	7	41	872	432
RTOR Reduction (vph)	0	0	74	0	9	0	0	1	0	0	0	236
Lane Group Flow (vph)	123	125	15	0	0	0	51	553	0	41	872	196
Turn Type	Split	NA	Perm	Split	NA		Prot	NA		Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4									6
Actuated Green, G (s)	9.3	9.3	9.3		0.8		1.7	24.3		2.1	24.7	24.7
Effective Green, g (s)	9.3	9.3	9.3		0.8		1.7	24.3		2.1	24.7	24.7
Actuated g/C Ratio	0.17	0.17	0.17		0.01		0.03	0.45		0.04	0.45	0.45
Clearance Time (s)	4.5	4.5	4.5		4.5		4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	286	287	475		25		107	2263		68	1603	717
v/s Ratio Prot	0.07	c0.07			c0.00		0.01	0.11		c0.02	c0.25	
v/s Ratio Perm			0.01									0.12
v/c Ratio	0.43	0.44	0.03		0.01		0.48	0.24		0.60	0.54	0.27
Uniform Delay, d1	20.2	20.2	18.8		26.5		26.0	9.4		25.8	10.8	9.3
Progression Factor	1.00	1.00	1.00		1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.0	1.1	0.0		0.1		3.3	0.3		14.2	1.3	0.9
Delay (s)	21.3	21.3	18.9		26.5		29.3	9.6		39.9	12.1	10.2
Level of Service	C	C	B		C		C	A		D	B	B
Approach Delay (s)		20.7			26.5			11.3			12.4	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	13.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	54.5	Sum of lost time (s)	18.0
Intersection Capacity Utilization	45.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	34	0	480	753	30
Future Volume (Veh/h)	0	34	0	480	753	30
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	37	0	522	818	33
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				1038	287	
pX, platoon unblocked	0.96	0.96	0.96			
vC, conflicting volume	1096	426	851			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1026	331	772			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	94	100			
cM capacity (veh/h)	223	641	809			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	37	261	261	545	306
Volume Left	0	0	0	0	0
Volume Right	37	0	0	0	33
cSH	641	1700	1700	1700	1700
Volume to Capacity	0.06	0.15	0.15	0.32	0.18
Queue Length 95th (ft)	5	0	0	0	0
Control Delay (s)	11.0	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	11.0	0.0		0.0	
Approach LOS	B				

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	31.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	24	33	0	972	92	16	735
Future Volume (vph)	24	33	0	972	92	16	735
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5			4.5		4.5	4.5
Lane Util. Factor	1.00			0.91		1.00	0.91
Frt	0.92			0.99		1.00	1.00
Flt Protected	0.98			1.00		0.95	1.00
Satd. Flow (prot)	1681			5019		1770	5085
Flt Permitted	0.98			1.00		0.95	1.00
Satd. Flow (perm)	1681			5019		1770	5085
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	26	36	0	1057	100	17	799
RTOR Reduction (vph)	33	0	0	11	0	0	0
Lane Group Flow (vph)	29	0	0	1146	0	17	799
Turn Type	Prot		Prot	NA		Prot	NA
Protected Phases	8		5	2		1	6
Permitted Phases							
Actuated Green, G (s)	4.1			34.1		1.0	39.6
Effective Green, g (s)	4.1			34.1		1.0	39.6
Actuated g/C Ratio	0.08			0.65		0.02	0.75
Clearance Time (s)	4.5			4.5		4.5	4.5
Vehicle Extension (s)	3.0			3.0		3.0	3.0
Lane Grp Cap (vph)	130			3247		33	3820
v/s Ratio Prot	c0.02			c0.23		0.01	c0.16
v/s Ratio Perm							
v/c Ratio	0.22			0.35		0.52	0.21
Uniform Delay, d1	22.8			4.3		25.6	1.9
Progression Factor	1.00			1.00		1.00	1.00
Incremental Delay, d2	0.9			0.3		12.9	0.1
Delay (s)	23.7			4.6		38.5	2.1
Level of Service	C			A		D	A
Approach Delay (s)	23.7			4.6			2.8
Approach LOS	C			A			A

Intersection Summary			
HCM 2000 Control Delay	4.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	52.7	Sum of lost time (s)	13.5
Intersection Capacity Utilization	32.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	84	327	156	316	867	200	210	851	236	96	705	84
Future Volume (vph)	84	327	156	316	867	200	210	851	236	96	705	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	3433	3440		1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	3433	3440		1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	91	355	170	343	942	217	228	925	257	104	766	91
RTOR Reduction (vph)	0	0	127	0	22	0	0	0	173	0	0	68
Lane Group Flow (vph)	91	355	43	343	1137	0	228	925	84	104	766	23
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4						2			6
Actuated Green, G (s)	5.7	22.8	22.8	13.4	30.5		12.9	29.3	29.3	6.5	22.9	22.9
Effective Green, g (s)	5.7	22.8	22.8	13.4	30.5		12.9	29.3	29.3	6.5	22.9	22.9
Actuated g/C Ratio	0.06	0.25	0.25	0.15	0.34		0.14	0.33	0.33	0.07	0.25	0.25
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	112	896	401	511	1165		253	1152	515	127	900	402
v/s Ratio Prot	0.05	0.10		c0.10	c0.33		c0.13	c0.26		0.06	0.22	
v/s Ratio Perm			0.03						0.05			0.01
v/c Ratio	0.81	0.40	0.11	0.67	0.98		0.90	0.80	0.16	0.82	0.85	0.06
Uniform Delay, d1	41.6	27.9	25.8	36.2	29.4		37.9	27.7	21.6	41.2	31.9	25.4
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	34.4	0.3	0.1	3.5	20.6		31.8	6.0	0.7	32.0	10.0	0.3
Delay (s)	76.0	28.2	25.9	39.7	50.0		69.7	33.7	22.3	73.2	41.9	25.7
Level of Service	E	C	C	D	D		E	C	C	E	D	C
Approach Delay (s)		34.6			47.6			37.4			43.7	
Approach LOS		C			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	41.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	81.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	3	15	6	7	8	10	110	8	7	240	4
Future Volume (Veh/h)	11	3	15	6	7	8	10	110	8	7	240	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	3	16	7	8	9	11	120	9	8	261	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								606			647	
pX, platoon unblocked												
vC, conflicting volume	438	430	263	443	428	124	265			129		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	438	430	263	443	428	124	265			129		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	99	98	99	98	99	99			99		
cM capacity (veh/h)	512	511	776	506	512	926	1299			1457		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	31	24	140	273
Volume Left	12	7	11	8
Volume Right	16	9	9	4
cSH	621	613	1299	1457
Volume to Capacity	0.05	0.04	0.01	0.01
Queue Length 95th (ft)	4	3	1	0
Control Delay (s)	11.1	11.1	0.7	0.3
Lane LOS	B	B	A	A
Approach Delay (s)	11.1	11.1	0.7	0.3
Approach LOS	B	B		

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	24.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	5	11	16	7	20	20	454	5	6	394	5
Future Volume (Veh/h)	5	5	11	16	7	20	20	454	5	6	394	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	5	12	17	8	22	22	493	5	7	428	5
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											650	
pX, platoon unblocked	0.91	0.91	0.91	0.91	0.91		0.91					
vC, conflicting volume	761	986	430	998	986	249	433			498		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	689	936	326	949	936	249	329			498		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	98	98	91	97	97	98			99		
cM capacity (veh/h)	280	234	610	185	234	751	1118			1062		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	22	47	268	252	440
Volume Left	5	17	22	0	7
Volume Right	12	22	0	5	5
cSH	374	302	1118	1700	1062
Volume to Capacity	0.06	0.16	0.02	0.15	0.01
Queue Length 95th (ft)	5	14	2	0	0
Control Delay (s)	15.2	19.1	0.9	0.0	0.2
Lane LOS	C	C	A		A
Approach Delay (s)	15.2	19.1	0.4		0.2
Approach LOS	C	C			

Intersection Summary				
Average Delay	1.5			
Intersection Capacity Utilization	36.5%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	22	12	471	10	0	426
Future Volume (Veh/h)	22	12	471	10	0	426
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	24	13	512	11	0	463
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			None
Median storage veh)			2			
Upstream signal (ft)			430			
pX, platoon unblocked						
vC, conflicting volume	749	262			523	
vC1, stage 1 conf vol	518					
vC2, stage 2 conf vol	232					
vCu, unblocked vol	749	262			523	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	95	98			100	
cM capacity (veh/h)	520	737			1040	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	37	341	182	232	232
Volume Left	24	0	0	0	0
Volume Right	13	0	11	0	0
cSH	580	1700	1700	1700	1700
Volume to Capacity	0.06	0.20	0.11	0.14	0.14
Queue Length 95th (ft)	5	0	0	0	0
Control Delay (s)	11.6	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	11.6	0.0		0.0	
Approach LOS	B				

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	23.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	SEL	SET	NWT	NWR
Lane Configurations						
Traffic Volume (veh/h)	125	10	3	313	314	0
Future Volume (Veh/h)	125	10	3	313	314	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	136	11	3	340	341	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	517	170	341			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	517	170	341			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	72	99	100			
cM capacity (veh/h)	487	844	1215			

Direction, Lane #	WB 1	WB 2	SE 1	SE 2	SE 3	NW 1	NW 2
Volume Total	136	11	3	170	170	170	170
Volume Left	136	0	3	0	0	0	0
Volume Right	0	11	0	0	0	0	0
cSH	487	844	1215	1700	1700	1700	1700
Volume to Capacity	0.28	0.01	0.00	0.10	0.10	0.10	0.10
Queue Length 95th (ft)	28	1	0	0	0	0	0
Control Delay (s)	15.2	9.3	8.0	0.0	0.0	0.0	0.0
Lane LOS	C	A	A				
Approach Delay (s)	14.8		0.1			0.0	
Approach LOS	B						

Intersection Summary			
Average Delay	2.6		
Intersection Capacity Utilization	22.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	1	0	35	8	3	0	127	14	5	90	2
Future Volume (Veh/h)	2	1	0	35	8	3	0	127	14	5	90	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	1	0	38	9	3	0	138	15	5	98	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	262	262	99	255	256	146	100			153		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	262	262	99	255	256	146	100			153		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	95	99	100	100			100		
cM capacity (veh/h)	679	641	957	695	646	902	1493			1428		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	3	50	153	105
Volume Left	2	38	0	5
Volume Right	0	3	15	2
cSH	666	695	1700	1428
Volume to Capacity	0.00	0.07	0.09	0.00
Queue Length 95th (ft)	0	6	0	0
Control Delay (s)	10.4	10.6	0.0	0.4
Lane LOS	B	B		A
Approach Delay (s)	10.4	10.6	0.0	0.4
Approach LOS	B	B		

Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	19.0%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	4.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	553	47	69	798	40	93
Future Vol, veh/h	553	47	69	798	40	93
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	601	51	75	867	43	101

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	652	0	1644	627
Stage 1	-	-	-	-	627	-
Stage 2	-	-	-	-	1017	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	935	-	110	484
Stage 1	-	-	-	-	532	-
Stage 2	-	-	-	-	349	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	935	-	93	484
Mov Cap-2 Maneuver	-	-	-	-	93	-
Stage 1	-	-	-	-	450	-
Stage 2	-	-	-	-	349	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	51
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	214	-	-	935	-
HCM Lane V/C Ratio	0.676	-	-	0.08	-
HCM Control Delay (s)	51	-	-	9.2	0
HCM Lane LOS	F	-	-	A	A
HCM 95th %tile Q(veh)	4.2	-	-	0.3	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	599	16	20	813	15	25	27	28	6	23	35
Future Volume (vph)	30	599	16	20	813	15	25	27	28	6	23	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		1.00			1.00			0.95			0.93	
Flt Protected		1.00			1.00			0.98			1.00	
Satd. Flow (prot)		1852			1856			1748			1718	
Flt Permitted		0.94			0.98			0.88			0.96	
Satd. Flow (perm)		1751			1822			1555			1663	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	33	651	17	22	884	16	27	29	30	7	25	38
RTOR Reduction (vph)	0	1	0	0	1	0	0	25	0	0	32	0
Lane Group Flow (vph)	0	700	0	0	921	0	0	61	0	0	38	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		30.4			30.4			7.7			7.7	
Effective Green, g (s)		30.4			30.4			7.7			7.7	
Actuated g/C Ratio		0.65			0.65			0.16			0.16	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		1130			1175			254			271	
v/s Ratio Prot												
v/s Ratio Perm		0.40			c0.51			c0.04			0.02	
v/c Ratio		0.62			0.78			0.24			0.14	
Uniform Delay, d1		4.9			6.0			17.2			16.9	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.0			3.5			0.5			0.2	
Delay (s)		6.0			9.5			17.6			17.1	
Level of Service		A			A			B			B	
Approach Delay (s)		6.0			9.5			17.6			17.1	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM 2000 Control Delay	8.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	47.1	Sum of lost time (s)	9.0
Intersection Capacity Utilization	68.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
23: Lone Hill Ave & Gladstone St

08/10/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	169	180	148	144	440	69	144	299	104	121	490	316
Future Volume (vph)	169	180	148	144	440	69	144	299	104	121	490	316
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	0.97	0.95		1.00	0.95		0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	0.93		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3300		1770	3467		3433	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3300		1770	3467		3433	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	184	196	161	157	478	75	157	325	113	132	533	343
RTOR Reduction (vph)	0	126	0	0	19	0	0	0	78	0	0	240
Lane Group Flow (vph)	184	231	0	157	534	0	157	325	35	132	533	103
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Actuated Green, G (s)	7.7	14.2		9.0	15.5		4.2	19.8	19.8	3.8	19.4	19.4
Effective Green, g (s)	7.7	14.2		9.0	15.5		4.2	19.8	19.8	3.8	19.4	19.4
Actuated g/C Ratio	0.12	0.22		0.14	0.24		0.06	0.31	0.31	0.06	0.30	0.30
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	407	723		245	829		222	1081	483	201	1059	473
v/s Ratio Prot	0.05	0.07		c0.09	c0.15		c0.05	0.09		0.04	c0.15	
v/s Ratio Perm									0.02			0.06
v/c Ratio	0.45	0.32		0.64	0.64		0.71	0.30	0.07	0.66	0.50	0.22
Uniform Delay, d1	26.6	21.2		26.4	22.2		29.7	17.2	16.0	29.9	18.7	17.0
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.8	0.3		5.6	1.7		9.8	0.7	0.3	7.5	1.7	1.1
Delay (s)	27.4	21.5		32.0	23.9		39.5	17.9	16.3	37.4	20.4	18.1
Level of Service	C	C		C	C		D	B	B	D	C	B
Approach Delay (s)		23.5			25.7			23.3			21.8	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	23.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	64.8	Sum of lost time (s)	18.0
Intersection Capacity Utilization	51.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	871	41	173	838	369	17	0	19	174	62	211
Future Volume (vph)	0	871	41	173	838	369	17	0	19	174	62	211
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5		4.5	4.5		4.5		4.5	4.5	4.5	4.5
Lane Util. Factor		0.91		1.00	0.91		0.97		1.00	0.95	0.95	1.00
Frt		0.99		1.00	0.95		1.00		0.85	1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00		0.95		1.00	0.95	0.98	1.00
Satd. Flow (prot)		5051		1770	4852		3433		1583	1681	1728	1583
Flt Permitted		1.00		0.95	1.00		0.22		1.00	0.95	0.98	1.00
Satd. Flow (perm)		5051		1770	4852		777		1583	1681	1728	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	947	45	188	911	401	18	0	21	189	67	229
RTOR Reduction (vph)	0	6	0	0	95	0	0	0	16	0	0	193
Lane Group Flow (vph)	0	986	0	188	1217	0	18	0	5	127	129	36
Turn Type		NA		Prot	NA		Perm		Perm	Split	NA	Perm
Protected Phases		4		3	8					6	6	
Permitted Phases							2		2			6
Actuated Green, G (s)		17.8		7.5	29.8		18.6		18.6	11.6	11.6	11.6
Effective Green, g (s)		17.8		7.5	29.8		18.6		18.6	11.6	11.6	11.6
Actuated g/C Ratio		0.24		0.10	0.41		0.25		0.25	0.16	0.16	0.16
Clearance Time (s)		4.5		4.5	4.5		4.5		4.5	4.5	4.5	4.5
Vehicle Extension (s)		3.0		3.0	3.0		3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		1223		180	1967		196		400	265	272	249
v/s Ratio Prot		c0.20		c0.11	0.25					c0.08	0.07	
v/s Ratio Perm							c0.02		0.00			0.02
v/c Ratio		0.81		1.04	0.62		0.09		0.01	0.48	0.47	0.15
Uniform Delay, d1		26.2		33.0	17.3		21.0		20.6	28.2	28.2	26.7
Progression Factor		1.00		1.00	1.00		1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2		4.0		79.3	0.6		0.9		0.1	1.4	1.3	0.3
Delay (s)		30.2		112.3	17.9		21.9		20.6	29.6	29.5	26.9
Level of Service		C		F	B		C		C	C	C	C
Approach Delay (s)		30.2			29.8			21.2			28.3	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	29.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	73.5	Sum of lost time (s)	18.0
Intersection Capacity Utilization	51.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	160	320	463	199	678	41	647	196	181	122	122	294
Future Volume (vph)	160	320	463	199	678	41	647	196	181	122	122	294
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5		4.5	4.5	4.5
Lane Util. Factor	0.97	0.91		1.00	0.91			0.95		1.00	0.95	1.00
Frt	1.00	0.91		1.00	0.99			0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.97		0.95	1.00	1.00
Satd. Flow (prot)	3433	4634		1770	5041			3340		1770	3539	1583
Flt Permitted	0.95	1.00		0.95	1.00			0.97		0.95	1.00	1.00
Satd. Flow (perm)	3433	4634		1770	5041			3340		1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	174	348	503	216	737	45	703	213	197	133	133	320
RTOR Reduction (vph)	0	265	0	0	7	0	0	18	0	0	0	153
Lane Group Flow (vph)	174	586	0	216	775	0	0	1095	0	133	133	167
Turn Type	Prot	NA		Prot	NA		Split	NA		Split	NA	Perm
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases												6
Actuated Green, G (s)	7.6	16.4		13.2	22.0			33.0		14.0	14.0	14.0
Effective Green, g (s)	7.6	16.4		13.2	22.0			33.0		14.0	14.0	14.0
Actuated g/C Ratio	0.08	0.17		0.14	0.23			0.35		0.15	0.15	0.15
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5		4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	275	803		246	1172			1165		261	523	234
v/s Ratio Prot	0.05	0.13		c0.12	c0.15			c0.33		0.08	0.04	
v/s Ratio Perm												c0.11
v/c Ratio	0.63	0.93dr		0.88	0.66			1.11dl		0.51	0.25	0.71
Uniform Delay, d1	42.1	37.0		39.9	32.9			29.8		37.1	35.7	38.4
Progression Factor	1.00	1.00		1.00	1.00			1.00		1.00	1.00	1.00
Incremental Delay, d2	4.7	3.4		27.7	1.4			15.4		1.6	0.3	9.8
Delay (s)	46.8	40.4		67.6	34.3			45.3		38.7	35.9	48.2
Level of Service	D	D		E	C			D		D	D	D
Approach Delay (s)		41.5			41.5			45.3			43.3	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	42.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	94.6	Sum of lost time (s)	18.0
Intersection Capacity Utilization	85.2%	ICU Level of Service	E
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	0	45	64	22	57	1	42	42	12	0	4	2
Future Volume (vph)	0	45	64	22	57	1	42	42	12	0	4	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	49	70	24	62	1	46	46	13	0	4	2

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	119	87	105	6
Volume Left (vph)	0	24	46	0
Volume Right (vph)	70	1	13	2
Hadj (s)	-0.32	0.08	0.05	-0.17
Departure Headway (s)	3.9	4.4	4.4	4.3
Degree Utilization, x	0.13	0.11	0.13	0.01
Capacity (veh/h)	884	799	778	779
Control Delay (s)	7.5	7.9	8.0	7.3
Approach Delay (s)	7.5	7.9	8.0	7.3
Approach LOS	A	A	A	A

Intersection Summary			
Delay	7.8		
Level of Service	A		
Intersection Capacity Utilization	29.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	11	1	63	8	8	138
Future Volume (Veh/h)	11	1	63	8	8	138
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	1	68	9	9	150
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			749			
pX, platoon unblocked						
vC, conflicting volume	240	72			77	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	240	72			77	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	100			99	
cM capacity (veh/h)	743	990			1522	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	13	77	159
Volume Left	12	0	9
Volume Right	1	9	0
cSH	758	1700	1522
Volume to Capacity	0.02	0.05	0.01
Queue Length 95th (ft)	1	0	0
Control Delay (s)	9.8	0.0	0.5
Lane LOS	A		A
Approach Delay (s)	9.8	0.0	0.5
Approach LOS	A		

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	23.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	36	340	16	76	412	11	14	18	23	16	59	79
Future Volume (vph)	36	340	16	76	412	11	14	18	23	16	59	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frt	1.00	0.99		1.00	1.00			0.94			0.93	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1770	3516		1770	3525			1736			1724	
Flt Permitted	0.45	1.00		0.52	1.00			0.94			0.98	
Satd. Flow (perm)	842	3516		974	3525			1651			1697	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	39	370	17	83	448	12	15	20	25	17	64	86
RTOR Reduction (vph)	0	7	0	0	4	0	0	11	0	0	39	0
Lane Group Flow (vph)	39	380	0	83	456	0	0	49	0	0	128	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	12.1	12.1		12.1	12.1			25.6			25.6	
Effective Green, g (s)	12.1	12.1		12.1	12.1			25.6			25.6	
Actuated g/C Ratio	0.26	0.26		0.26	0.26			0.55			0.55	
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	218	910		252	913			905			930	
v/s Ratio Prot		0.11			c0.13							
v/s Ratio Perm	0.05			0.09				0.03			c0.08	
v/c Ratio	0.18	0.42		0.33	0.50			0.05			0.14	
Uniform Delay, d1	13.4	14.4		14.0	14.7			4.9			5.2	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.4	0.3		0.8	0.4			0.1			0.3	
Delay (s)	13.8	14.7		14.8	15.2			5.0			5.5	
Level of Service	B	B		B	B			A			A	
Approach Delay (s)		14.6			15.1			5.0			5.5	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM 2000 Control Delay	13.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.25		
Actuated Cycle Length (s)	46.7	Sum of lost time (s)	9.0
Intersection Capacity Utilization	36.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	469	92	342	766	12	16	43	185	24	118	5
Future Volume (vph)	1	469	92	342	766	12	16	43	185	24	118	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.98		1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	4960		1770	5074		1770	1863	1583	1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.67	1.00	1.00	0.73	1.00	1.00
Satd. Flow (perm)	1770	4960		1770	5074		1257	1863	1583	1353	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1	510	100	372	833	13	17	47	201	26	128	5
RTOR Reduction (vph)	0	41	0	0	2	0	0	0	145	0	0	4
Lane Group Flow (vph)	1	569	0	372	844	0	17	47	56	26	128	1
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2		2	6		6
Actuated Green, G (s)	0.9	17.1		17.0	33.2		18.2	18.2	18.2	18.2	18.2	18.2
Effective Green, g (s)	0.9	17.1		17.0	33.2		18.2	18.2	18.2	18.2	18.2	18.2
Actuated g/C Ratio	0.01	0.26		0.26	0.50		0.28	0.28	0.28	0.28	0.28	0.28
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	24	1288		457	2560		347	515	437	374	515	437
v/s Ratio Prot	0.00	c0.11		c0.21	0.17			0.03			c0.07	
v/s Ratio Perm							0.01		0.04	0.02		0.00
v/c Ratio	0.04	0.44		0.81	0.33		0.05	0.09	0.13	0.07	0.25	0.00
Uniform Delay, d1	32.0	20.4		22.9	9.7		17.5	17.7	17.8	17.6	18.5	17.2
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	0.2		10.6	0.1		0.3	0.4	0.6	0.4	1.2	0.0
Delay (s)	32.7	20.6		33.6	9.8		17.7	18.0	18.4	17.9	19.6	17.2
Level of Service	C	C		C	A		B	B	B	B	B	B
Approach Delay (s)		20.6			17.0			18.3			19.3	
Approach LOS		C			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	18.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	65.8	Sum of lost time (s)	13.5
Intersection Capacity Utilization	49.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	51	6	9	66	12	4
Future Volume (Veh/h)	51	6	9	66	12	4
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	55	7	10	72	13	4
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			62		150	58
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			62		150	58
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		98	100
cM capacity (veh/h)			1541		836	1007

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	62	82	17
Volume Left	0	10	13
Volume Right	7	0	4
cSH	1700	1541	871
Volume to Capacity	0.04	0.01	0.02
Queue Length 95th (ft)	0	0	1
Control Delay (s)	0.0	0.9	9.2
Lane LOS		A	A
Approach Delay (s)	0.0	0.9	9.2
Approach LOS			A

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	20.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	15	5	4	14	2	2	2	0	5	1	5
Future Volume (Veh/h)	0	15	5	4	14	2	2	2	0	5	1	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	16	5	4	15	2	2	2	0	5	1	5
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	29	20	4	32	22	2	6			2		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	29	20	4	32	22	2	6			2		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	98	100	100	98	100	100			100		
cM capacity (veh/h)	962	871	1080	954	868	1082	1615			1620		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	21	21	4	11
Volume Left	0	4	2	5
Volume Right	5	2	0	5
cSH	913	900	1615	1620
Volume to Capacity	0.02	0.02	0.00	0.00
Queue Length 95th (ft)	2	2	0	0
Control Delay (s)	9.0	9.1	3.6	3.3
Lane LOS	A	A	A	A
Approach Delay (s)	9.0	9.1	3.6	3.3
Approach LOS	A	A		

Intersection Summary			
Average Delay	7.6		
Intersection Capacity Utilization	14.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	296	11	33	538	0	7	0	34	0	0	1
Future Volume (Veh/h)	0	296	11	33	538	0	7	0	34	0	0	1
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	322	12	36	585	0	8	0	37	0	0	1
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			None							
Median storage veh)		2										
Upstream signal (ft)		661			663							
pX, platoon unblocked	0.92						0.92	0.92		0.92	0.92	0.92
vC, conflicting volume	585			334			694	985	167	855	991	292
vC1, stage 1 conf vol							328	328		657	657	
vC2, stage 2 conf vol							366	657		198	334	
vCu, unblocked vol	369			334			487	805	167	663	811	50
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			97			99	100	96	100	100	100
cM capacity (veh/h)	1089			1222			590	454	848	460	446	924

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	0	215	119	36	390	195	45	1
Volume Left	0	0	0	36	0	0	8	0
Volume Right	0	0	12	0	0	0	37	1
cSH	1700	1700	1700	1222	1700	1700	787	924
Volume to Capacity	0.00	0.13	0.07	0.03	0.23	0.11	0.06	0.00
Queue Length 95th (ft)	0	0	0	2	0	0	5	0
Control Delay (s)	0.0	0.0	0.0	8.0	0.0	0.0	9.9	8.9
Lane LOS				A			A	A
Approach Delay (s)	0.0			0.5			9.9	8.9
Approach LOS							A	A

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	37.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	16	5	17	10	1	10	54	14	7	67	0
Future Volume (Veh/h)	4	16	5	17	10	1	10	54	14	7	67	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	17	5	18	11	1	11	59	15	8	73	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	12			22			112	76	20	120	78	12
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	12			22			112	76	20	120	78	12
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			99	93	99	99	91	100
cM capacity (veh/h)	1607			1593			798	804	1058	788	802	1069

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	26	30	85	81
Volume Left	4	18	11	8
Volume Right	5	1	15	0
cSH	1607	1593	838	800
Volume to Capacity	0.00	0.01	0.10	0.10
Queue Length 95th (ft)	0	1	8	8
Control Delay (s)	1.1	4.4	9.8	10.0
Lane LOS	A	A	A	B
Approach Delay (s)	1.1	4.4	9.8	10.0
Approach LOS			A	B

Intersection Summary			
Average Delay	8.1		
Intersection Capacity Utilization	17.2%	ICU Level of Service	A
Analysis Period (min)	15		

HCM 2010 Signalized Intersection Summary
34: Cataract Ave & Bonita Ave

08/11/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	272	15	98	516	10	15	50	34	11	49	33
Future Volume (veh/h)	13	272	15	98	516	10	15	50	34	11	49	33
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	14	296	0	107	561	0	16	54	37	12	53	36
Adj No. of Lanes	1	2	1	1	2	1	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	173	832	372	178	843	377	35	105	72	27	101	69
Arrive On Green	0.10	0.24	0.00	0.10	0.24	0.00	0.02	0.10	0.10	0.02	0.10	0.10
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	1774	1031	707	1774	1035	703
Grp Volume(v), veh/h	14	296	0	107	561	0	16	0	91	12	0	89
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1774	0	1738	1774	0	1739
Q Serve(g_s), s	0.4	3.6	0.0	3.0	7.3	0.0	0.5	0.0	2.5	0.3	0.0	2.5
Cycle Q Clear(g_c), s	0.4	3.6	0.0	3.0	7.3	0.0	0.5	0.0	2.5	0.3	0.0	2.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.41	1.00		0.40
Lane Grp Cap(c), veh/h	173	832	372	178	843	377	35	0	178	27	0	170
V/C Ratio(X)	0.08	0.36	0.00	0.60	0.67	0.00	0.45	0.00	0.51	0.44	0.00	0.52
Avail Cap(c_a), veh/h	624	1417	634	624	1417	634	173	0	628	173	0	628
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	0.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.0	16.3	0.0	22.0	17.7	0.0	24.8	0.0	21.8	25.0	0.0	22.0
Incr Delay (d2), s/veh	0.2	0.3	0.0	3.2	0.9	0.0	8.8	0.0	2.3	10.8	0.0	2.5
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	0.2	1.8	0.0	1.6	3.7	0.0	0.3	0.0	1.3	0.2	0.0	1.3
LnGrp Delay(d),s/veh	21.2	16.6	0.0	25.3	18.6	0.0	33.7	0.0	24.0	35.8	0.0	24.5
LnGrp LOS	C	B		C	B		C		C	D		C
Approach Vol, veh/h		310			668			107			101	
Approach Delay, s/veh		16.8			19.6			25.5			25.8	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.3	12.7	11.6	18.5	8.5	12.5	11.5	18.7
Change Period (Y+Rc), s	7.5	7.5	6.5	6.5	7.5	7.5	6.5	6.5
Max Green Setting (Gmax), s	5.0	18.5	18.0	20.5	5.0	18.5	18.0	20.5
Max Q Clear Time (g_c+I1), s	2.3	4.5	5.0	5.6	2.5	4.5	2.4	9.3
Green Ext Time (p_c), s	0.0	0.3	0.2	1.6	0.0	0.3	0.0	2.8

Intersection Summary	
HCM 2010 Ctrl Delay	20.0
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	33	2	6	16	8	0	21	10	0	20	6
Future Volume (Veh/h)	6	33	2	6	16	8	0	21	10	0	20	6
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	36	2	7	17	9	0	23	11	0	22	7
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	72	60	26	74	58	28	29			34		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	72	60	26	74	58	28	29			34		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	96	100	99	98	99	100			100		
cM capacity (veh/h)	898	831	1050	884	834	1046	1584			1578		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	45	33	34	29
Volume Left	7	7	0	0
Volume Right	2	9	11	7
cSH	849	894	1584	1578
Volume to Capacity	0.05	0.04	0.00	0.00
Queue Length 95th (ft)	4	3	0	0
Control Delay (s)	9.5	9.2	0.0	0.0
Lane LOS	A	A		
Approach Delay (s)	9.5	9.2	0.0	0.0
Approach LOS	A	A		

Intersection Summary			
Average Delay	5.2		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	321	6	6	645	12	3	1	7	7	1	36
Future Volume (Veh/h)	18	321	6	6	645	12	3	1	7	7	1	36
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	20	349	7	7	701	13	3	1	8	8	1	39
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (ft)		653			659							
pX, platoon unblocked	0.75			0.89			0.80	0.80	0.89	0.80	0.80	0.75
vC, conflicting volume	714			356			1147	1120	352	1119	1118	708
vC1, stage 1 conf vol							392	392		722	722	
vC2, stage 2 conf vol							754	728		398	396	
vCu, unblocked vol	446			220			759	726	216	724	722	437
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			99			99	100	99	98	100	92
cM capacity (veh/h)	831			1206			338	377	736	401	393	462

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	20	356	7	714	12	48
Volume Left	20	0	7	0	3	8
Volume Right	0	7	0	13	8	39
cSH	831	1700	1206	1700	536	449
Volume to Capacity	0.02	0.21	0.01	0.42	0.02	0.11
Queue Length 95th (ft)	2	0	0	0	2	9
Control Delay (s)	9.4	0.0	8.0	0.0	11.9	14.0
Lane LOS	A		A		B	B
Approach Delay (s)	0.5		0.1		11.9	14.0
Approach LOS					B	B

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	44.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	10	7	1	8	14	7	390	4	8	524	12
Future Volume (Veh/h)	7	10	7	1	8	14	7	390	4	8	524	12
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	8	11	8	1	9	15	8	424	4	9	570	13
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (ft)								744				
pX, platoon unblocked												
vC, conflicting volume	1054	1038	576	1044	1043	426	583			428		
vC1, stage 1 conf vol	594	594		442	442							
vC2, stage 2 conf vol	460	444		602	601							
vCu, unblocked vol	1054	1038	576	1044	1043	426	583			428		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	97	98	100	98	98	99			99		
cM capacity (veh/h)	397	412	517	393	408	628	991			1131		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	27	25	8	428	9	583
Volume Left	8	1	8	0	9	0
Volume Right	8	15	0	4	0	13
cSH	433	516	991	1700	1131	1700
Volume to Capacity	0.06	0.05	0.01	0.25	0.01	0.34
Queue Length 95th (ft)	5	4	1	0	1	0
Control Delay (s)	13.9	12.3	8.7	0.0	8.2	0.0
Lane LOS	B	B	A		A	
Approach Delay (s)	13.9	12.3	0.2		0.1	
Approach LOS	B	B				

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	39.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	225	57	99	450	80	61	237	63	129	299	107
Future Volume (vph)	40	225	57	99	450	80	61	237	63	129	299	107
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	1863	1583
Flt Permitted	0.21	1.00	1.00	0.48	1.00	1.00	0.45	1.00	1.00	0.56	1.00	1.00
Satd. Flow (perm)	396	1863	1583	894	1863	1583	843	3539	1583	1047	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	43	245	62	108	489	87	66	258	68	140	325	116
RTOR Reduction (vph)	0	0	44	0	0	60	0	0	47	0	0	78
Lane Group Flow (vph)	43	245	18	108	489	27	66	258	21	140	325	38
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	21.6	19.0	19.0	24.6	20.5	20.5	23.0	20.4	20.4	25.2	21.5	21.5
Effective Green, g (s)	21.6	19.0	19.0	24.6	20.5	20.5	23.0	20.4	20.4	25.2	21.5	21.5
Actuated g/C Ratio	0.33	0.29	0.29	0.38	0.31	0.31	0.35	0.31	0.31	0.39	0.33	0.33
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	185	542	461	392	585	497	334	1107	495	445	614	522
v/s Ratio Prot	0.01	0.13		c0.02	c0.26		0.01	0.07		c0.02	c0.17	
v/s Ratio Perm	0.07		0.01	0.09		0.02	0.06		0.01	0.10		0.02
v/c Ratio	0.23	0.45	0.04	0.28	0.84	0.06	0.20	0.23	0.04	0.31	0.53	0.07
Uniform Delay, d1	15.9	18.9	16.6	13.6	20.8	15.6	14.3	16.6	15.6	13.3	17.7	15.0
Progression 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
Incremental Delay, d2	0.6	0.6	0.0	0.4	10.0	0.0	0.3	0.5	0.2	0.4	3.2	0.3
Delay (s)	16.5	19.5	16.6	14.0	30.8	15.6	14.6	17.1	15.8	13.7	21.0	15.3
Level of Service	B	B	B	B	C	B	B	B	B	B	C	B
Approach Delay (s)		18.6			26.2			16.4			18.1	
Approach LOS		B			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	20.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	65.2	Sum of lost time (s)	18.0
Intersection Capacity Utilization	62.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	81	810	64	187	1332	68	143	216	260	181	152	86
Future Volume (vph)	81	810	64	187	1332	68	143	216	260	181	152	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00	1.00	1.00	0.95	
Frt	1.00	0.99		1.00	0.99		1.00	1.00	0.85	1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	5029		1770	5048		1770	1863	1583	1770	3348	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	5029		1770	5048		1770	1863	1583	1770	3348	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	88	880	70	203	1448	74	155	235	283	197	165	93
RTOR Reduction (vph)	0	11	0	0	7	0	0	0	210	0	68	0
Lane Group Flow (vph)	88	939	0	203	1515	0	155	235	73	197	190	0
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			
Actuated Green, G (s)	4.3	18.9		12.0	26.6		9.5	20.6	20.6	10.4	21.5	
Effective Green, g (s)	4.3	18.9		12.0	26.6		9.5	20.6	20.6	10.4	21.5	
Actuated g/C Ratio	0.05	0.24		0.15	0.33		0.12	0.26	0.26	0.13	0.27	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	95	1189		265	1680		210	480	408	230	900	
v/s Ratio Prot	0.05	0.19		c0.11	c0.30		0.09	c0.13		c0.11	0.06	
v/s Ratio Perm									0.05			
v/c Ratio	0.93	0.79		0.77	0.90		0.74	0.49	0.18	0.86	0.21	
Uniform Delay, d1	37.6	28.6		32.6	25.4		34.0	25.2	23.1	34.0	22.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	68.0	3.6		12.4	7.1		12.7	3.5	1.0	25.5	0.5	
Delay (s)	105.7	32.2		45.0	32.5		46.7	28.7	24.0	59.5	23.2	
Level of Service	F	C		D	C		D	C	C	E	C	
Approach Delay (s)		38.4			34.0			30.9			38.9	
Approach LOS		D			C			C			D	

Intersection Summary			
HCM 2000 Control Delay	35.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	79.9	Sum of lost time (s)	18.0
Intersection Capacity Utilization	68.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	48	240	55	103	642	57	44	112	63	67	115	107
Future Volume (vph)	48	240	55	103	642	57	44	112	63	67	115	107
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	0.99		1.00	0.95		1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3440		1770	3496		1770	1763		1770	1728	
Flt Permitted	0.26	1.00		0.56	1.00		0.61	1.00		0.64	1.00	
Satd. Flow (perm)	489	3440		1038	3496		1134	1763		1188	1728	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	52	261	60	112	698	62	48	122	68	73	125	116
RTOR Reduction (vph)	0	38	0	0	13	0	0	30	0	0	50	0
Lane Group Flow (vph)	52	283	0	112	747	0	48	160	0	73	191	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	18.5	18.5		18.5	18.5		24.7	24.7		24.7	24.7	
Effective Green, g (s)	18.5	18.5		18.5	18.5		24.7	24.7		24.7	24.7	
Actuated g/C Ratio	0.35	0.35		0.35	0.35		0.47	0.47		0.47	0.47	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	173	1219		367	1239		536	834		562	817	
v/s Ratio Prot		0.08			c0.21			0.09			c0.11	
v/s Ratio Perm	0.11			0.11			0.04			0.06		
v/c Ratio	0.30	0.23		0.31	0.60		0.09	0.19		0.13	0.23	
Uniform Delay, d1	12.2	11.9		12.2	13.8		7.6	8.0		7.7	8.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.0	0.1		0.5	0.8		0.3	0.5		0.5	0.7	
Delay (s)	13.2	12.0		12.7	14.7		7.9	8.5		8.2	8.8	
Level of Service	B	B		B	B		A	A		A	A	
Approach Delay (s)		12.1			14.4			8.4			8.7	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM 2000 Control Delay	12.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	52.2	Sum of lost time (s)	9.0
Intersection Capacity Utilization	55.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	165	743	44	20	1349	35	93	30	26	33	18	193
Future Volume (vph)	165	743	44	20	1349	35	93	30	26	33	18	193
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Lane Util. Factor	1.00	0.91		1.00	0.91			1.00			1.00	
Frt	1.00	0.99		1.00	1.00			0.98			0.89	
Flt Protected	0.95	1.00		0.95	1.00			0.97			0.99	
Satd. Flow (prot)	1770	5043		1770	5066			1764			1653	
Flt Permitted	0.95	1.00		0.95	1.00			0.67			0.94	
Satd. Flow (perm)	1770	5043		1770	5066			1210			1573	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	179	808	48	22	1466	38	101	33	28	36	20	210
RTOR Reduction (vph)	0	9	0	0	4	0	0	13	0	0	143	0
Lane Group Flow (vph)	179	847	0	22	1500	0	0	149	0	0	123	0
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)	7.5	28.8		1.0	22.3			20.3			20.3	
Effective Green, g (s)	7.5	28.8		1.0	22.3			20.3			20.3	
Actuated g/C Ratio	0.12	0.45		0.02	0.35			0.32			0.32	
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	208	2283		27	1776			386			502	
v/s Ratio Prot	c0.10	0.17		0.01	c0.30							
v/s Ratio Perm								c0.12			0.08	
v/c Ratio	0.86	0.37		0.81	0.84			0.39			0.25	
Uniform Delay, d1	27.5	11.4		31.2	19.1			16.8			16.0	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	28.5	0.1		95.3	3.9			2.9			1.2	
Delay (s)	56.0	11.5		126.5	22.9			19.7			17.2	
Level of Service	E	B		F	C			B			B	
Approach Delay (s)		19.2			24.4			19.7			17.2	
Approach LOS		B			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	21.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	63.6	Sum of lost time (s)	13.5
Intersection Capacity Utilization	74.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	72	243	58	60	396	107	87	245	200	173	185	131
Future Volume (vph)	72	243	58	60	396	107	87	245	200	173	185	131
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.97		1.00	0.97		1.00	0.93		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3437		1770	3426		1770	3301		1770	3319	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3437		1770	3426		1770	3301		1770	3319	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	78	264	63	65	430	116	95	266	217	188	201	142
RTOR Reduction (vph)	0	30	0	0	36	0	0	151	0	0	93	0
Lane Group Flow (vph)	78	297	0	65	510	0	95	332	0	188	250	0
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	4.2	17.0		2.8	15.6		6.6	20.4		9.3	23.1	
Effective Green, g (s)	4.2	17.0		2.8	15.6		6.6	20.4		9.3	23.1	
Actuated g/C Ratio	0.06	0.25		0.04	0.23		0.10	0.30		0.14	0.34	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	110	865		73	791		173	997		243	1135	
v/s Ratio Prot	c0.04	0.09		0.04	c0.15		0.05	c0.10		c0.11	c0.08	
v/s Ratio Perm												
v/c Ratio	0.71	0.34		0.89	0.64		0.55	0.33		0.77	0.22	
Uniform Delay, d1	31.1	20.7		32.2	23.4		29.0	18.3		28.1	15.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	18.8	0.2		68.9	1.8		3.5	0.9		14.2	0.4	
Delay (s)	49.9	20.9		101.1	25.3		32.6	19.2		42.3	16.2	
Level of Service	D	C		F	C		C	B		D	B	
Approach Delay (s)		26.5			33.3			21.4			25.5	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	26.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	67.5	Sum of lost time (s)	18.0
Intersection Capacity Utilization	56.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	234	501	18	25	1077	125	41	51	68	131	33	268
Future Volume (vph)	234	501	18	25	1077	125	41	51	68	131	33	268
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.91		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	5058		1770	5085	1583	1770	1702		1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	5058		1770	5085	1583	1770	1702		1770	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	254	545	20	27	1171	136	45	55	74	142	36	291
RTOR Reduction (vph)	0	4	0	0	0	98	0	55	0	0	0	0
Lane Group Flow (vph)	254	561	0	27	1171	38	45	74	0	142	36	291
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						6
Actuated Green, G (s)	13.2	34.2		2.2	23.2	23.2	3.0	21.3		8.4	26.7	26.7
Effective Green, g (s)	13.2	34.2		2.2	23.2	23.2	3.0	21.3		8.4	26.7	26.7
Actuated g/C Ratio	0.16	0.41		0.03	0.28	0.28	0.04	0.25		0.10	0.32	0.32
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	277	2056		46	1402	436	63	431		176	591	502
v/s Ratio Prot	c0.14	0.11		0.02	c0.23		0.03	0.04		c0.08	0.02	
v/s Ratio Perm						0.02						c0.18
v/c Ratio	0.92	0.27		0.59	0.84	0.09	0.71	0.17		0.81	0.06	0.58
Uniform Delay, d1	34.9	16.7		40.5	28.7	22.6	40.1	24.5		37.1	20.0	24.0
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	32.7	0.1		17.7	4.5	0.1	31.7	0.9		23.0	0.2	4.8
Delay (s)	67.7	16.7		58.2	33.1	22.7	71.9	25.4		60.0	20.2	28.8
Level of Service	E	B		E	C	C	E	C		E	C	C
Approach Delay (s)		32.5			32.6			37.4			37.6	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	33.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	84.1	Sum of lost time (s)	18.0
Intersection Capacity Utilization	58.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
44: Wheeler Avenue & Third Street

08/10/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	10	49	17	8	39	30	299	9	52	537	10
Future Volume (Veh/h)	16	10	49	17	8	39	30	299	9	52	537	10
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	17	11	53	18	9	42	33	325	10	57	584	11
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								1070				
pX, platoon unblocked												
vC, conflicting volume	978	1104	298	860	1105	168	595			335		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	978	1104	298	860	1105	168	595			335		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	90	94	92	91	95	95	97			95		
cM capacity (veh/h)	176	193	699	207	193	847	977			1221		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	81	69	196	172	349	303
Volume Left	17	18	33	0	57	0
Volume Right	53	42	0	10	0	11
cSH	353	377	977	1700	1221	1700
Volume to Capacity	0.23	0.18	0.03	0.10	0.05	0.18
Queue Length 95th (ft)	22	17	3	0	4	0
Control Delay (s)	18.2	16.7	1.8	0.0	1.7	0.0
Lane LOS	C	C	A		A	
Approach Delay (s)	18.2	16.7	0.9		0.9	
Approach LOS	C	C				

Intersection Summary				
Average Delay	3.0			
Intersection Capacity Utilization	41.6%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	101	500	34	35	974	341	30	32	15	341	98	176
Future Volume (vph)	101	500	34	35	974	341	30	32	15	341	98	176
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.5	4.0	4.0	4.5	4.0	
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.90	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	5037		1770	5085	1583	1770	1863	1583	1770	1684	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	5037		1770	5085	1583	1770	1863	1583	1770	1684	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	110	543	37	38	1059	371	33	35	16	371	107	191
RTOR Reduction (vph)	0	9	0	0	0	274	0	0	12	0	0	0
Lane Group Flow (vph)	110	571	0	38	1059	97	33	35	4	371	298	0
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8			2			
Actuated Green, G (s)	6.0	24.3		3.6	21.9	21.9	2.3	21.2	21.2	18.2	37.1	
Effective Green, g (s)	6.0	24.3		3.6	21.9	21.9	2.3	21.2	21.2	18.2	37.1	
Actuated g/C Ratio	0.07	0.29		0.04	0.26	0.26	0.03	0.25	0.25	0.22	0.44	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.5	4.0	4.0	4.5	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	126	1460		76	1328	413	48	471	400	384	745	
v/s Ratio Prot	c0.06	0.11		0.02	c0.21		0.02	0.02		c0.21	c0.18	
v/s Ratio Perm						0.06			0.00			
v/c Ratio	0.87	0.39		0.50	0.80	0.23	0.69	0.07	0.01	0.97	0.40	
Uniform Delay, d1	38.5	23.8		39.2	28.9	24.4	40.4	23.8	23.4	32.5	15.8	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	44.0	0.2		5.1	3.4	0.3	33.8	0.3	0.0	36.7	0.4	
Delay (s)	82.5	24.0		44.3	32.3	24.6	74.2	24.1	23.5	69.2	16.2	
Level of Service	F	C		D	C	C	E	C	C	E	B	
Approach Delay (s)		33.3			30.7			43.7			45.6	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	35.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	83.8	Sum of lost time (s)	16.5
Intersection Capacity Utilization	60.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	76	8	3	61	2	15	52	11	0	48	10
Future Volume (Veh/h)	3	76	8	3	61	2	15	52	11	0	48	10
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	83	9	3	66	2	16	57	12	0	52	11
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	68			92			204	168	88	207	171	67
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	68			92			204	168	88	207	171	67
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			98	92	99	100	93	99
cM capacity (veh/h)	1533			1503			703	722	971	694	719	997

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	95	71	85	63
Volume Left	3	3	16	0
Volume Right	9	2	12	11
cSH	1533	1503	745	756
Volume to Capacity	0.00	0.00	0.11	0.08
Queue Length 95th (ft)	0	0	10	7
Control Delay (s)	0.2	0.3	10.4	10.2
Lane LOS	A	A	B	B
Approach Delay (s)	0.2	0.3	10.4	10.2
Approach LOS			B	B

Intersection Summary			
Average Delay	5.0		
Intersection Capacity Utilization	23.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	2	21	7	1	2	1	65	2	3	52	5
Future Volume (Veh/h)	3	2	21	7	1	2	1	65	2	3	52	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	2	23	8	1	2	1	71	2	3	57	5
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								269				
pX, platoon unblocked												
vC, conflicting volume	142	140	60	164	142	72	62			73		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	142	140	60	164	142	72	62			73		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	98	99	100	100	100			100		
cM capacity (veh/h)	823	749	1006	780	747	990	1541			1527		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	28	11	74	65
Volume Left	3	8	1	3
Volume Right	23	2	2	5
cSH	960	808	1541	1527
Volume to Capacity	0.03	0.01	0.00	0.00
Queue Length 95th (ft)	2	1	0	0
Control Delay (s)	8.9	9.5	0.1	0.4
Lane LOS	A	A	A	A
Approach Delay (s)	8.9	9.5	0.1	0.4
Approach LOS	A	A		

Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	14.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	790	5	8	1327	26	7	6	11	50	2	25
Future Volume (vph)	32	790	5	8	1327	26	7	6	11	50	2	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.91		1.00	0.86	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5081		1770	5085	1583	1770	1686		1770	1603	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	5081		1770	5085	1583	1770	1686		1770	1603	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	35	859	5	9	1442	28	8	7	12	54	2	27
RTOR Reduction (vph)	0	1	0	0	0	16	0	10	0	0	0	0
Lane Group Flow (vph)	35	863	0	9	1442	12	8	9	0	54	29	0
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						
Actuated Green, G (s)	1.5	22.8		0.7	22.0	22.0	0.7	7.3		1.5	8.1	
Effective Green, g (s)	1.5	22.8		0.7	22.0	22.0	0.7	7.3		1.5	8.1	
Actuated g/C Ratio	0.03	0.45		0.01	0.44	0.44	0.01	0.15		0.03	0.16	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	52	2303		24	2224	692	24	244		52	258	
v/s Ratio Prot	c0.02	0.17		0.01	c0.28		0.00	0.01		c0.03	c0.02	
v/s Ratio Perm						0.01						
v/c Ratio	0.67	0.37		0.38	0.65	0.02	0.33	0.04		1.04	0.11	
Uniform Delay, d1	24.2	9.1		24.6	11.1	8.0	24.6	18.5		24.4	18.0	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	29.2	0.1		9.6	0.7	0.0	8.0	0.1		136.1	0.2	
Delay (s)	53.4	9.2		34.2	11.8	8.0	32.6	18.5		160.5	18.2	
Level of Service	D	A		C	B	A	C	B		F	B	
Approach Delay (s)		10.9			11.8			22.7			110.8	
Approach LOS		B			B			C			F	

Intersection Summary			
HCM 2000 Control Delay	14.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	50.3	Sum of lost time (s)	18.0
Intersection Capacity Utilization	43.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	14	50	19	9	106	30	67	102	11	19	210	48
Future Volume (vph)	14	50	19	9	106	30	67	102	11	19	210	48
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	15	54	21	10	115	33	73	111	12	21	228	52

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	90	158	196	301
Volume Left (vph)	15	10	73	21
Volume Right (vph)	21	33	12	52
Hadj (s)	-0.07	-0.08	0.07	-0.06
Departure Headway (s)	5.3	5.2	5.0	4.8
Degree Utilization, x	0.13	0.23	0.27	0.40
Capacity (veh/h)	599	626	669	712
Control Delay (s)	9.1	9.7	9.9	10.9
Approach Delay (s)	9.1	9.7	9.9	10.9
Approach LOS	A	A	A	B

Intersection Summary			
Delay	10.2		
Level of Service	B		
Intersection Capacity Utilization	43.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	3	57	28	168	202	9
Future Volume (Veh/h)	3	57	28	168	202	9
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	62	30	183	220	10
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				259		
pX, platoon unblocked						
vC, conflicting volume	463	220	230			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	463	220	230			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	92	98			
cM capacity (veh/h)	545	820	1338			

Direction, Lane #	EB 1	NB 1	SB 1	SB 2
Volume Total	65	213	220	10
Volume Left	3	30	0	0
Volume Right	62	0	0	10
cSH	801	1338	1700	1700
Volume to Capacity	0.08	0.02	0.13	0.01
Queue Length 95th (ft)	7	2	0	0
Control Delay (s)	9.9	1.3	0.0	0.0
Lane LOS	A	A		
Approach Delay (s)	9.9	1.3	0.0	
Approach LOS	A			

Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	Err%	ICU Level of Service	H
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	741	28	14	1261	94	57	27	15	158	39	47
Future Volume (vph)	55	741	28	14	1261	94	57	27	15	158	39	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.95		1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5058		1770	5085	1583	1770	1763		1770	1710	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	5058		1770	5085	1583	1770	1763		1770	1710	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	60	805	30	15	1371	102	62	29	16	172	42	51
RTOR Reduction (vph)	0	4	0	0	0	52	0	12	0	0	0	0
Lane Group Flow (vph)	60	831	0	15	1371	50	62	33	0	172	93	0
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases						8						
Actuated Green, G (s)	8.6	40.9		2.0	34.3	48.7	6.9	24.7		14.4	32.2	
Effective Green, g (s)	8.6	40.9		2.0	34.3	48.7	6.9	24.7		14.4	32.2	
Actuated g/C Ratio	0.09	0.41		0.02	0.34	0.49	0.07	0.25		0.14	0.32	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	152	2068		35	1744	770	122	435		254	550	
v/s Ratio Prot	c0.03	c0.16		0.01	c0.27	0.01	0.04	0.02		c0.10	c0.05	
v/s Ratio Perm						0.02						
v/c Ratio	0.39	0.40		0.43	0.79	0.06	0.51	0.08		0.68	0.17	
Uniform Delay, d1	43.2	20.9		48.4	29.6	13.6	44.9	28.9		40.6	24.3	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.7	0.6		8.2	3.7	0.0	3.3	0.3		7.0	0.7	
Delay (s)	44.9	21.5		56.7	33.2	13.6	48.2	29.2		47.6	25.0	
Level of Service	D	C		E	C	B	D	C		D	C	
Approach Delay (s)		23.1			32.1			40.2			39.6	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	30.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	55.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	11	19	39	27	74	24	66	174	7	9	263	8
Future Volume (vph)	11	19	39	27	74	24	66	174	7	9	263	8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	21	42	29	80	26	72	189	8	10	286	9

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	75	135	269	305
Volume Left (vph)	12	29	72	10
Volume Right (vph)	42	26	8	9
Hadj (s)	-0.27	-0.04	0.07	0.02
Departure Headway (s)	5.3	5.4	5.0	4.9
Degree Utilization, x	0.11	0.20	0.37	0.41
Capacity (veh/h)	591	596	692	704
Control Delay (s)	9.0	9.8	10.9	11.3
Approach Delay (s)	9.0	9.8	10.9	11.3
Approach LOS	A	A	B	B

Intersection Summary			
Delay	10.7		
Level of Service	B		
Intersection Capacity Utilization	48.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	7	10	49	9	34	13	47	220	5	1	322	17
Future Volume (vph)	7	10	49	9	34	13	47	220	5	1	322	17
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	8	11	53	10	37	14	51	239	5	1	350	18

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	72	61	295	369
Volume Left (vph)	8	10	51	1
Volume Right (vph)	53	14	5	18
Hadj (s)	-0.39	-0.07	0.06	0.01
Departure Headway (s)	5.2	5.5	4.8	4.6
Degree Utilization, x	0.10	0.09	0.39	0.47
Capacity (veh/h)	603	567	727	750
Control Delay (s)	8.8	9.1	10.8	11.7
Approach Delay (s)	8.8	9.1	10.8	11.7
Approach LOS	A	A	B	B

Intersection Summary			
Delay	10.9		
Level of Service	B		
Intersection Capacity Utilization	47.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	37	14	253	16	26	350
Future Volume (Veh/h)	37	14	253	16	26	350
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	40	15	275	17	28	380
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			277			
pX, platoon unblocked	0.95	0.95			0.95	
vC, conflicting volume	720	146			292	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	609	7			160	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	90	99			98	
cM capacity (veh/h)	399	1023			1351	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1
Volume Total	55	183	109	408
Volume Left	40	0	0	28
Volume Right	15	0	17	0
cSH	478	1700	1700	1351
Volume to Capacity	0.11	0.11	0.06	0.02
Queue Length 95th (ft)	10	0	0	2
Control Delay (s)	13.5	0.0	0.0	0.7
Lane LOS	B			A
Approach Delay (s)	13.5	0.0		0.7
Approach LOS	B			

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	40.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	662	233	144	1128	55	214	220	41	149	169	45
Future Volume (vph)	15	662	233	144	1128	55	214	220	41	149	169	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	0.97	0.95		1.00	1.00	
Frt	1.00	0.96		1.00	1.00	0.85	1.00	0.98		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	4887		1770	5085	1583	3433	3455		1770	1804	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	4887		1770	5085	1583	3433	3455		1770	1804	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	720	253	157	1226	60	233	239	45	162	184	49
RTOR Reduction (vph)	0	70	0	0	0	34	0	18	0	0	0	0
Lane Group Flow (vph)	16	903	0	157	1226	26	233	266	0	162	233	0
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases						6						
Actuated Green, G (s)	3.6	27.0		16.3	39.7	39.7	8.6	18.2		10.5	20.1	
Effective Green, g (s)	3.6	27.0		16.3	39.7	39.7	8.6	18.2		10.5	20.1	
Actuated g/C Ratio	0.04	0.30		0.18	0.44	0.44	0.10	0.20		0.12	0.22	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	70	1466		320	2243	698	328	698		206	402	
v/s Ratio Prot	0.01	c0.18		c0.09	c0.24		0.07	0.08		c0.09	c0.13	
v/s Ratio Perm						0.02						
v/c Ratio	0.23	0.62		0.49	0.55	0.04	0.71	0.38		0.79	0.58	
Uniform Delay, d1	41.9	27.0		33.1	18.5	14.3	39.5	31.0		38.7	31.2	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.7	1.9		1.2	0.3	0.0	7.1	1.6		17.7	6.0	
Delay (s)	43.5	29.0		34.3	18.8	14.3	46.6	32.6		56.4	37.2	
Level of Service	D	C		C	B	B	D	C		E	D	
Approach Delay (s)		29.2			20.3			38.9			45.0	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	28.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	58.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1	41	7	5	19	59	531	3	2	749	33
Future Volume (Veh/h)	0	1	41	7	5	19	59	531	3	2	749	33
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1	45	8	5	21	64	577	3	2	814	36
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (ft)											382	
pX, platoon unblocked	0.62	0.62	0.62	0.62	0.62		0.62					
vC, conflicting volume	1564	1544	832	1570	1560	578	850			580		
vC1, stage 1 conf vol	836	836		706	706							
vC2, stage 2 conf vol	728	708		864	854							
vCu, unblocked vol	1605	1571	417	1613	1598	578	446			580		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	89	96	98	96	91			100		
cM capacity (veh/h)	252	265	392	206	233	515	687			994		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	46	34	64	580	2	850
Volume Left	0	8	64	0	2	0
Volume Right	45	21	0	3	0	36
cSH	388	336	687	1700	994	1700
Volume to Capacity	0.12	0.10	0.09	0.34	0.00	0.50
Queue Length 95th (ft)	10	8	8	0	0	0
Control Delay (s)	15.5	16.9	10.8	0.0	8.6	0.0
Lane LOS	C	C	B		A	
Approach Delay (s)	15.5	16.9	1.1		0.0	
Approach LOS	C	C				

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	62.8%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	1	15	7	0	18	27	545	2	11	777	14
Future Volume (Veh/h)	2	1	15	7	0	18	27	545	2	11	777	14
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	1	16	8	0	20	29	592	2	12	845	15
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (ft)								1253			753	
pX, platoon unblocked	0.72	0.72	0.67	0.72	0.72	0.91	0.67			0.91		
vC, conflicting volume	1546	1528	852	1536	1535	593	860			594		
vC1, stage 1 conf vol	876	876		651	651							
vC2, stage 2 conf vol	670	652		886	884							
vCu, unblocked vol	1294	1269	537	1280	1278	507	549			508		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	96	97	100	96	96			99		
cM capacity (veh/h)	266	279	366	248	263	517	687			965		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	19	28	29	594	12	860
Volume Left	2	8	29	0	12	0
Volume Right	16	20	0	2	0	15
cSH	346	394	687	1700	965	1700
Volume to Capacity	0.05	0.07	0.04	0.35	0.01	0.51
Queue Length 95th (ft)	4	6	3	0	1	0
Control Delay (s)	16.0	14.8	10.5	0.0	8.8	0.0
Lane LOS	C	B	B		A	
Approach Delay (s)	16.0	14.8	0.5		0.1	
Approach LOS	C	B				

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	51.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	2	10	13	3	38	34	552	26	39	751	10
Future Volume (Veh/h)	0	2	10	13	3	38	34	552	26	39	751	10
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	2	11	14	3	41	37	600	28	42	816	11
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			TWLTL	
Median storage veh)											2	
Upstream signal (ft)								1055			951	
pX, platoon unblocked	0.76	0.76	0.71	0.76	0.76	0.89	0.71			0.89		
vC, conflicting volume	1622	1608	822	1586	1585	600	827			628		
vC1, stage 1 conf vol	906	906		674	674							
vC2, stage 2 conf vol	716	702		912	911							
vCu, unblocked vol	1333	1314	538	1286	1284	488	545			520		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	99	97	94	99	92	95			95		
cM capacity (veh/h)	232	254	383	228	243	516	722			931		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	13	58	37	600	28	42	827
Volume Left	0	14	37	0	0	42	0
Volume Right	11	41	0	0	28	0	11
cSH	355	378	722	1700	1700	931	1700
Volume to Capacity	0.04	0.15	0.05	0.35	0.02	0.05	0.49
Queue Length 95th (ft)	3	13	4	0	0	4	0
Control Delay (s)	15.5	16.2	10.3	0.0	0.0	9.1	0.0
Lane LOS	C	C	B			A	
Approach Delay (s)	15.5	16.2	0.6			0.4	
Approach LOS	C	C					

Intersection Summary				
Average Delay	1.2			
Intersection Capacity Utilization	56.7%	ICU Level of Service	B	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	18	25	558	9	25	745
Future Volume (Veh/h)	18	25	558	9	25	745
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	20	27	607	10	27	810
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		4				
Median type			None			None
Median storage veh)						
Upstream signal (ft)			255			
pX, platoon unblocked	0.93	0.93			0.93	
vC, conflicting volume	1071	308			617	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	924	103			435	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	92	97			97	
cM capacity (veh/h)	243	866			1042	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	47	405	212	27	405	405
Volume Left	20	0	0	27	0	0
Volume Right	27	0	10	0	0	0
cSH	571	1700	1700	1042	1700	1700
Volume to Capacity	0.08	0.24	0.12	0.03	0.24	0.24
Queue Length 95th (ft)	7	0	0	2	0	0
Control Delay (s)	14.3	0.0	0.0	8.5	0.0	0.0
Lane LOS	B			A		
Approach Delay (s)	14.3	0.0		0.3		
Approach LOS	B					

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	30.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	282	334	85	106	439	217	52	413	174	90	1052	186
Future Volume (vph)	282	334	85	106	439	217	52	413	174	90	1052	186
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	4859		1770	4971	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1770	4859		1770	4971	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	307	363	92	115	477	236	57	449	189	98	1143	202
RTOR Reduction (vph)	0	0	62	0	0	149	0	93	0	0	30	0
Lane Group Flow (vph)	307	363	30	115	477	87	57	545	0	98	1315	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6						
Actuated Green, G (s)	15.8	26.2	26.2	8.5	18.9	18.9	3.1	21.6		5.7	24.2	
Effective Green, g (s)	15.8	26.2	26.2	8.5	18.9	18.9	3.1	21.6		5.7	24.2	
Actuated g/C Ratio	0.20	0.33	0.33	0.11	0.24	0.24	0.04	0.27		0.07	0.30	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	349	1159	518	188	836	373	68	1311		126	1503	
v/s Ratio Prot	c0.17	0.10		0.06	c0.13		0.03	0.11		c0.06	c0.26	
v/s Ratio Perm			0.02			0.05						
v/c Ratio	0.88	0.31	0.06	0.61	0.57	0.23	0.84	0.42		0.78	0.87	
Uniform Delay, d1	31.2	20.2	18.4	34.2	27.0	24.7	38.2	24.0		36.5	26.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	21.4	0.7	0.2	5.8	2.8	1.5	56.3	0.2		25.4	6.0	
Delay (s)	52.6	20.9	18.7	40.0	29.8	26.2	94.5	24.2		62.0	32.5	
Level of Service	D	C	B	D	C	C	F	C		E	C	
Approach Delay (s)		33.4			30.2			30.0			34.5	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	32.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	71.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	84	276	41	41	451	85	36	95	18	106	181	148
Future Volume (vph)	84	276	41	41	451	85	36	95	18	106	181	148
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00		1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.98			0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.99		0.95	1.00	1.00
Satd. Flow (prot)	1770	1826		1770	1819			1810		1770	1863	1583
Flt Permitted	0.14	1.00		0.40	1.00			0.99		0.95	1.00	1.00
Satd. Flow (perm)	270	1826		752	1819			1810		1770	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	91	300	45	45	490	92	39	103	20	115	197	161
RTOR Reduction (vph)	0	7	0	0	8	0	0	6	0	0	0	124
Lane Group Flow (vph)	91	338	0	45	574	0	0	156	0	115	197	37
Turn Type	Perm	NA		Perm	NA		Split	NA		Split	NA	Perm
Protected Phases		4			8		2	2		6	6	
Permitted Phases	4			8								6
Actuated Green, G (s)	27.6	27.6		27.6	27.6			18.9		18.1	18.1	18.1
Effective Green, g (s)	27.6	27.6		27.6	27.6			18.9		18.1	18.1	18.1
Actuated g/C Ratio	0.35	0.35		0.35	0.35			0.24		0.23	0.23	0.23
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5		4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	95	645		265	642			438		410	431	366
v/s Ratio Prot		0.19			0.32			c0.09		0.06	c0.11	
v/s Ratio Perm	c0.34			0.06								0.02
v/c Ratio	0.96	0.52		0.17	0.89			0.36		0.28	0.46	0.10
Uniform Delay, d1	24.7	20.0		17.4	23.9			24.6		24.6	25.8	23.6
Progression Factor	1.00	1.00		1.00	1.00			1.00		1.00	1.00	1.00
Incremental Delay, d2	77.7	0.8		0.3	14.8			2.3		1.7	3.5	0.6
Delay (s)	102.4	20.8		17.7	38.7			26.8		26.4	29.2	24.2
Level of Service	F	C		B	D			C		C	C	C
Approach Delay (s)		37.8			37.2			26.8			26.8	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	33.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	78.1	Sum of lost time (s)	13.5
Intersection Capacity Utilization	66.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	144	331	70	80	619	206	122	336	24	213	540	226
Future Volume (vph)	144	331	70	80	619	206	122	336	24	213	540	226
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.91		1.00	0.95	1.00	0.97	0.95		1.00	0.95	1.00
Frt	1.00	0.97		1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	4952		1770	3539	1583	3433	3504		1770	3539	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	4952		1770	3539	1583	3433	3504		1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	157	360	76	87	673	224	133	365	26	232	587	246
RTOR Reduction (vph)	0	39	0	0	0	170	0	7	0	0	0	155
Lane Group Flow (vph)	157	397	0	87	673	54	133	384	0	232	587	91
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						6
Actuated Green, G (s)	9.7	21.9		7.0	19.2	19.2	5.4	21.1		13.6	29.3	29.3
Effective Green, g (s)	9.7	21.9		7.0	19.2	19.2	5.4	21.1		13.6	29.3	29.3
Actuated g/C Ratio	0.12	0.28		0.09	0.24	0.24	0.07	0.27		0.17	0.37	0.37
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	215	1362		155	853	381	232	928		302	1302	582
v/s Ratio Prot	c0.09	c0.08		0.05	c0.19		0.04	0.11		c0.13	c0.17	
v/s Ratio Perm						0.03						0.06
v/c Ratio	0.73	0.29		0.56	0.79	0.14	0.57	0.41		0.77	0.45	0.16
Uniform Delay, d1	33.7	22.7		34.8	28.3	23.7	36.0	24.1		31.5	19.1	16.9
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	12.0	0.1		4.6	4.9	0.2	3.4	1.4		11.1	1.1	0.6
Delay (s)	45.7	22.9		39.4	33.2	23.9	39.4	25.5		42.6	20.2	17.4
Level of Service	D	C		D	C	C	D	C		D	C	B
Approach Delay (s)		28.9			31.6			29.0			24.4	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	28.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	79.6	Sum of lost time (s)	16.0
Intersection Capacity Utilization	60.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	36	250	75	108	458	85	80	376	56	75	543	100
Future Volume (vph)	36	250	75	108	458	85	80	376	56	75	543	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	1826		1770	1819	
Flt Permitted	0.18	1.00	1.00	0.38	1.00	1.00	0.11	1.00		0.32	1.00	
Satd. Flow (perm)	331	1863	1583	704	1863	1583	204	1826		592	1819	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	39	272	82	117	498	92	87	409	61	82	590	109
RTOR Reduction (vph)	0	0	61	0	0	66	0	6	0	0	7	0
Lane Group Flow (vph)	39	272	21	117	498	26	87	464	0	82	692	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	25.3	22.5	22.5	29.5	24.6	24.6	40.5	36.6		40.7	36.7	
Effective Green, g (s)	25.3	22.5	22.5	29.5	24.6	24.6	40.5	36.6		40.7	36.7	
Actuated g/C Ratio	0.29	0.26	0.26	0.34	0.29	0.29	0.47	0.43		0.47	0.43	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	144	487	414	302	532	452	167	777		334	776	
v/s Ratio Prot	0.01	0.15		c0.02	c0.27		c0.02	0.25		0.01	c0.38	
v/s Ratio Perm	0.07		0.01	0.11		0.02	0.22			0.10		
v/c Ratio	0.27	0.56	0.05	0.39	0.94	0.06	0.52	0.60		0.25	0.89	
Uniform Delay, d1	23.6	27.5	23.8	20.4	29.9	22.3	17.3	19.0		13.6	22.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.0	1.4	0.1	0.8	24.0	0.1	2.9	3.4		0.4	14.7	
Delay (s)	24.6	28.8	23.8	21.2	53.9	22.3	20.3	22.4		14.0	37.5	
Level of Service	C	C	C	C	D	C	C	C		B	D	
Approach Delay (s)		27.4			44.4			22.1			35.0	
Approach LOS		C			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	33.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	86.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	82.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	75	59	67	159	63	86	423	100	7	513	132
Future Volume (vph)	50	75	59	67	159	63	86	423	100	7	513	132
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	0.95	0.95	1.00		1.00	1.00	1.00	0.95	1.00	1.00	0.91	
Frt	1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00	1.00		0.99	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1681	1765	1583		1836	1583	1770	3539	1583	1770	4930	
Flt Permitted	0.95	1.00	1.00		0.99	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1681	1765	1583		1836	1583	1770	3539	1583	1770	4930	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	54	82	64	73	173	68	93	460	109	8	558	143
RTOR Reduction (vph)	0	0	57	0	0	55	0	0	63	0	47	0
Lane Group Flow (vph)	49	87	7	0	246	13	93	460	46	8	654	0
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			8			2			
Actuated Green, G (s)	7.1	7.1	7.1		13.4	13.4	5.6	28.9	28.9	0.9	24.2	
Effective Green, g (s)	7.1	7.1	7.1		13.4	13.4	5.6	28.9	28.9	0.9	24.2	
Actuated g/C Ratio	0.10	0.10	0.10		0.20	0.20	0.08	0.42	0.42	0.01	0.35	
Clearance Time (s)	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	174	183	164		360	310	145	1497	669	23	1746	
v/s Ratio Prot	0.03	c0.05			c0.13		c0.05	0.13		0.00	c0.13	
v/s Ratio Perm			0.00			0.01			0.03			
v/c Ratio	0.28	0.48	0.04		0.68	0.04	0.64	0.31	0.07	0.35	0.37	
Uniform Delay, d1	28.2	28.8	27.5		25.5	22.3	30.4	13.1	11.7	33.4	16.4	
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.9	1.9	0.1		5.3	0.1	9.3	0.5	0.2	8.9	0.6	
Delay (s)	29.1	30.8	27.6		30.8	22.3	39.7	13.6	11.9	42.3	17.0	
Level of Service	C	C	C		C	C	D	B	B	D	B	
Approach Delay (s)		29.4			28.9			17.0			17.3	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	20.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	68.3	Sum of lost time (s)	18.0
Intersection Capacity Utilization	48.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
65: La Verne Ave & Arrow Hwy

08/10/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	567	0	1	681	7	275	0	6	6	1	0
Future Volume (vph)	3	567	0	1	681	7	275	0	6	6	1	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0			4.0	
Lane Util. Factor	1.00	0.91		1.00	0.95	1.00		1.00			1.00	
Frt	1.00	1.00		1.00	1.00	0.85		1.00			1.00	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.95			0.96	
Satd. Flow (prot)	1770	5085		1770	3539	1583		1770			1785	
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.95			0.96	
Satd. Flow (perm)	1770	5085		1770	3539	1583		1770			1785	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	3	616	0	1	740	8	299	0	7	7	1	0
RTOR Reduction (vph)	0	0	0	0	0	5	0	111	0	0	0	0
Lane Group Flow (vph)	3	616	0	1	740	3	0	195	0	0	8	0
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA		Split	NA	
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases						8						
Actuated Green, G (s)	0.6	15.6		0.6	15.6	15.6		9.9			6.0	
Effective Green, g (s)	0.6	15.6		0.6	15.6	15.6		9.9			6.0	
Actuated g/C Ratio	0.01	0.32		0.01	0.32	0.32		0.21			0.12	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0		4.0			4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)	22	1649		22	1147	513		364			222	
v/s Ratio Prot	c0.00	0.12		0.00	c0.21			c0.11			c0.00	
v/s Ratio Perm						0.00						
v/c Ratio	0.14	0.37		0.05	0.65	0.01		0.54			0.04	
Uniform Delay, d1	23.5	12.5		23.5	13.9	11.0		17.0			18.5	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00			1.00	
Incremental Delay, d2	2.8	0.1		0.9	1.3	0.0		1.5			0.1	
Delay (s)	26.3	12.6		24.3	15.1	11.0		18.6			18.6	
Level of Service	C	B		C	B	B		B			B	
Approach Delay (s)		12.7			15.1			18.6			18.6	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	14.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	48.1	Sum of lost time (s)	16.0
Intersection Capacity Utilization	42.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	449	0	26	585	30	20	24	12	25	0	24
Future Volume (Veh/h)	23	449	0	26	585	30	20	24	12	25	0	24
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	25	488	0	28	636	33	22	26	13	27	0	26
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)									2			2
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		421										
pX, platoon unblocked				0.99			0.99	0.99	0.99	0.99	0.99	
vC, conflicting volume	669			488			912	1263	163	941	1246	334
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	669			461			888	1242	134	917	1225	334
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			97			90	84	99	86	100	96
cM capacity (veh/h)	917			1089			218	163	885	187	167	661

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	25	195	195	98	28	424	245	61	53
Volume Left	25	0	0	0	28	0	0	22	27
Volume Right	0	0	0	0	0	0	33	13	26
cSH	917	1700	1700	1700	1089	1700	1700	240	368
Volume to Capacity	0.03	0.11	0.11	0.06	0.03	0.25	0.14	0.25	0.14
Queue Length 95th (ft)	2	0	0	0	2	0	0	25	12
Control Delay (s)	9.0	0.0	0.0	0.0	8.4	0.0	0.0	25.9	19.2
Lane LOS	A				A			D	C
Approach Delay (s)	0.4				0.3			25.9	19.2
Approach LOS								D	C

Intersection Summary			
Average Delay	2.3		
Intersection Capacity Utilization	37.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	112	341	135	113	613	63	421	504	158	86	685	203
Future Volume (vph)	112	341	135	113	613	63	421	504	158	86	685	203
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.16	1.00	1.00	0.37	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	298	1863	1583	689	1863	1583	1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	122	371	147	123	666	68	458	548	172	93	745	221
RTOR Reduction (vph)	0	0	95	0	0	44	0	0	107	0	0	107
Lane Group Flow (vph)	122	371	52	123	666	24	458	548	65	93	745	114
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8		8			2			6
Actuated Green, G (s)	25.0	25.0	25.0	25.0	25.0	25.0	17.0	26.9	26.9	6.9	16.8	16.8
Effective Green, g (s)	25.0	25.0	25.0	25.0	25.0	25.0	17.0	26.9	26.9	6.9	16.8	16.8
Actuated g/C Ratio	0.35	0.35	0.35	0.35	0.35	0.35	0.24	0.38	0.38	0.10	0.24	0.24
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	105	657	558	243	657	558	425	1344	601	172	839	375
v/s Ratio Prot		0.20			0.36		c0.26	0.15		0.05	c0.21	
v/s Ratio Perm	c0.41		0.03	0.18		0.02			0.04			0.07
v/c Ratio	1.16	0.56	0.09	0.51	1.01	0.04	1.08	0.41	0.11	0.54	0.89	0.30
Uniform Delay, d1	22.9	18.5	15.3	18.0	22.9	15.0	26.9	16.1	14.2	30.4	26.1	22.2
Progression 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
Incremental Delay, d2	137.9	1.1	0.1	1.7	38.6	0.0	66.0	0.9	0.4	3.4	13.4	2.1
Delay (s)	160.8	19.6	15.4	19.7	61.5	15.1	92.9	17.0	14.6	33.9	39.5	24.3
Level of Service	F	B	B	B	E	B	F	B	B	C	D	C
Approach Delay (s)		45.6			51.8			46.2			35.8	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	44.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	70.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	94.1%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	19	0	1051	1052	0
Future Volume (Veh/h)	0	19	0	1051	1052	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	21	0	1142	1143	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				1319	1000	
pX, platoon unblocked	0.92	0.83	0.83			
vC, conflicting volume	1714	572	1143			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	794	91	775			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	97	100			
cM capacity (veh/h)	298	792	698			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	21	0	571	571	762	381
Volume Left	0	0	0	0	0	0
Volume Right	21	0	0	0	0	0
cSH	792	1700	1700	1700	1700	1700
Volume to Capacity	0.03	0.00	0.34	0.34	0.45	0.22
Queue Length 95th (ft)	2	0	0	0	0	0
Control Delay (s)	9.7	0.0	0.0	0.0	0.0	0.0
Lane LOS	A					
Approach Delay (s)	9.7	0.0			0.0	
Approach LOS	A					

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	39.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	87	263	42	127	574	233	170	780	129	173	767	47
Future Volume (vph)	87	263	42	127	574	233	170	780	129	173	767	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	0.95		1.00	0.95	
Frt	1.00	0.98		1.00	0.96		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	4980		1770	4865		1770	3464		1770	3509	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	4980		1770	4865		1770	3464		1770	3509	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	95	286	46	138	624	253	185	848	140	188	834	51
RTOR Reduction (vph)	0	31	0	0	103	0	0	19	0	0	6	0
Lane Group Flow (vph)	95	301	0	138	774	0	185	969	0	188	879	0
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	4.6	14.8		6.1	16.3		9.0	22.0		9.0	22.0	
Effective Green, g (s)	4.6	14.8		6.1	16.3		9.0	22.0		9.0	22.0	
Actuated g/C Ratio	0.07	0.22		0.09	0.24		0.13	0.32		0.13	0.32	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	119	1085		159	1167		234	1122		234	1136	
v/s Ratio Prot	0.05	0.06		c0.08	c0.16		0.10	c0.28		c0.11	0.25	
v/s Ratio Perm												
v/c Ratio	0.80	0.28		0.87	0.66		0.79	0.86		0.80	0.77	
Uniform Delay, d1	31.2	22.1		30.5	23.3		28.5	21.5		28.6	20.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	30.0	0.1		36.0	1.4		16.5	7.1		17.8	3.3	
Delay (s)	61.2	22.2		66.5	24.7		45.0	28.6		46.4	24.1	
Level of Service	E	C		E	C		D	C		D	C	
Approach Delay (s)		30.9			30.4			31.2			28.0	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	30.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	67.9	Sum of lost time (s)	16.0
Intersection Capacity Utilization	69.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	137	79	126	244	74	332	861	95	104	978	198
Future Volume (vph)	55	137	79	126	244	74	332	861	95	104	978	198
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.26	1.00	1.00	0.55	1.00	1.00	0.24	1.00	1.00	0.28	1.00	1.00
Satd. Flow (perm)	490	1863	1583	1016	1863	1583	452	3539	1583	528	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	60	149	86	137	265	80	361	936	103	113	1063	215
RTOR Reduction (vph)	0	0	71	0	0	66	0	0	27	0	0	40
Lane Group Flow (vph)	60	149	15	137	265	14	361	936	76	113	1063	175
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	15.2	15.2	15.2	15.2	15.2	15.2	66.0	66.0	66.0	66.0	66.0	66.0
Effective Green, g (s)	15.2	15.2	15.2	15.2	15.2	15.2	66.0	66.0	66.0	66.0	66.0	66.0
Actuated g/C Ratio	0.17	0.17	0.17	0.17	0.17	0.17	0.74	0.74	0.74	0.74	0.74	0.74
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	83	317	269	173	317	269	334	2618	1171	390	2618	1171
v/s Ratio Prot		0.08			c0.14			0.26			0.30	
v/s Ratio Perm	0.12		0.01	0.13		0.01	c0.80		0.05	0.21		0.11
v/c Ratio	0.72	0.47	0.05	0.79	0.84	0.05	1.08	0.36	0.07	0.29	0.41	0.15
Uniform Delay, d1	35.0	33.4	31.0	35.5	35.8	31.0	11.6	4.1	3.2	3.8	4.3	3.4
Progression 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
Incremental Delay, d2	26.5	1.1	0.1	21.5	17.1	0.1	72.5	0.4	0.1	1.9	0.5	0.3
Delay (s)	61.5	34.5	31.1	56.9	52.9	31.0	84.1	4.5	3.3	5.7	4.8	3.7
Level of Service	E	C	C	E	D	C	F	A	A	A	A	A
Approach Delay (s)		39.0			50.4			24.9			4.7	
Approach LOS		D			D			C			A	

Intersection Summary			
HCM 2000 Control Delay	21.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	89.2	Sum of lost time (s)	8.0
Intersection Capacity Utilization	74.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	15	1340	35	41	1186
Future Volume (Veh/h)	0	15	1340	35	41	1186
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	16	1457	38	45	1289
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			916			
pX, platoon unblocked	0.75	0.75			0.75	
vC, conflicting volume	2210	748			1495	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1951	8			1001	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	98			91	
cM capacity (veh/h)	39	807			518	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	0	16	971	524	45	644	644
Volume Left	0	0	0	0	45	0	0
Volume Right	0	16	0	38	0	0	0
cSH	1700	807	1700	1700	518	1700	1700
Volume to Capacity	0.00	0.02	0.57	0.31	0.09	0.38	0.38
Queue Length 95th (ft)	0	2	0	0	7	0	0
Control Delay (s)	0.0	9.6	0.0	0.0	12.6	0.0	0.0
Lane LOS	A	A			B		
Approach Delay (s)	9.6		0.0		0.4		
Approach LOS	A						

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	48.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	208	374	114	115	764	240	174	808	118	227	986	283
Future Volume (vph)	208	374	114	115	764	240	174	808	118	227	986	283
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.96		1.00	0.96		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	4907		1770	4903		1770	3472		1770	3539	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	4907		1770	4903		1770	3472		1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	226	407	124	125	830	261	189	878	128	247	1072	308
RTOR Reduction (vph)	0	60	0	0	63	0	0	13	0	0	0	127
Lane Group Flow (vph)	226	471	0	125	1028	0	189	993	0	247	1072	181
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												6
Actuated Green, G (s)	12.0	20.5		10.5	19.0		10.0	29.0		14.0	33.0	33.0
Effective Green, g (s)	12.0	20.5		10.5	19.0		10.0	29.0		14.0	33.0	33.0
Actuated g/C Ratio	0.13	0.23		0.12	0.21		0.11	0.32		0.16	0.37	0.37
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	236	1117		206	1035		196	1118		275	1297	580
v/s Ratio Prot	c0.13	0.10		0.07	c0.21		0.11	0.29		c0.14	c0.30	
v/s Ratio Perm												0.11
v/c Ratio	0.96	0.42		0.61	0.99		0.96	0.89		0.90	0.83	0.31
Uniform Delay, d1	38.7	29.7		37.8	35.4		39.8	29.0		37.3	25.9	20.4
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	46.3	0.3		5.0	26.2		53.6	10.6		29.1	6.1	1.4
Delay (s)	85.0	29.9		42.8	61.6		93.4	39.5		66.4	32.0	21.8
Level of Service	F	C		D	E		F	D		E	C	C
Approach Delay (s)		46.4			59.7			48.1			35.3	
Approach LOS		D			E			D			D	

Intersection Summary			
HCM 2000 Control Delay	46.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	83.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	15	67	159	19	57	35	533	86	56	736	19
Future Volume (vph)	27	15	67	159	19	57	35	533	86	56	736	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		1.00			1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.92			0.97		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.99			0.97		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1686			1743		1770	3539	1583	1770	3539	1583
Flt Permitted		0.91			0.78		0.32	1.00	1.00	0.43	1.00	1.00
Satd. Flow (perm)		1549			1401		591	3539	1583	796	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	29	16	73	173	21	62	38	579	93	61	800	21
RTOR Reduction (vph)	0	53	0	0	24	0	0	0	40	0	0	9
Lane Group Flow (vph)	0	65	0	0	232	0	38	579	53	61	800	12
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)		13.9			13.9		29.4	29.4	29.4	29.4	29.4	29.4
Effective Green, g (s)		13.9			13.9		29.4	29.4	29.4	29.4	29.4	29.4
Actuated g/C Ratio		0.27			0.27		0.57	0.57	0.57	0.57	0.57	0.57
Clearance Time (s)		4.0			4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		419			379		338	2028	907	456	2028	907
v/s Ratio Prot								0.16			c0.23	
v/s Ratio Perm		0.04			c0.17		0.06		0.03	0.08		0.01
v/c Ratio		0.15			0.61		0.11	0.29	0.06	0.13	0.39	0.01
Uniform Delay, d1		14.2			16.3		5.0	5.6	4.8	5.1	6.0	4.7
Progression Factor		1.00			1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		0.2			2.9		0.7	0.4	0.1	0.6	0.6	0.0
Delay (s)		14.4			19.3		5.7	5.9	5.0	5.7	6.6	4.7
Level of Service		B			B		A	A	A	A	A	A
Approach Delay (s)		14.4			19.3			5.8			6.5	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM 2000 Control Delay	8.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	51.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	53.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	13	552	416	11	26	81
Future Volume (Veh/h)	13	552	416	11	26	81
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	14	600	452	12	28	88
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						2
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	464				1086	458
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	464				1086	458
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				88	85
cM capacity (veh/h)	1097				236	603

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	614	464	116
Volume Left	14	0	28
Volume Right	0	12	88
cSH	1097	1700	795
Volume to Capacity	0.01	0.27	0.15
Queue Length 95th (ft)	1	0	13
Control Delay (s)	0.4	0.0	14.5
Lane LOS	A		B
Approach Delay (s)	0.4	0.0	14.5
Approach LOS			B

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	49.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	28	102	9	0	78
Future Volume (Veh/h)	0	28	102	9	0	78
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	30	111	10	0	85
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	201	116			121	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	201	116			121	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	97			100	
cM capacity (veh/h)	788	936			1467	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	30	121	85
Volume Left	0	0	0
Volume Right	30	10	0
cSH	936	1700	1467
Volume to Capacity	0.03	0.07	0.00
Queue Length 95th (ft)	2	0	0
Control Delay (s)	9.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	9.0	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	15.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	7	11	15	65	23	1
Future Volume (Veh/h)	7	11	15	65	23	1
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	8	12	16	71	25	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	87				80	52
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	87				80	52
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				97	100
cM capacity (veh/h)	1509				918	1016

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	20	87	26
Volume Left	8	0	25
Volume Right	0	71	1
cSH	1509	1700	922
Volume to Capacity	0.01	0.05	0.03
Queue Length 95th (ft)	0	0	2
Control Delay (s)	3.0	0.0	9.0
Lane LOS	A		A
Approach Delay (s)	3.0	0.0	9.0
Approach LOS			A

Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	16.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	485	161	615	577	18	1	0	21	39	0	51
Future Volume (Veh/h)	18	485	161	615	577	18	1	0	21	39	0	51
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	20	527	175	668	627	20	1	0	23	42	0	55
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (ft)					620							
pX, platoon unblocked												
vC, conflicting volume	647			702			2672	2638	614	2553	2705	627
vC1, stage 1 conf vol							654	654		1963	1963	
vC2, stage 2 conf vol							2018	1983		590	742	
vCu, unblocked vol	647			702			2672	2638	614	2553	2705	627
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			25			80	100	95	0	100	89
cM capacity (veh/h)	939			895			5	7	491	7	5	484

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	20	702	668	627	20	24	97
Volume Left	20	0	668	0	0	1	42
Volume Right	0	175	0	0	20	23	55
cSH	939	1700	895	1700	1700	97	15
Volume to Capacity	0.02	0.41	0.75	0.37	0.01	0.25	6.54
Queue Length 95th (ft)	2	0	177	0	0	22	Err
Control Delay (s)	8.9	0.0	19.8	0.0	0.0	54.0	Err
Lane LOS	A		C			F	F
Approach Delay (s)	0.2		10.1			54.0	Err
Approach LOS						F	F

Intersection Summary			
Average Delay	456.3		
Intersection Capacity Utilization	91.4%	ICU Level of Service	F
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	383	678	111	0	26
Future Vol, veh/h	0	383	678	111	0	26
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	-	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	416	737	121	0	28

Major/Minor	Major2		Minor2	
Conflicting Flow All	-	0	-	429
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	-	3.92
Pot Cap-1 Maneuver	-	-	0	491
Stage 1	-	-	0	-
Stage 2	-	-	0	-
Platoon blocked, %	-	-		
Mov Cap-1 Maneuver	-	-	-	491
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	WB	SB
HCM Control Delay, s	0	12.8
HCM LOS		B

Minor Lane/Major Mvmt	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	491
HCM Lane V/C Ratio	-	-	0.058
HCM Control Delay (s)	-	-	12.8
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	153	0	0	10	0	1071	20	0	928	34
Future Volume (Veh/h)	0	0	153	0	0	10	0	1071	20	0	928	34
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	166	0	0	11	0	1164	22	0	1009	37
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											523	
pX, platoon unblocked	0.80	0.80	0.80	0.80	0.80		0.80					
vC, conflicting volume	1620	2214	523	1846	2221	593	1046			1186		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1278	2018	0	1559	2028	593	561			1186		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	81	100	100	98	100			100		
cM capacity (veh/h)	96	46	869	49	46	449	806			585		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	166	11	776	410	673	373
Volume Left	0	0	0	0	0	0
Volume Right	166	11	0	22	0	37
cSH	869	449	1700	1700	1700	1700
Volume to Capacity	0.19	0.02	0.46	0.24	0.40	0.22
Queue Length 95th (ft)	18	2	0	0	0	0
Control Delay (s)	10.1	13.2	0.0	0.0	0.0	0.0
Lane LOS	B	B				
Approach Delay (s)	10.1	13.2	0.0		0.0	
Approach LOS	B	B				

Intersection Summary				
Average Delay	0.8			
Intersection Capacity Utilization	42.9%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	512	34	43	1161	27	50
Future Volume (Veh/h)	512	34	43	1161	27	50
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	557	37	47	1262	29	54
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)				479		
pX, platoon unblocked					0.66	
vC, conflicting volume			594		1932	576
vC1, stage 1 conf vol					576	
vC2, stage 2 conf vol					1356	
vCu, unblocked vol			594		2154	576
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)			2.2		3.5	3.3
p0 queue free %			95		81	90
cM capacity (veh/h)			982		154	517

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	594	47	1262	83
Volume Left	0	47	0	29
Volume Right	37	0	0	54
cSH	1700	982	1700	283
Volume to Capacity	0.35	0.05	0.74	0.29
Queue Length 95th (ft)	0	4	0	30
Control Delay (s)	0.0	8.8	0.0	22.9
Lane LOS		A		C
Approach Delay (s)	0.0	0.3		22.9
Approach LOS				C

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	72.3%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	8	16	1083	978	5
Future Volume (Veh/h)	0	8	16	1083	978	5
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	9	17	1177	1063	5
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				755		
pX, platoon unblocked	0.78					
vC, conflicting volume	1688	534	1068			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1313	534	1068			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	98	97			
cM capacity (veh/h)	114	491	648			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	9	17	588	588	709	359
Volume Left	0	17	0	0	0	0
Volume Right	9	0	0	0	0	5
cSH	491	648	1700	1700	1700	1700
Volume to Capacity	0.02	0.03	0.35	0.35	0.42	0.21
Queue Length 95th (ft)	1	2	0	0	0	0
Control Delay (s)	12.5	10.7	0.0	0.0	0.0	0.0
Lane LOS	B	B				
Approach Delay (s)	12.5	0.2			0.0	
Approach LOS	B					

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	39.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1	2	8	0	2	6	57	7	0	12	1
Future Volume (Veh/h)	0	1	2	8	0	2	6	57	7	0	12	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1	2	9	0	2	7	62	8	0	13	1
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	96	98	14	96	94	66	14			70		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	96	98	14	96	94	66	14			70		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	99	100	100	100			100		
cM capacity (veh/h)	883	789	1067	881	793	998	1604			1531		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	3	11	77	14
Volume Left	0	9	7	0
Volume Right	2	2	8	1
cSH	955	900	1604	1531
Volume to Capacity	0.00	0.01	0.00	0.00
Queue Length 95th (ft)	0	1	0	0
Control Delay (s)	8.8	9.0	0.7	0.0
Lane LOS	A	A	A	
Approach Delay (s)	8.8	9.0	0.7	0.0
Approach LOS	A	A		

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	22.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	313	26	18	718	10	10	2	3	7	0	10
Future Volume (Veh/h)	30	313	26	18	718	10	10	2	3	7	0	10
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	33	340	28	20	780	11	11	2	3	8	0	11
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	791			368			861	1251	127	1009	1260	396
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	791			368			861	1251	127	1009	1260	396
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	96			98			95	99	100	96	100	98
cM capacity (veh/h)	825			1187			234	162	899	184	160	604

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	33	136	136	96	20	520	271	16	19
Volume Left	33	0	0	0	20	0	0	11	8
Volume Right	0	0	0	28	0	0	11	3	11
cSH	825	1700	1700	1700	1187	1700	1700	255	308
Volume to Capacity	0.04	0.08	0.08	0.06	0.02	0.31	0.16	0.06	0.06
Queue Length 95th (ft)	3	0	0	0	1	0	0	5	5
Control Delay (s)	9.5	0.0	0.0	0.0	8.1	0.0	0.0	20.0	17.5
Lane LOS	A				A			C	C
Approach Delay (s)	0.8				0.2			20.0	17.5
Approach LOS								C	C

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	34.9%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Signalized Intersection Capacity Analysis
75: Indian Hill Blvd & Bonita Ave

08/10/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	109	150	17	78	29	111	470	27	43	526	39
Future Volume (vph)	65	109	150	17	78	29	111	470	27	43	526	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. 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
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	1863	1583	1770	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.24	1.00	1.00	0.33	1.00	1.00
Satd. Flow (perm)	1770	1863	1583	1770	1863	1583	445	1863	1583	611	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	71	118	163	18	85	32	121	511	29	47	572	42
RTOR Reduction (vph)	0	0	127	0	0	26	0	0	16	0	0	24
Lane Group Flow (vph)	71	118	36	18	85	6	121	511	13	47	572	18
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8	2		2	6		6
Actuated Green, G (s)	3.9	14.3	14.3	0.9	11.3	11.3	33.3	29.4	29.4	31.3	28.4	28.4
Effective Green, g (s)	3.9	14.3	14.3	0.9	11.3	11.3	33.3	29.4	29.4	31.3	28.4	28.4
Actuated g/C Ratio	0.06	0.22	0.22	0.01	0.17	0.17	0.51	0.45	0.45	0.48	0.43	0.43
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	105	406	345	24	321	273	305	836	710	343	807	686
v/s Ratio Prot	c0.04	c0.06		0.01	0.05		c0.02	0.27		0.01	c0.31	
v/s Ratio Perm			0.02			0.00	0.18		0.01	0.06		0.01
v/c Ratio	0.68	0.29	0.10	0.75	0.26	0.02	0.40	0.61	0.02	0.14	0.71	0.03
Uniform Delay, d1	30.2	21.4	20.5	32.2	23.5	22.5	10.2	13.7	10.0	9.8	15.2	10.6
Progression 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
Incremental Delay, d2	15.9	0.4	0.1	80.1	0.4	0.0	0.9	3.3	0.0	0.2	5.2	0.1
Delay (s)	46.1	21.8	20.6	112.3	23.9	22.5	11.0	17.0	10.1	10.0	20.4	10.7
Level of Service	D	C	C	F	C	C	B	B	B	A	C	B
Approach Delay (s)		26.1			35.4			15.6			19.0	
Approach LOS		C			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	20.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	65.5	Sum of lost time (s)	18.0
Intersection Capacity Utilization	55.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	15	53	86	18	48	41	528	167	52	591	17
Future Volume (vph)	2	15	53	86	18	48	41	528	167	52	591	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	1863	1583	1770	1855	
Flt Permitted	0.74	1.00	1.00	0.75	1.00	1.00	0.31	1.00	1.00	0.34	1.00	
Satd. Flow (perm)	1386	1863	1583	1392	1863	1583	571	1863	1583	626	1855	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2	16	58	93	20	52	45	574	182	57	642	18
RTOR Reduction (vph)	0	0	50	0	0	45	0	0	81	0	1	0
Lane Group Flow (vph)	2	16	8	93	20	7	45	574	101	57	659	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		
Actuated Green, G (s)	7.3	7.3	7.3	7.3	7.3	7.3	31.0	29.2	29.2	33.0	30.2	
Effective Green, g (s)	7.3	7.3	7.3	7.3	7.3	7.3	31.0	29.2	29.2	33.0	30.2	
Actuated g/C Ratio	0.14	0.14	0.14	0.14	0.14	0.14	0.59	0.55	0.55	0.63	0.57	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	191	257	218	192	257	218	376	1030	875	451	1061	
v/s Ratio Prot		0.01			0.01		0.00	0.31		c0.01	c0.36	
v/s Ratio Perm	0.00		0.01	c0.07		0.00	0.07		0.06	0.07		
v/c Ratio	0.01	0.06	0.04	0.48	0.08	0.03	0.12	0.56	0.12	0.13	0.62	
Uniform Delay, d1	19.6	19.8	19.7	21.0	19.8	19.7	5.2	7.6	5.6	4.4	7.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.0	0.1	0.1	1.9	0.1	0.1	0.1	2.2	0.3	0.1	2.7	
Delay (s)	19.7	19.9	19.8	22.9	19.9	19.8	5.3	9.8	5.9	4.5	10.2	
Level of Service	B	B	B	C	B	B	A	A	A	A	B	
Approach Delay (s)		19.8			21.6			8.7			9.8	
Approach LOS		B			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	10.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	52.8	Sum of lost time (s)	13.5
Intersection Capacity Utilization	59.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	16	0	0	11	44	728	7	0	864	39
Future Volume (Veh/h)	0	0	16	0	0	11	44	728	7	0	864	39
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	17	0	0	12	48	791	8	0	939	42
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											312	
pX, platoon unblocked												
vC, conflicting volume	1464	1855	490	1378	1872	400	981			799		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1464	1855	490	1378	1872	400	981			799		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	97	100	100	98	93			100		
cM capacity (veh/h)	83	68	524	95	66	600	699			819		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	17	12	48	527	272	470	512
Volume Left	0	0	48	0	0	0	0
Volume Right	17	12	0	0	8	0	42
cSH	524	600	699	1700	1700	819	1700
Volume to Capacity	0.03	0.02	0.07	0.31	0.16	0.00	0.30
Queue Length 95th (ft)	3	2	6	0	0	0	0
Control Delay (s)	12.1	11.1	10.5	0.0	0.0	0.0	0.0
Lane LOS	B	B	B				
Approach Delay (s)	12.1	11.1	0.6			0.0	
Approach LOS	B	B					

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	39.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	383	133	90	432	47	169	644	130	75	565	52
Future Volume (vph)	47	383	133	90	432	47	169	644	130	75	565	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3494	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3494	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	51	416	145	98	470	51	184	700	141	82	614	57
RTOR Reduction (vph)	0	0	113	0	0	39	0	0	87	0	10	0
Lane Group Flow (vph)	51	416	32	98	470	12	184	700	54	82	661	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			
Actuated Green, G (s)	2.8	14.5	14.5	4.2	15.9	15.9	9.2	25.2	25.2	4.5	20.5	
Effective Green, g (s)	2.8	14.5	14.5	4.2	15.9	15.9	9.2	25.2	25.2	4.5	20.5	
Actuated g/C Ratio	0.04	0.22	0.22	0.06	0.24	0.24	0.14	0.38	0.38	0.07	0.31	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	74	772	345	111	847	379	245	1343	600	119	1078	
v/s Ratio Prot	0.03	0.12		c0.06	c0.13		c0.10	0.20		0.05	c0.19	
v/s Ratio Perm			0.02			0.01			0.03			
v/c Ratio	0.69	0.54	0.09	0.88	0.55	0.03	0.75	0.52	0.09	0.69	0.61	
Uniform Delay, d1	31.4	23.0	20.7	30.9	22.1	19.4	27.5	15.9	13.2	30.3	19.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	23.5	0.7	0.1	50.5	0.8	0.0	12.2	1.4	0.3	15.3	2.6	
Delay (s)	54.8	23.7	20.8	81.3	22.9	19.4	39.7	17.4	13.5	45.6	22.2	
Level of Service	D	C	C	F	C	B	D	B	B	D	C	
Approach Delay (s)		25.6			31.9			20.9			24.7	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	25.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	66.4	Sum of lost time (s)	18.0
Intersection Capacity Utilization	57.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	33	18	51	8	7	16	50	226	33	17	216	36
Future Volume (vph)	33	18	51	8	7	16	50	226	33	17	216	36
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	36	20	55	9	8	17	54	246	36	18	235	39

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total (vph)	111	34	300	36	292
Volume Left (vph)	36	9	54	0	18
Volume Right (vph)	55	17	0	36	39
Hadj (s)	-0.20	-0.21	0.12	-0.67	-0.03
Departure Headway (s)	5.3	5.4	5.3	4.5	4.8
Degree Utilization, x	0.16	0.05	0.44	0.04	0.39
Capacity (veh/h)	612	575	660	768	723
Control Delay (s)	9.3	8.7	11.2	6.5	10.8
Approach Delay (s)	9.3	8.7	10.7		10.8
Approach LOS	A	A	B		B

Intersection Summary			
Delay	10.4		
Level of Service	B		
Intersection Capacity Utilization	43.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	267	33	58	94	77	20	243	125	142	139	16
Future Volume (veh/h)	22	267	33	58	94	77	20	243	125	142	139	16
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	24	290	36	63	102	84	22	264	136	154	151	17
Adj No. of Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	51	402	342	108	462	392	47	390	332	199	550	467
Arrive On Green	0.03	0.22	0.22	0.06	0.25	0.25	0.03	0.21	0.21	0.11	0.30	0.30
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	24	290	36	63	102	84	22	264	136	154	151	17
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1863	1583	1774	1863	1583
Q Serve(g_s), s	0.6	6.5	0.8	1.6	2.0	1.9	0.5	5.9	3.3	3.8	2.8	0.3
Cycle Q Clear(g_c), s	0.6	6.5	0.8	1.6	2.0	1.9	0.5	5.9	3.3	3.8	2.8	0.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	51	402	342	108	462	392	47	390	332	199	550	467
V/C Ratio(X)	0.47	0.72	0.11	0.59	0.22	0.21	0.46	0.68	0.41	0.77	0.27	0.04
Avail Cap(c_a), veh/h	198	748	635	198	748	635	198	810	688	376	997	847
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	21.4	16.3	14.1	20.5	13.4	13.4	21.5	16.3	15.3	19.3	12.1	11.3
Incr Delay (d2), s/veh	6.6	2.4	0.1	5.0	0.2	0.3	6.9	2.1	0.8	6.2	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	3.6	0.4	0.9	1.0	0.8	0.4	3.2	1.5	2.2	1.5	0.2
LnGrp Delay(d),s/veh	28.0	18.8	14.2	25.5	13.7	13.7	28.4	18.4	16.1	25.6	12.4	11.3
LnGrp LOS	C	B	B	C	B	B	C	B	B	C	B	B
Approach Vol, veh/h		350			249			422			322	
Approach Delay, s/veh		18.9			16.7			18.2			18.6	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.5	13.9	7.2	14.2	5.7	17.7	5.8	15.6
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	9.5	19.5	5.0	18.0	5.0	24.0	5.0	18.0
Max Q Clear Time (g_c+I1), s	5.8	7.9	3.6	8.5	2.5	4.8	2.6	4.0
Green Ext Time (p_c), s	0.1	1.5	0.0	1.2	0.0	0.8	0.0	0.6

Intersection Summary	
HCM 2010 Ctrl Delay	18.2
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	122	384	29	31	566	146	28	170	11	52	96	78
Future Volume (vph)	122	384	29	31	566	146	28	170	11	52	96	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.97			1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.99	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3501		1770	3430			1850	1583	1770	1863	1583
Flt Permitted	0.28	1.00		0.49	1.00			0.96	1.00	0.62	1.00	1.00
Satd. Flow (perm)	513	3501		916	3430			1785	1583	1162	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	133	417	32	34	615	159	30	185	12	57	104	85
RTOR Reduction (vph)	0	12	0	0	48	0	0	0	7	0	0	48
Lane Group Flow (vph)	133	437	0	34	726	0	0	215	5	57	104	37
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	18.3	18.3		18.3	18.3			20.9	20.9	20.9	20.9	20.9
Effective Green, g (s)	18.3	18.3		18.3	18.3			20.9	20.9	20.9	20.9	20.9
Actuated g/C Ratio	0.38	0.38		0.38	0.38			0.43	0.43	0.43	0.43	0.43
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	194	1329		347	1302			773	686	503	807	686
v/s Ratio Prot		0.12			0.21						0.06	
v/s Ratio Perm	c0.26			0.04				c0.12	0.00	0.05		0.02
v/c Ratio	0.69	0.33		0.10	0.56			0.28	0.01	0.11	0.13	0.05
Uniform Delay, d1	12.5	10.6		9.6	11.8			8.8	7.8	8.1	8.2	7.9
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	9.6	0.1		0.1	0.5			0.9	0.0	0.5	0.3	0.1
Delay (s)	22.2	10.7		9.8	12.3			9.7	7.8	8.6	8.5	8.1
Level of Service	C	B		A	B			A	A	A	A	A
Approach Delay (s)		13.4			12.2			9.6			8.4	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM 2000 Control Delay	11.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	48.2	Sum of lost time (s)	9.0
Intersection Capacity Utilization	57.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	52	1	52	1	9	0	291	233	3	2	292	384
Future Volume (vph)	52	1	52	1	9	0	291	233	3	2	292	384
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00		1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85		1.00		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00		1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583		1854		1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00	1.00		1.00		0.56	1.00	1.00	0.60	1.00	1.00
Satd. Flow (perm)	1770	1863	1583		1854		1042	3539	1583	1108	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	57	1	57	1	10	0	316	253	3	2	317	417
RTOR Reduction (vph)	0	0	51	0	0	0	0	0	1	0	0	146
Lane Group Flow (vph)	57	1	6	0	11	0	316	253	2	2	317	271
Turn Type	Split	NA	Perm	Split	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	4	4		8	8			2			6	
Permitted Phases			4			8	2		2	6	6	6
Actuated Green, G (s)	6.0	6.0	6.0		1.2		38.5	38.5	38.5	38.5	38.5	38.5
Effective Green, g (s)	6.0	6.0	6.0		1.2		38.5	38.5	38.5	38.5	38.5	38.5
Actuated g/C Ratio	0.10	0.10	0.10		0.02		0.65	0.65	0.65	0.65	0.65	0.65
Clearance Time (s)	4.5	4.5	4.5		4.5		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	179	188	160		37		677	2301	1029	720	2301	1029
v/s Ratio Prot	c0.03	0.00			c0.01			0.07			0.09	
v/s Ratio Perm			0.00				c0.30		0.00	0.00		0.17
v/c Ratio	0.32	0.01	0.04		0.30		0.47	0.11	0.00	0.00	0.14	0.26
Uniform Delay, d1	24.7	23.9	24.0		28.6		5.2	3.9	3.6	3.6	4.0	4.4
Progression Factor	1.00	1.00	1.00		1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.0	0.0	0.1		4.5		2.3	0.1	0.0	0.0	0.1	0.6
Delay (s)	25.7	23.9	24.1		33.0		7.5	4.0	3.6	3.6	4.1	5.0
Level of Service	C	C	C		C		A	A	A	A	A	A
Approach Delay (s)		24.9			33.0			5.9			4.6	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	7.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	59.2	Sum of lost time (s)	13.5
Intersection Capacity Utilization	55.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	119	312	27	33	464	117	87	264	19	36	177	151
Future Volume (vph)	119	312	27	33	464	117	87	264	19	36	177	151
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.97		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3497		1770	3432		1770	3503		1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	3497		1770	3432		1770	3503		1770	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	129	339	29	36	504	127	95	287	21	39	192	164
RTOR Reduction (vph)	0	9	0	0	32	0	0	7	0	0	0	112
Lane Group Flow (vph)	129	359	0	36	599	0	95	301	0	39	192	52
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												6
Actuated Green, G (s)	6.2	21.5		2.1	17.4		4.7	22.8		3.1	21.2	21.2
Effective Green, g (s)	6.2	21.5		2.1	17.4		4.7	22.8		3.1	21.2	21.2
Actuated g/C Ratio	0.09	0.32		0.03	0.26		0.07	0.34		0.05	0.31	0.31
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	162	1113		55	884		123	1183		81	585	497
v/s Ratio Prot	c0.07	c0.10		0.02	c0.17		c0.05	0.09		0.02	c0.10	
v/s Ratio Perm												0.03
v/c Ratio	0.80	0.32		0.65	0.68		0.77	0.25		0.48	0.33	0.10
Uniform Delay, d1	30.0	17.5		32.3	22.5		30.9	16.2		31.4	17.7	16.4
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	23.1	0.2		24.6	2.1		25.4	0.5		4.5	1.5	0.4
Delay (s)	53.1	17.6		57.0	24.6		56.3	16.7		35.9	19.2	16.8
Level of Service	D	B		E	C		E	B		D	B	B
Approach Delay (s)		26.9			26.4			26.0			19.9	
Approach LOS		C			C			C			B	

Intersection Summary			
HCM 2000 Control Delay	25.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	67.5	Sum of lost time (s)	18.0
Intersection Capacity Utilization	52.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
84: Monte Vista Ave & Arrow Route

08/10/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	77	23	65	180	40	70	519	58	23	935	44
Future Volume (vph)	42	77	23	65	180	40	70	519	58	23	935	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00	0.97	0.91		1.00	0.91	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3417		1770	1863	1583	3433	5009		1770	5051	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3417		1770	1863	1583	3433	5009		1770	5051	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	46	84	25	71	196	43	76	564	63	25	1016	48
RTOR Reduction (vph)	0	21	0	0	0	35	0	16	0	0	6	0
Lane Group Flow (vph)	46	88	0	71	196	8	76	611	0	25	1058	0
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						
Actuated Green, G (s)	3.2	11.1		3.8	11.7	11.7	2.7	27.7		1.8	26.8	
Effective Green, g (s)	3.2	11.1		3.8	11.7	11.7	2.7	27.7		1.8	26.8	
Actuated g/C Ratio	0.05	0.18		0.06	0.19	0.19	0.04	0.44		0.03	0.43	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	90	607		107	349	296	148	2223		51	2169	
v/s Ratio Prot	0.03	0.03		c0.04	c0.11		c0.02	0.12		0.01	c0.21	
v/s Ratio Perm						0.01						
v/c Ratio	0.51	0.15		0.66	0.56	0.03	0.51	0.28		0.49	0.49	
Uniform Delay, d1	28.8	21.6		28.7	23.0	20.7	29.2	11.0		29.8	12.8	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.8	0.1		14.4	2.1	0.0	3.0	0.3		7.2	0.8	
Delay (s)	33.7	21.8		43.1	25.1	20.7	32.2	11.3		37.1	13.6	
Level of Service	C	C		D	C	C	C	B		D	B	
Approach Delay (s)		25.3			28.6			13.6			14.2	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	16.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	62.4	Sum of lost time (s)	18.0
Intersection Capacity Utilization	51.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	77	0	39	0	610	343	148	828	0
Future Volume (vph)	0	0	0	77	0	39	0	610	343	148	828	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5		4.5		4.5	4.5	4.5	4.5	
Lane Util. Factor				1.00		1.00		0.95	1.00	0.97	0.91	
Frt				1.00		0.85		1.00	0.85	1.00	1.00	
Flt Protected				0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)				1770		1583		3539	1583	3433	5085	
Flt Permitted				0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (perm)				1770		1583		3539	1583	3433	5085	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	84	0	42	0	663	373	161	900	0
RTOR Reduction (vph)	0	0	0	0	0	38	0	0	111	0	0	0
Lane Group Flow (vph)	0	0	0	84	0	4	0	663	262	161	900	0
Turn Type	Perm		Perm	Prot		Perm	Prot	NA	Perm	Prot	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4			8			2			
Actuated Green, G (s)				4.1		4.1		24.6	24.6	4.4	33.5	
Effective Green, g (s)				4.1		4.1		24.6	24.6	4.4	33.5	
Actuated g/C Ratio				0.09		0.09		0.53	0.53	0.09	0.72	
Clearance Time (s)				4.5		4.5		4.5	4.5	4.5	4.5	
Vehicle Extension (s)				3.0		3.0		3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)				155		139		1868	835	324	3655	
v/s Ratio Prot				c0.05				c0.19		c0.05	0.18	
v/s Ratio Perm						0.00			0.17			
v/c Ratio				0.54		0.03		0.35	0.31	0.50	0.25	
Uniform Delay, d1				20.4		19.4		6.4	6.2	20.0	2.2	
Progression Factor				1.00		1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2				3.8		0.1		0.5	1.0	1.2	0.2	
Delay (s)				24.2		19.5		6.9	7.2	21.2	2.4	
Level of Service				C		B		A	A	C	A	
Approach Delay (s)		0.0			22.6			7.0			5.3	
Approach LOS		A			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	7.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	46.6	Sum of lost time (s)	18.0
Intersection Capacity Utilization	36.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	86	259	70	29	459	97	137	753	42	65	715	118
Future Volume (vph)	86	259	70	29	459	97	137	753	42	65	715	118
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	0.97	0.95		0.97	0.95	1.00	1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.97		1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3427		3433	3539	1583	1770	3511		1770	3539	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3427		3433	3539	1583	1770	3511		1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	93	282	76	32	499	105	149	818	46	71	777	128
RTOR Reduction (vph)	0	34	0	0	0	79	0	6	0	0	0	87
Lane Group Flow (vph)	93	324	0	32	499	26	149	858	0	71	777	41
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						6
Actuated Green, G (s)	3.7	18.4		1.8	16.5	16.5	7.0	24.8		3.8	21.6	21.6
Effective Green, g (s)	3.7	18.4		1.8	16.5	16.5	7.0	24.8		3.8	21.6	21.6
Actuated g/C Ratio	0.06	0.28		0.03	0.25	0.25	0.10	0.37		0.06	0.32	0.32
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	190	943		92	874	391	185	1303		100	1144	511
v/s Ratio Prot	c0.03	0.09		0.01	c0.14		c0.08	c0.24		0.04	0.22	
v/s Ratio Perm						0.02						0.03
v/c Ratio	0.49	0.34		0.35	0.57	0.07	0.81	0.66		0.71	0.68	0.08
Uniform Delay, d1	30.6	19.4		31.9	22.0	19.3	29.2	17.5		31.0	19.6	15.7
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	2.0	0.2		2.3	0.9	0.1	21.9	2.6		20.6	3.3	0.3
Delay (s)	32.6	19.6		34.2	23.0	19.3	51.1	20.1		51.5	22.9	16.0
Level of Service	C	B		C	C	B	D	C		D	C	B
Approach Delay (s)		22.3			22.9			24.7			24.0	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	23.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	66.8	Sum of lost time (s)	18.0
Intersection Capacity Utilization	59.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	406	16	14	531	17	15
Future Volume (vph)	406	16	14	531	17	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1583	1770	3539	1770	1583
Flt Permitted	1.00	1.00	0.35	1.00	0.95	1.00
Satd. Flow (perm)	3539	1583	647	3539	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	441	17	15	577	18	16
RTOR Reduction (vph)	0	12	0	0	0	9
Lane Group Flow (vph)	441	5	15	577	18	7
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases		4	8			2
Actuated Green, G (s)	12.9	12.9	18.3	18.3	20.9	20.9
Effective Green, g (s)	12.9	12.9	18.3	18.3	20.9	20.9
Actuated g/C Ratio	0.27	0.27	0.38	0.38	0.43	0.43
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	947	423	266	1343	767	686
v/s Ratio Prot	0.12		0.00	c0.16	c0.01	
v/s Ratio Perm		0.00	0.02			0.00
v/c Ratio	0.47	0.01	0.06	0.43	0.02	0.01
Uniform Delay, d1	14.8	13.0	9.6	11.1	7.8	7.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	0.0	0.1	0.2	0.1	0.0
Delay (s)	15.1	13.0	9.7	11.3	7.9	7.8
Level of Service	B	B	A	B	A	A
Approach Delay (s)	15.1			11.3	7.8	
Approach LOS	B			B	A	

Intersection Summary			
HCM 2000 Control Delay	12.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.24		
Actuated Cycle Length (s)	48.2	Sum of lost time (s)	13.5
Intersection Capacity Utilization	26.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	110	46	90	248	33	67	415	91	22	573	81
Future Volume (vph)	47	110	46	90	248	33	67	415	91	22	573	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3474	
Flt Permitted	0.48	1.00	1.00	0.61	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	896	1863	1583	1133	1863	1583	1770	3539	1583	1770	3474	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	51	120	50	98	270	36	73	451	99	24	623	88
RTOR Reduction (vph)	0	0	39	0	0	27	0	0	58	0	14	0
Lane Group Flow (vph)	51	120	11	98	270	9	73	451	41	24	697	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8			2			
Actuated Green, G (s)	16.2	13.6	13.6	19.4	15.2	15.2	3.7	26.8	26.8	1.7	24.8	
Effective Green, g (s)	16.2	13.6	13.6	19.4	15.2	15.2	3.7	26.8	26.8	1.7	24.8	
Actuated g/C Ratio	0.25	0.21	0.21	0.30	0.24	0.24	0.06	0.42	0.42	0.03	0.39	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	261	394	334	383	440	374	101	1475	659	46	1339	
v/s Ratio Prot	0.01	0.06		c0.02	c0.14		c0.04	0.13		0.01	c0.20	
v/s Ratio Perm	0.04		0.01	0.06		0.01			0.03			
v/c Ratio	0.20	0.30	0.03	0.26	0.61	0.02	0.72	0.31	0.06	0.52	0.52	
Uniform Delay, d1	18.6	21.4	20.1	16.6	21.9	18.8	29.8	12.5	11.2	30.9	15.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.4	0.4	0.0	0.4	2.5	0.0	22.4	0.5	0.2	10.3	1.4	
Delay (s)	18.9	21.8	20.2	17.0	24.5	18.9	52.2	13.1	11.4	41.2	16.6	
Level of Service	B	C	C	B	C	B	D	B	B	D	B	
Approach Delay (s)		20.8			22.1			17.4			17.4	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	18.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	64.3	Sum of lost time (s)	18.0
Intersection Capacity Utilization	54.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	18	19	62	229	22	267	544	47	52	514	72
Future Volume (vph)	12	18	19	62	229	22	267	544	47	52	514	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95	1.00	1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1838		1770	3539	1583	1770	4992	
Flt Permitted	0.44	1.00	1.00	0.74	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	813	1863	1583	1386	1838		1770	3539	1583	1770	4992	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	13	20	21	67	249	24	290	591	51	57	559	78
RTOR Reduction (vph)	0	0	16	0	6	0	0	0	27	0	28	0
Lane Group Flow (vph)	13	20	5	67	267	0	290	591	24	57	609	0
Turn Type	Perm	NA	Perm	Perm	NA		Prot	NA	Perm	Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8					2			
Actuated Green, G (s)	12.9	12.9	12.9	12.9	12.9		10.5	27.0	27.0	3.6	20.1	
Effective Green, g (s)	12.9	12.9	12.9	12.9	12.9		10.5	27.0	27.0	3.6	20.1	
Actuated g/C Ratio	0.23	0.23	0.23	0.23	0.23		0.18	0.47	0.47	0.06	0.35	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	183	421	358	313	415		326	1676	749	111	1760	
v/s Ratio Prot		0.01			c0.15		c0.16	c0.17		0.03	0.12	
v/s Ratio Perm	0.02		0.00	0.05					0.02			
v/c Ratio	0.07	0.05	0.01	0.21	0.64		0.89	0.35	0.03	0.51	0.35	
Uniform Delay, d1	17.3	17.2	17.1	17.9	20.0		22.7	9.5	8.0	25.9	13.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.2	0.0	0.0	0.3	3.4		24.2	0.6	0.1	4.0	0.5	
Delay (s)	17.5	17.3	17.1	18.3	23.4		46.9	10.1	8.1	29.8	14.1	
Level of Service	B	B	B	B	C		D	B	A	C	B	
Approach Delay (s)		17.3			22.4			21.4			15.4	
Approach LOS		B			C			C			B	

Intersection Summary			
HCM 2000 Control Delay	19.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	57.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	51.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	246	80	90	380	29	140	766	72	21	504	42
Future Volume (vph)	44	246	80	90	380	29	140	766	72	21	504	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	5020		1770	5026	
Flt Permitted	0.45	1.00	1.00	0.55	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	844	3539	1583	1017	3539	1583	1770	5020		1770	5026	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	48	267	87	98	413	32	152	833	78	23	548	46
RTOR Reduction (vph)	0	0	69	0	0	25	0	14	0	0	12	0
Lane Group Flow (vph)	48	267	18	98	413	7	152	897	0	23	582	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	16.0	13.3	13.3	18.0	14.3	14.3	7.5	28.3		1.8	22.6	
Effective Green, g (s)	16.0	13.3	13.3	18.0	14.3	14.3	7.5	28.3		1.8	22.6	
Actuated g/C Ratio	0.25	0.20	0.20	0.28	0.22	0.22	0.12	0.43		0.03	0.35	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	245	723	323	323	777	347	203	2182		48	1744	
v/s Ratio Prot	0.01	0.08		c0.02	c0.12		c0.09	c0.18		0.01	0.12	
v/s Ratio Perm	0.04		0.01	0.07		0.00						
v/c Ratio	0.20	0.37	0.06	0.30	0.53	0.02	0.75	0.41		0.48	0.33	
Uniform Delay, d1	19.1	22.3	20.8	18.0	22.4	19.9	27.9	12.7		31.2	15.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.3	0.1	0.5	0.7	0.0	14.0	0.6		7.4	0.5	
Delay (s)	19.4	22.6	20.9	18.6	23.1	19.9	41.9	13.2		38.5	16.2	
Level of Service	B	C	C	B	C	B	D	B		D	B	
Approach Delay (s)		21.9			22.1			17.3			17.0	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	19.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	65.1	Sum of lost time (s)	18.0
Intersection Capacity Utilization	50.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Jacobs

Memorandum

2035 FEIR Build Alternative (with Model Updates) – PM Peak Hour

HCM Signalized Intersection Capacity Analysis
1: Barranca Ave & Bennett Ave

08/10/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	0	0	0	66	0	22	39	0	291	99	37	207
Future Volume (vph)	0	0	0	66	0	22	39	0	291	99	37	207
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5		4.5		4.5	4.5		4.5	4.5
Lane Util. Factor				0.97		1.00		1.00	0.95		1.00	0.95
Frt				1.00		0.85		1.00	0.96		1.00	1.00
Flt Protected				0.95		1.00		0.95	1.00		0.95	1.00
Satd. Flow (prot)				3433		1583		1770	3404		1770	3539
Flt Permitted				0.95		1.00		0.61	1.00		0.95	1.00
Satd. Flow (perm)				3433		1583		1139	3404		1770	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	72	0	24	42	0	316	108	40	225
RTOR Reduction (vph)	0	0	0	0	0	21	0	0	42	0	0	0
Lane Group Flow (vph)	0	0	0	72	0	3	0	42	382	0	40	225
Turn Type				Prot		pm+ov	Prot	Perm	NA		Prot	NA
Protected Phases				8		1	5		2		1	6
Permitted Phases						8		2				
Actuated Green, G (s)				2.2		4.3		19.1	19.1		2.1	25.7
Effective Green, g (s)				2.2		4.3		19.1	19.1		2.1	25.7
Actuated g/C Ratio				0.06		0.12		0.52	0.52		0.06	0.70
Clearance Time (s)				4.5		4.5		4.5	4.5		4.5	4.5
Vehicle Extension (s)				3.0		3.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)				204		377		589	1761		100	2464
v/s Ratio Prot				c0.02		0.00			c0.11		c0.02	0.06
v/s Ratio Perm						0.00		0.04				
v/c Ratio				0.35		0.01		0.07	0.22		0.40	0.09
Uniform Delay, d1				16.7		14.4		4.5	4.8		16.8	1.8
Progression Factor				1.00		1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2				1.1		0.0		0.1	0.1		2.6	0.0
Delay (s)				17.7		14.4		4.5	4.9		19.4	1.8
Level of Service				B		B		A	A		B	A
Approach Delay (s)		0.0			16.9				4.9			4.5
Approach LOS		A			B				A			A

Intersection Summary			
HCM 2000 Control Delay	6.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.25		
Actuated Cycle Length (s)	36.9	Sum of lost time (s)	13.5
Intersection Capacity Utilization	29.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	0
Future Volume (vph)	0
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	0
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	113	550	183	149	496	45	117	215	183	18	172	63
Future Volume (vph)	113	550	183	149	496	45	117	215	183	18	172	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.96		1.00	0.99		1.00	0.93		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3407		1770	3495		1770	3295		1770	3398	
Flt Permitted	0.40	1.00		0.28	1.00		0.59	1.00		0.50	1.00	
Satd. Flow (perm)	748	3407		521	3495		1106	3295		932	3398	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	123	598	199	162	539	49	127	234	199	20	187	68
RTOR Reduction (vph)	0	69	0	0	15	0	0	120	0	0	41	0
Lane Group Flow (vph)	123	728	0	162	573	0	127	313	0	20	214	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	19.8	19.8		19.8	19.8		19.0	19.0		19.0	19.0	
Effective Green, g (s)	19.8	19.8		19.8	19.8		19.0	19.0		19.0	19.0	
Actuated g/C Ratio	0.41	0.41		0.41	0.41		0.40	0.40		0.40	0.40	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	309	1411		215	1447		439	1309		370	1350	
v/s Ratio Prot		0.21			0.16			0.10			0.06	
v/s Ratio Perm	0.16			c0.31			c0.11			0.02		
v/c Ratio	0.40	0.52		0.75	0.40		0.29	0.24		0.05	0.16	
Uniform Delay, d1	9.8	10.4		11.9	9.8		9.8	9.6		8.9	9.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.8	0.3		13.9	0.2		1.7	0.4		0.3	0.3	
Delay (s)	10.7	10.7		25.8	10.0		11.5	10.0		9.1	9.5	
Level of Service	B	B		C	A		B	B		A	A	
Approach Delay (s)		10.7			13.4			10.3			9.5	
Approach LOS		B			B			B			A	

Intersection Summary			
HCM 2000 Control Delay	11.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	47.8	Sum of lost time (s)	9.0
Intersection Capacity Utilization	60.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	93	493	99	278	371	86	92	520	343	76	332	57
Future Volume (vph)	93	493	99	278	371	86	92	520	343	76	332	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3440		1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	1770	3440		1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	101	536	108	302	403	93	100	565	373	83	361	62
RTOR Reduction (vph)	0	0	84	0	24	0	0	0	57	0	0	40
Lane Group Flow (vph)	101	536	24	302	472	0	100	565	316	83	361	22
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2	3	1	6	7
Permitted Phases			4						2			6
Actuated Green, G (s)	7.2	17.2	17.2	15.9	25.9		5.4	20.2	36.1	4.9	19.7	26.9
Effective Green, g (s)	7.2	17.2	17.2	15.9	25.9		5.4	20.2	36.1	4.9	19.7	26.9
Actuated g/C Ratio	0.09	0.23	0.23	0.21	0.34		0.07	0.27	0.47	0.06	0.26	0.35
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	167	798	357	369	1169		125	938	843	113	914	652
v/s Ratio Prot	0.06	c0.15		c0.17	0.14		c0.06	c0.16	0.08	0.05	0.10	0.00
v/s Ratio Perm			0.02						0.12			0.01
v/c Ratio	0.60	0.67	0.07	0.82	0.40		0.80	0.60	0.37	0.73	0.39	0.03
Uniform Delay, d1	33.1	26.9	23.2	28.8	19.2		34.9	24.5	12.8	35.0	23.3	16.1
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.1	2.2	0.1	13.2	0.2		29.5	2.9	0.3	21.7	1.3	0.0
Delay (s)	39.2	29.2	23.3	42.0	19.5		64.4	27.3	13.1	56.7	24.6	16.2
Level of Service	D	C	C	D	B		E	C	B	E	C	B
Approach Delay (s)		29.7			28.0			25.8			28.8	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	27.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	76.2	Sum of lost time (s)	18.0
Intersection Capacity Utilization	62.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Volume (vph)	102	96	188	98	56	159
Future Volume (vph)	102	96	188	98	56	159
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5	4.5
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frt	1.00	0.85	0.95		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1583	1776		1770	1863
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	1583	1776		1770	1863
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	111	104	204	107	61	173
RTOR Reduction (vph)	0	68	33	0	0	0
Lane Group Flow (vph)	111	36	278	0	61	173
Turn Type	Prot	pm+ov	NA		Prot	NA
Protected Phases	2	3	4		3	8
Permitted Phases		2				
Actuated Green, G (s)	8.7	13.4	11.3		4.7	20.5
Effective Green, g (s)	8.7	13.4	11.3		4.7	20.5
Actuated g/C Ratio	0.23	0.35	0.30		0.12	0.54
Clearance Time (s)	4.5	4.5	4.5		4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	403	741	525		217	999
v/s Ratio Prot	c0.06	0.01	c0.16		c0.03	0.09
v/s Ratio Perm		0.02				
v/c Ratio	0.28	0.05	0.53		0.28	0.17
Uniform Delay, d1	12.2	8.2	11.2		15.2	4.5
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.4	0.0	1.0		0.7	0.1
Delay (s)	12.5	8.2	12.2		15.9	4.6
Level of Service	B	A	B		B	A
Approach Delay (s)	10.4		12.2			7.6
Approach LOS	B		B			A

Intersection Summary			
HCM 2000 Control Delay	10.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	38.2	Sum of lost time (s)	13.5
Intersection Capacity Utilization	36.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	64	1143	47	24	808	84	14	24	10	74	20	218
Future Volume (vph)	64	1143	47	24	808	84	14	24	10	74	20	218
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.5		4.0	4.5			4.5			4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frt	1.00	0.99		1.00	0.99			0.97			0.91	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1770	3518		1770	3489			1784			1667	
Flt Permitted	0.95	1.00		0.95	1.00			0.88			0.91	
Satd. Flow (perm)	1770	3518		1770	3489			1598			1543	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	70	1242	51	26	878	91	15	26	11	80	22	237
RTOR Reduction (vph)	0	5	0	0	12	0	0	8	0	0	138	0
Lane Group Flow (vph)	70	1288	0	26	957	0	0	44	0	0	201	0
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)	3.1	24.9		2.1	23.9			18.6			18.6	
Effective Green, g (s)	3.1	24.9		2.1	23.9			18.6			18.6	
Actuated g/C Ratio	0.05	0.42		0.04	0.41			0.32			0.32	
Clearance Time (s)	4.0	4.5		4.0	4.5			4.5			4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	93	1494		63	1422			507			489	
v/s Ratio Prot	c0.04	c0.37		0.01	0.27							
v/s Ratio Perm								0.03			c0.13	
v/c Ratio	0.75	0.86		0.41	0.67			0.09			0.41	
Uniform Delay, d1	27.4	15.3		27.6	14.2			14.0			15.7	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	28.6	5.4		4.3	1.3			0.3			2.5	
Delay (s)	56.0	20.7		32.0	15.4			14.4			18.2	
Level of Service	E	C		C	B			B			B	
Approach Delay (s)		22.5			15.9			14.4			18.2	
Approach LOS		C			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	19.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	58.6	Sum of lost time (s)	13.0
Intersection Capacity Utilization	71.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	84	637	59	35	508	74	144	43	46	46	74	89
Future Volume (vph)	84	637	59	35	508	74	144	43	46	46	74	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frt	1.00	0.99		1.00	0.98			0.97			0.94	
Flt Protected	0.95	1.00		0.95	1.00			0.97			0.99	
Satd. Flow (prot)	1770	3494		1770	3472			1759			1736	
Flt Permitted	0.33	1.00		0.25	1.00			0.71			0.90	
Satd. Flow (perm)	619	3494		474	3472			1284			1577	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	91	692	64	38	552	80	157	47	50	50	80	97
RTOR Reduction (vph)	0	12	0	0	21	0	0	13	0	0	41	0
Lane Group Flow (vph)	91	744	0	38	611	0	0	241	0	0	186	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	18.6	18.6		18.6	18.6			26.7			26.7	
Effective Green, g (s)	18.6	18.6		18.6	18.6			26.7			26.7	
Actuated g/C Ratio	0.34	0.34		0.34	0.34			0.49			0.49	
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	212	1196		162	1189			631			775	
v/s Ratio Prot		c0.21			0.18							
v/s Ratio Perm	0.15			0.08				c0.19			0.12	
v/c Ratio	0.43	0.62		0.23	0.51			0.38			0.24	
Uniform Delay, d1	13.8	14.9		12.8	14.2			8.6			8.0	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	1.4	1.0		0.7	0.4			1.7			0.7	
Delay (s)	15.2	15.9		13.5	14.6			10.4			8.7	
Level of Service	B	B		B	B			B			A	
Approach Delay (s)		15.8			14.6			10.4			8.7	
Approach LOS		B			B			B			A	

Intersection Summary			
HCM 2000 Control Delay	13.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	54.3	Sum of lost time (s)	9.0
Intersection Capacity Utilization	63.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	513	158	174	430	68	151	195	91	65	193	74
Future Volume (vph)	70	513	158	174	430	68	151	195	91	65	193	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.96		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3414		1770	3467		1770	1863	1583	1770	1863	1583
Flt Permitted	0.41	1.00		0.19	1.00		0.53	1.00	1.00	0.61	1.00	1.00
Satd. Flow (perm)	764	3414		347	3467		988	1863	1583	1144	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	76	558	172	189	467	74	164	212	99	71	210	80
RTOR Reduction (vph)	0	42	0	0	18	0	0	0	67	0	0	56
Lane Group Flow (vph)	76	688	0	189	523	0	164	212	32	71	210	24
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	22.7	18.4		28.9	21.5		28.4	22.9	22.9	25.4	21.4	21.4
Effective Green, g (s)	22.7	18.4		28.9	21.5		28.4	22.9	22.9	25.4	21.4	21.4
Actuated g/C Ratio	0.32	0.26		0.41	0.30		0.40	0.32	0.32	0.36	0.30	0.30
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	306	888		290	1054		457	603	512	446	563	479
v/s Ratio Prot	0.02	c0.20		c0.07	0.15		c0.03	0.11		0.01	0.11	
v/s Ratio Perm	0.06			0.20			c0.12		0.02	0.05		0.02
v/c Ratio	0.25	0.77		0.65	0.50		0.36	0.35	0.06	0.16	0.37	0.05
Uniform Delay, d1	17.0	24.2		15.3	20.2		14.0	18.2	16.5	15.1	19.4	17.5
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	4.3		5.2	0.4		0.5	1.6	0.2	0.2	1.9	0.2
Delay (s)	17.5	28.5		20.5	20.5		14.5	19.8	16.7	15.3	21.3	17.7
Level of Service	B	C		C	C		B	B	B	B	C	B
Approach Delay (s)		27.5			20.5			17.4			19.3	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	22.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	70.7	Sum of lost time (s)	18.0
Intersection Capacity Utilization	62.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL2	SBL	SBR	NWL	NWR	NWR2
Lane Configurations												
Sign Control		Stop			Stop			Stop		Stop		
Traffic Volume (vph)	72	54	161	29	31	34	19	403	38	48	421	3
Future Volume (vph)	72	54	161	29	31	34	19	403	38	48	421	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	78	59	175	32	34	37	21	438	41	52	458	3

Direction, Lane #	EB 1	WB 1	SB 1	SB 2	NW 1	NW 2
Volume Total (vph)	312	103	240	260	281	232
Volume Left (vph)	78	32	21	0	52	0
Volume Right (vph)	175	37	0	41	0	3
Hadj (s)	-0.25	-0.12	0.08	-0.08	0.13	0.02
Departure Headway (s)	6.4	7.2	6.9	6.8	7.0	6.9
Degree Utilization, x	0.56	0.21	0.46	0.49	0.54	0.44
Capacity (veh/h)	523	426	499	512	494	506
Control Delay (s)	17.1	12.1	14.6	14.9	16.8	14.0
Approach Delay (s)	17.1	12.1	14.8		15.5	
Approach LOS	C	B	B		C	

Intersection Summary			
Delay	15.4		
Level of Service	C		
Intersection Capacity Utilization	Err%	ICU Level of Service	H
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	67	968	0	215	632	114	103	460	363	315	485	66
Future Volume (vph)	67	968	0	215	632	114	103	460	363	315	485	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539		1770	3539	1583	1770	3539	1583	1770	3475	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3539		1770	3539	1583	1770	3539	1583	1770	3475	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	73	1052	0	234	687	124	112	500	395	342	527	72
RTOR Reduction (vph)	0	0	0	0	0	79	0	0	109	0	10	0
Lane Group Flow (vph)	73	1052	0	234	687	45	112	500	286	342	589	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases			4			8			2			
Actuated Green, G (s)	7.4	29.5		14.5	36.6	36.6	10.9	19.4	33.9	19.5	28.0	
Effective Green, g (s)	7.4	29.5		14.5	36.6	36.6	10.9	19.4	33.9	19.5	28.0	
Actuated g/C Ratio	0.07	0.29		0.14	0.36	0.36	0.11	0.19	0.34	0.19	0.28	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	129	1034		254	1283	574	191	680	531	342	964	
v/s Ratio Prot	0.04	c0.30		c0.13	0.19		0.06	c0.14	0.08	c0.19	0.17	
v/s Ratio Perm						0.03			0.10			
v/c Ratio	0.57	1.02		0.92	0.54	0.08	0.59	0.74	0.54	1.00	0.61	
Uniform Delay, d1	45.2	35.7		42.6	25.4	21.1	42.9	38.3	27.2	40.7	31.7	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	5.6	32.4		35.9	0.4	0.1	4.5	6.9	1.1	48.7	2.9	
Delay (s)	50.8	68.1		78.5	25.9	21.1	47.4	45.3	28.2	89.4	34.6	
Level of Service	D	E		E	C	C	D	D	C	F	C	
Approach Delay (s)		67.0			37.1			38.8			54.5	
Approach LOS		E			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	49.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	100.9	Sum of lost time (s)	18.0
Intersection Capacity Utilization	83.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	9	8	15	21	1	9	14	90	33	22	68	0
Future Volume (vph)	9	8	15	21	1	9	14	90	33	22	68	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	10	9	16	23	1	10	15	98	36	24	74	0

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	35	34	149	98
Volume Left (vph)	10	23	15	24
Volume Right (vph)	16	10	36	0
Hadj (s)	-0.18	-0.01	-0.09	0.08
Departure Headway (s)	4.3	4.5	4.1	4.3
Degree Utilization, x	0.04	0.04	0.17	0.12
Capacity (veh/h)	788	749	859	819
Control Delay (s)	7.5	7.7	7.9	7.9
Approach Delay (s)	7.5	7.7	7.9	7.9
Approach LOS	A	A	A	A

Intersection Summary			
Delay	7.8		
Level of Service	A		
Intersection Capacity Utilization	19.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	107	1452	43	33	877	50	21	24	49	56	25	68
Future Volume (vph)	107	1452	43	33	877	50	21	24	49	56	25	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Lane Util. Factor	1.00	0.95		0.91	0.91			1.00			1.00	
Frt	1.00	1.00		1.00	0.99			0.93			0.94	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.98	
Satd. Flow (prot)	1770	3524		1610	3362			1713			1716	
Flt Permitted	0.95	1.00		0.95	0.95			0.93			0.87	
Satd. Flow (perm)	1770	3524		1610	3196			1603			1514	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	116	1578	47	36	953	54	23	26	53	61	27	74
RTOR Reduction (vph)	0	2	0	0	4	0	0	42	0	0	34	0
Lane Group Flow (vph)	116	1623	0	32	1007	0	0	60	0	0	128	0
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)	7.8	55.9		3.2	54.5			19.2			19.2	
Effective Green, g (s)	7.8	55.9		3.2	54.5			19.2			19.2	
Actuated g/C Ratio	0.08	0.61		0.03	0.59			0.21			0.21	
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	150	2145		56	1903			335			316	
v/s Ratio Prot	c0.07	c0.46		0.02	0.02							
v/s Ratio Perm					0.30			0.04			c0.08	
v/c Ratio	0.77	0.76		0.57	0.53			0.18			0.41	
Uniform Delay, d1	41.1	13.0		43.6	11.0			29.8			31.4	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	21.6	1.6		13.3	0.3			1.2			3.8	
Delay (s)	62.7	14.6		56.9	11.3			31.0			35.2	
Level of Service	E	B		E	B			C			D	
Approach Delay (s)		17.8			12.7			31.0			35.2	
Approach LOS		B			B			C			D	

Intersection Summary			
HCM 2000 Control Delay	17.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	91.8	Sum of lost time (s)	13.5
Intersection Capacity Utilization	91.6%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	39	0	0	16	110	0	0	0	144	0	5
Future Volume (Veh/h)	15	39	0	0	16	110	0	0	0	144	0	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	16	42	0	0	17	120	0	0	0	157	0	5
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								564				
pX, platoon unblocked												
vC, conflicting volume	445	316	2	338	319	0	5			0		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	445	316	2	338	319	0	5			0		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	96	92	100	100	97	89	100			90		
cM capacity (veh/h)	421	542	1082	537	540	1085	1616			1623		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	58	137	0	162
Volume Left	16	0	0	157
Volume Right	0	120	0	5
cSH	502	964	1700	1623
Volume to Capacity	0.12	0.14	0.00	0.10
Queue Length 95th (ft)	10	12	0	8
Control Delay (s)	13.1	9.4	0.0	7.2
Lane LOS	B	A		A
Approach Delay (s)	13.1	9.4	0.0	7.2
Approach LOS	B	A		

Intersection Summary				
Average Delay		9.0		
Intersection Capacity Utilization		29.2%	ICU Level of Service	A
Analysis Period (min)		15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	1567	11	41	918	10	3	3	8	0	0	0
Future Volume (vph)	16	1567	11	41	918	10	3	3	8	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5				
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00				
Frt	1.00	1.00		1.00	1.00			0.92				
Flt Protected	0.95	1.00		0.95	1.00			0.99				
Satd. Flow (prot)	1770	3536		1770	3533			1695				
Flt Permitted	0.95	1.00		0.95	1.00			0.97				
Satd. Flow (perm)	1770	3536		1770	3533			1666				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	17	1703	12	45	998	11	3	3	9	0	0	0
RTOR Reduction (vph)	0	0	0	0	1	0	0	7	0	0	0	0
Lane Group Flow (vph)	17	1715	0	45	1008	0	0	8	0	0	0	0
Turn Type	Prot	NA		Prot	NA		Perm	NA				
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)	1.0	42.9		3.0	44.9			18.9				
Effective Green, g (s)	1.0	42.9		3.0	44.9			18.9				
Actuated g/C Ratio	0.01	0.55		0.04	0.57			0.24				
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5				
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0				
Lane Grp Cap (vph)	22	1937		67	2025			402				
v/s Ratio Prot	0.01	c0.48		c0.03	0.29							
v/s Ratio Perm								c0.00				
v/c Ratio	0.77	0.89		0.67	0.50			0.02				
Uniform Delay, d1	38.5	15.5		37.2	10.0			22.6				
Progression Factor	1.00	1.00		1.00	1.00			1.00				
Incremental Delay, d2	93.0	5.3		23.3	0.2			0.1				
Delay (s)	131.5	20.8		60.5	10.2			22.7				
Level of Service	F	C		E	B			C				
Approach Delay (s)		21.9			12.3			22.7			0.0	
Approach LOS		C			B			C			A	

Intersection Summary			
HCM 2000 Control Delay	18.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	78.3	Sum of lost time (s)	13.5
Intersection Capacity Utilization	55.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	59	128	8	29	2	98	157	13	8	96	5
Future Volume (Veh/h)	2	59	128	8	29	2	98	157	13	8	96	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	64	139	9	32	2	107	171	14	9	104	5
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								560				
pX, platoon unblocked												
vC, conflicting volume	534	524	106	688	519	178	109			185		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	534	524	106	688	519	178	109			185		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	85	85	96	92	100	93			99		
cM capacity (veh/h)	404	423	948	256	425	865	1481			1390		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	205	43	292	118
Volume Left	2	9	107	9
Volume Right	139	2	14	5
cSH	676	381	1481	1390
Volume to Capacity	0.30	0.11	0.07	0.01
Queue Length 95th (ft)	32	9	6	0
Control Delay (s)	12.6	15.6	3.2	0.6
Lane LOS	B	C	A	A
Approach Delay (s)	12.6	15.6	3.2	0.6
Approach LOS	B	C		

Intersection Summary			
Average Delay	6.5		
Intersection Capacity Utilization	39.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	159	1307	34	32	781	90	42	17	22	91	15	124
Future Volume (vph)	159	1307	34	32	781	90	42	17	22	91	15	124
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frt	1.00	1.00		1.00	0.98			0.96			0.93	
Flt Protected	0.95	1.00		0.95	1.00			0.97			0.98	
Satd. Flow (prot)	1770	3526		1770	3484			1748			1693	
Flt Permitted	0.95	1.00		0.95	1.00			0.79			0.84	
Satd. Flow (perm)	1770	3526		1770	3484			1419			1452	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	173	1421	37	35	849	98	46	18	24	99	16	135
RTOR Reduction (vph)	0	2	0	0	13	0	0	17	0	0	60	0
Lane Group Flow (vph)	173	1456	0	35	934	0	0	71	0	0	190	0
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)	9.6	34.5		1.9	26.8			18.6			18.6	
Effective Green, g (s)	9.6	34.5		1.9	26.8			18.6			18.6	
Actuated g/C Ratio	0.14	0.50		0.03	0.39			0.27			0.27	
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	248	1775		49	1363			385			394	
v/s Ratio Prot	c0.10	c0.41		0.02	0.27							
v/s Ratio Perm								0.05			c0.13	
v/c Ratio	0.70	0.82		0.71	0.69			0.18			0.48	
Uniform Delay, d1	28.1	14.4		33.0	17.3			19.1			20.9	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	8.3	3.2		39.0	1.4			1.0			4.2	
Delay (s)	36.3	17.5		72.1	18.8			20.2			25.1	
Level of Service	D	B		E	B			C			C	
Approach Delay (s)		19.5			20.7			20.2			25.1	
Approach LOS		B			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	20.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	68.5	Sum of lost time (s)	13.5
Intersection Capacity Utilization	68.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	6	68	8	5	10	42	335	14	8	354	3
Future Volume (Veh/h)	3	6	68	8	5	10	42	335	14	8	354	3
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	7	74	9	5	11	46	364	15	9	385	3
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								542				
pX, platoon unblocked												
vC, conflicting volume	692	876	194	752	870	190	388			379		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	692	876	194	752	870	190	388			379		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	97	91	97	98	99	96			99		
cM capacity (veh/h)	310	273	815	257	275	820	1167			1176		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	84	25	228	197	202	196
Volume Left	3	9	46	0	9	0
Volume Right	74	11	0	15	0	3
cSH	666	375	1167	1700	1176	1700
Volume to Capacity	0.13	0.07	0.04	0.12	0.01	0.12
Queue Length 95th (ft)	11	5	3	0	1	0
Control Delay (s)	11.2	15.3	1.9	0.0	0.4	0.0
Lane LOS	B	C	A		A	
Approach Delay (s)	11.2	15.3	1.0		0.2	
Approach LOS	B	C				

Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	36.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	165	1132	741	232	332	101
Future Volume (vph)	165	1132	741	232	332	101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5	4.5
Lane Util. Factor	1.00	0.95	0.95		0.97	1.00
Frt	1.00	1.00	0.96		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3413		3433	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3413		3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	179	1230	805	252	361	110
RTOR Reduction (vph)	0	0	50	0	0	73
Lane Group Flow (vph)	179	1230	1007	0	361	37
Turn Type	Prot	NA	NA		Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	7.5	30.7	18.7		20.3	20.3
Effective Green, g (s)	7.5	30.7	18.7		20.3	20.3
Actuated g/C Ratio	0.12	0.51	0.31		0.34	0.34
Clearance Time (s)	4.5	4.5	4.5		4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	221	1810	1063		1161	535
v/s Ratio Prot	0.10	c0.35	c0.30		c0.11	
v/s Ratio Perm						0.02
v/c Ratio	0.81	0.68	0.95		0.31	0.07
Uniform Delay, d1	25.6	11.0	20.2		14.7	13.5
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	19.3	1.0	16.4		0.7	0.3
Delay (s)	44.8	12.0	36.5		15.4	13.7
Level of Service	D	B	D		B	B
Approach Delay (s)		16.2	36.5		15.0	
Approach LOS		B	D		B	

Intersection Summary			
HCM 2000 Control Delay	23.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	57.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	440	509	1030	449	633	1141
Future Volume (vph)	440	509	1030	449	633	1141
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5	4.5
Lane Util. Factor	0.97	1.00	0.91		0.97	0.95
Frt	1.00	0.85	0.95		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	3090	1425	4368		3090	3185
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	3090	1425	4368		3090	3185
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	478	553	1120	488	688	1240
RTOR Reduction (vph)	0	13	86	0	0	0
Lane Group Flow (vph)	478	540	1522	0	688	1240
Turn Type	Prot	pm+ov	NA		Prot	NA
Protected Phases	8	1	2		1	6
Permitted Phases		8				
Actuated Green, G (s)	17.1	39.6	35.7		22.5	62.7
Effective Green, g (s)	17.1	39.6	35.7		22.5	62.7
Actuated g/C Ratio	0.19	0.45	0.40		0.25	0.71
Clearance Time (s)	4.5	4.5	4.5		4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	595	707	1756		782	2248
v/s Ratio Prot	0.15	c0.19	c0.35		c0.22	0.39
v/s Ratio Perm		0.19				
v/c Ratio	0.80	0.76	0.87		0.88	0.55
Uniform Delay, d1	34.2	20.7	24.4		31.9	6.3
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	7.7	4.9	6.1		13.5	1.0
Delay (s)	42.0	25.6	30.4		45.3	7.3
Level of Service	D	C	C		D	A
Approach Delay (s)	33.2		30.4			20.8
Approach LOS	C		C			C

Intersection Summary			
HCM 2000 Control Delay	27.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	88.8	Sum of lost time (s)	13.5
Intersection Capacity Utilization	78.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	345	99	53	154	64	64
Future Volume (Veh/h)	345	99	53	154	64	64
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	375	108	58	167	70	70
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						1
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			483		712	429
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			483		712	429
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			95		81	89
cM capacity (veh/h)			1080		378	626

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	483	225	140
Volume Left	0	58	70
Volume Right	108	0	70
cSH	1700	1080	755
Volume to Capacity	0.28	0.05	0.19
Queue Length 95th (ft)	0	4	17
Control Delay (s)	0.0	2.6	14.1
Lane LOS		A	B
Approach Delay (s)	0.0	2.6	14.1
Approach LOS			B

Intersection Summary			
Average Delay	3.0		
Intersection Capacity Utilization	48.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	5	367	62	36	163	8	29	16	46	3	11	7
Future Volume (vph)	5	367	62	36	163	8	29	16	46	3	11	7
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	399	67	39	177	9	32	17	50	3	12	8

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	SB 1
Volume Total (vph)	471	216	9	49	50	23
Volume Left (vph)	5	39	0	32	0	3
Volume Right (vph)	67	0	9	0	50	8
Hadj (s)	-0.05	0.12	-0.67	0.36	-0.67	-0.15
Departure Headway (s)	5.1	5.5	4.7	6.7	5.6	6.4
Degree Utilization, x	0.67	0.33	0.01	0.09	0.08	0.04
Capacity (veh/h)	684	636	737	490	570	495
Control Delay (s)	17.9	9.9	6.5	9.1	7.9	9.6
Approach Delay (s)	17.9	9.8		8.5		9.6
Approach LOS	C	A		A		A

Intersection Summary			
Delay	14.3		
Level of Service	B		
Intersection Capacity Utilization	47.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	631	1	179	7	0	22	111	820	0	3	701	708
Future Volume (vph)	631	1	179	7	0	22	111	820	0	3	701	708
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5		4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	0.95	0.95	0.88		1.00		0.97	0.91		1.00	0.95	1.00
Frt	1.00	1.00	0.85		0.90		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	0.95	1.00		0.99		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1686	2787		1653		3433	5085		1770	3539	1583
Flt Permitted	0.95	0.95	1.00		0.99		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1681	1686	2787		1653		3433	5085		1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	686	1	195	8	0	24	121	891	0	3	762	770
RTOR Reduction (vph)	0	0	143	0	31	0	0	0	0	0	0	450
Lane Group Flow (vph)	343	344	52	0	1	0	121	891	0	3	762	320
Turn Type	Split	NA	Perm	Split	NA		Prot	NA		Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4									6
Actuated Green, G (s)	19.7	19.7	19.7		1.9		3.8	33.7		0.9	30.8	30.8
Effective Green, g (s)	19.7	19.7	19.7		1.9		3.8	33.7		0.9	30.8	30.8
Actuated g/C Ratio	0.27	0.27	0.27		0.03		0.05	0.45		0.01	0.42	0.42
Clearance Time (s)	4.5	4.5	4.5		4.5		4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	446	447	739		42		175	2309		21	1469	657
v/s Ratio Prot	c0.20	0.20			c0.00		c0.04	c0.18		0.00	c0.22	
v/s Ratio Perm			0.02									0.20
v/c Ratio	0.77	0.77	0.07		0.02		0.69	0.39		0.14	0.52	0.49
Uniform Delay, d1	25.2	25.2	20.4		35.2		34.6	13.4		36.3	16.2	15.9
Progression Factor	1.00	1.00	1.00		1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	7.8	7.8	0.0		0.2		11.2	0.5		3.1	1.3	2.6
Delay (s)	33.0	33.0	20.4		35.4		45.8	13.9		39.4	17.5	18.5
Level of Service	C	C	C		D		D	B		D	B	B
Approach Delay (s)		30.2			35.4			17.7			18.0	
Approach LOS		C			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	21.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	74.2	Sum of lost time (s)	18.0
Intersection Capacity Utilization	63.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	22	0	509	490	90
Future Volume (Veh/h)	0	22	0	509	490	90
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	24	0	553	533	98
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				1038	287	
pX, platoon unblocked						
vC, conflicting volume	858	316	631			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	858	316	631			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	96	100			
cM capacity (veh/h)	296	680	947			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	24	276	276	355	276
Volume Left	0	0	0	0	0
Volume Right	24	0	0	0	98
cSH	680	1700	1700	1700	1700
Volume to Capacity	0.04	0.16	0.16	0.21	0.16
Queue Length 95th (ft)	3	0	0	0	0
Control Delay (s)	10.5	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	10.5	0.0		0.0	
Approach LOS	B				

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	26.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	91	89	0	710	120	20	883
Future Volume (vph)	91	89	0	710	120	20	883
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5			4.5		4.5	4.5
Lane Util. Factor	1.00			0.91		1.00	0.91
Frt	0.93			0.98		1.00	1.00
Flt Protected	0.98			1.00		0.95	1.00
Satd. Flow (prot)	1695			4975		1770	5085
Flt Permitted	0.98			1.00		0.95	1.00
Satd. Flow (perm)	1695			4975		1770	5085
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	99	97	0	772	130	22	960
RTOR Reduction (vph)	74	0	0	27	0	0	0
Lane Group Flow (vph)	122	0	0	875	0	22	960
Turn Type	Prot		Prot	NA		Prot	NA
Protected Phases	8		5	2		1	6
Permitted Phases							
Actuated Green, G (s)	7.3			26.5		0.9	31.9
Effective Green, g (s)	7.3			26.5		0.9	31.9
Actuated g/C Ratio	0.15			0.55		0.02	0.66
Clearance Time (s)	4.5			4.5		4.5	4.5
Vehicle Extension (s)	3.0			3.0		3.0	3.0
Lane Grp Cap (vph)	256			2735		33	3365
v/s Ratio Prot	c0.07			c0.18		0.01	c0.19
v/s Ratio Perm							
v/c Ratio	0.48			0.32		0.67	0.29
Uniform Delay, d1	18.7			5.9		23.5	3.4
Progression Factor	1.00			1.00		1.00	1.00
Incremental Delay, d2	1.4			0.3		40.8	0.2
Delay (s)	20.1			6.2		64.3	3.6
Level of Service	C			A		E	A
Approach Delay (s)	20.1			6.2			5.0
Approach LOS	C			A			A

Intersection Summary			
HCM 2000 Control Delay	6.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	48.2	Sum of lost time (s)	13.5
Intersection Capacity Utilization	35.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	118	768	274	373	481	105	187	697	258	101	855	118
Future Volume (vph)	118	768	274	373	481	105	187	697	258	101	855	118
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	3433	3444		1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	3433	3444		1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	128	835	298	405	523	114	203	758	280	110	929	128
RTOR Reduction (vph)	0	0	167	0	20	0	0	0	188	0	0	90
Lane Group Flow (vph)	128	835	131	405	617	0	203	758	92	110	929	38
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4						2			6
Actuated Green, G (s)	9.4	22.5	22.5	11.6	24.7		11.5	29.5	29.5	8.4	26.4	26.4
Effective Green, g (s)	9.4	22.5	22.5	11.6	24.7		11.5	29.5	29.5	8.4	26.4	26.4
Actuated g/C Ratio	0.10	0.25	0.25	0.13	0.27		0.13	0.33	0.33	0.09	0.29	0.29
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	184	884	395	442	945		226	1160	518	165	1038	464
v/s Ratio Prot	0.07	c0.24		c0.12	0.18		c0.11	c0.21		0.06	c0.26	
v/s Ratio Perm			0.08						0.06			0.02
v/c Ratio	0.70	0.94	0.33	0.92	0.65		0.90	0.65	0.18	0.67	0.89	0.08
Uniform Delay, d1	38.9	33.1	27.6	38.7	28.9		38.7	25.9	21.6	39.4	30.5	23.0
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	10.9	18.2	0.5	23.5	1.6		33.5	2.9	0.7	9.8	11.8	0.3
Delay (s)	49.8	51.3	28.1	62.2	30.5		72.1	28.8	22.3	49.2	42.3	23.4
Level of Service	D	D	C	E	C		E	C	C	D	D	C
Approach Delay (s)		45.7			42.8			34.4			40.9	
Approach LOS		D			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	40.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	80.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	9	11	14	18	6	19	206	11	14	157	5
Future Volume (Veh/h)	9	9	11	14	18	6	19	206	11	14	157	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	10	10	12	15	20	7	21	224	12	15	171	5
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								606			647	
pX, platoon unblocked												
vC, conflicting volume	492	482	174	492	478	230	176			236		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	492	482	174	492	478	230	176			236		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	98	99	97	96	99	99			99		
cM capacity (veh/h)	458	472	870	463	474	809	1400			1331		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	32	42	257	191
Volume Left	10	15	21	15
Volume Right	12	7	12	5
cSH	563	504	1400	1331
Volume to Capacity	0.06	0.08	0.01	0.01
Queue Length 95th (ft)	5	7	1	1
Control Delay (s)	11.8	12.8	0.7	0.7
Lane LOS	B	B	A	A
Approach Delay (s)	11.8	12.8	0.7	0.7
Approach LOS	B	B		

Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	26.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	8	35	30	8	22	17	398	14	17	444	2
Future Volume (Veh/h)	8	8	35	30	8	22	17	398	14	17	444	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	9	38	33	9	24	18	433	15	18	483	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											650	
pX, platoon unblocked	0.92	0.92	0.92	0.92	0.92		0.92					
vC, conflicting volume	801	1004	484	1039	998	224	485			448		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	741	961	397	999	954	224	398			448		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	96	96	93	79	96	97	98			98		
cM capacity (veh/h)	257	227	555	160	229	779	1066			1109		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	56	66	234	232	503
Volume Left	9	33	18	0	18
Volume Right	38	24	0	15	2
cSH	391	239	1066	1700	1109
Volume to Capacity	0.14	0.28	0.02	0.14	0.02
Queue Length 95th (ft)	12	27	1	0	1
Control Delay (s)	15.7	25.7	0.8	0.0	0.5
Lane LOS	C	D	A		A
Approach Delay (s)	15.7	25.7	0.4		0.5
Approach LOS	C	D			

Intersection Summary			
Average Delay	2.8		
Intersection Capacity Utilization	52.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	7	0	610	19	1	616
Future Volume (Veh/h)	7	0	610	19	1	616
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	8	0	663	21	1	670
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			None
Median storage veh)			2			
Upstream signal (ft)			430			
pX, platoon unblocked	0.87	0.87			0.87	
vC, conflicting volume	1010	342			684	
vC1, stage 1 conf vol	674					
vC2, stage 2 conf vol	337					
vCu, unblocked vol	721	0			346	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	100			100	
cM capacity (veh/h)	522	946			1055	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	8	442	242	224	447
Volume Left	8	0	0	1	0
Volume Right	0	0	21	0	0
cSH	522	1700	1700	1055	1700
Volume to Capacity	0.02	0.26	0.14	0.00	0.26
Queue Length 95th (ft)	1	0	0	0	0
Control Delay (s)	12.0	0.0	0.0	0.0	0.0
Lane LOS	B			A	
Approach Delay (s)	12.0	0.0		0.0	
Approach LOS	B				

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	27.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	SEL	SET	NWT	NWR
Lane Configurations						
Traffic Volume (veh/h)	88	5	1	523	487	0
Future Volume (Veh/h)	88	5	1	523	487	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	96	5	1	568	529	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	815	264	529			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	815	264	529			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	70	99	100			
cM capacity (veh/h)	315	734	1034			

Direction, Lane #	WB 1	WB 2	SE 1	SE 2	SE 3	NW 1	NW 2
Volume Total	96	5	1	284	284	264	264
Volume Left	96	0	1	0	0	0	0
Volume Right	0	5	0	0	0	0	0
cSH	315	734	1034	1700	1700	1700	1700
Volume to Capacity	0.30	0.01	0.00	0.17	0.17	0.16	0.16
Queue Length 95th (ft)	31	1	0	0	0	0	0
Control Delay (s)	21.4	9.9	8.5	0.0	0.0	0.0	0.0
Lane LOS	C	A	A				
Approach Delay (s)	20.8		0.0			0.0	
Approach LOS	C						

Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	26.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1	0	23	5	3	0	207	51	1	65	0
Future Volume (Veh/h)	0	1	0	23	5	3	0	207	51	1	65	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1	0	25	5	3	0	225	55	1	71	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	331	353	71	326	326	252	71			280		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	331	353	71	326	326	252	71			280		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	96	99	100	100			100		
cM capacity (veh/h)	616	572	991	626	592	786	1529			1283		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	1	33	280	72
Volume Left	0	25	0	1
Volume Right	0	3	55	0
cSH	572	632	1700	1283
Volume to Capacity	0.00	0.05	0.16	0.00
Queue Length 95th (ft)	0	4	0	0
Control Delay (s)	11.3	11.0	0.0	0.1
Lane LOS	B	B		A
Approach Delay (s)	11.3	11.0	0.0	0.1
Approach LOS	B	B		

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	29.0%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	764	42	33	565	28	50
Future Vol, veh/h	764	42	33	565	28	50
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	830	46	36	614	30	54

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	876	0	1539	853
Stage 1	-	-	-	-	853	-
Stage 2	-	-	-	-	686	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	771	-	127	359
Stage 1	-	-	-	-	418	-
Stage 2	-	-	-	-	500	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	771	-	118	359
Mov Cap-2 Maneuver	-	-	-	-	118	-
Stage 1	-	-	-	-	388	-
Stage 2	-	-	-	-	500	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	34
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	207	-	-	771	-
HCM Lane V/C Ratio	0.41	-	-	0.047	-
HCM Control Delay (s)	34	-	-	9.9	0
HCM Lane LOS	D	-	-	A	A
HCM 95th %tile Q(veh)	1.9	-	-	0.1	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	740	31	8	563	18	19	18	15	10	9	15
Future Volume (vph)	38	740	31	8	563	18	19	18	15	10	9	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.99			1.00			0.96			0.94	
Flt Protected		1.00			1.00			0.98			0.99	
Satd. Flow (prot)		1849			1854			1760			1728	
Flt Permitted		0.96			0.99			0.87			0.90	
Satd. Flow (perm)		1776			1834			1561			1574	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	41	804	34	9	612	20	21	20	16	11	10	16
RTOR Reduction (vph)	0	2	0	0	1	0	0	13	0	0	13	0
Lane Group Flow (vph)	0	877	0	0	640	0	0	44	0	0	24	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		28.3			28.3			7.1			7.1	
Effective Green, g (s)		28.3			28.3			7.1			7.1	
Actuated g/C Ratio		0.64			0.64			0.16			0.16	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		1132			1168			249			251	
v/s Ratio Prot												
v/s Ratio Perm		c0.49			0.35			c0.03			0.01	
v/c Ratio		0.77			0.55			0.17			0.09	
Uniform Delay, d1		5.8			4.5			16.1			15.9	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		3.4			0.5			0.3			0.2	
Delay (s)		9.1			5.0			16.5			16.1	
Level of Service		A			A			B			B	
Approach Delay (s)		9.1			5.0			16.5			16.1	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM 2000 Control Delay	7.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	44.4	Sum of lost time (s)	9.0
Intersection Capacity Utilization	74.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
23: Lone Hill Ave & Gladstone St

08/10/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	211	577	150	89	313	121	290	651	227	269	428	222
Future Volume (vph)	211	577	150	89	313	121	290	651	227	269	428	222
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	0.97	0.95		1.00	0.95		0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	0.97		1.00	0.96		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3430		1770	3391		3433	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3430		1770	3391		3433	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	229	627	163	97	340	132	315	708	247	292	465	241
RTOR Reduction (vph)	0	32	0	0	60	0	0	0	164	0	0	174
Lane Group Flow (vph)	229	758	0	97	412	0	315	708	83	292	465	67
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Actuated Green, G (s)	6.5	19.2		4.3	17.0		8.5	19.3	19.3	8.3	19.1	19.1
Effective Green, g (s)	6.5	19.2		4.3	17.0		8.5	19.3	19.3	8.3	19.1	19.1
Actuated g/C Ratio	0.09	0.28		0.06	0.25		0.12	0.28	0.28	0.12	0.28	0.28
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	322	953		110	834		422	988	442	412	978	437
v/s Ratio Prot	c0.07	c0.22		0.05	0.12		c0.09	c0.20		0.09	0.13	
v/s Ratio Perm									0.05			0.04
v/c Ratio	0.71	0.79		0.88	0.49		0.75	0.72	0.19	0.71	0.48	0.15
Uniform Delay, d1	30.4	23.1		32.1	22.4		29.3	22.4	18.9	29.2	20.8	18.9
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.2	4.6		50.6	0.5		7.0	4.5	0.9	5.5	1.7	0.7
Delay (s)	37.6	27.8		82.7	22.8		36.3	26.9	19.9	34.7	22.5	19.6
Level of Service	D	C		F	C		D	C	B	C	C	B
Approach Delay (s)		30.0			33.0			27.9			25.4	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	28.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	69.1	Sum of lost time (s)	18.0
Intersection Capacity Utilization	66.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1260	203	179	904	373	160	0	115	297	123	187
Future Volume (vph)	0	1260	203	179	904	373	160	0	115	297	123	187
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5		4.5	4.5		4.5		4.5	4.5	4.5	4.5
Lane Util. Factor		0.91		1.00	0.91		0.97		1.00	0.95	0.95	1.00
Frt		0.98		1.00	0.96		1.00		0.85	1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00		0.95		1.00	0.95	0.98	1.00
Satd. Flow (prot)		4979		1770	4863		3433		1583	1681	1733	1583
Flt Permitted		1.00		0.95	1.00		0.14		1.00	0.95	0.98	1.00
Satd. Flow (perm)		4979		1770	4863		516		1583	1681	1733	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1370	221	195	983	405	174	0	125	323	134	203
RTOR Reduction (vph)	0	22	0	0	74	0	0	0	90	0	0	169
Lane Group Flow (vph)	0	1569	0	195	1314	0	174	0	35	226	231	34
Turn Type		NA		Prot	NA		Perm		Perm	Split	NA	Perm
Protected Phases		4		3	8					6	6	
Permitted Phases							2		2			6
Actuated Green, G (s)		26.5		9.5	40.5		28.0		28.0	16.6	16.6	16.6
Effective Green, g (s)		26.5		9.5	40.5		28.0		28.0	16.6	16.6	16.6
Actuated g/C Ratio		0.27		0.10	0.41		0.28		0.28	0.17	0.17	0.17
Clearance Time (s)		4.5		4.5	4.5		4.5		4.5	4.5	4.5	4.5
Vehicle Extension (s)		3.0		3.0	3.0		3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		1338		170	1997		146		449	283	291	266
v/s Ratio Prot		c0.32		c0.11	0.27					c0.13	0.13	
v/s Ratio Perm							c0.34		0.02			0.02
v/c Ratio		1.17		1.15	0.66		1.19		0.08	0.80	0.79	0.13
Uniform Delay, d1		36.0		44.5	23.5		35.3		25.9	39.4	39.4	34.9
Progression Factor		1.00		1.00	1.00		1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2		86.0		114.1	0.8		135.2		0.3	14.5	13.8	0.2
Delay (s)		122.0		158.6	24.3		170.5		26.2	53.9	53.2	35.1
Level of Service		F		F	C		F		C	D	D	D
Approach Delay (s)		122.0			40.8			110.2			47.8	
Approach LOS		F			D			F			D	

Intersection Summary			
HCM 2000 Control Delay	78.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.10		
Actuated Cycle Length (s)	98.6	Sum of lost time (s)	18.0
Intersection Capacity Utilization	69.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	434	743	329	224	692	57	387	354	150	85	117	391
Future Volume (vph)	434	743	329	224	692	57	387	354	150	85	117	391
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5		4.5	4.5	4.5
Lane Util. Factor	0.97	0.91		1.00	0.91			0.95		1.00	0.95	1.00
Frt	1.00	0.95		1.00	0.99			0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.98		0.95	1.00	1.00
Satd. Flow (prot)	3433	4851		1770	5027			3377		1770	3539	1583
Flt Permitted	0.95	1.00		0.95	1.00			0.58		0.95	1.00	1.00
Satd. Flow (perm)	3433	4851		1770	5027			1999		1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	472	808	358	243	752	62	421	385	163	92	127	425
RTOR Reduction (vph)	0	53	0	0	7	0	0	11	0	0	0	334
Lane Group Flow (vph)	472	1113	0	243	807	0	0	958	0	92	127	91
Turn Type	Prot	NA		Prot	NA		Perm	NA		Split	NA	Perm
Protected Phases	7	4		3	8			2		6	6	
Permitted Phases							2					6
Actuated Green, G (s)	21.8	29.5		18.5	26.2			65.6		14.2	14.2	14.2
Effective Green, g (s)	21.8	29.5		18.5	26.2			65.6		14.2	14.2	14.2
Actuated g/C Ratio	0.15	0.20		0.13	0.18			0.45		0.10	0.10	0.10
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5		4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	513	981		224	903			899		172	344	154
v/s Ratio Prot	0.14	c0.23		c0.14	0.16					0.05	0.04	
v/s Ratio Perm								c0.48				c0.06
v/c Ratio	0.92	1.13		1.08	0.89			6.79dl		0.53	0.37	0.59
Uniform Delay, d1	61.1	58.2		63.7	58.4			40.1		62.7	61.6	63.0
Progression Factor	1.00	1.00		1.00	1.00			1.00		1.00	1.00	1.00
Incremental Delay, d2	21.9	73.5		84.6	11.2			49.1		3.2	0.7	6.0
Delay (s)	83.0	131.6		148.2	69.7			89.2		65.8	62.3	69.0
Level of Service	F	F		F	E			F		E	E	E
Approach Delay (s)		117.6			87.7			89.2			67.2	
Approach LOS		F			F			F			E	

Intersection Summary			
HCM 2000 Control Delay	96.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	145.8	Sum of lost time (s)	18.0
Intersection Capacity Utilization	79.7%	ICU Level of Service	D
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	7	61	91	8	70	1	80	1	19	0	6	4
Future Volume (vph)	7	61	91	8	70	1	80	1	19	0	6	4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	8	66	99	9	76	1	87	1	21	0	7	4

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	173	86	109	11
Volume Left (vph)	8	9	87	0
Volume Right (vph)	99	1	21	4
Hadj (s)	-0.30	0.05	0.08	-0.18
Departure Headway (s)	4.0	4.4	4.6	4.4
Degree Utilization, x	0.19	0.11	0.14	0.01
Capacity (veh/h)	873	777	746	752
Control Delay (s)	7.9	7.9	8.3	7.5
Approach Delay (s)	7.9	7.9	8.3	7.5
Approach LOS	A	A	A	A

Intersection Summary			
Delay	8.0		
Level of Service	A		
Intersection Capacity Utilization	29.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	25	4	158	20	6	135
Future Volume (Veh/h)	25	4	158	20	6	135
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	27	4	172	22	7	147
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			749			
pX, platoon unblocked						
vC, conflicting volume	344	183			194	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	344	183			194	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	96	100			99	
cM capacity (veh/h)	649	859			1379	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	31	194	154
Volume Left	27	0	7
Volume Right	4	22	0
cSH	670	1700	1379
Volume to Capacity	0.05	0.11	0.01
Queue Length 95th (ft)	4	0	0
Control Delay (s)	10.6	0.0	0.4
Lane LOS	B		A
Approach Delay (s)	10.6	0.0	0.4
Approach LOS	B		

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	22.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	88	536	13	61	528	23	26	47	223	86	38	104
Future Volume (vph)	88	536	13	61	528	23	26	47	223	86	38	104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frt	1.00	1.00		1.00	0.99			0.90			0.94	
Flt Protected	0.95	1.00		0.95	1.00			1.00			0.98	
Satd. Flow (prot)	1770	3527		1770	3517			1666			1715	
Flt Permitted	0.35	1.00		0.35	1.00			0.96			0.79	
Satd. Flow (perm)	645	3527		648	3517			1614			1382	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	96	583	14	66	574	25	28	51	242	93	41	113
RTOR Reduction (vph)	0	3	0	0	6	0	0	88	0	0	43	0
Lane Group Flow (vph)	96	594	0	66	593	0	0	233	0	0	204	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	15.4	15.4		15.4	15.4			25.7			25.7	
Effective Green, g (s)	15.4	15.4		15.4	15.4			25.7			25.7	
Actuated g/C Ratio	0.31	0.31		0.31	0.31			0.51			0.51	
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	198	1084		199	1081			827			708	
v/s Ratio Prot		0.17			c0.17							
v/s Ratio Perm	0.15			0.10				0.14			c0.15	
v/c Ratio	0.48	0.55		0.33	0.55			0.28			0.29	
Uniform Delay, d1	14.1	14.4		13.4	14.5			6.9			7.0	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	1.9	0.6		1.0	0.6			0.9			1.0	
Delay (s)	16.0	15.0		14.4	15.0			7.8			8.0	
Level of Service	B	B		B	B			A			A	
Approach Delay (s)		15.2			15.0			7.8			8.0	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM 2000 Control Delay	12.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	50.1	Sum of lost time (s)	9.0
Intersection Capacity Utilization	66.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	761	123	263	746	25	89	92	322	24	61	11
Future Volume (vph)	54	761	123	263	746	25	89	92	322	24	61	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.98		1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	4979		1770	5061		1770	1863	1583	1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.71	1.00	1.00	0.69	1.00	1.00
Satd. Flow (perm)	1770	4979		1770	5061		1330	1863	1583	1290	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	59	827	134	286	811	27	97	100	350	26	66	12
RTOR Reduction (vph)	0	37	0	0	5	0	0	0	212	0	0	8
Lane Group Flow (vph)	59	924	0	286	833	0	97	100	138	26	66	4
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2		2	6		6
Actuated Green, G (s)	3.7	18.7		10.5	25.5		18.0	18.0	18.0	18.0	18.0	18.0
Effective Green, g (s)	3.7	18.7		10.5	25.5		18.0	18.0	18.0	18.0	18.0	18.0
Actuated g/C Ratio	0.06	0.31		0.17	0.42		0.30	0.30	0.30	0.30	0.30	0.30
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	107	1533		306	2126		394	552	469	382	552	469
v/s Ratio Prot	0.03	c0.19		c0.16	0.16			0.05			0.04	
v/s Ratio Perm							0.07		c0.09	0.02		0.00
v/c Ratio	0.55	0.60		0.93	0.39		0.25	0.18	0.29	0.07	0.12	0.01
Uniform Delay, d1	27.7	17.8		24.8	12.2		16.2	15.9	16.4	15.3	15.6	15.1
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.0	0.7		34.4	0.1		1.5	0.7	1.6	0.3	0.4	0.0
Delay (s)	33.7	18.5		59.2	12.3		17.7	16.6	18.0	15.7	16.0	15.1
Level of Service	C	B		E	B		B	B	B	B	B	B
Approach Delay (s)		19.4			24.3			17.7			15.8	
Approach LOS		B			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	20.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	60.7	Sum of lost time (s)	13.5
Intersection Capacity Utilization	54.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	74	11	2	68	14	6
Future Volume (Veh/h)	74	11	2	68	14	6
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	80	12	2	74	15	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			92		164	86
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			92		164	86
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		98	99
cM capacity (veh/h)			1503		826	973

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	92	76	22
Volume Left	0	2	15
Volume Right	12	0	7
cSH	1700	1503	867
Volume to Capacity	0.05	0.00	0.03
Queue Length 95th (ft)	0	0	2
Control Delay (s)	0.0	0.2	9.3
Lane LOS		A	A
Approach Delay (s)	0.0	0.2	9.3
Approach LOS			A

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	15.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	13	4	5	15	5	8	5	4	4	4	5
Future Volume (Veh/h)	4	13	4	5	15	5	8	5	4	4	4	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	14	4	5	16	5	9	5	4	4	4	5
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	52	42	6	50	42	7	9			9		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	52	42	6	50	42	7	9			9		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	98	100	99	98	100	99			100		
cM capacity (veh/h)	923	844	1076	928	843	1075	1611			1611		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	22	26	18	13
Volume Left	4	5	9	4
Volume Right	4	5	4	5
cSH	893	896	1611	1611
Volume to Capacity	0.02	0.03	0.01	0.00
Queue Length 95th (ft)	2	2	0	0
Control Delay (s)	9.1	9.1	3.6	2.2
Lane LOS	A	A	A	A
Approach Delay (s)	9.1	9.1	3.6	2.2
Approach LOS	A	A		

Intersection Summary			
Average Delay	6.8		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	795	23	30	569	19	14	2	35	2	6	12
Future Volume (Veh/h)	17	795	23	30	569	19	14	2	35	2	6	12
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	18	864	25	33	618	21	15	2	38	2	7	13
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			None							
Median storage veh)		2										
Upstream signal (ft)		661			663							
pX, platoon unblocked	0.87			0.91			0.92	0.92	0.91	0.92	0.92	0.87
vC, conflicting volume	639			889			1304	1618	444	1202	1620	320
vC1, stage 1 conf vol							912	912		694	694	
vC2, stage 2 conf vol							392	705		507	925	
vCu, unblocked vol	302			668			699	1038	177	587	1041	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			96			96	99	95	100	98	99
cM capacity (veh/h)	1099			831			346	346	757	466	326	949

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	18	576	313	33	412	227	55	22
Volume Left	18	0	0	33	0	0	15	2
Volume Right	0	0	25	0	0	21	38	13
cSH	1099	1700	1700	831	1700	1700	553	557
Volume to Capacity	0.02	0.34	0.18	0.04	0.24	0.13	0.10	0.04
Queue Length 95th (ft)	1	0	0	3	0	0	8	3
Control Delay (s)	8.3	0.0	0.0	9.5	0.0	0.0	12.2	11.7
Lane LOS	A			A			B	B
Approach Delay (s)	0.2			0.5			12.2	11.7
Approach LOS							B	B

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	37.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	17	4	17	26	15	8	92	16	5	52	2
Future Volume (Veh/h)	1	17	4	17	26	15	8	92	16	5	52	2
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	18	4	18	28	16	9	100	17	5	57	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	44			22			124	102	20	161	96	36
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	44			22			124	102	20	161	96	36
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			99	87	98	99	93	100
cM capacity (veh/h)	1564			1593			794	779	1058	707	785	1037

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	23	62	126	64
Volume Left	1	18	9	5
Volume Right	4	16	17	2
cSH	1564	1593	809	784
Volume to Capacity	0.00	0.01	0.16	0.08
Queue Length 95th (ft)	0	1	14	7
Control Delay (s)	0.3	2.2	10.3	10.0
Lane LOS	A	A	B	B
Approach Delay (s)	0.3	2.2	10.3	10.0
Approach LOS			B	B

Intersection Summary			
Average Delay	7.6		
Intersection Capacity Utilization	24.3%	ICU Level of Service	A
Analysis Period (min)	15		

HCM 2010 Signalized Intersection Summary
34: Cataract Ave & Bonita Ave

08/11/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	740	32	48	533	64	25	63	80	12	20	56
Future Volume (veh/h)	50	740	32	48	533	64	25	63	80	12	20	56
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	54	804	0	52	579	0	27	68	87	13	22	61
Adj No. of Lanes	1	2	1	1	2	1	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	149	973	435	149	973	435	149	115	147	29	38	105
Arrive On Green	0.08	0.27	0.00	0.08	0.27	0.00	0.08	0.15	0.15	0.02	0.09	0.09
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	1774	744	951	1774	437	1212
Grp Volume(v), veh/h	54	804	0	52	579	0	27	0	155	13	0	83
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1774	0	1695	1774	0	1649
Q Serve(g_s), s	1.7	12.7	0.0	1.6	8.4	0.0	0.8	0.0	5.1	0.4	0.0	2.9
Cycle Q Clear(g_c), s	1.7	12.7	0.0	1.6	8.4	0.0	0.8	0.0	5.1	0.4	0.0	2.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.56	1.00		0.73
Lane Grp Cap(c), veh/h	149	973	435	149	973	435	149	0	262	29	0	143
V/C Ratio(X)	0.36	0.83	0.00	0.35	0.60	0.00	0.18	0.00	0.59	0.45	0.00	0.58
Avail Cap(c_a), veh/h	537	1070	479	537	1070	479	537	0	883	149	0	499
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	0.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	25.7	20.2	0.0	25.7	18.7	0.0	25.4	0.0	23.4	29.0	0.0	26.1
Incr Delay (d2), s/veh	1.5	5.1	0.0	1.4	0.8	0.0	0.6	0.0	2.1	10.6	0.0	3.7
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	0.9	6.8	0.0	0.9	4.2	0.0	0.4	0.0	2.5	0.3	0.0	1.5
LnGrp Delay(d),s/veh	27.2	25.3	0.0	27.1	19.5	0.0	25.9	0.0	25.5	39.6	0.0	29.8
LnGrp LOS	C	C		C	B		C		C	D		C
Approach Vol, veh/h		858			631			182			96	
Approach Delay, s/veh		25.4			20.1			25.6			31.2	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.5	16.7	11.5	22.9	12.5	12.7	11.5	22.9
Change Period (Y+Rc), s	7.5	7.5	6.5	6.5	7.5	7.5	6.5	6.5
Max Green Setting (Gmax), s	5.0	31.0	18.0	18.0	18.0	18.0	18.0	18.0
Max Q Clear Time (g_c+I1), s	2.4	7.1	3.6	14.7	2.8	4.9	3.7	10.4
Green Ext Time (p_c), s	0.0	0.9	0.1	1.7	0.0	0.3	0.1	2.3

Intersection Summary	
HCM 2010 Ctrl Delay	23.9
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	25	6	3	42	6	1	66	5	1	36	6
Future Volume (Veh/h)	7	25	6	3	42	6	1	66	5	1	36	6
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	8	27	7	3	46	7	1	72	5	1	39	7
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	151	124	42	142	124	74	46			77		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	151	124	42	142	124	74	46			77		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	96	99	100	94	99	100			100		
cM capacity (veh/h)	773	766	1028	800	765	987	1562			1522		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	42	56	78	47
Volume Left	8	3	1	1
Volume Right	7	7	5	7
cSH	801	789	1562	1522
Volume to Capacity	0.05	0.07	0.00	0.00
Queue Length 95th (ft)	4	6	0	0
Control Delay (s)	9.7	9.9	0.1	0.2
Lane LOS	A	A	A	A
Approach Delay (s)	9.7	9.9	0.1	0.2
Approach LOS	A	A		

Intersection Summary			
Average Delay	4.4		
Intersection Capacity Utilization	15.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	72	774	8	9	598	76	6	6	8	20	2	62
Future Volume (Veh/h)	72	774	8	9	598	76	6	6	8	20	2	62
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	78	841	9	10	650	83	7	7	9	22	2	67
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (ft)		653			659							
pX, platoon unblocked	0.77			0.72			0.84	0.84	0.72	0.84	0.84	0.77
vC, conflicting volume	733			850			1740	1754	846	1721	1718	692
vC1, stage 1 conf vol							1002	1002		712	712	
vC2, stage 2 conf vol							738	753		1010	1006	
vCu, unblocked vol	498			598			1156	1174	592	1134	1130	444
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	90			99			97	97	98	89	99	86
cM capacity (veh/h)	816			705			205	229	365	208	232	470

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	78	850	10	733	23	91
Volume Left	78	0	10	0	7	22
Volume Right	0	9	0	83	9	67
cSH	816	1700	705	1700	257	354
Volume to Capacity	0.10	0.50	0.01	0.43	0.09	0.26
Queue Length 95th (ft)	8	0	1	0	7	25
Control Delay (s)	9.9	0.0	10.2	0.0	20.4	18.6
Lane LOS	A		B		C	C
Approach Delay (s)	0.8		0.1		20.4	18.6
Approach LOS					C	C

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	60.8%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	21	17	6	13	16	38	652	2	14	529	4
Future Volume (Veh/h)	6	21	17	6	13	16	38	652	2	14	529	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	23	18	7	14	17	41	709	2	15	575	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (ft)								744				
pX, platoon unblocked	0.83	0.83		0.83	0.83	0.83				0.83		
vC, conflicting volume	1422	1400	577	1426	1401	710	579			711		
vC1, stage 1 conf vol	607	607		792	792							
vC2, stage 2 conf vol	815	793		634	609							
vCu, unblocked vol	1406	1379	577	1411	1381	548	579			549		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	97	92	97	97	95	96	96			98		
cM capacity (veh/h)	266	297	516	270	296	445	995			847		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	48	38	41	711	15	579
Volume Left	7	7	41	0	15	0
Volume Right	18	17	0	2	0	4
cSH	346	341	995	1700	847	1700
Volume to Capacity	0.14	0.11	0.04	0.42	0.02	0.34
Queue Length 95th (ft)	12	9	3	0	1	0
Control Delay (s)	17.1	16.9	8.8	0.0	9.3	0.0
Lane LOS	C	C	A		A	
Approach Delay (s)	17.1	16.9	0.5		0.2	
Approach LOS	C	C				

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	44.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	91	637	47	88	401	135	147	409	140	218	223	110
Future Volume (vph)	91	637	47	88	401	135	147	409	140	218	223	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	1863	1583
Flt Permitted	0.32	1.00	1.00	0.12	1.00	1.00	0.54	1.00	1.00	0.31	1.00	1.00
Satd. Flow (perm)	605	1863	1583	220	1863	1583	1003	3539	1583	580	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	99	692	51	96	436	147	160	445	152	237	242	120
RTOR Reduction (vph)	0	0	30	0	0	76	0	0	117	0	0	88
Lane Group Flow (vph)	99	692	21	96	436	71	160	445	35	237	242	32
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	38.9	34.5	34.5	37.7	33.9	33.9	25.9	19.5	19.5	31.9	22.5	22.5
Effective Green, g (s)	38.9	34.5	34.5	37.7	33.9	33.9	25.9	19.5	19.5	31.9	22.5	22.5
Actuated g/C Ratio	0.46	0.40	0.40	0.44	0.40	0.40	0.30	0.23	0.23	0.37	0.26	0.26
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	336	754	641	166	741	629	362	809	362	348	491	418
v/s Ratio Prot	0.02	c0.37		c0.03	0.23		0.03	0.13		c0.08	0.13	
v/s Ratio Perm	0.12		0.01	0.23		0.04	0.10		0.02	c0.18		0.02
v/c Ratio	0.29	0.92	0.03	0.58	0.59	0.11	0.44	0.55	0.10	0.68	0.49	0.08
Uniform Delay, d1	14.3	24.0	15.3	18.6	20.2	16.2	22.7	29.0	25.9	19.8	26.5	23.5
Progression 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
Incremental Delay, d2	0.5	15.9	0.0	4.8	1.2	0.1	0.9	2.7	0.5	5.4	3.5	0.4
Delay (s)	14.8	39.9	15.3	23.4	21.4	16.2	23.6	31.7	26.4	25.2	30.0	23.9
Level of Service	B	D	B	C	C	B	C	C	C	C	C	C
Approach Delay (s)		35.5			20.5			28.9			26.9	
Approach LOS		D			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	28.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	85.2	Sum of lost time (s)	18.0
Intersection Capacity Utilization	76.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	239	1097	140	217	968	98	162	265	197	88	224	104
Future Volume (vph)	239	1097	140	217	968	98	162	265	197	88	224	104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00	1.00	1.00	0.95	
Frt	1.00	0.98		1.00	0.99		1.00	1.00	0.85	1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	4999		1770	5015		1770	1863	1583	1770	3371	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	4999		1770	5015		1770	1863	1583	1770	3371	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	260	1192	152	236	1052	107	176	288	214	96	243	113
RTOR Reduction (vph)	0	18	0	0	13	0	0	0	151	0	60	0
Lane Group Flow (vph)	260	1326	0	236	1146	0	176	288	63	96	296	0
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			
Actuated Green, G (s)	15.7	25.5		14.0	23.8		11.1	26.4	26.4	6.1	21.4	
Effective Green, g (s)	15.7	25.5		14.0	23.8		11.1	26.4	26.4	6.1	21.4	
Actuated g/C Ratio	0.17	0.28		0.16	0.26		0.12	0.29	0.29	0.07	0.24	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	308	1416		275	1326		218	546	464	119	801	
v/s Ratio Prot	c0.15	c0.27		0.13	0.23		c0.10	c0.15		0.05	0.09	
v/s Ratio Perm									0.04			
v/c Ratio	0.84	0.94		0.86	0.86		0.81	0.53	0.14	0.81	0.37	
Uniform Delay, d1	36.0	31.5		37.0	31.6		38.4	26.6	23.4	41.4	28.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	18.6	11.8		22.3	6.1		19.3	3.6	0.6	31.5	1.3	
Delay (s)	54.6	43.2		59.3	37.6		57.7	30.2	24.0	72.9	30.0	
Level of Service	D	D		E	D		E	C	C	E	C	
Approach Delay (s)		45.1			41.3			35.4			39.1	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	41.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	70.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	116	747	31	58	446	73	117	200	333	109	95	92
Future Volume (vph)	116	747	31	58	446	73	117	200	333	109	95	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.98		1.00	0.91		1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3518		1770	3465		1770	1688		1770	1725	
Flt Permitted	0.37	1.00		0.21	1.00		0.63	1.00		0.31	1.00	
Satd. Flow (perm)	688	3518		384	3465		1174	1688		580	1725	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	126	812	34	63	485	79	127	217	362	118	103	100
RTOR Reduction (vph)	0	5	0	0	23	0	0	25	0	0	49	0
Lane Group Flow (vph)	126	841	0	63	541	0	127	554	0	118	154	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	19.4	19.4		19.4	19.4		29.6	29.6		29.6	29.6	
Effective Green, g (s)	19.4	19.4		19.4	19.4		29.6	29.6		29.6	29.6	
Actuated g/C Ratio	0.33	0.33		0.33	0.33		0.51	0.51		0.51	0.51	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	230	1176		128	1158		599	861		296	880	
v/s Ratio Prot		c0.24			0.16			c0.33			0.09	
v/s Ratio Perm	0.18			0.16			0.11			0.20		
v/c Ratio	0.55	0.71		0.49	0.47		0.21	0.64		0.40	0.18	
Uniform Delay, d1	15.7	16.9		15.4	15.2		7.8	10.3		8.7	7.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.7	2.1		3.0	0.3		0.8	3.7		4.0	0.4	
Delay (s)	18.4	19.0		18.3	15.5		8.6	14.0		12.7	8.1	
Level of Service	B	B		B	B		A	B		B	A	
Approach Delay (s)		18.9			15.8			13.1			9.8	
Approach LOS		B			B			B			A	

Intersection Summary			
HCM 2000 Control Delay	15.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	58.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	77.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	260	1145	81	18	844	43	82	56	20	21	61	150
Future Volume (vph)	260	1145	81	18	844	43	82	56	20	21	61	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Lane Util. Factor	1.00	0.91		1.00	0.91			1.00			1.00	
Frt	1.00	0.99		1.00	0.99			0.98			0.91	
Flt Protected	0.95	1.00		0.95	1.00			0.97			1.00	
Satd. Flow (prot)	1770	5035		1770	5048			1784			1692	
Flt Permitted	0.95	1.00		0.95	1.00			0.70			0.96	
Satd. Flow (perm)	1770	5035		1770	5048			1284			1640	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	283	1245	88	20	917	47	89	61	22	23	66	163
RTOR Reduction (vph)	0	11	0	0	9	0	0	9	0	0	112	0
Lane Group Flow (vph)	283	1322	0	20	955	0	0	163	0	0	140	0
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)	10.5	30.2		1.0	20.7			18.0			18.0	
Effective Green, g (s)	10.5	30.2		1.0	20.7			18.0			18.0	
Actuated g/C Ratio	0.17	0.48		0.02	0.33			0.29			0.29	
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	296	2425		28	1666			368			470	
v/s Ratio Prot	c0.16	c0.26		0.01	0.19							
v/s Ratio Perm								c0.13			0.09	
v/c Ratio	0.96	0.54		0.71	0.57			0.44			0.30	
Uniform Delay, d1	25.9	11.4		30.7	17.4			18.3			17.4	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	40.2	0.3		60.5	0.5			3.8			1.6	
Delay (s)	66.0	11.7		91.2	17.8			22.1			19.0	
Level of Service	E	B		F	B			C			B	
Approach Delay (s)		21.2			19.3			22.1			19.0	
Approach LOS		C			B			C			B	

Intersection Summary			
HCM 2000 Control Delay	20.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	62.7	Sum of lost time (s)	13.5
Intersection Capacity Utilization	69.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	191	776	124	32	326	95	51	268	85	128	222	85
Future Volume (vph)	191	776	124	32	326	95	51	268	85	128	222	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.98		1.00	0.97		1.00	0.96		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3466		1770	3420		1770	3412		1770	3393	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3466		1770	3420		1770	3412		1770	3393	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	208	843	135	35	354	103	55	291	92	139	241	92
RTOR Reduction (vph)	0	16	0	0	33	0	0	35	0	0	47	0
Lane Group Flow (vph)	208	962	0	35	424	0	55	348	0	139	286	0
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	12.6	27.0		2.8	17.2		3.7	21.3		7.7	25.3	
Effective Green, g (s)	12.6	27.0		2.8	17.2		3.7	21.3		7.7	25.3	
Actuated g/C Ratio	0.16	0.35		0.04	0.22		0.05	0.28		0.10	0.33	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	290	1218		64	765		85	946		177	1117	
v/s Ratio Prot	c0.12	c0.28		0.02	0.12		0.03	c0.10		c0.08	c0.08	
v/s Ratio Perm												
v/c Ratio	0.72	0.79		0.55	0.55		0.65	0.37		0.79	0.26	
Uniform Delay, d1	30.4	22.4		36.4	26.4		35.9	22.3		33.7	18.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	8.2	3.6		9.2	0.9		15.7	1.1		20.1	0.6	
Delay (s)	38.6	25.9		45.6	27.3		51.6	23.4		53.8	19.4	
Level of Service	D	C		D	C		D	C		D	B	
Approach Delay (s)		28.2			28.6			27.0			29.5	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	28.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	76.8	Sum of lost time (s)	18.0
Intersection Capacity Utilization	61.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	290	873	71	41	681	162	26	41	30	137	48	223
Future Volume (vph)	290	873	71	41	681	162	26	41	30	137	48	223
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.94		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	5028		1770	5085	1583	1770	1745		1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	5028		1770	5085	1583	1770	1745		1770	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	315	949	77	45	740	176	28	45	33	149	52	242
RTOR Reduction (vph)	0	11	0	0	0	136	0	24	0	0	0	0
Lane Group Flow (vph)	315	1015	0	45	740	40	28	54	0	149	52	242
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						6
Actuated Green, G (s)	15.9	30.8		3.7	18.6	18.6	2.0	21.9		8.4	28.3	28.3
Effective Green, g (s)	15.9	30.8		3.7	18.6	18.6	2.0	21.9		8.4	28.3	28.3
Actuated g/C Ratio	0.19	0.37		0.04	0.22	0.22	0.02	0.26		0.10	0.34	0.34
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	339	1870		79	1142	355	42	461		179	636	541
v/s Ratio Prot	c0.18	0.20		0.03	c0.15		0.02	0.03		c0.08	0.03	
v/s Ratio Perm						0.02						c0.15
v/c Ratio	0.93	0.54		0.57	0.65	0.11	0.67	0.12		0.83	0.08	0.45
Uniform Delay, d1	32.9	20.5		38.8	29.1	25.5	40.1	23.1		36.5	18.5	21.2
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	30.9	0.3		9.1	1.3	0.1	33.4	0.5		26.8	0.3	2.7
Delay (s)	63.8	20.8		47.9	30.4	25.7	73.4	23.6		63.3	18.7	23.8
Level of Service	E	C		D	C	C	E	C		E	B	C
Approach Delay (s)		30.9			30.4			36.8			36.5	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	31.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	82.8	Sum of lost time (s)	18.0
Intersection Capacity Utilization	54.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	5	55	10	10	25	15	610	15	15	600	15
Future Volume (Veh/h)	45	5	55	10	10	25	15	610	15	15	600	15
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	49	5	60	11	11	27	16	663	16	16	652	16
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			TWLTL	
Median storage veh)											2	
Upstream signal (ft)								380				
pX, platoon unblocked	0.84	0.84		0.84	0.84	0.84				0.84		
vC, conflicting volume	1420	1403	660	1450	1403	671	668			679		
vC1, stage 1 conf vol	692	692		703	703							
vC2, stage 2 conf vol	728	711		746	700							
vCu, unblocked vol	1404	1384	660	1440	1384	508	668			517		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	83	98	87	96	96	94	98			98		
cM capacity (veh/h)	283	311	463	263	312	472	922			876		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	114	49	16	679	16	668
Volume Left	49	11	16	0	16	0
Volume Right	60	27	0	16	0	16
cSH	357	365	922	1700	876	1700
Volume to Capacity	0.32	0.13	0.02	0.40	0.02	0.39
Queue Length 95th (ft)	34	11	1	0	1	0
Control Delay (s)	19.7	16.4	9.0	0.0	9.2	0.0
Lane LOS	C	C	A		A	
Approach Delay (s)	19.7	16.4	0.2		0.2	
Approach LOS	C	C				

Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	50.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	25	15	5	588	414	5
Future Volume (vph)	25	15	5	588	414	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5	4.5	
Lane Util. Factor	1.00		1.00	0.95	1.00	
Frt	0.95		1.00	1.00	1.00	
Flt Protected	0.97		0.95	1.00	1.00	
Satd. Flow (prot)	1715		1770	3539	1860	
Flt Permitted	0.97		0.41	1.00	1.00	
Satd. Flow (perm)	1715		762	3539	1860	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	27	16	5	639	450	5
RTOR Reduction (vph)	15	0	0	0	0	0
Lane Group Flow (vph)	28	0	5	639	455	0
Turn Type	Prot		pm+pt	NA	NA	
Protected Phases	4		5	2	6	
Permitted Phases			2			
Actuated Green, G (s)	2.2		31.0	31.0	25.8	
Effective Green, g (s)	2.2		31.0	31.0	25.8	
Actuated g/C Ratio	0.05		0.73	0.73	0.61	
Clearance Time (s)	4.5		4.5	4.5	4.5	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	89		576	2599	1137	
v/s Ratio Prot	c0.02		0.00	c0.18	c0.24	
v/s Ratio Perm			0.01			
v/c Ratio	0.31		0.01	0.25	0.40	
Uniform Delay, d1	19.3		1.9	1.8	4.2	
Progression Factor	1.00		1.00	1.00	1.00	
Incremental Delay, d2	2.0		0.0	0.0	0.2	
Delay (s)	21.3		1.9	1.9	4.4	
Level of Service	C		A	A	A	
Approach Delay (s)	21.3			1.9	4.4	
Approach LOS	C			A	A	

Intersection Summary			
HCM 2000 Control Delay	3.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	42.2	Sum of lost time (s)	13.5
Intersection Capacity Utilization	33.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	0	15	5	0	10	20	560	10	10	400	19
Future Volume (vph)	23	0	15	5	0	10	20	560	10	10	400	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	1.00	
Frt		0.95			0.91		1.00	1.00		1.00	0.99	
Flt Protected		0.97			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1712			1664		1770	3530		1770	1850	
Flt Permitted		1.00			1.00		0.50	1.00		0.42	1.00	
Satd. Flow (perm)		1765			1690		931	3530		777	1850	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	25	0	16	5	0	11	22	609	11	11	435	21
RTOR Reduction (vph)	0	25	0	0	15	0	0	1	0	0	2	0
Lane Group Flow (vph)	0	16	0	0	1	0	22	619	0	11	454	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		2.3			2.3		24.2	24.2		24.2	24.2	
Effective Green, g (s)		2.3			2.3		24.2	24.2		24.2	24.2	
Actuated g/C Ratio		0.06			0.06		0.68	0.68		0.68	0.68	
Clearance Time (s)		4.5			4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		114			109		634	2406		529	1261	
v/s Ratio Prot								0.18			c0.25	
v/s Ratio Perm		c0.01			0.00		0.02			0.01		
v/c Ratio		0.14			0.01		0.03	0.26		0.02	0.36	
Uniform Delay, d1		15.7			15.5		1.8	2.2		1.8	2.4	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.6			0.0		0.0	0.1		0.0	0.2	
Delay (s)		16.2			15.6		1.9	2.2		1.8	2.6	
Level of Service		B			B		A	A		A	A	
Approach Delay (s)		16.2			15.6			2.2			2.5	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM 2000 Control Delay	3.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	35.5	Sum of lost time (s)	9.0
Intersection Capacity Utilization	33.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
44: Wheeler Avenue & Third Street

08/10/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	3	43	19	6	64	18	567	17	39	336	13
Future Volume (Veh/h)	22	3	43	19	6	64	18	567	17	39	336	13
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	24	3	47	21	7	70	20	616	18	42	365	14
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								1070				
pX, platoon unblocked												
vC, conflicting volume	878	1130	190	980	1128	317	379			634		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	878	1130	190	980	1128	317	379			634		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	88	98	94	88	96	90	98			96		
cM capacity (veh/h)	202	190	820	181	191	679	1176			945		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	74	98	328	326	224	196
Volume Left	24	21	20	0	42	0
Volume Right	47	70	0	18	0	14
cSH	385	383	1176	1700	945	1700
Volume to Capacity	0.19	0.26	0.02	0.19	0.04	0.12
Queue Length 95th (ft)	18	25	1	0	3	0
Control Delay (s)	16.6	17.6	0.7	0.0	2.0	0.0
Lane LOS	C	C	A		A	
Approach Delay (s)	16.6	17.6	0.3		1.1	
Approach LOS	C	C				

Intersection Summary			
Average Delay	2.9		
Intersection Capacity Utilization	44.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	174	725	10	6	752	272	63	117	72	285	40	91
Future Volume (vph)	174	725	10	6	752	272	63	117	72	285	40	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.5	4.0	4.0	4.5	4.0	
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.90	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	5075		1770	5085	1583	1770	1863	1583	1770	1668	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	5075		1770	5085	1583	1770	1863	1583	1770	1668	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	189	788	11	7	817	296	68	127	78	310	43	99
RTOR Reduction (vph)	0	1	0	0	0	219	0	0	60	0	0	0
Lane Group Flow (vph)	189	798	0	7	817	77	68	127	18	310	142	0
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8			2			
Actuated Green, G (s)	10.0	30.3		1.2	21.5	21.5	6.4	19.4	19.4	15.3	28.3	
Effective Green, g (s)	10.0	30.3		1.2	21.5	21.5	6.4	19.4	19.4	15.3	28.3	
Actuated g/C Ratio	0.12	0.37		0.01	0.26	0.26	0.08	0.23	0.23	0.19	0.34	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.5	4.0	4.0	4.5	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	214	1859		25	1321	411	136	437	371	327	570	
v/s Ratio Prot	c0.11	0.16		0.00	c0.16		0.04	c0.07		c0.18	0.09	
v/s Ratio Perm						0.05			0.01			
v/c Ratio	0.88	0.43		0.28	0.62	0.19	0.50	0.29	0.05	0.95	0.25	
Uniform Delay, d1	35.8	19.7		40.3	27.0	23.8	36.6	26.0	24.5	33.3	19.6	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	32.0	0.2		6.0	0.9	0.2	2.9	1.7	0.3	35.8	0.2	
Delay (s)	67.7	19.9		46.4	27.9	24.0	39.5	27.7	24.8	69.1	19.8	
Level of Service	E	B		D	C	C	D	C	C	E	B	
Approach Delay (s)		29.0			27.0			29.8			53.6	
Approach LOS		C			C			C			D	

Intersection Summary			
HCM 2000 Control Delay	32.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	82.7	Sum of lost time (s)	16.5
Intersection Capacity Utilization	59.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	63	8	12	91	8	11	70	24	5	17	3
Future Volume (Veh/h)	5	63	8	12	91	8	11	70	24	5	17	3
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	68	9	13	99	9	12	76	26	5	18	3
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	108			77			224	216	72	276	216	104
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	108			77			224	216	72	276	216	104
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			98	89	97	99	97	100
cM capacity (veh/h)	1483			1522			708	673	990	596	673	951

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	82	121	114	26
Volume Left	5	13	12	5
Volume Right	9	9	26	3
cSH	1483	1522	730	679
Volume to Capacity	0.00	0.01	0.16	0.04
Queue Length 95th (ft)	0	1	14	3
Control Delay (s)	0.5	0.9	10.8	10.5
Lane LOS	A	A	B	B
Approach Delay (s)	0.5	0.9	10.8	10.5
Approach LOS			B	B

Intersection Summary			
Average Delay	4.8		
Intersection Capacity Utilization	22.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	8	6	8	10	1	10	113	19	2	22	7
Future Volume (Veh/h)	3	8	6	8	10	1	10	113	19	2	22	7
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	9	7	9	11	1	11	123	21	2	24	8
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								269				
pX, platoon unblocked												
vC, conflicting volume	194	198	28	199	192	134	32			144		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	194	198	28	199	192	134	32			144		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	99	99	99	98	100	99			100		
cM capacity (veh/h)	751	692	1047	742	698	916	1580			1438		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	19	21	155	34
Volume Left	3	9	11	2
Volume Right	7	1	21	8
cSH	802	725	1580	1438
Volume to Capacity	0.02	0.03	0.01	0.00
Queue Length 95th (ft)	2	2	1	0
Control Delay (s)	9.6	10.1	0.6	0.5
Lane LOS	A	B	A	A
Approach Delay (s)	9.6	10.1	0.6	0.5
Approach LOS	A	B		

Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	20.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	81	1136	10	7	874	73	7	2	10	14	0	19
Future Volume (vph)	81	1136	10	7	874	73	7	2	10	14	0	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	0.95	0.95		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.88		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5079		1770	5085	1583	1681	1555		1770	1583	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	0.99		0.95	1.00	
Satd. Flow (perm)	1770	5079		1770	5085	1583	1681	1545		1770	1583	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	88	1235	11	8	950	79	8	2	11	15	0	21
RTOR Reduction (vph)	0	1	0	0	0	51	0	8	0	0	0	0
Lane Group Flow (vph)	88	1245	0	8	950	28	7	6	0	15	21	0
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						
Actuated Green, G (s)	4.1	22.9		0.7	19.5	19.5	0.7	13.2		0.7	12.5	
Effective Green, g (s)	4.1	22.9		0.7	19.5	19.5	0.7	13.2		0.7	12.5	
Actuated g/C Ratio	0.07	0.42		0.01	0.36	0.36	0.01	0.24		0.01	0.23	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	132	2122		22	1809	563	21	372		22	361	
v/s Ratio Prot	c0.05	c0.25		0.00	0.19		0.00	0.00		c0.01	c0.01	
v/s Ratio Perm						0.02		0.00				
v/c Ratio	0.67	0.59		0.36	0.53	0.05	0.33	0.02		0.68	0.06	
Uniform Delay, d1	24.7	12.3		26.8	14.0	11.6	26.8	15.8		26.9	16.5	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	12.0	0.4		9.9	0.3	0.0	9.1	0.0		62.1	0.1	
Delay (s)	36.7	12.7		36.8	14.3	11.6	36.0	15.9		89.1	16.6	
Level of Service	D	B		D	B	B	D	B		F	B	
Approach Delay (s)		14.3			14.2			22.6			46.8	
Approach LOS		B			B			C			D	

Intersection Summary			
HCM 2000 Control Delay	14.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	54.8	Sum of lost time (s)	18.0
Intersection Capacity Utilization	45.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	27	52	58	18	102	47	135	261	26	17	158	68
Future Volume (vph)	27	52	58	18	102	47	135	261	26	17	158	68
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	29	57	63	20	111	51	147	284	28	18	172	74

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	149	182	459	264
Volume Left (vph)	29	20	147	18
Volume Right (vph)	63	51	28	74
Hadj (s)	-0.18	-0.11	0.06	-0.12
Departure Headway (s)	6.1	6.1	5.5	5.6
Degree Utilization, x	0.25	0.31	0.70	0.41
Capacity (veh/h)	496	513	633	584
Control Delay (s)	11.2	11.8	19.9	12.4
Approach Delay (s)	11.2	11.8	19.9	12.4
Approach LOS	B	B	C	B

Intersection Summary			
Delay	15.4		
Level of Service	C		
Intersection Capacity Utilization	59.1%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	38	32	71	308	133	35
Future Volume (Veh/h)	38	32	71	308	133	35
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	41	35	77	335	145	38
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				259		
pX, platoon unblocked						
vC, conflicting volume	634	145	183			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	634	145	183			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	90	96	94			
cM capacity (veh/h)	419	902	1392			

Direction, Lane #	EB 1	NB 1	SB 1	SB 2
Volume Total	76	412	145	38
Volume Left	41	77	0	0
Volume Right	35	0	0	38
cSH	556	1392	1700	1700
Volume to Capacity	0.14	0.06	0.09	0.02
Queue Length 95th (ft)	12	4	0	0
Control Delay (s)	12.5	1.9	0.0	0.0
Lane LOS	B	A		
Approach Delay (s)	12.5	1.9	0.0	
Approach LOS	B			

Intersection Summary			
Average Delay	2.6		
Intersection Capacity Utilization	Err%	ICU Level of Service	H
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	105	1079	32	16	909	255	31	25	25	107	23	44
Future Volume (vph)	105	1079	32	16	909	255	31	25	25	107	23	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.93		1.00	0.90	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5063		1770	5085	1583	1770	1723		1770	1679	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	5063		1770	5085	1583	1770	1723		1770	1679	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	114	1173	35	17	988	277	34	27	27	116	25	48
RTOR Reduction (vph)	0	4	0	0	0	167	0	19	0	0	0	0
Lane Group Flow (vph)	114	1204	0	17	988	110	34	35	0	116	73	0
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases						8						
Actuated Green, G (s)	10.9	33.9		2.0	25.0	35.8	3.8	25.3		10.8	32.3	
Effective Green, g (s)	10.9	33.9		2.0	25.0	35.8	3.8	25.3		10.8	32.3	
Actuated g/C Ratio	0.12	0.38		0.02	0.28	0.40	0.04	0.28		0.12	0.36	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	214	1907		39	1412	629	74	484		212	602	
v/s Ratio Prot	c0.06	c0.24		0.01	c0.19	0.02	0.02	0.02		c0.07	c0.04	
v/s Ratio Perm						0.05						
v/c Ratio	0.53	0.63		0.44	0.70	0.18	0.46	0.07		0.55	0.12	
Uniform Delay, d1	37.2	22.9		43.4	29.1	17.5	42.1	23.7		37.3	19.3	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.5	1.6		7.6	2.9	0.1	4.5	0.3		2.9	0.4	
Delay (s)	39.7	24.5		51.1	32.0	17.7	46.6	24.0		40.2	19.7	
Level of Service	D	C		D	C	B	D	C		D	B	
Approach Delay (s)		25.9			29.2			32.7			32.3	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	28.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	49.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	20	48	22	9	47	11	87	230	37	10	132	14
Future Volume (vph)	20	48	22	9	47	11	87	230	37	10	132	14
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	22	52	24	10	51	12	95	250	40	11	143	15

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	98	73	385	169
Volume Left (vph)	22	10	95	11
Volume Right (vph)	24	12	40	15
Hadj (s)	-0.07	-0.04	0.02	-0.01
Departure Headway (s)	5.3	5.3	4.6	4.8
Degree Utilization, x	0.14	0.11	0.49	0.23
Capacity (veh/h)	609	596	757	702
Control Delay (s)	9.2	9.0	12.0	9.2
Approach Delay (s)	9.2	9.0	12.0	9.2
Approach LOS	A	A	B	A

Intersection Summary			
Delay	10.7		
Level of Service	B		
Intersection Capacity Utilization	45.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	41	23	32	7	19	8	46	469	16	5	144	22
Future Volume (vph)	41	23	32	7	19	8	46	469	16	5	144	22
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	45	25	35	8	21	9	50	510	17	5	157	24

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	105	38	577	186
Volume Left (vph)	45	8	50	5
Volume Right (vph)	35	9	17	24
Hadj (s)	-0.08	-0.07	0.03	-0.04
Departure Headway (s)	5.7	5.9	4.6	5.0
Degree Utilization, x	0.17	0.06	0.74	0.26
Capacity (veh/h)	565	539	763	682
Control Delay (s)	9.8	9.3	19.4	9.7
Approach Delay (s)	9.8	9.3	19.4	9.7
Approach LOS	A	A	C	A

Intersection Summary			
Delay	15.9		
Level of Service	C		
Intersection Capacity Utilization	57.7%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	25	19	517	37	10	161
Future Volume (Veh/h)	25	19	517	37	10	161
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	27	21	562	40	11	175
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			277			
pX, platoon unblocked	0.92	0.92			0.92	
vC, conflicting volume	779	301			602	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	583	63			391	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	93	98			99	
cM capacity (veh/h)	403	908			1070	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1
Volume Total	48	375	227	186
Volume Left	27	0	0	11
Volume Right	21	0	40	0
cSH	533	1700	1700	1070
Volume to Capacity	0.09	0.22	0.13	0.01
Queue Length 95th (ft)	7	0	0	1
Control Delay (s)	12.4	0.0	0.0	0.6
Lane LOS	B			A
Approach Delay (s)	12.4	0.0		0.6
Approach LOS	B			

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	26.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	52	959	191	73	785	144	320	334	140	27	151	41
Future Volume (vph)	52	959	191	73	785	144	320	334	140	27	151	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	0.97	0.95		1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.96		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	4958		1770	5085	1583	3433	3383		1770	1803	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	4958		1770	5085	1583	3433	3383		1770	1803	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	57	1042	208	79	853	157	348	363	152	29	164	45
RTOR Reduction (vph)	0	37	0	0	0	110	0	53	0	0	0	0
Lane Group Flow (vph)	57	1213	0	79	853	47	348	462	0	29	209	0
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases						6						
Actuated Green, G (s)	10.8	26.9		7.9	24.0	24.0	10.1	25.0		2.2	17.1	
Effective Green, g (s)	10.8	26.9		7.9	24.0	24.0	10.1	25.0		2.2	17.1	
Actuated g/C Ratio	0.14	0.34		0.10	0.30	0.30	0.13	0.31		0.03	0.21	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	238	1667		174	1525	474	433	1057		48	385	
v/s Ratio Prot	c0.03	c0.24		c0.04	0.17		c0.10	0.14		0.02	c0.12	
v/s Ratio Perm						0.03						
v/c Ratio	0.24	0.73		0.45	0.56	0.10	0.80	0.44		0.60	0.54	
Uniform Delay, d1	30.9	23.3		34.0	23.6	20.2	34.0	21.9		38.5	28.0	
Progression Factor	1.00	1.00		1.13	1.30	5.65	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.5	2.8		1.7	0.4	0.1	10.4	1.3		19.6	5.4	
Delay (s)	31.5	26.1		40.1	31.1	114.2	44.3	23.2		58.1	33.4	
Level of Service	C	C		D	C	F	D	C		E	C	
Approach Delay (s)		26.4			43.7			31.7			36.4	
Approach LOS		C			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	33.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	61.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	11	11	6	7	15	43	956	26	11	619	17
Future Volume (Veh/h)	6	11	11	6	7	15	43	956	26	11	619	17
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	12	12	7	8	16	47	1039	28	12	673	18
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (ft)											382	
pX, platoon unblocked	0.75	0.75	0.75	0.75	0.75		0.75					
vC, conflicting volume	1859	1867	682	1862	1862	1053	691			1067		
vC1, stage 1 conf vol	706	706		1147	1147							
vC2, stage 2 conf vol	1153	1161		715	715							
vCu, unblocked vol	1976	1987	415	1980	1980	1053	427			1067		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	96	94	98	96	96	94	94			98		
cM capacity (veh/h)	174	207	480	188	209	275	854			653		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	31	31	47	1067	12	691
Volume Left	7	7	47	0	12	0
Volume Right	12	16	0	28	0	18
cSH	252	232	854	1700	653	1700
Volume to Capacity	0.12	0.13	0.06	0.63	0.02	0.41
Queue Length 95th (ft)	10	11	4	0	1	0
Control Delay (s)	21.3	22.9	9.5	0.0	10.6	0.0
Lane LOS	C	C	A		B	
Approach Delay (s)	21.3	22.9	0.4		0.2	
Approach LOS	C	C				

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	61.9%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	24	16	0	3	10	19	967	10	9	614	10
Future Volume (Veh/h)	13	24	16	0	3	10	19	967	10	9	614	10
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	14	26	17	0	3	11	21	1051	11	10	667	11
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (ft)								1253			753	
pX, platoon unblocked	0.86	0.86	0.78	0.86	0.86	0.75	0.78			0.75		
vC, conflicting volume	1798	1796	672	1816	1796	1056	678			1062		
vC1, stage 1 conf vol	692	692		1098	1098							
vC2, stage 2 conf vol	1106	1104		717	698							
vCu, unblocked vol	1262	1260	435	1282	1260	906	442			913		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	93	88	96	100	99	96	98			98		
cM capacity (veh/h)	190	220	483	204	228	250	869			557		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	57	14	21	1062	10	678
Volume Left	14	0	21	0	10	0
Volume Right	17	11	0	11	0	11
cSH	251	245	869	1700	557	1700
Volume to Capacity	0.23	0.06	0.02	0.62	0.02	0.40
Queue Length 95th (ft)	21	5	2	0	1	0
Control Delay (s)	23.5	20.6	9.2	0.0	11.6	0.0
Lane LOS	C	C	A		B	
Approach Delay (s)	23.5	20.6	0.2		0.2	
Approach LOS	C	C				

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	67.8%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	24	21	15	0	30	24	941	31	22	593	11
Future Volume (Veh/h)	21	24	21	15	0	30	24	941	31	22	593	11
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	23	26	23	16	0	33	26	1023	34	24	645	12
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			TWLTL	
Median storage veh)											2	
Upstream signal (ft)								1055			951	
pX, platoon unblocked	0.85	0.85	0.80	0.85	0.85	0.75	0.80			0.75		
vC, conflicting volume	1807	1808	651	1804	1780	1023	657			1057		
vC1, stage 1 conf vol	699	699		1075	1075							
vC2, stage 2 conf vol	1108	1109		729	705							
vCu, unblocked vol	1334	1336	440	1331	1302	861	448			906		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	86	87	95	92	100	88	97			96		
cM capacity (veh/h)	161	203	494	202	228	265	891			560		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	72	49	26	1023	34	24	657
Volume Left	23	16	26	0	0	24	0
Volume Right	23	33	0	0	34	0	12
cSH	227	241	891	1700	1700	560	1700
Volume to Capacity	0.32	0.20	0.03	0.60	0.02	0.04	0.39
Queue Length 95th (ft)	33	19	2	0	0	3	0
Control Delay (s)	28.1	23.7	9.2	0.0	0.0	11.7	0.0
Lane LOS	D	C	A			B	
Approach Delay (s)	28.1	23.7	0.2			0.4	
Approach LOS	D	C					

Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	61.0%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	13	17	981	24	30	609
Future Volume (Veh/h)	13	17	981	24	30	609
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	14	18	1066	26	33	662
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		4				
Median type			None			None
Median storage veh)						
Upstream signal (ft)			255			
pX, platoon unblocked	0.84	0.84			0.84	
vC, conflicting volume	1476	546			1092	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1188	82			731	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	90	98			95	
cM capacity (veh/h)	145	809			731	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	32	711	381	33	331	331
Volume Left	14	0	0	33	0	0
Volume Right	18	0	26	0	0	0
cSH	332	1700	1700	731	1700	1700
Volume to Capacity	0.10	0.42	0.22	0.05	0.19	0.19
Queue Length 95th (ft)	8	0	0	4	0	0
Control Delay (s)	19.5	0.0	0.0	10.2	0.0	0.0
Lane LOS	C			B		
Approach Delay (s)	19.5	0.0		0.5		
Approach LOS	C					

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	37.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	176	586	173	140	370	59	217	940	247	111	511	158
Future Volume (vph)	176	586	173	140	370	59	217	940	247	111	511	158
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97		1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	4927		1770	4905	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1770	4927		1770	4905	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	191	637	188	152	402	64	236	1022	268	121	555	172
RTOR Reduction (vph)	0	0	138	0	0	48	0	59	0	0	70	0
Lane Group Flow (vph)	191	637	50	152	402	16	236	1231	0	121	657	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6						
Actuated Green, G (s)	11.0	21.3	21.3	9.5	19.8	19.8	13.0	23.7		7.5	18.2	
Effective Green, g (s)	11.0	21.3	21.3	9.5	19.8	19.8	13.0	23.7		7.5	18.2	
Actuated g/C Ratio	0.14	0.27	0.27	0.12	0.25	0.25	0.16	0.30		0.09	0.23	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	243	942	421	210	875	391	287	1459		165	1115	
v/s Ratio Prot	c0.11	c0.18		0.09	0.11		c0.13	c0.25		0.07	0.13	
v/s Ratio Perm			0.03			0.01						
v/c Ratio	0.79	0.68	0.12	0.72	0.46	0.04	0.82	0.84		0.73	0.59	
Uniform Delay, d1	33.4	26.3	22.2	34.0	25.6	22.9	32.4	26.4		35.3	27.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.04	1.60		1.00	1.00	
Incremental Delay, d2	15.3	3.9	0.6	11.7	1.7	0.2	14.8	4.0		15.5	0.8	
Delay (s)	48.7	30.2	22.8	45.6	27.3	23.1	48.6	46.3		50.7	28.4	
Level of Service	D	C	C	D	C	C	D	D		D	C	
Approach Delay (s)		32.3			31.4			46.7			31.6	
Approach LOS		C			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	37.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	68.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	81	355	40	39	380	116	69	206	42	116	178	142
Future Volume (vph)	81	355	40	39	380	116	69	206	42	116	178	142
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00		1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.96			0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.99		0.95	1.00	1.00
Satd. Flow (prot)	1770	1835		1770	1797			1810		1770	1863	1583
Flt Permitted	0.16	1.00		0.28	1.00			0.99		0.95	1.00	1.00
Satd. Flow (perm)	290	1835		522	1797			1810		1770	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	88	386	43	42	413	126	75	224	46	126	193	154
RTOR Reduction (vph)	0	5	0	0	14	0	0	7	0	0	0	118
Lane Group Flow (vph)	88	424	0	42	525	0	0	338	0	126	193	36
Turn Type	Perm	NA		Perm	NA		Split	NA		Split	NA	Perm
Protected Phases		4			8		2	2		6	6	
Permitted Phases	4			8								6
Actuated Green, G (s)	25.7	25.7		25.7	25.7			20.0		18.1	18.1	18.1
Effective Green, g (s)	25.7	25.7		25.7	25.7			20.0		18.1	18.1	18.1
Actuated g/C Ratio	0.33	0.33		0.33	0.33			0.26		0.23	0.23	0.23
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5		4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	96	610		173	597			468		414	436	370
v/s Ratio Prot		0.23			0.29			c0.19		0.07	c0.10	
v/s Ratio Perm	c0.30			0.08								0.02
v/c Ratio	0.92	0.69		0.24	0.88			0.72		0.30	0.44	0.10
Uniform Delay, d1	24.8	22.4		18.7	24.3			26.1		24.4	25.3	23.2
Progression Factor	1.00	1.00		1.00	1.00			1.00		1.00	1.00	1.00
Incremental Delay, d2	64.7	3.4		0.7	13.9			9.3		1.9	3.2	0.5
Delay (s)	89.5	25.8		19.5	38.2			35.5		26.3	28.5	23.7
Level of Service	F	C		B	D			D		C	C	C
Approach Delay (s)		36.7			36.8			35.5			26.4	
Approach LOS		D			D			D			C	

Intersection Summary			
HCM 2000 Control Delay	34.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	77.3	Sum of lost time (s)	13.5
Intersection Capacity Utilization	73.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	256	842	157	128	644	211	264	665	50	231	367	178
Future Volume (vph)	256	842	157	128	644	211	264	665	50	231	367	178
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.91		1.00	0.95	1.00	0.97	0.95		1.00	0.95	1.00
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	4965		1770	3539	1583	3433	3502		1770	3539	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	4965		1770	3539	1583	3433	3502		1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	278	915	171	139	700	229	287	723	54	251	399	193
RTOR Reduction (vph)	0	34	0	0	0	177	0	7	0	0	0	142
Lane Group Flow (vph)	278	1052	0	139	700	52	287	770	0	251	399	51
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						6
Actuated Green, G (s)	13.6	22.6		9.2	18.2	18.2	10.8	19.6		12.3	21.1	21.1
Effective Green, g (s)	13.6	22.6		9.2	18.2	18.2	10.8	19.6		12.3	21.1	21.1
Actuated g/C Ratio	0.17	0.28		0.12	0.23	0.23	0.14	0.25		0.15	0.26	0.26
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	302	1407		204	808	361	465	861		273	936	419
v/s Ratio Prot	c0.16	0.21		0.08	c0.20		0.08	c0.22		c0.14	0.11	
v/s Ratio Perm						0.03						0.03
v/c Ratio	0.92	0.75		0.68	0.87	0.14	0.62	0.89		0.92	0.43	0.12
Uniform Delay, d1	32.5	26.0		33.8	29.6	24.5	32.5	29.1		33.2	24.3	22.3
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	31.8	2.2		9.0	9.7	0.2	2.4	13.8		33.5	1.4	0.6
Delay (s)	64.4	28.2		42.9	39.2	24.7	34.9	42.8		66.7	25.7	22.9
Level of Service	E	C		D	D	C	C	D		E	C	C
Approach Delay (s)		35.6			36.6			40.7			37.3	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	37.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	79.7	Sum of lost time (s)	16.0
Intersection Capacity Utilization	78.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	163	377	72	49	324	128	75	752	122	70	476	98
Future Volume (vph)	163	377	72	49	324	128	75	752	122	70	476	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	1824		1770	1815	
Flt Permitted	0.15	1.00	1.00	0.18	1.00	1.00	0.24	1.00		0.07	1.00	
Satd. Flow (perm)	280	1863	1583	328	1863	1583	453	1824		133	1815	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	177	410	78	53	352	139	82	817	133	76	517	107
RTOR Reduction (vph)	0	0	59	0	0	82	0	5	0	0	7	0
Lane Group Flow (vph)	177	410	19	53	352	57	82	945	0	76	617	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	34.5	26.6	26.6	26.7	22.7	22.7	61.8	57.0		60.2	56.2	
Effective Green, g (s)	34.5	26.6	26.6	26.7	22.7	22.7	61.8	57.0		60.2	56.2	
Actuated g/C Ratio	0.31	0.24	0.24	0.24	0.21	0.21	0.56	0.52		0.55	0.51	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	195	452	384	132	385	327	313	948		132	930	
v/s Ratio Prot	c0.07	c0.22		0.01	0.19		0.01	c0.52		c0.02	0.34	
v/s Ratio Perm	0.22		0.01	0.08		0.04	0.14			0.29		
v/c Ratio	0.91	0.91	0.05	0.40	0.91	0.17	0.26	1.00		0.58	0.66	
Uniform Delay, d1	31.7	40.3	31.8	33.6	42.5	35.7	14.0	26.2		24.6	19.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	39.2	21.5	0.1	2.0	25.6	0.3	0.4	28.4		6.0	3.7	
Delay (s)	70.9	61.8	31.9	35.6	68.1	36.0	14.5	54.6		30.6	23.4	
Level of Service	E	E	C	D	E	D	B	D		C	C	
Approach Delay (s)		60.8			56.7			51.4			24.2	
Approach LOS		E			E			D			C	

Intersection Summary			
HCM 2000 Control Delay	48.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	109.6	Sum of lost time (s)	18.0
Intersection Capacity Utilization	92.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	217	130	131	48	80	65	57	490	56	100	608	81
Future Volume (vph)	217	130	131	48	80	65	57	490	56	100	608	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	0.95	0.95	1.00		1.00	1.00	1.00	0.95	1.00	1.00	0.91	
Frt	1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	0.99	1.00		0.98	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1681	1746	1583		1829	1583	1770	3539	1583	1770	4996	
Flt Permitted	0.95	0.99	1.00		0.98	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1681	1746	1583		1829	1583	1770	3539	1583	1770	4996	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	236	141	142	52	87	71	62	533	61	109	661	88
RTOR Reduction (vph)	0	0	114	0	0	62	0	0	41	0	18	0
Lane Group Flow (vph)	184	193	28	0	139	9	62	533	20	109	731	0
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			8			2			
Actuated Green, G (s)	13.0	13.0	13.0		8.3	8.3	3.7	21.1	21.1	5.5	22.9	
Effective Green, g (s)	13.0	13.0	13.0		8.3	8.3	3.7	21.1	21.1	5.5	22.9	
Actuated g/C Ratio	0.20	0.20	0.20		0.13	0.13	0.06	0.32	0.32	0.08	0.35	
Clearance Time (s)	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	331	344	312		230	199	99	1133	506	147	1736	
v/s Ratio Prot	0.11	c0.11			c0.08		0.04	c0.15		c0.06	0.15	
v/s Ratio Perm			0.02			0.01			0.01			
v/c Ratio	0.56	0.56	0.09		0.60	0.04	0.63	0.47	0.04	0.74	0.42	
Uniform Delay, d1	23.8	23.9	21.6		27.2	25.3	30.4	17.9	15.4	29.5	16.4	
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.0	2.1	0.1		4.4	0.1	11.7	1.4	0.1	18.1	0.8	
Delay (s)	25.9	26.0	21.7		31.7	25.4	42.2	19.3	15.6	47.6	17.2	
Level of Service	C	C	C		C	C	D	B	B	D	B	
Approach Delay (s)		24.8			29.6			21.1			21.1	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	22.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	65.9	Sum of lost time (s)	18.0
Intersection Capacity Utilization	50.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
65: La Verne Ave & Arrow Hwy

08/10/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	980	0	6	654	3	187	0	5	2	0	0
Future Volume (vph)	6	980	0	6	654	3	187	0	5	2	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0			4.0	
Lane Util. Factor	1.00	0.91		1.00	0.95	1.00		1.00			1.00	
Frt	1.00	1.00		1.00	1.00	0.85		1.00			1.00	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.95			0.95	
Satd. Flow (prot)	1770	5085		1770	3539	1583		1770			1770	
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.95			0.95	
Satd. Flow (perm)	1770	5085		1770	3539	1583		1770			1770	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	7	1065	0	7	711	3	203	0	5	2	0	0
RTOR Reduction (vph)	0	0	0	0	0	2	0	106	0	0	0	0
Lane Group Flow (vph)	7	1065	0	7	711	1	0	102	0	0	2	0
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA		Split	NA	
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases						8						
Actuated Green, G (s)	0.7	17.6		0.7	17.6	17.6		16.0			16.0	
Effective Green, g (s)	0.7	17.6		0.7	17.6	17.6		16.0			16.0	
Actuated g/C Ratio	0.01	0.27		0.01	0.27	0.27		0.24			0.24	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0		4.0			4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)	18	1349		18	939	420		427			427	
v/s Ratio Prot	c0.00	c0.21		0.00	0.20			c0.06			c0.00	
v/s Ratio Perm						0.00						
v/c Ratio	0.39	0.79		0.39	0.76	0.00		0.24			0.00	
Uniform Delay, d1	32.6	22.6		32.6	22.4	17.9		20.2			19.1	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00			1.00	
Incremental Delay, d2	13.4	3.2		13.4	3.5	0.0		1.3			0.0	
Delay (s)	45.9	25.8		45.9	25.9	17.9		21.6			19.1	
Level of Service	D	C		D	C	B		C			B	
Approach Delay (s)		25.9			26.1			21.6			19.1	
Approach LOS		C			C			C			B	

Intersection Summary			
HCM 2000 Control Delay	25.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	66.3	Sum of lost time (s)	16.0
Intersection Capacity Utilization	35.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	27	870	1	39	595	16	10	18	17	15	11	26
Future Volume (Veh/h)	27	870	1	39	595	16	10	18	17	15	11	26
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	29	946	1	42	647	17	11	20	18	16	12	28
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)									2			2
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		425										
pX, platoon unblocked				0.83			0.83	0.83	0.83	0.83	0.83	
vC, conflicting volume	664			947			1418	1752	316	1132	1744	332
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	664			226			792	1195	0	448	1185	332
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			96			94	86	98	95	92	96
cM capacity (veh/h)	921			1114			198	143	901	341	145	664

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	29	378	378	190	42	431	233	49	56
Volume Left	29	0	0	0	42	0	0	11	16
Volume Right	0	0	0	1	0	0	17	18	28
cSH	921	1700	1700	1700	1114	1700	1700	257	515
Volume to Capacity	0.03	0.22	0.22	0.11	0.04	0.25	0.14	0.19	0.11
Queue Length 95th (ft)	2	0	0	0	3	0	0	17	9
Control Delay (s)	9.0	0.0	0.0	0.0	8.4	0.0	0.0	23.7	15.7
Lane LOS	A				A			C	C
Approach Delay (s)	0.3				0.5			23.7	15.7
Approach LOS								C	C

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	38.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	211	751	390	116	396	98	458	690	157	82	558	65
Future Volume (vph)	211	751	390	116	396	98	458	690	157	82	558	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.36	1.00	1.00	0.11	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	671	1863	1583	213	1863	1583	1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	229	816	424	126	430	107	498	750	171	89	607	71
RTOR Reduction (vph)	0	0	151	0	0	61	0	0	81	0	0	55
Lane Group Flow (vph)	229	816	273	126	430	46	498	750	90	89	607	16
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8		8			2			6
Actuated Green, G (s)	35.0	35.0	35.0	35.0	35.0	35.0	16.0	28.2	28.2	5.6	17.8	17.8
Effective Green, g (s)	35.0	35.0	35.0	35.0	35.0	35.0	16.0	28.2	28.2	5.6	17.8	17.8
Actuated g/C Ratio	0.43	0.43	0.43	0.43	0.43	0.43	0.20	0.35	0.35	0.07	0.22	0.22
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	290	806	685	92	806	685	350	1235	552	122	779	348
v/s Ratio Prot		0.44			0.23		c0.28	0.21		0.05	c0.17	
v/s Ratio Perm	0.34		0.17	c0.59		0.03			0.06			0.01
v/c Ratio	0.79	1.01	0.40	1.37	0.53	0.07	1.42	0.61	0.16	0.73	0.78	0.04
Uniform Delay, d1	19.7	22.9	15.7	22.9	16.9	13.4	32.4	21.7	18.1	36.9	29.7	24.8
Progression 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
Incremental Delay, d2	13.3	34.8	0.4	220.9	0.7	0.0	206.3	2.2	0.6	19.5	7.6	0.2
Delay (s)	33.0	57.7	16.1	243.8	17.6	13.4	238.7	24.0	18.8	56.3	37.2	25.0
Level of Service	C	E	B	F	B	B	F	C	B	E	D	C
Approach Delay (s)		41.8			59.9			98.7			38.3	
Approach LOS		D			E			F			D	

Intersection Summary			
HCM 2000 Control Delay	62.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.23		
Actuated Cycle Length (s)	80.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	100.1%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	42	0	1026	1072	0
Future Volume (Veh/h)	0	42	0	1026	1072	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	46	0	1115	1165	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					1028	
pX, platoon unblocked	0.89	0.89	0.89			
vC, conflicting volume	1722	582	1165			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1558	271	929			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	93	100			
cM capacity (veh/h)	91	644	649			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	46	0	558	558	777	388
Volume Left	0	0	0	0	0	0
Volume Right	46	0	0	0	0	0
cSH	644	1700	1700	1700	1700	1700
Volume to Capacity	0.07	0.00	0.33	0.33	0.46	0.23
Queue Length 95th (ft)	6	0	0	0	0	0
Control Delay (s)	11.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	B					
Approach Delay (s)	11.0	0.0			0.0	
Approach LOS	B					

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	39.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	129	1014	62	107	365	150	137	1009	146	279	761	55
Future Volume (vph)	129	1014	62	107	365	150	137	1009	146	279	761	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	0.95		1.00	0.95	
Frt	1.00	0.99		1.00	0.96		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5042		1770	4863		1770	3472		1770	3503	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	5042		1770	4863		1770	3472		1770	3503	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	140	1102	67	116	397	163	149	1097	159	303	827	60
RTOR Reduction (vph)	0	8	0	0	82	0	0	13	0	0	5	0
Lane Group Flow (vph)	140	1161	0	116	478	0	149	1243	0	303	882	0
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	9.6	20.0		6.0	16.4		12.3	33.0		15.0	35.7	
Effective Green, g (s)	9.6	20.0		6.0	16.4		12.3	33.0		15.0	35.7	
Actuated g/C Ratio	0.11	0.22		0.07	0.18		0.14	0.37		0.17	0.40	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	188	1120		118	886		241	1273		295	1389	
v/s Ratio Prot	0.08	c0.23		c0.07	0.10		0.08	c0.36		c0.17	c0.25	
v/s Ratio Perm												
v/c Ratio	0.74	1.04		0.98	0.54		0.62	0.98		1.03	0.63	
Uniform Delay, d1	39.0	35.0		41.9	33.4		36.6	28.1		37.5	21.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	14.8	36.9		77.1	0.6		4.7	19.6		59.6	1.0	
Delay (s)	53.8	71.9		119.0	34.0		41.3	47.8		97.1	22.8	
Level of Service	D	E		F	C		D	D		F	C	
Approach Delay (s)		70.0			48.6			47.1			41.7	
Approach LOS		E			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	52.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	88.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	335	322	226	79	150	118	123	981	111	86	757	64
Future Volume (vph)	335	322	226	79	150	118	123	981	111	86	757	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.65	1.00	1.00	0.41	1.00	1.00	0.29	1.00	1.00	0.19	1.00	1.00
Satd. Flow (perm)	1218	1863	1583	764	1863	1583	531	3539	1583	353	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	364	350	246	86	163	128	134	1066	121	93	823	70
RTOR Reduction (vph)	0	0	81	0	0	41	0	0	53	0	0	34
Lane Group Flow (vph)	364	350	165	86	163	87	134	1066	68	93	823	36
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	20.3	20.3	20.3	20.3	20.3	20.3	30.1	30.1	30.1	30.1	30.1	30.1
Effective Green, g (s)	20.3	20.3	20.3	20.3	20.3	20.3	30.1	30.1	30.1	30.1	30.1	30.1
Actuated g/C Ratio	0.35	0.35	0.35	0.35	0.35	0.35	0.52	0.52	0.52	0.52	0.52	0.52
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	423	647	550	265	647	550	273	1824	815	181	1824	815
v/s Ratio Prot		0.19			0.09			c0.30			0.23	
v/s Ratio Perm	c0.30		0.10	0.11		0.05	0.25		0.04	0.26		0.02
v/c Ratio	0.86	0.54	0.30	0.32	0.25	0.16	0.49	0.58	0.08	0.51	0.45	0.04
Uniform Delay, d1	17.7	15.3	13.9	14.0	13.6	13.2	9.2	9.8	7.2	9.3	8.9	7.0
Progression 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
Incremental Delay, d2	16.2	0.9	0.3	0.7	0.2	0.1	6.2	1.4	0.2	10.0	0.8	0.1
Delay (s)	33.9	16.2	14.2	14.7	13.8	13.3	15.4	11.2	7.4	19.4	9.7	7.1
Level of Service	C	B	B	B	B	B	B	B	A	B	A	A
Approach Delay (s)		22.4			13.8			11.3			10.5	
Approach LOS		C			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	14.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	58.4	Sum of lost time (s)	8.0
Intersection Capacity Utilization	71.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	52	1354	35	15	1164
Future Volume (Veh/h)	0	52	1354	35	15	1164
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	57	1472	38	16	1265
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			916			
pX, platoon unblocked	0.77	0.77			0.77	
vC, conflicting volume	2156	755			1510	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1902	82			1064	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	92			97	
cM capacity (veh/h)	45	739			501	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	0	57	981	529	16	632	632
Volume Left	0	0	0	0	16	0	0
Volume Right	0	57	0	38	0	0	0
cSH	1700	739	1700	1700	501	1700	1700
Volume to Capacity	0.00	0.08	0.58	0.31	0.03	0.37	0.37
Queue Length 95th (ft)	0	6	0	0	2	0	0
Control Delay (s)	0.0	10.3	0.0	0.0	12.4	0.0	0.0
Lane LOS	A	B			B		
Approach Delay (s)	10.3		0.0		0.2		
Approach LOS	B						

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	48.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	365	814	103	231	483	130	179	764	117	192	910	172
Future Volume (vph)	365	814	103	231	483	130	179	764	117	192	910	172
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.98		1.00	0.97		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	5000		1770	4924		1770	3469		1770	3539	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	5000		1770	4924		1770	3469		1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	397	885	112	251	525	141	195	830	127	209	989	187
RTOR Reduction (vph)	0	18	0	0	54	0	0	13	0	0	0	110
Lane Group Flow (vph)	397	979	0	251	612	0	195	944	0	209	989	77
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												6
Actuated Green, G (s)	21.1	20.7		15.5	15.1		10.0	26.0		11.0	27.0	27.0
Effective Green, g (s)	21.1	20.7		15.5	15.1		10.0	26.0		11.0	27.0	27.0
Actuated g/C Ratio	0.24	0.23		0.17	0.17		0.11	0.29		0.12	0.30	0.30
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	418	1160		307	833		198	1011		218	1071	479
v/s Ratio Prot	c0.22	c0.20		0.14	0.12		0.11	0.27		c0.12	c0.28	
v/s Ratio Perm												0.05
v/c Ratio	0.95	0.84		0.82	0.73		0.98	0.93		0.96	0.92	0.16
Uniform Delay, d1	33.5	32.7		35.5	35.1		39.5	30.8		38.9	30.1	22.8
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	31.0	5.8		15.4	3.4		59.1	16.2		48.7	14.3	0.7
Delay (s)	64.6	38.5		50.9	38.5		98.7	46.9		87.6	44.4	23.5
Level of Service	E	D		D	D		F	D		F	D	C
Approach Delay (s)		45.9			41.9			55.7			48.1	
Approach LOS		D			D			E			D	

Intersection Summary			
HCM 2000 Control Delay	48.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	89.2	Sum of lost time (s)	16.0
Intersection Capacity Utilization	81.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	6	32	83	21	76	40	863	77	54	579	39
Future Volume (vph)	24	6	32	83	21	76	40	863	77	54	579	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		1.00			1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.93			0.94		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98			0.98		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1701			1717		1770	3539	1583	1770	3539	1583
Flt Permitted		0.87			0.83		0.41	1.00	1.00	0.28	1.00	1.00
Satd. Flow (perm)		1514			1451		767	3539	1583	522	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	26	7	35	90	23	83	43	938	84	59	629	42
RTOR Reduction (vph)	0	28	0	0	52	0	0	0	28	0	0	14
Lane Group Flow (vph)	0	40	0	0	144	0	43	938	56	59	629	28
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)		10.4			10.4		36.5	36.5	36.5	36.5	36.5	36.5
Effective Green, g (s)		10.4			10.4		36.5	36.5	36.5	36.5	36.5	36.5
Actuated g/C Ratio		0.19			0.19		0.66	0.66	0.66	0.66	0.66	0.66
Clearance Time (s)		4.0			4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		286			274		509	2352	1052	347	2352	1052
v/s Ratio Prot								c0.27			0.18	
v/s Ratio Perm		0.03			c0.10		0.06		0.04	0.11		0.02
v/c Ratio		0.14			0.53		0.08	0.40	0.05	0.17	0.27	0.03
Uniform Delay, d1		18.5			20.0		3.3	4.2	3.2	3.5	3.8	3.1
Progression Factor		1.00			1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		0.2			1.8		0.3	0.5	0.1	1.1	0.3	0.0
Delay (s)		18.7			21.9		3.6	4.7	3.3	4.5	4.0	3.2
Level of Service		B			C		A	A	A	A	A	A
Approach Delay (s)		18.7			21.9			4.5			4.0	
Approach LOS		B			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	6.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	54.9	Sum of lost time (s)	8.0
Intersection Capacity Utilization	51.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	83	470	670	41	20	43
Future Volume (Veh/h)	83	470	670	41	20	43
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	90	511	728	45	22	47
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						2
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	773				1442	750
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	773				1442	750
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	89				83	89
cM capacity (veh/h)	842				130	411

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	601	773	69
Volume Left	90	0	22
Volume Right	0	45	47
cSH	842	1700	409
Volume to Capacity	0.11	0.45	0.17
Queue Length 95th (ft)	9	0	15
Control Delay (s)	2.7	0.0	22.3
Lane LOS	A		C
Approach Delay (s)	2.7	0.0	22.3
Approach LOS			C

Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	80.4%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	46	68	14	0	91
Future Volume (Veh/h)	0	46	68	14	0	91
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	50	74	15	0	99
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	180	82			89	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	180	82			89	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	95			100	
cM capacity (veh/h)	809	978			1506	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	50	89	99
Volume Left	0	0	0
Volume Right	50	15	0
cSH	978	1700	1506
Volume to Capacity	0.05	0.05	0.00
Queue Length 95th (ft)	4	0	0
Control Delay (s)	8.9	0.0	0.0
Lane LOS	A		
Approach Delay (s)	8.9	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	14.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	6	6	15	78	6
Future Volume (Veh/h)	0	6	6	15	78	6
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	7	7	16	85	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	23				22	15
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	23				22	15
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				91	99
cM capacity (veh/h)	1592				995	1065

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	7	23	92
Volume Left	0	0	85
Volume Right	0	16	7
cSH	1592	1700	1000
Volume to Capacity	0.00	0.01	0.09
Queue Length 95th (ft)	0	0	8
Control Delay (s)	0.0	0.0	9.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	9.0
Approach LOS			A

Intersection Summary			
Average Delay	6.8		
Intersection Capacity Utilization	14.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	27	761	45	260	497	26	209	0	579	17	0	17
Future Volume (Veh/h)	27	761	45	260	497	26	209	0	579	17	0	17
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	29	827	49	283	540	28	227	0	629	18	0	18
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (ft)					644							
pX, platoon unblocked												
vC, conflicting volume	568			876			2034	2044	852	2620	2040	540
vC1, stage 1 conf vol							910	910		1106	1106	
vC2, stage 2 conf vol							1124	1134		1514	934	
vCu, unblocked vol	568			876			2034	2044	852	2620	2040	540
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			63			0	100	0	0	100	97
cM capacity (veh/h)	1004			771			114	134	360	0	50	542

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	29	876	283	540	28	856	36
Volume Left	29	0	283	0	0	227	18
Volume Right	0	49	0	0	28	629	18
cSH	1004	1700	771	1700	1700	229	0
Volume to Capacity	0.03	0.52	0.37	0.32	0.02	3.74	Err
Queue Length 95th (ft)	2	0	42	0	0	Err	Err
Control Delay (s)	8.7	0.0	12.4	0.0	0.0	Err	Err
Lane LOS	A		B			F	F
Approach Delay (s)	0.3		4.1			Err	Err
Approach LOS						F	F

Intersection Summary			
Average Delay	Err		
Intersection Capacity Utilization	117.9%	ICU Level of Service	H
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1173	507	42	0	29
Future Vol, veh/h	0	1173	507	42	0	29
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	-	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1275	551	46	0	32

Major/Minor	Major2		Minor2	
Conflicting Flow All	-	0	-	299
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	-	3.92
Pot Cap-1 Maneuver	-	-	0	595
Stage 1	-	-	0	-
Stage 2	-	-	0	-
Platoon blocked, %	-	-		
Mov Cap-1 Maneuver	-	-	-	595
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	WB	SB
HCM Control Delay, s	0	11.4
HCM LOS		B

Minor Lane/Major Mvmt	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	595
HCM Lane V/C Ratio	-	-	0.053
HCM Control Delay (s)	-	-	11.4
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	78	0	0	24	0	1290	1	0	1043	70
Future Volume (Veh/h)	0	0	78	0	0	24	0	1290	1	0	1043	70
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	85	0	0	26	0	1402	1	0	1134	76
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											551	
pX, platoon unblocked	0.84	0.84	0.84	0.84	0.84		0.84					
vC, conflicting volume	1899	2575	605	2054	2612	702	1210			1403		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1696	2497	163	1880	2541	702	880			1403		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	88	100	100	93	100			100		
cM capacity (veh/h)	47	24	720	32	23	381	645			483		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	85	26	935	468	756	454
Volume Left	0	0	0	0	0	0
Volume Right	85	26	0	1	0	76
cSH	720	381	1700	1700	1700	1700
Volume to Capacity	0.12	0.07	0.55	0.28	0.44	0.27
Queue Length 95th (ft)	10	5	0	0	0	0
Control Delay (s)	10.7	15.1	0.0	0.0	0.0	0.0
Lane LOS	B	C				
Approach Delay (s)	10.7	15.1	0.0		0.0	
Approach LOS	B	C				

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	45.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1308	49	164	755	17	27
Future Volume (Veh/h)	1308	49	164	755	17	27
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1422	53	178	821	18	29
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)				503		
pX, platoon unblocked					0.85	
vC, conflicting volume			1475		2626	1448
vC1, stage 1 conf vol					1448	
vC2, stage 2 conf vol					1177	
vCu, unblocked vol			1475		2820	1448
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)			2.2		3.5	3.3
p0 queue free %			61		85	82
cM capacity (veh/h)			457		123	161

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	1475	178	821	47
Volume Left	0	178	0	18
Volume Right	53	0	0	29
cSH	1700	457	1700	144
Volume to Capacity	0.87	0.39	0.48	0.33
Queue Length 95th (ft)	0	46	0	33
Control Delay (s)	0.0	17.8	0.0	41.7
Lane LOS		C		E
Approach Delay (s)	0.0	3.2		41.7
Approach LOS				E

Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	94.2%	ICU Level of Service	F
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	26	23	1265	1069	5
Future Volume (Veh/h)	0	26	23	1265	1069	5
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	28	25	1375	1162	5
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				739		
pX, platoon unblocked	0.68					
vC, conflicting volume	1902	584	1167			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1377	584	1167			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	94	96			
cM capacity (veh/h)	88	455	594			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	28	25	688	688	775	392
Volume Left	0	25	0	0	0	0
Volume Right	28	0	0	0	0	5
cSH	455	594	1700	1700	1700	1700
Volume to Capacity	0.06	0.04	0.40	0.40	0.46	0.23
Queue Length 95th (ft)	5	3	0	0	0	0
Control Delay (s)	13.4	11.3	0.0	0.0	0.0	0.0
Lane LOS	B	B				
Approach Delay (s)	13.4	0.2			0.0	
Approach LOS	B					

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	45.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	9	11	7	1	5	0	7	10	1	11	1
Future Volume (Veh/h)	0	9	11	7	1	5	0	7	10	1	11	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	10	12	8	1	5	0	8	11	1	12	1
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	34	34	12	45	28	14	13			19		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	34	34	12	45	28	14	13			19		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	99	99	99	100	100	100			100		
cM capacity (veh/h)	968	859	1068	937	864	1067	1606			1597		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	22	14	19	14
Volume Left	0	8	0	1
Volume Right	12	5	11	1
cSH	961	974	1606	1597
Volume to Capacity	0.02	0.01	0.00	0.00
Queue Length 95th (ft)	2	1	0	0
Control Delay (s)	8.8	8.8	0.0	0.5
Lane LOS	A	A		A
Approach Delay (s)	8.8	8.8	0.0	0.5
Approach LOS	A	A		

Intersection Summary			
Average Delay	4.7		
Intersection Capacity Utilization	17.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	1181	19	20	648	11	23	0	23	18	0	28
Future Volume (Veh/h)	17	1181	19	20	648	11	23	0	23	18	0	28
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	18	1284	21	22	704	12	25	0	25	20	0	30
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	716			1305			1756	2090	438	1243	2095	358
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	716			1305			1756	2090	438	1243	2095	358
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			96			49	100	96	83	100	95
cM capacity (veh/h)	880			526			49	49	566	119	48	638

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	18	514	514	278	22	469	247	50	50
Volume Left	18	0	0	0	22	0	0	25	20
Volume Right	0	0	0	21	0	0	12	25	30
cSH	880	1700	1700	1700	526	1700	1700	90	233
Volume to Capacity	0.02	0.30	0.30	0.16	0.04	0.28	0.15	0.55	0.21
Queue Length 95th (ft)	2	0	0	0	3	0	0	62	20
Control Delay (s)	9.2	0.0	0.0	0.0	12.1	0.0	0.0	85.8	24.6
Lane LOS	A				B			F	C
Approach Delay (s)	0.1				0.4			85.8	24.6
Approach LOS								F	C

Intersection Summary			
Average Delay	2.8		
Intersection Capacity Utilization	33.8%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Signalized Intersection Capacity Analysis
75: Indian Hill Blvd & Bonita Ave

08/10/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	98	151	128	62	142	81	101	604	47	48	509	58
Future Volume (vph)	98	151	128	62	142	81	101	604	47	48	509	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. 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
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	1863	1583	1770	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.29	1.00	1.00	0.22	1.00	1.00
Satd. Flow (perm)	1770	1863	1583	1770	1863	1583	535	1863	1583	419	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	107	164	139	67	154	88	110	657	51	52	553	63
RTOR Reduction (vph)	0	0	116	0	0	74	0	0	26	0	0	33
Lane Group Flow (vph)	107	164	23	67	154	14	110	657	25	52	553	30
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8	2		2	6		6
Actuated Green, G (s)	4.8	12.2	12.2	3.9	11.3	11.3	39.1	35.4	35.4	37.3	34.5	34.5
Effective Green, g (s)	4.8	12.2	12.2	3.9	11.3	11.3	39.1	35.4	35.4	37.3	34.5	34.5
Actuated g/C Ratio	0.07	0.17	0.17	0.05	0.16	0.16	0.54	0.49	0.49	0.52	0.48	0.48
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	117	314	267	95	291	247	352	912	775	268	888	755
v/s Ratio Prot	c0.06	c0.09		0.04	0.08		c0.02	c0.35		0.01	0.30	
v/s Ratio Perm			0.01			0.01	0.15		0.02	0.09		0.02
v/c Ratio	0.91	0.52	0.09	0.71	0.53	0.06	0.31	0.72	0.03	0.19	0.62	0.04
Uniform Delay, d1	33.5	27.4	25.4	33.6	28.1	26.0	9.5	14.5	9.6	10.6	14.1	10.1
Progression 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
Incremental Delay, d2	56.9	1.6	0.1	21.1	1.7	0.1	0.5	4.9	0.1	0.4	3.3	0.1
Delay (s)	90.4	29.0	25.5	54.8	29.8	26.1	10.0	19.4	9.6	10.9	17.3	10.2
Level of Service	F	C	C	D	C	C	B	B	A	B	B	B
Approach Delay (s)		43.8			34.1			17.6			16.2	
Approach LOS		D			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	24.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	72.3	Sum of lost time (s)	18.0
Intersection Capacity Utilization	63.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	30	80	183	55	144	81	592	210	44	610	52
Future Volume (vph)	20	30	80	183	55	144	81	592	210	44	610	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	1863	1583	1770	1841	
Flt Permitted	0.72	1.00	1.00	0.74	1.00	1.00	0.21	1.00	1.00	0.29	1.00	
Satd. Flow (perm)	1337	1863	1583	1370	1863	1583	389	1863	1583	542	1841	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	33	87	199	60	157	88	643	228	48	663	57
RTOR Reduction (vph)	0	0	69	0	0	125	0	0	102	0	4	0
Lane Group Flow (vph)	22	33	18	199	60	32	88	643	126	48	716	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		
Actuated Green, G (s)	14.0	14.0	14.0	14.0	14.0	14.0	41.7	37.7	37.7	39.5	36.6	
Effective Green, g (s)	14.0	14.0	14.0	14.0	14.0	14.0	41.7	37.7	37.7	39.5	36.6	
Actuated g/C Ratio	0.21	0.21	0.21	0.21	0.21	0.21	0.61	0.55	0.55	0.58	0.54	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	274	382	325	281	382	325	319	1031	876	366	989	
v/s Ratio Prot		0.02			0.03		c0.02	0.35		0.01	c0.39	
v/s Ratio Perm	0.02		0.01	c0.15		0.02	0.15		0.08	0.07		
v/c Ratio	0.08	0.09	0.06	0.71	0.16	0.10	0.28	0.62	0.14	0.13	0.72	
Uniform Delay, d1	21.8	21.9	21.7	25.2	22.2	21.9	8.0	10.4	7.4	7.2	11.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.1	0.1	0.1	7.9	0.2	0.1	0.5	2.8	0.3	0.2	4.6	
Delay (s)	22.0	22.0	21.8	33.1	22.4	22.1	8.4	13.2	7.7	7.3	16.5	
Level of Service	C	C	C	C	C	C	A	B	A	A	B	
Approach Delay (s)		21.9			27.4			11.5			16.0	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	16.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	68.1	Sum of lost time (s)	13.5
Intersection Capacity Utilization	67.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	90	0	0	21	12	865	2	0	864	5
Future Volume (Veh/h)	0	0	90	0	0	21	12	865	2	0	864	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	98	0	0	23	13	940	2	0	939	5
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											312	
pX, platoon unblocked												
vC, conflicting volume	1460	1910	472	1534	1911	471	944			942		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1460	1910	472	1534	1911	471	944			942		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	82	100	100	96	98			100		
cM capacity (veh/h)	85	66	538	64	66	539	722			724		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	98	23	13	627	315	470	474
Volume Left	0	0	13	0	0	0	0
Volume Right	98	23	0	0	2	0	5
cSH	538	539	722	1700	1700	724	1700
Volume to Capacity	0.18	0.04	0.02	0.37	0.19	0.00	0.28
Queue Length 95th (ft)	16	3	1	0	0	0	0
Control Delay (s)	13.2	12.0	10.1	0.0	0.0	0.0	0.0
Lane LOS	B	B	B				
Approach Delay (s)	13.2	12.0	0.1			0.0	
Approach LOS	B	B					

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	36.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	133	1075	154	142	492	69	138	689	135	120	616	92
Future Volume (vph)	133	1075	154	142	492	69	138	689	135	120	616	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3470	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3470	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	145	1168	167	154	535	75	150	749	147	130	670	100
RTOR Reduction (vph)	0	0	83	0	0	51	0	0	108	0	13	0
Lane Group Flow (vph)	145	1168	84	154	535	24	150	749	39	130	757	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			
Actuated Green, G (s)	12.1	31.5	31.5	8.9	28.3	28.3	8.7	23.9	23.9	7.7	22.9	
Effective Green, g (s)	12.1	31.5	31.5	8.9	28.3	28.3	8.7	23.9	23.9	7.7	22.9	
Actuated g/C Ratio	0.13	0.35	0.35	0.10	0.31	0.31	0.10	0.27	0.27	0.09	0.25	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	237	1238	554	175	1112	497	171	939	420	151	882	
v/s Ratio Prot	0.08	c0.33		c0.09	0.15		c0.08	0.21		0.07	c0.22	
v/s Ratio Perm			0.05			0.01			0.02			
v/c Ratio	0.61	0.94	0.15	0.88	0.48	0.05	0.88	0.80	0.09	0.86	0.86	
Uniform Delay, d1	36.7	28.4	20.1	40.0	24.9	21.5	40.1	30.8	24.9	40.6	32.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	4.6	14.1	0.1	36.4	0.3	0.0	36.0	7.0	0.4	36.3	10.6	
Delay (s)	41.4	42.5	20.2	76.4	25.2	21.5	76.2	37.8	25.3	76.9	42.6	
Level of Service	D	D	C	E	C	C	E	D	C	E	D	
Approach Delay (s)		39.9			35.2			41.6			47.5	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	41.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	80.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	75	14	52	45	41	77	40	296	13	8	240	33
Future Volume (vph)	75	14	52	45	41	77	40	296	13	8	240	33
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	82	15	57	49	45	84	43	322	14	9	261	36

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total (vph)	154	178	365	14	306
Volume Left (vph)	82	49	43	0	9
Volume Right (vph)	57	84	0	14	36
Hadj (s)	-0.08	-0.19	0.09	-0.67	-0.03
Departure Headway (s)	6.2	6.0	6.1	5.3	5.7
Degree Utilization, x	0.26	0.30	0.62	0.02	0.48
Capacity (veh/h)	498	522	564	643	594
Control Delay (s)	11.4	11.5	17.2	7.2	13.9
Approach Delay (s)	11.4	11.5	16.8		13.9
Approach LOS	B	B	C		B

Intersection Summary			
Delay	14.2		
Level of Service	B		
Intersection Capacity Utilization	56.1%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	1034	31	25	586	76	16	48	32	161	152	169
Future Volume (vph)	75	1034	31	25	586	76	16	48	32	161	152	169
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00		1.00	0.98			1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.99	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3524		1770	3478			1840	1583	1770	1863	1583
Flt Permitted	0.32	1.00		0.16	1.00			0.93	1.00	0.71	1.00	1.00
Satd. Flow (perm)	604	3524		290	3478			1731	1583	1326	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	82	1124	34	27	637	83	17	52	35	175	165	184
RTOR Reduction (vph)	0	4	0	0	18	0	0	0	22	0	0	113
Lane Group Flow (vph)	82	1154	0	27	702	0	0	69	13	175	165	71
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	25.7	25.7		25.7	25.7			21.6	21.6	21.6	21.6	21.6
Effective Green, g (s)	25.7	25.7		25.7	25.7			21.6	21.6	21.6	21.6	21.6
Actuated g/C Ratio	0.46	0.46		0.46	0.46			0.38	0.38	0.38	0.38	0.38
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	275	1608		132	1587			664	607	508	714	607
v/s Ratio Prot		c0.33			0.20						0.09	
v/s Ratio Perm	0.14			0.09				0.04	0.01	c0.13		0.04
v/c Ratio	0.30	0.72		0.20	0.44			0.10	0.02	0.34	0.23	0.12
Uniform Delay, d1	9.6	12.4		9.2	10.4			11.1	10.8	12.3	11.7	11.2
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.6	1.6		0.8	0.2			0.3	0.1	1.9	0.8	0.4
Delay (s)	10.2	13.9		9.9	10.6			11.5	10.9	14.2	12.5	11.6
Level of Service	B	B		A	B			B	B	B	B	B
Approach Delay (s)		13.7			10.6			11.2			12.7	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	12.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	56.3	Sum of lost time (s)	9.0
Intersection Capacity Utilization	61.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	1034	31	25	586	76	16	48	32	161	152	169
Future Volume (vph)	75	1034	31	25	586	76	16	48	32	161	152	169
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00		1.00	0.98			1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.99	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3524		1770	3478			1840	1583	1770	1863	1583
Flt Permitted	0.32	1.00		0.16	1.00			0.93	1.00	0.71	1.00	1.00
Satd. Flow (perm)	604	3524		290	3478			1731	1583	1326	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	82	1124	34	27	637	83	17	52	35	175	165	184
RTOR Reduction (vph)	0	4	0	0	18	0	0	0	22	0	0	113
Lane Group Flow (vph)	82	1154	0	27	702	0	0	69	13	175	165	71
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	25.7	25.7		25.7	25.7			21.6	21.6	21.6	21.6	21.6
Effective Green, g (s)	25.7	25.7		25.7	25.7			21.6	21.6	21.6	21.6	21.6
Actuated g/C Ratio	0.46	0.46		0.46	0.46			0.38	0.38	0.38	0.38	0.38
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	275	1608		132	1587			664	607	508	714	607
v/s Ratio Prot		c0.33			0.20						0.09	
v/s Ratio Perm	0.14			0.09				0.04	0.01	c0.13		0.04
v/c Ratio	0.30	0.72		0.20	0.44			0.10	0.02	0.34	0.23	0.12
Uniform Delay, d1	9.6	12.4		9.2	10.4			11.1	10.8	12.3	11.7	11.2
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.6	1.6		0.8	0.2			0.3	0.1	1.9	0.8	0.4
Delay (s)	10.2	13.9		9.9	10.6			11.5	10.9	14.2	12.5	11.6
Level of Service	B	B		A	B			B	B	B	B	B
Approach Delay (s)		13.7			10.6			11.2			12.7	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	12.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	56.3	Sum of lost time (s)	9.0
Intersection Capacity Utilization	61.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	415	2	290	3	2	0	71	258	3	3	275	91
Future Volume (vph)	415	2	290	3	2	0	71	258	3	3	275	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00		1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85		1.00		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00		0.97		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583		1808		1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00	1.00		0.97		0.57	1.00	1.00	0.58	1.00	1.00
Satd. Flow (perm)	1770	1863	1583		1808		1060	3539	1583	1080	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	451	2	315	3	2	0	77	280	3	3	299	99
RTOR Reduction (vph)	0	0	203	0	0	0	0	0	2	0	0	63
Lane Group Flow (vph)	451	2	112	0	5	0	77	280	1	3	299	36
Turn Type	Split	NA	Perm	Split	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	4	4		8	8			2			6	
Permitted Phases			4			8	2		2	6	6	6
Actuated Green, G (s)	18.0	18.0	18.0		1.0		18.3	18.3	18.3	18.3	18.3	18.3
Effective Green, g (s)	18.0	18.0	18.0		1.0		18.3	18.3	18.3	18.3	18.3	18.3
Actuated g/C Ratio	0.35	0.35	0.35		0.02		0.36	0.36	0.36	0.36	0.36	0.36
Clearance Time (s)	4.5	4.5	4.5		4.5		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	627	660	560		35		381	1274	570	389	1274	570
v/s Ratio Prot	c0.25	0.00			c0.00			0.08			c0.08	
v/s Ratio Perm			0.07				0.07		0.00	0.00		0.02
v/c Ratio	0.72	0.00	0.20		0.14		0.20	0.22	0.00	0.01	0.23	0.06
Uniform Delay, d1	14.2	10.6	11.4		24.5		11.2	11.3	10.4	10.4	11.4	10.6
Progression Factor	1.00	1.00	1.00		1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.0	0.0	0.2		1.9		1.2	0.4	0.0	0.0	0.4	0.2
Delay (s)	18.2	10.6	11.6		26.4		12.4	11.7	10.4	10.5	11.8	10.8
Level of Service	B	B	B		C		B	B	B	B	B	B
Approach Delay (s)		15.4			26.4			11.8			11.5	
Approach LOS		B			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	13.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	50.8	Sum of lost time (s)	13.5
Intersection Capacity Utilization	52.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	124	1080	54	43	465	88	61	162	27	131	213	150
Future Volume (vph)	124	1080	54	43	465	88	61	162	27	131	213	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.98		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3514		1770	3454		1770	3464		1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	3514		1770	3454		1770	3464		1770	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	135	1174	59	47	505	96	66	176	29	142	232	163
RTOR Reduction (vph)	0	4	0	0	19	0	0	16	0	0	0	111
Lane Group Flow (vph)	135	1229	0	47	582	0	66	189	0	142	232	52
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												6
Actuated Green, G (s)	8.9	29.4		2.9	23.4		4.1	21.6		7.9	25.4	25.4
Effective Green, g (s)	8.9	29.4		2.9	23.4		4.1	21.6		7.9	25.4	25.4
Actuated g/C Ratio	0.11	0.37		0.04	0.29		0.05	0.27		0.10	0.32	0.32
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	197	1294		64	1012		90	937		175	592	503
v/s Ratio Prot	c0.08	c0.35		0.03	0.17		0.04	0.05		c0.08	c0.12	
v/s Ratio Perm												0.03
v/c Ratio	0.69	0.95		0.73	0.58		0.73	0.20		0.81	0.39	0.10
Uniform Delay, d1	34.1	24.5		38.1	24.0		37.3	22.4		35.2	21.2	19.2
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	9.5	14.4		35.0	0.8		26.3	0.5		24.0	1.9	0.4
Delay (s)	43.6	38.9		73.1	24.8		63.6	22.9		59.2	23.1	19.6
Level of Service	D	D		E	C		E	C		E	C	B
Approach Delay (s)		39.4			28.3			32.8			31.6	
Approach LOS		D			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	34.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	79.8	Sum of lost time (s)	18.0
Intersection Capacity Utilization	66.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
84: Monte Vista Ave & Arrow Route

08/10/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	220	74	90	148	56	62	946	112	40	628	22
Future Volume (vph)	41	220	74	90	148	56	62	946	112	40	628	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00	0.97	0.91		1.00	0.91	
Frt	1.00	0.96		1.00	1.00	0.85	1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3406		1770	1863	1583	3433	5004		1770	5059	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3406		1770	1863	1583	3433	5004		1770	5059	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	45	239	80	98	161	61	67	1028	122	43	683	24
RTOR Reduction (vph)	0	52	0	0	0	48	0	18	0	0	5	0
Lane Group Flow (vph)	45	267	0	98	161	13	67	1132	0	43	702	0
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						
Actuated Green, G (s)	3.1	10.9		5.5	13.3	13.3	2.6	24.2		1.8	23.4	
Effective Green, g (s)	3.1	10.9		5.5	13.3	13.3	2.6	24.2		1.8	23.4	
Actuated g/C Ratio	0.05	0.18		0.09	0.22	0.22	0.04	0.40		0.03	0.39	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	90	614		161	410	348	147	2004		52	1959	
v/s Ratio Prot	0.03	0.08		c0.06	c0.09		0.02	c0.23		c0.02	0.14	
v/s Ratio Perm						0.01						
v/c Ratio	0.50	0.44		0.61	0.39	0.04	0.46	0.56		0.83	0.36	
Uniform Delay, d1	27.9	22.0		26.4	20.1	18.5	28.2	14.0		29.1	13.2	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.3	0.5		6.4	0.6	0.0	2.2	1.2		64.4	0.5	
Delay (s)	32.2	22.5		32.8	20.7	18.6	30.4	15.2		93.6	13.7	
Level of Service	C	C		C	C	B	C	B		F	B	
Approach Delay (s)		23.7			24.0			16.0			18.3	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	18.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	60.4	Sum of lost time (s)	18.0
Intersection Capacity Utilization	53.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	0	309	0	241	1	874	69	50	748	1
Future Volume (vph)	1	0	0	309	0	241	1	874	69	50	748	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5			4.5		4.5	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00			1.00		1.00	1.00	0.95	1.00	0.97	0.91	
Frt	1.00			1.00		0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95			0.95		1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770			1770		1583	1770	3539	1583	3433	5084	
Flt Permitted	1.00			0.95		1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1863			1770		1583	1770	3539	1583	3433	5084	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1	0	0	336	0	262	1	950	75	54	813	1
RTOR Reduction (vph)	0	0	0	0	0	120	0	0	42	0	0	0
Lane Group Flow (vph)	1	0	0	336	0	142	1	950	33	54	814	0
Turn Type	Perm		Perm	Prot		Perm	Prot	NA	Perm	Prot	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4			8			2			
Actuated Green, G (s)	1.0			17.4		22.9	0.8	31.0	31.0	2.7	32.9	
Effective Green, g (s)	1.0			17.4		22.9	0.8	31.0	31.0	2.7	32.9	
Actuated g/C Ratio	0.01			0.25		0.33	0.01	0.44	0.44	0.04	0.47	
Clearance Time (s)	4.5			4.5		4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0			3.0		3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	26			439		517	20	1565	700	132	2386	
v/s Ratio Prot				c0.19			0.00	c0.27		c0.02	0.16	
v/s Ratio Perm	0.00					c0.09			0.02			
v/c Ratio	0.04			0.77		0.27	0.05	0.61	0.05	0.41	0.34	
Uniform Delay, d1	34.1			24.5		17.5	34.3	14.9	11.1	32.9	11.8	
Progression Factor	1.00			1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.6			7.8		0.3	1.0	1.8	0.1	2.1	0.4	
Delay (s)	34.7			32.2		17.7	35.3	16.7	11.3	35.0	12.1	
Level of Service	C			C		B	D	B	B	C	B	
Approach Delay (s)		34.7			25.9			16.3			13.6	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	17.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	70.1	Sum of lost time (s)	18.0
Intersection Capacity Utilization	55.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	156	828	217	46	335	99	143	679	60	128	813	132
Future Volume (vph)	156	828	217	46	335	99	143	679	60	128	813	132
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	0.97	0.95		0.97	0.95	1.00	1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.97		1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3429		3433	3539	1583	1770	3496		1770	3539	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3429		3433	3539	1583	1770	3496		1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	170	900	236	50	364	108	155	738	65	139	884	143
RTOR Reduction (vph)	0	26	0	0	0	77	0	7	0	0	0	99
Lane Group Flow (vph)	170	1110	0	50	364	31	155	796	0	139	884	44
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						6
Actuated Green, G (s)	8.3	30.4		2.9	25.0	25.0	9.5	28.2		8.5	27.2	27.2
Effective Green, g (s)	8.3	30.4		2.9	25.0	25.0	9.5	28.2		8.5	27.2	27.2
Actuated g/C Ratio	0.09	0.35		0.03	0.28	0.28	0.11	0.32		0.10	0.31	0.31
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	323	1184		113	1005	449	191	1120		170	1093	489
v/s Ratio Prot	c0.05	c0.32		0.01	0.10		c0.09	0.23		0.08	c0.25	
v/s Ratio Perm						0.02						0.03
v/c Ratio	0.53	0.94		0.44	0.36	0.07	0.81	0.71		0.82	0.81	0.09
Uniform Delay, d1	38.0	27.9		41.8	25.1	23.0	38.4	26.3		39.0	28.0	21.6
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.5	13.7		2.8	0.2	0.1	22.4	3.8		25.3	6.5	0.4
Delay (s)	39.5	41.6		44.5	25.4	23.1	60.7	30.1		64.3	34.5	22.0
Level of Service	D	D		D	C	C	E	C		E	C	C
Approach Delay (s)		41.3			26.7			35.1			36.5	
Approach LOS		D			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	36.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	88.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	79.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	970	79	55	450	62	77
Future Volume (vph)	970	79	55	450	62	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1583	1770	3539	1770	1583
Flt Permitted	1.00	1.00	0.16	1.00	0.95	1.00
Satd. Flow (perm)	3539	1583	295	3539	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1054	86	60	489	67	84
RTOR Reduction (vph)	0	28	0	0	0	55
Lane Group Flow (vph)	1054	58	60	489	67	29
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases		4	8			2
Actuated Green, G (s)	20.8	20.8	28.0	28.0	19.3	19.3
Effective Green, g (s)	20.8	20.8	28.0	28.0	19.3	19.3
Actuated g/C Ratio	0.37	0.37	0.50	0.50	0.34	0.34
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1307	584	217	1760	606	542
v/s Ratio Prot	c0.30		0.01	c0.14	c0.04	
v/s Ratio Perm		0.04	0.12			0.02
v/c Ratio	0.81	0.10	0.28	0.28	0.11	0.05
Uniform Delay, d1	15.9	11.6	9.8	8.3	12.6	12.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.7	0.1	0.7	0.1	0.4	0.2
Delay (s)	19.7	11.7	10.5	8.3	13.0	12.6
Level of Service	B	B	B	A	B	B
Approach Delay (s)	19.1			8.6	12.8	
Approach LOS	B			A	B	

Intersection Summary			
HCM 2000 Control Delay	15.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	56.3	Sum of lost time (s)	13.5
Intersection Capacity Utilization	46.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	62	266	100	208	318	44	72	839	237	68	822	75
Future Volume (vph)	62	266	100	208	318	44	72	839	237	68	822	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3495	
Flt Permitted	0.42	1.00	1.00	0.34	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	773	1863	1583	640	1863	1583	1770	3539	1583	1770	3495	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	67	289	109	226	346	48	78	912	258	74	893	82
RTOR Reduction (vph)	0	0	82	0	0	34	0	0	168	0	10	0
Lane Group Flow (vph)	67	289	27	226	346	14	78	912	90	74	965	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8			2			
Actuated Green, G (s)	19.7	16.9	16.9	25.3	19.7	19.7	4.2	23.7	23.7	3.9	23.4	
Effective Green, g (s)	19.7	16.9	16.9	25.3	19.7	19.7	4.2	23.7	23.7	3.9	23.4	
Actuated g/C Ratio	0.29	0.25	0.25	0.37	0.29	0.29	0.06	0.35	0.35	0.06	0.34	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	264	462	392	330	538	457	109	1231	550	101	1200	
v/s Ratio Prot	0.01	0.16		c0.06	0.19		c0.04	0.26		0.04	c0.28	
v/s Ratio Perm	0.06		0.02	c0.20		0.01			0.06			
v/c Ratio	0.25	0.63	0.07	0.68	0.64	0.03	0.72	0.74	0.16	0.73	0.80	
Uniform Delay, d1	18.0	22.8	19.6	16.7	21.1	17.4	31.4	19.5	15.3	31.6	20.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.5	2.6	0.1	5.8	2.6	0.0	19.9	4.0	0.6	23.7	5.8	
Delay (s)	18.5	25.4	19.7	22.5	23.8	17.4	51.3	23.5	16.0	55.3	26.1	
Level of Service	B	C	B	C	C	B	D	C	B	E	C	
Approach Delay (s)		23.1			22.8			23.7			28.1	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	24.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	68.1	Sum of lost time (s)	18.0
Intersection Capacity Utilization	69.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	240	110	267	98	116	42	100	872	58	45	1033	34
Future Volume (vph)	240	110	267	98	116	42	100	872	58	45	1033	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95	1.00	1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.96		1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1788		1770	3539	1583	1770	5061	
Flt Permitted	0.65	1.00	1.00	0.68	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1208	1863	1583	1266	1788		1770	3539	1583	1770	5061	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	261	120	290	107	126	46	109	948	63	49	1123	37
RTOR Reduction (vph)	0	0	160	0	23	0	0	0	35	0	5	0
Lane Group Flow (vph)	261	120	130	107	149	0	109	948	28	49	1155	0
Turn Type	Perm	NA	Perm	Perm	NA		Prot	NA	Perm	Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8					2			
Actuated Green, G (s)	15.8	15.8	15.8	15.8	15.8		4.9	25.3	25.3	2.8	23.2	
Effective Green, g (s)	15.8	15.8	15.8	15.8	15.8		4.9	25.3	25.3	2.8	23.2	
Actuated g/C Ratio	0.28	0.28	0.28	0.28	0.28		0.09	0.44	0.44	0.05	0.40	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	332	512	435	348	492		151	1559	697	86	2045	
v/s Ratio Prot		0.06			0.08		c0.06	c0.27		0.03	0.23	
v/s Ratio Perm	c0.22		0.08	0.08					0.02			
v/c Ratio	0.79	0.23	0.30	0.31	0.30		0.72	0.61	0.04	0.57	0.56	
Uniform Delay, d1	19.2	16.1	16.4	16.5	16.4		25.6	12.3	9.1	26.7	13.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	11.6	0.2	0.4	0.5	0.3		15.6	1.8	0.1	8.4	1.1	
Delay (s)	30.8	16.4	16.8	17.0	16.8		41.2	14.0	9.2	35.1	14.3	
Level of Service	C	B	B	B	B		D	B	A	D	B	
Approach Delay (s)		22.2			16.9			16.4			15.2	
Approach LOS		C			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	17.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	57.4	Sum of lost time (s)	13.5
Intersection Capacity Utilization	65.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	156	597	202	162	280	55	127	853	114	100	1065	114
Future Volume (vph)	156	597	202	162	280	55	127	853	114	100	1065	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	4995		1770	5012	
Flt Permitted	0.56	1.00	1.00	0.23	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1042	3539	1583	428	3539	1583	1770	4995		1770	5012	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	170	649	220	176	304	60	138	927	124	109	1158	124
RTOR Reduction (vph)	0	0	142	0	0	45	0	23	0	0	18	0
Lane Group Flow (vph)	170	649	78	176	304	15	138	1028	0	109	1264	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	22.1	17.0	17.0	22.9	17.4	17.4	7.4	23.9		5.5	22.0	
Effective Green, g (s)	22.1	17.0	17.0	22.9	17.4	17.4	7.4	23.9		5.5	22.0	
Actuated g/C Ratio	0.32	0.24	0.24	0.33	0.25	0.25	0.11	0.34		0.08	0.31	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	382	860	384	245	880	394	187	1707		139	1577	
v/s Ratio Prot	0.03	c0.18		c0.06	0.09		c0.08	0.21		0.06	c0.25	
v/s Ratio Perm	0.11		0.05	0.18		0.01						
v/c Ratio	0.45	0.75	0.20	0.72	0.35	0.04	0.74	0.60		0.78	0.80	
Uniform Delay, d1	18.1	24.5	21.1	18.2	21.6	19.9	30.3	19.1		31.6	22.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.8	3.8	0.3	9.6	0.2	0.0	14.1	1.6		24.5	4.4	
Delay (s)	18.9	28.3	21.3	27.8	21.8	19.9	44.4	20.6		56.1	26.3	
Level of Service	B	C	C	C	C	B	D	C		E	C	
Approach Delay (s)		25.3			23.6			23.4			28.7	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	25.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	69.9	Sum of lost time (s)	18.0
Intersection Capacity Utilization	70.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

ATTACHMENT C. Build Alternative with Project Modifications Synchro Output Worksheets

2035 Build Alternative with Project Modifications – AM Peak Hour

HCM Signalized Intersection Capacity Analysis
1: Barranca Ave & Bennett Ave

08/10/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	0	0	0	333	0	72	13	0	181	192	74	399
Future Volume (vph)	0	0	0	333	0	72	13	0	181	192	74	399
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5		4.5		4.5	4.5		4.5	4.5
Lane Util. Factor				0.97		1.00		1.00	0.95		1.00	0.95
Frt				1.00		0.85		1.00	0.92		1.00	1.00
Flt Protected				0.95		1.00		0.95	1.00		0.95	1.00
Satd. Flow (prot)				3433		1583		1770	3266		1770	3539
Flt Permitted				0.95		1.00		0.50	1.00		0.95	1.00
Satd. Flow (perm)				3433		1583		931	3266		1770	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	362	0	78	14	0	197	209	80	434
RTOR Reduction (vph)	0	0	0	0	0	48	0	0	154	0	0	0
Lane Group Flow (vph)	0	0	0	362	0	30	0	14	252	0	80	434
Turn Type				Prot		pm+ov	Perm	Perm	NA		Prot	NA
Protected Phases				8		1			2		1	6
Permitted Phases						8	2	2				
Actuated Green, G (s)				9.4		14.7		10.0	10.0		5.3	19.8
Effective Green, g (s)				9.4		14.7		10.0	10.0		5.3	19.8
Actuated g/C Ratio				0.25		0.38		0.26	0.26		0.14	0.52
Clearance Time (s)				4.5		4.5		4.5	4.5		4.5	4.5
Vehicle Extension (s)				3.0		3.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)				844		795		243	854		245	1834
v/s Ratio Prot				c0.11		0.01			0.08		0.05	c0.12
v/s Ratio Perm						0.01		0.02				
v/c Ratio				0.43		0.04		0.06	0.29		0.33	0.24
Uniform Delay, d1				12.1		7.3		10.6	11.3		14.8	5.1
Progression Factor				1.00		1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2				0.4		0.0		0.1	0.2		0.8	0.1
Delay (s)				12.5		7.4		10.7	11.5		15.6	5.1
Level of Service				B		A		B	B		B	A
Approach Delay (s)		0.0			11.6				11.4			6.8
Approach LOS		A			B				B			A

Intersection Summary			
HCM 2000 Control Delay	9.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	38.2	Sum of lost time (s)	13.5
Intersection Capacity Utilization	35.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	0
Future Volume (vph)	0
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	0
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	204	173	140	631	34	172	311	134	130	473	170
Future Volume (vph)	80	204	173	140	631	34	172	311	134	130	473	170
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.93		1.00	0.99		1.00	0.95		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3296		1770	3512		1770	3379		1770	3399	
Flt Permitted	0.25	1.00		0.49	1.00		0.36	1.00		0.48	1.00	
Satd. Flow (perm)	459	3296		905	3512		663	3379		887	3399	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	87	222	188	152	686	37	187	338	146	141	514	185
RTOR Reduction (vph)	0	130	0	0	7	0	0	68	0	0	35	0
Lane Group Flow (vph)	87	280	0	152	716	0	187	416	0	141	664	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	17.7	17.7		17.7	17.7		30.6	30.6		30.6	30.6	
Effective Green, g (s)	17.7	17.7		17.7	17.7		30.6	30.6		30.6	30.6	
Actuated g/C Ratio	0.31	0.31		0.31	0.31		0.53	0.53		0.53	0.53	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	141	1018		279	1084		354	1804		473	1815	
v/s Ratio Prot		0.08			c0.20			0.12			0.20	
v/s Ratio Perm	0.19			0.17			c0.28			0.16		
v/c Ratio	0.62	0.28		0.54	0.66		0.53	0.23		0.30	0.37	
Uniform Delay, d1	16.9	15.0		16.5	17.2		8.7	7.1		7.4	7.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	7.8	0.1		2.2	1.5		5.5	0.3		1.6	0.6	
Delay (s)	24.7	15.1		18.6	18.7		14.2	7.4		9.0	8.3	
Level of Service	C	B		B	B		B	A		A	A	
Approach Delay (s)		16.8			18.7			9.3			8.4	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM 2000 Control Delay	13.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	57.3	Sum of lost time (s)	9.0
Intersection Capacity Utilization	66.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	66	344	100	267	548	107	134	607	285	105	479	103
Future Volume (vph)	66	344	100	267	548	107	134	607	285	105	479	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3453		1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	1770	3453		1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	72	374	109	290	596	116	146	660	310	114	521	112
RTOR Reduction (vph)	0	0	88	0	21	0	0	0	84	0	0	73
Lane Group Flow (vph)	72	374	21	290	691	0	146	660	226	114	521	39
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2	3	1	6	7
Permitted Phases			4						2			6
Actuated Green, G (s)	6.4	14.9	14.9	15.2	23.7		8.4	22.2	37.4	6.4	20.2	26.6
Effective Green, g (s)	6.4	14.9	14.9	15.2	23.7		8.4	22.2	37.4	6.4	20.2	26.6
Actuated g/C Ratio	0.08	0.19	0.19	0.20	0.31		0.11	0.29	0.49	0.08	0.26	0.35
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	147	687	307	350	1066		193	1024	864	147	932	641
v/s Ratio Prot	0.04	0.11		c0.16	c0.20		c0.08	c0.19	0.05	0.06	0.15	0.01
v/s Ratio Perm			0.01						0.09			0.02
v/c Ratio	0.49	0.54	0.07	0.83	0.65		0.76	0.64	0.26	0.78	0.56	0.06
Uniform Delay, d1	33.6	27.8	25.2	29.5	22.9		33.2	23.8	11.5	34.4	24.4	16.7
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.6	0.9	0.1	14.8	1.4		15.5	3.1	0.2	22.1	2.4	0.0
Delay (s)	36.1	28.7	25.3	44.3	24.3		48.6	26.9	11.7	56.6	26.8	16.8
Level of Service	D	C	C	D	C		D	C	B	E	C	B
Approach Delay (s)		29.0			30.1			25.5			29.9	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	28.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	76.7	Sum of lost time (s)	18.0
Intersection Capacity Utilization	61.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Volume (vph)	125	57	75	32	29	236
Future Volume (vph)	125	57	75	32	29	236
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5	4.5
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frt	1.00	0.85	0.96		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1583	1788		1770	1863
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	1583	1788		1770	1863
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	136	62	82	35	32	257
RTOR Reduction (vph)	0	38	27	0	0	0
Lane Group Flow (vph)	136	24	90	0	32	257
Turn Type	Prot	pm+ov	NA		Prot	NA
Protected Phases	2	3	4		3	8
Permitted Phases		2				
Actuated Green, G (s)	10.4	13.8	8.1		3.4	16.0
Effective Green, g (s)	10.4	13.8	8.1		3.4	16.0
Actuated g/C Ratio	0.29	0.39	0.23		0.10	0.45
Clearance Time (s)	4.5	4.5	4.5		4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	520	818	409		170	842
v/s Ratio Prot	c0.08	0.00	0.05		0.02	c0.14
v/s Ratio Perm		0.01				
v/c Ratio	0.26	0.03	0.22		0.19	0.31
Uniform Delay, d1	9.6	6.7	11.1		14.7	6.2
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.3	0.0	0.3		0.5	0.2
Delay (s)	9.8	6.7	11.4		15.3	6.4
Level of Service	A	A	B		B	A
Approach Delay (s)	8.8		11.4			7.4
Approach LOS	A		B			A

Intersection Summary			
HCM 2000 Control Delay	8.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	35.4	Sum of lost time (s)	13.5
Intersection Capacity Utilization	26.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	511	37	10	1362	145	55	7	11	28	5	162
Future Volume (vph)	50	511	37	10	1362	145	55	7	11	28	5	162
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.5		4.0	4.5			4.5			4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frt	1.00	0.99		1.00	0.99			0.98			0.89	
Flt Protected	0.95	1.00		0.95	1.00			0.96			0.99	
Satd. Flow (prot)	1770	3504		1770	3488			1759			1641	
Flt Permitted	0.95	1.00		0.95	1.00			0.68			0.95	
Satd. Flow (perm)	1770	3504		1770	3488			1245			1576	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	54	555	40	11	1480	158	60	8	12	30	5	176
RTOR Reduction (vph)	0	6	0	0	10	0	0	8	0	0	111	0
Lane Group Flow (vph)	54	589	0	11	1628	0	0	72	0	0	100	0
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)	3.2	43.7		1.0	41.5			19.7			19.7	
Effective Green, g (s)	3.2	43.7		1.0	41.5			19.7			19.7	
Actuated g/C Ratio	0.04	0.56		0.01	0.54			0.25			0.25	
Clearance Time (s)	4.0	4.5		4.0	4.5			4.5			4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	73	1978		22	1870			316			401	
v/s Ratio Prot	c0.03	0.17		0.01	c0.47							
v/s Ratio Perm								0.06			c0.06	
v/c Ratio	0.74	0.30		0.50	0.87			0.23			0.25	
Uniform Delay, d1	36.7	8.8		38.0	15.6			22.8			23.0	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	32.0	0.1		16.8	4.7			1.7			1.5	
Delay (s)	68.7	8.9		54.7	20.4			24.5			24.4	
Level of Service	E	A		D	C			C			C	
Approach Delay (s)		13.9			20.6			24.5			24.4	
Approach LOS		B			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	19.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	77.4	Sum of lost time (s)	13.0
Intersection Capacity Utilization	65.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	348	83	69	819	76	61	53	33	34	109	69
Future Volume (vph)	23	348	83	69	819	76	61	53	33	34	109	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frt	1.00	0.97		1.00	0.99			0.97			0.96	
Flt Protected	0.95	1.00		0.95	1.00			0.98			0.99	
Satd. Flow (prot)	1770	3437		1770	3494			1770			1767	
Flt Permitted	0.19	1.00		0.47	1.00			0.82			0.94	
Satd. Flow (perm)	351	3437		879	3494			1475			1675	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	25	378	90	75	890	83	66	58	36	37	118	75
RTOR Reduction (vph)	0	39	0	0	13	0	0	16	0	0	27	0
Lane Group Flow (vph)	25	429	0	75	960	0	0	144	0	0	203	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	22.5	22.5		22.5	22.5			22.7			22.7	
Effective Green, g (s)	22.5	22.5		22.5	22.5			22.7			22.7	
Actuated g/C Ratio	0.42	0.42		0.42	0.42			0.42			0.42	
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	145	1426		364	1450			617			701	
v/s Ratio Prot		0.12			c0.27							
v/s Ratio Perm	0.07			0.09				0.10			c0.12	
v/c Ratio	0.17	0.30		0.21	0.66			0.23			0.29	
Uniform Delay, d1	10.0	10.6		10.1	12.8			10.1			10.4	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.6	0.1		0.3	1.1			0.9			1.0	
Delay (s)	10.6	10.7		10.4	13.9			11.0			11.5	
Level of Service	B	B		B	B			B			B	
Approach Delay (s)		10.7			13.7			11.0			11.5	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	12.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	54.2	Sum of lost time (s)	9.0
Intersection Capacity Utilization	58.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	28	333	73	157	696	60	189	185	34	57	193	64
Future Volume (vph)	28	333	73	157	696	60	189	185	34	57	193	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.97		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3444		1770	3497		1770	1863	1583	1770	1863	1583
Flt Permitted	0.24	1.00		0.32	1.00		0.49	1.00	1.00	0.63	1.00	1.00
Satd. Flow (perm)	441	3444		588	3497		906	1863	1583	1177	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	30	362	79	171	757	65	205	201	37	62	210	70
RTOR Reduction (vph)	0	28	0	0	9	0	0	0	24	0	0	49
Lane Group Flow (vph)	30	413	0	171	813	0	205	201	13	62	210	21
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	18.8	16.9		28.5	22.1		31.1	24.6	24.6	23.9	21.0	21.0
Effective Green, g (s)	18.8	16.9		28.5	22.1		31.1	24.6	24.6	23.9	21.0	21.0
Actuated g/C Ratio	0.27	0.24		0.41	0.32		0.45	0.35	0.35	0.34	0.30	0.30
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	155	837		361	1111		486	659	560	429	562	478
v/s Ratio Prot	0.01	0.12		c0.05	c0.23		c0.04	0.11		0.01	0.11	
v/s Ratio Perm	0.05			0.15			c0.15		0.01	0.04		0.01
v/c Ratio	0.19	0.49		0.47	0.73		0.42	0.31	0.02	0.14	0.37	0.04
Uniform Delay, d1	19.0	22.6		13.9	21.1		12.3	16.3	14.6	15.5	19.1	17.2
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.6	0.5		1.0	2.5		0.6	1.2	0.1	0.2	1.9	0.2
Delay (s)	19.6	23.1		14.9	23.6		12.9	17.5	14.7	15.7	21.0	17.3
Level of Service	B	C		B	C		B	B	B	B	C	B
Approach Delay (s)		22.9			22.1			15.1			19.3	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	20.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	69.5	Sum of lost time (s)	18.0
Intersection Capacity Utilization	60.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL2	SBL	SBR	NWL	NWR	NWR2
Lane Configurations												
Sign Control		Stop			Stop			Stop		Stop		
Traffic Volume (vph)	30	23	86	26	60	44	30	311	27	58	445	3
Future Volume (vph)	30	23	86	26	60	44	30	311	27	58	445	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	33	25	93	28	65	48	33	338	29	63	484	3

Direction, Lane #	EB 1	WB 1	SB 1	SB 2	NW 1	NW 2
Volume Total (vph)	151	141	202	198	305	245
Volume Left (vph)	33	28	33	0	63	0
Volume Right (vph)	93	48	0	29	0	3
Hadj (s)	-0.29	-0.13	0.12	-0.07	0.14	0.03
Departure Headway (s)	6.2	6.3	6.4	6.2	6.2	6.1
Degree Utilization, x	0.26	0.25	0.36	0.34	0.52	0.41
Capacity (veh/h)	528	511	539	556	557	575
Control Delay (s)	11.3	11.4	11.6	11.1	14.6	12.1
Approach Delay (s)	11.3	11.4	11.4		13.5	
Approach LOS	B	B	B		B	

Intersection Summary			
Delay	12.3		
Level of Service	B		
Intersection Capacity Utilization	Err%	ICU Level of Service	H
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	502	11	261	1182	244	136	570	365	109	346	56
Future Volume (vph)	40	502	11	261	1182	244	136	570	365	109	346	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3465	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3465	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	43	546	12	284	1285	265	148	620	397	118	376	61
RTOR Reduction (vph)	0	0	9	0	0	120	0	0	45	0	16	0
Lane Group Flow (vph)	43	546	3	284	1285	145	148	620	352	118	421	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases			4			8			2			
Actuated Green, G (s)	2.9	19.0	19.0	15.3	31.4	31.4	7.7	20.1	35.4	6.5	18.9	
Effective Green, g (s)	2.9	19.0	19.0	15.3	31.4	31.4	7.7	20.1	35.4	6.5	18.9	
Actuated g/C Ratio	0.04	0.24	0.24	0.19	0.40	0.40	0.10	0.25	0.45	0.08	0.24	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	65	852	381	343	1408	629	172	901	800	145	830	
v/s Ratio Prot	0.02	0.15		c0.16	c0.36		c0.08	c0.18	0.09	0.07	0.12	
v/s Ratio Perm			0.00			0.09			0.14			
v/c Ratio	0.66	0.64	0.01	0.83	0.91	0.23	0.86	0.69	0.44	0.81	0.51	
Uniform Delay, d1	37.5	26.9	22.8	30.5	22.5	15.7	35.1	26.6	14.9	35.6	26.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	22.5	1.7	0.0	15.1	9.3	0.2	32.9	4.3	0.4	28.2	2.2	
Delay (s)	60.0	28.5	22.8	45.6	31.7	15.9	67.9	30.8	15.3	63.8	28.2	
Level of Service	E	C	C	D	C	B	E	C	B	E	C	
Approach Delay (s)		30.7			31.6			30.3			35.8	
Approach LOS		C			C			C			D	

Intersection Summary			
HCM 2000 Control Delay	31.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	78.9	Sum of lost time (s)	18.0
Intersection Capacity Utilization	73.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	5	5	13	38	10	29	7	77	15	11	107	5
Future Volume (vph)	5	5	13	38	10	29	7	77	15	11	107	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	5	14	41	11	32	8	84	16	12	116	5

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	24	84	108	133
Volume Left (vph)	5	41	8	12
Volume Right (vph)	14	32	16	5
Hadj (s)	-0.27	-0.10	-0.04	0.03
Departure Headway (s)	4.3	4.4	4.2	4.3
Degree Utilization, x	0.03	0.10	0.13	0.16
Capacity (veh/h)	790	770	814	804
Control Delay (s)	7.4	7.9	7.9	8.1
Approach Delay (s)	7.4	7.9	7.9	8.1
Approach LOS	A	A	A	A

Intersection Summary			
Delay	7.9		
Level of Service	A		
Intersection Capacity Utilization	24.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	115	885	27	71	1573	37	46	22	57	45	24	89
Future Volume (vph)	115	885	27	71	1573	37	46	22	57	45	24	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Lane Util. Factor	1.00	0.95		0.91	0.91			1.00			1.00	
Frt	1.00	1.00		1.00	1.00			0.94			0.92	
Flt Protected	0.95	1.00		0.95	1.00			0.98			0.99	
Satd. Flow (prot)	1770	3524		1610	3378			1717			1697	
Flt Permitted	0.95	1.00		0.95	0.95			0.66			0.79	
Satd. Flow (perm)	1770	3524		1610	3212			1155			1363	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	125	962	29	77	1710	40	50	24	62	49	26	97
RTOR Reduction (vph)	0	1	0	0	1	0	0	20	0	0	31	0
Lane Group Flow (vph)	125	990	0	69	1757	0	0	116	0	0	141	0
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)	11.5	105.9		10.0	114.4			21.5			21.5	
Effective Green, g (s)	11.5	105.9		10.0	114.4			21.5			21.5	
Actuated g/C Ratio	0.08	0.70		0.07	0.76			0.14			0.14	
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	134	2473		106	2446			164			194	
v/s Ratio Prot	c0.07	0.28		0.04	0.05							
v/s Ratio Perm					c0.50			0.10			c0.10	
v/c Ratio	0.93	0.40		0.65	0.72			0.71			0.73	
Uniform Delay, d1	69.3	9.3		68.7	9.7			61.7			61.9	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	57.2	0.1		13.4	1.0			22.8			21.1	
Delay (s)	126.6	9.4		82.2	10.7			84.5			83.0	
Level of Service	F	A		F	B			F			F	
Approach Delay (s)		22.6			13.4			84.5			83.0	
Approach LOS		C			B			F			F	

Intersection Summary			
HCM 2000 Control Delay	23.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	150.9	Sum of lost time (s)	13.5
Intersection Capacity Utilization	91.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	27	0	0	11	73	0	0	0	129	0	6
Future Volume (Veh/h)	2	27	0	0	11	73	0	0	0	129	0	6
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	29	0	0	12	79	0	0	0	140	0	7
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								564				
pX, platoon unblocked												
vC, conflicting volume	368	284	4	298	287	0	7			0		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	368	284	4	298	287	0	7			0		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	95	100	100	98	93	100			91		
cM capacity (veh/h)	501	572	1080	588	569	1085	1614			1623		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	31	91	0	147
Volume Left	2	0	0	140
Volume Right	0	79	0	7
cSH	566	969	1700	1623
Volume to Capacity	0.05	0.09	0.00	0.09
Queue Length 95th (ft)	4	8	0	7
Control Delay (s)	11.7	9.1	0.0	7.1
Lane LOS	B	A		A
Approach Delay (s)	11.7	9.1	0.0	7.1
Approach LOS	B	A		

Intersection Summary			
Average Delay	8.3		
Intersection Capacity Utilization	19.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	907	7	24	1709	4	11	0	12	0	0	0
Future Volume (vph)	11	907	7	24	1709	4	11	0	12	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5				
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00				
Frt	1.00	1.00		1.00	1.00			0.93				
Flt Protected	0.95	1.00		0.95	1.00			0.98				
Satd. Flow (prot)	1770	3535		1770	3538			1691				
Flt Permitted	0.95	1.00		0.95	1.00			0.92				
Satd. Flow (perm)	1770	3535		1770	3538			1585				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	12	986	8	26	1858	4	12	0	13	0	0	0
RTOR Reduction (vph)	0	1	0	0	0	0	0	19	0	0	0	0
Lane Group Flow (vph)	12	993	0	26	1862	0	0	6	0	0	0	0
Turn Type	Prot	NA		Prot	NA		Perm	NA				
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)	0.9	42.4		2.1	43.6			18.0				
Effective Green, g (s)	0.9	42.4		2.1	43.6			18.0				
Actuated g/C Ratio	0.01	0.56		0.03	0.57			0.24				
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5				
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0				
Lane Grp Cap (vph)	20	1972		48	2029			375				
v/s Ratio Prot	0.01	0.28		c0.01	c0.53							
v/s Ratio Perm								c0.00				
v/c Ratio	0.60	0.50		0.54	0.92			0.02				
Uniform Delay, d1	37.4	10.3		36.5	14.6			22.2				
Progression Factor	1.00	1.00		1.00	1.00			1.00				
Incremental Delay, d2	40.2	0.2		11.9	7.1			0.1				
Delay (s)	77.5	10.5		48.4	21.7			22.3				
Level of Service	E	B		D	C			C				
Approach Delay (s)		11.3			22.1			22.3			0.0	
Approach LOS		B			C			C			A	

Intersection Summary			
HCM 2000 Control Delay	18.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	59.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	55	111	8	31	0	54	99	6	7	116	0
Future Volume (Veh/h)	1	55	111	8	31	0	54	99	6	7	116	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	60	121	9	34	0	59	108	7	8	126	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								560				
pX, platoon unblocked												
vC, conflicting volume	388	375	126	522	372	112	126			115		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	388	375	126	522	372	112	126			115		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	89	87	97	94	100	96			99		
cM capacity (veh/h)	524	531	924	356	533	942	1460			1474		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	182	43	174	134
Volume Left	1	9	59	8
Volume Right	121	0	7	0
cSH	740	483	1460	1474
Volume to Capacity	0.25	0.09	0.04	0.01
Queue Length 95th (ft)	24	7	3	0
Control Delay (s)	11.4	13.2	2.8	0.5
Lane LOS	B	B	A	A
Approach Delay (s)	11.4	13.2	2.8	0.5
Approach LOS	B	B		

Intersection Summary			
Average Delay	6.0		
Intersection Capacity Utilization	31.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	93	764	24	23	1586	52	23	5	13	98	7	129
Future Volume (vph)	93	764	24	23	1586	52	23	5	13	98	7	129
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frt	1.00	1.00		1.00	1.00			0.96			0.93	
Flt Protected	0.95	1.00		0.95	1.00			0.97			0.98	
Satd. Flow (prot)	1770	3523		1770	3522			1733			1689	
Flt Permitted	0.95	1.00		0.95	1.00			0.80			0.84	
Satd. Flow (perm)	1770	3523		1770	3522			1418			1455	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	101	830	26	25	1724	57	25	5	14	107	8	140
RTOR Reduction (vph)	0	2	0	0	3	0	0	11	0	0	48	0
Lane Group Flow (vph)	101	854	0	25	1778	0	0	33	0	0	207	0
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)	5.8	52.7		2.1	49.0			20.7			20.7	
Effective Green, g (s)	5.8	52.7		2.1	49.0			20.7			20.7	
Actuated g/C Ratio	0.07	0.59		0.02	0.55			0.23			0.23	
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	115	2086		41	1939			329			338	
v/s Ratio Prot	c0.06	c0.24		0.01	c0.50							
v/s Ratio Perm								0.02			c0.14	
v/c Ratio	0.88	0.41		0.61	0.92			0.10			0.61	
Uniform Delay, d1	41.2	9.8		43.0	18.2			26.8			30.6	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	47.8	0.1		23.0	7.3			0.6			8.0	
Delay (s)	89.0	9.9		66.1	25.5			27.5			38.6	
Level of Service	F	A		E	C			C			D	
Approach Delay (s)		18.3			26.1			27.5			38.6	
Approach LOS		B			C			C			D	

Intersection Summary			
HCM 2000 Control Delay	24.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	89.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	77.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	5	64	12	25	10	29	324	3	7	565	2
Future Volume (Veh/h)	13	5	64	12	25	10	29	324	3	7	565	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	14	5	70	13	27	11	32	352	3	8	614	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								542				
pX, platoon unblocked												
vC, conflicting volume	896	1050	308	813	1050	178	616			355		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	896	1050	308	813	1050	178	616			355		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	93	98	90	94	88	99	97			99		
cM capacity (veh/h)	204	217	688	231	217	835	960			1200		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	89	51	208	179	315	309
Volume Left	14	13	32	0	8	0
Volume Right	70	11	0	3	0	2
cSH	460	263	960	1700	1200	1700
Volume to Capacity	0.19	0.19	0.03	0.11	0.01	0.18
Queue Length 95th (ft)	18	18	3	0	1	0
Control Delay (s)	14.7	21.9	1.6	0.0	0.3	0.0
Lane LOS	B	C	A		A	
Approach Delay (s)	14.7	21.9	0.9		0.1	
Approach LOS	B	C				

Intersection Summary			
Average Delay	2.5		
Intersection Capacity Utilization	41.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	124	800	1372	206	422	186
Future Volume (vph)	124	800	1372	206	422	186
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5	4.5
Lane Util. Factor	1.00	0.95	0.95		0.97	1.00
Frt	1.00	1.00	0.98		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3470		3433	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3470		3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	135	870	1491	224	459	202
RTOR Reduction (vph)	0	0	13	0	0	157
Lane Group Flow (vph)	135	870	1702	0	459	45
Turn Type	Prot	NA	NA		Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	9.2	61.0	47.3		19.5	19.5
Effective Green, g (s)	9.2	61.0	47.3		19.5	19.5
Actuated g/C Ratio	0.10	0.68	0.53		0.22	0.22
Clearance Time (s)	4.5	4.5	4.5		4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	181	2412	1833		747	344
v/s Ratio Prot	c0.08	0.25	c0.49		c0.13	
v/s Ratio Perm						0.03
v/c Ratio	0.75	0.36	0.93		0.61	0.13
Uniform Delay, d1	39.0	6.0	19.5		31.6	28.2
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	15.3	0.1	8.7		3.8	0.8
Delay (s)	54.4	6.1	28.3		35.4	29.0
Level of Service	D	A	C		D	C
Approach Delay (s)		12.6	28.3		33.4	
Approach LOS		B	C		C	

Intersection Summary			
HCM 2000 Control Delay	24.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	89.5	Sum of lost time (s)	13.5
Intersection Capacity Utilization	74.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	354	405	554	214	724	979
Future Volume (vph)	354	405	554	214	724	979
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5	4.5
Lane Util. Factor	0.97	1.00	0.91		0.97	0.95
Frt	1.00	0.85	0.96		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	3090	1425	4385		3090	3185
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	3090	1425	4385		3090	3185
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	385	440	602	233	787	1064
RTOR Reduction (vph)	0	23	97	0	0	0
Lane Group Flow (vph)	385	417	738	0	787	1064
Turn Type	Prot	pm+ov	NA		Prot	NA
Protected Phases	8	1	2		1	6
Permitted Phases		8				
Actuated Green, G (s)	13.2	33.7	18.1		20.5	43.1
Effective Green, g (s)	13.2	33.7	18.1		20.5	43.1
Actuated g/C Ratio	0.20	0.52	0.28		0.31	0.66
Clearance Time (s)	4.5	4.5	4.5		4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	624	833	1215		970	2102
v/s Ratio Prot	c0.12	0.16	c0.17		c0.25	0.33
v/s Ratio Perm		0.14				
v/c Ratio	0.62	0.50	0.61		0.81	0.51
Uniform Delay, d1	23.7	10.3	20.5		20.6	5.7
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	1.8	0.5	2.3		7.3	0.9
Delay (s)	25.6	10.8	22.8		28.0	6.5
Level of Service	C	B	C		C	A
Approach Delay (s)	17.7		22.8			15.7
Approach LOS	B		C			B

Intersection Summary			
HCM 2000 Control Delay	17.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	65.3	Sum of lost time (s)	13.5
Intersection Capacity Utilization	62.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	207	98	208	467	37	112
Future Volume (Veh/h)	207	98	208	467	37	112
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	225	107	226	508	40	122
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						1
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			332		1238	278
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			332		1238	278
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			82		75	84
cM capacity (veh/h)			1227		158	760

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	332	734	162
Volume Left	0	226	40
Volume Right	107	0	122
cSH	1700	1227	640
Volume to Capacity	0.20	0.18	0.25
Queue Length 95th (ft)	0	17	25
Control Delay (s)	0.0	4.2	16.7
Lane LOS		A	C
Approach Delay (s)	0.0	4.2	16.7
Approach LOS			C

Intersection Summary			
Average Delay	4.7		
Intersection Capacity Utilization	66.3%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	9	285	41	86	495	1	129	8	36	7	11	9
Future Volume (vph)	9	285	41	86	495	1	129	8	36	7	11	9
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	10	310	45	93	538	1	140	9	39	8	12	10

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	SB 1
Volume Total (vph)	365	631	1	149	39	30
Volume Left (vph)	10	93	0	140	0	8
Volume Right (vph)	45	0	1	0	39	10
Hadj (s)	-0.03	0.11	-0.67	0.50	-0.67	-0.11
Departure Headway (s)	6.2	6.0	5.2	7.7	6.6	7.7
Degree Utilization, x	0.63	1.04	0.00	0.32	0.07	0.06
Capacity (veh/h)	565	598	679	451	525	428
Control Delay (s)	19.2	71.6	7.0	13.1	8.9	11.2
Approach Delay (s)	19.2	71.5		12.2		11.2
Approach LOS	C	F		B		B

Intersection Summary			
Delay	45.1		
Level of Service	E		
Intersection Capacity Utilization	73.0%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	226	2	82	6	0	2	47	504	6	38	803	398
Future Volume (vph)	226	2	82	6	0	2	47	504	6	38	803	398
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5		4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	0.95	0.95	0.88		1.00		0.97	0.91		1.00	0.95	1.00
Frt	1.00	1.00	0.85		0.97		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	0.95	1.00		0.96		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1687	2787		1739		3433	5076		1770	3539	1583
Flt Permitted	0.95	0.95	1.00		0.96		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1681	1687	2787		1739		3433	5076		1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	246	2	89	7	0	2	51	548	7	41	873	433
RTOR Reduction (vph)	0	0	74	0	9	0	0	1	0	0	0	237
Lane Group Flow (vph)	123	125	15	0	0	0	51	554	0	41	873	196
Turn Type	Split	NA	Perm	Split	NA		Prot	NA		Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4									6
Actuated Green, G (s)	9.3	9.3	9.3		0.8		1.7	24.3		2.1	24.7	24.7
Effective Green, g (s)	9.3	9.3	9.3		0.8		1.7	24.3		2.1	24.7	24.7
Actuated g/C Ratio	0.17	0.17	0.17		0.01		0.03	0.45		0.04	0.45	0.45
Clearance Time (s)	4.5	4.5	4.5		4.5		4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	286	287	475		25		107	2263		68	1603	717
v/s Ratio Prot	0.07	c0.07			c0.00		0.01	0.11		c0.02	c0.25	
v/s Ratio Perm			0.01									0.12
v/c Ratio	0.43	0.44	0.03		0.01		0.48	0.24		0.60	0.54	0.27
Uniform Delay, d1	20.2	20.2	18.8		26.5		26.0	9.4		25.8	10.8	9.3
Progression Factor	1.00	1.00	1.00		1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.0	1.1	0.0		0.1		3.3	0.3		14.2	1.3	0.9
Delay (s)	21.3	21.3	18.9		26.5		29.3	9.6		39.9	12.2	10.2
Level of Service	C	C	B		C		C	A		D	B	B
Approach Delay (s)		20.7			26.5			11.3			12.4	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	13.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	54.5	Sum of lost time (s)	18.0
Intersection Capacity Utilization	45.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	34	0	480	752	30
Future Volume (Veh/h)	0	34	0	480	752	30
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	37	0	522	817	33
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				1038	287	
pX, platoon unblocked	0.96	0.96	0.96			
vC, conflicting volume	1094	425	850			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1025	331	771			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	94	100			
cM capacity (veh/h)	223	642	810			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	37	261	261	545	305
Volume Left	0	0	0	0	0
Volume Right	37	0	0	0	33
cSH	642	1700	1700	1700	1700
Volume to Capacity	0.06	0.15	0.15	0.32	0.18
Queue Length 95th (ft)	5	0	0	0	0
Control Delay (s)	11.0	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	11.0	0.0		0.0	
Approach LOS	B				

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	31.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	24	33	0	973	92	16	736
Future Volume (vph)	24	33	0	973	92	16	736
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5			4.5		4.5	4.5
Lane Util. Factor	1.00			0.91		1.00	0.91
Frt	0.92			0.99		1.00	1.00
Flt Protected	0.98			1.00		0.95	1.00
Satd. Flow (prot)	1681			5019		1770	5085
Flt Permitted	0.98			1.00		0.95	1.00
Satd. Flow (perm)	1681			5019		1770	5085
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	26	36	0	1058	100	17	800
RTOR Reduction (vph)	33	0	0	11	0	0	0
Lane Group Flow (vph)	29	0	0	1147	0	17	800
Turn Type	Prot		Prot	NA		Prot	NA
Protected Phases	8		5	2		1	6
Permitted Phases							
Actuated Green, G (s)	4.1			34.1		1.0	39.6
Effective Green, g (s)	4.1			34.1		1.0	39.6
Actuated g/C Ratio	0.08			0.65		0.02	0.75
Clearance Time (s)	4.5			4.5		4.5	4.5
Vehicle Extension (s)	3.0			3.0		3.0	3.0
Lane Grp Cap (vph)	130			3247		33	3820
v/s Ratio Prot	c0.02			c0.23		0.01	c0.16
v/s Ratio Perm							
v/c Ratio	0.22			0.35		0.52	0.21
Uniform Delay, d1	22.8			4.3		25.6	1.9
Progression Factor	1.00			1.00		1.00	1.00
Incremental Delay, d2	0.9			0.3		12.9	0.1
Delay (s)	23.7			4.6		38.5	2.1
Level of Service	C			A		D	A
Approach Delay (s)	23.7			4.6			2.8
Approach LOS	C			A			A

Intersection Summary			
HCM 2000 Control Delay	4.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	52.7	Sum of lost time (s)	13.5
Intersection Capacity Utilization	32.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	84	327	156	316	868	200	210	852	236	96	706	84
Future Volume (vph)	84	327	156	316	868	200	210	852	236	96	706	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	3433	3440		1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	3433	3440		1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	91	355	170	343	943	217	228	926	257	104	767	91
RTOR Reduction (vph)	0	0	127	0	22	0	0	0	173	0	0	68
Lane Group Flow (vph)	91	355	43	343	1138	0	228	926	84	104	767	23
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4						2			6
Actuated Green, G (s)	5.7	22.8	22.8	13.4	30.5		12.9	29.3	29.3	6.5	22.9	22.9
Effective Green, g (s)	5.7	22.8	22.8	13.4	30.5		12.9	29.3	29.3	6.5	22.9	22.9
Actuated g/C Ratio	0.06	0.25	0.25	0.15	0.34		0.14	0.33	0.33	0.07	0.25	0.25
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	112	896	401	511	1165		253	1152	515	127	900	402
v/s Ratio Prot	0.05	0.10		c0.10	c0.33		c0.13	c0.26		0.06	0.22	
v/s Ratio Perm			0.03						0.05			0.01
v/c Ratio	0.81	0.40	0.11	0.67	0.98		0.90	0.80	0.16	0.82	0.85	0.06
Uniform Delay, d1	41.6	27.9	25.8	36.2	29.4		37.9	27.7	21.6	41.2	31.9	25.4
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	34.4	0.3	0.1	3.5	20.8		31.8	6.0	0.7	32.0	10.0	0.3
Delay (s)	76.0	28.2	25.9	39.7	50.2		69.7	33.7	22.3	73.2	42.0	25.7
Level of Service	E	C	C	D	D		E	C	C	E	D	C
Approach Delay (s)		34.6			47.8			37.5			43.8	
Approach LOS		C			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	41.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	81.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	3	15	6	7	8	10	110	8	7	235	4
Future Volume (Veh/h)	11	3	15	6	7	8	10	110	8	7	235	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	3	16	7	8	9	11	120	9	8	255	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								606			647	
pX, platoon unblocked												
vC, conflicting volume	432	424	257	437	422	124	259			129		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	432	424	257	437	422	124	259			129		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	99	98	99	98	99	99			99		
cM capacity (veh/h)	516	515	782	511	516	926	1306			1457		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	31	24	140	267
Volume Left	12	7	11	8
Volume Right	16	9	9	4
cSH	626	617	1306	1457
Volume to Capacity	0.05	0.04	0.01	0.01
Queue Length 95th (ft)	4	3	1	0
Control Delay (s)	11.1	11.1	0.7	0.3
Lane LOS	B	B	A	A
Approach Delay (s)	11.1	11.1	0.7	0.3
Approach LOS	B	B		

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	24.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	5	11	16	7	20	20	455	5	6	393	5
Future Volume (Veh/h)	5	5	11	16	7	20	20	455	5	6	393	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	5	12	17	8	22	22	495	5	7	427	5
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											650	
pX, platoon unblocked	0.91	0.91	0.91	0.91	0.91		0.91					
vC, conflicting volume	761	988	430	1000	988	250	432			500		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	689	938	326	951	938	250	328			500		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	98	98	91	97	97	98			99		
cM capacity (veh/h)	280	233	611	185	233	750	1119			1060		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	22	47	270	252	439
Volume Left	5	17	22	0	7
Volume Right	12	22	0	5	5
cSH	373	302	1119	1700	1060
Volume to Capacity	0.06	0.16	0.02	0.15	0.01
Queue Length 95th (ft)	5	14	2	0	0
Control Delay (s)	15.2	19.1	0.9	0.0	0.2
Lane LOS	C	C	A		A
Approach Delay (s)	15.2	19.1	0.4		0.2
Approach LOS	C	C			

Intersection Summary				
Average Delay	1.5			
Intersection Capacity Utilization	36.5%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	22	12	470	10	0	426
Future Volume (Veh/h)	22	12	470	10	0	426
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	24	13	511	11	0	463
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			None
Median storage veh)			2			
Upstream signal (ft)			430			
pX, platoon unblocked						
vC, conflicting volume	748	261			522	
vC1, stage 1 conf vol	516					
vC2, stage 2 conf vol	232					
vCu, unblocked vol	748	261			522	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	95	98			100	
cM capacity (veh/h)	521	738			1041	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	37	341	181	232	232
Volume Left	24	0	0	0	0
Volume Right	13	0	11	0	0
cSH	581	1700	1700	1700	1700
Volume to Capacity	0.06	0.20	0.11	0.14	0.14
Queue Length 95th (ft)	5	0	0	0	0
Control Delay (s)	11.6	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	11.6	0.0		0.0	
Approach LOS	B				

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	23.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	SEL	SET	NWT	NWR
Lane Configurations						
Traffic Volume (veh/h)	124	10	3	312	314	0
Future Volume (Veh/h)	124	10	3	312	314	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	135	11	3	339	341	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	516	170	341			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	516	170	341			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	72	99	100			
cM capacity (veh/h)	487	844	1215			

Direction, Lane #	WB 1	WB 2	SE 1	SE 2	SE 3	NW 1	NW 2
Volume Total	135	11	3	170	170	170	170
Volume Left	135	0	3	0	0	0	0
Volume Right	0	11	0	0	0	0	0
cSH	487	844	1215	1700	1700	1700	1700
Volume to Capacity	0.28	0.01	0.00	0.10	0.10	0.10	0.10
Queue Length 95th (ft)	28	1	0	0	0	0	0
Control Delay (s)	15.2	9.3	8.0	0.0	0.0	0.0	0.0
Lane LOS	C	A	A				
Approach Delay (s)	14.8		0.1			0.0	
Approach LOS	B						

Intersection Summary			
Average Delay	2.6		
Intersection Capacity Utilization	22.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	1	0	34	8	3	0	127	14	5	90	2
Future Volume (Veh/h)	2	1	0	34	8	3	0	127	14	5	90	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	1	0	37	9	3	0	138	15	5	98	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	262	262	99	255	256	146	100			153		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	262	262	99	255	256	146	100			153		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	95	99	100	100			100		
cM capacity (veh/h)	679	641	957	695	646	902	1493			1428		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	3	49	153	105
Volume Left	2	37	0	5
Volume Right	0	3	15	2
cSH	666	695	1700	1428
Volume to Capacity	0.00	0.07	0.09	0.00
Queue Length 95th (ft)	0	6	0	0
Control Delay (s)	10.4	10.6	0.0	0.4
Lane LOS	B	B		A
Approach Delay (s)	10.4	10.6	0.0	0.4
Approach LOS	B	B		

Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	19.0%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	4.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	553	47	69	798	40	93
Future Vol, veh/h	553	47	69	798	40	93
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	601	51	75	867	43	101

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	652	0	1644	627
Stage 1	-	-	-	-	627	-
Stage 2	-	-	-	-	1017	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	935	-	110	484
Stage 1	-	-	-	-	532	-
Stage 2	-	-	-	-	349	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	935	-	93	484
Mov Cap-2 Maneuver	-	-	-	-	93	-
Stage 1	-	-	-	-	450	-
Stage 2	-	-	-	-	349	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	51
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	214	-	-	935	-
HCM Lane V/C Ratio	0.676	-	-	0.08	-
HCM Control Delay (s)	51	-	-	9.2	0
HCM Lane LOS	F	-	-	A	A
HCM 95th %tile Q(veh)	4.2	-	-	0.3	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	600	16	20	814	15	25	27	28	6	23	35
Future Volume (vph)	30	600	16	20	814	15	25	27	28	6	23	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		1.00			1.00			0.95			0.93	
Flt Protected		1.00			1.00			0.98			1.00	
Satd. Flow (prot)		1852			1856			1748			1718	
Flt Permitted		0.94			0.98			0.88			0.96	
Satd. Flow (perm)		1751			1822			1555			1663	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	33	652	17	22	885	16	27	29	30	7	25	38
RTOR Reduction (vph)	0	1	0	0	1	0	0	25	0	0	32	0
Lane Group Flow (vph)	0	701	0	0	922	0	0	61	0	0	38	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		30.5			30.5			7.7			7.7	
Effective Green, g (s)		30.5			30.5			7.7			7.7	
Actuated g/C Ratio		0.65			0.65			0.16			0.16	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		1131			1177			253			271	
v/s Ratio Prot												
v/s Ratio Perm		0.40			c0.51			c0.04			0.02	
v/c Ratio		0.62			0.78			0.24			0.14	
Uniform Delay, d1		4.9			6.0			17.2			16.9	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.0			3.5			0.5			0.2	
Delay (s)		5.9			9.5			17.7			17.2	
Level of Service		A			A			B			B	
Approach Delay (s)		5.9			9.5			17.7			17.2	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM 2000 Control Delay	8.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	47.2	Sum of lost time (s)	9.0
Intersection Capacity Utilization	68.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
23: Lone Hill Ave & Gladstone St

08/10/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	170	181	149	145	442	69	145	300	104	121	492	317
Future Volume (vph)	170	181	149	145	442	69	145	300	104	121	492	317
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	0.97	0.95		1.00	0.95		0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	0.93		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3300		1770	3467		3433	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3300		1770	3467		3433	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	185	197	162	158	480	75	158	326	113	132	535	345
RTOR Reduction (vph)	0	127	0	0	19	0	0	0	78	0	0	242
Lane Group Flow (vph)	185	233	0	158	536	0	158	326	35	132	535	103
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Actuated Green, G (s)	7.7	14.2		9.0	15.5		4.2	19.8	19.8	3.8	19.4	19.4
Effective Green, g (s)	7.7	14.2		9.0	15.5		4.2	19.8	19.8	3.8	19.4	19.4
Actuated g/C Ratio	0.12	0.22		0.14	0.24		0.06	0.31	0.31	0.06	0.30	0.30
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	407	723		245	829		222	1081	483	201	1059	473
v/s Ratio Prot	0.05	0.07		c0.09	c0.15		c0.05	0.09		0.04	c0.15	
v/s Ratio Perm									0.02			0.07
v/c Ratio	0.45	0.32		0.64	0.65		0.71	0.30	0.07	0.66	0.51	0.22
Uniform Delay, d1	26.6	21.3		26.4	22.2		29.7	17.2	16.0	29.9	18.7	17.0
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.8	0.3		5.7	1.7		10.3	0.7	0.3	7.5	1.7	1.1
Delay (s)	27.4	21.5		32.1	23.9		40.0	17.9	16.3	37.4	20.5	18.1
Level of Service	C	C		C	C		D	B	B	D	C	B
Approach Delay (s)		23.5			25.7			23.4			21.9	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	23.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	64.8	Sum of lost time (s)	18.0
Intersection Capacity Utilization	52.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	868	41	174	842	371	17	0	19	173	62	212
Future Volume (vph)	0	868	41	174	842	371	17	0	19	173	62	212
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5		4.5	4.5		4.5		4.5	4.5	4.5	4.5
Lane Util. Factor		0.91		1.00	0.91		0.97		1.00	0.95	0.95	1.00
Frt		0.99		1.00	0.95		1.00		0.85	1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00		0.95		1.00	0.95	0.98	1.00
Satd. Flow (prot)		5051		1770	4852		3433		1583	1681	1728	1583
Flt Permitted		1.00		0.95	1.00		0.22		1.00	0.95	0.98	1.00
Satd. Flow (perm)		5051		1770	4852		777		1583	1681	1728	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	943	45	189	915	403	18	0	21	188	67	230
RTOR Reduction (vph)	0	6	0	0	95	0	0	0	16	0	0	194
Lane Group Flow (vph)	0	982	0	189	1223	0	18	0	5	126	129	36
Turn Type		NA		Prot	NA		Perm		Perm	Split	NA	Perm
Protected Phases		4		3	8					6	6	
Permitted Phases							2		2			6
Actuated Green, G (s)		17.8		7.5	29.8		18.6		18.6	11.6	11.6	11.6
Effective Green, g (s)		17.8		7.5	29.8		18.6		18.6	11.6	11.6	11.6
Actuated g/C Ratio		0.24		0.10	0.41		0.25		0.25	0.16	0.16	0.16
Clearance Time (s)		4.5		4.5	4.5		4.5		4.5	4.5	4.5	4.5
Vehicle Extension (s)		3.0		3.0	3.0		3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		1223		180	1967		196		400	265	272	249
v/s Ratio Prot		c0.19		c0.11	0.25					c0.07	0.07	
v/s Ratio Perm							c0.02		0.00			0.02
v/c Ratio		0.80		1.05	0.62		0.09		0.01	0.48	0.47	0.15
Uniform Delay, d1		26.2		33.0	17.4		21.0		20.6	28.2	28.2	26.7
Progression Factor		1.00		1.00	1.00		1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2		3.9		80.9	0.6		0.9		0.1	1.3	1.3	0.3
Delay (s)		30.1		113.9	18.0		21.9		20.6	29.5	29.5	27.0
Level of Service		C		F	B		C		C	C	C	C
Approach Delay (s)		30.1			30.0			21.2			28.3	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	29.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	73.5	Sum of lost time (s)	18.0
Intersection Capacity Utilization	51.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	161	312	463	200	681	41	650	197	176	118	122	295
Future Volume (vph)	161	312	463	200	681	41	650	197	176	118	122	295
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5		4.5	4.5	4.5
Lane Util. Factor	0.97	0.91		1.00	0.91			0.95		1.00	0.95	1.00
Frt	1.00	0.91		1.00	0.99			0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.97		0.95	1.00	1.00
Satd. Flow (prot)	3433	4630		1770	5042			3342		1770	3539	1583
Flt Permitted	0.95	1.00		0.95	1.00			0.97		0.95	1.00	1.00
Satd. Flow (perm)	3433	4630		1770	5042			3342		1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	175	339	503	217	740	45	707	214	191	128	133	321
RTOR Reduction (vph)	0	273	0	0	7	0	0	17	0	0	0	153
Lane Group Flow (vph)	175	569	0	217	778	0	0	1095	0	128	133	168
Turn Type	Prot	NA		Prot	NA		Split	NA		Split	NA	Perm
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases												6
Actuated Green, G (s)	7.6	16.2		13.2	21.8			33.0		14.0	14.0	14.0
Effective Green, g (s)	7.6	16.2		13.2	21.8			33.0		14.0	14.0	14.0
Actuated g/C Ratio	0.08	0.17		0.14	0.23			0.35		0.15	0.15	0.15
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5		4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	276	794		247	1164			1168		262	524	234
v/s Ratio Prot	0.05	0.12		c0.12	c0.15			c0.33		0.07	0.04	
v/s Ratio Perm												c0.11
v/c Ratio	0.63	0.92dr		0.88	0.67			1.12dl		0.49	0.25	0.72
Uniform Delay, d1	42.1	36.9		39.8	33.0			29.7		36.9	35.6	38.3
Progression Factor	1.00	1.00		1.00	1.00			1.00		1.00	1.00	1.00
Incremental Delay, d2	4.7	3.1		27.7	1.5			15.1		1.4	0.3	10.0
Delay (s)	46.8	40.0		67.5	34.5			44.8		38.3	35.8	48.3
Level of Service	D	D		E	C			D		D	D	D
Approach Delay (s)		41.2			41.6			44.8			43.3	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	42.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	94.4	Sum of lost time (s)	18.0
Intersection Capacity Utilization	85.1%	ICU Level of Service	E
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	0	45	63	22	57	1	42	42	12	0	4	2
Future Volume (vph)	0	45	63	22	57	1	42	42	12	0	4	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	49	68	24	62	1	46	46	13	0	4	2

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	117	87	105	6
Volume Left (vph)	0	24	46	0
Volume Right (vph)	68	1	13	2
Hadj (s)	-0.31	0.08	0.05	-0.17
Departure Headway (s)	3.9	4.4	4.4	4.3
Degree Utilization, x	0.13	0.11	0.13	0.01
Capacity (veh/h)	883	799	779	780
Control Delay (s)	7.5	7.9	8.0	7.3
Approach Delay (s)	7.5	7.9	8.0	7.3
Approach LOS	A	A	A	A

Intersection Summary			
Delay	7.8		
Level of Service	A		
Intersection Capacity Utilization	29.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	11	1	63	8	7	136
Future Volume (Veh/h)	11	1	63	8	7	136
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	1	68	9	8	148
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			749			
pX, platoon unblocked						
vC, conflicting volume	236	72			77	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	236	72			77	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	100			99	
cM capacity (veh/h)	748	990			1522	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	13	77	156
Volume Left	12	0	8
Volume Right	1	9	0
cSH	762	1700	1522
Volume to Capacity	0.02	0.05	0.01
Queue Length 95th (ft)	1	0	0
Control Delay (s)	9.8	0.0	0.4
Lane LOS	A		A
Approach Delay (s)	9.8	0.0	0.4
Approach LOS	A		

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	22.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	36	340	16	76	414	11	14	18	23	16	58	79
Future Volume (vph)	36	340	16	76	414	11	14	18	23	16	58	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frt	1.00	0.99		1.00	1.00			0.94			0.93	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1770	3516		1770	3525			1736			1724	
Flt Permitted	0.45	1.00		0.52	1.00			0.94			0.98	
Satd. Flow (perm)	838	3516		974	3525			1651			1696	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	39	370	17	83	450	12	15	20	25	17	63	86
RTOR Reduction (vph)	0	7	0	0	4	0	0	11	0	0	39	0
Lane Group Flow (vph)	39	380	0	83	458	0	0	49	0	0	127	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	12.1	12.1		12.1	12.1			25.6			25.6	
Effective Green, g (s)	12.1	12.1		12.1	12.1			25.6			25.6	
Actuated g/C Ratio	0.26	0.26		0.26	0.26			0.55			0.55	
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	217	910		252	913			905			929	
v/s Ratio Prot		0.11			c0.13							
v/s Ratio Perm	0.05			0.09				0.03			c0.07	
v/c Ratio	0.18	0.42		0.33	0.50			0.05			0.14	
Uniform Delay, d1	13.4	14.4		14.0	14.7			4.9			5.2	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.4	0.3		0.8	0.4			0.1			0.3	
Delay (s)	13.8	14.7		14.8	15.2			5.0			5.5	
Level of Service	B	B		B	B			A			A	
Approach Delay (s)		14.6			15.1			5.0			5.5	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM 2000 Control Delay	13.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.25		
Actuated Cycle Length (s)	46.7	Sum of lost time (s)	9.0
Intersection Capacity Utilization	36.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	452	92	344	770	12	16	43	184	23	119	5
Future Volume (vph)	1	452	92	344	770	12	16	43	184	23	119	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.97		1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	4956		1770	5074		1770	1863	1583	1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.67	1.00	1.00	0.73	1.00	1.00
Satd. Flow (perm)	1770	4956		1770	5074		1256	1863	1583	1353	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1	491	100	374	837	13	17	47	200	25	129	5
RTOR Reduction (vph)	0	45	0	0	2	0	0	0	144	0	0	4
Lane Group Flow (vph)	1	546	0	374	848	0	17	47	56	25	129	1
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2		2	6		6
Actuated Green, G (s)	0.9	16.8		17.0	32.9		18.2	18.2	18.2	18.2	18.2	18.2
Effective Green, g (s)	0.9	16.8		17.0	32.9		18.2	18.2	18.2	18.2	18.2	18.2
Actuated g/C Ratio	0.01	0.26		0.26	0.50		0.28	0.28	0.28	0.28	0.28	0.28
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	24	1271		459	2548		348	517	439	375	517	439
v/s Ratio Prot	0.00	c0.11		c0.21	0.17			0.03			c0.07	
v/s Ratio Perm							0.01		0.04	0.02		0.00
v/c Ratio	0.04	0.43		0.81	0.33		0.05	0.09	0.13	0.07	0.25	0.00
Uniform Delay, d1	31.9	20.3		22.8	9.7		17.3	17.5	17.7	17.4	18.4	17.1
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	0.2		10.6	0.1		0.3	0.3	0.6	0.3	1.2	0.0
Delay (s)	32.6	20.6		33.4	9.8		17.6	17.9	18.3	17.7	19.5	17.1
Level of Service	C	C		C	A		B	B	B	B	B	B
Approach Delay (s)		20.6			17.0			18.2			19.2	
Approach LOS		C			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	18.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	65.5	Sum of lost time (s)	13.5
Intersection Capacity Utilization	49.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	51	6	9	66	12	4
Future Volume (Veh/h)	51	6	9	66	12	4
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	55	7	10	72	13	4
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			62		150	58
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			62		150	58
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		98	100
cM capacity (veh/h)			1541		836	1007

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	62	82	17
Volume Left	0	10	13
Volume Right	7	0	4
cSH	1700	1541	871
Volume to Capacity	0.04	0.01	0.02
Queue Length 95th (ft)	0	0	1
Control Delay (s)	0.0	0.9	9.2
Lane LOS		A	A
Approach Delay (s)	0.0	0.9	9.2
Approach LOS			A

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	20.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	14	5	4	14	2	2	2	0	4	1	5
Future Volume (Veh/h)	0	14	5	4	14	2	2	2	0	4	1	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	15	5	4	15	2	2	2	0	4	1	5
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	27	18	4	30	20	2	6			2		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	27	18	4	30	20	2	6			2		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	98	100	100	98	100	100			100		
cM capacity (veh/h)	966	873	1080	959	871	1082	1615			1620		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	20	21	4	10
Volume Left	0	4	2	4
Volume Right	5	2	0	5
cSH	917	903	1615	1620
Volume to Capacity	0.02	0.02	0.00	0.00
Queue Length 95th (ft)	2	2	0	0
Control Delay (s)	9.0	9.1	3.6	2.9
Lane LOS	A	A	A	A
Approach Delay (s)	9.0	9.1	3.6	2.9
Approach LOS	A	A		

Intersection Summary			
Average Delay	7.5		
Intersection Capacity Utilization	14.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	295	11	33	540	0	7	0	32	0	0	1
Future Volume (Veh/h)	0	295	11	33	540	0	7	0	32	0	0	1
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	321	12	36	587	0	8	0	35	0	0	1
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			None							
Median storage veh)		2										
Upstream signal (ft)		661			663							
pX, platoon unblocked	0.92						0.92	0.92		0.92	0.92	0.92
vC, conflicting volume	587			333			694	986	166	854	992	294
vC1, stage 1 conf vol							327	327		659	659	
vC2, stage 2 conf vol							366	659		196	333	
vCu, unblocked vol	370			333			486	805	166	661	811	50
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			97			99	100	96	100	100	100
cM capacity (veh/h)	1087			1223			591	453	849	461	446	924

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	0	214	119	36	391	196	43	1
Volume Left	0	0	0	36	0	0	8	0
Volume Right	0	0	12	0	0	0	35	1
cSH	1700	1700	1700	1223	1700	1700	785	924
Volume to Capacity	0.00	0.13	0.07	0.03	0.23	0.12	0.05	0.00
Queue Length 95th (ft)	0	0	0	2	0	0	4	0
Control Delay (s)	0.0	0.0	0.0	8.0	0.0	0.0	9.9	8.9
Lane LOS				A			A	A
Approach Delay (s)	0.0			0.5			9.9	8.9
Approach LOS							A	A

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	37.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	14	5	17	10	1	10	54	13	7	67	0
Future Volume (Veh/h)	4	14	5	17	10	1	10	54	13	7	67	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	15	5	18	11	1	11	59	14	8	73	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	12			20			110	74	18	116	76	12
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	12			20			110	74	18	116	76	12
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			99	93	99	99	91	100
cM capacity (veh/h)	1607			1596			800	806	1061	793	804	1069

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	24	30	84	81
Volume Left	4	18	11	8
Volume Right	5	1	14	0
cSH	1607	1596	839	803
Volume to Capacity	0.00	0.01	0.10	0.10
Queue Length 95th (ft)	0	1	8	8
Control Delay (s)	1.2	4.4	9.8	10.0
Lane LOS	A	A	A	A
Approach Delay (s)	1.2	4.4	9.8	10.0
Approach LOS			A	A

Intersection Summary			
Average Delay	8.2		
Intersection Capacity Utilization	16.9%	ICU Level of Service	A
Analysis Period (min)	15		

HCM 2010 Signalized Intersection Summary
34: Cataract Ave & Bonita Ave

08/11/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	269	15	98	518	10	15	50	32	11	49	33
Future Volume (veh/h)	13	269	15	98	518	10	15	50	32	11	49	33
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	14	292	0	107	563	0	16	54	35	12	53	36
Adj No. of Lanes	1	2	1	1	2	1	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	173	834	373	178	845	378	35	108	70	27	101	69
Arrive On Green	0.10	0.24	0.00	0.10	0.24	0.00	0.02	0.10	0.10	0.02	0.10	0.10
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	1774	1057	685	1774	1035	703
Grp Volume(v), veh/h	14	292	0	107	563	0	16	0	89	12	0	89
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1774	0	1742	1774	0	1739
Q Serve(g_s), s	0.4	3.5	0.0	3.0	7.4	0.0	0.5	0.0	2.5	0.3	0.0	2.5
Cycle Q Clear(g_c), s	0.4	3.5	0.0	3.0	7.4	0.0	0.5	0.0	2.5	0.3	0.0	2.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.39	1.00		0.40
Lane Grp Cap(c), veh/h	173	834	373	178	845	378	35	0	178	27	0	170
V/C Ratio(X)	0.08	0.35	0.00	0.60	0.67	0.00	0.45	0.00	0.50	0.44	0.00	0.52
Avail Cap(c_a), veh/h	623	1416	634	623	1416	634	173	0	629	173	0	628
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	0.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.0	16.3	0.0	22.1	17.7	0.0	24.8	0.0	21.8	25.0	0.0	22.0
Incr Delay (d2), s/veh	0.2	0.3	0.0	3.2	0.9	0.0	8.8	0.0	2.2	10.8	0.0	2.5
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	0.2	1.7	0.0	1.6	3.7	0.0	0.3	0.0	1.3	0.2	0.0	1.3
LnGrp Delay(d),s/veh	21.2	16.6	0.0	25.3	18.6	0.0	33.7	0.0	23.9	35.8	0.0	24.5
LnGrp LOS	C	B		C	B		C		C	D		C
Approach Vol, veh/h		306			670			105			101	
Approach Delay, s/veh		16.8			19.6			25.4			25.8	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.3	12.7	11.6	18.6	8.5	12.5	11.5	18.7
Change Period (Y+Rc), s	7.5	7.5	6.5	6.5	7.5	7.5	6.5	6.5
Max Green Setting (Gmax), s	5.0	18.5	18.0	20.5	5.0	18.5	18.0	20.5
Max Q Clear Time (g_c+I1), s	2.3	4.5	5.0	5.5	2.5	4.5	2.4	9.4
Green Ext Time (p_c), s	0.0	0.3	0.2	1.6	0.0	0.3	0.0	2.9

Intersection Summary	
HCM 2010 Ctrl Delay	19.9
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	30	2	6	16	8	0	21	9	0	20	6
Future Volume (Veh/h)	6	30	2	6	16	8	0	21	9	0	20	6
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	33	2	7	17	9	0	23	10	0	22	7
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	71	58	26	72	57	28	29			33		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	71	58	26	72	57	28	29			33		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	96	100	99	98	99	100			100		
cM capacity (veh/h)	898	832	1050	890	834	1047	1584			1579		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	42	33	33	29
Volume Left	7	7	0	0
Volume Right	2	9	10	7
cSH	851	896	1584	1579
Volume to Capacity	0.05	0.04	0.00	0.00
Queue Length 95th (ft)	4	3	0	0
Control Delay (s)	9.4	9.2	0.0	0.0
Lane LOS	A	A		
Approach Delay (s)	9.4	9.2	0.0	0.0
Approach LOS	A	A		

Intersection Summary			
Average Delay	5.1		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	315	6	6	648	12	3	1	6	6	1	36
Future Volume (Veh/h)	18	315	6	6	648	12	3	1	6	6	1	36
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	20	342	7	7	704	13	3	1	7	7	1	39
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (ft)		653			659							
pX, platoon unblocked	0.74			0.90			0.80	0.80	0.90	0.80	0.80	0.74
vC, conflicting volume	717			349			1143	1116	346	1114	1114	710
vC1, stage 1 conf vol							386	386		724	724	
vC2, stage 2 conf vol							758	731		390	389	
vCu, unblocked vol	448			216			758	725	212	722	721	439
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			99			99	100	99	98	100	92
cM capacity (veh/h)	828			1214			337	375	742	401	392	460

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	20	349	7	717	11	47
Volume Left	20	0	7	0	3	7
Volume Right	0	7	0	13	7	39
cSH	828	1700	1214	1700	524	448
Volume to Capacity	0.02	0.21	0.01	0.42	0.02	0.10
Queue Length 95th (ft)	2	0	0	0	2	9
Control Delay (s)	9.5	0.0	8.0	0.0	12.0	14.0
Lane LOS	A		A		B	B
Approach Delay (s)	0.5		0.1		12.0	14.0
Approach LOS					B	B

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	44.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	10	7	1	8	14	7	392	4	8	526	12
Future Volume (Veh/h)	7	10	7	1	8	14	7	392	4	8	526	12
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	8	11	8	1	9	15	8	426	4	9	572	13
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (ft)								744				
pX, platoon unblocked												
vC, conflicting volume	1058	1042	578	1048	1047	428	585			430		
vC1, stage 1 conf vol	596	596		444	444							
vC2, stage 2 conf vol	462	446		604	603							
vCu, unblocked vol	1058	1042	578	1048	1047	428	585			430		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	97	98	100	98	98	99			99		
cM capacity (veh/h)	395	411	515	392	407	627	990			1129		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	27	25	8	430	9	585
Volume Left	8	1	8	0	9	0
Volume Right	8	15	0	4	0	13
cSH	432	515	990	1700	1129	1700
Volume to Capacity	0.06	0.05	0.01	0.25	0.01	0.34
Queue Length 95th (ft)	5	4	1	0	1	0
Control Delay (s)	13.9	12.4	8.7	0.0	8.2	0.0
Lane LOS	B	B	A		A	
Approach Delay (s)	13.9	12.4	0.2		0.1	
Approach LOS	B	B				

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	39.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	226	48	99	452	80	61	238	63	129	302	107
Future Volume (vph)	40	226	48	99	452	80	61	238	63	129	302	107
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	1863	1583
Flt Permitted	0.21	1.00	1.00	0.48	1.00	1.00	0.45	1.00	1.00	0.56	1.00	1.00
Satd. Flow (perm)	392	1863	1583	892	1863	1583	835	3539	1583	1046	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	43	246	52	108	491	87	66	259	68	140	328	116
RTOR Reduction (vph)	0	0	37	0	0	60	0	0	47	0	0	78
Lane Group Flow (vph)	43	246	15	108	491	27	66	259	21	140	328	38
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	21.6	19.0	19.0	24.6	20.5	20.5	23.0	20.4	20.4	25.2	21.5	21.5
Effective Green, g (s)	21.6	19.0	19.0	24.6	20.5	20.5	23.0	20.4	20.4	25.2	21.5	21.5
Actuated g/C Ratio	0.33	0.29	0.29	0.38	0.31	0.31	0.35	0.31	0.31	0.39	0.33	0.33
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	184	542	461	391	585	497	331	1107	495	445	614	522
v/s Ratio Prot	0.01	0.13		c0.02	c0.26		0.01	0.07		c0.02	c0.18	
v/s Ratio Perm	0.07		0.01	0.09		0.02	0.06		0.01	0.10		0.02
v/c Ratio	0.23	0.45	0.03	0.28	0.84	0.06	0.20	0.23	0.04	0.31	0.53	0.07
Uniform Delay, d1	15.9	18.9	16.5	13.6	20.8	15.6	14.3	16.6	15.6	13.3	17.8	15.0
Progression 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
Incremental Delay, d2	0.7	0.6	0.0	0.4	10.2	0.0	0.3	0.5	0.2	0.4	3.3	0.3
Delay (s)	16.5	19.5	16.6	14.0	31.1	15.6	14.6	17.1	15.8	13.7	21.1	15.3
Level of Service	B	B	B	B	C	B	B	B	B	B	C	B
Approach Delay (s)		18.7			26.4			16.5			18.2	
Approach LOS		B			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	20.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	65.2	Sum of lost time (s)	18.0
Intersection Capacity Utilization	63.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	81	791	64	188	1338	68	144	217	255	166	153	86
Future Volume (vph)	81	791	64	188	1338	68	144	217	255	166	153	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00	1.00	1.00	0.95	
Frt	1.00	0.99		1.00	0.99		1.00	1.00	0.85	1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	5028		1770	5048		1770	1863	1583	1770	3349	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	5028		1770	5048		1770	1863	1583	1770	3349	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	88	860	70	204	1454	74	157	236	277	180	166	93
RTOR Reduction (vph)	0	11	0	0	7	0	0	0	206	0	68	0
Lane Group Flow (vph)	88	919	0	204	1521	0	157	236	71	180	191	0
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			
Actuated Green, G (s)	4.3	19.0		11.8	26.5		9.6	20.5	20.5	10.2	21.1	
Effective Green, g (s)	4.3	19.0		11.8	26.5		9.6	20.5	20.5	10.2	21.1	
Actuated g/C Ratio	0.05	0.24		0.15	0.33		0.12	0.26	0.26	0.13	0.27	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	95	1201		262	1682		213	480	408	227	888	
v/s Ratio Prot	0.05	0.18		c0.12	c0.30		0.09	c0.13		c0.10	0.06	
v/s Ratio Perm									0.05			
v/c Ratio	0.93	0.76		0.78	0.90		0.74	0.49	0.18	0.79	0.21	
Uniform Delay, d1	37.4	28.2		32.6	25.3		33.7	25.1	22.9	33.6	22.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	68.0	3.0		13.6	7.3		12.5	3.6	0.9	17.1	0.6	
Delay (s)	105.5	31.1		46.2	32.6		46.2	28.6	23.9	50.7	23.3	
Level of Service	F	C		D	C		D	C	C	D	C	
Approach Delay (s)		37.6			34.2			30.8			34.5	
Approach LOS		D			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	34.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	79.5	Sum of lost time (s)	18.0
Intersection Capacity Utilization	67.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	48	241	54	97	645	57	44	113	63	67	113	108
Future Volume (vph)	48	241	54	97	645	57	44	113	63	67	113	108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	0.99		1.00	0.95		1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3442		1770	3496		1770	1763		1770	1727	
Flt Permitted	0.26	1.00		0.56	1.00		0.61	1.00		0.64	1.00	
Satd. Flow (perm)	487	3442		1038	3496		1135	1763		1187	1727	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	52	262	59	105	701	62	48	123	68	73	123	117
RTOR Reduction (vph)	0	37	0	0	13	0	0	30	0	0	51	0
Lane Group Flow (vph)	52	284	0	105	750	0	48	161	0	73	189	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	18.6	18.6		18.6	18.6		24.7	24.7		24.7	24.7	
Effective Green, g (s)	18.6	18.6		18.6	18.6		24.7	24.7		24.7	24.7	
Actuated g/C Ratio	0.36	0.36		0.36	0.36		0.47	0.47		0.47	0.47	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	173	1224		369	1243		536	832		560	815	
v/s Ratio Prot		0.08			c0.21			0.09			c0.11	
v/s Ratio Perm	0.11			0.10			0.04			0.06		
v/c Ratio	0.30	0.23		0.28	0.60		0.09	0.19		0.13	0.23	
Uniform Delay, d1	12.2	11.8		12.1	13.8		7.6	8.0		7.8	8.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.0	0.1		0.4	0.8		0.3	0.5		0.5	0.7	
Delay (s)	13.1	11.9		12.5	14.7		7.9	8.5		8.2	8.8	
Level of Service	B	B		B	B		A	A		A	A	
Approach Delay (s)		12.1			14.4			8.4			8.7	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM 2000 Control Delay	12.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	52.3	Sum of lost time (s)	9.0
Intersection Capacity Utilization	55.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	166	746	44	20	1349	35	90	30	26	33	18	184
Future Volume (vph)	166	746	44	20	1349	35	90	30	26	33	18	184
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Lane Util. Factor	1.00	0.91		1.00	0.91			1.00			1.00	
Frt	1.00	0.99		1.00	1.00			0.98			0.89	
Flt Protected	0.95	1.00		0.95	1.00			0.97			0.99	
Satd. Flow (prot)	1770	5043		1770	5066			1764			1655	
Flt Permitted	0.95	1.00		0.95	1.00			0.68			0.94	
Satd. Flow (perm)	1770	5043		1770	5066			1244			1572	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	180	811	48	22	1466	38	98	33	28	36	20	200
RTOR Reduction (vph)	0	9	0	0	4	0	0	13	0	0	136	0
Lane Group Flow (vph)	180	850	0	22	1500	0	0	146	0	0	120	0
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)	7.5	28.8		1.0	22.3			20.3			20.3	
Effective Green, g (s)	7.5	28.8		1.0	22.3			20.3			20.3	
Actuated g/C Ratio	0.12	0.45		0.02	0.35			0.32			0.32	
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	208	2283		27	1776			397			501	
v/s Ratio Prot	c0.10	0.17		0.01	c0.30							
v/s Ratio Perm								c0.12			0.08	
v/c Ratio	0.87	0.37		0.81	0.84			0.37			0.24	
Uniform Delay, d1	27.6	11.5		31.2	19.1			16.7			16.0	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	29.1	0.1		95.3	3.9			2.6			1.1	
Delay (s)	56.7	11.6		126.5	22.9			19.3			17.1	
Level of Service	E	B		F	C			B			B	
Approach Delay (s)		19.4			24.4			19.3			17.1	
Approach LOS		B			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	21.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	63.6	Sum of lost time (s)	13.5
Intersection Capacity Utilization	73.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	72	244	58	60	394	108	86	246	201	174	186	130
Future Volume (vph)	72	244	58	60	394	108	86	246	201	174	186	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.97		1.00	0.97		1.00	0.93		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3437		1770	3425		1770	3301		1770	3321	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3437		1770	3425		1770	3301		1770	3321	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	78	265	63	65	428	117	93	267	218	189	202	141
RTOR Reduction (vph)	0	30	0	0	37	0	0	152	0	0	93	0
Lane Group Flow (vph)	78	298	0	65	508	0	93	333	0	189	250	0
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	4.2	16.9		2.8	15.5		6.6	20.5		9.3	23.2	
Effective Green, g (s)	4.2	16.9		2.8	15.5		6.6	20.5		9.3	23.2	
Actuated g/C Ratio	0.06	0.25		0.04	0.23		0.10	0.30		0.14	0.34	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	110	860		73	786		173	1002		243	1141	
v/s Ratio Prot	c0.04	0.09		0.04	c0.15		0.05	c0.10		c0.11	c0.08	
v/s Ratio Perm												
v/c Ratio	0.71	0.35		0.89	0.65		0.54	0.33		0.78	0.22	
Uniform Delay, d1	31.1	20.8		32.2	23.5		29.0	18.2		28.1	15.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	18.8	0.2		68.9	1.8		3.2	0.9		14.5	0.4	
Delay (s)	49.9	21.0		101.1	25.4		32.2	19.1		42.6	16.2	
Level of Service	D	C		F	C		C	B		D	B	
Approach Delay (s)		26.6			33.4			21.2			25.5	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	26.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	67.5	Sum of lost time (s)	18.0
Intersection Capacity Utilization	56.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	235	503	18	25	1077	126	41	51	68	132	33	268
Future Volume (vph)	235	503	18	25	1077	126	41	51	68	132	33	268
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.91		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	5058		1770	5085	1583	1770	1702		1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	5058		1770	5085	1583	1770	1702		1770	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	255	547	20	27	1171	137	45	55	74	143	36	291
RTOR Reduction (vph)	0	4	0	0	0	99	0	55	0	0	0	0
Lane Group Flow (vph)	255	563	0	27	1171	38	45	74	0	143	36	291
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						6
Actuated Green, G (s)	13.2	34.2		2.2	23.2	23.2	3.0	21.3		8.4	26.7	26.7
Effective Green, g (s)	13.2	34.2		2.2	23.2	23.2	3.0	21.3		8.4	26.7	26.7
Actuated g/C Ratio	0.16	0.41		0.03	0.28	0.28	0.04	0.25		0.10	0.32	0.32
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	277	2056		46	1402	436	63	431		176	591	502
v/s Ratio Prot	c0.14	0.11		0.02	c0.23		0.03	0.04		c0.08	0.02	
v/s Ratio Perm						0.02						c0.18
v/c Ratio	0.92	0.27		0.59	0.84	0.09	0.71	0.17		0.81	0.06	0.58
Uniform Delay, d1	34.9	16.7		40.5	28.7	22.6	40.1	24.5		37.1	20.0	24.0
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	33.8	0.1		17.7	4.5	0.1	31.7	0.9		24.0	0.2	4.8
Delay (s)	68.7	16.7		58.2	33.1	22.7	71.9	25.4		61.1	20.2	28.8
Level of Service	E	B		E	C	C	E	C		E	C	C
Approach Delay (s)		32.9			32.6			37.4			38.0	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	33.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	84.1	Sum of lost time (s)	18.0
Intersection Capacity Utilization	59.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
44: Wheeler Avenue & Third Street

08/10/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	10	49	17	8	39	30	300	9	52	537	10
Future Volume (Veh/h)	16	10	49	17	8	39	30	300	9	52	537	10
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	17	11	53	18	9	42	33	326	10	57	584	11
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								1070				
pX, platoon unblocked												
vC, conflicting volume	979	1106	298	862	1106	168	595			336		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	979	1106	298	862	1106	168	595			336		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	90	94	92	91	95	95	97			95		
cM capacity (veh/h)	176	193	699	207	193	847	977			1220		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	81	69	196	173	349	303
Volume Left	17	18	33	0	57	0
Volume Right	53	42	0	10	0	11
cSH	353	376	977	1700	1220	1700
Volume to Capacity	0.23	0.18	0.03	0.10	0.05	0.18
Queue Length 95th (ft)	22	17	3	0	4	0
Control Delay (s)	18.2	16.7	1.8	0.0	1.7	0.0
Lane LOS	C	C	A		A	
Approach Delay (s)	18.2	16.7	0.9		0.9	
Approach LOS	C	C				

Intersection Summary				
Average Delay	3.0			
Intersection Capacity Utilization	41.6%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	101	495	34	35	977	342	30	32	15	338	98	176
Future Volume (vph)	101	495	34	35	977	342	30	32	15	338	98	176
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.5	4.0	4.0	4.5	4.0	
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.90	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	5036		1770	5085	1583	1770	1863	1583	1770	1684	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	5036		1770	5085	1583	1770	1863	1583	1770	1684	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	110	538	37	38	1062	372	33	35	16	367	107	191
RTOR Reduction (vph)	0	9	0	0	0	275	0	0	12	0	0	0
Lane Group Flow (vph)	110	566	0	38	1062	97	33	35	4	367	298	0
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8			2			
Actuated Green, G (s)	6.0	24.3		3.6	21.9	21.9	2.3	21.2	21.2	18.1	37.0	
Effective Green, g (s)	6.0	24.3		3.6	21.9	21.9	2.3	21.2	21.2	18.1	37.0	
Actuated g/C Ratio	0.07	0.29		0.04	0.26	0.26	0.03	0.25	0.25	0.22	0.44	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.5	4.0	4.0	4.5	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	126	1462		76	1330	414	48	471	400	382	744	
v/s Ratio Prot	c0.06	0.11		0.02	c0.21		0.02	0.02		c0.21	c0.18	
v/s Ratio Perm						0.06			0.00			
v/c Ratio	0.87	0.39		0.50	0.80	0.24	0.69	0.07	0.01	0.96	0.40	
Uniform Delay, d1	38.5	23.7		39.2	28.8	24.3	40.3	23.8	23.4	32.4	15.8	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	44.0	0.2		5.1	3.4	0.3	33.8	0.3	0.0	35.7	0.4	
Delay (s)	82.4	23.9		44.3	32.3	24.6	74.1	24.1	23.4	68.2	16.2	
Level of Service	F	C		D	C	C	E	C	C	E	B	
Approach Delay (s)		33.3			30.7			43.6			44.9	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	34.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	83.7	Sum of lost time (s)	16.5
Intersection Capacity Utilization	59.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	68	6	3	61	2	15	52	11	0	48	10
Future Volume (Veh/h)	3	68	6	3	61	2	15	52	11	0	48	10
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	74	7	3	66	2	16	57	12	0	52	11
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	68			81			194	158	78	197	160	67
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	68			81			194	158	78	197	160	67
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			98	92	99	100	93	99
cM capacity (veh/h)	1533			1517			714	732	983	706	729	997

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	84	71	85	63
Volume Left	3	3	16	0
Volume Right	7	2	12	11
cSH	1533	1517	755	765
Volume to Capacity	0.00	0.00	0.11	0.08
Queue Length 95th (ft)	0	0	9	7
Control Delay (s)	0.3	0.3	10.4	10.1
Lane LOS	A	A	B	B
Approach Delay (s)	0.3	0.3	10.4	10.1
Approach LOS			B	B

Intersection Summary			
Average Delay	5.2		
Intersection Capacity Utilization	22.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	2	16	5	1	2	1	65	2	3	50	5
Future Volume (Veh/h)	3	2	16	5	1	2	1	65	2	3	50	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	2	17	5	1	2	1	71	2	3	54	5
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								269				
pX, platoon unblocked												
vC, conflicting volume	139	138	56	154	139	72	59			73		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	139	138	56	154	139	72	59			73		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	98	99	100	100	100			100		
cM capacity (veh/h)	827	751	1010	795	750	990	1545			1527		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	22	8	74	62
Volume Left	3	5	1	3
Volume Right	17	2	2	5
cSH	952	830	1545	1527
Volume to Capacity	0.02	0.01	0.00	0.00
Queue Length 95th (ft)	2	1	0	0
Control Delay (s)	8.9	9.4	0.1	0.4
Lane LOS	A	A	A	A
Approach Delay (s)	8.9	9.4	0.1	0.4
Approach LOS	A	A		

Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	14.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	782	5	8	1330	26	7	6	9	42	2	25
Future Volume (vph)	32	782	5	8	1330	26	7	6	9	42	2	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.91		1.00	0.86	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5081		1770	5085	1583	1770	1698		1770	1603	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	5081		1770	5085	1583	1770	1698		1770	1603	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	35	850	5	9	1446	28	8	7	10	46	2	27
RTOR Reduction (vph)	0	1	0	0	0	16	0	9	0	0	0	0
Lane Group Flow (vph)	35	854	0	9	1446	12	8	8	0	46	29	0
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						
Actuated Green, G (s)	1.5	22.8		0.7	22.0	22.0	0.7	7.3		1.5	8.1	
Effective Green, g (s)	1.5	22.8		0.7	22.0	22.0	0.7	7.3		1.5	8.1	
Actuated g/C Ratio	0.03	0.45		0.01	0.44	0.44	0.01	0.15		0.03	0.16	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	52	2303		24	2224	692	24	246		52	258	
v/s Ratio Prot	c0.02	0.17		0.01	c0.28		0.00	0.00		c0.03	c0.02	
v/s Ratio Perm						0.01						
v/c Ratio	0.67	0.37		0.38	0.65	0.02	0.33	0.03		0.88	0.11	
Uniform Delay, d1	24.2	9.0		24.6	11.1	8.0	24.6	18.5		24.3	18.0	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	29.2	0.1		9.6	0.7	0.0	8.0	0.1		82.7	0.2	
Delay (s)	53.4	9.1		34.2	11.8	8.0	32.6	18.5		107.0	18.2	
Level of Service	D	A		C	B	A	C	B		F	B	
Approach Delay (s)		10.9			11.9			23.0			72.7	
Approach LOS		B			B			C			E	

Intersection Summary			
HCM 2000 Control Delay	13.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	50.3	Sum of lost time (s)	18.0
Intersection Capacity Utilization	43.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	14	40	19	9	106	30	67	102	11	19	191	48
Future Volume (vph)	14	40	19	9	106	30	67	102	11	19	191	48
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	15	43	21	10	115	33	73	111	12	21	208	52

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	79	158	196	281
Volume Left (vph)	15	10	73	21
Volume Right (vph)	21	33	12	52
Hadj (s)	-0.09	-0.08	0.07	-0.06
Departure Headway (s)	5.2	5.1	5.0	4.7
Degree Utilization, x	0.11	0.22	0.27	0.37
Capacity (veh/h)	609	638	680	719
Control Delay (s)	8.9	9.6	9.8	10.5
Approach Delay (s)	8.9	9.6	9.8	10.5
Approach LOS	A	A	A	B

Intersection Summary			
Delay	9.9		
Level of Service	A		
Intersection Capacity Utilization	42.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	3	37	28	168	183	9
Future Volume (Veh/h)	3	37	28	168	183	9
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	40	30	183	199	10
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				259		
pX, platoon unblocked						
vC, conflicting volume	442	199	209			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	442	199	209			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	95	98			
cM capacity (veh/h)	560	842	1362			

Direction, Lane #	EB 1	NB 1	SB 1	SB 2
Volume Total	43	213	199	10
Volume Left	3	30	0	0
Volume Right	40	0	0	10
cSH	813	1362	1700	1700
Volume to Capacity	0.05	0.02	0.12	0.01
Queue Length 95th (ft)	4	2	0	0
Control Delay (s)	9.7	1.2	0.0	0.0
Lane LOS	A	A		
Approach Delay (s)	9.7	1.2	0.0	
Approach LOS	A			

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	Err%	ICU Level of Service	H
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	724	28	14	1264	94	57	27	15	119	39	47
Future Volume (vph)	55	724	28	14	1264	94	57	27	15	119	39	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.95		1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5057		1770	5085	1583	1770	1763		1770	1710	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	5057		1770	5085	1583	1770	1763		1770	1710	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	60	787	30	15	1374	102	62	29	16	129	42	51
RTOR Reduction (vph)	0	4	0	0	0	53	0	12	0	0	0	0
Lane Group Flow (vph)	60	813	0	15	1374	49	62	33	0	129	93	0
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases						8						
Actuated Green, G (s)	8.8	43.1		2.0	36.3	48.5	7.1	24.7		12.2	29.8	
Effective Green, g (s)	8.8	43.1		2.0	36.3	48.5	7.1	24.7		12.2	29.8	
Actuated g/C Ratio	0.09	0.43		0.02	0.36	0.48	0.07	0.25		0.12	0.30	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	155	2179		35	1845	767	125	435		215	509	
v/s Ratio Prot	c0.03	c0.16		0.01	c0.27	0.01	0.04	0.02		c0.07	c0.05	
v/s Ratio Perm						0.02						
v/c Ratio	0.39	0.37		0.43	0.74	0.06	0.50	0.08		0.60	0.18	
Uniform Delay, d1	43.1	19.3		48.4	27.8	13.7	44.7	28.9		41.6	26.1	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.6	0.5		8.2	2.8	0.0	3.1	0.3		4.5	0.8	
Delay (s)	44.7	19.8		56.7	30.6	13.7	47.8	29.2		46.0	26.8	
Level of Service	D	B		E	C	B	D	C		D	C	
Approach Delay (s)		21.5			29.7			40.0			38.0	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	28.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	53.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	11	19	29	25	74	24	66	174	7	9	246	8
Future Volume (vph)	11	19	29	25	74	24	66	174	7	9	246	8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	21	32	27	80	26	72	189	8	10	267	9

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	65	133	269	286
Volume Left (vph)	12	27	72	10
Volume Right (vph)	32	26	8	9
Hadj (s)	-0.22	-0.04	0.07	0.02
Departure Headway (s)	5.3	5.3	4.9	4.8
Degree Utilization, x	0.09	0.20	0.36	0.38
Capacity (veh/h)	595	607	703	711
Control Delay (s)	8.8	9.6	10.7	10.8
Approach Delay (s)	8.8	9.6	10.7	10.8
Approach LOS	A	A	B	B

Intersection Summary			
Delay	10.4		
Level of Service	B		
Intersection Capacity Utilization	46.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	7	10	41	8	34	13	47	221	5	1	294	17
Future Volume (vph)	7	10	41	8	34	13	47	221	5	1	294	17
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	8	11	45	9	37	14	51	240	5	1	320	18

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	64	60	296	339
Volume Left (vph)	8	9	51	1
Volume Right (vph)	45	14	5	18
Hadj (s)	-0.36	-0.08	0.06	0.00
Departure Headway (s)	5.1	5.4	4.7	4.6
Degree Utilization, x	0.09	0.09	0.39	0.43
Capacity (veh/h)	612	581	740	755
Control Delay (s)	8.6	8.9	10.6	11.0
Approach Delay (s)	8.6	8.9	10.6	11.0
Approach LOS	A	A	B	B

Intersection Summary			
Delay	10.5		
Level of Service	B		
Intersection Capacity Utilization	45.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	27	14	254	16	26	311
Future Volume (Veh/h)	27	14	254	16	26	311
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	29	15	276	17	28	338
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			277			
pX, platoon unblocked	0.96	0.96			0.96	
vC, conflicting volume	678	146			293	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	577	21			174	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	93	99			98	
cM capacity (veh/h)	420	1007			1341	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1
Volume Total	44	184	109	366
Volume Left	29	0	0	28
Volume Right	15	0	17	0
cSH	524	1700	1700	1341
Volume to Capacity	0.08	0.11	0.06	0.02
Queue Length 95th (ft)	7	0	0	2
Control Delay (s)	12.5	0.0	0.0	0.8
Lane LOS	B			A
Approach Delay (s)	12.5	0.0		0.8
Approach LOS	B			

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	38.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	605	233	144	1131	55	214	221	41	100	169	45
Future Volume (vph)	15	605	233	144	1131	55	214	221	41	100	169	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	0.97	0.95		1.00	1.00	
Frt	1.00	0.96		1.00	1.00	0.85	1.00	0.98		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	4873		1770	5085	1583	3433	3455		1770	1804	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	4873		1770	5085	1583	3433	3455		1770	1804	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	658	253	157	1229	60	233	240	45	109	184	49
RTOR Reduction (vph)	0	87	0	0	0	33	0	20	0	0	0	0
Lane Group Flow (vph)	16	824	0	157	1229	27	233	265	0	109	233	0
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases						6						
Actuated Green, G (s)	3.6	23.9		15.1	35.4	35.4	6.2	17.1		5.9	16.8	
Effective Green, g (s)	3.6	23.9		15.1	35.4	35.4	6.2	17.1		5.9	16.8	
Actuated g/C Ratio	0.05	0.30		0.19	0.44	0.44	0.08	0.21		0.07	0.21	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	79	1455		334	2250	700	266	738		130	378	
v/s Ratio Prot	0.01	0.17		c0.09	c0.24		c0.07	0.08		0.06	c0.13	
v/s Ratio Perm						0.02						
v/c Ratio	0.20	0.57		0.47	0.55	0.04	0.88	0.36		0.84	0.62	
Uniform Delay, d1	36.8	23.7		28.9	16.4	12.6	36.5	26.8		36.6	28.7	
Progression Factor	1.00	1.00		0.91	1.17	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.3	1.6		0.6	0.2	0.0	25.9	1.4		35.2	7.3	
Delay (s)	38.1	25.3		26.9	19.3	12.7	62.4	28.1		71.8	36.0	
Level of Service	D	C		C	B	B	E	C		E	D	
Approach Delay (s)		25.5			19.8			43.5			47.4	
Approach LOS		C			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	28.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	58.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1	33	5	5	19	59	532	3	2	732	33
Future Volume (Veh/h)	0	1	33	5	5	19	59	532	3	2	732	33
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1	36	5	5	21	64	578	3	2	796	36
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (ft)											382	
pX, platoon unblocked	0.63	0.63	0.63	0.63	0.63		0.63					
vC, conflicting volume	1548	1527	814	1544	1544	580	832			581		
vC1, stage 1 conf vol	818	818		708	708							
vC2, stage 2 conf vol	730	709		836	836							
vCu, unblocked vol	1575	1543	412	1570	1569	580	441			581		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	91	98	98	96	91			100		
cM capacity (veh/h)	256	271	403	221	239	515	706			993		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	37	31	64	581	2	832
Volume Left	0	5	64	0	2	0
Volume Right	36	21	0	3	0	36
cSH	398	367	706	1700	993	1700
Volume to Capacity	0.09	0.08	0.09	0.34	0.00	0.49
Queue Length 95th (ft)	8	7	7	0	0	0
Control Delay (s)	15.0	15.7	10.6	0.0	8.6	0.0
Lane LOS	B	C	B		A	
Approach Delay (s)	15.0	15.7	1.1		0.0	
Approach LOS	B	C				

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	60.0%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	1	15	7	0	18	27	547	2	11	749	14
Future Volume (Veh/h)	2	1	15	7	0	18	27	547	2	11	749	14
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	1	16	8	0	20	29	595	2	12	814	15
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (ft)								1253			753	
pX, platoon unblocked	0.73	0.73	0.69	0.73	0.73	0.92	0.69			0.92		
vC, conflicting volume	1518	1500	822	1508	1507	596	829			597		
vC1, stage 1 conf vol	846	846		654	654							
vC2, stage 2 conf vol	673	655		854	853							
vCu, unblocked vol	1264	1240	511	1251	1249	513	522			514		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	96	97	100	96	96			99		
cM capacity (veh/h)	276	288	386	260	273	514	717			963		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	19	28	29	597	12	829
Volume Left	2	8	29	0	12	0
Volume Right	16	20	0	2	0	15
cSH	364	402	717	1700	963	1700
Volume to Capacity	0.05	0.07	0.04	0.35	0.01	0.49
Queue Length 95th (ft)	4	6	3	0	1	0
Control Delay (s)	15.4	14.6	10.2	0.0	8.8	0.0
Lane LOS	C	B	B		A	
Approach Delay (s)	15.4	14.6	0.5		0.1	
Approach LOS	C	B				

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	50.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	1	10	13	3	38	34	553	26	39	723	10
Future Volume (Veh/h)	1	1	10	13	3	38	34	553	26	39	723	10
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	1	11	14	3	41	37	601	28	42	786	11
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			TWLTL	
Median storage veh)											2	
Upstream signal (ft)								1055			951	
pX, platoon unblocked	0.77	0.77	0.72	0.77	0.77	0.89	0.72			0.89		
vC, conflicting volume	1593	1578	792	1556	1556	601	797			629		
vC1, stage 1 conf vol	876	876		675	675							
vC2, stage 2 conf vol	718	703		882	881							
vCu, unblocked vol	1304	1286	516	1257	1257	491	524			523		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	97	94	99	92	95			95		
cM capacity (veh/h)	240	262	402	240	253	514	751			930		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	13	58	37	601	28	42	797
Volume Left	1	14	37	0	0	42	0
Volume Right	11	41	0	0	28	0	11
cSH	368	387	751	1700	1700	930	1700
Volume to Capacity	0.04	0.15	0.05	0.35	0.02	0.05	0.47
Queue Length 95th (ft)	3	13	4	0	0	4	0
Control Delay (s)	15.1	15.9	10.0	0.0	0.0	9.1	0.0
Lane LOS	C	C	B			A	
Approach Delay (s)	15.1	15.9	0.6			0.5	
Approach LOS	C	C					

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	52.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	12	25	559	9	25	717
Future Volume (Veh/h)	12	25	559	9	25	717
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	13	27	608	10	27	779
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		4				
Median type			None			None
Median storage veh)						
Upstream signal (ft)			255			
pX, platoon unblocked	0.93	0.93			0.93	
vC, conflicting volume	1056	309			618	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	910	107			439	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	95	97			97	
cM capacity (veh/h)	248	862			1039	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	40	405	213	27	390	390
Volume Left	13	0	0	27	0	0
Volume Right	27	0	10	0	0	0
cSH	763	1700	1700	1039	1700	1700
Volume to Capacity	0.05	0.24	0.13	0.03	0.23	0.23
Queue Length 95th (ft)	4	0	0	2	0	0
Control Delay (s)	12.9	0.0	0.0	8.6	0.0	0.0
Lane LOS	B			A		
Approach Delay (s)	12.9	0.0		0.3		
Approach LOS	B					

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	30.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	267	335	85	106	440	182	52	414	174	90	1012	186
Future Volume (vph)	267	335	85	106	440	182	52	414	174	90	1012	186
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	4860		1770	4967	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1770	4860		1770	4967	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	290	364	92	115	478	198	57	450	189	98	1100	202
RTOR Reduction (vph)	0	0	61	0	0	148	0	93	0	0	32	0
Lane Group Flow (vph)	290	364	31	115	478	50	57	546	0	98	1270	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6						
Actuated Green, G (s)	15.4	27.1	27.1	8.5	20.2	20.2	3.1	20.7		5.7	23.3	
Effective Green, g (s)	15.4	27.1	27.1	8.5	20.2	20.2	3.1	20.7		5.7	23.3	
Actuated g/C Ratio	0.19	0.34	0.34	0.11	0.25	0.25	0.04	0.26		0.07	0.29	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	340	1198	536	188	893	399	68	1257		126	1446	
v/s Ratio Prot	c0.16	0.10		0.06	c0.14		0.03	0.11		c0.06	c0.26	
v/s Ratio Perm			0.02			0.03						
v/c Ratio	0.85	0.30	0.06	0.61	0.54	0.13	0.84	0.43		0.78	0.88	
Uniform Delay, d1	31.2	19.5	17.8	34.2	25.8	23.1	38.2	24.8		36.5	27.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.08	1.74		1.00	1.00	
Incremental Delay, d2	18.3	0.7	0.2	5.8	2.3	0.6	47.9	0.2		25.4	6.4	
Delay (s)	49.5	20.2	18.0	40.0	28.1	23.7	89.1	43.3		62.0	33.4	
Level of Service	D	C	B	D	C	C	F	D		E	C	
Approach Delay (s)		31.3			28.8			47.1			35.4	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	35.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	69.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	84	277	38	38	452	85	36	95	18	106	169	148
Future Volume (vph)	84	277	38	38	452	85	36	95	18	106	169	148
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00		1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.98			0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.99		0.95	1.00	1.00
Satd. Flow (prot)	1770	1829		1770	1819			1810		1770	1863	1583
Flt Permitted	0.14	1.00		0.41	1.00			0.99		0.95	1.00	1.00
Satd. Flow (perm)	270	1829		759	1819			1810		1770	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	91	301	41	41	491	92	39	103	20	115	184	161
RTOR Reduction (vph)	0	6	0	0	8	0	0	6	0	0	0	124
Lane Group Flow (vph)	91	336	0	41	575	0	0	156	0	115	184	37
Turn Type	Perm	NA		Perm	NA		Split	NA		Split	NA	Perm
Protected Phases		4			8		2	2		6	6	
Permitted Phases	4			8								6
Actuated Green, G (s)	27.6	27.6		27.6	27.6			18.9		18.1	18.1	18.1
Effective Green, g (s)	27.6	27.6		27.6	27.6			18.9		18.1	18.1	18.1
Actuated g/C Ratio	0.35	0.35		0.35	0.35			0.24		0.23	0.23	0.23
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5		4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	95	646		268	642			438		410	431	366
v/s Ratio Prot		0.18			0.32			c0.09		0.06	c0.10	
v/s Ratio Perm	c0.34			0.05								0.02
v/c Ratio	0.96	0.52		0.15	0.90			0.36		0.28	0.43	0.10
Uniform Delay, d1	24.7	20.0		17.3	23.9			24.6		24.6	25.6	23.6
Progression Factor	1.00	1.00		1.00	1.00			1.00		1.00	1.00	1.00
Incremental Delay, d2	77.7	0.7		0.3	15.0			2.3		1.7	3.1	0.6
Delay (s)	102.4	20.7		17.5	38.8			26.8		26.4	28.7	24.2
Level of Service	F	C		B	D			C		C	C	C
Approach Delay (s)		37.9			37.4			26.8			26.5	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	33.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	78.1	Sum of lost time (s)	13.5
Intersection Capacity Utilization	65.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	144	332	70	80	621	206	122	337	24	213	541	226
Future Volume (vph)	144	332	70	80	621	206	122	337	24	213	541	226
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.91		1.00	0.95	1.00	0.97	0.95		1.00	0.95	1.00
Frt	1.00	0.97		1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	4953		1770	3539	1583	3433	3504		1770	3539	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	4953		1770	3539	1583	3433	3504		1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	157	361	76	87	675	224	133	366	26	232	588	246
RTOR Reduction (vph)	0	39	0	0	0	170	0	7	0	0	0	155
Lane Group Flow (vph)	157	398	0	87	675	54	133	385	0	232	588	91
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						6
Actuated Green, G (s)	9.7	21.9		7.0	19.2	19.2	5.4	21.1		13.6	29.3	29.3
Effective Green, g (s)	9.7	21.9		7.0	19.2	19.2	5.4	21.1		13.6	29.3	29.3
Actuated g/C Ratio	0.12	0.28		0.09	0.24	0.24	0.07	0.27		0.17	0.37	0.37
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	215	1362		155	853	381	232	928		302	1302	582
v/s Ratio Prot	c0.09	c0.08		0.05	c0.19		0.04	0.11		c0.13	c0.17	
v/s Ratio Perm						0.03						0.06
v/c Ratio	0.73	0.29		0.56	0.79	0.14	0.57	0.42		0.77	0.45	0.16
Uniform Delay, d1	33.7	22.7		34.8	28.3	23.7	36.0	24.2		31.5	19.1	16.9
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	12.0	0.1		4.6	5.1	0.2	3.4	1.4		11.1	1.1	0.6
Delay (s)	45.7	22.9		39.4	33.4	23.9	39.4	25.5		42.6	20.2	17.4
Level of Service	D	C		D	C	C	D	C		D	C	B
Approach Delay (s)		28.9			31.8			29.0			24.4	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	28.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	79.6	Sum of lost time (s)	16.0
Intersection Capacity Utilization	60.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	36	250	73	105	459	85	80	377	56	75	530	100
Future Volume (vph)	36	250	73	105	459	85	80	377	56	75	530	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	1827		1770	1818	
Flt Permitted	0.18	1.00	1.00	0.38	1.00	1.00	0.12	1.00		0.32	1.00	
Satd. Flow (perm)	330	1863	1583	709	1863	1583	225	1827		591	1818	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	39	272	79	114	499	92	87	410	61	82	576	109
RTOR Reduction (vph)	0	0	58	0	0	66	0	6	0	0	7	0
Lane Group Flow (vph)	39	272	21	114	499	26	87	465	0	82	678	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	25.4	22.6	22.6	29.4	24.6	24.6	40.5	36.6		40.7	36.7	
Effective Green, g (s)	25.4	22.6	22.6	29.4	24.6	24.6	40.5	36.6		40.7	36.7	
Actuated g/C Ratio	0.30	0.26	0.26	0.34	0.29	0.29	0.47	0.43		0.47	0.43	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	144	489	415	301	532	452	176	777		334	775	
v/s Ratio Prot	0.01	0.15		c0.02	c0.27		c0.02	0.25		0.01	c0.37	
v/s Ratio Perm	0.07		0.01	0.11		0.02	0.21			0.10		
v/c Ratio	0.27	0.56	0.05	0.38	0.94	0.06	0.49	0.60		0.25	0.87	
Uniform Delay, d1	23.6	27.4	23.7	20.4	30.0	22.3	17.0	19.0		13.6	22.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.0	1.4	0.1	0.8	24.3	0.1	2.2	3.4		0.4	13.1	
Delay (s)	24.6	28.7	23.7	21.2	54.2	22.3	19.2	22.4		14.0	35.7	
Level of Service	C	C	C	C	D	C	B	C		B	D	
Approach Delay (s)		27.3			44.7			21.9			33.3	
Approach LOS		C			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	33.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	86.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	81.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	75	59	67	159	63	86	424	100	7	514	132
Future Volume (vph)	50	75	59	67	159	63	86	424	100	7	514	132
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	0.95	0.95	1.00		1.00	1.00	1.00	0.95	1.00	1.00	0.91	
Frt	1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00	1.00		0.99	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1681	1765	1583		1836	1583	1770	3539	1583	1770	4930	
Flt Permitted	0.95	1.00	1.00		0.99	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1681	1765	1583		1836	1583	1770	3539	1583	1770	4930	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	54	82	64	73	173	68	93	461	109	8	559	143
RTOR Reduction (vph)	0	0	57	0	0	55	0	0	63	0	47	0
Lane Group Flow (vph)	49	87	7	0	246	13	93	461	46	8	655	0
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			8			2			
Actuated Green, G (s)	7.1	7.1	7.1		13.4	13.4	5.6	28.9	28.9	0.9	24.2	
Effective Green, g (s)	7.1	7.1	7.1		13.4	13.4	5.6	28.9	28.9	0.9	24.2	
Actuated g/C Ratio	0.10	0.10	0.10		0.20	0.20	0.08	0.42	0.42	0.01	0.35	
Clearance Time (s)	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	174	183	164		360	310	145	1497	669	23	1746	
v/s Ratio Prot	0.03	c0.05			c0.13		c0.05	0.13		0.00	c0.13	
v/s Ratio Perm			0.00			0.01			0.03			
v/c Ratio	0.28	0.48	0.04		0.68	0.04	0.64	0.31	0.07	0.35	0.38	
Uniform Delay, d1	28.2	28.8	27.5		25.5	22.3	30.4	13.1	11.7	33.4	16.4	
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.9	1.9	0.1		5.3	0.1	9.3	0.5	0.2	8.9	0.6	
Delay (s)	29.1	30.8	27.6		30.8	22.3	39.7	13.6	11.9	42.3	17.0	
Level of Service	C	C	C		C	C	D	B	B	D	B	
Approach Delay (s)		29.4			28.9			17.0			17.3	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	20.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	68.3	Sum of lost time (s)	18.0
Intersection Capacity Utilization	48.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
65: La Verne Ave & Arrow Hwy

08/10/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	434	0	1	635	7	275	0	6	6	1	0
Future Volume (vph)	3	434	0	1	635	7	275	0	6	6	1	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0			4.0	
Lane Util. Factor	1.00	0.91		1.00	0.95	1.00		1.00			1.00	
Frt	1.00	1.00		1.00	1.00	0.85		1.00			1.00	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.95			0.96	
Satd. Flow (prot)	1770	5085		1770	3539	1583		1770			1785	
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.95			0.96	
Satd. Flow (perm)	1770	5085		1770	3539	1583		1770			1785	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	3	472	0	1	690	8	299	0	7	7	1	0
RTOR Reduction (vph)	0	0	0	0	0	6	0	110	0	0	0	0
Lane Group Flow (vph)	3	472	0	1	690	2	0	196	0	0	8	0
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA		Split	NA	
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases						8						
Actuated Green, G (s)	0.6	14.6		0.6	14.6	14.6		10.0			6.0	
Effective Green, g (s)	0.6	14.6		0.6	14.6	14.6		10.0			6.0	
Actuated g/C Ratio	0.01	0.31		0.01	0.31	0.31		0.21			0.13	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0		4.0			4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)	22	1572		22	1094	489		375			226	
v/s Ratio Prot	c0.00	0.09		0.00	c0.19			c0.11			c0.00	
v/s Ratio Perm						0.00						
v/c Ratio	0.14	0.30		0.05	0.63	0.01		0.52			0.04	
Uniform Delay, d1	23.0	12.4		23.0	14.0	11.3		16.5			18.1	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00			1.00	
Incremental Delay, d2	2.8	0.1		0.9	1.2	0.0		1.3			0.1	
Delay (s)	25.9	12.5		23.9	15.2	11.3		17.8			18.1	
Level of Service	C	B		C	B	B		B			B	
Approach Delay (s)		12.6			15.1			17.8			18.1	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	14.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	47.2	Sum of lost time (s)	16.0
Intersection Capacity Utilization	41.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	315	0	18	542	31	19	24	15	18	9	22
Future Volume (Veh/h)	24	315	0	18	542	31	19	24	15	18	9	22
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	26	342	0	20	589	34	21	26	16	20	10	24
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)									2			2
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		421										
pX, platoon unblocked												
vC, conflicting volume	623			342			734	1057	114	833	1040	312
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	623			342			734	1057	114	833	1040	312
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			98			92	88	98	91	95	96
cM capacity (veh/h)	954			1214			278	214	917	225	219	684

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	26	137	137	68	20	393	230	63	54
Volume Left	26	0	0	0	20	0	0	21	20
Volume Right	0	0	0	0	0	0	34	16	24
cSH	954	1700	1700	1700	1214	1700	1700	325	402
Volume to Capacity	0.03	0.08	0.08	0.04	0.02	0.23	0.14	0.19	0.13
Queue Length 95th (ft)	2	0	0	0	1	0	0	18	12
Control Delay (s)	8.9	0.0	0.0	0.0	8.0	0.0	0.0	19.7	17.8
Lane LOS	A				A			C	C
Approach Delay (s)	0.6				0.2			19.7	17.8
Approach LOS								C	C

Intersection Summary			
Average Delay	2.3		
Intersection Capacity Utilization	35.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	343	165	179	376	64	185	518	167	87	764	124
Future Volume (vph)	85	343	165	179	376	64	185	518	167	87	764	124
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.31	1.00	1.00	0.35	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	572	1863	1583	661	1863	1583	1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	92	373	179	195	409	70	201	563	182	95	830	135
RTOR Reduction (vph)	0	0	122	0	0	48	0	0	114	0	0	89
Lane Group Flow (vph)	92	373	57	195	409	22	201	563	68	95	830	46
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8		8			2			6
Actuated Green, G (s)	18.7	18.7	18.7	18.7	18.7	18.7	8.8	21.8	21.8	6.0	19.0	19.0
Effective Green, g (s)	18.7	18.7	18.7	18.7	18.7	18.7	8.8	21.8	21.8	6.0	19.0	19.0
Actuated g/C Ratio	0.32	0.32	0.32	0.32	0.32	0.32	0.15	0.37	0.37	0.10	0.32	0.32
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	182	595	506	211	595	506	266	1318	589	181	1149	514
v/s Ratio Prot		0.20			0.22		c0.11	c0.16		0.05	c0.23	
v/s Ratio Perm	0.16		0.04	c0.29		0.01			0.04			0.03
v/c Ratio	0.51	0.63	0.11	0.92	0.69	0.04	0.76	0.43	0.12	0.52	0.72	0.09
Uniform Delay, d1	16.1	16.9	14.0	19.2	17.4	13.7	23.8	13.7	12.0	24.9	17.4	13.7
Progression 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
Incremental Delay, d2	2.2	2.1	0.1	41.1	3.3	0.0	11.6	1.0	0.4	2.7	4.0	0.3
Delay (s)	18.4	19.0	14.1	60.3	20.7	13.8	35.4	14.7	12.4	27.6	21.4	14.1
Level of Service	B	B	B	E	C	B	D	B	B	C	C	B
Approach Delay (s)		17.6			31.4			18.7			21.0	
Approach LOS		B			C			B			C	

Intersection Summary			
HCM 2000 Control Delay	21.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	58.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	72.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	69	270	42	129	562	247	146	748	131	183	784	45
Future Volume (vph)	69	270	42	129	562	247	146	748	131	183	784	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	0.95		1.00	0.95	
Frt	1.00	0.98		1.00	0.95		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	4982		1770	4853		1770	3460		1770	3510	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	4982		1770	4853		1770	3460		1770	3510	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	75	293	46	140	611	268	159	813	142	199	852	49
RTOR Reduction (vph)	0	31	0	0	112	0	0	20	0	0	6	0
Lane Group Flow (vph)	75	308	0	140	767	0	159	935	0	199	895	0
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	4.6	14.7		7.0	17.1		8.7	20.6		9.8	21.7	
Effective Green, g (s)	4.6	14.7		7.0	17.1		8.7	20.6		9.8	21.7	
Actuated g/C Ratio	0.07	0.22		0.10	0.25		0.13	0.30		0.14	0.32	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	119	1075		181	1218		226	1046		254	1118	
v/s Ratio Prot	0.04	0.06		c0.08	c0.16		0.09	c0.27		c0.11	0.25	
v/s Ratio Perm												
v/c Ratio	0.63	0.29		0.77	0.63		0.70	0.89		0.78	0.80	
Uniform Delay, d1	30.9	22.3		29.8	22.7		28.5	22.7		28.1	21.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	10.4	0.1		18.4	1.1		9.5	9.9		14.5	4.2	
Delay (s)	41.3	22.5		48.1	23.8		38.0	32.6		42.7	25.4	
Level of Service	D	C		D	C		D	C		D	C	
Approach Delay (s)		25.9			27.1			33.4			28.5	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	29.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	68.1	Sum of lost time (s)	16.0
Intersection Capacity Utilization	68.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	140	80	128	218	75	174	873	96	106	992	213
Future Volume (vph)	60	140	80	128	218	75	174	873	96	106	992	213
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.47	1.00	1.00	0.65	1.00	1.00	0.23	1.00	1.00	0.27	1.00	1.00
Satd. Flow (perm)	870	1863	1583	1211	1863	1583	424	3539	1583	505	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	65	152	87	139	237	82	189	949	104	115	1078	232
RTOR Reduction (vph)	0	0	68	0	0	65	0	0	37	0	0	81
Lane Group Flow (vph)	65	152	19	139	237	17	189	949	67	115	1078	151
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	12.3	12.3	12.3	12.3	12.3	12.3	37.5	37.5	37.5	37.5	37.5	37.5
Effective Green, g (s)	12.3	12.3	12.3	12.3	12.3	12.3	37.5	37.5	37.5	37.5	37.5	37.5
Actuated g/C Ratio	0.21	0.21	0.21	0.21	0.21	0.21	0.65	0.65	0.65	0.65	0.65	0.65
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	185	396	336	257	396	336	275	2296	1027	327	2296	1027
v/s Ratio Prot		0.08			c0.13			0.27			0.30	
v/s Ratio Perm	0.07		0.01	0.11		0.01	c0.45		0.04	0.23		0.10
v/c Ratio	0.35	0.38	0.06	0.54	0.60	0.05	0.69	0.41	0.07	0.35	0.47	0.15
Uniform Delay, d1	19.4	19.5	18.1	20.2	20.5	18.1	6.4	4.9	3.7	4.6	5.1	3.9
Progression 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
Incremental Delay, d2	1.2	0.6	0.1	2.3	2.4	0.1	13.2	0.6	0.1	3.0	0.7	0.3
Delay (s)	20.5	20.1	18.2	22.6	23.0	18.2	19.6	5.4	3.8	7.6	5.8	4.2
Level of Service	C	C	B	C	C	B	B	A	A	A	A	A
Approach Delay (s)		19.7			22.0			7.4			5.7	
Approach LOS		B			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	9.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	57.8	Sum of lost time (s)	8.0
Intersection Capacity Utilization	65.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	15	1196	35	41	1203
Future Volume (Veh/h)	0	15	1196	35	41	1203
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	16	1300	38	45	1308
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			916			
pX, platoon unblocked	0.77	0.77			0.77	
vC, conflicting volume	2063	669			1338	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1780	0			835	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	98			93	
cM capacity (veh/h)	52	833			610	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	0	16	867	471	45	654	654
Volume Left	0	0	0	0	45	0	0
Volume Right	0	16	0	38	0	0	0
cSH	1700	833	1700	1700	610	1700	1700
Volume to Capacity	0.00	0.02	0.51	0.28	0.07	0.38	0.38
Queue Length 95th (ft)	0	1	0	0	6	0	0
Control Delay (s)	0.0	9.4	0.0	0.0	11.4	0.0	0.0
Lane LOS	A	A			B		
Approach Delay (s)	9.4		0.0		0.4		
Approach LOS	A						

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	44.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	198	383	117	116	846	228	212	767	119	230	1000	286
Future Volume (vph)	198	383	117	116	846	228	212	767	119	230	1000	286
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.96		1.00	0.97		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	4907		1770	4923		1770	3468		1770	3539	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	4907		1770	4923		1770	3468		1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	215	416	127	126	920	248	230	834	129	250	1087	311
RTOR Reduction (vph)	0	60	0	0	54	0	0	14	0	0	0	126
Lane Group Flow (vph)	215	483	0	126	1114	0	230	949	0	250	1087	185
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												6
Actuated Green, G (s)	12.0	22.1		10.9	21.0		12.0	28.0		13.0	29.0	29.0
Effective Green, g (s)	12.0	22.1		10.9	21.0		12.0	28.0		13.0	29.0	29.0
Actuated g/C Ratio	0.13	0.25		0.12	0.23		0.13	0.31		0.14	0.32	0.32
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	236	1204		214	1148		236	1078		255	1140	510
v/s Ratio Prot	c0.12	0.10		0.07	c0.23		0.13	0.27		c0.14	c0.31	
v/s Ratio Perm												0.12
v/c Ratio	0.91	0.40		0.59	0.97		0.97	0.88		0.98	0.95	0.36
Uniform Delay, d1	38.5	28.4		37.4	34.2		38.8	29.4		38.4	29.8	23.4
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	35.5	0.2		4.1	19.8		51.0	10.3		50.7	17.6	2.0
Delay (s)	73.9	28.6		41.5	54.0		89.8	39.7		89.0	47.4	25.4
Level of Service	E	C		D	D		F	D		F	D	C
Approach Delay (s)		41.5			52.8			49.4			49.6	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	49.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	85.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	15	63	150	19	58	35	545	87	56	752	19
Future Volume (vph)	27	15	63	150	19	58	35	545	87	56	752	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		1.00			1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.92			0.97		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.99			0.97		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1690			1741		1770	3539	1583	1770	3539	1583
Flt Permitted		0.91			0.78		0.31	1.00	1.00	0.42	1.00	1.00
Satd. Flow (perm)		1553			1409		584	3539	1583	785	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	29	16	68	163	21	63	38	592	95	61	817	21
RTOR Reduction (vph)	0	51	0	0	25	0	0	0	38	0	0	9
Lane Group Flow (vph)	0	62	0	0	222	0	38	592	57	61	817	12
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)		13.6			13.6		31.7	31.7	31.7	31.7	31.7	31.7
Effective Green, g (s)		13.6			13.6		31.7	31.7	31.7	31.7	31.7	31.7
Actuated g/C Ratio		0.26			0.26		0.59	0.59	0.59	0.59	0.59	0.59
Clearance Time (s)		4.0			4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		396			359		347	2104	941	466	2104	941
v/s Ratio Prot								0.17			c0.23	
v/s Ratio Perm		0.04			c0.16		0.07		0.04	0.08		0.01
v/c Ratio		0.16			0.62		0.11	0.28	0.06	0.13	0.39	0.01
Uniform Delay, d1		15.4			17.6		4.7	5.3	4.5	4.7	5.7	4.4
Progression Factor		1.00			1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		0.2			3.2		0.6	0.3	0.1	0.6	0.5	0.0
Delay (s)		15.6			20.7		5.3	5.6	4.7	5.3	6.2	4.4
Level of Service		B			C		A	A	A	A	A	A
Approach Delay (s)		15.6			20.7			5.5			6.1	
Approach LOS		B			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	8.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	53.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	53.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	3	102	11	0	78
Future Volume (Veh/h)	0	3	102	11	0	78
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	3	111	12	0	85
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	202	117			123	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	202	117			123	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	787	935			1464	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	3	123	85
Volume Left	0	0	0
Volume Right	3	12	0
cSH	935	1700	1464
Volume to Capacity	0.00	0.07	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	8.9	0.0	0.0
Lane LOS	A		
Approach Delay (s)	8.9	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	16.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	7	11	15	56	11	1
Future Volume (Veh/h)	7	11	15	56	11	1
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	8	12	16	61	12	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	77				74	46
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	77				74	46
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				99	100
cM capacity (veh/h)	1522				924	1023

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	20	77	13
Volume Left	8	0	12
Volume Right	0	61	1
cSH	1522	1700	931
Volume to Capacity	0.01	0.05	0.01
Queue Length 95th (ft)	0	0	1
Control Delay (s)	3.0	0.0	8.9
Lane LOS	A		A
Approach Delay (s)	3.0	0.0	8.9
Approach LOS			A

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	16.8%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	380	678	78	0	27
Future Vol, veh/h	0	380	678	78	0	27
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	-	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	413	737	85	0	29

Major/Minor	Major2		Minor2	
Conflicting Flow All	-	0	-	411
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	-	3.92
Pot Cap-1 Maneuver	-	-	0	504
Stage 1	-	-	0	-
Stage 2	-	-	0	-
Platoon blocked, %	-	-		
Mov Cap-1 Maneuver	-	-	-	504
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	WB	SB
HCM Control Delay, s	0	12.6
HCM LOS		B

Minor Lane/Major Mvmt	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	504
HCM Lane V/C Ratio	-	-	0.058
HCM Control Delay (s)	-	-	12.6
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	153	0	0	10	0	858	20	0	1103	24
Future Volume (Veh/h)	0	0	153	0	0	10	0	858	20	0	1103	24
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	166	0	0	11	0	933	22	0	1199	26
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								1041			523	
pX, platoon unblocked	0.80	0.80	0.80	0.80	0.80		0.80					
vC, conflicting volume	1690	2167	612	1710	2169	478	1225			955		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1352	1953	0	1378	1955	478	768			955		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	81	100	100	98	100			100		
cM capacity (veh/h)	85	50	863	67	50	534	669			715		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	166	11	622	333	799	426
Volume Left	0	0	0	0	0	0
Volume Right	166	11	0	22	0	26
cSH	863	534	1700	1700	1700	1700
Volume to Capacity	0.19	0.02	0.37	0.20	0.47	0.25
Queue Length 95th (ft)	18	2	0	0	0	0
Control Delay (s)	10.2	11.9	0.0	0.0	0.0	0.0
Lane LOS	B	B				
Approach Delay (s)	10.2	11.9	0.0		0.0	
Approach LOS	B	B				

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	47.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	543	20	43	609	27	50
Future Volume (Veh/h)	543	20	43	609	27	50
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	590	22	47	662	29	54
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)				479		
pX, platoon unblocked					0.83	
vC, conflicting volume			612		1357	601
vC1, stage 1 conf vol					601	
vC2, stage 2 conf vol					756	
vCu, unblocked vol			612		1327	601
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)			2.2		3.5	3.3
p0 queue free %			95		92	89
cM capacity (veh/h)			967		354	500

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	612	47	662	83
Volume Left	0	47	0	29
Volume Right	22	0	0	54
cSH	1700	967	1700	437
Volume to Capacity	0.36	0.05	0.39	0.19
Queue Length 95th (ft)	0	4	0	17
Control Delay (s)	0.0	8.9	0.0	15.2
Lane LOS		A		C
Approach Delay (s)	0.0	0.6		15.2
Approach LOS				C

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	47.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	17	24	181	879	1004	5
Future Volume (vph)	17	24	181	879	1004	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	
Lane Util. Factor	1.00		1.00	0.95	0.95	
Frt	0.92		1.00	1.00	1.00	
Flt Protected	0.98		0.95	1.00	1.00	
Satd. Flow (prot)	1680		1770	3539	3537	
Flt Permitted	0.98		0.26	1.00	1.00	
Satd. Flow (perm)	1680		476	3539	3537	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	18	26	197	955	1091	5
RTOR Reduction (vph)	25	0	0	0	0	0
Lane Group Flow (vph)	19	0	197	955	1096	0
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases			2			
Actuated Green, G (s)	2.2		44.8	44.8	44.8	
Effective Green, g (s)	2.2		44.8	44.8	44.8	
Actuated g/C Ratio	0.04		0.81	0.81	0.81	
Clearance Time (s)	4.0		4.0	4.0	4.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	67		387	2882	2881	
v/s Ratio Prot	c0.01			0.27	0.31	
v/s Ratio Perm			c0.41			
v/c Ratio	0.28		0.51	0.33	0.38	
Uniform Delay, d1	25.6		1.6	1.3	1.4	
Progression Factor	1.00		1.00	1.00	1.00	
Incremental Delay, d2	2.3		1.1	0.1	0.1	
Delay (s)	28.0		2.7	1.4	1.5	
Level of Service	C		A	A	A	
Approach Delay (s)	28.0			1.6	1.5	
Approach LOS	C			A	A	

Intersection Summary			
HCM 2000 Control Delay	2.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	55.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	51.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1	2	9	0	2	6	17	36	16	12	1
Future Volume (Veh/h)	0	1	2	9	0	2	6	17	36	16	12	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1	2	10	0	2	7	18	39	17	13	1
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	101	118	14	102	100	38	14			57		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	101	118	14	102	100	38	14			57		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	99	100	100	100			99		
cM capacity (veh/h)	868	760	1067	867	778	1035	1604			1547		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	3	12	64	31
Volume Left	0	10	7	17
Volume Right	2	2	39	1
cSH	940	891	1604	1547
Volume to Capacity	0.00	0.01	0.00	0.01
Queue Length 95th (ft)	0	1	0	1
Control Delay (s)	8.8	9.1	0.8	4.1
Lane LOS	A	A	A	A
Approach Delay (s)	8.8	9.1	0.8	4.1
Approach LOS	A	A		

Intersection Summary			
Average Delay	2.9		
Intersection Capacity Utilization	19.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	37	304	26	18	676	10	10	2	3	7	0	10
Future Volume (Veh/h)	37	304	26	18	676	10	10	2	3	7	0	10
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	40	330	28	20	735	11	11	2	3	8	0	11
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	746			358			842	1210	124	974	1218	373
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	746			358			842	1210	124	974	1218	373
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	95			98			95	99	100	96	100	98
cM capacity (veh/h)	858			1197			240	170	904	194	168	624

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	40	132	132	94	20	490	256	16	19
Volume Left	40	0	0	0	20	0	0	11	8
Volume Right	0	0	0	28	0	0	11	3	11
cSH	858	1700	1700	1700	1197	1700	1700	263	323
Volume to Capacity	0.05	0.08	0.08	0.06	0.02	0.29	0.15	0.06	0.06
Queue Length 95th (ft)	4	0	0	0	1	0	0	5	5
Control Delay (s)	9.4	0.0	0.0	0.0	8.1	0.0	0.0	19.6	16.9
Lane LOS	A				A			C	C
Approach Delay (s)	0.9				0.2			19.6	16.9
Approach LOS								C	C

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	35.7%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Signalized Intersection Capacity Analysis
75: Indian Hill Blvd & Bonita Ave

08/10/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	109	150	17	78	29	111	472	27	43	525	39
Future Volume (vph)	65	109	150	17	78	29	111	472	27	43	525	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. 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
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	1863	1583	1770	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.24	1.00	1.00	0.33	1.00	1.00
Satd. Flow (perm)	1770	1863	1583	1770	1863	1583	446	1863	1583	607	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	71	118	163	18	85	32	121	513	29	47	571	42
RTOR Reduction (vph)	0	0	127	0	0	26	0	0	16	0	0	24
Lane Group Flow (vph)	71	118	36	18	85	6	121	513	13	47	571	18
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8	2		2	6		6
Actuated Green, G (s)	3.9	14.3	14.3	0.9	11.3	11.3	33.3	29.4	29.4	31.3	28.4	28.4
Effective Green, g (s)	3.9	14.3	14.3	0.9	11.3	11.3	33.3	29.4	29.4	31.3	28.4	28.4
Actuated g/C Ratio	0.06	0.22	0.22	0.01	0.17	0.17	0.51	0.45	0.45	0.48	0.43	0.43
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	105	406	345	24	321	273	305	836	710	341	807	686
v/s Ratio Prot	c0.04	c0.06		0.01	0.05		c0.02	0.28		0.01	c0.31	
v/s Ratio Perm			0.02			0.00	0.18		0.01	0.06		0.01
v/c Ratio	0.68	0.29	0.10	0.75	0.26	0.02	0.40	0.61	0.02	0.14	0.71	0.03
Uniform Delay, d1	30.2	21.4	20.5	32.2	23.5	22.5	10.2	13.7	10.0	9.8	15.2	10.6
Progression 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
Incremental Delay, d2	15.9	0.4	0.1	80.1	0.4	0.0	0.9	3.4	0.0	0.2	5.2	0.1
Delay (s)	46.1	21.8	20.6	112.3	23.9	22.5	11.0	17.1	10.1	10.0	20.3	10.7
Level of Service	D	C	C	F	C	C	B	B	B	A	C	B
Approach Delay (s)		26.1			35.4			15.7			19.0	
Approach LOS		C			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	20.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	65.5	Sum of lost time (s)	18.0
Intersection Capacity Utilization	55.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	15	53	86	18	48	41	530	161	50	593	17
Future Volume (vph)	2	15	53	86	18	48	41	530	161	50	593	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	1863	1583	1770	1855	
Flt Permitted	0.74	1.00	1.00	0.75	1.00	1.00	0.30	1.00	1.00	0.33	1.00	
Satd. Flow (perm)	1386	1863	1583	1392	1863	1583	567	1863	1583	624	1855	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2	16	58	93	20	52	45	576	175	54	645	18
RTOR Reduction (vph)	0	0	50	0	0	45	0	0	78	0	1	0
Lane Group Flow (vph)	2	16	8	93	20	7	45	576	97	54	662	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		
Actuated Green, G (s)	7.3	7.3	7.3	7.3	7.3	7.3	31.0	29.2	29.2	33.0	30.2	
Effective Green, g (s)	7.3	7.3	7.3	7.3	7.3	7.3	31.0	29.2	29.2	33.0	30.2	
Actuated g/C Ratio	0.14	0.14	0.14	0.14	0.14	0.14	0.59	0.55	0.55	0.63	0.57	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	191	257	218	192	257	218	373	1030	875	450	1061	
v/s Ratio Prot		0.01			0.01		0.00	0.31		c0.01	c0.36	
v/s Ratio Perm	0.00		0.01	c0.07		0.00	0.07		0.06	0.07		
v/c Ratio	0.01	0.06	0.04	0.48	0.08	0.03	0.12	0.56	0.11	0.12	0.62	
Uniform Delay, d1	19.6	19.8	19.7	21.0	19.8	19.7	5.2	7.6	5.6	4.4	7.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.0	0.1	0.1	1.9	0.1	0.1	0.1	2.2	0.3	0.1	2.8	
Delay (s)	19.7	19.9	19.8	22.9	19.9	19.8	5.4	9.8	5.9	4.5	10.3	
Level of Service	B	B	B	C	B	B	A	A	A	A	B	
Approach Delay (s)		19.8			21.6			8.7			9.9	
Approach LOS		B			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	10.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	52.8	Sum of lost time (s)	13.5
Intersection Capacity Utilization	59.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	16	0	0	11	44	727	7	0	828	39
Future Volume (Veh/h)	0	0	16	0	0	11	44	727	7	0	828	39
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	17	0	0	12	48	790	8	0	900	42
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											312	
pX, platoon unblocked												
vC, conflicting volume	1424	1815	471	1357	1832	399	942			798		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1424	1815	471	1357	1832	399	942			798		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	97	100	100	98	93			100		
cM capacity (veh/h)	89	72	539	99	70	601	724			820		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	17	12	48	527	271	450	492
Volume Left	0	0	48	0	0	0	0
Volume Right	17	12	0	0	8	0	42
cSH	539	601	724	1700	1700	820	1700
Volume to Capacity	0.03	0.02	0.07	0.31	0.16	0.00	0.29
Queue Length 95th (ft)	2	2	5	0	0	0	0
Control Delay (s)	11.9	11.1	10.3	0.0	0.0	0.0	0.0
Lane LOS	B	B	B				
Approach Delay (s)	11.9	11.1	0.6			0.0	
Approach LOS	B	B					

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	39.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	372	133	90	434	47	170	646	126	73	567	52
Future Volume (vph)	47	372	133	90	434	47	170	646	126	73	567	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3494	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3494	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	51	404	145	98	472	51	185	702	137	79	616	57
RTOR Reduction (vph)	0	0	114	0	0	39	0	0	85	0	10	0
Lane Group Flow (vph)	51	404	31	98	472	12	185	702	52	79	663	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			
Actuated Green, G (s)	2.8	14.4	14.4	4.2	15.8	15.8	9.2	25.3	25.3	4.4	20.5	
Effective Green, g (s)	2.8	14.4	14.4	4.2	15.8	15.8	9.2	25.3	25.3	4.4	20.5	
Actuated g/C Ratio	0.04	0.22	0.22	0.06	0.24	0.24	0.14	0.38	0.38	0.07	0.31	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	74	768	343	112	843	377	245	1350	604	117	1080	
v/s Ratio Prot	0.03	0.11		c0.06	c0.13		c0.10	0.20		0.04	c0.19	
v/s Ratio Perm			0.02			0.01			0.03			
v/c Ratio	0.69	0.53	0.09	0.88	0.56	0.03	0.76	0.52	0.09	0.68	0.61	
Uniform Delay, d1	31.3	22.9	20.7	30.8	22.2	19.4	27.5	15.8	13.1	30.3	19.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	23.5	0.7	0.1	48.1	0.8	0.0	12.4	1.4	0.3	14.3	2.6	
Delay (s)	54.8	23.6	20.8	78.8	23.0	19.4	39.9	17.3	13.4	44.6	22.1	
Level of Service	D	C	C	E	C	B	D	B	B	D	C	
Approach Delay (s)		25.6			31.5			20.8			24.5	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	24.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	66.3	Sum of lost time (s)	18.0
Intersection Capacity Utilization	57.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	33	18	48	8	7	16	50	227	33	17	201	36
Future Volume (vph)	33	18	48	8	7	16	50	227	33	17	201	36
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	36	20	52	9	8	17	54	247	36	18	218	39

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total (vph)	108	34	301	36	275
Volume Left (vph)	36	9	54	0	18
Volume Right (vph)	52	17	0	36	39
Hadj (s)	-0.19	-0.21	0.12	-0.67	-0.04
Departure Headway (s)	5.2	5.3	5.3	4.5	4.8
Degree Utilization, x	0.16	0.05	0.44	0.04	0.36
Capacity (veh/h)	617	583	664	774	725
Control Delay (s)	9.2	8.6	11.1	6.5	10.5
Approach Delay (s)	9.2	8.6	10.6		10.5
Approach LOS	A	A	B		B

Intersection Summary			
Delay	10.3		
Level of Service	B		
Intersection Capacity Utilization	43.0%	ICU Level of Service	A
Analysis Period (min)	15		

HCM 2010 Signalized Intersection Summary
80: College Ave & First St

08/11/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	219	33	58	94	77	20	244	103	117	140	16
Future Volume (veh/h)	22	219	33	58	94	77	20	244	103	117	140	16
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	24	238	36	63	102	84	22	265	112	127	152	17
Adj No. of Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	52	358	304	111	420	357	48	400	340	165	523	445
Arrive On Green	0.03	0.19	0.19	0.06	0.23	0.23	0.03	0.21	0.21	0.09	0.28	0.28
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	24	238	36	63	102	84	22	265	112	127	152	17
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1863	1583	1774	1863	1583
Q Serve(g_s), s	0.5	4.9	0.8	1.4	1.8	1.8	0.5	5.4	2.5	2.9	2.6	0.3
Cycle Q Clear(g_c), s	0.5	4.9	0.8	1.4	1.8	1.8	0.5	5.4	2.5	2.9	2.6	0.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	52	358	304	111	420	357	48	400	340	165	523	445
V/C Ratio(X)	0.46	0.67	0.12	0.57	0.24	0.24	0.46	0.66	0.33	0.77	0.29	0.04
Avail Cap(c_a), veh/h	216	815	693	237	838	712	216	861	732	410	1065	905
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	19.6	15.4	13.7	18.7	13.1	13.0	19.7	14.8	13.6	18.2	11.6	10.7
Incr Delay (d2), s/veh	6.3	2.1	0.2	4.5	0.3	0.3	6.7	1.9	0.6	7.3	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	2.7	0.3	0.8	1.0	0.8	0.3	2.9	1.1	1.7	1.4	0.1
LnGrp Delay(d),s/veh	26.0	17.5	13.9	23.3	13.4	13.4	26.4	16.7	14.2	25.5	11.9	10.8
LnGrp LOS	C	B	B	C	B	B	C	B	B	C	B	B
Approach Vol, veh/h		298			249			399			296	
Approach Delay, s/veh		17.8			15.9			16.5			17.7	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.3	13.3	7.1	12.4	5.6	16.0	5.7	13.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	9.5	19.0	5.5	18.0	5.0	23.5	5.0	18.5
Max Q Clear Time (g_c+I1), s	4.9	7.4	3.4	6.9	2.5	4.6	2.5	3.8
Green Ext Time (p_c), s	0.1	1.5	0.0	1.1	0.0	0.8	0.0	0.6

Intersection Summary	
HCM 2010 Ctrl Delay	17.0
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	112	382	29	31	568	133	28	155	11	52	96	78
Future Volume (vph)	112	382	29	31	568	133	28	155	11	52	96	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.97			1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.99	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3501		1770	3438			1849	1583	1770	1863	1583
Flt Permitted	0.28	1.00		0.49	1.00			0.96	1.00	0.63	1.00	1.00
Satd. Flow (perm)	521	3501		919	3438			1779	1583	1180	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	122	415	32	34	617	145	30	168	12	57	104	85
RTOR Reduction (vph)	0	12	0	0	43	0	0	0	7	0	0	48
Lane Group Flow (vph)	122	435	0	34	719	0	0	198	5	57	104	37
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	17.7	17.7		17.7	17.7			20.8	20.8	20.8	20.8	20.8
Effective Green, g (s)	17.7	17.7		17.7	17.7			20.8	20.8	20.8	20.8	20.8
Actuated g/C Ratio	0.37	0.37		0.37	0.37			0.44	0.44	0.44	0.44	0.44
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	194	1304		342	1281			779	693	516	815	693
v/s Ratio Prot		0.12			0.21						0.06	
v/s Ratio Perm	c0.23			0.04				c0.11	0.00	0.05		0.02
v/c Ratio	0.63	0.33		0.10	0.56			0.25	0.01	0.11	0.13	0.05
Uniform Delay, d1	12.2	10.7		9.7	11.8			8.4	7.5	7.9	7.9	7.7
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.2	0.2		0.1	0.6			0.8	0.0	0.4	0.3	0.1
Delay (s)	18.5	10.8		9.8	12.4			9.2	7.5	8.3	8.3	7.8
Level of Service	B	B		A	B			A	A	A	A	A
Approach Delay (s)		12.5			12.3			9.1			8.1	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM 2000 Control Delay	11.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	47.5	Sum of lost time (s)	9.0
Intersection Capacity Utilization	55.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	52	1	52	1	8	0	251	234	3	2	293	331
Future Volume (vph)	52	1	52	1	8	0	251	234	3	2	293	331
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00		1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85		1.00		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00		1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583		1853		1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00	1.00		1.00		0.56	1.00	1.00	0.59	1.00	1.00
Satd. Flow (perm)	1770	1863	1583		1853		1041	3539	1583	1107	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	57	1	57	1	9	0	273	254	3	2	318	360
RTOR Reduction (vph)	0	0	51	0	0	0	0	0	1	0	0	126
Lane Group Flow (vph)	57	1	6	0	10	0	273	254	2	2	318	234
Turn Type	Split	NA	Perm	Split	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	4	4		8	8			2			6	
Permitted Phases			4			8	2		2	6	6	6
Actuated Green, G (s)	6.0	6.0	6.0		1.2		38.6	38.6	38.6	38.6	38.6	38.6
Effective Green, g (s)	6.0	6.0	6.0		1.2		38.6	38.6	38.6	38.6	38.6	38.6
Actuated g/C Ratio	0.10	0.10	0.10		0.02		0.65	0.65	0.65	0.65	0.65	0.65
Clearance Time (s)	4.5	4.5	4.5		4.5		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	179	188	160		37		677	2303	1030	720	2303	1030
v/s Ratio Prot	c0.03	0.00			c0.01			0.07			0.09	
v/s Ratio Perm			0.00				c0.26		0.00	0.00		0.15
v/c Ratio	0.32	0.01	0.04		0.27		0.40	0.11	0.00	0.00	0.14	0.23
Uniform Delay, d1	24.8	24.0	24.0		28.6		4.9	3.9	3.6	3.6	4.0	4.2
Progression Factor	1.00	1.00	1.00		1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.0	0.0	0.1		3.9		1.8	0.1	0.0	0.0	0.1	0.5
Delay (s)	25.8	24.0	24.1		32.5		6.7	4.0	3.6	3.6	4.1	4.8
Level of Service	C	C	C		C		A	A	A	A	A	A
Approach Delay (s)		24.9			32.5			5.4			4.4	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	6.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	59.3	Sum of lost time (s)	13.5
Intersection Capacity Utilization	49.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	111	307	27	33	449	109	84	246	19	36	178	146
Future Volume (vph)	111	307	27	33	449	109	84	246	19	36	178	146
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.97		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3497		1770	3436		1770	3501		1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	3497		1770	3436		1770	3501		1770	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	121	334	29	36	488	118	91	267	21	39	193	159
RTOR Reduction (vph)	0	9	0	0	31	0	0	8	0	0	0	107
Lane Group Flow (vph)	121	354	0	36	575	0	91	280	0	39	193	52
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												6
Actuated Green, G (s)	5.5	20.5		2.1	17.1		4.7	23.8		3.1	22.2	22.2
Effective Green, g (s)	5.5	20.5		2.1	17.1		4.7	23.8		3.1	22.2	22.2
Actuated g/C Ratio	0.08	0.30		0.03	0.25		0.07	0.35		0.05	0.33	0.33
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	144	1062		55	870		123	1234		81	612	520
v/s Ratio Prot	c0.07	c0.10		0.02	c0.17		c0.05	0.08		0.02	c0.10	
v/s Ratio Perm												0.03
v/c Ratio	0.84	0.33		0.65	0.66		0.74	0.23		0.48	0.32	0.10
Uniform Delay, d1	30.6	18.2		32.3	22.6		30.8	15.4		31.4	17.0	15.7
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	33.4	0.2		24.6	1.9		20.6	0.4		4.5	1.3	0.4
Delay (s)	64.0	18.4		57.0	24.5		51.4	15.8		35.9	18.3	16.1
Level of Service	E	B		E	C		D	B		D	B	B
Approach Delay (s)		29.8			26.3			24.4			19.2	
Approach LOS		C			C			C			B	

Intersection Summary			
HCM 2000 Control Delay	25.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	67.5	Sum of lost time (s)	18.0
Intersection Capacity Utilization	51.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
84: Monte Vista Ave & Arrow Route

08/10/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	77	23	65	180	40	70	519	58	23	935	44
Future Volume (vph)	42	77	23	65	180	40	70	519	58	23	935	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00	0.97	0.91		1.00	0.91	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3417		1770	1863	1583	3433	5009		1770	5051	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3417		1770	1863	1583	3433	5009		1770	5051	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	46	84	25	71	196	43	76	564	63	25	1016	48
RTOR Reduction (vph)	0	21	0	0	0	35	0	16	0	0	6	0
Lane Group Flow (vph)	46	88	0	71	196	8	76	611	0	25	1058	0
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						
Actuated Green, G (s)	3.2	11.1		3.8	11.7	11.7	2.7	27.7		1.8	26.8	
Effective Green, g (s)	3.2	11.1		3.8	11.7	11.7	2.7	27.7		1.8	26.8	
Actuated g/C Ratio	0.05	0.18		0.06	0.19	0.19	0.04	0.44		0.03	0.43	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	90	607		107	349	296	148	2223		51	2169	
v/s Ratio Prot	0.03	0.03		c0.04	c0.11		c0.02	0.12		0.01	c0.21	
v/s Ratio Perm						0.01						
v/c Ratio	0.51	0.15		0.66	0.56	0.03	0.51	0.28		0.49	0.49	
Uniform Delay, d1	28.8	21.6		28.7	23.0	20.7	29.2	11.0		29.8	12.8	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.8	0.1		14.4	2.1	0.0	3.0	0.3		7.2	0.8	
Delay (s)	33.7	21.8		43.1	25.1	20.7	32.2	11.3		37.1	13.6	
Level of Service	C	C		D	C	C	C	B		D	B	
Approach Delay (s)		25.3			28.6			13.6			14.2	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	16.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	62.4	Sum of lost time (s)	18.0
Intersection Capacity Utilization	51.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	77	0	39	0	610	343	148	828	0
Future Volume (vph)	0	0	0	77	0	39	0	610	343	148	828	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5		4.5		4.5	4.5	4.5	4.5	
Lane Util. Factor				1.00		1.00		0.95	1.00	0.97	0.91	
Frt				1.00		0.85		1.00	0.85	1.00	1.00	
Flt Protected				0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)				1770		1583		3539	1583	3433	5085	
Flt Permitted				0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (perm)				1770		1583		3539	1583	3433	5085	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	84	0	42	0	663	373	161	900	0
RTOR Reduction (vph)	0	0	0	0	0	38	0	0	111	0	0	0
Lane Group Flow (vph)	0	0	0	84	0	4	0	663	262	161	900	0
Turn Type	Perm		Perm	Prot		Perm	Prot	NA	Perm	Prot	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4			8			2			
Actuated Green, G (s)				4.1		4.1		24.6	24.6	4.4	33.5	
Effective Green, g (s)				4.1		4.1		24.6	24.6	4.4	33.5	
Actuated g/C Ratio				0.09		0.09		0.53	0.53	0.09	0.72	
Clearance Time (s)				4.5		4.5		4.5	4.5	4.5	4.5	
Vehicle Extension (s)				3.0		3.0		3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)				155		139		1868	835	324	3655	
v/s Ratio Prot				c0.05				c0.19		c0.05	0.18	
v/s Ratio Perm						0.00			0.17			
v/c Ratio				0.54		0.03		0.35	0.31	0.50	0.25	
Uniform Delay, d1				20.4		19.4		6.4	6.2	20.0	2.2	
Progression Factor				1.00		1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2				3.8		0.1		0.5	1.0	1.2	0.2	
Delay (s)				24.2		19.5		6.9	7.2	21.2	2.4	
Level of Service				C		B		A	A	C	A	
Approach Delay (s)		0.0			22.6			7.0			5.3	
Approach LOS		A			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	7.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	46.6	Sum of lost time (s)	18.0
Intersection Capacity Utilization	36.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	86	259	70	29	459	97	137	753	42	65	715	118
Future Volume (vph)	86	259	70	29	459	97	137	753	42	65	715	118
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	0.97	0.95		0.97	0.95	1.00	1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.97		1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3427		3433	3539	1583	1770	3511		1770	3539	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3427		3433	3539	1583	1770	3511		1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	93	282	76	32	499	105	149	818	46	71	777	128
RTOR Reduction (vph)	0	34	0	0	0	79	0	6	0	0	0	87
Lane Group Flow (vph)	93	324	0	32	499	26	149	858	0	71	777	41
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						6
Actuated Green, G (s)	3.7	18.4		1.8	16.5	16.5	7.0	24.8		3.8	21.6	21.6
Effective Green, g (s)	3.7	18.4		1.8	16.5	16.5	7.0	24.8		3.8	21.6	21.6
Actuated g/C Ratio	0.06	0.28		0.03	0.25	0.25	0.10	0.37		0.06	0.32	0.32
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	190	943		92	874	391	185	1303		100	1144	511
v/s Ratio Prot	c0.03	0.09		0.01	c0.14		c0.08	c0.24		0.04	0.22	
v/s Ratio Perm						0.02						0.03
v/c Ratio	0.49	0.34		0.35	0.57	0.07	0.81	0.66		0.71	0.68	0.08
Uniform Delay, d1	30.6	19.4		31.9	22.0	19.3	29.2	17.5		31.0	19.6	15.7
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	2.0	0.2		2.3	0.9	0.1	21.9	2.6		20.6	3.3	0.3
Delay (s)	32.6	19.6		34.2	23.0	19.3	51.1	20.1		51.5	22.9	16.0
Level of Service	C	B		C	C	B	D	C		D	C	B
Approach Delay (s)		22.3			22.9			24.7			24.0	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	23.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	66.8	Sum of lost time (s)	18.0
Intersection Capacity Utilization	59.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	406	16	14	531	17	15
Future Volume (vph)	406	16	14	531	17	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1583	1770	3539	1770	1583
Flt Permitted	1.00	1.00	0.35	1.00	0.95	1.00
Satd. Flow (perm)	3539	1583	647	3539	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	441	17	15	577	18	16
RTOR Reduction (vph)	0	12	0	0	0	9
Lane Group Flow (vph)	441	5	15	577	18	7
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases		4	8			2
Actuated Green, G (s)	12.9	12.9	18.3	18.3	20.9	20.9
Effective Green, g (s)	12.9	12.9	18.3	18.3	20.9	20.9
Actuated g/C Ratio	0.27	0.27	0.38	0.38	0.43	0.43
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	947	423	266	1343	767	686
v/s Ratio Prot	0.12		0.00	c0.16	c0.01	
v/s Ratio Perm		0.00	0.02			0.00
v/c Ratio	0.47	0.01	0.06	0.43	0.02	0.01
Uniform Delay, d1	14.8	13.0	9.6	11.1	7.8	7.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	0.0	0.1	0.2	0.1	0.0
Delay (s)	15.1	13.0	9.7	11.3	7.9	7.8
Level of Service	B	B	A	B	A	A
Approach Delay (s)	15.1			11.3	7.8	
Approach LOS	B			B	A	

Intersection Summary			
HCM 2000 Control Delay	12.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.24		
Actuated Cycle Length (s)	48.2	Sum of lost time (s)	13.5
Intersection Capacity Utilization	26.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	110	46	90	248	33	67	415	91	22	573	81
Future Volume (vph)	47	110	46	90	248	33	67	415	91	22	573	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3474	
Flt Permitted	0.48	1.00	1.00	0.61	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	896	1863	1583	1133	1863	1583	1770	3539	1583	1770	3474	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	51	120	50	98	270	36	73	451	99	24	623	88
RTOR Reduction (vph)	0	0	39	0	0	27	0	0	58	0	14	0
Lane Group Flow (vph)	51	120	11	98	270	9	73	451	41	24	697	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8			2			
Actuated Green, G (s)	16.2	13.6	13.6	19.4	15.2	15.2	3.7	26.8	26.8	1.7	24.8	
Effective Green, g (s)	16.2	13.6	13.6	19.4	15.2	15.2	3.7	26.8	26.8	1.7	24.8	
Actuated g/C Ratio	0.25	0.21	0.21	0.30	0.24	0.24	0.06	0.42	0.42	0.03	0.39	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	261	394	334	383	440	374	101	1475	659	46	1339	
v/s Ratio Prot	0.01	0.06		c0.02	c0.14		c0.04	0.13		0.01	c0.20	
v/s Ratio Perm	0.04		0.01	0.06		0.01			0.03			
v/c Ratio	0.20	0.30	0.03	0.26	0.61	0.02	0.72	0.31	0.06	0.52	0.52	
Uniform Delay, d1	18.6	21.4	20.1	16.6	21.9	18.8	29.8	12.5	11.2	30.9	15.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.4	0.4	0.0	0.4	2.5	0.0	22.4	0.5	0.2	10.3	1.4	
Delay (s)	18.9	21.8	20.2	17.0	24.5	18.9	52.2	13.1	11.4	41.2	16.6	
Level of Service	B	C	C	B	C	B	D	B	B	D	B	
Approach Delay (s)		20.8			22.1			17.4			17.4	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	18.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	64.3	Sum of lost time (s)	18.0
Intersection Capacity Utilization	54.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	18	19	62	229	22	267	544	47	52	514	72
Future Volume (vph)	12	18	19	62	229	22	267	544	47	52	514	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95	1.00	1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1838		1770	3539	1583	1770	4992	
Flt Permitted	0.44	1.00	1.00	0.74	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	813	1863	1583	1386	1838		1770	3539	1583	1770	4992	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	13	20	21	67	249	24	290	591	51	57	559	78
RTOR Reduction (vph)	0	0	16	0	6	0	0	0	27	0	28	0
Lane Group Flow (vph)	13	20	5	67	267	0	290	591	24	57	609	0
Turn Type	Perm	NA	Perm	Perm	NA		Prot	NA	Perm	Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8					2			
Actuated Green, G (s)	12.9	12.9	12.9	12.9	12.9		10.5	27.0	27.0	3.6	20.1	
Effective Green, g (s)	12.9	12.9	12.9	12.9	12.9		10.5	27.0	27.0	3.6	20.1	
Actuated g/C Ratio	0.23	0.23	0.23	0.23	0.23		0.18	0.47	0.47	0.06	0.35	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	183	421	358	313	415		326	1676	749	111	1760	
v/s Ratio Prot		0.01			c0.15		c0.16	c0.17		0.03	0.12	
v/s Ratio Perm	0.02		0.00	0.05					0.02			
v/c Ratio	0.07	0.05	0.01	0.21	0.64		0.89	0.35	0.03	0.51	0.35	
Uniform Delay, d1	17.3	17.2	17.1	17.9	20.0		22.7	9.5	8.0	25.9	13.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.2	0.0	0.0	0.3	3.4		24.2	0.6	0.1	4.0	0.5	
Delay (s)	17.5	17.3	17.1	18.3	23.4		46.9	10.1	8.1	29.8	14.1	
Level of Service	B	B	B	B	C		D	B	A	C	B	
Approach Delay (s)		17.3			22.4			21.4			15.4	
Approach LOS		B			C			C			B	

Intersection Summary			
HCM 2000 Control Delay	19.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	57.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	51.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	246	80	90	380	29	140	766	72	21	504	42
Future Volume (vph)	44	246	80	90	380	29	140	766	72	21	504	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	5020		1770	5026	
Flt Permitted	0.45	1.00	1.00	0.55	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	844	3539	1583	1017	3539	1583	1770	5020		1770	5026	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	48	267	87	98	413	32	152	833	78	23	548	46
RTOR Reduction (vph)	0	0	69	0	0	25	0	14	0	0	12	0
Lane Group Flow (vph)	48	267	18	98	413	7	152	897	0	23	582	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	16.0	13.3	13.3	18.0	14.3	14.3	7.5	28.3		1.8	22.6	
Effective Green, g (s)	16.0	13.3	13.3	18.0	14.3	14.3	7.5	28.3		1.8	22.6	
Actuated g/C Ratio	0.25	0.20	0.20	0.28	0.22	0.22	0.12	0.43		0.03	0.35	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	245	723	323	323	777	347	203	2182		48	1744	
v/s Ratio Prot	0.01	0.08		c0.02	c0.12		c0.09	c0.18		0.01	0.12	
v/s Ratio Perm	0.04		0.01	0.07		0.00						
v/c Ratio	0.20	0.37	0.06	0.30	0.53	0.02	0.75	0.41		0.48	0.33	
Uniform Delay, d1	19.1	22.3	20.8	18.0	22.4	19.9	27.9	12.7		31.2	15.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.3	0.1	0.5	0.7	0.0	14.0	0.6		7.4	0.5	
Delay (s)	19.4	22.6	20.9	18.6	23.1	19.9	41.9	13.2		38.5	16.2	
Level of Service	B	C	C	B	C	B	D	B		D	B	
Approach Delay (s)		21.9			22.1			17.3			17.0	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	19.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	65.1	Sum of lost time (s)	18.0
Intersection Capacity Utilization	50.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

2035 Build Alternative with Project Modifications – PM Peak Hour

HCM Signalized Intersection Capacity Analysis
1: Barranca Ave & Bennett Ave

08/10/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	0	0	0	66	0	22	39	0	290	99	37	207
Future Volume (vph)	0	0	0	66	0	22	39	0	290	99	37	207
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5		4.5		4.5	4.5		4.5	4.5
Lane Util. Factor				0.97		1.00		1.00	0.95		1.00	0.95
Frt				1.00		0.85		1.00	0.96		1.00	1.00
Flt Protected				0.95		1.00		0.95	1.00		0.95	1.00
Satd. Flow (prot)				3433		1583		1770	3404		1770	3539
Flt Permitted				0.95		1.00		0.61	1.00		0.95	1.00
Satd. Flow (perm)				3433		1583		1139	3404		1770	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	72	0	24	42	0	315	108	40	225
RTOR Reduction (vph)	0	0	0	0	0	21	0	0	42	0	0	0
Lane Group Flow (vph)	0	0	0	72	0	3	0	42	381	0	40	225
Turn Type				Prot		pm+ov	Perm	Perm	NA		Prot	NA
Protected Phases				8		1			2		1	6
Permitted Phases						8	2	2				
Actuated Green, G (s)				2.2		4.3		19.1	19.1		2.1	25.7
Effective Green, g (s)				2.2		4.3		19.1	19.1		2.1	25.7
Actuated g/C Ratio				0.06		0.12		0.52	0.52		0.06	0.70
Clearance Time (s)				4.5		4.5		4.5	4.5		4.5	4.5
Vehicle Extension (s)				3.0		3.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)				204		377		589	1761		100	2464
v/s Ratio Prot				c0.02		0.00			c0.11		c0.02	0.06
v/s Ratio Perm						0.00		0.04				
v/c Ratio				0.35		0.01		0.07	0.22		0.40	0.09
Uniform Delay, d1				16.7		14.4		4.5	4.8		16.8	1.8
Progression Factor				1.00		1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2				1.1		0.0		0.1	0.1		2.6	0.0
Delay (s)				17.7		14.4		4.5	4.9		19.4	1.8
Level of Service				B		B		A	A		B	A
Approach Delay (s)		0.0			16.9				4.9			4.5
Approach LOS		A			B				A			A

Intersection Summary			
HCM 2000 Control Delay	6.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.25		
Actuated Cycle Length (s)	36.9	Sum of lost time (s)	13.5
Intersection Capacity Utilization	29.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	0
Future Volume (vph)	0
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	0
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	113	551	183	149	495	44	117	254	183	18	172	63
Future Volume (vph)	113	551	183	149	495	44	117	254	183	18	172	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.96		1.00	0.99		1.00	0.94		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3407		1770	3496		1770	3317		1770	3398	
Flt Permitted	0.40	1.00		0.28	1.00		0.59	1.00		0.48	1.00	
Satd. Flow (perm)	751	3407		520	3496		1106	3317		887	3398	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	123	599	199	162	538	48	127	276	199	20	187	68
RTOR Reduction (vph)	0	69	0	0	14	0	0	120	0	0	41	0
Lane Group Flow (vph)	123	729	0	162	572	0	127	355	0	20	214	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	19.9	19.9		19.9	19.9		19.0	19.0		19.0	19.0	
Effective Green, g (s)	19.9	19.9		19.9	19.9		19.0	19.0		19.0	19.0	
Actuated g/C Ratio	0.42	0.42		0.42	0.42		0.40	0.40		0.40	0.40	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	312	1415		216	1452		438	1315		351	1347	
v/s Ratio Prot		0.21			0.16			0.11			0.06	
v/s Ratio Perm	0.16			c0.31			c0.11			0.02		
v/c Ratio	0.39	0.52		0.75	0.39		0.29	0.27		0.06	0.16	
Uniform Delay, d1	9.8	10.4		11.9	9.8		9.9	9.8		8.9	9.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.8	0.3		13.6	0.2		1.7	0.5		0.3	0.3	
Delay (s)	10.6	10.7		25.5	10.0		11.5	10.3		9.2	9.6	
Level of Service	B	B		C	A		B	B		A	A	
Approach Delay (s)		10.7			13.3			10.5			9.5	
Approach LOS		B			B			B			A	

Intersection Summary			
HCM 2000 Control Delay	11.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	47.9	Sum of lost time (s)	9.0
Intersection Capacity Utilization	61.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	93	494	99	278	368	86	92	521	343	76	386	57
Future Volume (vph)	93	494	99	278	368	86	92	521	343	76	386	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3439		1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	1770	3439		1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	101	537	108	302	400	93	100	566	373	83	420	62
RTOR Reduction (vph)	0	0	84	0	24	0	0	0	57	0	0	40
Lane Group Flow (vph)	101	537	24	302	469	0	100	566	316	83	420	22
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2	3	1	6	7
Permitted Phases			4						2			6
Actuated Green, G (s)	7.2	17.3	17.3	15.9	26.0		5.4	20.2	36.1	4.9	19.7	26.9
Effective Green, g (s)	7.2	17.3	17.3	15.9	26.0		5.4	20.2	36.1	4.9	19.7	26.9
Actuated g/C Ratio	0.09	0.23	0.23	0.21	0.34		0.07	0.26	0.47	0.06	0.26	0.35
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	167	802	358	368	1171		125	936	842	113	913	651
v/s Ratio Prot	0.06	c0.15		c0.17	0.14		c0.06	c0.16	0.08	0.05	0.12	0.00
v/s Ratio Perm			0.02						0.12			0.01
v/c Ratio	0.60	0.67	0.07	0.82	0.40		0.80	0.60	0.37	0.73	0.46	0.03
Uniform Delay, d1	33.2	26.9	23.2	28.8	19.2		34.9	24.6	12.9	35.1	23.8	16.2
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.1	2.1	0.1	13.6	0.2		29.5	2.9	0.3	21.7	1.7	0.0
Delay (s)	39.2	29.0	23.3	42.5	19.4		64.4	27.4	13.2	56.8	25.5	16.2
Level of Service	D	C	C	D	B		E	C	B	E	C	B
Approach Delay (s)		29.6			28.2			25.9			29.1	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	27.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	76.3	Sum of lost time (s)	18.0
Intersection Capacity Utilization	62.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Volume (vph)	102	96	183	96	56	159
Future Volume (vph)	102	96	183	96	56	159
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5	4.5
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frt	1.00	0.85	0.95		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1583	1776		1770	1863
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	1583	1776		1770	1863
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	111	104	199	104	61	173
RTOR Reduction (vph)	0	60	36	0	0	0
Lane Group Flow (vph)	111	44	267	0	61	173
Turn Type	Prot	pm+ov	NA		Prot	NA
Protected Phases	2	3	4		3	8
Permitted Phases		2				
Actuated Green, G (s)	11.5	16.1	8.7		4.6	17.8
Effective Green, g (s)	11.5	16.1	8.7		4.6	17.8
Actuated g/C Ratio	0.30	0.42	0.23		0.12	0.46
Clearance Time (s)	4.5	4.5	4.5		4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	531	851	403		212	865
v/s Ratio Prot	c0.06	0.01	c0.15		c0.03	0.09
v/s Ratio Perm		0.02				
v/c Ratio	0.21	0.05	0.66		0.29	0.20
Uniform Delay, d1	10.0	6.6	13.5		15.4	6.0
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.2	0.0	4.1		0.8	0.1
Delay (s)	10.2	6.6	17.6		16.1	6.2
Level of Service	B	A	B		B	A
Approach Delay (s)	8.5		17.6			8.8
Approach LOS	A		B			A

Intersection Summary			
HCM 2000 Control Delay	12.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	38.3	Sum of lost time (s)	13.5
Intersection Capacity Utilization	36.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	64	1144	47	24	809	84	14	24	10	73	19	216
Future Volume (vph)	64	1144	47	24	809	84	14	24	10	73	19	216
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.5		4.0	4.5			4.5			4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frt	1.00	0.99		1.00	0.99			0.97			0.91	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1770	3518		1770	3489			1784			1667	
Flt Permitted	0.95	1.00		0.95	1.00			0.88			0.92	
Satd. Flow (perm)	1770	3518		1770	3489			1599			1543	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	70	1243	51	26	879	91	15	26	11	79	21	235
RTOR Reduction (vph)	0	5	0	0	12	0	0	8	0	0	139	0
Lane Group Flow (vph)	70	1289	0	26	958	0	0	44	0	0	196	0
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)	3.1	24.9		2.1	23.9			18.6			18.6	
Effective Green, g (s)	3.1	24.9		2.1	23.9			18.6			18.6	
Actuated g/C Ratio	0.05	0.42		0.04	0.41			0.32			0.32	
Clearance Time (s)	4.0	4.5		4.0	4.5			4.5			4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	93	1494		63	1422			507			489	
v/s Ratio Prot	c0.04	c0.37		0.01	0.27							
v/s Ratio Perm								0.03			c0.13	
v/c Ratio	0.75	0.86		0.41	0.67			0.09			0.40	
Uniform Delay, d1	27.4	15.3		27.6	14.2			14.0			15.6	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	28.6	5.4		4.3	1.3			0.3			2.4	
Delay (s)	56.0	20.7		32.0	15.4			14.4			18.1	
Level of Service	E	C		C	B			B			B	
Approach Delay (s)		22.5			15.9			14.4			18.1	
Approach LOS		C			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	19.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	58.6	Sum of lost time (s)	13.0
Intersection Capacity Utilization	70.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	84	638	59	35	509	74	140	43	45	46	74	89
Future Volume (vph)	84	638	59	35	509	74	140	43	45	46	74	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frt	1.00	0.99		1.00	0.98			0.97			0.94	
Flt Protected	0.95	1.00		0.95	1.00			0.97			0.99	
Satd. Flow (prot)	1770	3494		1770	3472			1759			1736	
Flt Permitted	0.34	1.00		0.26	1.00			0.71			0.90	
Satd. Flow (perm)	627	3494		482	3472			1284			1578	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	91	693	64	38	553	80	152	47	49	50	80	97
RTOR Reduction (vph)	0	13	0	0	22	0	0	13	0	0	40	0
Lane Group Flow (vph)	91	744	0	38	611	0	0	235	0	0	187	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	18.5	18.5		18.5	18.5			25.7			25.7	
Effective Green, g (s)	18.5	18.5		18.5	18.5			25.7			25.7	
Actuated g/C Ratio	0.35	0.35		0.35	0.35			0.48			0.48	
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	218	1215		167	1207			620			762	
v/s Ratio Prot		c0.21			0.18							
v/s Ratio Perm	0.15			0.08				c0.18			0.12	
v/c Ratio	0.42	0.61		0.23	0.51			0.38			0.24	
Uniform Delay, d1	13.2	14.4		12.3	13.7			8.7			8.1	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	1.3	0.9		0.7	0.3			1.8			0.8	
Delay (s)	14.5	15.3		13.0	14.1			10.5			8.8	
Level of Service	B	B		B	B			B			A	
Approach Delay (s)		15.2			14.0			10.5			8.8	
Approach LOS		B			B			B			A	

Intersection Summary			
HCM 2000 Control Delay	13.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	53.2	Sum of lost time (s)	9.0
Intersection Capacity Utilization	63.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	514	158	174	431	68	151	195	91	65	193	74
Future Volume (vph)	70	514	158	174	431	68	151	195	91	65	193	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.96		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3414		1770	3467		1770	1863	1583	1770	1863	1583
Flt Permitted	0.41	1.00		0.19	1.00		0.53	1.00	1.00	0.61	1.00	1.00
Satd. Flow (perm)	763	3414		345	3467		987	1863	1583	1143	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	76	559	172	189	468	74	164	212	99	71	210	80
RTOR Reduction (vph)	0	41	0	0	18	0	0	0	67	0	0	56
Lane Group Flow (vph)	76	690	0	189	524	0	164	212	32	71	210	24
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	22.8	18.5		29.0	21.6		28.4	22.9	22.9	25.4	21.4	21.4
Effective Green, g (s)	22.8	18.5		29.0	21.6		28.4	22.9	22.9	25.4	21.4	21.4
Actuated g/C Ratio	0.32	0.26		0.41	0.31		0.40	0.32	0.32	0.36	0.30	0.30
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	306	892		290	1057		456	602	512	445	563	478
v/s Ratio Prot	0.02	c0.20		c0.07	0.15		c0.03	0.11		0.01	0.11	
v/s Ratio Perm	0.06			0.20			c0.12		0.02	0.05		0.02
v/c Ratio	0.25	0.77		0.65	0.50		0.36	0.35	0.06	0.16	0.37	0.05
Uniform Delay, d1	17.0	24.2		15.3	20.1		14.1	18.3	16.5	15.2	19.4	17.5
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	4.2		5.2	0.4		0.5	1.6	0.2	0.2	1.9	0.2
Delay (s)	17.4	28.4		20.5	20.5		14.6	19.9	16.8	15.3	21.3	17.7
Level of Service	B	C		C	C		B	B	B	B	C	B
Approach Delay (s)		27.4			20.5			17.4			19.3	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	22.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	70.8	Sum of lost time (s)	18.0
Intersection Capacity Utilization	62.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL2	SBL	SBR	NWL	NWR	NWR2
Lane Configurations												
Sign Control		Stop			Stop			Stop		Stop		
Traffic Volume (vph)	71	54	161	29	31	34	19	403	38	48	422	3
Future Volume (vph)	71	54	161	29	31	34	19	403	38	48	422	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	77	59	175	32	34	37	21	438	41	52	459	3

Direction, Lane #	EB 1	WB 1	SB 1	SB 2	NW 1	NW 2
Volume Total (vph)	311	103	240	260	282	233
Volume Left (vph)	77	32	21	0	52	0
Volume Right (vph)	175	37	0	41	0	3
Hadj (s)	-0.25	-0.12	0.08	-0.08	0.13	0.02
Departure Headway (s)	6.4	7.2	6.9	6.8	7.0	6.9
Degree Utilization, x	0.55	0.21	0.46	0.49	0.54	0.44
Capacity (veh/h)	523	426	499	512	494	507
Control Delay (s)	17.1	12.1	14.6	14.9	16.8	14.0
Approach Delay (s)	17.1	12.1	14.8		15.5	
Approach LOS	C	B	B		C	

Intersection Summary			
Delay	15.3		
Level of Service	C		
Intersection Capacity Utilization	Err%	ICU Level of Service	H
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	67	969	0	215	633	114	103	461	363	310	484	66
Future Volume (vph)	67	969	0	215	633	114	103	461	363	310	484	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539		1770	3539	1583	1770	3539	1583	1770	3475	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3539		1770	3539	1583	1770	3539	1583	1770	3475	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	73	1053	0	234	688	124	112	501	395	337	526	72
RTOR Reduction (vph)	0	0	0	0	0	79	0	0	109	0	10	0
Lane Group Flow (vph)	73	1053	0	234	688	45	112	501	286	337	588	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases			4			8			2			
Actuated Green, G (s)	7.4	29.5		14.5	36.6	36.6	10.9	19.4	33.9	19.5	28.0	
Effective Green, g (s)	7.4	29.5		14.5	36.6	36.6	10.9	19.4	33.9	19.5	28.0	
Actuated g/C Ratio	0.07	0.29		0.14	0.36	0.36	0.11	0.19	0.34	0.19	0.28	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	129	1034		254	1283	574	191	680	531	342	964	
v/s Ratio Prot	0.04	c0.30		c0.13	0.19		0.06	c0.14	0.08	c0.19	0.17	
v/s Ratio Perm						0.03			0.10			
v/c Ratio	0.57	1.02		0.92	0.54	0.08	0.59	0.74	0.54	0.99	0.61	
Uniform Delay, d1	45.2	35.7		42.6	25.4	21.1	42.9	38.3	27.2	40.6	31.7	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	5.6	32.7		35.9	0.4	0.1	4.5	7.0	1.1	44.4	2.9	
Delay (s)	50.8	68.4		78.5	25.9	21.1	47.4	45.3	28.2	84.9	34.6	
Level of Service	D	E		E	C	C	D	D	C	F	C	
Approach Delay (s)		67.2			37.1			38.9			52.7	
Approach LOS		E			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	49.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	100.9	Sum of lost time (s)	18.0
Intersection Capacity Utilization	83.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
11: Pasadena Ave & Lemon Ave

08/10/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	9	8	15	20	1	10	14	89	33	22	68	0
Future Volume (vph)	9	8	15	20	1	10	14	89	33	22	68	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	10	9	16	22	1	11	15	97	36	24	74	0

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	35	34	148	98
Volume Left (vph)	10	22	15	24
Volume Right (vph)	16	11	36	0
Hadj (s)	-0.18	-0.03	-0.09	0.08
Departure Headway (s)	4.3	4.4	4.1	4.3
Degree Utilization, x	0.04	0.04	0.17	0.12
Capacity (veh/h)	788	754	859	819
Control Delay (s)	7.5	7.6	7.9	7.9
Approach Delay (s)	7.5	7.6	7.9	7.9
Approach LOS	A	A	A	A

Intersection Summary			
Delay	7.8		
Level of Service	A		
Intersection Capacity Utilization	19.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	106	1449	43	33	878	50	21	24	49	56	25	68
Future Volume (vph)	106	1449	43	33	878	50	21	24	49	56	25	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Lane Util. Factor	1.00	0.95		0.91	0.91			1.00			1.00	
Frt	1.00	1.00		1.00	0.99			0.93			0.94	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.98	
Satd. Flow (prot)	1770	3524		1610	3362			1713			1716	
Flt Permitted	0.95	1.00		0.95	0.95			0.93			0.87	
Satd. Flow (perm)	1770	3524		1610	3196			1603			1515	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	115	1575	47	36	954	54	23	26	53	61	27	74
RTOR Reduction (vph)	0	2	0	0	4	0	0	42	0	0	34	0
Lane Group Flow (vph)	115	1620	0	32	1008	0	0	60	0	0	128	0
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)	7.7	55.8		3.2	54.5			19.3			19.3	
Effective Green, g (s)	7.7	55.8		3.2	54.5			19.3			19.3	
Actuated g/C Ratio	0.08	0.61		0.03	0.59			0.21			0.21	
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	148	2142		56	1903			337			318	
v/s Ratio Prot	c0.06	c0.46		0.02	0.02							
v/s Ratio Perm					0.30			0.04			c0.08	
v/c Ratio	0.78	0.76		0.57	0.53			0.18			0.40	
Uniform Delay, d1	41.2	13.1		43.6	11.1			29.7			31.3	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	22.2	1.6		13.3	0.3			1.2			3.8	
Delay (s)	63.4	14.6		56.9	11.3			30.9			35.0	
Level of Service	E	B		E	B			C			D	
Approach Delay (s)		17.9			12.7			30.9			35.0	
Approach LOS		B			B			C			D	

Intersection Summary			
HCM 2000 Control Delay	17.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	91.8	Sum of lost time (s)	13.5
Intersection Capacity Utilization	91.6%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	39	0	0	16	110	0	0	0	144	0	5
Future Volume (Veh/h)	15	39	0	0	16	110	0	0	0	144	0	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	16	42	0	0	17	120	0	0	0	157	0	5
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								564				
pX, platoon unblocked												
vC, conflicting volume	445	316	2	338	319	0	5			0		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	445	316	2	338	319	0	5			0		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	96	92	100	100	97	89	100			90		
cM capacity (veh/h)	421	542	1082	537	540	1085	1616			1623		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	58	137	0	162
Volume Left	16	0	0	157
Volume Right	0	120	0	5
cSH	502	964	1700	1623
Volume to Capacity	0.12	0.14	0.00	0.10
Queue Length 95th (ft)	10	12	0	8
Control Delay (s)	13.1	9.4	0.0	7.2
Lane LOS	B	A		A
Approach Delay (s)	13.1	9.4	0.0	7.2
Approach LOS	B	A		

Intersection Summary				
Average Delay		9.0		
Intersection Capacity Utilization		29.2%	ICU Level of Service	A
Analysis Period (min)		15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	1565	11	41	919	10	3	3	8	0	0	0
Future Volume (vph)	15	1565	11	41	919	10	3	3	8	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5				
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00				
Frt	1.00	1.00		1.00	1.00			0.92				
Flt Protected	0.95	1.00		0.95	1.00			0.99				
Satd. Flow (prot)	1770	3535		1770	3533			1695				
Flt Permitted	0.95	1.00		0.95	1.00			0.97				
Satd. Flow (perm)	1770	3535		1770	3533			1665				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	1701	12	45	999	11	3	3	9	0	0	0
RTOR Reduction (vph)	0	0	0	0	1	0	0	7	0	0	0	0
Lane Group Flow (vph)	16	1713	0	45	1009	0	0	8	0	0	0	0
Turn Type	Prot	NA		Prot	NA		Perm	NA				
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)	0.9	43.1		3.0	45.2			18.3				
Effective Green, g (s)	0.9	43.1		3.0	45.2			18.3				
Actuated g/C Ratio	0.01	0.55		0.04	0.58			0.23				
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5				
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0				
Lane Grp Cap (vph)	20	1955		68	2049			391				
v/s Ratio Prot	0.01	c0.48		c0.03	0.29							
v/s Ratio Perm								c0.00				
v/c Ratio	0.80	0.88		0.66	0.49			0.02				
Uniform Delay, d1	38.4	15.1		36.9	9.6			22.9				
Progression Factor	1.00	1.00		1.00	1.00			1.00				
Incremental Delay, d2	110.1	4.7		21.6	0.2			0.1				
Delay (s)	148.5	19.8		58.5	9.8			23.0				
Level of Service	F	B		E	A			C				
Approach Delay (s)		21.0			11.9			23.0			0.0	
Approach LOS		C			B			C			A	

Intersection Summary			
HCM 2000 Control Delay	17.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	77.9	Sum of lost time (s)	13.5
Intersection Capacity Utilization	55.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	59	128	8	29	2	98	156	13	8	96	5
Future Volume (Veh/h)	2	59	128	8	29	2	98	156	13	8	96	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	64	139	9	32	2	107	170	14	9	104	5
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								560				
pX, platoon unblocked												
vC, conflicting volume	534	522	106	686	518	177	109			184		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	534	522	106	686	518	177	109			184		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	85	85	96	92	100	93			99		
cM capacity (veh/h)	404	423	948	257	426	866	1481			1391		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	205	43	291	118
Volume Left	2	9	107	9
Volume Right	139	2	14	5
cSH	677	382	1481	1391
Volume to Capacity	0.30	0.11	0.07	0.01
Queue Length 95th (ft)	32	9	6	0
Control Delay (s)	12.6	15.6	3.2	0.6
Lane LOS	B	C	A	A
Approach Delay (s)	12.6	15.6	3.2	0.6
Approach LOS	B	C		

Intersection Summary			
Average Delay	6.5		
Intersection Capacity Utilization	39.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	158	1306	34	32	782	90	42	17	22	91	15	124
Future Volume (vph)	158	1306	34	32	782	90	42	17	22	91	15	124
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frt	1.00	1.00		1.00	0.98			0.96			0.93	
Flt Protected	0.95	1.00		0.95	1.00			0.97			0.98	
Satd. Flow (prot)	1770	3526		1770	3484			1748			1693	
Flt Permitted	0.95	1.00		0.95	1.00			0.79			0.84	
Satd. Flow (perm)	1770	3526		1770	3484			1419			1452	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	172	1420	37	35	850	98	46	18	24	99	16	135
RTOR Reduction (vph)	0	2	0	0	13	0	0	17	0	0	60	0
Lane Group Flow (vph)	172	1455	0	35	935	0	0	71	0	0	190	0
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)	9.6	34.5		1.9	26.8			18.6			18.6	
Effective Green, g (s)	9.6	34.5		1.9	26.8			18.6			18.6	
Actuated g/C Ratio	0.14	0.50		0.03	0.39			0.27			0.27	
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	248	1775		49	1363			385			394	
v/s Ratio Prot	c0.10	c0.41		0.02	0.27							
v/s Ratio Perm								0.05			c0.13	
v/c Ratio	0.69	0.82		0.71	0.69			0.18			0.48	
Uniform Delay, d1	28.0	14.4		33.0	17.4			19.1			20.9	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	8.1	3.1		39.0	1.5			1.0			4.2	
Delay (s)	36.2	17.5		72.1	18.8			20.2			25.1	
Level of Service	D	B		E	B			C			C	
Approach Delay (s)		19.4			20.7			20.2			25.1	
Approach LOS		B			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	20.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	68.5	Sum of lost time (s)	13.5
Intersection Capacity Utilization	68.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	6	68	8	5	10	42	335	14	8	354	3
Future Volume (Veh/h)	3	6	68	8	5	10	42	335	14	8	354	3
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	7	74	9	5	11	46	364	15	9	385	3
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								542				
pX, platoon unblocked												
vC, conflicting volume	692	876	194	752	870	190	388			379		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	692	876	194	752	870	190	388			379		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	97	91	97	98	99	96			99		
cM capacity (veh/h)	310	273	815	257	275	820	1167			1176		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	84	25	228	197	202	196
Volume Left	3	9	46	0	9	0
Volume Right	74	11	0	15	0	3
cSH	666	375	1167	1700	1176	1700
Volume to Capacity	0.13	0.07	0.04	0.12	0.01	0.12
Queue Length 95th (ft)	11	5	3	0	1	0
Control Delay (s)	11.2	15.3	1.9	0.0	0.4	0.0
Lane LOS	B	C	A		A	
Approach Delay (s)	11.2	15.3	1.0		0.2	
Approach LOS	B	C				

Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	36.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	164	1132	742	232	332	101
Future Volume (vph)	164	1132	742	232	332	101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5	4.5
Lane Util. Factor	1.00	0.95	0.95		0.97	1.00
Frt	1.00	1.00	0.96		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3413		3433	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3413		3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	178	1230	807	252	361	110
RTOR Reduction (vph)	0	0	49	0	0	74
Lane Group Flow (vph)	178	1230	1010	0	361	36
Turn Type	Prot	NA	NA		Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	7.5	31.5	19.5		19.5	19.5
Effective Green, g (s)	7.5	31.5	19.5		19.5	19.5
Actuated g/C Ratio	0.12	0.52	0.32		0.32	0.32
Clearance Time (s)	4.5	4.5	4.5		4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	221	1857	1109		1115	514
v/s Ratio Prot	0.10	c0.35	c0.30		c0.11	
v/s Ratio Perm						0.02
v/c Ratio	0.81	0.66	0.91		0.32	0.07
Uniform Delay, d1	25.5	10.4	19.4		15.3	14.0
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	18.9	0.9	11.1		0.8	0.3
Delay (s)	44.4	11.3	30.5		16.0	14.2
Level of Service	D	B	C		B	B
Approach Delay (s)		15.5	30.5		15.6	
Approach LOS		B	C		B	

Intersection Summary			
HCM 2000 Control Delay	20.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	57.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	441	510	1031	450	634	1142
Future Volume (vph)	441	510	1031	450	634	1142
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5	4.5
Lane Util. Factor	0.97	1.00	0.91		0.97	0.95
Frt	1.00	0.85	0.95		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	3090	1425	4368		3090	3185
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	3090	1425	4368		3090	3185
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	479	554	1121	489	689	1241
RTOR Reduction (vph)	0	13	87	0	0	0
Lane Group Flow (vph)	479	541	1523	0	689	1241
Turn Type	Prot	pm+ov	NA		Prot	NA
Protected Phases	8	1	2		1	6
Permitted Phases		8				
Actuated Green, G (s)	17.1	39.6	35.7		22.5	62.7
Effective Green, g (s)	17.1	39.6	35.7		22.5	62.7
Actuated g/C Ratio	0.19	0.45	0.40		0.25	0.71
Clearance Time (s)	4.5	4.5	4.5		4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	595	707	1756		782	2248
v/s Ratio Prot	0.16	c0.19	c0.35		c0.22	0.39
v/s Ratio Perm		0.19				
v/c Ratio	0.81	0.77	0.87		0.88	0.55
Uniform Delay, d1	34.3	20.7	24.4		31.9	6.3
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	7.8	5.0	6.1		13.6	1.0
Delay (s)	42.1	25.7	30.5		45.5	7.3
Level of Service	D	C	C		D	A
Approach Delay (s)	33.3		30.5			20.9
Approach LOS	C		C			C

Intersection Summary			
HCM 2000 Control Delay	27.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	88.8	Sum of lost time (s)	13.5
Intersection Capacity Utilization	78.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	345	99	53	154	64	64
Future Volume (Veh/h)	345	99	53	154	64	64
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	375	108	58	167	70	70
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						1
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			483		712	429
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			483		712	429
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			95		81	89
cM capacity (veh/h)			1080		378	626

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	483	225	140
Volume Left	0	58	70
Volume Right	108	0	70
cSH	1700	1080	755
Volume to Capacity	0.28	0.05	0.19
Queue Length 95th (ft)	0	4	17
Control Delay (s)	0.0	2.6	14.1
Lane LOS		A	B
Approach Delay (s)	0.0	2.6	14.1
Approach LOS			B

Intersection Summary			
Average Delay	3.0		
Intersection Capacity Utilization	48.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	5	367	62	36	163	8	29	16	46	3	11	7
Future Volume (vph)	5	367	62	36	163	8	29	16	46	3	11	7
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	399	67	39	177	9	32	17	50	3	12	8

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	SB 1
Volume Total (vph)	471	216	9	49	50	23
Volume Left (vph)	5	39	0	32	0	3
Volume Right (vph)	67	0	9	0	50	8
Hadj (s)	-0.05	0.12	-0.67	0.36	-0.67	-0.15
Departure Headway (s)	5.1	5.5	4.7	6.7	5.6	6.4
Degree Utilization, x	0.67	0.33	0.01	0.09	0.08	0.04
Capacity (veh/h)	684	636	737	490	570	495
Control Delay (s)	17.9	9.9	6.5	9.1	7.9	9.6
Approach Delay (s)	17.9	9.8		8.5		9.6
Approach LOS	C	A		A		A

Intersection Summary			
Delay	14.3		
Level of Service	B		
Intersection Capacity Utilization	47.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	631	1	179	7	0	22	111	821	0	3	702	709
Future Volume (vph)	631	1	179	7	0	22	111	821	0	3	702	709
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5		4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	0.95	0.95	0.88		1.00		0.97	0.91		1.00	0.95	1.00
Frt	1.00	1.00	0.85		0.90		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	0.95	1.00		0.99		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1686	2787		1653		3433	5085		1770	3539	1583
Flt Permitted	0.95	0.95	1.00		0.99		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1681	1686	2787		1653		3433	5085		1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	686	1	195	8	0	24	121	892	0	3	763	771
RTOR Reduction (vph)	0	0	143	0	31	0	0	0	0	0	0	451
Lane Group Flow (vph)	343	344	52	0	1	0	121	892	0	3	763	320
Turn Type	Split	NA	Perm	Split	NA		Prot	NA		Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4									6
Actuated Green, G (s)	19.7	19.7	19.7		1.9		3.8	33.7		0.9	30.8	30.8
Effective Green, g (s)	19.7	19.7	19.7		1.9		3.8	33.7		0.9	30.8	30.8
Actuated g/C Ratio	0.27	0.27	0.27		0.03		0.05	0.45		0.01	0.42	0.42
Clearance Time (s)	4.5	4.5	4.5		4.5		4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	446	447	739		42		175	2309		21	1469	657
v/s Ratio Prot	c0.20	0.20			c0.00		c0.04	c0.18		0.00	c0.22	
v/s Ratio Perm			0.02									0.20
v/c Ratio	0.77	0.77	0.07		0.02		0.69	0.39		0.14	0.52	0.49
Uniform Delay, d1	25.2	25.2	20.4		35.2		34.6	13.4		36.3	16.2	15.9
Progression Factor	1.00	1.00	1.00		1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	7.8	7.8	0.0		0.2		11.2	0.5		3.1	1.3	2.6
Delay (s)	33.0	33.0	20.4		35.4		45.8	13.9		39.4	17.5	18.5
Level of Service	C	C	C		D		D	B		D	B	B
Approach Delay (s)		30.2			35.4			17.7			18.0	
Approach LOS		C			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	21.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	74.2	Sum of lost time (s)	18.0
Intersection Capacity Utilization	63.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	22	0	508	490	90
Future Volume (Veh/h)	0	22	0	508	490	90
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	24	0	552	533	98
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				1038	287	
pX, platoon unblocked						
vC, conflicting volume	858	316	631			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	858	316	631			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	96	100			
cM capacity (veh/h)	296	680	947			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	24	276	276	355	276
Volume Left	0	0	0	0	0
Volume Right	24	0	0	0	98
cSH	680	1700	1700	1700	1700
Volume to Capacity	0.04	0.16	0.16	0.21	0.16
Queue Length 95th (ft)	3	0	0	0	0
Control Delay (s)	10.5	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	10.5	0.0		0.0	
Approach LOS	B				

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	26.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	91	89	0	711	120	19	884
Future Volume (vph)	91	89	0	711	120	19	884
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5			4.5		4.5	4.5
Lane Util. Factor	1.00			0.91		1.00	0.91
Frt	0.93			0.98		1.00	1.00
Flt Protected	0.98			1.00		0.95	1.00
Satd. Flow (prot)	1695			4975		1770	5085
Flt Permitted	0.98			1.00		0.95	1.00
Satd. Flow (perm)	1695			4975		1770	5085
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	99	97	0	773	130	21	961
RTOR Reduction (vph)	74	0	0	27	0	0	0
Lane Group Flow (vph)	122	0	0	876	0	21	961
Turn Type	Prot		Prot	NA		Prot	NA
Protected Phases	8		5	2		1	6
Permitted Phases							
Actuated Green, G (s)	7.3			26.5		0.9	31.9
Effective Green, g (s)	7.3			26.5		0.9	31.9
Actuated g/C Ratio	0.15			0.55		0.02	0.66
Clearance Time (s)	4.5			4.5		4.5	4.5
Vehicle Extension (s)	3.0			3.0		3.0	3.0
Lane Grp Cap (vph)	256			2735		33	3365
v/s Ratio Prot	c0.07			c0.18		0.01	c0.19
v/s Ratio Perm							
v/c Ratio	0.48			0.32		0.64	0.29
Uniform Delay, d1	18.7			5.9		23.5	3.4
Progression Factor	1.00			1.00		1.00	1.00
Incremental Delay, d2	1.4			0.3		33.9	0.2
Delay (s)	20.1			6.2		57.3	3.6
Level of Service	C			A		E	A
Approach Delay (s)	20.1			6.2			4.8
Approach LOS	C			A			A

Intersection Summary			
HCM 2000 Control Delay	6.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	48.2	Sum of lost time (s)	13.5
Intersection Capacity Utilization	35.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	118	769	274	373	479	105	187	698	258	101	856	118
Future Volume (vph)	118	769	274	373	479	105	187	698	258	101	856	118
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	3433	3444		1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	3433	3444		1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	128	836	298	405	521	114	203	759	280	110	930	128
RTOR Reduction (vph)	0	0	167	0	20	0	0	0	188	0	0	90
Lane Group Flow (vph)	128	836	131	405	615	0	203	759	92	110	930	38
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4						2			6
Actuated Green, G (s)	9.4	22.5	22.5	11.6	24.7		11.5	29.5	29.5	8.4	26.4	26.4
Effective Green, g (s)	9.4	22.5	22.5	11.6	24.7		11.5	29.5	29.5	8.4	26.4	26.4
Actuated g/C Ratio	0.10	0.25	0.25	0.13	0.27		0.13	0.33	0.33	0.09	0.29	0.29
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	184	884	395	442	945		226	1160	518	165	1038	464
v/s Ratio Prot	0.07	c0.24		c0.12	0.18		c0.11	c0.21		0.06	c0.26	
v/s Ratio Perm			0.08						0.06			0.02
v/c Ratio	0.70	0.95	0.33	0.92	0.65		0.90	0.65	0.18	0.67	0.90	0.08
Uniform Delay, d1	38.9	33.1	27.6	38.7	28.8		38.7	25.9	21.6	39.4	30.5	23.0
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	10.9	18.3	0.5	23.5	1.6		33.5	2.9	0.7	9.8	11.9	0.3
Delay (s)	49.8	51.5	28.1	62.2	30.5		72.1	28.8	22.3	49.2	42.4	23.4
Level of Service	D	D	C	E	C		E	C	C	D	D	C
Approach Delay (s)		45.8			42.8			34.4			40.9	
Approach LOS		D			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	40.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	80.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	9	11	14	18	6	19	201	11	14	157	5
Future Volume (Veh/h)	9	9	11	14	18	6	19	201	11	14	157	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	10	10	12	15	20	7	21	218	12	15	171	5
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								606			647	
pX, platoon unblocked												
vC, conflicting volume	486	476	174	486	472	224	176			230		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	486	476	174	486	472	224	176			230		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	98	99	97	96	99	99			99		
cM capacity (veh/h)	462	475	870	467	477	815	1400			1338		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	32	42	251	191
Volume Left	10	15	21	15
Volume Right	12	7	12	5
cSH	567	509	1400	1338
Volume to Capacity	0.06	0.08	0.01	0.01
Queue Length 95th (ft)	4	7	1	1
Control Delay (s)	11.7	12.7	0.8	0.7
Lane LOS	B	B	A	A
Approach Delay (s)	11.7	12.7	0.8	0.7
Approach LOS	B	B		

Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	26.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	8	35	30	8	22	17	397	14	17	445	2
Future Volume (Veh/h)	8	8	35	30	8	22	17	397	14	17	445	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	9	38	33	9	24	18	432	15	18	484	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											650	
pX, platoon unblocked	0.92	0.92	0.92	0.92	0.92		0.92					
vC, conflicting volume	802	1004	485	1039	998	224	486			447		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	741	961	397	999	954	224	398			447		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	96	96	93	79	96	97	98			98		
cM capacity (veh/h)	257	227	554	160	229	780	1065			1110		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	56	66	234	231	504
Volume Left	9	33	18	0	18
Volume Right	38	24	0	15	2
cSH	391	239	1065	1700	1110
Volume to Capacity	0.14	0.28	0.02	0.14	0.02
Queue Length 95th (ft)	12	27	1	0	1
Control Delay (s)	15.7	25.7	0.8	0.0	0.5
Lane LOS	C	D	A		A
Approach Delay (s)	15.7	25.7	0.4		0.5
Approach LOS	C	D			

Intersection Summary				
Average Delay	2.8			
Intersection Capacity Utilization	52.5%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	7	0	611	19	1	615
Future Volume (Veh/h)	7	0	611	19	1	615
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	8	0	664	21	1	668
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			None
Median storage veh)			2			
Upstream signal (ft)			430			
pX, platoon unblocked	0.87	0.87			0.87	
vC, conflicting volume	1010	342			685	
vC1, stage 1 conf vol	674					
vC2, stage 2 conf vol	336					
vCu, unblocked vol	720	0			347	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	100			100	
cM capacity (veh/h)	522	946			1055	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	8	443	242	224	445
Volume Left	8	0	0	1	0
Volume Right	0	0	21	0	0
cSH	522	1700	1700	1055	1700
Volume to Capacity	0.02	0.26	0.14	0.00	0.26
Queue Length 95th (ft)	1	0	0	0	0
Control Delay (s)	12.0	0.0	0.0	0.0	0.0
Lane LOS	B			A	
Approach Delay (s)	12.0	0.0		0.0	
Approach LOS	B				

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	27.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	SEL	SET	NWT	NWR
Lane Configurations						
Traffic Volume (veh/h)	88	5	1	524	486	0
Future Volume (Veh/h)	88	5	1	524	486	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	96	5	1	570	528	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	815	264	528			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	815	264	528			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	70	99	100			
cM capacity (veh/h)	315	734	1035			

Direction, Lane #	WB 1	WB 2	SE 1	SE 2	SE 3	NW 1	NW 2
Volume Total	96	5	1	285	285	264	264
Volume Left	96	0	1	0	0	0	0
Volume Right	0	5	0	0	0	0	0
cSH	315	734	1035	1700	1700	1700	1700
Volume to Capacity	0.30	0.01	0.00	0.17	0.17	0.16	0.16
Queue Length 95th (ft)	31	1	0	0	0	0	0
Control Delay (s)	21.4	9.9	8.5	0.0	0.0	0.0	0.0
Lane LOS	C	A	A				
Approach Delay (s)	20.8		0.0			0.0	
Approach LOS	C						

Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	26.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1	0	23	5	3	0	207	50	1	65	0
Future Volume (Veh/h)	0	1	0	23	5	3	0	207	50	1	65	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1	0	25	5	3	0	225	54	1	71	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	330	352	71	326	325	252	71			279		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	330	352	71	326	325	252	71			279		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	96	99	100	100			100		
cM capacity (veh/h)	616	572	991	626	593	787	1529			1284		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	1	33	279	72
Volume Left	0	25	0	1
Volume Right	0	3	54	0
cSH	572	633	1700	1284
Volume to Capacity	0.00	0.05	0.16	0.00
Queue Length 95th (ft)	0	4	0	0
Control Delay (s)	11.3	11.0	0.0	0.1
Lane LOS	B	B		A
Approach Delay (s)	11.3	11.0	0.0	0.1
Approach LOS	B	B		

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	29.0%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	765	42	33	566	28	50
Future Vol, veh/h	765	42	33	566	28	50
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	832	46	36	615	30	54

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	878	0	1542	855
Stage 1	-	-	-	-	855	-
Stage 2	-	-	-	-	687	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	769	-	127	358
Stage 1	-	-	-	-	417	-
Stage 2	-	-	-	-	499	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	769	-	118	358
Mov Cap-2 Maneuver	-	-	-	-	118	-
Stage 1	-	-	-	-	387	-
Stage 2	-	-	-	-	499	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	34
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	207	-	-	769	-
HCM Lane V/C Ratio	0.41	-	-	0.047	-
HCM Control Delay (s)	34	-	-	9.9	0
HCM Lane LOS	D	-	-	A	A
HCM 95th %tile Q(veh)	1.9	-	-	0.1	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	741	31	8	564	18	19	18	15	10	9	15
Future Volume (vph)	38	741	31	8	564	18	19	18	15	10	9	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.99			1.00			0.96			0.94	
Flt Protected		1.00			1.00			0.98			0.99	
Satd. Flow (prot)		1849			1854			1760			1728	
Flt Permitted		0.96			0.99			0.87			0.90	
Satd. Flow (perm)		1776			1834			1561			1574	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	41	805	34	9	613	20	21	20	16	11	10	16
RTOR Reduction (vph)	0	2	0	0	1	0	0	13	0	0	13	0
Lane Group Flow (vph)	0	878	0	0	641	0	0	44	0	0	24	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		28.3			28.3			7.1			7.1	
Effective Green, g (s)		28.3			28.3			7.1			7.1	
Actuated g/C Ratio		0.64			0.64			0.16			0.16	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		1132			1168			249			251	
v/s Ratio Prot												
v/s Ratio Perm		c0.49			0.35			c0.03			0.01	
v/c Ratio		0.78			0.55			0.17			0.09	
Uniform Delay, d1		5.8			4.5			16.1			15.9	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		3.4			0.5			0.3			0.2	
Delay (s)		9.2			5.0			16.5			16.1	
Level of Service		A			A			B			B	
Approach Delay (s)		9.2			5.0			16.5			16.1	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM 2000 Control Delay	7.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	44.4	Sum of lost time (s)	9.0
Intersection Capacity Utilization	75.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
23: Lone Hill Ave & Gladstone St

08/10/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	211	577	150	89	313	121	290	651	227	269	428	222
Future Volume (vph)	211	577	150	89	313	121	290	651	227	269	428	222
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	0.97	0.95		1.00	0.95		0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	0.97		1.00	0.96		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3430		1770	3391		3433	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3430		1770	3391		3433	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	229	627	163	97	340	132	315	708	247	292	465	241
RTOR Reduction (vph)	0	32	0	0	60	0	0	0	164	0	0	174
Lane Group Flow (vph)	229	758	0	97	412	0	315	708	83	292	465	67
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Actuated Green, G (s)	6.5	19.2		4.3	17.0		8.5	19.3	19.3	8.3	19.1	19.1
Effective Green, g (s)	6.5	19.2		4.3	17.0		8.5	19.3	19.3	8.3	19.1	19.1
Actuated g/C Ratio	0.09	0.28		0.06	0.25		0.12	0.28	0.28	0.12	0.28	0.28
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	322	953		110	834		422	988	442	412	978	437
v/s Ratio Prot	c0.07	c0.22		0.05	0.12		c0.09	c0.20		0.09	0.13	
v/s Ratio Perm									0.05			0.04
v/c Ratio	0.71	0.79		0.88	0.49		0.75	0.72	0.19	0.71	0.48	0.15
Uniform Delay, d1	30.4	23.1		32.1	22.4		29.3	22.4	18.9	29.2	20.8	18.9
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.2	4.6		50.6	0.5		7.0	4.5	0.9	5.5	1.7	0.7
Delay (s)	37.6	27.8		82.7	22.8		36.3	26.9	19.9	34.7	22.5	19.6
Level of Service	D	C		F	C		D	C	B	C	C	B
Approach Delay (s)		30.0			33.0			27.9			25.4	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	28.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	69.1	Sum of lost time (s)	18.0
Intersection Capacity Utilization	66.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1266	204	179	903	373	161	0	115	298	124	188
Future Volume (vph)	0	1266	204	179	903	373	161	0	115	298	124	188
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5		4.5	4.5		4.5		4.5	4.5	4.5	4.5
Lane Util. Factor		0.91		1.00	0.91		0.97		1.00	0.95	0.95	1.00
Frt		0.98		1.00	0.96		1.00		0.85	1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00		0.95		1.00	0.95	0.98	1.00
Satd. Flow (prot)		4979		1770	4863		3433		1583	1681	1733	1583
Flt Permitted		1.00		0.95	1.00		0.15		1.00	0.95	0.98	1.00
Satd. Flow (perm)		4979		1770	4863		545		1583	1681	1733	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1376	222	195	982	405	175	0	125	324	135	204
RTOR Reduction (vph)	0	22	0	0	73	0	0	0	91	0	0	169
Lane Group Flow (vph)	0	1576	0	195	1314	0	175	0	34	227	232	35
Turn Type		NA		Prot	NA		Perm		Perm	Split	NA	Perm
Protected Phases		4		3	8					6	6	
Permitted Phases							2		2			6
Actuated Green, G (s)		26.5		10.5	41.5		26.5		26.5	16.8	16.8	16.8
Effective Green, g (s)		26.5		10.5	41.5		26.5		26.5	16.8	16.8	16.8
Actuated g/C Ratio		0.27		0.11	0.42		0.27		0.27	0.17	0.17	0.17
Clearance Time (s)		4.5		4.5	4.5		4.5		4.5	4.5	4.5	4.5
Vehicle Extension (s)		3.0		3.0	3.0		3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		1342		189	2053		146		426	287	296	270
v/s Ratio Prot		c0.32		c0.11	0.27					c0.14	0.13	
v/s Ratio Perm							c0.32		0.02			0.02
v/c Ratio		1.17		1.03	0.64		1.20		0.08	0.79	0.78	0.13
Uniform Delay, d1		35.9		43.9	22.5		35.9		26.8	39.1	39.0	34.5
Progression Factor		1.00		1.00	1.00		1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2		86.7		74.0	0.7		137.7		0.4	13.8	12.7	0.2
Delay (s)		122.6		117.9	23.1		173.6		27.2	52.8	51.7	34.8
Level of Service		F		F	C		F		C	D	D	C
Approach Delay (s)		122.6			34.8			112.6			46.9	
Approach LOS		F			C			F			D	

Intersection Summary			
HCM 2000 Control Delay	76.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.08		
Actuated Cycle Length (s)	98.3	Sum of lost time (s)	18.0
Intersection Capacity Utilization	69.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	436	746	330	217	687	55	389	356	151	85	117	393
Future Volume (vph)	436	746	330	217	687	55	389	356	151	85	117	393
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5		4.5	4.5	4.5
Lane Util. Factor	0.97	0.91		1.00	0.91			0.95		1.00	0.95	1.00
Frt	1.00	0.95		1.00	0.99			0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.98		0.95	1.00	1.00
Satd. Flow (prot)	3433	4851		1770	5029			3377		1770	3539	1583
Flt Permitted	0.95	1.00		0.95	1.00			0.58		0.95	1.00	1.00
Satd. Flow (perm)	3433	4851		1770	5029			2005		1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	474	811	359	236	747	60	423	387	164	92	127	427
RTOR Reduction (vph)	0	57	0	0	7	0	0	12	0	0	0	324
Lane Group Flow (vph)	474	1113	0	236	800	0	0	962	0	92	127	103
Turn Type	Prot	NA		Prot	NA		Perm	NA		Split	NA	Perm
Protected Phases	7	4		3	8			2		6	6	
Permitted Phases							2					6
Actuated Green, G (s)	20.1	27.5		16.5	23.9			60.1		14.0	14.0	14.0
Effective Green, g (s)	20.1	27.5		16.5	23.9			60.1		14.0	14.0	14.0
Actuated g/C Ratio	0.15	0.20		0.12	0.18			0.44		0.10	0.10	0.10
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5		4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	507	980		214	883			885		182	364	162
v/s Ratio Prot	0.14	c0.23		c0.13	0.16					0.05	0.04	
v/s Ratio Perm								c0.48				c0.07
v/c Ratio	0.93	1.14		1.10	0.91			6.41dl		0.51	0.35	0.64
Uniform Delay, d1	57.4	54.3		59.8	55.0			38.0		57.8	56.8	58.6
Progression Factor	1.00	1.00		1.00	1.00			1.00		1.00	1.00	1.00
Incremental Delay, d2	24.6	73.9		91.8	12.7			56.8		2.2	0.6	7.9
Delay (s)	82.0	128.2		151.6	67.7			94.8		60.0	57.4	66.6
Level of Service	F	F		F	E			F		E	E	E
Approach Delay (s)		114.9			86.7			94.8			63.8	
Approach LOS		F			F			F			E	

Intersection Summary			
HCM 2000 Control Delay	95.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	136.1	Sum of lost time (s)	18.0
Intersection Capacity Utilization	79.5%	ICU Level of Service	D
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	7	61	91	8	70	1	79	1	19	0	6	4
Future Volume (vph)	7	61	91	8	70	1	79	1	19	0	6	4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	8	66	99	9	76	1	86	1	21	0	7	4

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	173	86	108	11
Volume Left (vph)	8	9	86	0
Volume Right (vph)	99	1	21	4
Hadj (s)	-0.30	0.05	0.08	-0.18
Departure Headway (s)	4.0	4.4	4.5	4.4
Degree Utilization, x	0.19	0.11	0.14	0.01
Capacity (veh/h)	874	777	747	752
Control Delay (s)	7.9	7.9	8.3	7.5
Approach Delay (s)	7.9	7.9	8.3	7.5
Approach LOS	A	A	A	A

Intersection Summary			
Delay	8.0		
Level of Service	A		
Intersection Capacity Utilization	29.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	25	4	157	20	6	136
Future Volume (Veh/h)	25	4	157	20	6	136
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	27	4	171	22	7	148
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			749			
pX, platoon unblocked						
vC, conflicting volume	344	182			193	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	344	182			193	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	96	100			99	
cM capacity (veh/h)	649	861			1380	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	31	193	155
Volume Left	27	0	7
Volume Right	4	22	0
cSH	670	1700	1380
Volume to Capacity	0.05	0.11	0.01
Queue Length 95th (ft)	4	0	0
Control Delay (s)	10.6	0.0	0.4
Lane LOS	B		A
Approach Delay (s)	10.6	0.0	0.4
Approach LOS	B		

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	22.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	88	538	13	61	529	23	26	47	223	86	38	104
Future Volume (vph)	88	538	13	61	529	23	26	47	223	86	38	104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frt	1.00	1.00		1.00	0.99			0.90			0.94	
Flt Protected	0.95	1.00		0.95	1.00			1.00			0.98	
Satd. Flow (prot)	1770	3527		1770	3517			1666			1715	
Flt Permitted	0.35	1.00		0.35	1.00			0.96			0.79	
Satd. Flow (perm)	644	3527		645	3517			1614			1382	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	96	585	14	66	575	25	28	51	242	93	41	113
RTOR Reduction (vph)	0	3	0	0	6	0	0	87	0	0	43	0
Lane Group Flow (vph)	96	596	0	66	594	0	0	234	0	0	204	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	15.4	15.4		15.4	15.4			25.7			25.7	
Effective Green, g (s)	15.4	15.4		15.4	15.4			25.7			25.7	
Actuated g/C Ratio	0.31	0.31		0.31	0.31			0.51			0.51	
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	197	1084		198	1081			827			708	
v/s Ratio Prot		c0.17			0.17							
v/s Ratio Perm	0.15			0.10				0.14			c0.15	
v/c Ratio	0.49	0.55		0.33	0.55			0.28			0.29	
Uniform Delay, d1	14.1	14.5		13.4	14.5			6.9			7.0	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	1.9	0.6		1.0	0.6			0.9			1.0	
Delay (s)	16.0	15.0		14.4	15.0			7.8			8.0	
Level of Service	B	B		B	B			A			A	
Approach Delay (s)		15.2			15.0			7.8			8.0	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM 2000 Control Delay	13.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	50.1	Sum of lost time (s)	9.0
Intersection Capacity Utilization	66.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	765	124	262	731	24	89	92	323	24	61	11
Future Volume (vph)	54	765	124	262	731	24	89	92	323	24	61	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.98		1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	4979		1770	5061		1770	1863	1583	1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.71	1.00	1.00	0.69	1.00	1.00
Satd. Flow (perm)	1770	4979		1770	5061		1330	1863	1583	1290	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	59	832	135	285	795	26	97	100	351	26	66	12
RTOR Reduction (vph)	0	37	0	0	5	0	0	0	212	0	0	8
Lane Group Flow (vph)	59	930	0	285	816	0	97	100	139	26	66	4
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2		2	6		6
Actuated Green, G (s)	3.7	18.7		10.5	25.5		18.0	18.0	18.0	18.0	18.0	18.0
Effective Green, g (s)	3.7	18.7		10.5	25.5		18.0	18.0	18.0	18.0	18.0	18.0
Actuated g/C Ratio	0.06	0.31		0.17	0.42		0.30	0.30	0.30	0.30	0.30	0.30
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	107	1533		306	2126		394	552	469	382	552	469
v/s Ratio Prot	0.03	c0.19		c0.16	0.16			0.05			0.04	
v/s Ratio Perm							0.07		c0.09	0.02		0.00
v/c Ratio	0.55	0.61		0.93	0.38		0.25	0.18	0.30	0.07	0.12	0.01
Uniform Delay, d1	27.7	17.9		24.7	12.2		16.2	15.9	16.5	15.3	15.6	15.1
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.0	0.7		33.8	0.1		1.5	0.7	1.6	0.3	0.4	0.0
Delay (s)	33.7	18.6		58.6	12.3		17.7	16.6	18.1	15.7	16.0	15.1
Level of Service	C	B		E	B		B	B	B	B	B	B
Approach Delay (s)		19.4			24.2			17.7			15.8	
Approach LOS		B			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	20.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	60.7	Sum of lost time (s)	13.5
Intersection Capacity Utilization	54.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	74	11	2	68	14	6
Future Volume (Veh/h)	74	11	2	68	14	6
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	80	12	2	74	15	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			92		164	86
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			92		164	86
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		98	99
cM capacity (veh/h)			1503		826	973

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	92	76	22
Volume Left	0	2	15
Volume Right	12	0	7
cSH	1700	1503	867
Volume to Capacity	0.05	0.00	0.03
Queue Length 95th (ft)	0	0	2
Control Delay (s)	0.0	0.2	9.3
Lane LOS		A	A
Approach Delay (s)	0.0	0.2	9.3
Approach LOS			A

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	15.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	13	4	4	14	4	8	5	4	4	4	5
Future Volume (Veh/h)	4	13	4	4	14	4	8	5	4	4	4	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	14	4	4	15	4	9	5	4	4	4	5
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	51	42	6	50	42	7	9			9		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	51	42	6	50	42	7	9			9		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	98	100	100	98	100	99			100		
cM capacity (veh/h)	926	844	1076	928	843	1075	1611			1611		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	22	23	18	13
Volume Left	4	4	9	4
Volume Right	4	4	4	5
cSH	893	891	1611	1611
Volume to Capacity	0.02	0.03	0.01	0.00
Queue Length 95th (ft)	2	2	0	0
Control Delay (s)	9.1	9.1	3.6	2.2
Lane LOS	A	A	A	A
Approach Delay (s)	9.1	9.1	3.6	2.2
Approach LOS	A	A		

Intersection Summary			
Average Delay	6.7		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	799	23	29	570	18	14	2	35	2	6	12
Future Volume (Veh/h)	17	799	23	29	570	18	14	2	35	2	6	12
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	18	868	25	32	620	20	15	2	38	2	7	13
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			None							
Median storage veh)		2										
Upstream signal (ft)		661			663							
pX, platoon unblocked	0.88			0.90			0.92	0.92	0.90	0.92	0.92	0.88
vC, conflicting volume	640			893			1307	1620	446	1203	1623	320
vC1, stage 1 conf vol							916	916		694	694	
vC2, stage 2 conf vol							390	704		509	929	
vCu, unblocked vol	304			669			697	1037	175	585	1040	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			96			96	99	95	100	98	99
cM capacity (veh/h)	1098			829			345	346	758	467	326	949

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	18	579	314	32	413	227	55	22
Volume Left	18	0	0	32	0	0	15	2
Volume Right	0	0	25	0	0	20	38	13
cSH	1098	1700	1700	829	1700	1700	553	558
Volume to Capacity	0.02	0.34	0.18	0.04	0.24	0.13	0.10	0.04
Queue Length 95th (ft)	1	0	0	3	0	0	8	3
Control Delay (s)	8.3	0.0	0.0	9.5	0.0	0.0	12.2	11.7
Lane LOS	A			A			B	B
Approach Delay (s)	0.2			0.5			12.2	11.7
Approach LOS							B	B

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	37.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	17	4	16	23	14	8	92	16	5	52	2
Future Volume (Veh/h)	1	17	4	16	23	14	8	92	16	5	52	2
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	18	4	17	25	15	9	100	17	5	57	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	40			22			119	96	20	156	90	32
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	40			22			119	96	20	156	90	32
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			99	87	98	99	93	100
cM capacity (veh/h)	1570			1593			801	785	1058	714	791	1041

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	23	57	126	64
Volume Left	1	17	9	5
Volume Right	4	15	17	2
cSH	1570	1593	815	790
Volume to Capacity	0.00	0.01	0.15	0.08
Queue Length 95th (ft)	0	1	14	7
Control Delay (s)	0.3	2.2	10.2	10.0
Lane LOS	A	A	B	A
Approach Delay (s)	0.3	2.2	10.2	10.0
Approach LOS			B	A

Intersection Summary			
Average Delay	7.6		
Intersection Capacity Utilization	23.7%	ICU Level of Service	A
Analysis Period (min)	15		

HCM 2010 Signalized Intersection Summary
34: Cataract Ave & Bonita Ave

08/11/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	743	32	47	531	63	25	63	80	12	20	56
Future Volume (veh/h)	50	743	32	47	531	63	25	63	80	12	20	56
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	54	808	0	51	577	0	27	68	87	13	22	61
Adj No. of Lanes	1	2	1	1	2	1	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	149	975	436	149	975	436	149	115	147	29	38	105
Arrive On Green	0.08	0.28	0.00	0.08	0.28	0.00	0.08	0.15	0.15	0.02	0.09	0.09
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	1774	744	951	1774	437	1212
Grp Volume(v), veh/h	54	808	0	51	577	0	27	0	155	13	0	83
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1774	0	1695	1774	0	1649
Q Serve(g_s), s	1.7	12.8	0.0	1.6	8.4	0.0	0.8	0.0	5.1	0.4	0.0	2.9
Cycle Q Clear(g_c), s	1.7	12.8	0.0	1.6	8.4	0.0	0.8	0.0	5.1	0.4	0.0	2.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.56	1.00		0.73
Lane Grp Cap(c), veh/h	149	975	436	149	975	436	149	0	262	29	0	143
V/C Ratio(X)	0.36	0.83	0.00	0.34	0.59	0.00	0.18	0.00	0.59	0.45	0.00	0.58
Avail Cap(c_a), veh/h	536	1069	478	536	1069	478	536	0	882	149	0	498
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	0.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	25.8	20.3	0.0	25.7	18.7	0.0	25.4	0.0	23.4	29.0	0.0	26.2
Incr Delay (d2), s/veh	1.5	5.2	0.0	1.4	0.7	0.0	0.6	0.0	2.1	10.6	0.0	3.7
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	0.9	6.9	0.0	0.8	4.2	0.0	0.4	0.0	2.5	0.3	0.0	1.5
LnGrp Delay(d),s/veh	27.3	25.4	0.0	27.1	19.4	0.0	26.0	0.0	25.6	39.7	0.0	29.9
LnGrp LOS	C	C		C	B		C		C	D		C
Approach Vol, veh/h		862			628			182			96	
Approach Delay, s/veh		25.5			20.0			25.6			31.2	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.5	16.7	11.5	22.9	12.5	12.7	11.5	22.9
Change Period (Y+Rc), s	7.5	7.5	6.5	6.5	7.5	7.5	6.5	6.5
Max Green Setting (Gmax), s	5.0	31.0	18.0	18.0	18.0	18.0	18.0	18.0
Max Q Clear Time (g_c+I1), s	2.4	7.1	3.6	14.8	2.8	4.9	3.7	10.4
Green Ext Time (p_c), s	0.0	0.9	0.1	1.6	0.0	0.3	0.1	2.3

Intersection Summary	
HCM 2010 Ctrl Delay	23.9
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	25	6	3	39	5	1	66	5	1	36	6
Future Volume (Veh/h)	7	25	6	3	39	5	1	66	5	1	36	6
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	8	27	7	3	42	5	1	72	5	1	39	7
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	147	124	42	142	124	74	46			77		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	147	124	42	142	124	74	46			77		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	96	99	100	95	99	100			100		
cM capacity (veh/h)	782	766	1028	800	765	987	1562			1522		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	42	50	78	47
Volume Left	8	3	1	1
Volume Right	7	5	5	7
cSH	803	785	1562	1522
Volume to Capacity	0.05	0.06	0.00	0.00
Queue Length 95th (ft)	4	5	0	0
Control Delay (s)	9.7	9.9	0.1	0.2
Lane LOS	A	A	A	A
Approach Delay (s)	9.7	9.9	0.1	0.2
Approach LOS	A	A		

Intersection Summary			
Average Delay	4.2		
Intersection Capacity Utilization	15.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	72	778	8	9	594	75	6	6	8	20	2	62
Future Volume (Veh/h)	72	778	8	9	594	75	6	6	8	20	2	62
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	78	846	9	10	646	82	7	7	9	22	2	67
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (ft)		653			659							
pX, platoon unblocked	0.77			0.72			0.83	0.83	0.72	0.83	0.83	0.77
vC, conflicting volume	728			855			1740	1754	850	1722	1718	687
vC1, stage 1 conf vol							1006	1006		707	707	
vC2, stage 2 conf vol							734	748		1014	1011	
vCu, unblocked vol	501			604			1175	1192	597	1152	1148	448
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	91			99			97	97	98	89	99	86
cM capacity (veh/h)	822			701			203	227	362	206	230	472

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	78	855	10	728	23	91
Volume Left	78	0	10	0	7	22
Volume Right	0	9	0	82	9	67
cSH	822	1700	701	1700	255	353
Volume to Capacity	0.09	0.50	0.01	0.43	0.09	0.26
Queue Length 95th (ft)	8	0	1	0	7	25
Control Delay (s)	9.8	0.0	10.2	0.0	20.5	18.7
Lane LOS	A		B		C	C
Approach Delay (s)	0.8		0.1		20.5	18.7
Approach LOS					C	C

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	61.0%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	21	17	6	13	16	34	653	2	14	531	4
Future Volume (Veh/h)	6	21	17	6	13	16	34	653	2	14	531	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	23	18	7	14	17	37	710	2	15	577	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (ft)								744				
pX, platoon unblocked	0.83	0.83		0.83	0.83	0.83				0.83		
vC, conflicting volume	1417	1395	579	1422	1396	711	581			712		
vC1, stage 1 conf vol	609	609		785	785							
vC2, stage 2 conf vol	808	786		636	611							
vCu, unblocked vol	1400	1374	579	1406	1375	551	581			552		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	97	92	97	97	95	96	96			98		
cM capacity (veh/h)	269	300	515	273	299	444	993			846		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	48	38	37	712	15	581
Volume Left	7	7	37	0	15	0
Volume Right	18	17	0	2	0	4
cSH	349	343	993	1700	846	1700
Volume to Capacity	0.14	0.11	0.04	0.42	0.02	0.34
Queue Length 95th (ft)	12	9	3	0	1	0
Control Delay (s)	17.0	16.8	8.8	0.0	9.3	0.0
Lane LOS	C	C	A		A	
Approach Delay (s)	17.0	16.8	0.4		0.2	
Approach LOS	C	C				

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	44.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	92	640	47	88	403	136	137	405	142	219	224	110
Future Volume (vph)	92	640	47	88	403	136	137	405	142	219	224	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	1863	1583
Flt Permitted	0.32	1.00	1.00	0.12	1.00	1.00	0.53	1.00	1.00	0.31	1.00	1.00
Satd. Flow (perm)	602	1863	1583	218	1863	1583	996	3539	1583	586	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	100	696	51	96	438	148	149	440	154	238	243	120
RTOR Reduction (vph)	0	0	30	0	0	76	0	0	119	0	0	88
Lane Group Flow (vph)	100	696	21	96	438	72	149	440	35	238	243	32
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	39.4	34.9	34.9	38.0	34.2	34.2	25.9	19.5	19.5	31.9	22.5	22.5
Effective Green, g (s)	39.4	34.9	34.9	38.0	34.2	34.2	25.9	19.5	19.5	31.9	22.5	22.5
Actuated g/C Ratio	0.46	0.41	0.41	0.44	0.40	0.40	0.30	0.23	0.23	0.37	0.26	0.26
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	338	759	645	165	744	632	359	806	360	348	489	416
v/s Ratio Prot	0.02	c0.37		c0.03	0.24		0.03	0.12		c0.08	0.13	
v/s Ratio Perm	0.12		0.01	0.23		0.05	0.09		0.02	c0.18		0.02
v/c Ratio	0.30	0.92	0.03	0.58	0.59	0.11	0.42	0.55	0.10	0.68	0.50	0.08
Uniform Delay, d1	14.3	24.0	15.2	18.6	20.2	16.2	22.8	29.1	26.1	20.0	26.8	23.7
Progression 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
Incremental Delay, d2	0.5	15.8	0.0	5.1	1.2	0.1	0.8	2.7	0.5	5.5	3.6	0.4
Delay (s)	14.8	39.7	15.2	23.8	21.4	16.2	23.5	31.8	26.6	25.5	30.3	24.1
Level of Service	B	D	B	C	C	B	C	C	C	C	C	C
Approach Delay (s)		35.3			20.6			29.1			27.2	
Approach LOS		D			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	28.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	85.6	Sum of lost time (s)	18.0
Intersection Capacity Utilization	76.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	240	1102	141	213	950	95	163	266	198	88	225	104
Future Volume (vph)	240	1102	141	213	950	95	163	266	198	88	225	104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00	1.00	1.00	0.95	
Frt	1.00	0.98		1.00	0.99		1.00	1.00	0.85	1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	4999		1770	5016		1770	1863	1583	1770	3372	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	4999		1770	5016		1770	1863	1583	1770	3372	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	261	1198	153	232	1033	103	177	289	215	96	245	113
RTOR Reduction (vph)	0	18	0	0	13	0	0	0	152	0	59	0
Lane Group Flow (vph)	261	1333	0	232	1123	0	177	289	63	96	299	0
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			
Actuated Green, G (s)	15.7	25.6		13.9	23.8		11.1	26.5	26.5	6.1	21.5	
Effective Green, g (s)	15.7	25.6		13.9	23.8		11.1	26.5	26.5	6.1	21.5	
Actuated g/C Ratio	0.17	0.28		0.15	0.26		0.12	0.29	0.29	0.07	0.24	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	308	1420		273	1324		218	547	465	119	804	
v/s Ratio Prot	c0.15	c0.27		0.13	0.22		c0.10	c0.16		0.05	0.09	
v/s Ratio Perm									0.04			
v/c Ratio	0.85	0.94		0.85	0.85		0.81	0.53	0.14	0.81	0.37	
Uniform Delay, d1	36.0	31.5		37.1	31.4		38.5	26.6	23.4	41.4	28.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	18.9	12.0		21.1	5.2		20.1	3.6	0.6	31.5	1.3	
Delay (s)	55.0	43.5		58.2	36.7		58.5	30.2	24.0	72.9	30.0	
Level of Service	D	D		E	D		E	C	C	E	C	
Approach Delay (s)		45.4			40.3			35.6			39.1	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	41.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	90.1	Sum of lost time (s)	18.0
Intersection Capacity Utilization	70.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	116	750	31	58	448	73	117	199	328	109	96	92
Future Volume (vph)	116	750	31	58	448	73	117	199	328	109	96	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.98		1.00	0.91		1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3518		1770	3465		1770	1689		1770	1726	
Flt Permitted	0.37	1.00		0.21	1.00		0.63	1.00		0.32	1.00	
Satd. Flow (perm)	685	3518		384	3465		1173	1689		589	1726	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	126	815	34	63	487	79	127	216	357	118	104	100
RTOR Reduction (vph)	0	5	0	0	23	0	0	25	0	0	49	0
Lane Group Flow (vph)	126	844	0	63	543	0	127	548	0	118	155	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	19.4	19.4		19.4	19.4		29.6	29.6		29.6	29.6	
Effective Green, g (s)	19.4	19.4		19.4	19.4		29.6	29.6		29.6	29.6	
Actuated g/C Ratio	0.33	0.33		0.33	0.33		0.51	0.51		0.51	0.51	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	229	1176		128	1158		598	861		300	880	
v/s Ratio Prot		c0.24			0.16			c0.32			0.09	
v/s Ratio Perm	0.18			0.16			0.11			0.20		
v/c Ratio	0.55	0.72		0.49	0.47		0.21	0.64		0.39	0.18	
Uniform Delay, d1	15.7	16.9		15.4	15.2		7.8	10.3		8.7	7.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.8	2.1		3.0	0.3		0.8	3.6		3.8	0.4	
Delay (s)	18.6	19.0		18.3	15.5		8.6	13.9		12.5	8.1	
Level of Service	B	B		B	B		A	B		B	A	
Approach Delay (s)		19.0			15.8			12.9			9.7	
Approach LOS		B			B			B			A	

Intersection Summary			
HCM 2000 Control Delay	15.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	58.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	77.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	252	1144	78	18	848	43	82	56	20	21	61	151
Future Volume (vph)	252	1144	78	18	848	43	82	56	20	21	61	151
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Lane Util. Factor	1.00	0.91		1.00	0.91			1.00			1.00	
Frt	1.00	0.99		1.00	0.99			0.98			0.91	
Flt Protected	0.95	1.00		0.95	1.00			0.97			1.00	
Satd. Flow (prot)	1770	5036		1770	5048			1784			1692	
Flt Permitted	0.95	1.00		0.95	1.00			0.70			0.96	
Satd. Flow (perm)	1770	5036		1770	5048			1282			1640	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	274	1243	85	20	922	47	89	61	22	23	66	164
RTOR Reduction (vph)	0	11	0	0	9	0	0	9	0	0	113	0
Lane Group Flow (vph)	274	1317	0	20	960	0	0	163	0	0	140	0
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)	10.5	30.2		1.0	20.7			18.0			18.0	
Effective Green, g (s)	10.5	30.2		1.0	20.7			18.0			18.0	
Actuated g/C Ratio	0.17	0.48		0.02	0.33			0.29			0.29	
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	296	2425		28	1666			368			470	
v/s Ratio Prot	c0.15	c0.26		0.01	0.19							
v/s Ratio Perm								c0.13			0.09	
v/c Ratio	0.93	0.54		0.71	0.58			0.44			0.30	
Uniform Delay, d1	25.7	11.4		30.7	17.4			18.3			17.4	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	33.2	0.3		60.5	0.5			3.8			1.6	
Delay (s)	58.9	11.7		91.2	17.9			22.1			19.1	
Level of Service	E	B		F	B			C			B	
Approach Delay (s)		19.7			19.3			22.1			19.1	
Approach LOS		B			B			C			B	

Intersection Summary			
HCM 2000 Control Delay	19.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	62.7	Sum of lost time (s)	13.5
Intersection Capacity Utilization	68.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	191	775	124	32	327	96	51	269	85	128	223	85
Future Volume (vph)	191	775	124	32	327	96	51	269	85	128	223	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.98		1.00	0.97		1.00	0.96		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3466		1770	3419		1770	3412		1770	3393	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3466		1770	3419		1770	3412		1770	3393	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	208	842	135	35	355	104	55	292	92	139	242	92
RTOR Reduction (vph)	0	16	0	0	34	0	0	35	0	0	46	0
Lane Group Flow (vph)	208	961	0	35	425	0	55	349	0	139	288	0
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	12.6	27.0		2.8	17.2		3.7	21.3		7.7	25.3	
Effective Green, g (s)	12.6	27.0		2.8	17.2		3.7	21.3		7.7	25.3	
Actuated g/C Ratio	0.16	0.35		0.04	0.22		0.05	0.28		0.10	0.33	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	290	1218		64	765		85	946		177	1117	
v/s Ratio Prot	c0.12	c0.28		0.02	0.12		0.03	c0.10		c0.08	c0.08	
v/s Ratio Perm												
v/c Ratio	0.72	0.79		0.55	0.56		0.65	0.37		0.79	0.26	
Uniform Delay, d1	30.4	22.3		36.4	26.4		35.9	22.3		33.7	18.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	8.2	3.5		9.2	0.9		15.7	1.1		20.1	0.6	
Delay (s)	38.6	25.8		45.6	27.3		51.6	23.4		53.8	19.4	
Level of Service	D	C		D	C		D	C		D	B	
Approach Delay (s)		28.1			28.6			27.0			29.5	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	28.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	76.8	Sum of lost time (s)	18.0
Intersection Capacity Utilization	61.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	290	873	71	41	684	163	26	41	30	138	48	223
Future Volume (vph)	290	873	71	41	684	163	26	41	30	138	48	223
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.94		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	5028		1770	5085	1583	1770	1745		1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	5028		1770	5085	1583	1770	1745		1770	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	315	949	77	45	743	177	28	45	33	150	52	242
RTOR Reduction (vph)	0	11	0	0	0	137	0	24	0	0	0	0
Lane Group Flow (vph)	315	1015	0	45	743	40	28	54	0	150	52	242
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						6
Actuated Green, G (s)	15.9	31.0		3.7	18.8	18.8	2.0	21.8		8.5	28.3	28.3
Effective Green, g (s)	15.9	31.0		3.7	18.8	18.8	2.0	21.8		8.5	28.3	28.3
Actuated g/C Ratio	0.19	0.37		0.04	0.23	0.23	0.02	0.26		0.10	0.34	0.34
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	339	1877		78	1151	358	42	458		181	635	539
v/s Ratio Prot	c0.18	0.20		0.03	c0.15		0.02	0.03		c0.08	0.03	
v/s Ratio Perm						0.03						c0.15
v/c Ratio	0.93	0.54		0.58	0.65	0.11	0.67	0.12		0.83	0.08	0.45
Uniform Delay, d1	33.0	20.4		38.9	29.1	25.5	40.2	23.3		36.5	18.5	21.3
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	30.9	0.3		9.9	1.3	0.1	33.4	0.5		25.7	0.3	2.7
Delay (s)	63.9	20.7		48.8	30.3	25.6	73.5	23.8		62.2	18.8	24.0
Level of Service	E	C		D	C	C	E	C		E	B	C
Approach Delay (s)		30.9			30.3			36.9			36.3	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	31.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	83.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	54.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	5	55	10	10	25	15	613	15	15	603	15
Future Volume (Veh/h)	45	5	55	10	10	25	15	613	15	15	603	15
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	49	5	60	11	11	27	16	666	16	16	655	16
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			TWLTL	
Median storage veh)											2	
Upstream signal (ft)								380				
pX, platoon unblocked	0.84	0.84		0.84	0.84	0.84				0.84		
vC, conflicting volume	1426	1409	663	1456	1409	674	671			682		
vC1, stage 1 conf vol	695	695		706	706							
vC2, stage 2 conf vol	730	714		750	703							
vCu, unblocked vol	1411	1391	663	1447	1391	513	671			522		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	83	98	87	96	96	94	98			98		
cM capacity (veh/h)	281	310	461	262	310	470	919			874		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	114	49	16	682	16	671
Volume Left	49	11	16	0	16	0
Volume Right	60	27	0	16	0	16
cSH	356	363	919	1700	874	1700
Volume to Capacity	0.32	0.13	0.02	0.40	0.02	0.39
Queue Length 95th (ft)	34	12	1	0	1	0
Control Delay (s)	19.8	16.5	9.0	0.0	9.2	0.0
Lane LOS	C	C	A		A	
Approach Delay (s)	19.8	16.5	0.2		0.2	
Approach LOS	C	C				

Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	51.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	25	15	5	590	416	5
Future Volume (vph)	25	15	5	590	416	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5	4.5	
Lane Util. Factor	1.00		1.00	0.95	1.00	
Frt	0.95		1.00	1.00	1.00	
Flt Protected	0.97		0.95	1.00	1.00	
Satd. Flow (prot)	1715		1770	3539	1860	
Flt Permitted	0.97		0.41	1.00	1.00	
Satd. Flow (perm)	1715		759	3539	1860	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	27	16	5	641	452	5
RTOR Reduction (vph)	15	0	0	0	0	0
Lane Group Flow (vph)	28	0	5	641	457	0
Turn Type	Prot		pm+pt	NA	NA	
Protected Phases	4		5	2	6	
Permitted Phases			2			
Actuated Green, G (s)	2.2		31.0	31.0	25.8	
Effective Green, g (s)	2.2		31.0	31.0	25.8	
Actuated g/C Ratio	0.05		0.73	0.73	0.61	
Clearance Time (s)	4.5		4.5	4.5	4.5	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	89		574	2599	1137	
v/s Ratio Prot	c0.02		0.00	c0.18	c0.25	
v/s Ratio Perm			0.01			
v/c Ratio	0.31		0.01	0.25	0.40	
Uniform Delay, d1	19.3		1.9	1.8	4.2	
Progression Factor	1.00		1.00	1.00	1.00	
Incremental Delay, d2	2.0		0.0	0.0	0.2	
Delay (s)	21.3		1.9	1.9	4.5	
Level of Service	C		A	A	A	
Approach Delay (s)	21.3			1.9	4.5	
Approach LOS	C			A	A	

Intersection Summary			
HCM 2000 Control Delay	3.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	42.2	Sum of lost time (s)	13.5
Intersection Capacity Utilization	33.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	0	15	5	0	10	20	562	10	10	402	19
Future Volume (vph)	23	0	15	5	0	10	20	562	10	10	402	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	1.00	
Frt		0.95			0.91		1.00	1.00		1.00	0.99	
Flt Protected		0.97			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1712			1664		1770	3530		1770	1850	
Flt Permitted		1.00			1.00		0.50	1.00		0.42	1.00	
Satd. Flow (perm)		1765			1690		930	3530		775	1850	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	25	0	16	5	0	11	22	611	11	11	437	21
RTOR Reduction (vph)	0	25	0	0	15	0	0	1	0	0	2	0
Lane Group Flow (vph)	0	16	0	0	1	0	22	621	0	11	456	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		2.3			2.3		24.2	24.2		24.2	24.2	
Effective Green, g (s)		2.3			2.3		24.2	24.2		24.2	24.2	
Actuated g/C Ratio		0.06			0.06		0.68	0.68		0.68	0.68	
Clearance Time (s)		4.5			4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		114			109		633	2406		528	1261	
v/s Ratio Prot								0.18			c0.25	
v/s Ratio Perm		c0.01			0.00		0.02			0.01		
v/c Ratio		0.14			0.01		0.03	0.26		0.02	0.36	
Uniform Delay, d1		15.7			15.5		1.8	2.2		1.8	2.4	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.6			0.0		0.0	0.1		0.0	0.2	
Delay (s)		16.2			15.6		1.9	2.2		1.8	2.6	
Level of Service		B			B		A	A		A	A	
Approach Delay (s)		16.2			15.6			2.2			2.5	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM 2000 Control Delay	3.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	35.5	Sum of lost time (s)	9.0
Intersection Capacity Utilization	34.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
44: Wheeler Avenue & Third Street

08/10/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	3	43	19	6	63	18	565	17	39	337	13
Future Volume (Veh/h)	22	3	43	19	6	63	18	565	17	39	337	13
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	24	3	47	21	7	68	20	614	18	42	366	14
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								1070				
pX, platoon unblocked												
vC, conflicting volume	876	1129	190	978	1127	316	380			632		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	876	1129	190	978	1127	316	380			632		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	88	98	94	88	96	90	98			96		
cM capacity (veh/h)	203	190	820	182	191	680	1175			947		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	74	96	327	325	225	197
Volume Left	24	21	20	0	42	0
Volume Right	47	68	0	18	0	14
cSH	387	381	1175	1700	947	1700
Volume to Capacity	0.19	0.25	0.02	0.19	0.04	0.12
Queue Length 95th (ft)	17	25	1	0	3	0
Control Delay (s)	16.5	17.6	0.7	0.0	2.0	0.0
Lane LOS	C	C	A		A	
Approach Delay (s)	16.5	17.6	0.3		1.1	
Approach LOS	C	C				

Intersection Summary			
Average Delay	2.9		
Intersection Capacity Utilization	43.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	174	727	10	6	747	270	63	117	72	286	40	91
Future Volume (vph)	174	727	10	6	747	270	63	117	72	286	40	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.5	4.0	4.0	4.5	4.0	
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.90	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	5075		1770	5085	1583	1770	1863	1583	1770	1668	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	5075		1770	5085	1583	1770	1863	1583	1770	1668	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	189	790	11	7	812	293	68	127	78	311	43	99
RTOR Reduction (vph)	0	1	0	0	0	217	0	0	60	0	0	0
Lane Group Flow (vph)	189	800	0	7	812	76	68	127	18	311	142	0
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8			2			
Actuated Green, G (s)	10.0	30.3		1.2	21.5	21.5	6.4	19.5	19.5	15.3	28.4	
Effective Green, g (s)	10.0	30.3		1.2	21.5	21.5	6.4	19.5	19.5	15.3	28.4	
Actuated g/C Ratio	0.12	0.37		0.01	0.26	0.26	0.08	0.24	0.24	0.18	0.34	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.5	4.0	4.0	4.5	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	213	1857		25	1320	411	136	438	372	327	572	
v/s Ratio Prot	c0.11	0.16		0.00	c0.16		0.04	c0.07		c0.18	0.09	
v/s Ratio Perm						0.05			0.01			
v/c Ratio	0.89	0.43		0.28	0.62	0.19	0.50	0.29	0.05	0.95	0.25	
Uniform Delay, d1	35.8	19.8		40.4	27.0	23.8	36.7	26.0	24.5	33.4	19.5	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	32.7	0.2		6.0	0.9	0.2	2.9	1.7	0.3	36.8	0.2	
Delay (s)	68.5	19.9		46.4	27.9	24.1	39.5	27.6	24.7	70.2	19.8	
Level of Service	E	B		D	C	C	D	C	C	E	B	
Approach Delay (s)		29.2			27.0			29.8			54.4	
Approach LOS		C			C			C			D	

Intersection Summary			
HCM 2000 Control Delay	32.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	82.8	Sum of lost time (s)	16.5
Intersection Capacity Utilization	59.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	63	8	11	85	8	11	69	24	5	17	3
Future Volume (Veh/h)	5	63	8	11	85	8	11	69	24	5	17	3
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	68	9	12	92	9	12	75	26	5	18	3
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	101			77			215	208	72	266	208	96
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	101			77			215	208	72	266	208	96
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			98	89	97	99	97	100
cM capacity (veh/h)	1491			1522			718	682	990	607	682	960

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	82	113	113	26
Volume Left	5	12	12	5
Volume Right	9	9	26	3
cSH	1491	1522	738	688
Volume to Capacity	0.00	0.01	0.15	0.04
Queue Length 95th (ft)	0	1	13	3
Control Delay (s)	0.5	0.8	10.8	10.4
Lane LOS	A	A	B	B
Approach Delay (s)	0.5	0.8	10.8	10.4
Approach LOS			B	B

Intersection Summary			
Average Delay	4.9		
Intersection Capacity Utilization	21.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	8	6	8	10	1	10	112	13	2	22	7
Future Volume (Veh/h)	3	8	6	8	10	1	10	112	13	2	22	7
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	9	7	9	11	1	11	122	14	2	24	8
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								269				
pX, platoon unblocked												
vC, conflicting volume	190	190	28	194	187	129	32			136		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	190	190	28	194	187	129	32			136		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	99	99	99	98	100	99			100		
cM capacity (veh/h)	756	699	1047	747	702	921	1580			1448		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	19	21	147	34
Volume Left	3	9	11	2
Volume Right	7	1	14	8
cSH	807	729	1580	1448
Volume to Capacity	0.02	0.03	0.01	0.00
Queue Length 95th (ft)	2	2	1	0
Control Delay (s)	9.6	10.1	0.6	0.5
Lane LOS	A	B	A	A
Approach Delay (s)	9.6	10.1	0.6	0.5
Approach LOS	A	B		

Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	19.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	81	1139	10	5	867	66	7	2	10	14	0	19
Future Volume (vph)	81	1139	10	5	867	66	7	2	10	14	0	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	0.95	0.95		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.88		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5079		1770	5085	1583	1681	1555		1770	1583	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	0.99		0.95	1.00	
Satd. Flow (perm)	1770	5079		1770	5085	1583	1681	1545		1770	1583	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	88	1238	11	5	942	72	8	2	11	15	0	21
RTOR Reduction (vph)	0	1	0	0	0	46	0	8	0	0	0	0
Lane Group Flow (vph)	88	1248	0	5	942	26	7	6	0	15	21	0
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						
Actuated Green, G (s)	4.1	23.2		0.7	19.8	19.8	0.7	13.2		0.7	12.5	
Effective Green, g (s)	4.1	23.2		0.7	19.8	19.8	0.7	13.2		0.7	12.5	
Actuated g/C Ratio	0.07	0.42		0.01	0.36	0.36	0.01	0.24		0.01	0.23	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	131	2138		22	1827	568	21	370		22	359	
v/s Ratio Prot	c0.05	c0.25		0.00	0.19		0.00	0.00		c0.01	c0.01	
v/s Ratio Perm						0.02		0.00				
v/c Ratio	0.67	0.58		0.23	0.52	0.05	0.33	0.02		0.68	0.06	
Uniform Delay, d1	24.8	12.2		26.9	13.9	11.5	27.0	16.0		27.1	16.7	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	12.7	0.4		5.2	0.2	0.0	9.1	0.0		62.1	0.1	
Delay (s)	37.6	12.7		32.1	14.1	11.5	36.1	16.0		89.2	16.8	
Level of Service	D	B		C	B	B	D	B		F	B	
Approach Delay (s)		14.3			14.0			22.7			46.9	
Approach LOS		B			B			C			D	

Intersection Summary			
HCM 2000 Control Delay	14.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	55.1	Sum of lost time (s)	18.0
Intersection Capacity Utilization	45.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	27	52	58	18	95	46	135	243	26	17	158	68
Future Volume (vph)	27	52	58	18	95	46	135	243	26	17	158	68
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	29	57	63	20	103	50	147	264	28	18	172	74

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	149	173	439	264
Volume Left (vph)	29	20	147	18
Volume Right (vph)	63	50	28	74
Hadj (s)	-0.18	-0.12	0.06	-0.12
Departure Headway (s)	6.0	6.0	5.4	5.5
Degree Utilization, x	0.25	0.29	0.66	0.40
Capacity (veh/h)	507	512	637	606
Control Delay (s)	11.0	11.5	18.2	12.2
Approach Delay (s)	11.0	11.5	18.2	12.2
Approach LOS	B	B	C	B

Intersection Summary			
Delay	14.5		
Level of Service	B		
Intersection Capacity Utilization	57.9%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	38	32	53	290	133	35
Future Volume (Veh/h)	38	32	53	290	133	35
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	41	35	58	315	145	38
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				259		
pX, platoon unblocked						
vC, conflicting volume	576	145	183			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	576	145	183			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	91	96	96			
cM capacity (veh/h)	459	902	1392			

Direction, Lane #	EB 1	NB 1	SB 1	SB 2
Volume Total	76	373	145	38
Volume Left	41	58	0	0
Volume Right	35	0	0	38
cSH	593	1392	1700	1700
Volume to Capacity	0.13	0.04	0.09	0.02
Queue Length 95th (ft)	11	3	0	0
Control Delay (s)	12.0	1.5	0.0	0.0
Lane LOS	B	A		
Approach Delay (s)	12.0	1.5	0.0	
Approach LOS	B			

Intersection Summary			
Average Delay	2.3		
Intersection Capacity Utilization	Err%	ICU Level of Service	H
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	105	1079	32	16	893	219	31	25	25	107	23	44
Future Volume (vph)	105	1079	32	16	893	219	31	25	25	107	23	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.93		1.00	0.90	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5063		1770	5085	1583	1770	1723		1770	1679	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	5063		1770	5085	1583	1770	1723		1770	1679	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	114	1173	35	17	971	238	34	27	27	116	25	48
RTOR Reduction (vph)	0	4	0	0	0	143	0	19	0	0	0	0
Lane Group Flow (vph)	114	1204	0	17	971	95	34	35	0	116	73	0
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases						8						
Actuated Green, G (s)	10.9	33.9		2.0	25.0	35.8	4.0	25.3		10.8	32.1	
Effective Green, g (s)	10.9	33.9		2.0	25.0	35.8	4.0	25.3		10.8	32.1	
Actuated g/C Ratio	0.12	0.38		0.02	0.28	0.40	0.04	0.28		0.12	0.36	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	214	1907		39	1412	629	78	484		212	598	
v/s Ratio Prot	c0.06	c0.24		0.01	c0.19	0.02	0.02	0.02		c0.07	c0.04	
v/s Ratio Perm						0.04						
v/c Ratio	0.53	0.63		0.44	0.69	0.15	0.44	0.07		0.55	0.12	
Uniform Delay, d1	37.2	22.9		43.4	29.0	17.4	41.9	23.7		37.3	19.5	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.5	1.6		7.6	2.8	0.1	3.9	0.3		2.9	0.4	
Delay (s)	39.7	24.5		51.1	31.8	17.5	45.8	24.0		40.2	19.9	
Level of Service	D	C		D	C	B	D	C		D	B	
Approach Delay (s)		25.9			29.3			32.4			32.3	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	28.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	49.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	20	48	22	9	47	11	78	278	35	10	132	14
Future Volume (vph)	20	48	22	9	47	11	78	278	35	10	132	14
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	22	52	24	10	51	12	85	302	38	11	143	15

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	98	73	425	169
Volume Left (vph)	22	10	85	11
Volume Right (vph)	24	12	38	15
Hadj (s)	-0.07	-0.04	0.02	-0.01
Departure Headway (s)	5.4	5.5	4.6	4.9
Degree Utilization, x	0.15	0.11	0.54	0.23
Capacity (veh/h)	595	581	757	693
Control Delay (s)	9.3	9.1	13.0	9.3
Approach Delay (s)	9.3	9.1	13.0	9.3
Approach LOS	A	A	B	A

Intersection Summary			
Delay	11.3		
Level of Service	B		
Intersection Capacity Utilization	47.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	41	23	32	7	19	8	39	443	13	5	144	22
Future Volume (vph)	41	23	32	7	19	8	39	443	13	5	144	22
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	45	25	35	8	21	9	42	482	14	5	157	24

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	105	38	538	186
Volume Left (vph)	45	8	42	5
Volume Right (vph)	35	9	14	24
Hadj (s)	-0.08	-0.07	0.03	-0.04
Departure Headway (s)	5.6	5.8	4.6	4.9
Degree Utilization, x	0.16	0.06	0.69	0.25
Capacity (veh/h)	567	544	761	692
Control Delay (s)	9.7	9.1	17.1	9.6
Approach Delay (s)	9.7	9.1	17.1	9.6
Approach LOS	A	A	C	A

Intersection Summary			
Delay	14.2		
Level of Service	B		
Intersection Capacity Utilization	55.8%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	25	19	481	28	10	161
Future Volume (Veh/h)	25	19	481	28	10	161
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	27	21	523	30	11	175
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			277			
pX, platoon unblocked	0.92	0.92			0.92	
vC, conflicting volume	735	276			553	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	534	35			336	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	94	98			99	
cM capacity (veh/h)	433	946			1120	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1
Volume Total	48	349	204	186
Volume Left	27	0	0	11
Volume Right	21	0	30	0
cSH	567	1700	1700	1120
Volume to Capacity	0.08	0.21	0.12	0.01
Queue Length 95th (ft)	7	0	0	1
Control Delay (s)	11.9	0.0	0.0	0.6
Lane LOS	B			A
Approach Delay (s)	11.9	0.0		0.6
Approach LOS	B			

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	26.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	52	962	191	73	732	98	321	335	140	27	151	41
Future Volume (vph)	52	962	191	73	732	98	321	335	140	27	151	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	0.97	0.95		1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.96		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	4959		1770	5085	1583	3433	3383		1770	1803	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	4959		1770	5085	1583	3433	3383		1770	1803	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	57	1046	208	79	796	107	349	364	152	29	164	45
RTOR Reduction (vph)	0	37	0	0	0	75	0	53	0	0	0	0
Lane Group Flow (vph)	57	1217	0	79	796	32	349	463	0	29	209	0
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases						6						
Actuated Green, G (s)	10.8	26.9		7.9	24.0	24.0	10.1	25.0		2.2	17.1	
Effective Green, g (s)	10.8	26.9		7.9	24.0	24.0	10.1	25.0		2.2	17.1	
Actuated g/C Ratio	0.14	0.34		0.10	0.30	0.30	0.13	0.31		0.03	0.21	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	238	1667		174	1525	474	433	1057		48	385	
v/s Ratio Prot	c0.03	c0.25		c0.04	0.16		c0.10	0.14		0.02	c0.12	
v/s Ratio Perm						0.02						
v/c Ratio	0.24	0.73		0.45	0.52	0.07	0.81	0.44		0.60	0.54	
Uniform Delay, d1	30.9	23.4		34.0	23.2	20.0	34.0	21.9		38.5	28.0	
Progression Factor	1.00	1.00		1.09	1.35	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.5	2.9		1.7	0.3	0.1	10.5	1.3		19.6	5.4	
Delay (s)	31.5	26.2		38.7	31.6	20.1	44.5	23.2		58.1	33.4	
Level of Service	C	C		D	C	C	D	C		E	C	
Approach Delay (s)		26.4			30.9			31.8			36.4	
Approach LOS		C			C			C			D	

Intersection Summary			
HCM 2000 Control Delay	29.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	61.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	11	11	6	7	15	37	940	23	11	621	17
Future Volume (Veh/h)	6	11	11	6	7	15	37	940	23	11	621	17
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	12	12	7	8	16	40	1022	25	12	675	18
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (ft)											382	
pX, platoon unblocked	0.75	0.75	0.75	0.75	0.75		0.75					
vC, conflicting volume	1830	1835	684	1832	1832	1034	693			1047		
vC1, stage 1 conf vol	708	708		1114	1114							
vC2, stage 2 conf vol	1122	1127		717	717							
vCu, unblocked vol	1939	1946	414	1941	1941	1034	426			1047		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	96	94	97	96	96	94	95			98		
cM capacity (veh/h)	182	215	480	196	217	282	852			665		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	31	31	40	1047	12	693
Volume Left	7	7	40	0	12	0
Volume Right	12	16	0	25	0	18
cSH	260	240	852	1700	665	1700
Volume to Capacity	0.12	0.13	0.05	0.62	0.02	0.41
Queue Length 95th (ft)	10	11	4	0	1	0
Control Delay (s)	20.7	22.2	9.4	0.0	10.5	0.0
Lane LOS	C	C	A		B	
Approach Delay (s)	20.7	22.2	0.3		0.2	
Approach LOS	C	C				

Intersection Summary				
Average Delay	1.0			
Intersection Capacity Utilization	60.9%	ICU Level of Service	B	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	15	16	0	3	10	19	942	10	9	615	10
Future Volume (Veh/h)	13	15	16	0	3	10	19	942	10	9	615	10
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	14	16	17	0	3	11	21	1024	11	10	668	11
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (ft)								1253			753	
pX, platoon unblocked	0.86	0.86	0.77	0.86	0.86	0.74	0.77			0.74		
vC, conflicting volume	1772	1770	674	1784	1770	1030	679			1035		
vC1, stage 1 conf vol	694	694		1072	1072							
vC2, stage 2 conf vol	1078	1077		713	699							
vCu, unblocked vol	1224	1222	432	1239	1222	867	440			874		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	93	93	96	100	99	96	98			98		
cM capacity (veh/h)	200	228	482	214	236	262	867			574		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	47	14	21	1035	10	679
Volume Left	14	0	21	0	10	0
Volume Right	17	11	0	11	0	11
cSH	268	256	867	1700	574	1700
Volume to Capacity	0.18	0.05	0.02	0.61	0.02	0.40
Queue Length 95th (ft)	16	4	2	0	1	0
Control Delay (s)	21.3	19.9	9.3	0.0	11.4	0.0
Lane LOS	C	C	A		B	
Approach Delay (s)	21.3	19.9	0.2		0.2	
Approach LOS	C	C				

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	66.0%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	15	21	15	0	30	24	915	31	22	595	11
Future Volume (Veh/h)	18	15	21	15	0	30	24	915	31	22	595	11
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	20	16	23	16	0	33	26	995	34	24	647	12
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			TWLTL	
Median storage veh)											2	
Upstream signal (ft)								1055			951	
pX, platoon unblocked	0.84	0.84	0.80	0.84	0.84	0.74	0.80			0.74		
vC, conflicting volume	1781	1782	653	1773	1754	995	659			1029		
vC1, stage 1 conf vol	701	701		1047	1047							
vC2, stage 2 conf vol	1080	1081		726	707							
vCu, unblocked vol	1295	1296	439	1285	1263	820	446			866		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	88	92	95	93	100	88	97			96		
cM capacity (veh/h)	171	211	493	213	236	278	889			577		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	59	49	26	995	34	24	659
Volume Left	20	16	26	0	0	24	0
Volume Right	23	33	0	0	34	0	12
cSH	246	253	889	1700	1700	577	1700
Volume to Capacity	0.24	0.19	0.03	0.59	0.02	0.04	0.39
Queue Length 95th (ft)	23	18	2	0	0	3	0
Control Delay (s)	24.2	22.6	9.2	0.0	0.0	11.5	0.0
Lane LOS	C	C	A			B	
Approach Delay (s)	24.2	22.6	0.2			0.4	
Approach LOS	C	C					

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	58.9%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	13	17	955	18	30	611
Future Volume (Veh/h)	13	17	955	18	30	611
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	14	18	1038	20	33	664
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		4				
Median type			None			None
Median storage veh)						
Upstream signal (ft)			255			
pX, platoon unblocked	0.84	0.84			0.84	
vC, conflicting volume	1446	529			1058	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1155	66			694	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	91	98			96	
cM capacity (veh/h)	153	829			756	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	32	692	366	33	332	332
Volume Left	14	0	0	33	0	0
Volume Right	18	0	20	0	0	0
cSH	350	1700	1700	756	1700	1700
Volume to Capacity	0.09	0.41	0.22	0.04	0.20	0.20
Queue Length 95th (ft)	7	0	0	3	0	0
Control Delay (s)	18.8	0.0	0.0	10.0	0.0	0.0
Lane LOS	C			A		
Approach Delay (s)	18.8	0.0		0.5		
Approach LOS	C					

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	37.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	176	588	173	140	371	59	197	902	226	111	512	158
Future Volume (vph)	176	588	173	140	371	59	197	902	226	111	512	158
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97		1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	4932		1770	4905	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1770	4932		1770	4905	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	191	639	188	152	403	64	214	980	246	121	557	172
RTOR Reduction (vph)	0	0	136	0	0	48	0	54	0	0	70	0
Lane Group Flow (vph)	191	639	52	152	403	16	214	1172	0	121	659	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6						
Actuated Green, G (s)	11.5	22.0	22.0	9.5	20.0	20.0	12.7	23.5		7.0	17.8	
Effective Green, g (s)	11.5	22.0	22.0	9.5	20.0	20.0	12.7	23.5		7.0	17.8	
Actuated g/C Ratio	0.14	0.28	0.28	0.12	0.25	0.25	0.16	0.29		0.09	0.22	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	254	973	435	210	884	395	280	1448		154	1091	
v/s Ratio Prot	c0.11	c0.18		0.09	0.11		c0.12	c0.24		0.07	0.13	
v/s Ratio Perm			0.03			0.01						
v/c Ratio	0.75	0.66	0.12	0.72	0.46	0.04	0.76	0.81		0.79	0.60	
Uniform Delay, d1	32.9	25.7	21.7	34.0	25.4	22.7	32.2	26.2		35.8	27.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.03	1.58		1.00	1.00	
Incremental Delay, d2	11.8	3.5	0.6	11.7	1.7	0.2	9.8	2.8		22.6	1.0	
Delay (s)	44.7	29.1	22.3	45.6	27.1	22.9	43.0	44.3		58.4	28.9	
Level of Service	D	C	C	D	C	C	D	D		E	C	
Approach Delay (s)		30.8			31.2			44.1			33.1	
Approach LOS		C			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	36.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	67.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	81	356	40	39	381	116	66	195	40	116	178	142
Future Volume (vph)	81	356	40	39	381	116	66	195	40	116	178	142
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00		1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.96			0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.99		0.95	1.00	1.00
Satd. Flow (prot)	1770	1835		1770	1798			1810		1770	1863	1583
Flt Permitted	0.16	1.00		0.28	1.00			0.99		0.95	1.00	1.00
Satd. Flow (perm)	290	1835		520	1798			1810		1770	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	88	387	43	42	414	126	72	212	43	126	193	154
RTOR Reduction (vph)	0	5	0	0	14	0	0	7	0	0	0	118
Lane Group Flow (vph)	88	425	0	42	526	0	0	320	0	126	193	36
Turn Type	Perm	NA		Perm	NA		Split	NA		Split	NA	Perm
Protected Phases		4			8		2	2		6	6	
Permitted Phases	4			8								6
Actuated Green, G (s)	25.7	25.7		25.7	25.7			20.0		18.1	18.1	18.1
Effective Green, g (s)	25.7	25.7		25.7	25.7			20.0		18.1	18.1	18.1
Actuated g/C Ratio	0.33	0.33		0.33	0.33			0.26		0.23	0.23	0.23
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5		4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	96	610		172	597			468		414	436	370
v/s Ratio Prot		0.23			0.29			c0.18		0.07	c0.10	
v/s Ratio Perm	c0.30			0.08								0.02
v/c Ratio	0.92	0.70		0.24	0.88			0.68		0.30	0.44	0.10
Uniform Delay, d1	24.8	22.4		18.7	24.4			25.8		24.4	25.3	23.2
Progression Factor	1.00	1.00		1.00	1.00			1.00		1.00	1.00	1.00
Incremental Delay, d2	64.7	3.5		0.7	14.2			7.9		1.9	3.2	0.5
Delay (s)	89.5	25.9		19.5	38.6			33.7		26.3	28.5	23.7
Level of Service	F	C		B	D			C		C	C	C
Approach Delay (s)		36.7			37.2			33.7			26.4	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	33.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	77.3	Sum of lost time (s)	13.5
Intersection Capacity Utilization	72.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	256	844	157	128	646	212	264	667	50	231	368	178
Future Volume (vph)	256	844	157	128	646	212	264	667	50	231	368	178
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.91		1.00	0.95	1.00	0.97	0.95		1.00	0.95	1.00
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	4965		1770	3539	1583	3433	3502		1770	3539	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	4965		1770	3539	1583	3433	3502		1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	278	917	171	139	702	230	287	725	54	251	400	193
RTOR Reduction (vph)	0	34	0	0	0	177	0	7	0	0	0	142
Lane Group Flow (vph)	278	1054	0	139	702	53	287	772	0	251	400	51
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						6
Actuated Green, G (s)	13.6	22.7		9.2	18.3	18.3	10.8	19.6		12.3	21.1	21.1
Effective Green, g (s)	13.6	22.7		9.2	18.3	18.3	10.8	19.6		12.3	21.1	21.1
Actuated g/C Ratio	0.17	0.28		0.12	0.23	0.23	0.14	0.25		0.15	0.26	0.26
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	301	1412		204	811	363	464	860		272	935	418
v/s Ratio Prot	c0.16	0.21		0.08	c0.20		0.08	c0.22		c0.14	0.11	
v/s Ratio Perm						0.03						0.03
v/c Ratio	0.92	0.75		0.68	0.87	0.15	0.62	0.90		0.92	0.43	0.12
Uniform Delay, d1	32.6	25.9		33.9	29.6	24.5	32.6	29.1		33.3	24.3	22.3
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	32.4	2.2		9.0	9.6	0.2	2.5	14.1		34.6	1.4	0.6
Delay (s)	65.0	28.1		42.9	39.1	24.7	35.0	43.2		67.9	25.8	22.9
Level of Service	E	C		D	D	C	D	D		E	C	C
Approach Delay (s)		35.6			36.5			41.0			37.6	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	37.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	79.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	78.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	163	378	72	49	325	128	74	740	120	70	477	98
Future Volume (vph)	163	378	72	49	325	128	74	740	120	70	477	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	1824		1770	1815	
Flt Permitted	0.15	1.00	1.00	0.17	1.00	1.00	0.24	1.00		0.07	1.00	
Satd. Flow (perm)	276	1863	1583	324	1863	1583	445	1824		134	1815	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	177	411	78	53	353	139	80	804	130	76	518	107
RTOR Reduction (vph)	0	0	59	0	0	82	0	5	0	0	7	0
Lane Group Flow (vph)	177	411	19	53	353	57	80	929	0	76	618	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	35.0	27.0	27.0	27.0	23.0	23.0	61.3	56.5		59.7	55.7	
Effective Green, g (s)	35.0	27.0	27.0	27.0	23.0	23.0	61.3	56.5		59.7	55.7	
Actuated g/C Ratio	0.32	0.25	0.25	0.25	0.21	0.21	0.56	0.52		0.55	0.51	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	197	459	390	132	391	332	307	941		132	923	
v/s Ratio Prot	c0.07	0.22		0.01	0.19		0.01	c0.51		c0.02	0.34	
v/s Ratio Perm	c0.22		0.01	0.08		0.04	0.13			0.29		
v/c Ratio	0.90	0.90	0.05	0.40	0.90	0.17	0.26	0.99		0.58	0.67	
Uniform Delay, d1	31.0	39.9	31.5	33.3	42.2	35.4	14.3	26.1		24.6	20.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	36.9	19.5	0.1	2.0	23.4	0.2	0.5	26.3		6.0	3.9	
Delay (s)	67.9	59.4	31.5	35.3	65.6	35.7	14.7	52.5		30.5	23.9	
Level of Service	E	E	C	D	E	D	B	D		C	C	
Approach Delay (s)		58.4			55.0			49.5			24.6	
Approach LOS		E			D			D			C	

Intersection Summary			
HCM 2000 Control Delay	46.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	109.5	Sum of lost time (s)	18.0
Intersection Capacity Utilization	91.5%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	217	130	131	48	80	65	57	491	56	100	610	81
Future Volume (vph)	217	130	131	48	80	65	57	491	56	100	610	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	0.95	0.95	1.00		1.00	1.00	1.00	0.95	1.00	1.00	0.91	
Frt	1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	0.99	1.00		0.98	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1681	1746	1583		1829	1583	1770	3539	1583	1770	4996	
Flt Permitted	0.95	0.99	1.00		0.98	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1681	1746	1583		1829	1583	1770	3539	1583	1770	4996	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	236	141	142	52	87	71	62	534	61	109	663	88
RTOR Reduction (vph)	0	0	114	0	0	62	0	0	41	0	18	0
Lane Group Flow (vph)	184	193	28	0	139	9	62	534	20	109	733	0
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			8			2			
Actuated Green, G (s)	13.0	13.0	13.0		8.3	8.3	3.7	21.1	21.1	5.5	22.9	
Effective Green, g (s)	13.0	13.0	13.0		8.3	8.3	3.7	21.1	21.1	5.5	22.9	
Actuated g/C Ratio	0.20	0.20	0.20		0.13	0.13	0.06	0.32	0.32	0.08	0.35	
Clearance Time (s)	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	331	344	312		230	199	99	1133	506	147	1736	
v/s Ratio Prot	0.11	c0.11			c0.08		0.04	c0.15		c0.06	0.15	
v/s Ratio Perm			0.02			0.01			0.01			
v/c Ratio	0.56	0.56	0.09		0.60	0.04	0.63	0.47	0.04	0.74	0.42	
Uniform Delay, d1	23.8	23.9	21.6		27.2	25.3	30.4	17.9	15.4	29.5	16.4	
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.0	2.1	0.1		4.4	0.1	11.7	1.4	0.1	18.1	0.8	
Delay (s)	25.9	26.0	21.7		31.7	25.4	42.2	19.3	15.6	47.6	17.2	
Level of Service	C	C	C		C	C	D	B	B	D	B	
Approach Delay (s)		24.8			29.6			21.1			21.1	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	22.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	65.9	Sum of lost time (s)	18.0
Intersection Capacity Utilization	50.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
65: La Verne Ave & Arrow Hwy

08/10/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	940	0	6	519	3	187	0	5	2	0	0
Future Volume (vph)	6	940	0	6	519	3	187	0	5	2	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0			4.0	
Lane Util. Factor	1.00	0.91		1.00	0.95	1.00		1.00			1.00	
Frt	1.00	1.00		1.00	1.00	0.85		1.00			1.00	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.95			0.95	
Satd. Flow (prot)	1770	5085		1770	3539	1583		1770			1770	
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.95			0.95	
Satd. Flow (perm)	1770	5085		1770	3539	1583		1770			1770	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	7	1022	0	7	564	3	203	0	5	2	0	0
RTOR Reduction (vph)	0	0	0	0	0	2	0	106	0	0	0	0
Lane Group Flow (vph)	7	1022	0	7	564	1	0	102	0	0	2	0
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA		Split	NA	
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases						8						
Actuated Green, G (s)	0.7	17.5		0.7	17.5	17.5		16.0			16.0	
Effective Green, g (s)	0.7	17.5		0.7	17.5	17.5		16.0			16.0	
Actuated g/C Ratio	0.01	0.26		0.01	0.26	0.26		0.24			0.24	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0		4.0			4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)	18	1344		18	935	418		427			427	
v/s Ratio Prot	c0.00	c0.20		0.00	0.16			c0.06			c0.00	
v/s Ratio Perm						0.00						
v/c Ratio	0.39	0.76		0.39	0.60	0.00		0.24			0.00	
Uniform Delay, d1	32.5	22.4		32.5	21.3	17.9		20.2			19.1	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00			1.00	
Incremental Delay, d2	13.4	2.6		13.4	1.1	0.0		1.3			0.0	
Delay (s)	45.9	25.0		45.9	22.4	17.9		21.5			19.1	
Level of Service	D	C		D	C	B		C			B	
Approach Delay (s)		25.2			22.7			21.5			19.1	
Approach LOS		C			C			C			B	

Intersection Summary			
HCM 2000 Control Delay	23.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	66.2	Sum of lost time (s)	16.0
Intersection Capacity Utilization	34.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	831	1	43	458	13	11	18	19	15	10	27
Future Volume (Veh/h)	26	831	1	43	458	13	11	18	19	15	10	27
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	28	903	1	47	498	14	12	20	21	16	11	29
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)									2			2
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		425										
pX, platoon unblocked				0.84			0.84	0.84	0.84	0.84	0.84	
vC, conflicting volume	512			904			1308	1566	302	976	1559	256
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	512			230			710	1016	0	317	1008	256
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			96			95	89	98	96	94	96
cM capacity (veh/h)	1050			1124			235	186	913	439	188	743

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	28	361	361	182	47	332	180	53	56
Volume Left	28	0	0	0	47	0	0	12	16
Volume Right	0	0	0	1	0	0	14	21	29
cSH	1050	1700	1700	1700	1124	1700	1700	338	699
Volume to Capacity	0.03	0.21	0.21	0.11	0.04	0.20	0.11	0.16	0.08
Queue Length 95th (ft)	2	0	0	0	3	0	0	14	7
Control Delay (s)	8.5	0.0	0.0	0.0	8.3	0.0	0.0	19.2	13.2
Lane LOS	A				A			C	B
Approach Delay (s)	0.3				0.7			19.2	13.2
Approach LOS								C	B

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	37.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	115	524	169	123	399	99	240	768	205	72	572	66
Future Volume (vph)	115	524	169	123	399	99	240	768	205	72	572	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.32	1.00	1.00	0.18	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	602	1863	1583	329	1863	1583	1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	125	570	184	134	434	108	261	835	223	78	622	72
RTOR Reduction (vph)	0	0	113	0	0	67	0	0	117	0	0	53
Lane Group Flow (vph)	125	570	71	134	434	41	261	835	106	78	622	19
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8		8			2			6
Actuated Green, G (s)	25.3	25.3	25.3	25.3	25.3	25.3	11.7	26.0	26.0	3.8	18.1	18.1
Effective Green, g (s)	25.3	25.3	25.3	25.3	25.3	25.3	11.7	26.0	26.0	3.8	18.1	18.1
Actuated g/C Ratio	0.38	0.38	0.38	0.38	0.38	0.38	0.17	0.39	0.39	0.06	0.27	0.27
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	226	702	596	124	702	596	308	1371	613	100	954	427
v/s Ratio Prot		0.31			0.23		c0.15	c0.24		0.04	0.18	
v/s Ratio Perm	0.21		0.04	c0.41		0.03			0.07			0.01
v/c Ratio	0.55	0.81	0.12	1.08	0.62	0.07	0.85	0.61	0.17	0.78	0.65	0.05
Uniform Delay, d1	16.5	18.8	13.6	20.9	17.0	13.4	26.8	16.5	13.5	31.2	21.7	18.1
Progression 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
Incremental Delay, d2	2.9	7.1	0.1	104.1	1.6	0.0	18.9	2.0	0.6	31.6	3.5	0.2
Delay (s)	19.4	25.9	13.7	125.0	18.6	13.4	45.8	18.5	14.1	62.8	25.2	18.3
Level of Service	B	C	B	F	B	B	D	B	B	E	C	B
Approach Delay (s)		22.4			38.9			23.1			28.3	
Approach LOS		C			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	27.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	67.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	76.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	126	984	54	109	369	158	133	751	149	308	721	47
Future Volume (vph)	126	984	54	109	369	158	133	751	149	308	721	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	0.95		1.00	0.95	
Frt	1.00	0.99		1.00	0.95		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5045		1770	4856		1770	3451		1770	3507	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	5045		1770	4856		1770	3451		1770	3507	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	137	1070	59	118	401	172	145	816	162	335	784	51
RTOR Reduction (vph)	0	8	0	0	110	0	0	23	0	0	7	0
Lane Group Flow (vph)	137	1121	0	118	463	0	145	955	0	335	828	0
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	6.0	17.0		5.0	16.0		7.9	19.0		13.0	24.1	
Effective Green, g (s)	6.0	17.0		5.0	16.0		7.9	19.0		13.0	24.1	
Actuated g/C Ratio	0.09	0.24		0.07	0.23		0.11	0.27		0.19	0.34	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	151	1225		126	1109		199	936		328	1207	
v/s Ratio Prot	c0.08	c0.22		0.07	0.10		0.08	c0.28		c0.19	0.24	
v/s Ratio Perm												
v/c Ratio	0.91	0.91		0.94	0.42		0.73	1.02		1.02	0.69	
Uniform Delay, d1	31.7	25.8		32.3	23.0		30.0	25.5		28.5	19.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	46.4	10.6		60.2	0.3		12.5	34.5		55.3	1.6	
Delay (s)	78.1	36.4		92.6	23.3		42.5	60.0		83.8	21.3	
Level of Service	E	D		F	C		D	E		F	C	
Approach Delay (s)		40.9			35.1			57.8			39.2	
Approach LOS		D			D			E			D	

Intersection Summary			
HCM 2000 Control Delay	44.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	82.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	245	296	184	80	152	120	125	995	113	87	767	69
Future Volume (vph)	245	296	184	80	152	120	125	995	113	87	767	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.65	1.00	1.00	0.39	1.00	1.00	0.30	1.00	1.00	0.21	1.00	1.00
Satd. Flow (perm)	1205	1863	1583	735	1863	1583	556	3539	1583	384	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	266	322	200	87	165	130	136	1082	123	95	834	75
RTOR Reduction (vph)	0	0	106	0	0	56	0	0	51	0	0	32
Lane Group Flow (vph)	266	322	94	87	165	74	136	1082	72	95	834	43
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	16.4	16.4	16.4	16.4	16.4	16.4	33.1	33.1	33.1	33.1	33.1	33.1
Effective Green, g (s)	16.4	16.4	16.4	16.4	16.4	16.4	33.1	33.1	33.1	33.1	33.1	33.1
Actuated g/C Ratio	0.29	0.29	0.29	0.29	0.29	0.29	0.58	0.58	0.58	0.58	0.58	0.58
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	343	531	451	209	531	451	320	2037	911	221	2037	911
v/s Ratio Prot		0.17			0.09			c0.31			0.24	
v/s Ratio Perm	c0.22		0.06	0.12		0.05	0.24		0.05	0.25		0.03
v/c Ratio	0.78	0.61	0.21	0.42	0.31	0.16	0.42	0.53	0.08	0.43	0.41	0.05
Uniform Delay, d1	18.9	17.8	15.6	16.7	16.1	15.4	6.9	7.5	5.4	6.9	6.8	5.3
Progression 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
Incremental Delay, d2	10.5	2.0	0.2	1.3	0.3	0.2	4.1	1.0	0.2	6.0	0.6	0.1
Delay (s)	29.3	19.7	15.9	18.0	16.5	15.6	10.9	8.5	5.6	12.9	7.4	5.4
Level of Service	C	B	B	B	B	B	B	A	A	B	A	A
Approach Delay (s)		22.0			16.5			8.4			7.8	
Approach LOS		C			B			A			A	

Intersection Summary			
HCM 2000 Control Delay	12.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	57.5	Sum of lost time (s)	8.0
Intersection Capacity Utilization	67.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	53	1207	14	31	1108
Future Volume (Veh/h)	0	53	1207	14	31	1108
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	58	1312	15	34	1204
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			916			
pX, platoon unblocked	0.77	0.77			0.77	
vC, conflicting volume	1990	664			1327	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1690	0			831	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	93			94	
cM capacity (veh/h)	61	836			615	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	0	58	875	452	34	602	602
Volume Left	0	0	0	0	34	0	0
Volume Right	0	58	0	15	0	0	0
cSH	1700	836	1700	1700	615	1700	1700
Volume to Capacity	0.00	0.07	0.51	0.27	0.06	0.35	0.35
Queue Length 95th (ft)	0	6	0	0	4	0	0
Control Delay (s)	0.0	9.6	0.0	0.0	11.2	0.0	0.0
Lane LOS	A	A			B		
Approach Delay (s)	9.6		0.0		0.3		
Approach LOS	A						

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	43.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	356	833	128	234	495	132	182	774	119	183	868	165
Future Volume (vph)	356	833	128	234	495	132	182	774	119	183	868	165
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.98		1.00	0.97		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	4984		1770	4925		1770	3469		1770	3539	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	4984		1770	4925		1770	3469		1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	387	905	139	254	538	143	198	841	129	199	943	179
RTOR Reduction (vph)	0	23	0	0	54	0	0	13	0	0	0	84
Lane Group Flow (vph)	387	1021	0	254	627	0	198	957	0	199	943	95
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												6
Actuated Green, G (s)	20.1	20.0		15.5	15.4		11.0	27.0		11.0	27.0	27.0
Effective Green, g (s)	20.1	20.0		15.5	15.4		11.0	27.0		11.0	27.0	27.0
Actuated g/C Ratio	0.22	0.22		0.17	0.17		0.12	0.30		0.12	0.30	0.30
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	397	1113		306	847		217	1046		217	1067	477
v/s Ratio Prot	c0.22	c0.20		0.14	0.13		0.11	c0.28		c0.11	0.27	
v/s Ratio Perm												0.06
v/c Ratio	0.97	0.92		0.83	0.74		0.91	0.91		0.92	0.88	0.20
Uniform Delay, d1	34.4	33.9		35.7	35.2		38.8	30.1		38.8	29.8	23.2
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	38.2	11.7		17.1	3.5		37.8	13.6		38.6	10.7	0.9
Delay (s)	72.7	45.7		52.8	38.7		76.6	43.8		77.4	40.4	24.2
Level of Service	E	D		D	D		E	D		E	D	C
Approach Delay (s)		53.0			42.5			49.3			43.8	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	47.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	89.5	Sum of lost time (s)	16.0
Intersection Capacity Utilization	80.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	6	33	85	21	78	38	871	73	55	592	40
Future Volume (vph)	25	6	33	85	21	78	38	871	73	55	592	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		1.00			1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.93			0.94		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98			0.98		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1701			1716		1770	3539	1583	1770	3539	1583
Flt Permitted		0.87			0.83		0.40	1.00	1.00	0.28	1.00	1.00
Satd. Flow (perm)		1507			1459		753	3539	1583	515	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	27	7	36	92	23	85	41	947	79	60	643	43
RTOR Reduction (vph)	0	29	0	0	53	0	0	0	27	0	0	14
Lane Group Flow (vph)	0	41	0	0	147	0	41	947	52	60	643	29
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)		10.5			10.5		36.4	36.4	36.4	36.4	36.4	36.4
Effective Green, g (s)		10.5			10.5		36.4	36.4	36.4	36.4	36.4	36.4
Actuated g/C Ratio		0.19			0.19		0.66	0.66	0.66	0.66	0.66	0.66
Clearance Time (s)		4.0			4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		288			279		499	2346	1049	341	2346	1049
v/s Ratio Prot								c0.27			0.18	
v/s Ratio Perm		0.03			c0.10		0.05		0.03	0.12		0.02
v/c Ratio		0.14			0.53		0.08	0.40	0.05	0.18	0.27	0.03
Uniform Delay, d1		18.5			20.0		3.3	4.3	3.2	3.5	3.8	3.2
Progression Factor		1.00			1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		0.2			1.8		0.3	0.5	0.1	1.1	0.3	0.0
Delay (s)		18.7			21.8		3.6	4.8	3.3	4.7	4.1	3.2
Level of Service		B			C		A	A	A	A	A	A
Approach Delay (s)		18.7			21.8			4.6			4.1	
Approach LOS		B			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	6.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	54.9	Sum of lost time (s)	8.0
Intersection Capacity Utilization	52.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	23	68	10	0	91
Future Volume (Veh/h)	0	23	68	10	0	91
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	25	74	11	0	99
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	178	80			85	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	178	80			85	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	97			100	
cM capacity (veh/h)	811	981			1512	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	25	85	99
Volume Left	0	0	0
Volume Right	25	11	0
cSH	981	1700	1512
Volume to Capacity	0.03	0.05	0.00
Queue Length 95th (ft)	2	0	0
Control Delay (s)	8.8	0.0	0.0
Lane LOS	A		
Approach Delay (s)	8.8	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	14.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	6	6	12	67	6
Future Volume (Veh/h)	0	6	6	12	67	6
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	7	7	13	73	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	20				20	14
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	20				20	14
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				93	99
cM capacity (veh/h)	1596				996	1067

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	7	20	80
Volume Left	0	0	73
Volume Right	0	13	7
cSH	1596	1700	1002
Volume to Capacity	0.00	0.01	0.08
Queue Length 95th (ft)	0	0	6
Control Delay (s)	0.0	0.0	8.9
Lane LOS			A
Approach Delay (s)	0.0	0.0	8.9
Approach LOS			A

Intersection Summary			
Average Delay	6.7		
Intersection Capacity Utilization	14.1%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1162	507	44	0	36
Future Vol, veh/h	0	1162	507	44	0	36
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	-	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1263	551	48	0	39

Major/Minor	Major2		Minor2	
Conflicting Flow All	-	0	-	300
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	-	3.92
Pot Cap-1 Maneuver	-	-	0	594
Stage 1	-	-	0	-
Stage 2	-	-	0	-
Platoon blocked, %	-	-		
Mov Cap-1 Maneuver	-	-	-	594
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	WB	SB
HCM Control Delay, s	0	11.5
HCM LOS		B

Minor Lane/Major Mvmt	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	594
HCM Lane V/C Ratio	-	-	0.066
HCM Control Delay (s)	-	-	11.5
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	78	0	0	24	0	1199	1	0	843	30
Future Volume (Veh/h)	0	0	78	0	0	24	0	1199	1	0	843	30
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	85	0	0	26	0	1303	1	0	916	33
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								1059			551	
pX, platoon unblocked	0.92	0.92	0.85	0.92	0.92	0.88	0.85			0.88		
vC, conflicting volume	1610	2236	474	1846	2252	652	949			1304		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	870	1554	40	1128	1572	319	596			1063		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	90	100	100	96	100			100		
cM capacity (veh/h)	215	103	873	131	100	593	833			570		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	85	26	869	435	611	338
Volume Left	0	0	0	0	0	0
Volume Right	85	26	0	1	0	33
cSH	873	593	1700	1700	1700	1700
Volume to Capacity	0.10	0.04	0.51	0.26	0.36	0.20
Queue Length 95th (ft)	8	3	0	0	0	0
Control Delay (s)	9.6	11.3	0.0	0.0	0.0	0.0
Lane LOS	A	B				
Approach Delay (s)	9.6	11.3	0.0		0.0	
Approach LOS	A	B				

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	43.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	781	32	164	541	17	27
Future Volume (Veh/h)	781	32	164	541	17	27
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	849	35	178	588	18	29
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)				503		
pX, platoon unblocked					0.85	
vC, conflicting volume			884		1810	866
vC1, stage 1 conf vol					866	
vC2, stage 2 conf vol					944	
vCu, unblocked vol			884		1864	866
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)			2.2		3.5	3.3
p0 queue free %			77		92	92
cM capacity (veh/h)			765		227	353

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	884	178	588	47
Volume Left	0	178	0	18
Volume Right	35	0	0	29
cSH	1700	765	1700	291
Volume to Capacity	0.52	0.23	0.35	0.16
Queue Length 95th (ft)	0	22	0	14
Control Delay (s)	0.0	11.1	0.0	19.8
Lane LOS		B		C
Approach Delay (s)	0.0	2.6		19.8
Approach LOS				C

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	65.5%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	160	52	38	997	1050	5
Future Volume (vph)	160	52	38	997	1050	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	
Lane Util. Factor	1.00		1.00	0.95	0.95	
Frt	0.97		1.00	1.00	1.00	
Flt Protected	0.96		0.95	1.00	1.00	
Satd. Flow (prot)	1735		1770	3539	3537	
Flt Permitted	0.96		0.20	1.00	1.00	
Satd. Flow (perm)	1735		370	3539	3537	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	174	57	41	1084	1141	5
RTOR Reduction (vph)	21	0	0	0	0	0
Lane Group Flow (vph)	210	0	41	1084	1146	0
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases			2			
Actuated Green, G (s)	11.0		28.0	28.0	28.0	
Effective Green, g (s)	11.0		28.0	28.0	28.0	
Actuated g/C Ratio	0.23		0.60	0.60	0.60	
Clearance Time (s)	4.0		4.0	4.0	4.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	406		220	2108	2107	
v/s Ratio Prot	c0.12			0.31	c0.32	
v/s Ratio Perm			0.11			
v/c Ratio	0.52		0.19	0.51	0.54	
Uniform Delay, d1	15.7		4.3	5.5	5.7	
Progression Factor	1.00		1.00	1.00	1.00	
Incremental Delay, d2	1.1		0.4	0.2	0.3	
Delay (s)	16.8		4.7	5.7	6.0	
Level of Service	B		A	A	A	
Approach Delay (s)	16.8			5.7	6.0	
Approach LOS	B			A	A	

Intersection Summary			
HCM 2000 Control Delay	6.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	47.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	50.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	9	11	14	1	5	0	12	13	27	11	1
Future Volume (Veh/h)	0	9	11	14	1	5	0	12	13	27	11	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	10	12	15	1	5	0	13	14	29	12	1
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	96	98	12	108	91	20	13			27		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	96	98	12	108	91	20	13			27		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	99	99	98	100	100	100			98		
cM capacity (veh/h)	869	778	1068	841	784	1058	1606			1587		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	22	21	27	42
Volume Left	0	15	0	29
Volume Right	12	5	14	1
cSH	913	881	1606	1587
Volume to Capacity	0.02	0.02	0.00	0.02
Queue Length 95th (ft)	2	2	0	1
Control Delay (s)	9.0	9.2	0.0	5.1
Lane LOS	A	A		A
Approach Delay (s)	9.0	9.2	0.0	5.1
Approach LOS	A	A		

Intersection Summary			
Average Delay	5.4		
Intersection Capacity Utilization	23.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	1150	19	20	505	11	23	0	23	18	0	28
Future Volume (Veh/h)	18	1150	19	20	505	11	23	0	23	18	0	28
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	20	1250	21	22	549	12	25	0	25	20	0	30
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	561			1271			1649	1906	427	1081	1910	280
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	561			1271			1649	1906	427	1081	1910	280
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			96			58	100	96	87	100	96
cM capacity (veh/h)	1006			542			60	64	576	157	63	717

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	20	500	500	271	22	366	195	50	50
Volume Left	20	0	0	0	22	0	0	25	20
Volume Right	0	0	0	21	0	0	12	25	30
cSH	1006	1700	1700	1700	542	1700	1700	108	296
Volume to Capacity	0.02	0.29	0.29	0.16	0.04	0.22	0.11	0.46	0.17
Queue Length 95th (ft)	2	0	0	0	3	0	0	51	15
Control Delay (s)	8.7	0.0	0.0	0.0	11.9	0.0	0.0	64.3	19.6
Lane LOS	A				B			F	C
Approach Delay (s)	0.1				0.4			64.3	19.6
Approach LOS								F	C

Intersection Summary			
Average Delay	2.3		
Intersection Capacity Utilization	33.2%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Signalized Intersection Capacity Analysis
75: Indian Hill Blvd & Bonita Ave

08/10/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	98	151	128	62	142	81	101	603	47	48	511	58
Future Volume (vph)	98	151	128	62	142	81	101	603	47	48	511	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. 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
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	1863	1583	1770	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.29	1.00	1.00	0.23	1.00	1.00
Satd. Flow (perm)	1770	1863	1583	1770	1863	1583	532	1863	1583	422	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	107	164	139	67	154	88	110	655	51	52	555	63
RTOR Reduction (vph)	0	0	116	0	0	74	0	0	26	0	0	33
Lane Group Flow (vph)	107	164	23	67	154	14	110	655	25	52	555	30
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8	2		2	6		6
Actuated Green, G (s)	4.8	12.2	12.2	3.9	11.3	11.3	39.1	35.4	35.4	37.3	34.5	34.5
Effective Green, g (s)	4.8	12.2	12.2	3.9	11.3	11.3	39.1	35.4	35.4	37.3	34.5	34.5
Actuated g/C Ratio	0.07	0.17	0.17	0.05	0.16	0.16	0.54	0.49	0.49	0.52	0.48	0.48
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	117	314	267	95	291	247	351	912	775	269	888	755
v/s Ratio Prot	c0.06	c0.09		0.04	0.08		c0.02	c0.35		0.01	0.30	
v/s Ratio Perm			0.01			0.01	0.15		0.02	0.09		0.02
v/c Ratio	0.91	0.52	0.09	0.71	0.53	0.06	0.31	0.72	0.03	0.19	0.62	0.04
Uniform Delay, d1	33.5	27.4	25.4	33.6	28.1	26.0	9.5	14.5	9.6	10.6	14.1	10.1
Progression 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
Incremental Delay, d2	56.9	1.6	0.1	21.1	1.7	0.1	0.5	4.8	0.1	0.4	3.3	0.1
Delay (s)	90.4	29.0	25.5	54.8	29.8	26.1	10.0	19.4	9.6	10.9	17.4	10.2
Level of Service	F	C	C	D	C	C	B	B	A	B	B	B
Approach Delay (s)		43.8			34.1			17.5			16.2	
Approach LOS		D			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	24.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	72.3	Sum of lost time (s)	18.0
Intersection Capacity Utilization	63.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	30	80	180	53	141	81	594	211	44	612	52
Future Volume (vph)	20	30	80	180	53	141	81	594	211	44	612	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	1863	1583	1770	1841	
Flt Permitted	0.72	1.00	1.00	0.74	1.00	1.00	0.21	1.00	1.00	0.29	1.00	
Satd. Flow (perm)	1340	1863	1583	1370	1863	1583	388	1863	1583	539	1841	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	33	87	196	58	153	88	646	229	48	665	57
RTOR Reduction (vph)	0	0	69	0	0	122	0	0	102	0	4	0
Lane Group Flow (vph)	22	33	18	196	58	31	88	646	127	48	718	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		
Actuated Green, G (s)	14.0	14.0	14.0	14.0	14.0	14.0	41.9	37.9	37.9	39.7	36.8	
Effective Green, g (s)	14.0	14.0	14.0	14.0	14.0	14.0	41.9	37.9	37.9	39.7	36.8	
Actuated g/C Ratio	0.20	0.20	0.20	0.20	0.20	0.20	0.61	0.55	0.55	0.58	0.54	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	274	381	324	280	381	324	318	1033	878	365	991	
v/s Ratio Prot		0.02			0.03		c0.02	0.35		0.01	c0.39	
v/s Ratio Perm	0.02		0.01	c0.14		0.02	0.15		0.08	0.07		
v/c Ratio	0.08	0.09	0.06	0.70	0.15	0.10	0.28	0.63	0.14	0.13	0.72	
Uniform Delay, d1	21.9	22.0	21.8	25.2	22.3	22.0	8.0	10.4	7.4	7.2	11.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.1	0.1	0.1	7.4	0.2	0.1	0.5	2.9	0.3	0.2	4.6	
Delay (s)	22.1	22.1	21.9	32.6	22.5	22.2	8.5	13.2	7.7	7.3	16.5	
Level of Service	C	C	C	C	C	C	A	B	A	A	B	
Approach Delay (s)		22.0			27.3			11.5			16.0	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	16.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	68.3	Sum of lost time (s)	13.5
Intersection Capacity Utilization	67.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	90	0	0	21	12	868	2	0	863	5
Future Volume (Veh/h)	0	0	90	0	0	21	12	868	2	0	863	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	98	0	0	23	13	943	2	0	938	5
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											312	
pX, platoon unblocked												
vC, conflicting volume	1461	1912	472	1537	1913	472	943			945		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1461	1912	472	1537	1913	472	943			945		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	82	100	100	96	98			100		
cM capacity (veh/h)	85	66	539	64	66	538	723			722		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	98	23	13	629	316	469	474
Volume Left	0	0	13	0	0	0	0
Volume Right	98	23	0	0	2	0	5
cSH	539	538	723	1700	1700	722	1700
Volume to Capacity	0.18	0.04	0.02	0.37	0.19	0.00	0.28
Queue Length 95th (ft)	16	3	1	0	0	0	0
Control Delay (s)	13.2	12.0	10.1	0.0	0.0	0.0	0.0
Lane LOS	B	B	B				
Approach Delay (s)	13.2	12.0	0.1			0.0	
Approach LOS	B	B					

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	36.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	133	1079	155	139	481	67	138	692	135	120	618	92
Future Volume (vph)	133	1079	155	139	481	67	138	692	135	120	618	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3470	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3470	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	145	1173	168	151	523	73	150	752	147	130	672	100
RTOR Reduction (vph)	0	0	83	0	0	50	0	0	108	0	13	0
Lane Group Flow (vph)	145	1173	85	151	523	23	150	752	39	130	759	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			
Actuated Green, G (s)	12.1	31.5	31.5	8.7	28.1	28.1	8.7	24.1	24.1	7.7	23.1	
Effective Green, g (s)	12.1	31.5	31.5	8.7	28.1	28.1	8.7	24.1	24.1	7.7	23.1	
Actuated g/C Ratio	0.13	0.35	0.35	0.10	0.31	0.31	0.10	0.27	0.27	0.09	0.26	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	237	1238	554	171	1104	494	171	947	423	151	890	
v/s Ratio Prot	0.08	c0.33		c0.09	0.15		c0.08	0.21		0.07	c0.22	
v/s Ratio Perm			0.05			0.01			0.02			
v/c Ratio	0.61	0.95	0.15	0.88	0.47	0.05	0.88	0.79	0.09	0.86	0.85	
Uniform Delay, d1	36.7	28.4	20.1	40.1	25.0	21.6	40.1	30.6	24.7	40.6	31.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	4.6	14.6	0.1	37.5	0.3	0.0	36.0	6.8	0.4	36.3	10.1	
Delay (s)	41.4	43.1	20.2	77.6	25.3	21.6	76.2	37.5	25.2	76.9	42.0	
Level of Service	D	D	C	E	C	C	E	D	C	E	D	
Approach Delay (s)		40.3			35.5			41.3			47.0	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	41.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	80.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	75	14	52	45	41	77	38	282	13	8	241	33
Future Volume (vph)	75	14	52	45	41	77	38	282	13	8	241	33
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	82	15	57	49	45	84	41	307	14	9	262	36

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total (vph)	154	178	348	14	307
Volume Left (vph)	82	49	41	0	9
Volume Right (vph)	57	84	0	14	36
Hadj (s)	-0.08	-0.19	0.09	-0.67	-0.03
Departure Headway (s)	6.1	6.0	6.1	5.3	5.7
Degree Utilization, x	0.26	0.29	0.59	0.02	0.48
Capacity (veh/h)	504	519	563	641	599
Control Delay (s)	11.3	11.4	16.1	7.2	13.8
Approach Delay (s)	11.3	11.4	15.8		13.8
Approach LOS	B	B	C		B

Intersection Summary			
Delay	13.7		
Level of Service	B		
Intersection Capacity Utilization	54.4%	ICU Level of Service	A
Analysis Period (min)	15		

HCM 2010 Signalized Intersection Summary
80: College Ave & First St

08/11/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	48	122	63	74	318	106	23	196	48	47	236	48
Future Volume (veh/h)	48	122	63	74	318	106	23	196	48	47	236	48
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	52	133	68	80	346	115	25	213	52	51	257	52
Adj No. of Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	97	461	392	130	495	421	54	343	292	95	387	329
Arrive On Green	0.05	0.25	0.25	0.07	0.27	0.27	0.03	0.18	0.18	0.05	0.21	0.21
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	52	133	68	80	346	115	25	213	52	51	257	52
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1863	1583	1774	1863	1583
Q Serve(g_s), s	1.2	2.4	1.4	1.8	6.8	2.3	0.6	4.3	1.1	1.1	5.2	1.1
Cycle Q Clear(g_c), s	1.2	2.4	1.4	1.8	6.8	2.3	0.6	4.3	1.1	1.1	5.2	1.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	97	461	392	130	495	421	54	343	292	95	387	329
V/C Ratio(X)	0.54	0.29	0.17	0.62	0.70	0.27	0.47	0.62	0.18	0.53	0.66	0.16
Avail Cap(c_a), veh/h	239	836	711	379	982	835	218	891	757	239	914	777
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	18.8	12.4	12.1	18.3	13.5	11.8	19.4	15.3	14.0	18.8	14.8	13.2
Incr Delay (d2), s/veh	4.6	0.3	0.2	4.7	1.8	0.3	6.2	1.8	0.3	4.6	2.0	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	0.7	1.2	0.6	1.0	3.7	1.1	0.4	2.4	0.5	0.7	2.9	0.5
LnGrp Delay(d),s/veh	23.3	12.8	12.3	23.0	15.3	12.2	25.6	17.1	14.3	23.4	16.8	13.4
LnGrp LOS	C	B	B	C	B	B	C	B	B	C	B	B
Approach Vol, veh/h		253			541			290			360	
Approach Delay, s/veh		14.8			15.8			17.4			17.2	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.7	12.0	7.5	14.6	5.7	13.0	6.7	15.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.5	19.5	8.7	18.3	5.0	20.0	5.5	21.5
Max Q Clear Time (g_c+I1), s	3.1	6.3	3.8	4.4	2.6	7.2	3.2	8.8
Green Ext Time (p_c), s	0.0	1.1	0.1	0.7	0.0	1.3	0.0	2.0

Intersection Summary	
HCM 2010 Ctrl Delay	16.3
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	1037	31	25	585	76	16	48	32	149	141	157
Future Volume (vph)	75	1037	31	25	585	76	16	48	32	149	141	157
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00		1.00	0.98			1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.99	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3524		1770	3478			1840	1583	1770	1863	1583
Flt Permitted	0.33	1.00		0.15	1.00			0.93	1.00	0.71	1.00	1.00
Satd. Flow (perm)	606	3524		288	3478			1735	1583	1326	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	82	1127	34	27	636	83	17	52	35	162	153	171
RTOR Reduction (vph)	0	4	0	0	18	0	0	0	22	0	0	106
Lane Group Flow (vph)	82	1157	0	27	701	0	0	69	13	162	153	65
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	25.9	25.9		25.9	25.9			21.6	21.6	21.6	21.6	21.6
Effective Green, g (s)	25.9	25.9		25.9	25.9			21.6	21.6	21.6	21.6	21.6
Actuated g/C Ratio	0.46	0.46		0.46	0.46			0.38	0.38	0.38	0.38	0.38
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	277	1615		132	1594			663	605	506	712	605
v/s Ratio Prot		c0.33			0.20						0.08	
v/s Ratio Perm	0.14			0.09				0.04	0.01	c0.12		0.04
v/c Ratio	0.30	0.72		0.20	0.44			0.10	0.02	0.32	0.21	0.11
Uniform Delay, d1	9.6	12.3		9.1	10.4			11.2	10.9	12.3	11.7	11.2
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.6	1.5		0.8	0.2			0.3	0.1	1.7	0.7	0.4
Delay (s)	10.2	13.9		9.9	10.6			11.5	10.9	13.9	12.4	11.6
Level of Service	B	B		A	B			B	B	B	B	B
Approach Delay (s)		13.6			10.6			11.3			12.6	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	12.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	56.5	Sum of lost time (s)	9.0
Intersection Capacity Utilization	61.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	358	2	258	3	2	0	71	259	3	3	276	91
Future Volume (vph)	358	2	258	3	2	0	71	259	3	3	276	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00		1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85		1.00		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00		0.97		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583		1808		1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00	1.00		0.97		0.57	1.00	1.00	0.58	1.00	1.00
Satd. Flow (perm)	1770	1863	1583		1808		1059	3539	1583	1078	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	389	2	280	3	2	0	77	282	3	3	300	99
RTOR Reduction (vph)	0	0	189	0	0	0	0	0	2	0	0	62
Lane Group Flow (vph)	389	2	91	0	5	0	77	282	1	3	300	37
Turn Type	Split	NA	Perm	Split	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	4	4		8	8			2			6	
Permitted Phases			4			8	2		2	6	6	6
Actuated Green, G (s)	15.8	15.8	15.8		1.0		18.4	18.4	18.4	18.4	18.4	18.4
Effective Green, g (s)	15.8	15.8	15.8		1.0		18.4	18.4	18.4	18.4	18.4	18.4
Actuated g/C Ratio	0.32	0.32	0.32		0.02		0.38	0.38	0.38	0.38	0.38	0.38
Clearance Time (s)	4.5	4.5	4.5		4.5		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	574	604	513		37		400	1337	598	407	1337	598
v/s Ratio Prot	c0.22	0.00			c0.00			0.08			c0.08	
v/s Ratio Perm			0.06				0.07		0.00	0.00		0.02
v/c Ratio	0.68	0.00	0.18		0.14		0.19	0.21	0.00	0.01	0.22	0.06
Uniform Delay, d1	14.2	11.1	11.8		23.4		10.2	10.2	9.4	9.5	10.3	9.7
Progression Factor	1.00	1.00	1.00		1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.2	0.0	0.2		1.7		1.1	0.4	0.0	0.0	0.4	0.2
Delay (s)	17.4	11.1	12.0		25.1		11.2	10.6	9.4	9.5	10.7	9.9
Level of Service	B	B	B		C		B	B	A	A	B	A
Approach Delay (s)		15.1			25.1			10.7			10.5	
Approach LOS		B			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	12.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	48.7	Sum of lost time (s)	13.5
Intersection Capacity Utilization	49.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	122	1063	53	43	462	87	61	163	27	123	200	141
Future Volume (vph)	122	1063	53	43	462	87	61	163	27	123	200	141
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.98		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3514		1770	3455		1770	3464		1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	3514		1770	3455		1770	3464		1770	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	133	1155	58	47	502	95	66	177	29	134	217	153
RTOR Reduction (vph)	0	4	0	0	19	0	0	16	0	0	0	104
Lane Group Flow (vph)	133	1209	0	47	578	0	66	190	0	134	217	49
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												6
Actuated Green, G (s)	8.8	29.1		2.9	23.2		4.1	21.7		7.8	25.4	25.4
Effective Green, g (s)	8.8	29.1		2.9	23.2		4.1	21.7		7.8	25.4	25.4
Actuated g/C Ratio	0.11	0.37		0.04	0.29		0.05	0.27		0.10	0.32	0.32
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	195	1286		64	1008		91	945		173	595	505
v/s Ratio Prot	c0.08	c0.34		0.03	0.17		0.04	0.05		c0.08	c0.12	
v/s Ratio Perm												0.03
v/c Ratio	0.68	0.94		0.73	0.57		0.73	0.20		0.77	0.36	0.10
Uniform Delay, d1	34.0	24.4		37.9	23.9		37.1	22.2		35.0	20.8	19.0
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	9.4	13.1		35.0	0.8		24.7	0.5		19.2	1.7	0.4
Delay (s)	43.4	37.4		72.9	24.7		61.9	22.7		54.2	22.6	19.4
Level of Service	D	D		E	C		E	C		D	C	B
Approach Delay (s)		38.0			28.3			32.2			30.0	
Approach LOS		D			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	33.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	79.5	Sum of lost time (s)	18.0
Intersection Capacity Utilization	64.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
84: Monte Vista Ave & Arrow Route

08/10/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	220	74	90	148	56	62	946	112	40	628	22
Future Volume (vph)	41	220	74	90	148	56	62	946	112	40	628	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00	0.97	0.91		1.00	0.91	
Frt	1.00	0.96		1.00	1.00	0.85	1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3406		1770	1863	1583	3433	5004		1770	5059	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3406		1770	1863	1583	3433	5004		1770	5059	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	45	239	80	98	161	61	67	1028	122	43	683	24
RTOR Reduction (vph)	0	52	0	0	0	48	0	18	0	0	5	0
Lane Group Flow (vph)	45	267	0	98	161	13	67	1132	0	43	702	0
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						
Actuated Green, G (s)	3.1	10.9		5.5	13.3	13.3	2.6	24.2		1.8	23.4	
Effective Green, g (s)	3.1	10.9		5.5	13.3	13.3	2.6	24.2		1.8	23.4	
Actuated g/C Ratio	0.05	0.18		0.09	0.22	0.22	0.04	0.40		0.03	0.39	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	90	614		161	410	348	147	2004		52	1959	
v/s Ratio Prot	0.03	0.08		c0.06	c0.09		0.02	c0.23		c0.02	0.14	
v/s Ratio Perm						0.01						
v/c Ratio	0.50	0.44		0.61	0.39	0.04	0.46	0.56		0.83	0.36	
Uniform Delay, d1	27.9	22.0		26.4	20.1	18.5	28.2	14.0		29.1	13.2	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.3	0.5		6.4	0.6	0.0	2.2	1.2		64.4	0.5	
Delay (s)	32.2	22.5		32.8	20.7	18.6	30.4	15.2		93.6	13.7	
Level of Service	C	C		C	C	B	C	B		F	B	
Approach Delay (s)		23.7			24.0			16.0			18.3	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	18.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	60.4	Sum of lost time (s)	18.0
Intersection Capacity Utilization	53.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	0	309	0	241	1	874	69	50	748	1
Future Volume (vph)	1	0	0	309	0	241	1	874	69	50	748	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5			4.5		4.5	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00			1.00		1.00	1.00	0.95	1.00	0.97	0.91	
Frt	1.00			1.00		0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95			0.95		1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770			1770		1583	1770	3539	1583	3433	5084	
Flt Permitted	1.00			0.95		1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1863			1770		1583	1770	3539	1583	3433	5084	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1	0	0	336	0	262	1	950	75	54	813	1
RTOR Reduction (vph)	0	0	0	0	0	120	0	0	42	0	0	0
Lane Group Flow (vph)	1	0	0	336	0	142	1	950	33	54	814	0
Turn Type	Perm		Perm	Prot		Perm	Prot	NA	Perm	Prot	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4			8			2			
Actuated Green, G (s)	1.0			17.4		22.9	0.8	31.0	31.0	2.7	32.9	
Effective Green, g (s)	1.0			17.4		22.9	0.8	31.0	31.0	2.7	32.9	
Actuated g/C Ratio	0.01			0.25		0.33	0.01	0.44	0.44	0.04	0.47	
Clearance Time (s)	4.5			4.5		4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0			3.0		3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	26			439		517	20	1565	700	132	2386	
v/s Ratio Prot				c0.19			0.00	c0.27		c0.02	0.16	
v/s Ratio Perm	0.00					c0.09			0.02			
v/c Ratio	0.04			0.77		0.27	0.05	0.61	0.05	0.41	0.34	
Uniform Delay, d1	34.1			24.5		17.5	34.3	14.9	11.1	32.9	11.8	
Progression Factor	1.00			1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.6			7.8		0.3	1.0	1.8	0.1	2.1	0.4	
Delay (s)	34.7			32.2		17.7	35.3	16.7	11.3	35.0	12.1	
Level of Service	C			C		B	D	B	B	C	B	
Approach Delay (s)		34.7			25.9			16.3			13.6	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	17.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	70.1	Sum of lost time (s)	18.0
Intersection Capacity Utilization	55.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	156	828	217	46	335	99	143	679	60	128	813	132
Future Volume (vph)	156	828	217	46	335	99	143	679	60	128	813	132
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	0.97	0.95		0.97	0.95	1.00	1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.97		1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3429		3433	3539	1583	1770	3496		1770	3539	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3429		3433	3539	1583	1770	3496		1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	170	900	236	50	364	108	155	738	65	139	884	143
RTOR Reduction (vph)	0	26	0	0	0	77	0	7	0	0	0	99
Lane Group Flow (vph)	170	1110	0	50	364	31	155	796	0	139	884	44
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						6
Actuated Green, G (s)	8.3	30.4		2.9	25.0	25.0	9.5	28.2		8.5	27.2	27.2
Effective Green, g (s)	8.3	30.4		2.9	25.0	25.0	9.5	28.2		8.5	27.2	27.2
Actuated g/C Ratio	0.09	0.35		0.03	0.28	0.28	0.11	0.32		0.10	0.31	0.31
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	323	1184		113	1005	449	191	1120		170	1093	489
v/s Ratio Prot	c0.05	c0.32		0.01	0.10		c0.09	0.23		0.08	c0.25	
v/s Ratio Perm						0.02						0.03
v/c Ratio	0.53	0.94		0.44	0.36	0.07	0.81	0.71		0.82	0.81	0.09
Uniform Delay, d1	38.0	27.9		41.8	25.1	23.0	38.4	26.3		39.0	28.0	21.6
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.5	13.7		2.8	0.2	0.1	22.4	3.8		25.3	6.5	0.4
Delay (s)	39.5	41.6		44.5	25.4	23.1	60.7	30.1		64.3	34.5	22.0
Level of Service	D	D		D	C	C	E	C		E	C	C
Approach Delay (s)		41.3			26.7			35.1			36.5	
Approach LOS		D			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	36.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	88.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	79.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	970	79	55	450	62	77
Future Volume (vph)	970	79	55	450	62	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1583	1770	3539	1770	1583
Flt Permitted	1.00	1.00	0.16	1.00	0.95	1.00
Satd. Flow (perm)	3539	1583	295	3539	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1054	86	60	489	67	84
RTOR Reduction (vph)	0	28	0	0	0	55
Lane Group Flow (vph)	1054	58	60	489	67	29
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases		4	8			2
Actuated Green, G (s)	20.8	20.8	28.0	28.0	19.3	19.3
Effective Green, g (s)	20.8	20.8	28.0	28.0	19.3	19.3
Actuated g/C Ratio	0.37	0.37	0.50	0.50	0.34	0.34
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1307	584	217	1760	606	542
v/s Ratio Prot	c0.30		0.01	c0.14	c0.04	
v/s Ratio Perm		0.04	0.12			0.02
v/c Ratio	0.81	0.10	0.28	0.28	0.11	0.05
Uniform Delay, d1	15.9	11.6	9.8	8.3	12.6	12.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.7	0.1	0.7	0.1	0.4	0.2
Delay (s)	19.7	11.7	10.5	8.3	13.0	12.6
Level of Service	B	B	B	A	B	B
Approach Delay (s)	19.1			8.6	12.8	
Approach LOS	B			A	B	

Intersection Summary			
HCM 2000 Control Delay	15.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	56.3	Sum of lost time (s)	13.5
Intersection Capacity Utilization	46.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	62	266	100	208	318	44	72	839	237	68	822	75
Future Volume (vph)	62	266	100	208	318	44	72	839	237	68	822	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3495	
Flt Permitted	0.42	1.00	1.00	0.34	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	773	1863	1583	640	1863	1583	1770	3539	1583	1770	3495	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	67	289	109	226	346	48	78	912	258	74	893	82
RTOR Reduction (vph)	0	0	82	0	0	34	0	0	168	0	10	0
Lane Group Flow (vph)	67	289	27	226	346	14	78	912	90	74	965	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8			2			
Actuated Green, G (s)	19.7	16.9	16.9	25.3	19.7	19.7	4.2	23.7	23.7	3.9	23.4	
Effective Green, g (s)	19.7	16.9	16.9	25.3	19.7	19.7	4.2	23.7	23.7	3.9	23.4	
Actuated g/C Ratio	0.29	0.25	0.25	0.37	0.29	0.29	0.06	0.35	0.35	0.06	0.34	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	264	462	392	330	538	457	109	1231	550	101	1200	
v/s Ratio Prot	0.01	0.16		c0.06	0.19		c0.04	0.26		0.04	c0.28	
v/s Ratio Perm	0.06		0.02	c0.20		0.01			0.06			
v/c Ratio	0.25	0.63	0.07	0.68	0.64	0.03	0.72	0.74	0.16	0.73	0.80	
Uniform Delay, d1	18.0	22.8	19.6	16.7	21.1	17.4	31.4	19.5	15.3	31.6	20.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.5	2.6	0.1	5.8	2.6	0.0	19.9	4.0	0.6	23.7	5.8	
Delay (s)	18.5	25.4	19.7	22.5	23.8	17.4	51.3	23.5	16.0	55.3	26.1	
Level of Service	B	C	B	C	C	B	D	C	B	E	C	
Approach Delay (s)		23.1			22.8			23.7			28.1	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	24.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	68.1	Sum of lost time (s)	18.0
Intersection Capacity Utilization	69.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	240	110	267	98	116	42	100	872	58	45	1033	34
Future Volume (vph)	240	110	267	98	116	42	100	872	58	45	1033	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95	1.00	1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.96		1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1788		1770	3539	1583	1770	5061	
Flt Permitted	0.65	1.00	1.00	0.68	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1208	1863	1583	1266	1788		1770	3539	1583	1770	5061	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	261	120	290	107	126	46	109	948	63	49	1123	37
RTOR Reduction (vph)	0	0	160	0	23	0	0	0	35	0	5	0
Lane Group Flow (vph)	261	120	130	107	149	0	109	948	28	49	1155	0
Turn Type	Perm	NA	Perm	Perm	NA		Prot	NA	Perm	Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8					2			
Actuated Green, G (s)	15.8	15.8	15.8	15.8	15.8		4.9	25.3	25.3	2.8	23.2	
Effective Green, g (s)	15.8	15.8	15.8	15.8	15.8		4.9	25.3	25.3	2.8	23.2	
Actuated g/C Ratio	0.28	0.28	0.28	0.28	0.28		0.09	0.44	0.44	0.05	0.40	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	332	512	435	348	492		151	1559	697	86	2045	
v/s Ratio Prot		0.06			0.08		c0.06	c0.27		0.03	0.23	
v/s Ratio Perm	c0.22		0.08	0.08					0.02			
v/c Ratio	0.79	0.23	0.30	0.31	0.30		0.72	0.61	0.04	0.57	0.56	
Uniform Delay, d1	19.2	16.1	16.4	16.5	16.4		25.6	12.3	9.1	26.7	13.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	11.6	0.2	0.4	0.5	0.3		15.6	1.8	0.1	8.4	1.1	
Delay (s)	30.8	16.4	16.8	17.0	16.8		41.2	14.0	9.2	35.1	14.3	
Level of Service	C	B	B	B	B		D	B	A	D	B	
Approach Delay (s)		22.2			16.9			16.4			15.2	
Approach LOS		C			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	17.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	57.4	Sum of lost time (s)	13.5
Intersection Capacity Utilization	65.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	156	597	202	162	280	55	127	853	114	100	1065	114
Future Volume (vph)	156	597	202	162	280	55	127	853	114	100	1065	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	4995		1770	5012	
Flt Permitted	0.56	1.00	1.00	0.23	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1042	3539	1583	428	3539	1583	1770	4995		1770	5012	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	170	649	220	176	304	60	138	927	124	109	1158	124
RTOR Reduction (vph)	0	0	142	0	0	45	0	23	0	0	18	0
Lane Group Flow (vph)	170	649	78	176	304	15	138	1028	0	109	1264	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	22.1	17.0	17.0	22.9	17.4	17.4	7.4	23.9		5.5	22.0	
Effective Green, g (s)	22.1	17.0	17.0	22.9	17.4	17.4	7.4	23.9		5.5	22.0	
Actuated g/C Ratio	0.32	0.24	0.24	0.33	0.25	0.25	0.11	0.34		0.08	0.31	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	382	860	384	245	880	394	187	1707		139	1577	
v/s Ratio Prot	0.03	c0.18		c0.06	0.09		c0.08	0.21		0.06	c0.25	
v/s Ratio Perm	0.11		0.05	0.18		0.01						
v/c Ratio	0.45	0.75	0.20	0.72	0.35	0.04	0.74	0.60		0.78	0.80	
Uniform Delay, d1	18.1	24.5	21.1	18.2	21.6	19.9	30.3	19.1		31.6	22.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.8	3.8	0.3	9.6	0.2	0.0	14.1	1.6		24.5	4.4	
Delay (s)	18.9	28.3	21.3	27.8	21.8	19.9	44.4	20.6		56.1	26.3	
Level of Service	B	C	C	C	C	B	D	C		E	C	
Approach Delay (s)		25.3			23.6			23.4			28.7	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	25.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	69.9	Sum of lost time (s)	18.0
Intersection Capacity Utilization	70.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Jacobs

Memorandum

ATTACHMENT D. Build Alternative with Project Modifications for Phase 1 Synchro Output Worksheets

Jacobs

Memorandum

2035 Build Alternative with Project Modifications (Phase 1) – AM Peak Hour

HCM Signalized Intersection Capacity Analysis
65: La Verne Ave & Arrow Hwy

08/14/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	434	0	1	635	7	275	0	6	6	1	0
Future Volume (vph)	3	434	0	1	635	7	275	0	6	6	1	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0			4.0	
Lane Util. Factor	1.00	0.91		1.00	0.95	1.00		1.00			1.00	
Frt	1.00	1.00		1.00	1.00	0.85		1.00			1.00	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.95			0.96	
Satd. Flow (prot)	1770	5085		1770	3539	1583		1770			1785	
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.95			0.96	
Satd. Flow (perm)	1770	5085		1770	3539	1583		1770			1785	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	3	472	0	1	690	8	299	0	7	7	1	0
RTOR Reduction (vph)	0	0	0	0	0	6	0	110	0	0	0	0
Lane Group Flow (vph)	3	472	0	1	690	2	0	196	0	0	8	0
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA		Split	NA	
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases						8						
Actuated Green, G (s)	0.6	14.6		0.6	14.6	14.6		10.0			6.0	
Effective Green, g (s)	0.6	14.6		0.6	14.6	14.6		10.0			6.0	
Actuated g/C Ratio	0.01	0.31		0.01	0.31	0.31		0.21			0.13	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0		4.0			4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)	22	1572		22	1094	489		375			226	
v/s Ratio Prot	c0.00	0.09		0.00	c0.19			c0.11			c0.00	
v/s Ratio Perm						0.00						
v/c Ratio	0.14	0.30		0.05	0.63	0.01		0.52			0.04	
Uniform Delay, d1	23.0	12.4		23.0	14.0	11.3		16.5			18.1	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00			1.00	
Incremental Delay, d2	2.8	0.1		0.9	1.2	0.0		1.3			0.1	
Delay (s)	25.9	12.5		23.9	15.2	11.3		17.8			18.1	
Level of Service	C	B		C	B	B		B			B	
Approach Delay (s)		12.6			15.1			17.8			18.1	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	14.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	47.2	Sum of lost time (s)	16.0
Intersection Capacity Utilization	41.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	315	0	18	542	31	19	24	16	18	9	22
Future Volume (Veh/h)	24	315	0	18	542	31	19	24	16	18	9	22
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	26	342	0	20	589	34	21	26	17	20	10	24
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)									2			2
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		421										
pX, platoon unblocked												
vC, conflicting volume	623			342			734	1057	114	834	1040	312
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	623			342			734	1057	114	834	1040	312
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			98			92	88	98	91	95	96
cM capacity (veh/h)	954			1214			278	214	917	225	219	684

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	26	137	137	68	20	393	230	64	54
Volume Left	26	0	0	0	20	0	0	21	20
Volume Right	0	0	0	0	0	0	34	17	24
cSH	954	1700	1700	1700	1214	1700	1700	330	401
Volume to Capacity	0.03	0.08	0.08	0.04	0.02	0.23	0.14	0.19	0.13
Queue Length 95th (ft)	2	0	0	0	1	0	0	18	12
Control Delay (s)	8.9	0.0	0.0	0.0	8.0	0.0	0.0	19.6	17.8
Lane LOS	A				A			C	C
Approach Delay (s)	0.6				0.2			19.6	17.8
Approach LOS								C	C

Intersection Summary			
Average Delay	2.3		
Intersection Capacity Utilization	35.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	343	168	185	376	64	185	519	168	87	771	124
Future Volume (vph)	85	343	168	185	376	64	185	519	168	87	771	124
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.31	1.00	1.00	0.36	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	577	1863	1583	666	1863	1583	1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	92	373	183	201	409	70	201	564	183	95	838	135
RTOR Reduction (vph)	0	0	124	0	0	47	0	0	113	0	0	89
Lane Group Flow (vph)	92	373	59	201	409	23	201	564	70	95	838	46
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8		8			2			6
Actuated Green, G (s)	19.1	19.1	19.1	19.1	19.1	19.1	8.0	22.6	22.6	5.4	20.0	20.0
Effective Green, g (s)	19.1	19.1	19.1	19.1	19.1	19.1	8.0	22.6	22.6	5.4	20.0	20.0
Actuated g/C Ratio	0.32	0.32	0.32	0.32	0.32	0.32	0.14	0.38	0.38	0.09	0.34	0.34
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	186	602	511	215	602	511	239	1353	605	161	1197	535
v/s Ratio Prot		0.20			0.22		c0.11	c0.16		0.05	c0.24	
v/s Ratio Perm	0.16		0.04	c0.30		0.01			0.04			0.03
v/c Ratio	0.49	0.62	0.12	0.93	0.68	0.04	0.84	0.42	0.12	0.59	0.70	0.09
Uniform Delay, d1	16.1	16.9	14.1	19.4	17.3	13.7	24.9	13.4	11.8	25.8	16.9	13.3
Progression 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
Incremental Delay, d2	2.1	1.9	0.1	43.2	3.1	0.0	22.5	0.9	0.4	5.7	3.4	0.3
Delay (s)	18.2	18.8	14.2	62.6	20.4	13.8	47.5	14.4	12.2	31.5	20.4	13.6
Level of Service	B	B	B	E	C	B	D	B	B	C	C	B
Approach Delay (s)		17.4			32.2			21.0			20.5	
Approach LOS		B			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	22.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	59.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	73.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	69	270	42	129	564	255	146	755	131	184	785	45
Future Volume (vph)	69	270	42	129	564	255	146	755	131	184	785	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	0.95		1.00	0.95	
Frt	1.00	0.98		1.00	0.95		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	4982		1770	4848		1770	3461		1770	3510	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	4982		1770	4848		1770	3461		1770	3510	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	75	293	46	140	613	277	159	821	142	200	853	49
RTOR Reduction (vph)	0	30	0	0	115	0	0	20	0	0	6	0
Lane Group Flow (vph)	75	309	0	140	775	0	159	943	0	200	896	0
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	4.6	14.9		7.0	17.3		8.7	20.6		9.8	21.7	
Effective Green, g (s)	4.6	14.9		7.0	17.3		8.7	20.6		9.8	21.7	
Actuated g/C Ratio	0.07	0.22		0.10	0.25		0.13	0.30		0.14	0.32	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	119	1086		181	1227		225	1043		253	1115	
v/s Ratio Prot	0.04	0.06		c0.08	c0.16		0.09	c0.27		c0.11	0.26	
v/s Ratio Perm												
v/c Ratio	0.63	0.28		0.77	0.63		0.71	0.90		0.79	0.80	
Uniform Delay, d1	31.0	22.3		29.9	22.7		28.6	22.9		28.3	21.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	10.4	0.1		18.4	1.1		9.7	10.9		15.4	4.3	
Delay (s)	41.4	22.4		48.2	23.7		38.3	33.8		43.6	25.6	
Level of Service	D	C		D	C		D	C		D	C	
Approach Delay (s)		25.8			27.1			34.4			28.9	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	29.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	68.3	Sum of lost time (s)	16.0
Intersection Capacity Utilization	69.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	61	140	80	128	220	75	174	873	96	106	992	218
Future Volume (vph)	61	140	80	128	220	75	174	873	96	106	992	218
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.46	1.00	1.00	0.65	1.00	1.00	0.23	1.00	1.00	0.27	1.00	1.00
Satd. Flow (perm)	866	1863	1583	1212	1863	1583	423	3539	1583	504	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	66	152	87	139	239	82	189	949	104	115	1078	237
RTOR Reduction (vph)	0	0	68	0	0	64	0	0	37	0	0	84
Lane Group Flow (vph)	66	152	19	139	239	18	189	949	67	115	1078	153
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	12.4	12.4	12.4	12.4	12.4	12.4	37.4	37.4	37.4	37.4	37.4	37.4
Effective Green, g (s)	12.4	12.4	12.4	12.4	12.4	12.4	37.4	37.4	37.4	37.4	37.4	37.4
Actuated g/C Ratio	0.21	0.21	0.21	0.21	0.21	0.21	0.65	0.65	0.65	0.65	0.65	0.65
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	185	399	339	260	399	339	273	2289	1024	326	2289	1024
v/s Ratio Prot		0.08			c0.13			0.27			0.30	
v/s Ratio Perm	0.08		0.01	0.11		0.01	c0.45		0.04	0.23		0.10
v/c Ratio	0.36	0.38	0.06	0.53	0.60	0.05	0.69	0.41	0.07	0.35	0.47	0.15
Uniform Delay, d1	19.3	19.4	18.0	20.1	20.5	18.0	6.5	4.9	3.8	4.7	5.2	4.0
Progression 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
Incremental Delay, d2	1.2	0.6	0.1	2.1	2.4	0.1	13.5	0.6	0.1	3.0	0.7	0.3
Delay (s)	20.5	20.0	18.1	22.3	22.9	18.1	20.0	5.5	3.9	7.6	5.9	4.3
Level of Service	C	C	B	C	C	B	C	A	A	A	A	A
Approach Delay (s)		19.6			21.8			7.6			5.8	
Approach LOS		B			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	9.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	57.8	Sum of lost time (s)	8.0
Intersection Capacity Utilization	65.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	15	1196	35	41	1203
Future Volume (Veh/h)	0	15	1196	35	41	1203
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	16	1300	38	45	1308
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			916			
pX, platoon unblocked	0.77	0.77			0.77	
vC, conflicting volume	2063	669			1338	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1778	0			832	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	98			93	
cM capacity (veh/h)	52	831			610	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	0	16	867	471	45	654	654
Volume Left	0	0	0	0	45	0	0
Volume Right	0	16	0	38	0	0	0
cSH	1700	831	1700	1700	610	1700	1700
Volume to Capacity	0.00	0.02	0.51	0.28	0.07	0.38	0.38
Queue Length 95th (ft)	0	1	0	0	6	0	0
Control Delay (s)	0.0	9.4	0.0	0.0	11.4	0.0	0.0
Lane LOS	A	A			B		
Approach Delay (s)	9.4		0.0		0.4		
Approach LOS	A						

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	44.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	198	384	118	116	853	228	216	767	119	230	1000	286
Future Volume (vph)	198	384	118	116	853	228	216	767	119	230	1000	286
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.96		1.00	0.97		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	4906		1770	4924		1770	3468		1770	3539	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	4906		1770	4924		1770	3468		1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	215	417	128	126	927	248	235	834	129	250	1087	311
RTOR Reduction (vph)	0	60	0	0	54	0	0	14	0	0	0	126
Lane Group Flow (vph)	215	485	0	126	1121	0	235	949	0	250	1087	185
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												6
Actuated Green, G (s)	12.0	22.1		10.9	21.0		12.0	27.0		14.0	29.0	29.0
Effective Green, g (s)	12.0	22.1		10.9	21.0		12.0	27.0		14.0	29.0	29.0
Actuated g/C Ratio	0.13	0.25		0.12	0.23		0.13	0.30		0.16	0.32	0.32
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	236	1204		214	1148		236	1040		275	1140	510
v/s Ratio Prot	c0.12	0.10		0.07	c0.23		0.13	0.27		c0.14	c0.31	
v/s Ratio Perm												0.12
v/c Ratio	0.91	0.40		0.59	0.98		1.00	0.91		0.91	0.95	0.36
Uniform Delay, d1	38.5	28.4		37.4	34.3		39.0	30.4		37.4	29.8	23.4
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	35.5	0.2		4.1	20.9		57.0	13.5		31.2	17.6	2.0
Delay (s)	73.9	28.6		41.5	55.2		96.0	43.8		68.6	47.4	25.4
Level of Service	E	C		D	E		F	D		E	D	C
Approach Delay (s)		41.5			53.9			54.1			46.5	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	49.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	85.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	15	63	150	19	58	35	546	87	56	759	19
Future Volume (vph)	27	15	63	150	19	58	35	546	87	56	759	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		1.00			1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.92			0.97		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.99			0.97		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1690			1741		1770	3539	1583	1770	3539	1583
Flt Permitted		0.91			0.78		0.31	1.00	1.00	0.42	1.00	1.00
Satd. Flow (perm)		1553			1409		577	3539	1583	784	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	29	16	68	163	21	63	38	593	95	61	825	21
RTOR Reduction (vph)	0	51	0	0	25	0	0	0	38	0	0	9
Lane Group Flow (vph)	0	62	0	0	222	0	38	593	57	61	825	12
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)		13.6			13.6		31.7	31.7	31.7	31.7	31.7	31.7
Effective Green, g (s)		13.6			13.6		31.7	31.7	31.7	31.7	31.7	31.7
Actuated g/C Ratio		0.26			0.26		0.59	0.59	0.59	0.59	0.59	0.59
Clearance Time (s)		4.0			4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		396			359		343	2104	941	466	2104	941
v/s Ratio Prot								0.17			c0.23	
v/s Ratio Perm		0.04			c0.16		0.07		0.04	0.08		0.01
v/c Ratio		0.16			0.62		0.11	0.28	0.06	0.13	0.39	0.01
Uniform Delay, d1		15.4			17.6		4.7	5.3	4.5	4.7	5.7	4.4
Progression Factor		1.00			1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		0.2			3.2		0.7	0.3	0.1	0.6	0.6	0.0
Delay (s)		15.6			20.7		5.3	5.6	4.7	5.3	6.3	4.4
Level of Service		B			C		A	A	A	A	A	A
Approach Delay (s)		15.6			20.7			5.5			6.2	
Approach LOS		B			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	8.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	53.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	53.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	13	356	415	13	23	81
Future Volume (Veh/h)	13	356	415	13	23	81
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	14	387	451	14	25	88
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						2
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	465				873	458
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	465				873	458
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				92	85
cM capacity (veh/h)	1096				317	603

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	401	465	113
Volume Left	14	0	25
Volume Right	0	14	88
cSH	1096	1700	774
Volume to Capacity	0.01	0.27	0.15
Queue Length 95th (ft)	1	0	13
Control Delay (s)	0.4	0.0	13.2
Lane LOS	A		B
Approach Delay (s)	0.4	0.0	13.2
Approach LOS			B

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	39.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	3	102	11	0	78
Future Volume (vph)	0	3	102	11	0	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0			4.0
Lane Util. Factor	1.00		1.00			1.00
Frt	0.86		0.99			1.00
Flt Protected	1.00		1.00			1.00
Satd. Flow (prot)	1611		1838			1863
Flt Permitted	1.00		1.00			1.00
Satd. Flow (perm)	1611		1838			1863
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	3	111	12	0	85
RTOR Reduction (vph)	3	0	3	0	0	0
Lane Group Flow (vph)	0	0	120	0	0	85
Turn Type	Prot		NA			NA
Protected Phases	8		2			6
Permitted Phases					6	
Actuated Green, G (s)	0.8		21.6			21.6
Effective Green, g (s)	0.8		21.6			21.6
Actuated g/C Ratio	0.03		0.71			0.71
Clearance Time (s)	4.0		4.0			4.0
Vehicle Extension (s)	3.0		3.0			3.0
Lane Grp Cap (vph)	42		1305			1323
v/s Ratio Prot	c0.00		c0.07			0.05
v/s Ratio Perm						
v/c Ratio	0.00		0.09			0.06
Uniform Delay, d1	14.4		1.4			1.3
Progression Factor	1.00		1.00			1.00
Incremental Delay, d2	0.0		0.0			0.0
Delay (s)	14.4		1.4			1.4
Level of Service	B		A			A
Approach Delay (s)	14.4		1.4			1.4
Approach LOS	B		A			A

Intersection Summary			
HCM 2000 Control Delay	1.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.09		
Actuated Cycle Length (s)	30.4	Sum of lost time (s)	8.0
Intersection Capacity Utilization	16.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	7	11	15	56	11	1
Future Volume (Veh/h)	7	11	15	56	11	1
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	8	12	16	61	12	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	77				74	46
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	77				74	46
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				99	100
cM capacity (veh/h)	1522				924	1023

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	20	77	13
Volume Left	8	0	12
Volume Right	0	61	1
cSH	1522	1700	931
Volume to Capacity	0.01	0.05	0.01
Queue Length 95th (ft)	0	0	1
Control Delay (s)	3.0	0.0	8.9
Lane LOS	A		A
Approach Delay (s)	3.0	0.0	8.9
Approach LOS			A

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	16.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	500	16	60	580	18	2	0	26	39	0	51
Future Volume (Veh/h)	18	500	16	60	580	18	2	0	26	39	0	51
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	20	543	17	65	630	20	2	0	28	42	0	55
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (ft)					620							
pX, platoon unblocked	0.87						0.87	0.87		0.87	0.87	0.87
vC, conflicting volume	650			560			1406	1372	552	1371	1360	630
vC1, stage 1 conf vol							592	592		760	760	
vC2, stage 2 conf vol							815	780		611	600	
vCu, unblocked vol	520			560			1392	1352	552	1351	1339	497
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			94			99	100	95	85	100	89
cM capacity (veh/h)	907			1011			251	297	534	277	296	497

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	20	560	65	630	20	30	97
Volume Left	20	0	65	0	0	2	42
Volume Right	0	17	0	0	20	28	55
cSH	907	1700	1011	1700	1700	496	370
Volume to Capacity	0.02	0.33	0.06	0.37	0.01	0.06	0.26
Queue Length 95th (ft)	2	0	5	0	0	5	26
Control Delay (s)	9.1	0.0	8.8	0.0	0.0	12.7	18.2
Lane LOS	A		A			B	C
Approach Delay (s)	0.3		0.8			12.7	18.2
Approach LOS						B	C

Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	55.8%	ICU Level of Service	B
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	380	678	80	0	27
Future Vol, veh/h	0	380	678	80	0	27
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	-	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	413	737	87	0	29

Major/Minor	Major2		Minor2	
Conflicting Flow All	-	0	-	412
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	-	3.92
Pot Cap-1 Maneuver	-	-	0	503
Stage 1	-	-	0	-
Stage 2	-	-	0	-
Platoon blocked, %	-	-		
Mov Cap-1 Maneuver	-	-	-	503
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	WB	SB
HCM Control Delay, s	0	12.6
HCM LOS		B

Minor Lane/Major Mvmt	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	503
HCM Lane V/C Ratio	-	-	0.058
HCM Control Delay (s)	-	-	12.6
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	153	0	0	10	0	860	20	0	1119	24
Future Volume (Veh/h)	0	0	153	0	0	10	0	860	20	0	1119	24
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	166	0	0	11	0	935	22	0	1216	26
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								1041			523	
pX, platoon unblocked	0.80	0.80	0.80	0.80	0.80		0.80					
vC, conflicting volume	1708	2186	621	1720	2188	478	1242			957		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1378	1978	14	1394	1981	478	794			957		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	80	100	100	98	100			100		
cM capacity (veh/h)	81	49	846	65	48	533	656			714		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	166	11	623	334	811	431
Volume Left	0	0	0	0	0	0
Volume Right	166	11	0	22	0	26
cSH	846	533	1700	1700	1700	1700
Volume to Capacity	0.20	0.02	0.37	0.20	0.48	0.25
Queue Length 95th (ft)	18	2	0	0	0	0
Control Delay (s)	10.3	11.9	0.0	0.0	0.0	0.0
Lane LOS	B	B				
Approach Delay (s)	10.3	11.9	0.0		0.0	
Approach LOS	B	B				

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	47.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	546	20	43	609	27	50
Future Volume (Veh/h)	546	20	43	609	27	50
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	593	22	47	662	29	54
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)				479		
pX, platoon unblocked					0.83	
vC, conflicting volume			615		1360	604
vC1, stage 1 conf vol					604	
vC2, stage 2 conf vol					756	
vCu, unblocked vol			615		1331	604
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)			2.2		3.5	3.3
p0 queue free %			95		92	89
cM capacity (veh/h)			965		353	498

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	615	47	662	83
Volume Left	0	47	0	29
Volume Right	22	0	0	54
cSH	1700	965	1700	436
Volume to Capacity	0.36	0.05	0.39	0.19
Queue Length 95th (ft)	0	4	0	17
Control Delay (s)	0.0	8.9	0.0	15.2
Lane LOS		A		C
Approach Delay (s)	0.0	0.6		15.2
Approach LOS				C

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	47.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	19	24	196	879	1006	5
Future Volume (vph)	19	24	196	879	1006	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	
Lane Util. Factor	1.00		1.00	0.95	0.95	
Frt	0.93		1.00	1.00	1.00	
Flt Protected	0.98		0.95	1.00	1.00	
Satd. Flow (prot)	1686		1770	3539	3537	
Flt Permitted	0.98		0.25	1.00	1.00	
Satd. Flow (perm)	1686		469	3539	3537	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	21	26	213	955	1093	5
RTOR Reduction (vph)	24	0	0	0	0	0
Lane Group Flow (vph)	23	0	213	955	1098	0
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases			2			
Actuated Green, G (s)	3.7		49.5	49.5	49.5	
Effective Green, g (s)	3.7		49.5	49.5	49.5	
Actuated g/C Ratio	0.06		0.81	0.81	0.81	
Clearance Time (s)	4.0		4.0	4.0	4.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	101		379	2862	2860	
v/s Ratio Prot	c0.01			0.27	0.31	
v/s Ratio Perm			c0.45			
v/c Ratio	0.22		0.56	0.33	0.38	
Uniform Delay, d1	27.4		2.1	1.5	1.6	
Progression Factor	1.00		1.00	1.00	1.00	
Incremental Delay, d2	1.1		1.9	0.1	0.1	
Delay (s)	28.5		4.0	1.6	1.7	
Level of Service	C		A	A	A	
Approach Delay (s)	28.5			2.0	1.7	
Approach LOS	C			A	A	

Intersection Summary			
HCM 2000 Control Delay	2.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	61.2	Sum of lost time (s)	8.0
Intersection Capacity Utilization	52.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1	2	9	0	2	6	17	39	16	12	1
Future Volume (Veh/h)	0	1	2	9	0	2	6	17	39	16	12	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1	2	10	0	2	7	18	42	17	13	1
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	102	122	14	103	101	39	14			60		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	102	122	14	103	101	39	14			60		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	99	100	100	100			99		
cM capacity (veh/h)	866	757	1067	865	777	1033	1604			1544		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	3	12	67	31
Volume Left	0	10	7	17
Volume Right	2	2	42	1
cSH	939	889	1604	1544
Volume to Capacity	0.00	0.01	0.00	0.01
Queue Length 95th (ft)	0	1	0	1
Control Delay (s)	8.8	9.1	0.8	4.1
Lane LOS	A	A	A	A
Approach Delay (s)	8.8	9.1	0.8	4.1
Approach LOS	A	A		

Intersection Summary			
Average Delay	2.8		
Intersection Capacity Utilization	19.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	38	304	26	18	676	10	10	2	3	7	0	10
Future Volume (Veh/h)	38	304	26	18	676	10	10	2	3	7	0	10
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	41	330	28	20	735	11	11	2	3	8	0	11
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	746			358			844	1212	124	976	1220	373
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	746			358			844	1212	124	976	1220	373
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	95			98			95	99	100	96	100	98
cM capacity (veh/h)	858			1197			239	169	904	193	167	624

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	41	132	132	94	20	490	256	16	19
Volume Left	41	0	0	0	20	0	0	11	8
Volume Right	0	0	0	28	0	0	11	3	11
cSH	858	1700	1700	1700	1197	1700	1700	262	322
Volume to Capacity	0.05	0.08	0.08	0.06	0.02	0.29	0.15	0.06	0.06
Queue Length 95th (ft)	4	0	0	0	1	0	0	5	5
Control Delay (s)	9.4	0.0	0.0	0.0	8.1	0.0	0.0	19.6	16.9
Lane LOS	A				A			C	C
Approach Delay (s)	1.0				0.2			19.6	16.9
Approach LOS								C	C

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	35.7%	ICU Level of Service	A
Analysis Period (min)	15		

2035 Build Alternative with Project Modifications (Phase 1) – PM Peak Hour

HCM Signalized Intersection Capacity Analysis
65: La Verne Ave & Arrow Hwy

08/14/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	940	0	6	519	3	187	0	5	2	0	0
Future Volume (vph)	6	940	0	6	519	3	187	0	5	2	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0			4.0	
Lane Util. Factor	1.00	0.91		1.00	0.95	1.00		1.00			1.00	
Frt	1.00	1.00		1.00	1.00	0.85		1.00			1.00	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.95			0.95	
Satd. Flow (prot)	1770	5085		1770	3539	1583		1770			1770	
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.95			0.95	
Satd. Flow (perm)	1770	5085		1770	3539	1583		1770			1770	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	7	1022	0	7	564	3	203	0	5	2	0	0
RTOR Reduction (vph)	0	0	0	0	0	2	0	106	0	0	0	0
Lane Group Flow (vph)	7	1022	0	7	564	1	0	102	0	0	2	0
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA		Split	NA	
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases						8						
Actuated Green, G (s)	0.7	17.5		0.7	17.5	17.5		16.0			16.0	
Effective Green, g (s)	0.7	17.5		0.7	17.5	17.5		16.0			16.0	
Actuated g/C Ratio	0.01	0.26		0.01	0.26	0.26		0.24			0.24	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0		4.0			4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)	18	1344		18	935	418		427			427	
v/s Ratio Prot	c0.00	c0.20		0.00	0.16			c0.06			c0.00	
v/s Ratio Perm						0.00						
v/c Ratio	0.39	0.76		0.39	0.60	0.00		0.24			0.00	
Uniform Delay, d1	32.5	22.4		32.5	21.3	17.9		20.2			19.1	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00			1.00	
Incremental Delay, d2	13.4	2.6		13.4	1.1	0.0		1.3			0.0	
Delay (s)	45.9	25.0		45.9	22.4	17.9		21.5			19.1	
Level of Service	D	C		D	C	B		C			B	
Approach Delay (s)		25.2			22.7			21.5			19.1	
Approach LOS		C			C			C			B	

Intersection Summary			
HCM 2000 Control Delay	23.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	66.2	Sum of lost time (s)	16.0
Intersection Capacity Utilization	34.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	831	1	43	458	13	11	18	19	15	10	27
Future Volume (Veh/h)	26	831	1	43	458	13	11	18	19	15	10	27
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	28	903	1	47	498	14	12	20	21	16	11	29
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)									2			2
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		425										
pX, platoon unblocked				0.84			0.84	0.84	0.84	0.84	0.84	
vC, conflicting volume	512			904			1308	1566	302	976	1559	256
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	512			230			710	1016	0	317	1008	256
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			96			95	89	98	96	94	96
cM capacity (veh/h)	1050			1124			235	186	913	439	188	743

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	28	361	361	182	47	332	180	53	56
Volume Left	28	0	0	0	47	0	0	12	16
Volume Right	0	0	0	1	0	0	14	21	29
cSH	1050	1700	1700	1700	1124	1700	1700	338	699
Volume to Capacity	0.03	0.21	0.21	0.11	0.04	0.20	0.11	0.16	0.08
Queue Length 95th (ft)	2	0	0	0	3	0	0	14	7
Control Delay (s)	8.5	0.0	0.0	0.0	8.3	0.0	0.0	19.2	13.2
Lane LOS	A				A			C	B
Approach Delay (s)	0.3				0.7			19.2	13.2
Approach LOS								C	B

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	37.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	115	524	169	123	399	99	243	774	211	72	572	66
Future Volume (vph)	115	524	169	123	399	99	243	774	211	72	572	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.32	1.00	1.00	0.18	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	602	1863	1583	329	1863	1583	1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	125	570	184	134	434	108	264	841	229	78	622	72
RTOR Reduction (vph)	0	0	113	0	0	67	0	0	117	0	0	53
Lane Group Flow (vph)	125	570	71	134	434	41	264	841	112	78	622	19
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8		8			2			6
Actuated Green, G (s)	25.3	25.3	25.3	25.3	25.3	25.3	11.8	26.0	26.0	3.8	18.0	18.0
Effective Green, g (s)	25.3	25.3	25.3	25.3	25.3	25.3	11.8	26.0	26.0	3.8	18.0	18.0
Actuated g/C Ratio	0.38	0.38	0.38	0.38	0.38	0.38	0.18	0.39	0.39	0.06	0.27	0.27
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	226	702	596	124	702	596	311	1371	613	100	949	424
v/s Ratio Prot		0.31			0.23		c0.15	c0.24		0.04	0.18	
v/s Ratio Perm	0.21		0.04	c0.41		0.03			0.07			0.01
v/c Ratio	0.55	0.81	0.12	1.08	0.62	0.07	0.85	0.61	0.18	0.78	0.66	0.05
Uniform Delay, d1	16.5	18.8	13.6	20.9	17.0	13.4	26.8	16.5	13.5	31.2	21.8	18.2
Progression 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
Incremental Delay, d2	2.9	7.1	0.1	104.1	1.6	0.0	18.9	2.1	0.7	31.6	3.5	0.2
Delay (s)	19.4	25.9	13.7	125.0	18.6	13.4	45.7	18.6	14.2	62.8	25.3	18.4
Level of Service	B	C	B	F	B	B	D	B	B	E	C	B
Approach Delay (s)		22.4			38.9			23.2			28.5	
Approach LOS		C			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	27.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	67.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	77.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	126	984	54	109	369	159	133	751	149	318	727	47
Future Volume (vph)	126	984	54	109	369	159	133	751	149	318	727	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	0.95		1.00	0.95	
Frt	1.00	0.99		1.00	0.95		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5045		1770	4855		1770	3451		1770	3507	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	5045		1770	4855		1770	3451		1770	3507	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	137	1070	59	118	401	173	145	816	162	346	790	51
RTOR Reduction (vph)	0	7	0	0	86	0	0	18	0	0	5	0
Lane Group Flow (vph)	137	1122	0	118	488	0	145	960	0	346	836	0
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	9.6	20.0		7.0	17.4		11.7	28.1		18.0	34.4	
Effective Green, g (s)	9.6	20.0		7.0	17.4		11.7	28.1		18.0	34.4	
Actuated g/C Ratio	0.11	0.22		0.08	0.20		0.13	0.32		0.20	0.39	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	190	1132		139	948		232	1088		357	1353	
v/s Ratio Prot	c0.08	c0.22		0.07	0.10		0.08	c0.28		c0.20	0.24	
v/s Ratio Perm												
v/c Ratio	0.72	0.99		0.85	0.51		0.62	0.88		0.97	0.62	
Uniform Delay, d1	38.5	34.5		40.5	32.1		36.6	28.9		35.3	22.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	12.6	24.5		35.5	0.5		5.2	8.6		39.0	0.8	
Delay (s)	51.1	59.0		76.1	32.5		41.8	37.5		74.2	22.9	
Level of Service	D	E		E	C		D	D		E	C	
Approach Delay (s)		58.1			40.0			38.1			37.9	
Approach LOS		E			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	44.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	89.1	Sum of lost time (s)	16.0
Intersection Capacity Utilization	82.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	249	298	184	80	153	120	125	995	113	87	767	69
Future Volume (vph)	249	298	184	80	153	120	125	995	113	87	767	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.65	1.00	1.00	0.40	1.00	1.00	0.30	1.00	1.00	0.20	1.00	1.00
Satd. Flow (perm)	1209	1863	1583	751	1863	1583	551	3539	1583	377	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	271	324	200	87	166	130	136	1082	123	95	834	75
RTOR Reduction (vph)	0	0	98	0	0	51	0	0	51	0	0	33
Lane Group Flow (vph)	271	324	102	87	166	79	136	1082	72	95	834	42
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	16.9	16.9	16.9	16.9	16.9	16.9	32.2	32.2	32.2	32.2	32.2	32.2
Effective Green, g (s)	16.9	16.9	16.9	16.9	16.9	16.9	32.2	32.2	32.2	32.2	32.2	32.2
Actuated g/C Ratio	0.30	0.30	0.30	0.30	0.30	0.30	0.56	0.56	0.56	0.56	0.56	0.56
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	357	551	468	222	551	468	310	1995	892	212	1995	892
v/s Ratio Prot		0.17			0.09			c0.31			0.24	
v/s Ratio Perm	c0.22		0.06	0.12		0.05	0.25		0.05	0.25		0.03
v/c Ratio	0.76	0.59	0.22	0.39	0.30	0.17	0.44	0.54	0.08	0.45	0.42	0.05
Uniform Delay, d1	18.3	17.1	15.1	16.0	15.5	14.9	7.2	7.8	5.7	7.3	7.1	5.6
Progression 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
Incremental Delay, d2	9.0	1.6	0.2	1.1	0.3	0.2	4.5	1.1	0.2	6.7	0.6	0.1
Delay (s)	27.2	18.7	15.4	17.2	15.8	15.1	11.7	8.9	5.9	14.0	7.8	5.7
Level of Service	C	B	B	B	B	B	B	A	A	B	A	A
Approach Delay (s)		20.8			15.9			8.9			8.2	
Approach LOS		C			B			A			A	

Intersection Summary			
HCM 2000 Control Delay	12.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	57.1	Sum of lost time (s)	8.0
Intersection Capacity Utilization	67.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	53	1207	14	31	1108
Future Volume (Veh/h)	0	53	1207	14	31	1108
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	58	1312	15	34	1204
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			916			
pX, platoon unblocked	0.77	0.77			0.77	
vC, conflicting volume	1990	664			1327	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1690	0			831	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	93			94	
cM capacity (veh/h)	61	836			615	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	0	58	875	452	34	602	602
Volume Left	0	0	0	0	34	0	0
Volume Right	0	58	0	15	0	0	0
cSH	1700	836	1700	1700	615	1700	1700
Volume to Capacity	0.00	0.07	0.51	0.27	0.06	0.35	0.35
Queue Length 95th (ft)	0	6	0	0	4	0	0
Control Delay (s)	0.0	9.6	0.0	0.0	11.2	0.0	0.0
Lane LOS	A	A			B		
Approach Delay (s)	9.6		0.0		0.3		
Approach LOS	A						

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	43.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	356	838	132	234	496	132	182	774	119	183	868	165
Future Volume (vph)	356	838	132	234	496	132	182	774	119	183	868	165
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.98		1.00	0.97		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	4982		1770	4925		1770	3469		1770	3539	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	4982		1770	4925		1770	3469		1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	387	911	143	254	539	143	198	841	129	199	943	179
RTOR Reduction (vph)	0	23	0	0	54	0	0	13	0	0	0	84
Lane Group Flow (vph)	387	1031	0	254	628	0	198	957	0	199	943	95
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												6
Actuated Green, G (s)	20.1	20.0		15.5	15.4		11.0	27.0		11.0	27.0	27.0
Effective Green, g (s)	20.1	20.0		15.5	15.4		11.0	27.0		11.0	27.0	27.0
Actuated g/C Ratio	0.22	0.22		0.17	0.17		0.12	0.30		0.12	0.30	0.30
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	397	1113		306	847		217	1046		217	1067	477
v/s Ratio Prot	c0.22	c0.21		0.14	0.13		0.11	c0.28		c0.11	0.27	
v/s Ratio Perm												0.06
v/c Ratio	0.97	0.93		0.83	0.74		0.91	0.91		0.92	0.88	0.20
Uniform Delay, d1	34.4	34.0		35.7	35.2		38.8	30.1		38.8	29.8	23.2
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	38.2	12.8		17.1	3.5		37.8	13.6		38.6	10.7	0.9
Delay (s)	72.7	46.8		52.8	38.7		76.6	43.8		77.4	40.4	24.2
Level of Service	E	D		D	D		E	D		E	D	C
Approach Delay (s)		53.7			42.5			49.3			43.8	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	47.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	89.5	Sum of lost time (s)	16.0
Intersection Capacity Utilization	80.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	6	33	85	21	78	38	877	73	55	592	40
Future Volume (vph)	25	6	33	85	21	78	38	877	73	55	592	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		1.00			1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.93			0.94		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98			0.98		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1701			1716		1770	3539	1583	1770	3539	1583
Flt Permitted		0.87			0.83		0.40	1.00	1.00	0.27	1.00	1.00
Satd. Flow (perm)		1507			1459		753	3539	1583	511	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	27	7	36	92	23	85	41	953	79	60	643	43
RTOR Reduction (vph)	0	29	0	0	53	0	0	0	27	0	0	14
Lane Group Flow (vph)	0	41	0	0	147	0	41	953	52	60	643	29
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)		10.5			10.5		36.4	36.4	36.4	36.4	36.4	36.4
Effective Green, g (s)		10.5			10.5		36.4	36.4	36.4	36.4	36.4	36.4
Actuated g/C Ratio		0.19			0.19		0.66	0.66	0.66	0.66	0.66	0.66
Clearance Time (s)		4.0			4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		288			279		499	2346	1049	338	2346	1049
v/s Ratio Prot								c0.27			0.18	
v/s Ratio Perm		0.03			c0.10		0.05		0.03	0.12		0.02
v/c Ratio		0.14			0.53		0.08	0.41	0.05	0.18	0.27	0.03
Uniform Delay, d1		18.5			20.0		3.3	4.3	3.2	3.5	3.8	3.2
Progression Factor		1.00			1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		0.2			1.8		0.3	0.5	0.1	1.1	0.3	0.0
Delay (s)		18.7			21.8		3.6	4.8	3.3	4.7	4.1	3.2
Level of Service		B			C		A	A	A	A	A	A
Approach Delay (s)		18.7			21.8			4.6			4.1	
Approach LOS		B			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	6.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	54.9	Sum of lost time (s)	8.0
Intersection Capacity Utilization	52.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	83	471	484	35	23	43
Future Volume (Veh/h)	83	471	484	35	23	43
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	90	512	526	38	25	47
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						2
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	564				1237	545
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	564				1237	545
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	91				86	91
cM capacity (veh/h)	1008				177	538

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	602	564	72
Volume Left	90	0	25
Volume Right	0	38	47
cSH	1008	1700	509
Volume to Capacity	0.09	0.33	0.14
Queue Length 95th (ft)	7	0	12
Control Delay (s)	2.3	0.0	18.0
Lane LOS	A		C
Approach Delay (s)	2.3	0.0	18.0
Approach LOS			C

Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	70.3%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	23	68	10	0	91
Future Volume (vph)	0	23	68	10	0	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0			4.0
Lane Util. Factor	1.00		1.00			1.00
Frt	0.86		0.98			1.00
Flt Protected	1.00		1.00			1.00
Satd. Flow (prot)	1611		1830			1863
Flt Permitted	1.00		1.00			1.00
Satd. Flow (perm)	1611		1830			1863
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	25	74	11	0	99
RTOR Reduction (vph)	24	0	3	0	0	0
Lane Group Flow (vph)	1	0	82	0	0	99
Turn Type	Prot		NA			NA
Protected Phases	8		2			6
Permitted Phases					6	
Actuated Green, G (s)	0.8		21.5			21.5
Effective Green, g (s)	0.8		21.5			21.5
Actuated g/C Ratio	0.03		0.71			0.71
Clearance Time (s)	4.0		4.0			4.0
Vehicle Extension (s)	3.0		3.0			3.0
Lane Grp Cap (vph)	42		1298			1321
v/s Ratio Prot	c0.00		0.04			c0.05
v/s Ratio Perm						
v/c Ratio	0.02		0.06			0.07
Uniform Delay, d1	14.4		1.3			1.3
Progression Factor	1.00		1.00			1.00
Incremental Delay, d2	0.2		0.0			0.0
Delay (s)	14.5		1.4			1.4
Level of Service	B		A			A
Approach Delay (s)	14.5		1.4			1.4
Approach LOS	B		A			A

Intersection Summary			
HCM 2000 Control Delay	2.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.07		
Actuated Cycle Length (s)	30.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	14.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	6	6	12	67	6
Future Volume (Veh/h)	0	6	6	12	67	6
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	7	7	13	73	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	20				20	14
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	20				20	14
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				93	99
cM capacity (veh/h)	1596				996	1067

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	7	20	80
Volume Left	0	0	73
Volume Right	0	13	7
cSH	1596	1700	1002
Volume to Capacity	0.00	0.01	0.08
Queue Length 95th (ft)	0	0	6
Control Delay (s)	0.0	0.0	8.9
Lane LOS			A
Approach Delay (s)	0.0	0.0	8.9
Approach LOS			A

Intersection Summary			
Average Delay	6.7		
Intersection Capacity Utilization	14.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	27	737	7	19	527	26	14	0	59	17	0	17
Future Volume (Veh/h)	27	737	7	19	527	26	14	0	59	17	0	17
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	29	801	8	21	573	28	15	0	64	18	0	18
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (ft)					644							
pX, platoon unblocked	0.89						0.89	0.89		0.89	0.89	0.89
vC, conflicting volume	601			809			1496	1506	805	1538	1482	573
vC1, stage 1 conf vol							863	863		615	615	
vC2, stage 2 conf vol							633	643		923	867	
vCu, unblocked vol	489			809			1496	1507	805	1543	1480	458
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			97			94	100	83	92	100	97
cM capacity (veh/h)	955			817			269	285	382	215	284	536

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	29	809	21	573	28	79	36
Volume Left	29	0	21	0	0	15	18
Volume Right	0	8	0	0	28	64	18
cSH	955	1700	817	1700	1700	354	307
Volume to Capacity	0.03	0.48	0.03	0.34	0.02	0.22	0.12
Queue Length 95th (ft)	2	0	2	0	0	21	10
Control Delay (s)	8.9	0.0	9.5	0.0	0.0	18.1	18.3
Lane LOS	A		A			C	C
Approach Delay (s)	0.3		0.3			18.1	18.3
Approach LOS						C	C

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	50.5%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1162	507	44	0	36
Future Vol, veh/h	0	1162	507	44	0	36
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	-	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1263	551	48	0	39

Major/Minor	Major2		Minor2	
Conflicting Flow All	-	0	-	300
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	-	3.92
Pot Cap-1 Maneuver	-	-	0	594
Stage 1	-	-	0	-
Stage 2	-	-	0	-
Platoon blocked, %	-	-		
Mov Cap-1 Maneuver	-	-	-	594
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	WB	SB
HCM Control Delay, s	0	11.5
HCM LOS		B

Minor Lane/Major Mvmt	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	594
HCM Lane V/C Ratio	-	-	0.066
HCM Control Delay (s)	-	-	11.5
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	78	0	0	24	0	1213	1	0	844	30
Future Volume (Veh/h)	0	0	78	0	0	24	0	1213	1	0	844	30
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	85	0	0	26	0	1318	1	0	917	33
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								1059			551	
pX, platoon unblocked	0.92	0.92	0.85	0.92	0.92	0.87	0.85			0.87		
vC, conflicting volume	1618	2252	475	1862	2268	660	950			1319		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	865	1557	39	1131	1574	316	596			1072		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	90	100	100	96	100			100		
cM capacity (veh/h)	217	102	873	131	100	593	833			563		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	85	26	879	440	611	339
Volume Left	0	0	0	0	0	0
Volume Right	85	26	0	1	0	33
cSH	873	593	1700	1700	1700	1700
Volume to Capacity	0.10	0.04	0.52	0.26	0.36	0.20
Queue Length 95th (ft)	8	3	0	0	0	0
Control Delay (s)	9.6	11.4	0.0	0.0	0.0	0.0
Lane LOS	A	B				
Approach Delay (s)	9.6	11.4	0.0		0.0	
Approach LOS	A	B				

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	43.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	781	32	164	544	17	27
Future Volume (Veh/h)	781	32	164	544	17	27
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	849	35	178	591	18	29
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)				503		
pX, platoon unblocked					0.85	
vC, conflicting volume			884		1814	866
vC1, stage 1 conf vol					866	
vC2, stage 2 conf vol					947	
vCu, unblocked vol			884		1868	866
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)			2.2		3.5	3.3
p0 queue free %			77		92	92
cM capacity (veh/h)			765		226	353

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	884	178	591	47
Volume Left	0	178	0	18
Volume Right	35	0	0	29
cSH	1700	765	1700	290
Volume to Capacity	0.52	0.23	0.35	0.16
Queue Length 95th (ft)	0	22	0	14
Control Delay (s)	0.0	11.1	0.0	19.8
Lane LOS		B		C
Approach Delay (s)	0.0	2.6		19.8
Approach LOS				C

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	65.5%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	174	52	40	997	1065	5
Future Volume (vph)	174	52	40	997	1065	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	
Lane Util. Factor	1.00		1.00	0.95	0.95	
Frt	0.97		1.00	1.00	1.00	
Flt Protected	0.96		0.95	1.00	1.00	
Satd. Flow (prot)	1738		1770	3539	3537	
Flt Permitted	0.96		0.19	1.00	1.00	
Satd. Flow (perm)	1738		357	3539	3537	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	189	57	43	1084	1158	5
RTOR Reduction (vph)	19	0	0	0	0	0
Lane Group Flow (vph)	227	0	43	1084	1163	0
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases			2			
Actuated Green, G (s)	11.3		28.0	28.0	28.0	
Effective Green, g (s)	11.3		28.0	28.0	28.0	
Actuated g/C Ratio	0.24		0.59	0.59	0.59	
Clearance Time (s)	4.0		4.0	4.0	4.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	415		211	2094	2093	
v/s Ratio Prot	c0.13			0.31	c0.33	
v/s Ratio Perm			0.12			
v/c Ratio	0.55		0.20	0.52	0.56	
Uniform Delay, d1	15.8		4.5	5.7	5.9	
Progression Factor	1.00		1.00	1.00	1.00	
Incremental Delay, d2	1.5		0.5	0.2	0.3	
Delay (s)	17.2		5.0	5.9	6.2	
Level of Service	B		A	A	A	
Approach Delay (s)	17.2			5.9	6.2	
Approach LOS	B			A	A	

Intersection Summary			
HCM 2000 Control Delay	7.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	47.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	52.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	9	11	14	1	5	0	12	13	27	11	1
Future Volume (Veh/h)	0	9	11	14	1	5	0	12	13	27	11	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	10	12	15	1	5	0	13	14	29	12	1
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	96	98	12	108	91	20	13			27		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	96	98	12	108	91	20	13			27		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	99	99	98	100	100	100			98		
cM capacity (veh/h)	869	778	1068	841	784	1058	1606			1587		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	22	21	27	42
Volume Left	0	15	0	29
Volume Right	12	5	14	1
cSH	913	881	1606	1587
Volume to Capacity	0.02	0.02	0.00	0.02
Queue Length 95th (ft)	2	2	0	1
Control Delay (s)	9.0	9.2	0.0	5.1
Lane LOS	A	A		A
Approach Delay (s)	9.0	9.2	0.0	5.1
Approach LOS	A	A		

Intersection Summary			
Average Delay	5.4		
Intersection Capacity Utilization	23.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	1150	19	20	505	11	23	0	23	18	0	28
Future Volume (Veh/h)	18	1150	19	20	505	11	23	0	23	18	0	28
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	20	1250	21	22	549	12	25	0	25	20	0	30
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	561			1271			1649	1906	427	1081	1910	280
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	561			1271			1649	1906	427	1081	1910	280
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			96			58	100	96	87	100	96
cM capacity (veh/h)	1006			542			60	64	576	157	63	717

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	20	500	500	271	22	366	195	50	50
Volume Left	20	0	0	0	22	0	0	25	20
Volume Right	0	0	0	21	0	0	12	25	30
cSH	1006	1700	1700	1700	542	1700	1700	108	296
Volume to Capacity	0.02	0.29	0.29	0.16	0.04	0.22	0.11	0.46	0.17
Queue Length 95th (ft)	2	0	0	0	3	0	0	51	15
Control Delay (s)	8.7	0.0	0.0	0.0	11.9	0.0	0.0	64.3	19.6
Lane LOS	A				B			F	C
Approach Delay (s)	0.1				0.4			64.3	19.6
Approach LOS								F	C

Intersection Summary			
Average Delay	2.3		
Intersection Capacity Utilization	33.2%	ICU Level of Service	A
Analysis Period (min)	15		