South Bay Bus Rapid Transit (BRT)

SAN DIEGO ASSOCIATION OF GOVERNMENTS
CITIES OF SAN DIEGO AND CHULA VISTA
SAN DIEGO COUNTY, CALIFORNIA

Addendum to the Final EIR

State Clearinghouse No. 2010041060
Final EIR Certified July 26, 2013

Prepared by the San Diego Association of Governments

October 2014

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1.0 Introduction

The San Diego Association of Governments (SANDAG) proposes to make minor changes to the South Bay Bus Rapid Transit (BRT) Project (hereinafter referred to as "the Project" or "approved Project"). The Project was described in the *South Bay Bus Rapid Transit Project Final Environmental Impact Report* (Final EIR) certified by the SANDAG Board of Directors on July 26, 2013 (SCH No. 201004106). All section references are to the California Environmental Quality Act (CEQA), Public Resources Code, §21000 et seq., or the CEQA Guidelines, California Code of Regulations, Title 14, Division 6, Chapter 3, §15000 et seq., unless otherwise noted.

The purposes of this Addendum are to describe the proposed minor changes to the Project and to document compliance with CEQA §21166 and CEQA Guidelines §15162. Pursuant to §15164, this Addendum is appropriate because only minor technical changes and additions are necessary to make the certified Final EIR adequate under CEQA. This Addendum provides the documentation for SANDAG's reasoned conclusion that the revised Project as described herein does not create any of the conditions in CEQA §21166 and Guidelines §15162 requiring preparation of a Subsequent or Supplemental EIR.

This Addendum will be maintained in the administrative record files at SANDAG located at 401 B Street, Suite 800, San Diego, California 92101. The custodian of these documents is Andrew Martin, Associate Planner. The documents and other materials that constitute the record of proceedings on which SANDAG's Board will consider adoption of the Addendum to the Final EIR include but are not limited to the Final EIR for the approved Project and all public notices issued by SANDAG in conjunction with the Project.

2.0 CEQA Requirements

CEQA § 21166 limits the circumstances under which a subsequent or supplemental EIR is required to three events: (1) substantial changes in a project or (2) substantial changes in the circumstances under which the project is undertaken, and either of the changes will require major revisions of the EIR, or (3) new information becomes available (which was not known and could not have been known at the time the EIR was certified as complete).

CEQA Guidelines §15162 through §15164 provides additional explanation of §21166, setting forth the process and criteria for determining the appropriate additional environmental documentation, if any, to be completed when there is a previously certified EIR for a project. Specifically, §15162(a) and §15163 state that when an EIR is certified for a project, no Subsequent or Supplemental EIR shall be prepared unless the lead agency determines, on the basis of substantial evidence in light of the whole record, one or more of the following:

1. Substantial changes are proposed in the project which will require major revisions of the previous EIR or Negative Declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects.

2. Substantial changes occur with respect to the circumstances under which the project is undertaken which will require major revisions of the previous EIR or Negative Declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects.
3. New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified as complete or the Negative Declaration was adopted, shows any of the following:

    a) The project will have one or more significant effects not discussed in the previous EIR or Negative Declaration;
    b) Significant effects previously examined will be substantially more severe than shown in the previously adopted Negative Declaration or previously certified EIR;
    c) Mitigation measures or alternatives previously found not to be feasible would in fact be feasible, and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or
    d) Mitigation measures or alternatives which are considerably different from those analyzed in the previous Negative Declaration or EIR would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative.

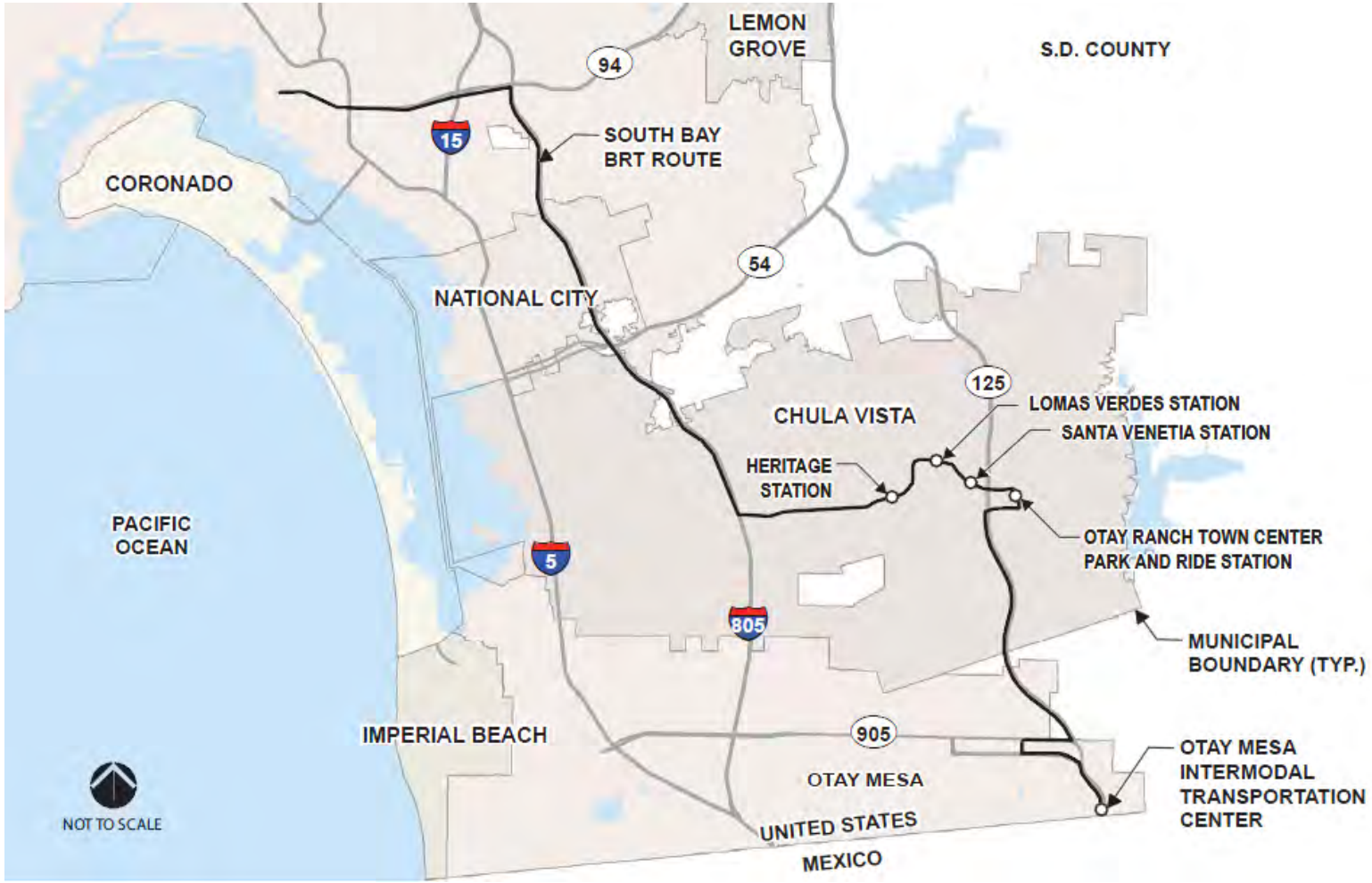
Under a scenario in which minor technical changes or additions to the previously adopted MND or certified EIR are necessary, but none of the changes or additions meet the standards for a Subsequent EIR, the lead agency shall prepare an addendum to the previous document (§15164). The addendum should include, “a brief explanation of the decision not to prepare a subsequent EIR pursuant to §15162”, and, “the explanation must be supported by substantial evidence” (§15164[e]). Public review of an addendum is not required, “but can be included in or attached to the final EIR or adopted negative declaration” (§15164[c]).

3.0 Summary of the Approved Project, Location, and Regional Setting

The South Bay BRT Project will provide BRT service on an approximately 21 mile route from an Intermodal Transportation Center (ITC) at the Otay Mesa Port of Entry (POE) in the City of San Diego, through the Otay Ranch communities in eastern Chula Vista, along Interstate 805 (I-805) and State Route 94 (SR 94), to its termination in downtown San Diego (Figure 1-1). The BRT service would operate in both a dedicated bus guideway and in mixed traffic lanes. Construction of the Project is scheduled to begin in 2015 and transit service would begin operation in 2016. Please see Chapter 2.0 of the Final EIR for a full description of the approved Project.

4.0 Summary of CEQA Documentation for the Approved Project

SANDAG served as the lead agency for the Final EIR for the South Bay BRT Project. At its July 26, 2013 meeting, the SANDAG Board of Directors certified the Final EIR and adopted CEQA Findings of Fact, Statements of Overriding Consideration, and the Mitigation Monitoring and Reporting Program (MMRP) prior to approving a preferred alignment for the Project. A Notice of Determination (NOD) was filed with the San Diego County Clerk and the Governor’s Office of Planning and Research on July 26, 2013.



SOURCE: SANDAG, 2014

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Regional Location

FIGURE 1-1

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The Final EIR impact analysis divided the approved Project into four segments: Otay Mesa, Chula Vista, I-805/SR-94, and Downtown San Diego. The Final EIR concluded that the Project would have significant and unavoidable impacts to Aesthetics/Visual Resources, Air Quality, and Noise (Vibration). With implementation of mitigation measures, all remaining resource areas were determined to not have significant impacts.

The Transportation and Traffic Section of the Final EIR (Chapter 3.16) analyzed the impacts of removing the existing one-way stop sign at the East Palomar Street and Commercial Driveway intersection (referenced in the Final EIR as Intersection #5 in the Chula Vista Segment) and replacing it with a traffic signal that would allow for all existing turning movements (i.e., left in, left out, right in, right out). The Final EIR concluded that impacts to this intersection and roadway segment would be less than significant (Final EIR, Tables 3.16-25, 3.16-26, 3.16-27, and 3.16-28). The Final EIR (Chapter 2.5) reported that permanent physical improvements to the Chula Vista segment from Heritage Road to Oleander Avenue would occur within the existing East Palomar Street right of way (page 2-34) (Figure 1-2).

5.0 Proposed Changes to the Approved Project

This Addendum addresses proposed changes to the approved Project described in the Final EIR. The changes involve modifying a traffic signal to change the outbound access from a shopping center's mid-block driveway to right-turn out only, acquiring property in order to relocate a fiber optic facility, constructing a retaining wall, and making other related physical improvements. The proposed changes are located along East Palomar Street between Medical Center Drive/Brandywine Avenue and Davies Drive in the City of Chula Vista. Except for the proposed changes in this area, the approved Project would remain as described in the Final EIR.

5.1 Traffic Signal at the East Palomar Street/Commercial Driveway Intersection

A change is proposed to the traffic signal at Intersection #5 in the Chula Vista Segment (east of I-805 along East Palomar Street [Township 15 South, Range 2 West, La Jolla 7.5 Minute USGS Quadrangle, San Bernardino Base and Meridian]). The East Palomar Street and Commercial Driveway intersection is a mid-block intersection located at the Sunbow Shopping Center, between Davies Drive and Medical Center Drive/Brandywine Avenue in the City of Chula Vista. In the vicinity of this intersection, the BRT service would operate in a dedicated guideway in the median of East Palomar Street.

Under the proposed changes, a traffic signal would still be installed at the intersection of East Palomar Street and the Commercial Driveway, same as the approved Project. However, the outbound left-turn lane from the Sunbow Shopping Center's mid-block driveway onto eastbound East Palomar Street would be replaced with a second right turn lane onto westbound East Palomar Street (Figure 1-3). All other turning movements would remain the same as the approved Project (i.e., left in, right in, right out). SANDAG, in consultation with the City of Chula Vista, proposes to make the change because maintaining the left-out turn lane would:

Increase delay and decrease operational performance of the buses operating in the guideway because an additional signal phase would be required for the left-out turn.

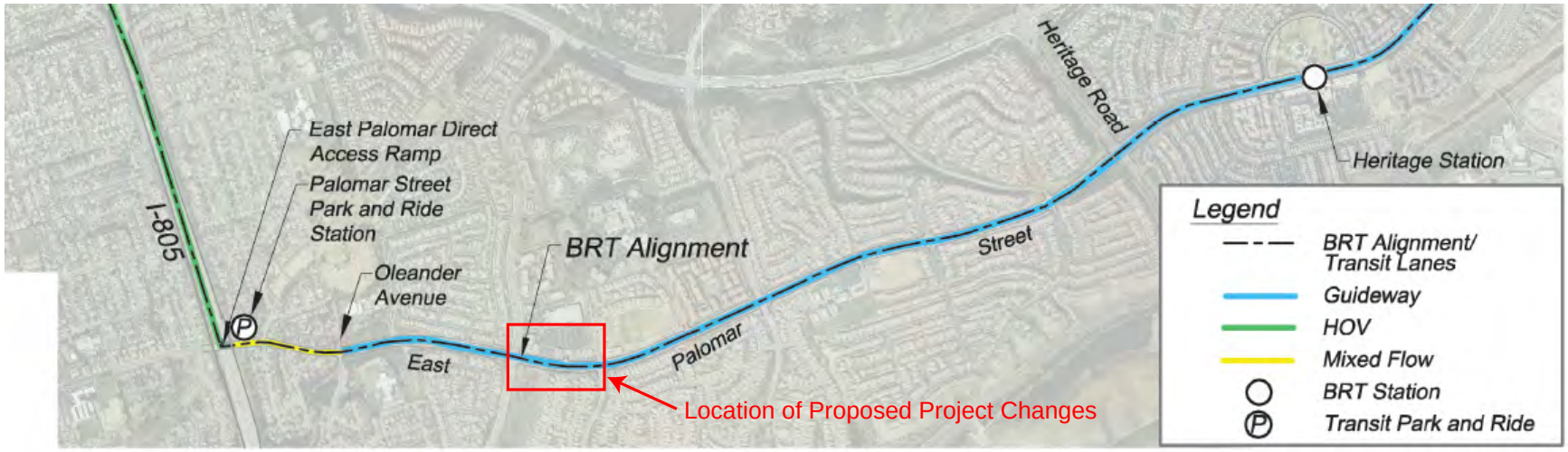
- Encourage pedestrians to cross East Palomar Street at this intersection since eastbound through traffic would be required to stop during the signal phase for the left turn out. Adding a pedestrian crossing phase to the traffic signal would increase delay and decrease bus operational performance through this intersection.
- Be subordinate to all other movements entering that intersection. Overall travel times using other driveways (discussed below) would not be meaningfully different.

The proposed changes would still allow for eastbound movements via a west-to-east U-turn at the East Palomar Street/Medical Center Drive/Brandywine Avenue traffic signal, which is 600-feet away from Intersection #5. The proposed changes would not affect the other signalized intersections serving the shopping center, which allow vehicles to travel eastbound (turn left) onto East Palomar Street: one at Medical Center Drive and one at Davies Drive.

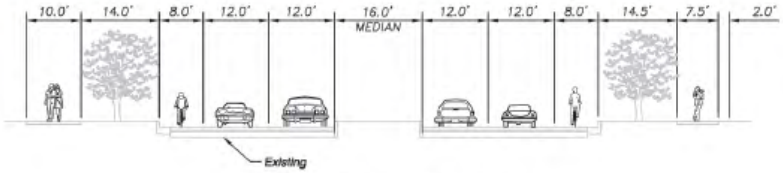
While the proposed changes eliminate the existing outbound left-turn at the mid-block driveway onto East Palomar Street, vehicles exiting the shopping center would still have the ability to turn left (eastbound) onto East Palomar Street via an existing driveway at Davies Drive (Davies Drive is approximately 500 feet east of the mid-block driveway) and via an existing driveway at Medical Center Drive (Medical Center Drive is approximately 600 feet west of the mid-block driveway). In addition, under the proposed changes vehicles exiting at the mid-block driveway would be able to turn right onto East Palomar Street and then make a U-turn at Medical Center Drive/Brandywine Avenue onto eastbound East Palomar Street as described above. The existing shopping center allows vehicles to exit from one driveway onto Davies Drive and two driveways onto Medical Center Drive/Brandywine Avenue, in addition to the mid-block driveway on East Palomar Street. Figure 1-4 identifies the locations of the intersections and driveways at the Sunbow Shopping Center.

5.2 Property Acquisition

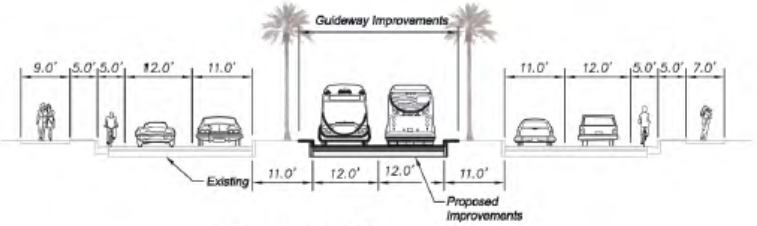
The other proposed change requires the acquisition of approximately 1,600 square feet of private property to accommodate the relocation of an existing AT&T fiber optic utility box. The property is adjacent to the East Palomar Street right-of-way at the Sunbow Shopping Center, just east of Medical Center Drive/Brandywine Avenue. The existing fiber optic utility facility would be relocated to the north side of East Palomar Street, just east of its intersection with Medical Center Drive (sidewalk relocation was included in the approved Project and considered in the Final EIR). The sidewalk would be redirected to the north of the fiber optic utility box, which would cut into the sloped landscaping strip between the sidewalk and commercial shopping center parking lot, requiring the construction of a concrete masonry retaining wall with graffiti coating varying in exposed height from one to seven feet and approximately 80 feet long. Retaining wall construction would involve approximately 125 cubic yards of cut and approximately 10 cubic yards of fill. Ornamental landscaping will be installed between the retaining wall and the sidewalk.



Plan View



Existing Typical Section



Proposed Typical Section

KEY MAP
NOT TO SCALE

SOURCE: SANDAG, 2014

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Plan View and Typical Section for East Palomar Street Guideway between Heritage Road and Oleander Avenue

FIGURE 1-2

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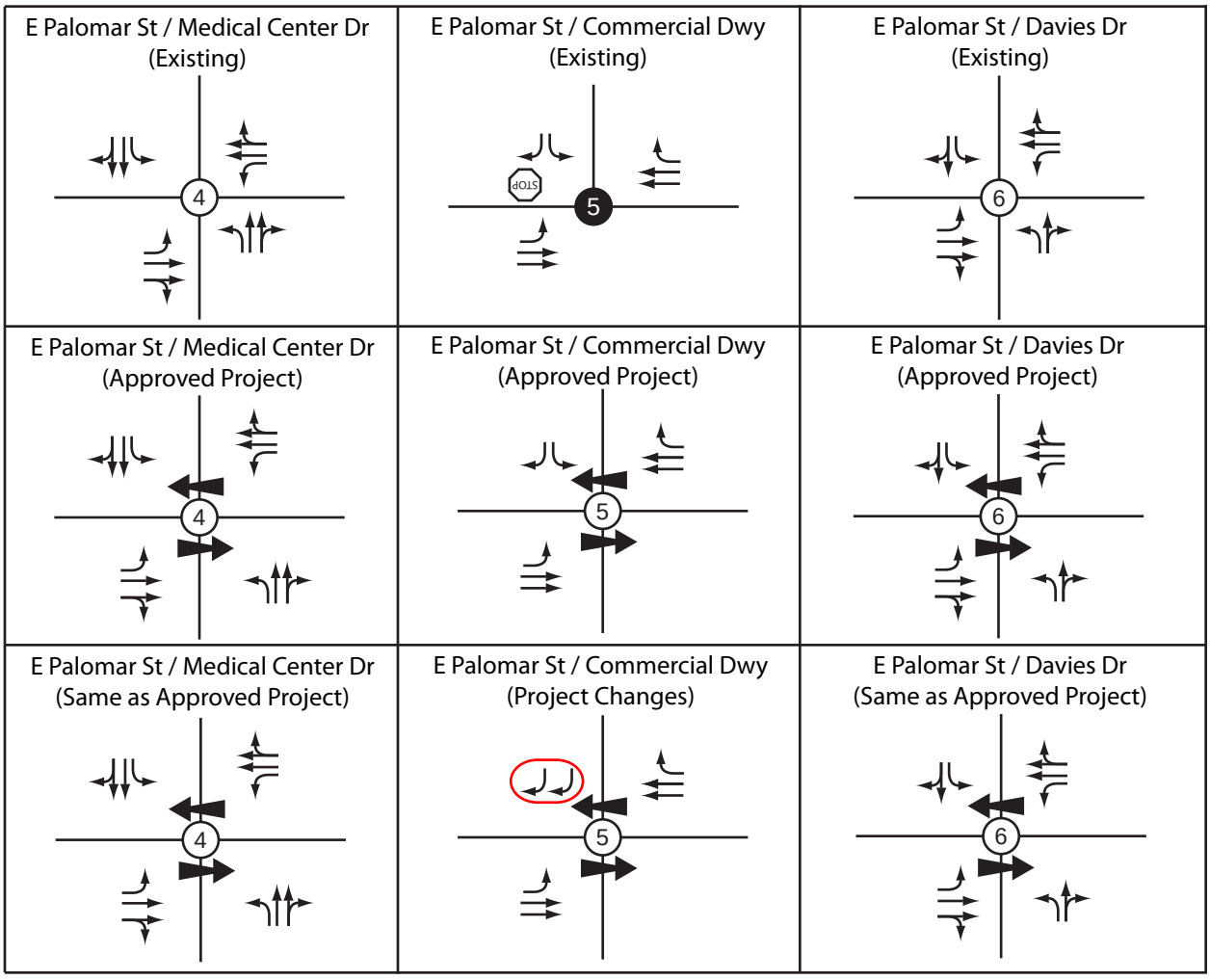

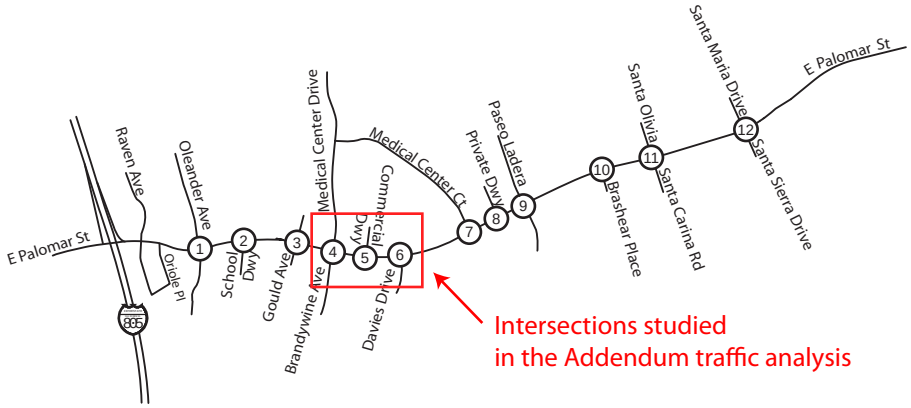

Legend:
- Signalized
- Unsignalized
- Right-turn overlap
- BRT Guideway

SOURCE: SANDAG, 2014

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East Palomar Street Intersection Geometrics: Existing Condition, Approved Project, Project Changes

FIGURE 1-3

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SOURCE: SANDAG, 2014

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Sunbow Shopping Center Entrances/Exits

FIGURE 1-4

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6.0 Required Approvals

This Addendum to the Final EIR addresses the proposed changes to the Project. The SANDAG Board of Directors must consider this Addendum, along with the Final EIR, prior to deciding whether to incorporate the proposed changes into the Project.

7.0 Environmental Analysis

The following analysis supports the determination that the project changes, changed circumstances, and new information of substantial importance since certification of the Final EIR would not result in any new significant impacts that were not previously identified or a substantial increase in the severity of any previously identified significant impacts. Since there were significant impacts previously identified in the Final EIR, the analysis below examines both whether a substantial increase in the severity of previously identified significant impacts would occur, and whether any new significant impacts that were not previously identified would occur.

Modifying a traffic signal to change the outbound access from a shopping center's mid-block driveway to right-turn out only, acquiring property in order to relocate a fiber optic facility, constructing a retaining wall, and making other related physical improvements would not result in new or substantially more severe significant impacts. Based on the nature of the changes to the Project, the following discussion addresses the Transportation and Traffic, Air Quality, Greenhouse Gas Emissions, Noise, and Aesthetics and Visual Resources resource areas in detail. All remaining resource areas that were previously analyzed in the Final EIR would not be directly or indirectly affected by the proposed changes and are not analyzed in this Addendum, including Agricultural and Forestry Resources, Biological Resources, Cultural Resources, Geology and Soils, Hazards and Hazardous Materials, Hydrology and Water Quality, Land Use and Planning, Mineral Resources, Population and Housing, Public Services, Recreation, and Utilities/Service Systems and Energy, and Vibration.

7.1 Transportation and Traffic

The transportation and traffic impacts of the approved Project are analyzed in the Final EIR (pages 3-309 through 3-340), which determined that project-level and cumulative impacts to intersection and roadway segment operations within the Chula Vista segment would be less than significant. The Final EIR also determined that the approved Project would have less than significant impacts or no impact would occur under the other transportation and traffic significance criteria. This Addendum does not analyze the project changes under some of these significance criteria (as listed at the end of the sentence) because modifying a traffic signal to change the outbound access from a shopping center's mid-block driveway to right-turn out only, acquiring property in order to relocate a fiber optic facility, constructing a retaining wall, and making other related physical improvements would not result in new significant impacts related to conflicts with a congestion management program or adopted plans, policies, or programs for public transit, pedestrians, or bicycles, or substantial safety risks due to changes in air traffic patterns.

The Final EIR analyzed the impacts of removing the existing one-way stop sign at the East Palomar Street and Commercial Driveway intersection (referenced in the Final EIR as Intersection #5 in the Chula Vista Segment) and replacing it with a traffic signal that would allow for all existing turning movements (i.e., left in, left out, right in, right out).

The Final EIR concluded that impacts to this intersection and the segment of East Palomar Street from Davies Drive to Medical Center Drive/Brandywine Avenue would be less than significant (Final EIR, Tables 3.16-25, 3.16-26, 3.16-27, and 3.16-28). It also concluded that impacts to the intersections of East Palomar Street with Medical Center Drive/Brandywine Avenue and Davies Drive would be less than significant (referenced in the Final EIR as Intersections #4 and #6 in the Chula Vista segment, respectively).

Under the proposed changes, the traffic signal would still be installed at the East Palomar Street and Commercial Driveway intersection, same as the approved Project. However, the outbound left turn lane from the shopping center's mid-block driveway onto eastbound East Palomar Street would be replaced with a second right turn lane onto westbound East Palomar Street (Figure 1-3). All other turning movements would remain the same as the approved Project (i.e., left in, right in, right out). The other proposed changes would not result in temporary or long-term impacts to intersection or roadway segment operations and are not addressed further in this section.

SANDAG directed professional traffic engineers to analyze the effect of replacing the outbound left turn lane with a second right turn lane on intersection and roadway segment operations. As with the Final EIR, this analysis measures intersection and roadway segment operations during morning and evening peak traffic hours (i.e., AM and PM peak hours) using City of Chula Vista level of service (LOS) criteria. Intersection LOS is based on seconds of delay and roadway segment LOS is based on average daily trips (ADT).

This analysis examined operations at Intersection #5 where the change is proposed, Intersections #4 and #6, which are the nearest intersections to the west and east, respectively, and the segment of East Palomar Street between Medical Center Drive/Brandywine Avenue and Davies Drive.

Based on their review of the parking and access characteristics of the Sunbow Shopping Center and their professional judgment and opinion, the traffic engineers determined that proposed change would affect traffic patterns in the following ways:

- 90% of the southbound left turns that would exit the commercial driveway onto eastbound East Palomar Street under the approved Project would make a southbound left turn at Davies Drive onto eastbound East Palomar Street; and
- 10% of the southbound left turns that would exit the commercial driveway onto eastbound East Palomar Street under the approved Project would make a southbound right turn out of the driveway and a westbound U-turn at the intersection of East Palomar Street and Medical Center Drive/Brandywine onto eastbound East Palomar Street.

The analysis concluded that the proposed changes would not change the roadway segment LOS values reported in the Final EIR in a way that results in a new significant impact. Intersection LOS results are reported in Tables 7-1 and 7-2. The detailed traffic analysis is provided in Appendix 1.

Table 7-1. Opening Year (2014) Peak Hour Intersection LOS Summary

Intersection		Peak Hour	Opening Year (Year 2014) – without Project			Opening Year (Year 2014) with Project APPROVED PROJECT			Opening Year (Year 2014) with Project PROJECT CHANGE		
			Traffic Control	Delay (a)	LOS (b)	Traffic Control	Delay (a)	LOS (b)	Traffic Control	Delay (a)	LOS (b)
4	East Palomar St. & Medical Center Dr./Brandywine Ave.	AM	Signal	30.6	C	Signal	38.4	D	Signal (no change)	38.4	D
		PM		30.6	C		40.2	D		40.0	D
5	East Palomar St. & Commercial Driveway	AM	One-Way Stop	24.8	C	Signal	8.3	A	Signal (no left out)	8.1	A
		PM		48.3	**E**		9.0	A		7.7	A
6	East Palomar St. & Davies Dr.	AM	Signal	24.5	C	Signal	9.4	A	Signal (no change)	10.3	B
		PM		18.6	B		22.8	C		27.0	C

Notes:
(a) Delay refers to the average control delay for the entire intersection, measured in seconds per vehicle. At a one-way or two-way stop-controlled intersection, delay refers to the worst movement.
(b) LOS = level of service. LOS calculations are based on the methodology outlined in the *2000 Highway Capacity Manual* and performed using Synchro 7.

Table 7-1 compares AM and PM peak hour LOS in 2014 for three scenarios: 2014 without the Project, 2014 with the approved Project, and 2014 with the proposed change. The results indicate that 2014 AM and PM peak hour LOS would remain the same for each of the intersections with the exception of the AM peak hour for Intersection #6, which would change from LOS A to B due to an approximately 0.9 second increase in average delay per vehicle from approximately 9.4 seconds to 10.3 seconds. Under the City of Chula Vista LOS criteria, impacts are less than significant at LOS D or better. The table also shows that under the proposed changes (as well as under the approved Project) the average delay per vehicle at Intersection #5 is noticeably improved compared to the average delay without the Project.

Moreover, the Final EIR concluded that the approved Project would not result in inadequate emergency access. The LOS results for the proposed change demonstrate that replacing the outbound left turn lane with a second outbound right turn lane would not create congested traffic conditions beyond those identified in the Final EIR that would result in inadequate access for emergency vehicles.

Under the proposed changes (as well as the approved Project), emergency vehicles would likely have improved access in the area because they would be able to operate in the dedicated bus guideway when needed. The proposed change would involve painted markings to indicate the second outbound right turn lane, and would not involve any design features that would result in a substantial increase in hazards. Therefore, the proposed change would not result in a new significant traffic impact for 2014 that was not identified in the Final EIR.

Table 7-2 compares AM and PM peak hour LOS in 2030 for three scenarios: 2030 without the Project, 2030 with the approved Project, and 2030 with the proposed change. The results indicate that AM and PM peak hour LOS would remain the same for each of the intersections with the exception of the PM peak hour for Intersection #6, which would change from LOS B to C due to an approximately 3.7 second increase in average delay per vehicle from approximately 18.4 seconds to 22.1 seconds. Under the City of Chula Vista LOS criteria, impacts are less than significant at LOS D or better. As with the approved Project, Intersection #4 would operate at LOS E, but with an approximately 1.8 second increase in average delay per vehicle from approximately 57.8 seconds under the approved Project to 59.6 seconds under the proposed changes.

Table 7-1. Future Year (2030) Peak Hour Intersection LOS Summary

Intersection		Peak Hour	Future (Year 2030) – without Project			Future (Year 2030) with Project APPROVED PROJECT			Future (Year 2030) with Project PROJECT CHANGE		
			Traffic Control	Delay (a)	LOS (b)	Traffic Control	Delay (a)	LOS (b)	Traffic Control	Delay (a)	LOS (b)
4	East Palomar St. & Medical Center Dr./Brandywine Ave.	AM	Signal	70.7	**E**	Signal	71.0	E	Signal (no change)	71.0	E
		PM		59.5	**E**		57.8	E		59.6	E
5	East Palomar St. & Commercial Driveway	AM	One-Way Stop	41.9	**E**	Signal	13.4	B	Signal (no left out)	12.5	B
		PM		152.3	**F**		18.1	B		17.7	B
6	East Palomar St. & Davies Dr.	AM	Signal	12.4	B	Signal	17.0	B	Signal (no change)	17.1	B
		PM		12.9	B		18.4	B		22.1	C

Notes:
(a) Delay refers to the average control delay for the entire intersection, measured in seconds per vehicle. At a one-way or two-way stop-controlled intersection, delay refers to the worst movement.
(b) LOS = level of service. LOS calculations are based on the methodology outlined in the *2000 Highway Capacity Manual* and performed using Synchro 7.

When compared to the 2030 scenario without the Project, the proposed change would result in the same LOS E with an approximately 0.1 second increase in average delay per vehicle. An estimated increase in average vehicle delay of approximately 0.1 second would not be perceivable to motorists, and is not considered a significant traffic impact. The table also shows that under the proposed changes (as well as under the approved Project) the average delay per vehicle at Intersection #5 is noticeably improved compared to the average delay without the Project.

Moreover, the Final EIR concluded that the approved Project would not result in inadequate emergency access. The LOS results for the proposed change demonstrate that replacing the outbound left turn lane with a second outbound right turn lane would not create congested traffic conditions beyond those identified in the Final EIR that would result in inadequate access for emergency vehicles.

Under the proposed changes (as well as the approved Project), emergency vehicles would likely have improved access in the area because they would be able to operate in the dedicated bus guideway when needed. The proposed change would involve painted markings to indicate the second outbound right turn lane, and would not involve any design features that would result in a substantial increase in hazards. Therefore, the proposed change would not result in a new significant traffic impact for 2030 that was not identified in the Final EIR.

Other than the proposed changes analyzed above, there are no other changes with respect to the circumstances under which the Project will be undertaken and, therefore, no other Project modifications could require a supplemental or subsequent EIR in accordance with CEQA Guidelines §15162. Additionally, there is no new information of substantial importance that has become available which was previously unknown, and could not have been known with the exercise of reasonable diligence at the time the Final EIR was certified, regarding the transportation and traffic impacts of the Project.

7.2 Air Quality

The air quality impacts of the approved Project are analyzed in the Final EIR (pages 3-46 through 3-60), which determined that the approved Project would result in significant and unavoidable cumulative air quality impacts associated with construction. During construction, criteria pollutants for which the basin is in non-attainment (O_3, $PM_{2.5}$ and PM_{10}) would contribute to a significant cumulative air quality impact, even with the implementation of mitigation measures. The approved Project would have less than significant impacts or no impact would occur under the other air quality significance criteria. This Addendum does not analyze the project changes under these significance criteria because modifying a traffic signal to change the outbound access from a shopping center's mid-block driveway to right-turn out only, acquiring property in order to relocate a fiber optic facility, constructing a retaining wall, and making other related physical improvements would not result in new significant impacts related to conflicts with an applicable Air Quality Management Plan, exposure of sensitive receptors to substantial pollutant concentrations, or creation of objectionable odors affecting a substantial number of people. Greenhouse gas emissions impacts were determined to be less than significant or no impact would occur (pages 3-120 through 3-133).

The air quality and greenhouse gas emissions impacts of activities similar to the project changes were analyzed in the Final EIR, including the impacts of long-term operations and short-term construction. The minimal changes in LOS and average seconds of delay per vehicle shown in Tables 7-1 and 7-2, as well as the minor changes in driving patterns to exit the shopping center (i.e., making a U-turn at Medical Center Drive/Brandywine Avenue or a left at Davies Drive instead of a left turn out of the mid-block commercial driveway) indicate that the proposed traffic signal alteration would not meaningfully change the long-term traffic-related air pollutant or greenhouse gas emissions conclusions of the Final EIR. Under the proposed changes, long-term annual air pollutant emissions would remain well below the Final EIR's significance criteria from the San Diego Air Pollution Control District and City of Chula Vista (see Table 3.3-5 of the Final EIR).

The proposed changes would not result in any new significant construction or operational air quality or greenhouse gas emissions impacts. With the proposed changes, the overall project would remain a bus rapid transit project that provides long-term air quality and greenhouse gas emissions benefits. The project changes would not change the conclusion of the Final EIR that the operation of the approved Project would contribute to per-capita reductions in greenhouse gas emissions from on-road transportation that would help the San Diego region meet its targets under Senate Bill 375, and therefore would not cause or contribute to a conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing greenhouse gas emissions.

Construction of a masonry retaining wall to accommodate the relocation of an AT&T fiber optic utility box to the north side of East Palomar Street was not analyzed in the Final EIR. However, the approved Project would involve approximately 25 acres of disturbance during construction. The construction of the retaining wall would require the excavation of approximately 125 cubic yards (CY) of the sloped landscaping strip between the sidewalk and commercial shopping center parking lot.

In this context, the incremental increase in air pollutant and greenhouse gas emissions during the additional construction activity would be minimal and would not meaningfully change overall air pollutant or greenhouse gas emissions during construction. This construction would not generate a substantial amount of additional criteria pollutants compared to the conclusions of the Final EIR, particularly those for which the basin is in non-attainment. The construction-related emissions of air pollutants and greenhouse gases generated by the project changes would be negligible compared to the construction emissions generated by the approved Project. These emissions would not violate an air quality standard or contribute to an existing or projected violation, or generate greenhouse gas emissions that would have a significant effect on the environment.

The Final EIR concluded that the approved Project would result in a significant and unavoidable cumulatively considerable increase in construction ozone (O_3) emissions since the San Diego Air Basin in designated a federal and state non-attainment area for O_3. Construction activity under the proposed changes would continue to result in a significant and unavoidable cumulative impact for O_3 emissions. However, the incremental increase in O_3 emissions under the proposed changes would be negligible compared to overall emissions generated by construction of the approved Project. Therefore, the project changes would not result in a substantial increase in the severity of the previously identified significant cumulative air quality impact during construction.

Other than the proposed changes analyzed above, there are no other changes with respect to the circumstances under which the Project will be undertaken and, therefore, no other Project modifications could require a supplemental or subsequent EIR in accordance with CEQA Guidelines §15162. Additionally, there is no new information of substantial importance that has become available which was previously unknown, and could not have been known with the exercise of reasonable diligence at the time the Final EIR was certified, regarding the air quality and greenhouse gas emissions impacts of the Project.

7.3 Noise

The noise impacts of the approved Project are analyzed in the Final EIR (pages 3-195 through 3-255), which determined that impacts would be less than significant with mitigation for temporary noise levels generated during construction at the eastern portion of the Chula Vista segment between State Route 125 and Magdalena Avenue, which is approximately 3.5 miles from the proposed changes. Construction noise impacts were less than significant for the remainder of the approved Project. Operational (including cumulative traffic noise) and maintenance noise caused by the approved Project would not result in a significant impact. The approved Project's cumulative noise effects were determined to be less than significant.

The approved Project would have less than significant impacts or no impact would occur under the other noise significance criteria. This Addendum does not analyze the project changes under these significance criteria because modifying a traffic signal to change the outbound access from a shopping center's mid-block driveway to right-turn out only, acquiring property in order to relocate a fiber optic facility, constructing a retaining wall, and making other related physical improvements would not result in new significant impacts related to exposure of persons to excessive noise levels associated with proximity to a public or private airport. As discussed in Section 7.0 the project changes would not have vibration impacts and vibration is not addressed in this Addendum.

The noise impacts of activities similar to the Project changes were analyzed in the Final EIR, including the impacts of long-term operations and short-term construction. The minimal changes in LOS and average seconds of delay per vehicle shown in Tables 1 and 2 indicate that the proposed traffic signal alteration would not meaningfully change long-term traffic-related noise levels reported in the Final EIR. Therefore, long-term traffic-related noise levels under the proposed changes would remain below the Federal Transit Administration (FTA) criteria used in the Final EIR.

The location of the project changes would not meaningfully change the magnitude or duration of temporary noise levels analyzed in the Final EIR to which people in the surrounding area are exposed during construction. The Project changes would not increase permanent noise levels during operation of the Project relative to the permanent noise levels reported in the Final EIR. Therefore, these changes would not result in any new significant noise impacts. Construction of a masonry retaining wall to accommodate the relocation of an AT&T fiber optic utility box to the north side of East Palomar Street was not analyzed in the Final EIR. However, the approved Project already includes construction activity within this block of East Palomar Street (e.g., construction of the bus guideway within the center median). The additional construction of the retaining wall would not meaningfully change the duration or magnitude of temporary noise levels during construction from what was analyzed in the Final EIR. Therefore, the proposed changes would not result in any new significant noise impacts during construction or operations. Short-term construction-related noise levels under the proposed changes would remain below the Federal Transit Administration (FTA) criteria used in the Final EIR.

Other than the proposed changes analyzed above, there are no other changes with respect to the circumstances under which the Project will be undertaken and, therefore, no other Project modifications could require a supplemental or subsequent EIR in accordance with CEQA Guidelines §15162. Additionally, there is no new information of substantial importance that has become available which was previously unknown, and could not have been known with the exercise of reasonable diligence at the time the Final EIR was certified, regarding the noise impacts of the Project.

7.4 Aesthetics and Visual Resources

The aesthetics and visual resources impacts of the approved Project are analyzed in the Final EIR (pages 3-3 through 3-30), which determined that a significant and unavoidable impact to visual character and quality would occur within the East Palomar Street guideway between SR 125 and Magdalena Avenue, which is approximately 3.5 miles from the proposed changes. The approved Project would have less than significant impacts or no impact would occur under the other Final EIR significance criteria for aesthetics and visual resources.

This Addendum, therefore, does not analyze the project changes under these significance criteria because modifying a traffic signal to change the outbound access from a shopping center's mid-block driveway to right-turn out only, acquiring property in order to relocate a fiber optic facility, constructing a retaining wall, and making other related physical improvements would not result in new significant impacts related to scenic vistas, scenic resources within a state scenic highway, or substantial light or glare.

The alteration of a traffic signal would not result in new significant impacts to visual character and quality of the site or its surroundings, and is not addressed further. The remainder of this section addresses the impacts of acquiring property and constructing a retaining wall at the edge of an existing commercial shopping center to relocate a fiber optic utility box and related physical improvements on visual character and quality.

The Final EIR analyzes the visual character and quality impacts of the physical improvements along East Palomar Street, including construction of the guideway, removal and relocation of trees and landscaping, and relocation of sidewalks where necessary. The Final EIR did not include the proposed retaining wall or relocation of the fiber optic utility box and related physical improvements. However, these project changes would not change the conclusions of the Final EIR. The retaining wall would be installed in a scoped landscaping strip between the sidewalk and the shopping center parking lot. The wall would have an approximate length of 80 feet, and an exposed height varying from approximately 1 to 7 feet. Landscaping would be installed in the newly-created space between the proposed retaining wall and sidewalk. The utility box already exists, and would simply be relocated under the proposed changes. While the proposed changes would result in subtle changes to the appearance of a small area, they would be consistent with the surrounding area, and would not constitute a substantial adverse effect to the visual character or quality of the site or its surroundings. Therefore, the project changes would not create a new significant aesthetic and visual resources impact.

Other than the proposed changes analyzed above, there are no other changes with respect to the circumstances under which the Project will be undertaken and, therefore, no other Project modifications could require a supplemental or subsequent EIR in accordance with CEQA Guidelines §15162. Additionally, there is no new information of substantial importance that has become available which was previously unknown, and could not have been known with the exercise of reasonable diligence at the time the Final EIR was certified, regarding the aesthetic and visual resources impacts of the Project.

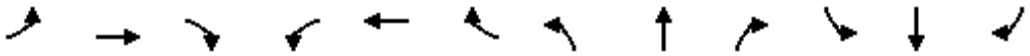
Appendix 1

Traffic Analysis

Intersection Capacity Analysis

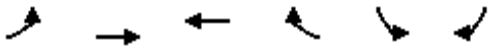
2014 with Project Changes

AM Peak Hour



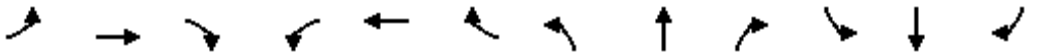
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	116	205	92	302	530	89	141	180	155	31	154	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.95		1.00	0.98		1.00	0.93		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3374		1770	3463		1770	3294		1770	3346	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3374		1770	3463		1770	3294		1770	3346	
Peak-hour factor, PHF	0.84	0.84	0.84	0.91	0.91	0.91	0.96	0.96	0.96	0.68	0.68	0.68
Adj. Flow (vph)	138	244	110	332	582	98	147	188	161	46	226	129
RTOR Reduction (vph)	0	35	0	0	9	0	0	126	0	0	70	0
Lane Group Flow (vph)	138	319	0	332	671	0	147	223	0	46	285	0
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases												
Actuated Green, G (s)	12.9	45.5		26.2	58.8		13.5	24.8		6.0	17.3	
Effective Green, g (s)	12.9	46.5		26.2	59.8		13.0	25.8		5.5	18.3	
Actuated g/C Ratio	0.11	0.39		0.22	0.50		0.11	0.22		0.05	0.15	
Clearance Time (s)	4.0	5.0		4.0	5.0		3.5	5.0		3.5	5.0	
Vehicle Extension (s)	1.2	4.0		1.2	4.0		1.2	4.0		1.2	4.0	
Lane Grp Cap (vph)	190	1307		386	1725		191	708		81	510	
v/s Ratio Prot	0.08	0.09		c0.19	c0.19		c0.08	0.07		0.03	c0.09	
v/s Ratio Perm												
v/c Ratio	0.73	0.24		0.86	0.39		0.77	0.31		0.57	0.56	
Uniform Delay, d1	51.8	24.9		45.1	18.7		52.0	39.7		56.1	47.1	
Progression Factor	1.34	0.57		1.02	0.84		1.00	1.00		1.00	1.00	
Incremental Delay, d2	10.9	0.4		16.6	0.6		15.4	0.3		5.3	1.6	
Delay (s)	80.4	14.7		62.5	16.3		67.4	40.0		61.4	48.7	
Level of Service	F	B		E	B		E	D		E	D	
Approach Delay (s)		33.1			31.4			48.1			50.2	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	38.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
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						
Volume (vph)	82	270	630	127	0	157
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0		4.0
Lane Util. Factor	1.00	0.95	0.95	1.00		0.88
Frt	1.00	1.00	1.00	0.85		0.85
Flt Protected	0.95	1.00	1.00	1.00		1.00
Satd. Flow (prot)	1770	3539	3539	1583		2787
Flt Permitted	0.95	1.00	1.00	1.00		1.00
Satd. Flow (perm)	1770	3539	3539	1583		2787
Peak-hour factor, PHF	0.86	0.86	0.89	0.89	0.88	0.88
Adj. Flow (vph)	95	314	708	143	0	178
RTOR Reduction (vph)	0	0	0	66	0	151
Lane Group Flow (vph)	95	314	708	77	0	27
Turn Type	Prot	NA	NA	Perm		Perm
Protected Phases	5	2	6			
Permitted Phases				6		8
Actuated Green, G (s)	6.5	43.0	32.5	32.5		9.0
Effective Green, g (s)	6.5	43.0	32.5	32.5		9.0
Actuated g/C Ratio	0.11	0.72	0.54	0.54		0.15
Clearance Time (s)	4.0	4.0	4.0	4.0		4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0		3.0
Lane Grp Cap (vph)	191	2536	1916	857		418
v/s Ratio Prot	c0.05	0.09	c0.20			
v/s Ratio Perm				0.05		c0.01
v/c Ratio	0.50	0.12	0.37	0.09		0.06
Uniform Delay, d1	25.2	2.6	7.9	6.6		21.9
Progression Factor	1.26	0.88	0.55	0.27		1.00
Incremental Delay, d2	2.0	0.1	0.5	0.2		0.1
Delay (s)	33.7	2.4	4.9	2.0		21.9
Level of Service	C	A	A	A		C
Approach Delay (s)		9.7	4.4		21.9	
Approach LOS		A	A		C	

Intersection Summary			
HCM 2000 Control Delay	8.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	29.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



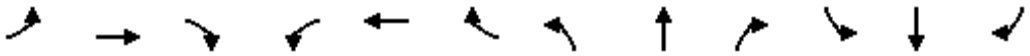
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	3	239	25	22	608	44	123	9	24	46	6	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.99		1.00	0.89		1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3489		1770	3503		1770	1660		1770	1709	
Flt Permitted	0.95	1.00		0.95	1.00		0.74	1.00		0.73	1.00	
Satd. Flow (perm)	1770	3489		1770	3503		1386	1660		1357	1709	
Peak-hour factor, PHF	0.89	0.89	0.89	0.87	0.87	0.87	0.76	0.76	0.76	0.70	0.70	0.70
Adj. Flow (vph)	3	269	28	25	699	51	162	12	32	66	9	11
RTOR Reduction (vph)	0	9	0	0	6	0	0	25	0	0	9	0
Lane Group Flow (vph)	3	288	0	25	744	0	162	19	0	66	11	0
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
Actuated Green, G (s)	0.6	32.7		1.8	33.9		12.0	12.0		12.0	12.0	
Effective Green, g (s)	0.1	33.7		1.3	34.9		13.0	13.0		13.0	13.0	
Actuated g/C Ratio	0.00	0.56		0.02	0.58		0.22	0.22		0.22	0.22	
Clearance Time (s)	3.5	5.0		3.5	5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)	1.2	4.5		1.2	4.5		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	2	1959		38	2037		300	359		294	370	
v/s Ratio Prot	0.00	0.08		c0.01	c0.21			0.01			0.01	
v/s Ratio Perm							c0.12			0.05		
v/c Ratio	1.50	0.15		0.66	0.37		0.54	0.05		0.22	0.03	
Uniform Delay, d1	29.9	6.3		29.1	6.7		20.8	18.6		19.3	18.5	
Progression Factor	1.41	0.60		1.54	0.35		1.00	1.00		1.00	1.00	
Incremental Delay, d2	898.9	0.2		26.2	0.5		2.0	0.1		0.4	0.0	
Delay (s)	941.0	3.9		71.1	2.9		22.8	18.7		19.7	18.6	
Level of Service	F	A		E	A		C	B		B	B	
Approach Delay (s)		13.3			5.1			21.9			19.5	
Approach LOS		B			A			C			B	

Intersection Summary			
HCM 2000 Control Delay	10.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	38.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Intersection Capacity Analysis

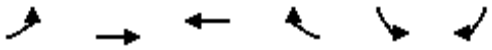
2014 with Project Changes

PM Peak Hour



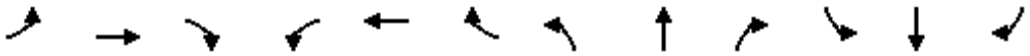
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	149	423	114	267	393	74	104	215	275	86	156	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.97		1.00	0.98		1.00	0.92		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3427		1770	3455		1770	3241		1770	3356	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3427		1770	3455		1770	3241		1770	3356	
Peak-hour factor, PHF	0.91	0.91	0.91	0.92	0.92	0.92	0.90	0.90	0.90	0.91	0.91	0.91
Adj. Flow (vph)	164	465	125	290	427	80	116	239	306	95	171	90
RTOR Reduction (vph)	0	15	0	0	9	0	0	214	0	0	62	0
Lane Group Flow (vph)	164	575	0	290	498	0	116	331	0	95	199	0
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases												
Actuated Green, G (s)	14.7	50.7		23.3	59.3		11.5	18.5		10.0	17.0	
Effective Green, g (s)	14.7	51.7		23.3	60.3		11.0	19.5		9.5	18.0	
Actuated g/C Ratio	0.12	0.43		0.19	0.50		0.09	0.16		0.08	0.15	
Clearance Time (s)	4.0	5.0		4.0	5.0		3.5	5.0		3.5	5.0	
Vehicle Extension (s)	1.2	4.0		1.2	4.0		1.2	4.0		1.2	4.0	
Lane Grp Cap (vph)	216	1476		343	1736		162	526		140	503	
v/s Ratio Prot	0.09	c0.17		c0.16	0.14		c0.07	c0.10		0.05	0.06	
v/s Ratio Perm												
v/c Ratio	0.76	0.39		0.85	0.29		0.72	0.63		0.68	0.40	
Uniform Delay, d1	50.9	23.4		46.6	17.3		53.0	46.9		53.8	46.1	
Progression Factor	0.84	0.95		0.88	1.19		1.00	1.00		1.00	1.00	
Incremental Delay, d2	12.4	0.8		16.3	0.4		11.8	2.7		9.8	0.7	
Delay (s)	55.3	23.0		57.2	21.0		64.8	49.5		63.6	46.8	
Level of Service	E	C		E	C		E	D		E	D	
Approach Delay (s)		30.0			34.2			52.2			51.3	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	40.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	63.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	130	555	432	142	0	213
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0		4.0
Lane Util. Factor	1.00	0.95	0.95	1.00		0.88
Frt	1.00	1.00	1.00	0.85		0.85
Flt Protected	0.95	1.00	1.00	1.00		1.00
Satd. Flow (prot)	1770	3539	3539	1583		2787
Flt Permitted	0.95	1.00	1.00	1.00		1.00
Satd. Flow (perm)	1770	3539	3539	1583		2787
Peak-hour factor, PHF	0.95	0.95	0.80	0.80	0.87	0.87
Adj. Flow (vph)	137	584	540	178	0	245
RTOR Reduction (vph)	0	0	0	85	0	208
Lane Group Flow (vph)	137	584	540	93	0	37
Turn Type	Prot	NA	NA	Perm		Perm
Protected Phases	5	2	6			
Permitted Phases				6		8
Actuated Green, G (s)	7.5	43.0	31.5	31.5		9.0
Effective Green, g (s)	7.5	43.0	31.5	31.5		9.0
Actuated g/C Ratio	0.12	0.72	0.52	0.52		0.15
Clearance Time (s)	4.0	4.0	4.0	4.0		4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0		3.0
Lane Grp Cap (vph)	221	2536	1857	831		418
v/s Ratio Prot	c0.08	0.17	c0.15			
v/s Ratio Perm				0.06		c0.01
v/c Ratio	0.62	0.23	0.29	0.11		0.09
Uniform Delay, d1	24.9	2.9	8.0	7.2		22.0
Progression Factor	0.87	1.04	0.39	0.14		1.00
Incremental Delay, d2	4.6	0.2	0.4	0.3		0.1
Delay (s)	26.3	3.2	3.5	1.2		22.1
Level of Service	C	A	A	A		C
Approach Delay (s)		7.6	2.9		22.1	
Approach LOS		A	A		C	

Intersection Summary			
HCM 2000 Control Delay	7.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	26.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



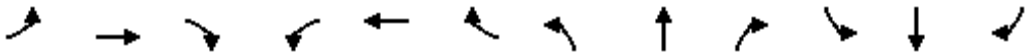
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	22	420	111	30	470	63	67	9	27	230	13	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	0.98		1.00	0.89		1.00	0.89	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3428		1770	3476		1770	1655		1770	1662	
Flt Permitted	0.95	1.00		0.95	1.00		0.72	1.00		0.73	1.00	
Satd. Flow (perm)	1770	3428		1770	3476		1346	1655		1353	1662	
Peak-hour factor, PHF	0.91	0.91	0.91	0.81	0.81	0.81	0.77	0.77	0.77	0.88	0.88	0.88
Adj. Flow (vph)	24	462	122	37	580	78	87	12	35	261	15	38
RTOR Reduction (vph)	0	30	0	0	13	0	0	25	0	0	27	0
Lane Group Flow (vph)	24	554	0	37	645	0	87	22	0	261	26	0
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
Actuated Green, G (s)	0.8	27.6		2.3	29.1		16.6	16.6		16.6	16.6	
Effective Green, g (s)	0.3	28.6		1.8	30.1		17.6	17.6		17.6	17.6	
Actuated g/C Ratio	0.00	0.48		0.03	0.50		0.29	0.29		0.29	0.29	
Clearance Time (s)	3.5	5.0		3.5	5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)	1.2	4.5		1.2	4.5		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	8	1634		53	1743		394	485		396	487	
v/s Ratio Prot	0.01	0.16		c0.02	c0.19			0.01			0.02	
v/s Ratio Perm							0.06			c0.19		
v/c Ratio	3.00	0.34		0.70	0.37		0.22	0.05		0.66	0.05	
Uniform Delay, d1	29.9	9.8		28.8	9.1		16.0	15.2		18.6	15.2	
Progression Factor	1.32	0.48		1.07	0.66		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1158.6	0.6		26.9	0.6		0.3	0.0		3.9	0.0	
Delay (s)	1197.9	5.3		57.8	6.7		16.3	15.2		22.5	15.3	
Level of Service	F	A		E	A		B	B		C	B	
Approach Delay (s)		52.4			9.4			15.9			21.3	
Approach LOS		D			A			B			C	

Intersection Summary			
HCM 2000 Control Delay	27.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	47.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Intersection Capacity Analysis

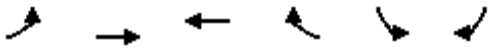
2030 with Project Changes

AM Peak Hour



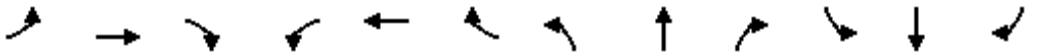
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	282	395	268	314	1058	92	329	187	161	33	160	220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.94		1.00	0.99		1.00	0.93		1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3325		1770	3497		1770	3294		1770	3232	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3325		1770	3497		1770	3294		1770	3232	
Peak-hour factor, PHF	0.84	0.84	0.84	0.91	0.91	0.91	0.96	0.96	0.96	0.68	0.68	0.68
Adj. Flow (vph)	336	470	319	345	1163	101	343	195	168	49	235	324
RTOR Reduction (vph)	0	77	0	0	5	0	0	101	0	0	166	0
Lane Group Flow (vph)	336	712	0	345	1259	0	343	262	0	49	393	0
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases												
Actuated Green, G (s)	29.3	49.7		31.4	51.8		29.1	44.7		6.7	22.3	
Effective Green, g (s)	29.3	50.7		31.4	52.8		28.6	45.7		6.2	23.3	
Actuated g/C Ratio	0.20	0.34		0.21	0.35		0.19	0.30		0.04	0.16	
Clearance Time (s)	4.0	5.0		4.0	5.0		3.5	5.0		3.5	5.0	
Vehicle Extension (s)	1.2	4.0		1.2	4.0		1.2	4.0		1.2	4.0	
Lane Grp Cap (vph)	345	1123		370	1230		337	1003		73	502	
v/s Ratio Prot	0.19	0.21		c0.19	c0.36		c0.19	0.08		0.03	c0.12	
v/s Ratio Perm												
v/c Ratio	0.97	0.63		0.93	1.02		1.02	0.26		0.67	0.78	
Uniform Delay, d1	60.0	41.8		58.3	48.6		60.7	39.4		70.9	60.9	
Progression Factor	1.21	0.78		0.90	0.94		1.00	1.00		1.00	1.00	
Incremental Delay, d2	38.1	2.4		29.3	31.6		53.6	0.2		17.4	8.2	
Delay (s)	110.4	35.1		81.4	77.5		114.3	39.6		88.3	69.1	
Level of Service	F	D		F	E		F	D		F	E	
Approach Delay (s)		57.6			78.3			75.9			70.7	
Approach LOS		E			E			E			E	

Intersection Summary			
HCM 2000 Control Delay	71.0	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	90.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	95	380	896	132	0	178
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0		4.0
Lane Util. Factor	1.00	0.95	0.95	1.00		0.88
Frt	1.00	1.00	1.00	0.85		0.85
Flt Protected	0.95	1.00	1.00	1.00		1.00
Satd. Flow (prot)	1770	3539	3539	1583		2787
Flt Permitted	0.95	1.00	1.00	1.00		1.00
Satd. Flow (perm)	1770	3539	3539	1583		2787
Peak-hour factor, PHF	0.86	0.86	0.89	0.89	0.88	0.88
Adj. Flow (vph)	110	442	1007	148	0	202
RTOR Reduction (vph)	0	0	0	19	0	185
Lane Group Flow (vph)	110	442	1007	129	0	17
Turn Type	Prot	NA	NA	Perm		Perm
Protected Phases	5	2	6			
Permitted Phases				6		8
Actuated Green, G (s)	14.7	129.5	110.8	110.8		12.5
Effective Green, g (s)	14.7	129.5	110.8	110.8		12.5
Actuated g/C Ratio	0.10	0.86	0.74	0.74		0.08
Clearance Time (s)	4.0	4.0	4.0	4.0		4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0		3.0
Lane Grp Cap (vph)	173	3055	2614	1169		232
v/s Ratio Prot	c0.06	0.12	c0.28			
v/s Ratio Perm				0.08		c0.01
v/c Ratio	0.64	0.14	0.39	0.11		0.07
Uniform Delay, d1	65.1	1.6	7.2	5.6		63.4
Progression Factor	0.79	1.37	0.41	0.22		1.00
Incremental Delay, d2	6.3	0.1	0.4	0.2		0.1
Delay (s)	58.0	2.3	3.3	1.4		63.5
Level of Service	E	A	A	A		E
Approach Delay (s)		13.4	3.1		63.5	
Approach LOS		B	A		E	

Intersection Summary			
HCM 2000 Control Delay	12.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	37.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



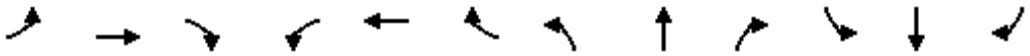
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	4	348	25	22	856	47	131	9	26	52	6	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.99		1.00	0.89		1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3504		1770	3512		1770	1656		1770	1698	
Flt Permitted	0.95	1.00		0.95	1.00		0.74	1.00		0.73	1.00	
Satd. Flow (perm)	1770	3504		1770	3512		1384	1656		1354	1698	
Peak-hour factor, PHF	0.89	0.89	0.89	0.87	0.87	0.87	0.76	0.76	0.76	0.70	0.70	0.70
Adj. Flow (vph)	4	391	28	25	984	54	172	12	34	74	9	13
RTOR Reduction (vph)	0	2	0	0	1	0	0	28	0	0	11	0
Lane Group Flow (vph)	4	417	0	25	1037	0	172	18	0	74	11	0
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
Actuated Green, G (s)	1.0	108.1		4.2	111.3		24.2	24.2		24.2	24.2	
Effective Green, g (s)	0.5	109.1		3.7	112.3		25.2	25.2		25.2	25.2	
Actuated g/C Ratio	0.00	0.73		0.02	0.75		0.17	0.17		0.17	0.17	
Clearance Time (s)	3.5	5.0		3.5	5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)	1.2	4.5		1.2	4.5		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	5	2548		43	2629		232	278		227	285	
v/s Ratio Prot	0.00	0.12		c0.01	c0.30			0.01			0.01	
v/s Ratio Perm							c0.12			0.05		
v/c Ratio	0.80	0.16		0.58	0.39		0.74	0.06		0.33	0.04	
Uniform Delay, d1	74.7	6.3		72.4	6.7		59.3	52.5		54.9	52.3	
Progression Factor	0.76	0.89		1.23	0.62		1.00	1.00		1.00	1.00	
Incremental Delay, d2	245.9	0.1		11.5	0.4		12.0	0.1		0.8	0.1	
Delay (s)	302.8	5.8		100.3	4.6		71.3	52.6		55.8	52.3	
Level of Service	F	A		F	A		E	D		E	D	
Approach Delay (s)		8.6			6.8			67.4			55.0	
Approach LOS		A			A			E			D	

Intersection Summary			
HCM 2000 Control Delay	17.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	45.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Intersection Capacity Analysis

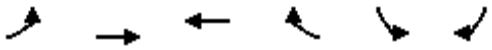
2030 with Project Changes

PM Peak Hour



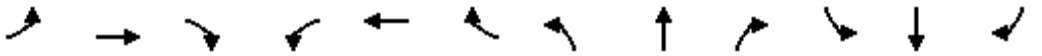
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	339	837	303	278	763	77	307	223	286	90	162	227
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.96		1.00	0.99		1.00	0.92		1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3398		1770	3490		1770	3241		1770	3230	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3398		1770	3490		1770	3241		1770	3230	
Peak-hour factor, PHF	0.91	0.91	0.91	0.92	0.92	0.92	0.90	0.90	0.90	0.91	0.91	0.91
Adj. Flow (vph)	373	920	333	302	829	84	341	248	318	99	178	249
RTOR Reduction (vph)	0	26	0	0	5	0	0	171	0	0	194	0
Lane Group Flow (vph)	373	1227	0	302	908	0	341	395	0	99	233	0
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases												
Actuated Green, G (s)	33.6	50.4		28.6	45.4		27.5	32.2		11.3	16.0	
Effective Green, g (s)	33.6	51.4		28.6	46.4		27.0	33.2		10.8	17.0	
Actuated g/C Ratio	0.24	0.37		0.20	0.33		0.19	0.24		0.08	0.12	
Clearance Time (s)	4.0	5.0		4.0	5.0		3.5	5.0		3.5	5.0	
Vehicle Extension (s)	1.2	4.0		1.2	4.0		1.2	4.0		1.2	4.0	
Lane Grp Cap (vph)	424	1247		361	1156		341	768		136	392	
v/s Ratio Prot	c0.21	c0.36		0.17	0.26		c0.19	0.12		0.06	c0.07	
v/s Ratio Perm												
v/c Ratio	0.88	0.98		0.84	0.79		1.00	0.51		0.73	0.59	
Uniform Delay, d1	51.3	43.9		53.5	42.3		56.5	46.4		63.2	58.2	
Progression Factor	1.02	0.79		0.92	1.09		1.00	1.00		1.00	1.00	
Incremental Delay, d2	14.6	19.0		14.5	5.3		48.7	0.8		15.1	2.8	
Delay (s)	66.7	53.9		63.6	51.2		105.2	47.2		78.3	61.1	
Level of Service	E	D		E	D		F	D		E	E	
Approach Delay (s)		56.8			54.3			69.0			64.3	
Approach LOS		E			D			E			E	

Intersection Summary			
HCM 2000 Control Delay	59.6	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	90.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	148	781	631	137	0	244
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0		4.0
Lane Util. Factor	1.00	0.95	0.95	1.00		0.88
Frt	1.00	1.00	1.00	0.85		0.85
Flt Protected	0.95	1.00	1.00	1.00		1.00
Satd. Flow (prot)	1770	3539	3539	1583		2787
Flt Permitted	0.95	1.00	1.00	1.00		1.00
Satd. Flow (perm)	1770	3539	3539	1583		2787
Peak-hour factor, PHF	0.95	0.95	0.80	0.80	0.87	0.87
Adj. Flow (vph)	156	822	789	171	0	280
RTOR Reduction (vph)	0	0	0	30	0	255
Lane Group Flow (vph)	156	822	789	141	0	25
Turn Type	Prot	NA	NA	Perm		Perm
Protected Phases	5	2	6			
Permitted Phases				6		8
Actuated Green, G (s)	17.7	119.5	97.8	97.8		12.5
Effective Green, g (s)	17.7	119.5	97.8	97.8		12.5
Actuated g/C Ratio	0.13	0.85	0.70	0.70		0.09
Clearance Time (s)	4.0	4.0	4.0	4.0		4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0		3.0
Lane Grp Cap (vph)	223	3020	2472	1105		248
v/s Ratio Prot	c0.09	0.23	c0.22			
v/s Ratio Perm				0.09		c0.01
v/c Ratio	0.70	0.27	0.32	0.13		0.10
Uniform Delay, d1	58.6	2.0	8.2	7.0		58.6
Progression Factor	0.84	2.62	1.23	1.60		1.00
Incremental Delay, d2	4.7	0.1	0.3	0.2		0.2
Delay (s)	53.9	5.2	10.4	11.4		58.8
Level of Service	D	A	B	B		E
Approach Delay (s)		13.0	10.6		58.8	
Approach LOS		B	B		E	

Intersection Summary			
HCM 2000 Control Delay	17.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	32.6%	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												
Volume (vph)	23	643	111	32	664	66	71	9	29	251	14	37
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	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	0.99		1.00	0.89		1.00	0.89	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3461		1770	3491		1770	1650		1770	1660	
Flt Permitted	0.95	1.00		0.95	1.00		0.72	1.00		0.72	1.00	
Satd. Flow (perm)	1770	3461		1770	3491		1340	1650		1349	1660	
Peak-hour factor, PHF	0.91	0.91	0.91	0.81	0.81	0.81	0.77	0.77	0.77	0.88	0.88	0.88
Adj. Flow (vph)	25	707	122	40	820	81	92	12	38	285	16	42
RTOR Reduction (vph)	0	7	0	0	4	0	0	28	0	0	31	0
Lane Group Flow (vph)	25	822	0	40	897	0	92	22	0	285	27	0
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
Actuated Green, G (s)	4.1	85.5		6.1	87.5		34.9	34.9		34.9	34.9	
Effective Green, g (s)	3.6	86.5		5.6	88.5		35.9	35.9		35.9	35.9	
Actuated g/C Ratio	0.03	0.62		0.04	0.63		0.26	0.26		0.26	0.26	
Clearance Time (s)	3.5	5.0		3.5	5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)	1.2	4.5		1.2	4.5		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	45	2138		70	2206		343	423		345	425	
v/s Ratio Prot	0.01	0.24		c0.02	c0.26			0.01			0.02	
v/s Ratio Perm							0.07			c0.21		
v/c Ratio	0.56	0.38		0.57	0.41		0.27	0.05		0.83	0.06	
Uniform Delay, d1	67.4	13.4		66.0	12.8		41.6	39.2		49.1	39.3	
Progression Factor	0.99	0.85		1.12	0.74		1.00	1.00		1.00	1.00	
Incremental Delay, d2	8.0	0.5		6.5	0.5		0.4	0.1		14.8	0.1	
Delay (s)	74.7	12.0		80.1	10.0		42.0	39.3		63.9	39.4	
Level of Service	E	B		F	A		D	D		E	D	
Approach Delay (s)		13.8			12.9			41.0			59.8	
Approach LOS		B			B			D			E	

Intersection Summary			
HCM 2000 Control Delay	22.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	53.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			