

Kmart Site Redevelopment Project
(Indian School Rd. / Carlisle Blvd.)

Traffic Impact Study

July 02, 2019

D R A F T

Presented to:

City of Albuquerque
Transportation Development Section

NM Dept. of Transportation
District 3

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**Kmart Site Redevelopment Project
(Indian School Rd. / Carlisle Blvd.)
Traffic Impact Study**

Executive Summary

The purpose of this study is to evaluate the transportation conditions before and after implementation of the proposed Kmart Site Redevelopment Project, determine the impact of the development on the adjacent transportation system and recommend mitigation measures where necessary. This study is prepared to meet the requirements of the City of Albuquerque Transportation Development Section, Planning Department and the New Mexico Department of Transportation (NMDOT), District 3 Office associated with their review of this project.

The proposed development is located at the northeast corner of Indian School Rd. / Carlisle Blvd. The study area includes the intersections of Indian School Rd. / Girard Ct., I-40 N. Ramp / Carlisle Blvd., I-40 S. Ramp / Carlisle Blvd., Indian School Rd. / Carlisle Blvd., Indian School Rd. / Washington St., Constitution Ave. / Carlisle Blvd., I-40 S. Ramp / San Mateo Blvd., I-40 N. Ramp / San Mateo Blvd. and three existing driveways for the project.

The proposed project is to be developed as a 50,000 S.F. supermarket, a 2,200 S.F. fast-food restaurant w/ drive-thru window and a 67,710 S.F. retail commercial uses. The anticipated implementation year for this site is the year 2021 and the horizon year is 2031. According to the Institute of Traffic Engineers' (ITE) trip generation rates (10th Edition), the weekday AM Peak Hour period is projected to be approximately 275 entering trips and 190 exiting trips. During the weekday PM Peak Hour period, it is anticipated that it will generate approximately 352 new entering trips and new 355 exiting trips. A PM pass-by trip rate of 25% was applied to this project.

The old Kmart site was accessed via the following driveways:

- 1) Main Driveway on Carlisle (Driveway "A") – a full access unsignalized driveway.
- 2) Secondary Driveway on Carlisle (Driveway "B") – a right-in, right-out driveway north of Indian School Rd. and south of Driveway "A"
- 3) Main Driveway on Indian School Rd. (Driveway "C") – a full access unsignalized driveway.
- 4) Burger King exit only driveway – an unsignalized right turn exit only driveway located on the north side of the existing Burger King fast food restaurant just north of Driveway "A". The Burger King exit only driveway will not be allowed by the New Mexico Department of Transportation and, therefore, will be closed. Burger King drive-thru traffic will exit directly into the new Kmart Redevelopment Site parking lot.

The new development will be accessed via three existing driveways (Driveways “A”, “B”, and “C”). (See the Appendix, Pg. A-3 for more details.) The proposed driveways will likely need to be reconstructed to bring them up to current design standards for commercial driveways as well as handicap access standards. The first driveway on Carlisle Blvd. (Driveway “A”) is the unsignalized full access drive located approximately 515 feet north of Indian School Rd. (centerline to centerline). The second driveway on Carlisle Blvd. (Driveway “B”) is the a right-in / right-out, unsignalized driveway located approximately 210 feet north of Indian School Rd. (centerline to centerline). The third driveway on Indian School Rd. is the unsignalized full access driveway (Driveway “C”) located approximately 350 feet east of Carlisle Blvd. (centerline to centerline). Additionally, there is a new service vehicle / delivery vehicle driveway on Indian School Rd. at the extreme southeast corner of the site which will be restricted to westbound right turn in only movements. This driveway is called the Service Driveway and has no other designation in this report. Being a right-in only driveway, there will be no analysis in this Study. The right turn in volumes at this driveway are expected to be minimal.

Analysis results by analysis year are included in the following table:

Executive Summary Results Table

Intersection No. / Name	Signalization	Case	2021 Conditions		2031 Conditions	
			AM Peak	PM Peak	AM Peak	PM Peak
1 - Indian School Rd. / Girard Ct.	Signalized	NO BUILD	A - 9.9	A - 5.5	B - 10.3	A - 5.2
		BUILD	A - 9.9	A - 5.5	B - 10.3	A - 5.3
2 - I-40 N. Ramp / Carlisle Blvd.	Signalized	NO BUILD	C - 23.5	C - 23.3	C - 26.0	C - 27.1
		BUILD	C - 23.5	C - 23.5	C - 26.0	C - 27.7
		MIT.	C - 22.3	C - 21.9	C - 23.9	C - 25.0
3 - I-40 S. Ramp / Carlisle Blvd.	Signalized	NO BUILD	B - 18.1	B - 16.9	C - 20.7	C - 23.8
		BUILD	B - 17.5	C - 20.8	C - 20.2	C - 26.9
4 - Indian School Rd. / Carlisle Blvd.	Signalized	NO BUILD	C - 30.7	D - 35.4	D - 44.9	E - 65.0
		BUILD	C - 28.4	D - 39.1	D - 43.2	F - 80.7
		MIT.	C - 24.2	C - 31.1	D - 35.9	E - 58.6
5 - Indian School Rd. / Washington St.	Signalized	NO BUILD	C - 24.2	C - 30.1	C - 23.5	C - 32.5
		BUILD	C - 24.1	C - 30.3	C - 23.3	C - 33.2
6 - Constitution Ave. / Carlisle Blvd.	Signalized	NO BUILD	B - 12.6	B - 16.4	B - 13.3	B - 17.3
		BUILD	B - 12.2	B - 15.8	B - 12.9	B - 17.0
7 - I-40 S. Ramp / San Mateo Blvd.	Signalized	NO BUILD	C - 34.6	D - 43.4	E - 63.9	D - 49.1
		BUILD	C - 34.5	D - 43.3	E - 63.5	D - 48.9
		MIT.	C - 28.5	C - 27.0	D - 48.4	C - 31.0
8 - I-40 N. Ramp / San Mateo Blvd.	Signalized	NO BUILD	C - 26.0	C - 32.3	D - 43.3	D - 38.8
		BUILD	C - 25.7	C - 32.3	D - 42.8	D - 38.8
		MIT.	C - 22.5	C - 23.0	D - 35.5	C - 31.0
9 - Driveway "A" / Carlisle Blvd.	Unsignalized	NO BUILD	N/A	N/A	N/A	N/A
		BUILD	C - 19.7	D - 27.7	C - 23.7	F - 53.5
10. Driveway "B" / Carlisle Blvd.	Unsignalized	NO BUILD	N/A	N/A	N/A	N/A
		BUILD	B - 10.9	B - 12.9	B - 11.9	C - 15.3
11. Indian School Rd. / Driveway "C"	Unsignalized	NO BUILD	N/A	N/A	N/A	N/A
		BUILD	B - 14.0	C - 24.5	B - 13.4	D - 26.1

Even though the above table generally reports acceptable intersection levels-of-service and delays for all cases associated with the 2021 Implementation Year Conditions, there are some individual turning movements that experience longer delays than desirable. Those include the westbound right turn movement at the I-40 North Ramp / Carlisle Blvd. during the AM and PM Peak Hour, the eastbound left turn movement and the westbound right turn movement at Indian School Rd. / Carlisle Blvd. during the AM and PM Peak Hour, the eastbound right turn movement and the southbound left turn movement at the intersection of the I-40 South Ramp / San Mateo Blvd., and the westbound right turn movement at the I-40 North Ramp / San Mateo Blvd. during the AM and PM Peak Hour periods. Most all of those specific turning movements are already stressed for the implementation year NO BUILD conditions.

In summary, the proposed development does have a minor adverse impact to the intersections of the I-40 N. Ramp / Carlisle Blvd, the I-40 S. Ramp / San Mateo Blvd., and the I-40 N. Ramp /

San Mateo Blvd., and a moderately significant impact to the intersection of Indian School Rd. / Carlisle Blvd. The minimal to moderate impact to the transportation system can be mitigated by the recommended measures described in this Study. In summary, the recommendations of this study are:

Recommendations:

- **I-40 North Ramp / Carlisle Blvd.** – Re-stripe the westbound ramp to re-designate the existing center lane from a thru / left turn lane to a thru / left / right turn lane. This project does not contribute any traffic to the westbound right turn movement.
- **Indian School Rd. / Carlisle Blvd.** – Construct a new westbound right turn lane on Indian School Rd. at Carlisle Blvd. The length of the new westbound right turn lane will be restricted due to an existing major steel transmission line pole. It is estimated that the westbound right turn lane can be constructed to a length of approximately 100 feet plus transition.
- **I-40 South Ramp / San Mateo Blvd.** – The volumes of traffic generated by the proposed Kmart Redevelopment project through the I-40 / San Mateo ramps are very minor. Thus, the impact to the interchange ramps is insignificant. The analysis of the I-40 South Ramp / San Mateo Blvd. does reveal a couple of stressed turning movements for both the AM Peak Hour and the PM Peak Hour. The eastbound right turn movement shows long delays during the AM Peak Hour and the southbound left turn movement shows long delays during the PM Peak Hour. The long delays for these turning movements exist for both the NO BUILD as well as the BUILD conditions since this proposed project does not contribute traffic to either of the two turning movements. Also, the overall intersection levels-of-service and associated delays seem to indicate that the issue can be remedied by modifying the traffic signal timing splits at the intersection for both the AM and PM Peak Hour periods. However, this Study cannot make that recommendation conclusively since this analysis is limited and does not evaluate the San Mateo Blvd. signalized coordinated corridor. The signal timing sheets for this intersection furnished by the City of Albuquerque indicate that the signal timing has not been adjusted for about eight years. Based on the results of this analysis and the fact that the signal timing has not been adjusted for about eight years, this Study recommends that the City of Albuquerque and / or the New Mexico Department of Transportation revisit the signal timing for this portion of the San Mateo Blvd. corridor. It appears from this analysis that the levels-of-service / delays / queueing issues at the I-40 S. Ramp / San Mateo Blvd. may be resolved with modifications to the signal timing / coordination plan that currently exists.
- **I-40 North Ramp / San Mateo Blvd.** – The volumes of traffic generated by the proposed Kmart Redevelopment project through the I-40 / San Mateo ramps are very minor. Thus, the impact to the interchange ramps is insignificant. The analysis of the I-40 North

Ramp / San Mateo Blvd. does reveal a stressed turning movement for both the AM Peak Hour and the PM Peak Hour. The westbound right turn movement shows long delays during the AM and the PM Peak Hour periods. The long delays for these turning movements exist for both the NO BUILD as well as the BUILD conditions and this proposed project does not contribute traffic to that turning movement. Also, the overall intersection levels-of-service and associated delays seem to indicate that the issue can be remedied by modifying the traffic signal timing splits at the intersection for both the AM and PM Peak Hour periods. However, this Study cannot make that recommendation conclusively since this analysis is limited and does not evaluate the San Mateo Blvd. signalized coordinated corridor. The signal timing sheets for this intersection furnished by the City of Albuquerque indicate that the signal timing has not been adjusted for about eight years. Based on the results of this analysis and the fact that the signal timing has not been adjusted for about eight years, this Study recommends that the City of Albuquerque and / or the New Mexico Department of Transportation revisit the signal timing for this portion of the San Mateo Blvd. corridor. It appears from this analysis that the levels-of-service / delays / queueing issues at the I-40 N. Ramp / San Mateo Blvd. may be resolved with modifications to the signal timing / coordination plan that currently exists.

- **Access** – Access to the proposed Kmart Redevelopment Project should be via three unsignalized driveways plus a service driveway at the extreme southeast corner of the site. The main driveway on Carlisle Blvd. (Driveway “A”) is proposed as an unsignalized full access driveway located approximately 510 feet north of Indian School Rd. (centerline to centerline). The southern driveway on Carlisle Blvd. (Driveway “B”) is proposed to be a right-in, right-out only access unsignalized driveway located approximately 210 feet north of Indian School Rd. (centerline to centerline). The main driveway on Indian School Rd. is proposed as an unsignalized full access driveway (Driveway “C”) located approximately 350 feet east of Carlisle Blvd. (centerline to centerline).
- Driveway “A” on Carlisle Blvd. shall be designed and constructed with two exiting and one entering lane minimum. The throat depth for Driveway “A” should be a minimum of 150 feet deep. Driveway “B” on Carlisle Blvd. shall be designed and constructed with one exiting and one entering lane minimum. The throat depth for Driveway “B” should be a minimum of 30 feet. Driveway “C” on Indian School Rd. shall be designed and constructed with one exiting and one entering lane minimum. The throat depth for the southbound lane of Driveway “C” should be a minimum of 75 feet.
- All driveways for this development shall be constructed utilizing 30 feet curb return radii or larger if required to accommodate the design delivery vehicles.
- All proposed driveways associated with this project are subject to being reconstructed to bring them to current standards for retail commercial driveways and for handicap access.

- All design and construction associated with this development shall maintain adequate site distances at intersections and driveways to the extent feasible.

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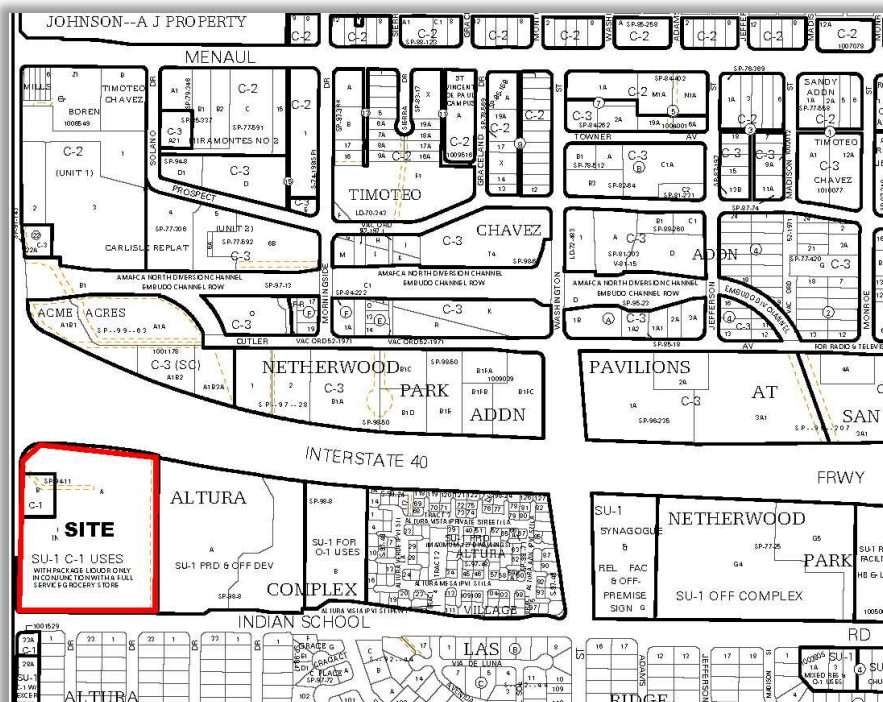
Kmart Site Redevelopment Project (Indian School Rd. / Carlisle Blvd.) Traffic Impact Study

Introduction

The purpose of this study is to evaluate the transportation conditions before and after implementation of the proposed Kmart Site Redevelopment Project and determine the impact of the development on the adjacent transportation system. The recommendations of this study will provide measures to mitigate the impact of the development of the site plan on critical intersections and street segments. This study is prepared to meet the requirements of the City of Albuquerque Transportation Development Section, Planning Department and the New Mexico Department of Transportation, District 3 associated with their review of the Kmart Site Redevelopment Project as shown on the plan on Page A-3 in the Appendix of this report.

The proposed development is located at the northeast corner of Indian School Rd. / Carlisle Blvd. in Albuquerque, New Mexico. If the property was to develop in a manner significantly different than the proposed plan considered in this report such that the number of generated trips is significantly greater, then an update to this study may be required by the City of Albuquerque Transportation Dev. Section, Planning Dept.

Following is a vicinity map depicting the location of the proposed project:



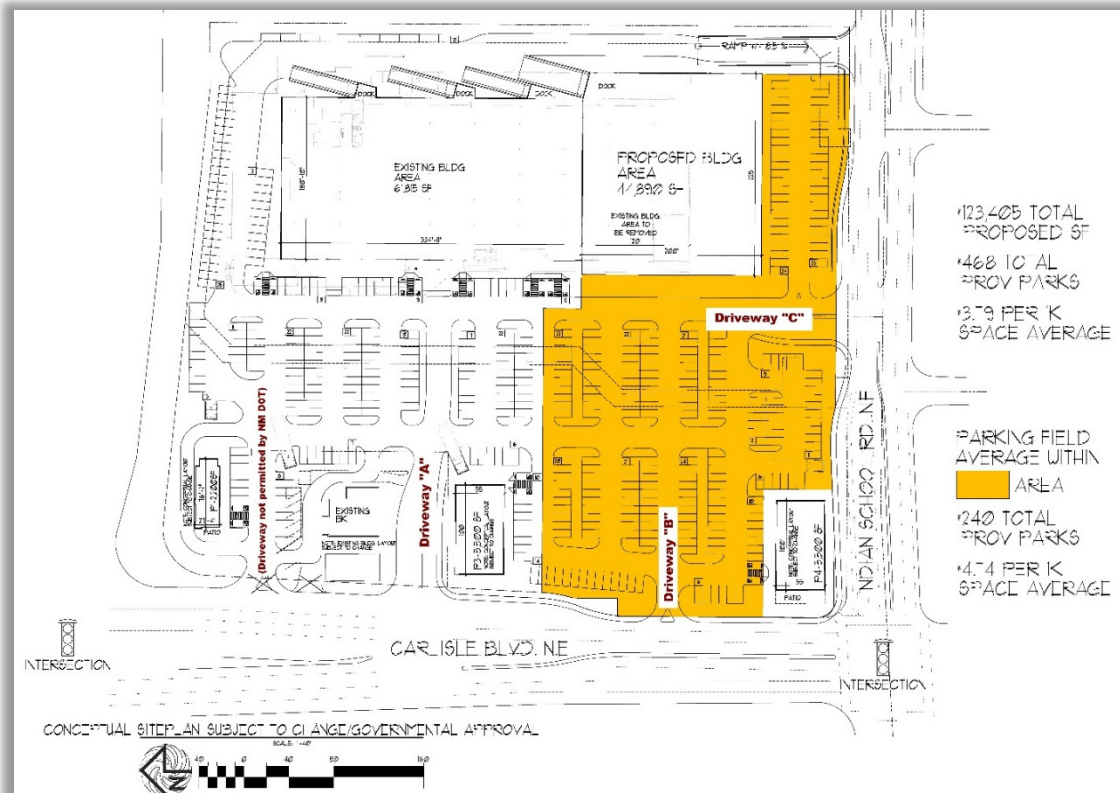
Description of Proposed Development

The proposed project is described as a 50,000 S.F. supermarket, a 2,200 S.F. fast-food restaurant w/ drive-thru window and a 67,710 S.F. shopping center, at the northeast corner of Indian School Rd. / Carlisle Blvd. The project lies in the city limits of Albuquerque, NM. The project will be required to comply with the requirements of the City of Albuquerque with regard to the overall development. The required Traffic Impact Study includes the analysis of two ramps on Carlisle Blvd. and two ramps on San Mateo Blvd. at Interstate 40 which are maintained by the New Mexico Department of Transportation. Therefore, the project will be required to comply with the requirements of the City of Albuquerque with regard to the overall development and local roadways, and with the requirements of the New Mexico Department of Transportation with regard to transportation issues along the Interstate.

It is assumed in this Study that the development will be constructed in one phase. This study will analyze an implementation year of 2021 and a horizon year of 2031.

The development will be accessed via three existing driveways for this parcel of land, two on Carlisle Blvd and one on Indian School Rd. See the Appendix, Pg. A-3 for more details. The first driveway on Carlisle Blvd. (Driveway "A") is an unsignalized full access drive located approximately 515 feet north of Indian School Rd. (centerline to centerline). The second driveway on Carlisle Blvd. (Driveway "B") is proposed to be a right-in / right-out, unsignalized driveway located approximately 210 feet north of Indian School Rd. (centerline to centerline). The proposed driveway on Indian School Rd. is an existing, unsignalized full access driveway (Driveway "C") located approximately 350 feet east of Carlisle Blvd. (centerline to centerline). There is also a service driveway proposed at the extreme southeast corner of the project site. The service driveway will be restricted to service vehicles and delivery trucks and will be designated as a right-turn-in only driveway. Therefore, no Highway Capacity Manual level-of-service analysis will be provided. Design and re-construction of the three driveways will be required to meet the requirements of the City of Albuquerque.

Following is the proposed site development plan depicting driveway (access) locations (also, see Appendix Page A-3 for a more complete version of the proposed site development plan):



Study Area Conditions

A Traffic Impact Study Scoping Meeting was held on May 13, 2019 with the City of Albuquerque Transportation Development Section, Planning Dept. with staff (Ernest Armijo) and with the New Mexico Department of Transportation, District 3 Office staff (Nancy Perea). During the meeting, it was determined that the study area would include the following list of intersections to be analyzed in the Traffic Impact Study:

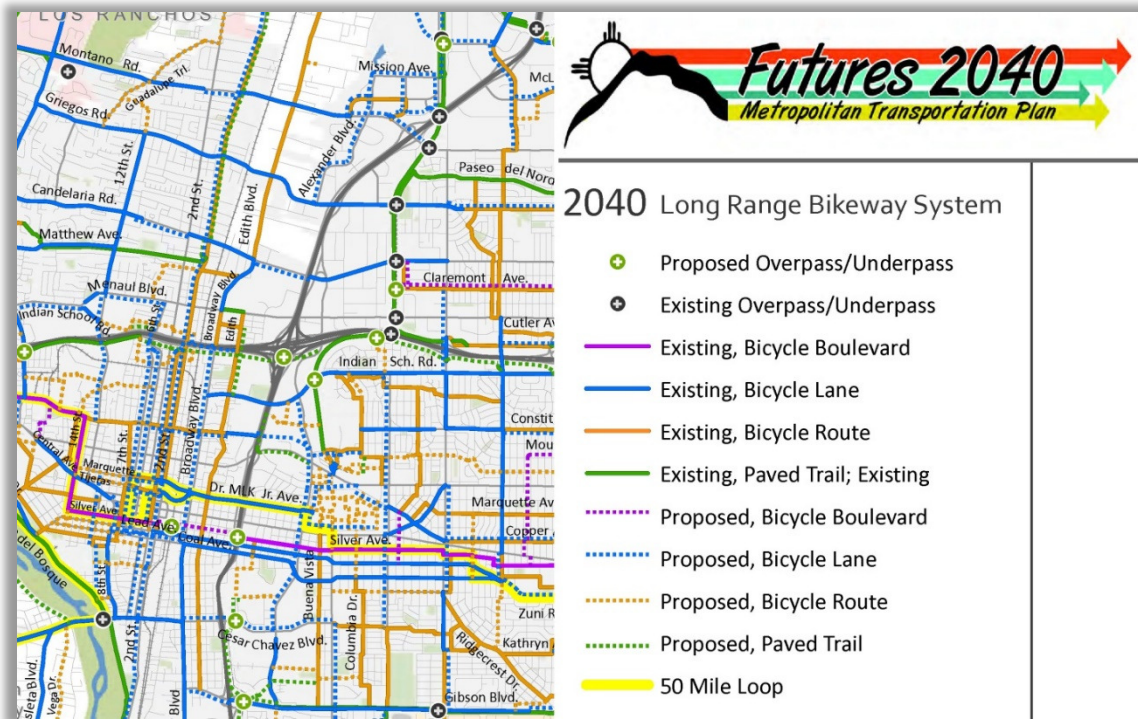
1. Indian School Rd. / Girard Ct.
2. I-40 N. Ramp / Carlisle Blvd.
3. I-40 S. Ramp / Carlisle Blvd.
4. Indian School Rd. / Carlisle Blvd.
5. Indian School Rd. / Washington St.
6. Constitution Ave. / Carlisle Blvd.
7. I-40 S. Ramp / San Mateo Blvd.
8. I-40 N. Ramp / San Mateo Blvd.
9. Driveway "A" / Carlisle Blvd. (full access unsignalized)
10. Driveway "B" / Carlisle Blvd. (right-in, right-out only unsignalized)
11. Indian School Rd. / Driveway "C" (full access unsignalized)

This scope of study was based on the assumption that the parcel in question would be developed as a 50,000 S.F. supermarket, a 2,200 S.F. fast-food restaurant w/ drive-thru window and a 67,710 S.F. shopping center as shown on the proposed site plan. The Scoping Letter furnished by the City of Albuquerque is on Page A-225 thru A-227 in the Appendix of this Study.

There are no other known land development projects in the area which need to be incorporated into the background traffic model for this study. Existing Burger King trips were calculated and added to the volumes at Driveway “A”. There are no known Transportation Improvement Program projects in the area that need to be considered in the Traffic Impact Study.

This project is served by public transit services in the area; specifically Routes #5, 6 and 12. These routes run along Indian School Rd. from downtown ABQ to Tramway. See Appendix page A-224 for Transit Bus Route Maps.

There are designated routes in the project area on the Futures 2040 Metropolitan Transportation Plan (2040 Long Range Bikeway System) as shown on the following portion of the map.



There are pedestrian facilities in the project area – curb and gutter and sidewalks along the roads, as well as raised medians for pedestrians and bicyclists crossing against traffic. Also, the signalized intersections in the area are equipped with pedestrian pushbuttons and the intersections are striped with pedestrian crossing pavement markings.

Carlisle Blvd. and Indian School Rd. are classified as Minor Arterial Roadways on the Mid-Region Council of Government's Futures 2040 Long Range Roadway System Map. They are generally four-lane urban-type roadways with curb and gutter and sidewalks and some raised medians, especially near major intersections and driveways. The posted speed limit along Carlisle Blvd. is 35 MPH and 40 MPH along Indian School Rd.

San Mateo Blvd. is classified as Community Principal Arterial Roadway on the Mid-Region Council of Government's Futures 2040 Long Range Roadway System Map. It is generally a six-lane roadway with curb and gutter and sidewalks in the vicinity of the study area. The posted speed limit along this section of San Mateo Blvd. is 40 MPH.

Constitution Ave., Girard Ct. and Washington St. are classified as Major Collector Roadways on the Mid-Region Council of Government's Futures 2040 Long Range Roadway System Map. They are generally two-lane urban-type roadways with curb and gutter and sidewalks. The posted speed limit along these roadways is 30 MPH.

Analysis of Existing Conditions

Existing traffic volumes (turning movement counts) were collected at the intersections targeted for analysis in this study in May 2019 and are included on Appendix Pages A-216 thru A-223. Additionally, the Synchro 10 analysis for the intersections studied are included on Appendix Pages A-99 thru A-115. A summary of the results of the analysis of existing (2019) conditions is in the following table:

Intersection No. / Name	Signalization	Case	2019 Conditions	
			AM Peak	PM Peak
1 - Indian School Rd. / Girard Ct.	Signalized	Existing	A - 9.8	A - 5.6
2 - I-40 N. Ramp / Carlisle Blvd.	Signalized	Existing	C - 23.0	C - 22.8
3 - I-40 S. Ramp / Carlisle Blvd.	Signalized	Existing	B - 17.7	B - 16.7
4 - Indian School Rd. / Carlisle Blvd.	Signalized	Existing	C - 28.5	D - 36.1
5 - Indian School Rd. / Washington St.	Signalized	Existing	C - 24.1	C - 29.8
6 - Constitution Ave. / Carlisle Blvd.	Signalized	Existing	B - 12.5	B - 16.2
7 - I-40 S. Ramp / San Mateo Blvd.	Signalized	Existing	C - 31.4	D - 42.4
8 - I-40 N. Ramp / San Mateo Blvd.	Signalized	Existing	C - 23.9	C - 28.0
9 - Driveway "A" / Carlisle Blvd.	Unsignalized	Existing	N/A	N/A
10. Driveway "B" / Carlisle Blvd.	Unsignalized	Existing	N/A	N/A
11. Indian School Rd. / Driveway "C"	Unsignalized	Existing	N/A	N/A

Note that even though the results of the above table appear acceptable, there are individual turning movements that report LOS "E" or LOS "F".

Data Collection (Turning Movements Volumes)

As required by the New Mexico Department of Transportation, traffic counts (i.e., AM and PM Peak Hour Turning Movements Volumes) for signalized intersections on New Mexico Department of Transportation facilities were collected using drone video cameras to estimate end of period queueing for the end of each count interval for the intersections of I-40 N. Ramp / Carlisle Blvd., I-40 S. Ramp / Carlisle Blvd., I-40 N. Ramp / San Mateo Blvd., and I-40 S. Ramp / San Mateo Blvd. Other intersections in this study did not require the Demand Traffic Counts, but instead used the standard method of counting traffic.

The Demand Traffic Counts were conducted by launching a drone with a video camera at the end of each of the count intervals approximately 2 minutes before to 2 minutes after the end of the count interval. Using the drone technology, the traffic counts could quantify the queueing for each approach to an intersection at the end of each count interval. These queues were then added to the previous count interval and deducted from the subsequent count interval to adjust the traffic counts to determine the actual demand volumes at the intersection.

The traffic counts are included on Appendix Pages A-216 through A-223 of this report.

Analysis of Implementation Year Conditions

Traffic Projections

Background traffic volumes for the implementation year and horizon year were forecast by applying the calculated annual background traffic growth rate and applying it to recent turning movements volume data. Background annual growth rates were calculated based on Mid-Region Council of Governments' Traffic Flow Map data from 2008 to 2017. Background traffic growth rates were considered for each individual approach to an intersection that was targeted for analysis based on data from the 2008 thru 2017 Traffic Flow maps prepared by the Mid-Region Council of Governments (MRCOG). The data from those years for each approach was plotted on a graph and a linear "regression trend line" calculated using the equation format $y=mx+b$. The growth rate was determined by calculating the average volume increase per year during the time period considered and dividing that volume into the most recent AWDT used in the analysis from which future volumes will be calculated. The rate of growth of that trend line was utilized as the growth rate for each approach if that calculated rate appeared feasible. However, there were some instances where the rate indicated a negative growth trend. In those cases, an appropriate growth rate from an adjacent segment of the same roadway was considered. Due to the potential for growth in the area, it was believed that a zero percent growth rate was inappropriate for this study. Additionally, if the R^2 value of the trend line was low, other means of establishing a probable growth rate from the data accumulated was considered. Historical Growth Rate Graphs with linear regression trendlines are shown in the

Appendix on Pages A-36 thru A-47. A Historic Growth Map can be found on Appendix Page A-48.

This study assumes that the development will be implemented in one phase with an implementation year of 2021 and a horizon year of 2031.

Projected trips were calculated based on the Institute of Traffic Engineers (ITE) Trip Generation Manual (10th Edition). Trips for the development were determined based on land use defined on the Conceptual Site Development Plan on Page A-3 in the Appendix of this report. The following table summarized the trip generation rate for the project:

Old K-Mart Site Redevelopment (I-40 / Carlisle Blvd.)
Trip Generation Data (ITE Trip Generation Manual - 10th Edition)

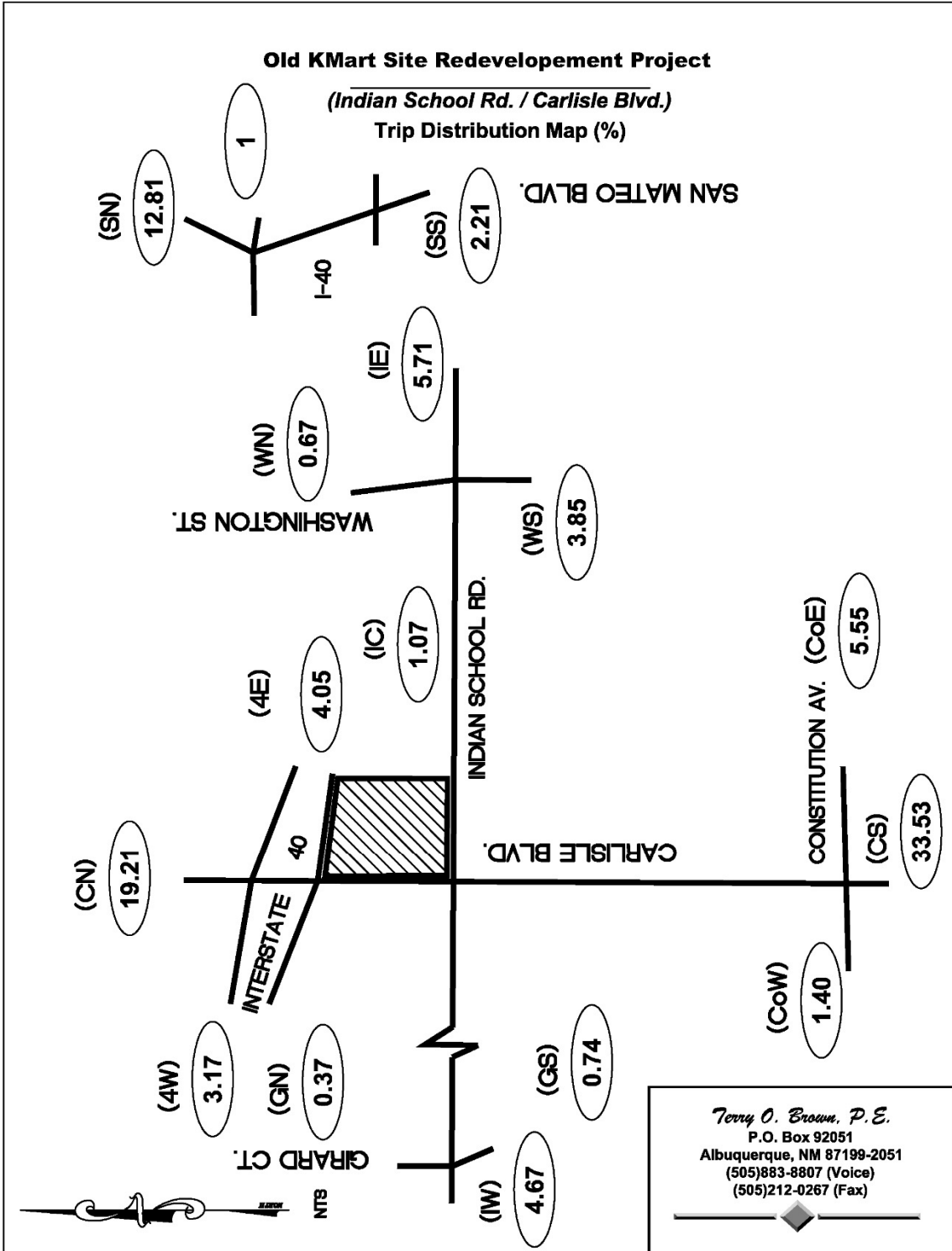
COMMENT	USE (ITE CODE)	24 HR VOL	A. M. PEAK HR.		P. M. PEAK HR.		
	DESCRIPTION		GROSS	ENTER	EXIT	ENTER	EXIT
Summary Sheet		Units					
Tract No.	Supermarket (850)	50.00	4,757	115	76	238	228
P1	Fast Food Restaurant w/ Drive-Thru Window (934)	2.20	1,036	45	43	37	34
P3, P4 & Remainder P1	Shopping Center (820)	67.71	4,611	115	71	195	212
Net New Trips Generated			10,404	275	190	470	474
<i>Pass-by Trips (PM ONLY)</i>		25%				118	119
Net New Primary Trips Generated			10,404	275	190	352	355

NOTE: Trip Generation Rates above do not include existing Burger King Fast Food Restaurant (to remain):

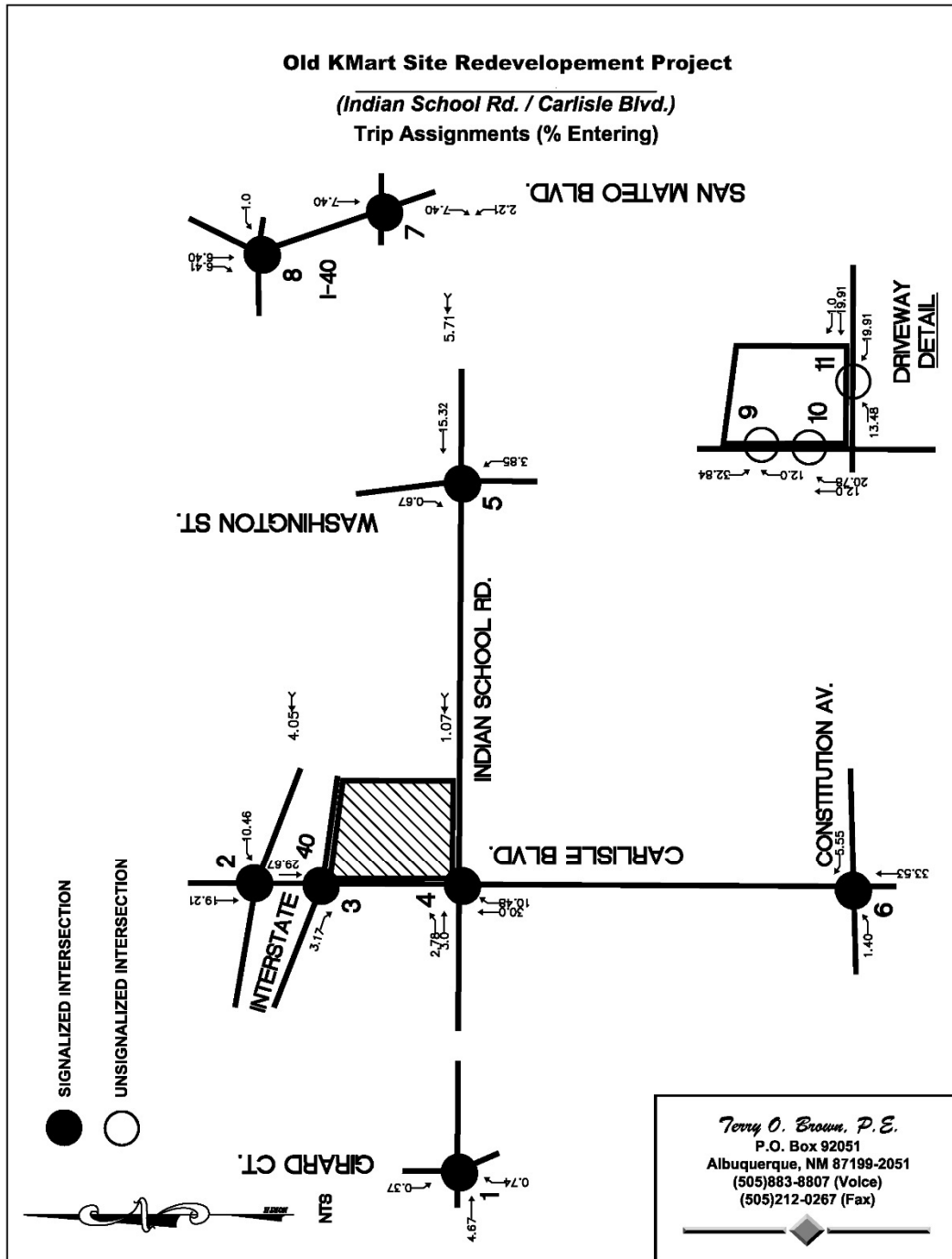
Exist. Burger King FF Rest.	Fast Food Restaurant w/ Drive-Thru Window (934)	3.50	1,648	72	69	59	55
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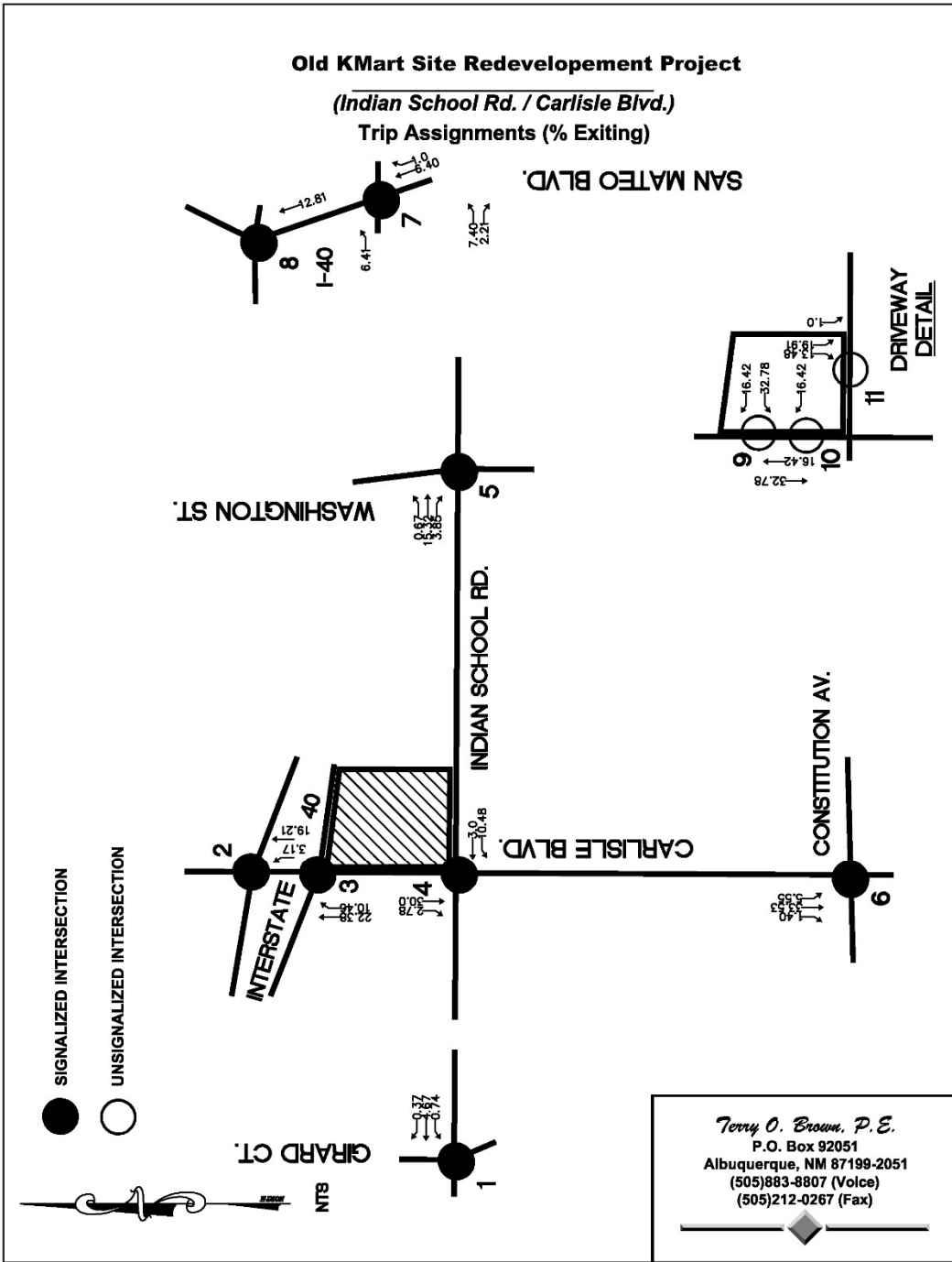
A pass-by trip rate of 25% was applied to the PM trips for this project. See Appendix Pages A-7 thru A-10 for more information regarding the trip generation.

The Gravity Model was used to determine trip distribution where primary trips for the commercial land use development were distributed proportionally to the 2021 projected population of Data Analysis Subzones (DASZ) within a 3-mile radius. Population data for the years 2012 and 2040 were taken from the 2040 Socioeconomic Forecasts by Subareas for the Mid-Region of New Mexico supplied by the Mid-Region Council of Governments (MRCOG). Population data from the years 2012 and 2040 was interpolated linearly to obtain 2021 population data to utilize for this analysis. Population Subzones were grouped based on the most likely major street(s) or route(s) to the subject development. The trip distribution worksheets and associated map of data analysis subzones are shown in the Appendix on Pages A-11 thru A-31. The commercial Trip Distribution map can be found below and in the Appendix on Page A-32.



Trip assignments are first made on a percentage basis derived from data established in the trip distribution determination process and logical routing. Those percentages are then applied to the projected trips to determine individual traffic movements. Percentage trip assignments for commercial trips are shown below and in the Appendix on Pages A-33 thru A-34.





The trip generation, trip distribution and trip assignments were utilized along with the existing 2019 background traffic volumes and the historical traffic growth rates to determine the Implementation and horizon year NO BUILD and BUILD volumes, see Appendix Pages A-49 thru A-73. Lane geometry, NO BUILD and BUILD volumes, and calculated levels-of-service for associated lane groups are shown on the Lanes / Volumes Analysis Maps at the end of the front-end text of this report.

Traffic Analysis – Implementation Year (2021)

A capacity analysis using existing traffic signal timing (see Appendix Pages A-116 thru A-165) was conducted for the Implementation Year (2021) NO BUILD and BUILD Conditions and the results are summarized as follows:

#1 – Indian School Rd. / Girard Ct. - Pages A-116 thru A-165

The results of the 2021 analyses of the full access signalized intersection of Indian School Rd. / Girard Ct. are summarized in the following tables:

Indian Sch. Rd. / Girard Ct. 2021 Conditions	EB (Indian Sch. Rd.)			WB (Indian Sch. Rd.)			NB (Girard Ct.)			SB (Girard Ct.)		
	L	T	R	L	T	R	L	T	R	L	T	R
Existing Lane Geometry	1	2>	0	1	2>	0	1	1>	0	1	1>	0
AM Peak Hour												
2021 NO BUILD Conditions Volumes	20	230	21	8	416	49	43	11	1	70	18	28
V/C Ratio	0.04	0.11	0.11	0.01	0.21	0.21	0.21	0.00	0.07	0.30	0.00	0.30
Level-of-Service	A	A	A	A	A	A	C	A	C	C	A	C
Control Delay (Seconds)	4.8	2.6	2.6	7.3	8.9	8.9	24.8	0.0	22.3	24.3	0.0	23.7
Intersection LOS	A - 9.9											
2021 BUILD Conditions Volumes	20	243	21	9	425	50	43	11	2	71	18	28
V/C Ratio	0.04	0.12	0.12	0.01	0.22	0.22	0.21	0.00	0.08	0.30	0.00	0.30
Level-of-Service	A	A	A	A	A	A	C	A	C	C	A	C
Control Delay (Seconds)	4.9	2.7	2.7	7.4	9.0	9.0	24.7	0.0	22.3	24.3	0.0	23.5
Intersection LOS	A - 9.9											
PM Peak Hour												
2021 NO BUILD Conditions Volumes	29	471	39	9	500	68	71	22	2	75	16	22
V/C Ratio	0.05	0.22	0.22	0.01	0.24	0.24	0.32	0.00	0.12	0.32	0.00	0.21
Level-of-Service	A	A	A	A	A	A	C	A	C	C	A	C
Control Delay (Seconds)	2.6	3.2	3.2	0.1	0.3	0.3	27.0	0.0	24.2	26.5	0.0	24.7
Intersection LOS	A - 5.5											
2021 BUILD Conditions Volumes	29	487	39	12	517	69	71	22	5	76	16	22
V/C Ratio	0.05	0.22	0.22	0.02	0.25	0.25	0.32	0.00	0.14	0.32	0.00	0.21
Level-of-Service	A	A	A	A	A	A	C	A	C	C	A	C
Control Delay (Seconds)	2.6	3.2	3.2	0.2	0.3	0.3	27.0	0.0	24.2	26.6	0.0	24.7
Intersection LOS	A - 5.5											

The 2021 analysis of the intersection of Indian School Rd. / Girard Ct. demonstrates that the delays will be acceptable for all conditions analyzed in this report. Therefore, no recommendations are made for the intersection of Indian School Rd. / Girard Ct.

#2 – I-40 N. Ramp / Carlisle Blvd. - Pages A-116 thru A-165

The results of the 2021 analyses of the full access signalized intersection of I-40 N. Ramp / Carlisle Blvd. are summarized in the following tables:

I-40 N. Ramp / Carlisle Blvd. 2021 Conditions	WB (I-40 N. Ramp)			NB (Carlisle Blvd.)			SB (Carlisle Blvd.)		
	L	T	R	L	T	R	L	T	R
Existing Lane Geometry	1	<1	1	2	3	0	0	3	1
AM Peak Hour									
2021 NO BUILD Conditions Volumes	347	8	329	422	1,033	0	0	761	285
V/C Ratio	0.43	0.00	0.90	0.89	0.35	0.00	0.00	0.38	
Level-of-Service	C	A	E	D	A	A	A	C	
Control Delay (Seconds)	34.1	0.0	56.8	50.8	0.3	0.0	0.0	20.7	0.0
Intersection LOS	C - 23.5								
2021 BUILD Conditions Volumes	376	8	329	428	1,069	0	0	814	285
V/C Ratio	0.46	0.00	0.90	0.90	0.37	0.00	0.00	0.41	
Level-of-Service	C	A	E	D	A	A	A	C	
Control Delay (Seconds)	34.4	0.0	56.5	51.1	0.3	0.0	0.0	21.2	0.0
Intersection LOS	C - 23.5								
Mitigated Conditions	1	<1>	1	2	3	0	0	3	1
2021 BUILD Conditions [Mitigated] Volumes	376	8	329	428	1,069	0	0	814	285
V/C Ratio	0.79	0.00	0.82	0.90	0.33	0.00	0.00	0.35	
Level-of-Service	D	A	D	D	A	A	A	B	
Control Delay (Seconds)	44.1	0.0	48.2	51.1	0.2	0.0	0.0	16.3	0.0
Intersection LOS	C - 22.3								
PM Peak Hour									
2021 NO BUILD Conditions Volumes	259	5	280	504	1,300	0	0	1,112	470
V/C Ratio	0.37	0.00	0.89	0.92	0.39	0.00	0.00	0.47	
Level-of-Service	D	A	E	E	A	A	A	C	
Control Delay (Seconds)	40.7	0.0	63.7	57.0	0.3	0.0	0.0	20.7	0.0
Intersection LOS	C - 23.3								
2021 BUILD Conditions Volumes	296	5	280	515	1,368	0	0	1,180	470
V/C Ratio	0.42	0.00	0.89	0.93	0.41	0.00	0.00	0.51	
Level-of-Service	D	A	E	E	A	A	A	C	
Control Delay (Seconds)	41.2	0.0	63.2	57.5	0.3	0.0	0.0	21.5	0.0
Intersection LOS	C - 23.5								
Mitigated Conditions	1	<1>	1	2	3	0	0	3	1
2021 BUILD Conditions [Mitigated] Volumes	296	5	280	515	1,368	0	0	1,180	470
V/C Ratio	0.74	0.00	0.81	0.93	0.38	0.00	0.00	0.45	
Level-of-Service	D	A	E	E	A	A	A	B	
Control Delay (Seconds)	50.3	0.0	55.4	57.5	0.2	0.0	0.0	16.9	0.0
Intersection LOS	C - 21.9								

The 2021 analysis of the intersection of I-40 N. Ramp / Carlisle Blvd. demonstrates that the overall intersection delays will be acceptable for all conditions analyzed in this report. The westbound right turn movement is projected to experience moderately long delays during the AM and PM NO BUILD and BUILD conditions. This project does not contribute any new traffic to the subject westbound right turn movement. Also, the proposed development has no significant impact on this intersection. Therefore, no recommendations are made for the

intersection of I-40 N. Ramp / Carlisle Blvd. It would be beneficial to the operation of the intersection to convert the westbound thru / left turn lane to a thru / left / right turn lane.

#3 – I-40 S. Ramp / Carlisle Blvd. - Pages A-116 thru A-165

The results of the 2021 analyses of the full access signalized intersection of I-40 S. Ramp / Carlisle Blvd. are summarized in the following tables:

I-40 S. Ramp / Carlisle Blvd. 2021 Conditions	EB (I-40 S. Ramp)			NB (Carlisle Blvd.)			SB (Carlisle Blvd.)		
	L	T	R	L	T	R	L	T	R
Existing Lane Geometry	2	1>	2	0	5	1	2	3	0
AM Peak Hour									
2021 NO BUILD Conditions Volumes	554	5	571	0	887	257	190	887	0
V/C Ratio	0.82	0.00	0.64	0.00	0.24	0.33	0.78	0.29	0.00
Level-of-Service	D	A	D	A	A	A	D	A	A
Control Delay (Seconds)	46.2	0.0	39.8	0.0	0.1	0.7	54.6	1.7	0.0
Intersection LOS	B - 18.1								
2021 BUILD Conditions Volumes	554	5	580	0	930	277	190	969	0
V/C Ratio	0.82	0.00	0.65	0.00	0.25	0.36	0.78	0.32	0.00
Level-of-Service	D	A	D	A	A	A	D	A	A
Control Delay (Seconds)	46.2	0.0	40.0	0.0	0.1	1.1	54.5	1.8	0.0
Intersection LOS	B - 17.5								
PM Peak Hour									
2021 NO BUILD Conditions Volumes	538	12	506	0	1,277	439	407	970	0
V/C Ratio	0.80	0.00	0.57	0.00	0.35	0.57	0.88	0.29	0.00
Level-of-Service	D	A	D	A	A	A	D	A	A
Control Delay (Seconds)	48.8	0.0	43.5	0.0	0.1	1.3	50.6	0.2	0.0
Intersection LOS	B - 16.9								
2021 BUILD Conditions Volumes	538	12	517	0	1,356	476	407	1,074	0
V/C Ratio	0.80	0.00	0.58	0.00	0.37	0.62	0.88	0.32	0.00
Level-of-Service	D	A	D	A	B	B	D	A	A
Control Delay (Seconds)	48.7	0.0	43.6	0.0	10.4	15.3	50.3	0.2	0.0
Intersection LOS	C - 20.8								

The 2021 analysis of the intersection of I-40 S. Ramp / Carlisle Blvd. demonstrates that the delays will be acceptable for all conditions analyzed in this report. Therefore, no recommendations are made for the intersection of I-40 S. Ramp / Carlisle Blvd.

#4 – Indian School Rd. / Carlisle Blvd. – Pages A-116 thru A-165

The results of the 2021 analysis of the full access signalized intersection of Indian School Rd. / Carlisle Blvd. are summarized in the following table:

Indian Sch. Rd. / Carlisle Blvd. 2021 Conditions	EB (Indian Sch. Rd.)			WB (Indian Sch. Rd.)			NB (Carlisle Blvd.)			SB (Carlisle Blvd.)		
	L	T	R	L	T	R	L	T	R	L	T	R
Existing Lane Geometry	1	2>	0	1	2>	0	1	3>	0	1	2	1
AM Peak Hour												
2021 NO BUILD Conditions Volumes	372	230	45	52	289	128	71	659	38	223	761	511
V/C Ratio	0.96	0.28	0.28	0.18	0.81	0.83	0.33	0.43	0.43	0.62	0.59	0.60
Level-of-Service	E	B	B	D	D	D	C	C	C	C	C	B
Control Delay (Seconds)	59.9	19.6	19.6	35.5	52.2	54.6	22.5	33.6	34.6	21.1	20.2	12.9
Intersection LOS	C - 30.7											
2021 BUILD Conditions Volumes	380	238	45	72	295	128	71	742	67	223	818	516
V/C Ratio	0.99	0.29	0.30	0.24	0.81	0.83	0.31	0.50	0.51	0.67	0.63	0.61
Level-of-Service	E	C	C	C	D	E	C	D	D	C	A	A
Control Delay (Seconds)	65.6	20.6	20.6	35.0	52.7	55.1	22.1	35.3	36.7	22.2	8.9	6.7
Intersection LOS	C - 28.4											
Mitigated Conditions	1	2>	0	1	2	1	1	3>	0	1	2	1
2021 BUILD Conditions [Mitigated] Volumes	380	238	45	72	295	128	71	742	67	223	818	516
V/C Ratio	0.91	0.32	0.33	0.27	0.75	0.40	0.29	0.47	0.47	0.64	0.60	0.57
Level-of-Service	D	C	C	D	D	D	B	C	C	B	A	A
Control Delay (Seconds)	48.7	23.4	23.5	38.9	48.9	36.5	20.0	32.9	34.0	19.7	6.1	4.3
Intersection LOS	C - 24.2											
PM Peak Hour												
2021 NO BUILD Conditions Volumes	415	589	85	72	333	227	116	1,017	51	230	871	443
V/C Ratio	1.00	0.57	0.58	0.26	0.89	0.91	0.50	0.71	0.71	0.79	0.74	0.53
Level-of-Service	E	B	B	D	E	E	C	D	D	C	B	A
Control Delay (Seconds)	64.6	14.2	14.2	35.7	68.0	72.6	28.0	45.9	48.9	32.7	16.8	8.5
Intersection LOS	D - 35.4											
2021 BUILD Conditions Volumes	425	600	85	109	344	227	116	1,123	88	230	978	453
V/C Ratio	1.03	0.61	0.61	0.36	0.90	0.91	0.55	0.81	0.81	0.85	0.83	0.55
Level-of-Service	F	B	B	C	E	E	C	D	E	D	C	A
Control Delay (Seconds)	71.3	16.6	16.7	34.9	70.0	74.7	30.2	50.3	55.2	40.7	20.8	9.1
Intersection LOS	D - 39.1											
Mitigated Conditions	1	2>	0	1	2	1	1	3>	0	1	2	1
2021 BUILD Conditions [Mitigated] Volumes	425	600	85	109	344	227	116	1,123	88	230	978	453
V/C Ratio	0.95	0.69	0.69	0.39	0.64	0.57	0.50	0.72	0.72	0.82	0.75	0.51
Level-of-Service	D	C	C	D	D	D	C	D	D	C	B	A
Control Delay (Seconds)	52.9	23.4	23.4	38.3	47.9	38.7	25.1	43.7	46.6	34.6	13.0	6.0
Intersection LOS	C - 31.1											

The 2021 analysis of the intersection of Indian School Rd. / Carlisle Blvd. demonstrates that the delays will be acceptable for all conditions analyzed in this report. There are marginally high delays expected for the northbound approach during the 2021 AM NO BUILD and BUILD conditions. While this project will contribute traffic to the northbound approach, the impact is minor (less than 1 second increase in delay). The impact of the project to the overall intersection

is that the AM Peak Hour average control delay will be increased by 3.6 seconds during the AM Peak Hour and by 1.3 seconds during the PM Peak Hour. Therefore, no recommendations are made for the intersection of Indian School Rd. / Carlisle Blvd.

#5 – Indian School Rd. / Washington St. – Pages A-116 thru A-165

The results of the 2021 analysis of the full access signalized intersection of Indian School Rd. / Washington St. are summarized in the following table:

Indian Sch. Rd. / Washington St. 2021 Conditions	EB (Indian Sch. Rd.)			WB (Indian Sch. Rd.)			NB (Washington St.)			SB (Washington St.)		
	L	T	R	L	T	R	L	T	R	L	T	R
Existing Lane Geometry	1	2>	0	1	2>	0	1	1>	0	1	1>	0
AM Peak Hour												
2021 NO BUILD Conditions Volumes	62	217	39	18	230	34	67	168	36	38	120	146
V/C Ratio	0.14	0.22	0.22	0.04	0.22	0.23	0.34	0.00	0.62	0.15	0.00	0.85
Level-of-Service	B	B	B	B	B	B	C	A	C	C	A	D
Control Delay (Seconds)	12.3	16.5	16.5	11.9	16.5	16.6	23.6	0.0	29.4	21.7	0.0	39.3
Intersection LOS	C - 24.2											
2021 BUILD Conditions Volumes	63	246	46	18	272	34	78	168	36	38	120	148
V/C Ratio	0.15	0.25	0.26	0.04	0.26	0.27	0.38	0.00	0.60	0.14	0.00	0.86
Level-of-Service	B	B	B	B	B	B	C	A	C	C	A	D
Control Delay (Seconds)	12.6	17.1	17.1	12.1	17.2	17.2	23.8	0.0	29.2	21.8	0.0	39.8
Intersection LOS	C - 24.1											
PM Peak Hour												
2021 NO BUILD Conditions Volumes	178	480	83	41	297	60	71	269	53	52	264	142
V/C Ratio	0.37	0.43	0.44	0.11	0.30	0.31	0.37	0.00	0.71	0.20	0.00	0.93
Level-of-Service	B	C	C	B	C	C	C	A	C	C	A	E
Control Delay (Seconds)	15.9	21.8	21.8	16.2	21.8	21.9	25.1	0.0	33.8	22.7	0.0	55.1
Intersection LOS	C - 30.1											
2021 BUILD Conditions Volumes	180	534	97	41	351	60	85	269	53	52	264	144
V/C Ratio	0.40	0.49	0.49	0.12	0.35	0.35	0.44	0.00	0.70	0.20	0.00	0.93
Level-of-Service	B	C	C	B	C	C	C	A	C	C	A	E
Control Delay (Seconds)	16.3	23.0	23.1	16.7	22.8	22.9	25.7	0.0	33.6	22.8	0.0	56.2
Intersection LOS	C - 30.3											

The 2021 analysis of the intersection of Indian School Rd. / Washington St. demonstrates that the delays will be acceptable for all conditions analyzed in this report. The southbound thru / right turn approach is projected to experience marginally long delays during the PM Peak Hour NO BUILD and BUILD conditions, but the impact of this development on that particular delay is minimal. There is no significant impact to the intersection caused by the traffic generated by the Kmart Redevelopment Project. Therefore, no recommendations are made for the intersection of Indian School Rd. / Washington St.

#6 – Constitution Ave. / Carlisle Blvd. – Pages A-116 thru A-165

The results of the 2021 analysis of the full access signalized intersection of Constitution Ave. / Carlisle Blvd. are summarized in the following table:

Constitution Ave. / Carlisle Blvd. 2021 Conditions	EB (Constitution Ave.)			WB (Constitution Ave.)			NB (Carlisle Blvd.)			SB (Carlisle Blvd.)		
	L	T	R	L	T	R	L	T	R	L	T	R
Existing Lane Geometry	1	1	1	1	1	1	1	2>	0	1	1	1
AM Peak Hour												
2021 NO BUILD Conditions Volumes	99	88	14	47	130	71	14	470	20	67	518	205
V/C Ratio	0.54	0.28	0.05	0.21	0.42	0.27	0.03	0.20	0.20	0.11	0.41	0.19
Level-of-Service	D	D	D	D	D	D	A	A	A	A	A	A
Control Delay (Seconds)	49.7	39.3	37.3	43.1	40.7	39.2	4.2	5.1	5.1	0.4	0.7	0.3
Intersection LOS	B - 12.6											
2021 BUILD Conditions Volumes	103	88	14	47	130	86	14	562	20	78	582	208
V/C Ratio	0.55	0.27	0.05	0.21	0.40	0.31	0.03	0.24	0.24	0.14	0.47	0.20
Level-of-Service	D	D	D	D	D	D	A	A	A	A	A	A
Control Delay (Seconds)	49.5	38.8	36.8	42.5	40.1	39.3	4.4	5.6	5.6	0.7	0.8	0.3
Intersection LOS	B - 12.2											
PM Peak Hour												
2021 NO BUILD Conditions Volumes	215	199	16	66	134	80	18	711	37	76	604	128
V/C Ratio	0.72	0.40	0.04	0.25	0.27	0.19	0.04	0.34	0.34	0.18	0.53	0.13
Level-of-Service	D	D	C	D	C	C	A	B	B	A	A	A
Control Delay (Seconds)	49.7	35.7	31.6	42.6	34.1	33.2	8.2	10.9	10.8	1.7	1.1	0.2
Intersection LOS	B - 16.4											
2021 BUILD Conditions Volumes	220	199	16	66	134	100	18	829	37	99	723	133
V/C Ratio	0.72	0.39	0.04	0.24	0.26	0.23	0.04	0.40	0.40	0.28	0.64	0.14
Level-of-Service	D	C	C	D	C	C	A	B	B	A	A	A
Control Delay (Seconds)	49.8	34.9	31.0	41.7	33.4	33.1	8.6	12.0	11.9	2.9	1.3	0.1
Intersection LOS	B - 15.8											

The 2021 analysis of the intersection of Constitution Ave. / Carlisle Blvd. demonstrates that the delays will be acceptable for all conditions analyzed in this report. The average intersection delays in this analysis actually are reduced slightly as a result of the traffic added by the Kmart Redevelopment Project since the average intersection delay is a weighted average, and this project contributes mostly northbound and southbound thru movements which have low calculated average delays. Therefore, no recommendations are made for the intersection of Constitution Ave. / Carlisle Blvd.

#7 – I-40 S. Ramp / San Mateo Blvd. – Pages A-116 thru A-165

The results of the 2021 analysis of the full access signalized intersection of I-40 S. Ramp / San Mateo Blvd. are summarized in the following table:

I-40 S. Ramp / San Mateo Blvd. 2021 Conditions	EB (I-40 S. Ramp)			NB (San Mateo Blvd.)			SB (San Mateo Blvd.)		
	L	T	R	L	T	R	L	T	R
Existing Lane Geometry	2	1>	1	0	3	1	2	3	0
AM Peak Hour									
2021 NO BUILD Conditions Volumes	465	1	755	0	1,032	140	226	860	0
V/C Ratio	0.55	0.00	1.00	0.00	0.42		0.79	0.28	0.00
Level-of-Service	D	A	F	A	B		E	B	A
Control Delay (Seconds)	36.3	0.0	73.9	0.0	16.7	0.0	58.2	14.4	0.0
Intersection LOS	C - 34.6								
2021 BUILD Conditions Volumes	477	1	755	0	1,044	142	226	880	0
V/C Ratio	0.56	0.00	1.00	0.00	0.42		0.79	0.28	0.00
Level-of-Service	D	A	F	A	B		E	B	A
Control Delay (Seconds)	36.5	0.0	73.9	0.0	16.7	0.0	58.1	14.5	0.0
Intersection LOS	C - 34.5								
Mitigated Conditions (Adj. Signal Timing)	2	1>	1	0	3	1	2	3	0
2021 BUILD Conditions [Mitigated] Volumes	477	1	755	0	1,044	142	226	880	0
V/C Ratio	0.52	0.00	0.93	0.00	0.44		0.78	0.29	0.00
Level-of-Service	C	A	D	A	B		D	A	A
Control Delay (Seconds)	34.1	0.0	54.0	0.0	18.3	0.0	53.9	9.3	0.0
Intersection LOS	C - 28.5								
PM Peak Hour									
2021 NO BUILD Conditions Volumes	329	12	443	0	1,647	369	432	955	0
V/C Ratio	0.53	0.00	0.82	0.00	0.60		1.25	0.28	0.00
Level-of-Service	D	A	D	A	B		F	B	A
Control Delay (Seconds)	44.7	0.0	51.7	0.0	17.3	0.0	185.0	20.0	0.0
Intersection LOS	D - 43.4								
2021 BUILD Conditions Volumes	352	12	443	0	1,670	373	432	981	0
V/C Ratio	0.57	0.00	0.82	0.00	0.61		1.25	0.29	0.00
Level-of-Service	D	A	D	A	B		F	C	A
Control Delay (Seconds)	45.1	0.0	51.6	0.0	17.5	0.0	185.0	20.2	0.0
Intersection LOS	D - 43.3								
Mitigated Conditions (Adj. Signal Timing)	2	1>	1	0	3	1	2	3	0
2021 BUILD Conditions [Mitigated] Volumes	352	12	443	0	1,670	373	432	981	0
V/C Ratio	0.58	0.00	0.84	0.00	0.67		0.85	0.28	0.00
Level-of-Service	D	A	D	A	C		D	A	A
Control Delay (Seconds)	45.6	0.0	54.8	0.0	21.7	0.0	52.4	5.5	0.0
Intersection LOS	C - 27.0								

The 2021 analysis of the intersection of I-40 S. Ramp / San Mateo Blvd. demonstrates that the overall intersection delays will be acceptable for all conditions analyzed in this report. The volumes of traffic generated by the proposed Kmart Redevelopment project through the I-40 / San Mateo ramps are very minor. Thus, the impact to the interchange ramps is insignificant. The analysis of the I-40 South Ramp / San Mateo Blvd. does reveal a couple of stressed turning

movements for both the AM Peak Hour and the PM Peak Hour. The eastbound right turn movement shows long delays during the AM Peak Hour and the southbound left turn movement shows long delays during the PM Peak Hour. The long delays for these turning movements exist for both the NO BUILD as well as the BUILD conditions since this proposed project does not contribute traffic to either of the two turning movements. Also, the overall intersection levels-of-service and associated delays seem to indicate that the issue can be remedied by modifying the traffic signal timing splits at the intersection for both the AM and PM Peak Hour periods. However, this Study cannot make that recommendation conclusively since this analysis is limited and does not evaluate the San Mateo Blvd. signalized coordinated corridor. The signal timing sheets for this intersection furnished by the City of Albuquerque indicate that the signal timing has not been adjusted for about eight years. Based on the results of this analysis and the fact that the signal timing has not been adjusted for about eight years, this Study recommends that the City of Albuquerque and / or the New Mexico Department of Transportation revisit the signal timing for this portion of the San Mateo Blvd. corridor. It appears from this analysis that the levels-of-service / delays / queueing issues at the I-40 S. Ramp / San Mateo Blvd. may be resolved with modifications to the signal timing / coordination plan that currently exists. Additionally, the impact of the proposed Kmart Redevelopment Project at this intersection is insignificant. Therefore, no recommendations are made for the intersection of I-40 S. Ramp / San Mateo Blvd.

#8 – I-40 N. Ramp / San Mateo Blvd. – Pages A-116 thru A-165

The results of the 2021 analysis of the full access signalized intersection of I-40 N. Ramp / San Mateo Blvd. are summarized in the following table:

I-40 N. Ramp / San Mateo Blvd. 2021 Conditions	EB (I-40 N. Ramp)			WB (I-40 N. Ramp)			NB (San Mateo Blvd.)			SB (San Mateo Blvd.)		
	L	T	R	L	T	R	L	T	R	L	T	R
Existing Lane Geometry	2	0	1	2	1	1	2	3	0	0	3	1
AM Peak Hour												
2021 NO BUILD Conditions Volumes	50	0	150	270	136	321	142	928	0	0	1,032	92
V/C Ratio	0.35			0.28	0.38	1.05	0.71	0.32	0.00	0.00	0.44	0.12
Level-of-Service	D		A	C	D	F	D	A	A	A	B	B
Control Delay (Seconds)	52.2		0.0	29.6	37.9	107.0	50.8	0.2	0.0	0.0	18.1	12.4
Intersection LOS	C - 26.0											
2021 BUILD Conditions Volumes	50	0	150	273	136	321	142	952	0	0	1,050	110
V/C Ratio	0.35			0.29	0.38	1.05	0.71	0.33	0.00	0.00	0.45	0.14
Level-of-Service	D		A	C	D	F	D	A	A	A	B	B
Control Delay (Seconds)	52.2		0.0	29.6	37.9	107.0	50.8	0.2	0.0	0.0	18.2	12.6
Intersection LOS	C - 25.7											
Mitigated Conditions	2	0	1	2	1	1	2	3	0	0	3	1
2021 BUILD Conditions [Mitigated] Volumes	50	0	150	273	136	321	142	952	0	0	1,050	110
V/C Ratio	0.35			0.26	0.34	0.94	0.71	0.35	0.00	0.00	0.47	0.14
Level-of-Service	D		A	C	D	E	D	A	A	A	C	B
Control Delay (Seconds)	52.2		0.0	27.5	35.5	72.2	50.8	0.3	0.0	0.0	20.1	14.0
Intersection LOS	C - 22.5											
PM Peak Hour												
2021 NO BUILD Conditions Volumes	155	0	417	188	112	249	187	1,254	0	0	1,354	112
V/C Ratio	0.74			0.20	0.34	0.91	0.76	0.42	0.00	0.00	0.56	0.13
Level-of-Service	E		A	C	D	E	E	C	A	A	C	B
Control Delay (Seconds)	59.7		0.0	31.9	43.1	73.7	60.4	29.1	0.0	0.0	21.4	12.3
Intersection LOS	C - 32.3											
2021 BUILD Conditions Volumes	155	0	417	192	112	249	187	1,299	0	0	1,377	135
V/C Ratio	0.74			0.20	0.34	0.91	0.76	0.44	0.00	0.00	0.57	0.16
Level-of-Service	E		A	C	D	E	E	C	A	A	C	B
Control Delay (Seconds)	59.7		0.0	32.0	43.1	73.7	60.3	29.6	0.0	0.0	21.6	12.6
Intersection LOS	C - 32.3											
Mitigated Conditions	2	0	1	2	1	1	2	3	0	0	3	1
2021 BUILD Conditions [Mitigated] Volumes	155	0	417	192	112	249	187	1,299	0	0	1,377	135
V/C Ratio	0.74			0.20	0.34	0.88	0.78	0.44	0.00	0.00	0.57	0.16
Level-of-Service	E		A	C	D	E	E	A	A	A	C	B
Control Delay (Seconds)	60.6		0.0	31.5	42.5	60.3	61.7	5.2	0.0	0.0	21.8	12.7
Intersection LOS	C - 23.0											

The analyses of the signalized intersection of the I-40 N. Ramp / San Mateo Blvd. yield results that are similar in some ways to the preceding analyses of the South Ramp. The Summary Table above demonstrates that, while the overall intersection delays are acceptable, there are a limited number of stressed turning movements for both the AM and PM Peak Hour NO BUILD and BUILD Conditions. Normally, multiple period analyses would be required for this

intersection (and the South Ramp) since one or more individual turning movements are calculated to have a v/c ratio of 1.0 or greater. However, in the cases of the I-40 N. Ramp / San Mateo Blvd. (and the South Ramp), the proposed Kmart Redevelopment Project does not contribute any traffic to those particular oversaturated turning movements. Secondly, the overall intersection delays for both signalized intersections are found to be acceptable. Finally, the traffic signal timing sheets for the two intersections indicate that the signal timing for these two intersections was last established in 2011 (about eight years ago). It seems reasonable to assume that if the New Mexico Department of Transportation does not accept traffic count data that is more than two years old to be utilized in Traffic Impact Studies, it seems logical to assume that a signal timing plan based on 8-year old traffic counts would be suspect. The results of the signal analyses for the two Interchange Ramps on I-40 at San Mateo seem to suggest that it may be time to re-evaluate the traffic signal timing at the two ramps along with the timing / offset plan for the San Mateo corridor. The mitigated conditions reported in the preceding table for this intersection simple optimize the signal timing for the intersection to achieve a significantly improved performance. However, it is acknowledged that this analysis falls short in that it does not consider the San Mateo interconnected corridor in full. For the reasons stated above, no recommendation is made for the I-40 N. Ramp / San Mateo Blvd.

#9 – Driveway “A” / Carlisle Blvd. – Pages A-116 thru A-165

The results of the 2021 analysis of the full access unsignalized intersection of Driveway “A” / Carlisle Blvd. are summarized in the following table:

Driveway "A" / Carlisle Blvd. 2021 Conditions	WB (Driveway "A")			NB (Carlisle Blvd.)			SB (Carlisle Blvd.)		
	L	T	R	L	T	R	L	T	R
Proposed Lane Geometry	1		1		3	1	1	3	
AM Peak Hour									
2021 BUILD Conditions Volumes	97		66		1,190	69	126	1,495	
V/C Ratio	0.31		0.11				0.20		
Level-of-Service	C		B				B		
Control Delay (Seconds)	19.7		11.3				11.5		
Intersection LOS	TWSC								
95th Percentile Queue (veh)	1.3		0.4				0.8		
PM Peak Hour									
2021 BUILD Conditions Volumes	186		118		1,685	72	187	1,503	
V/C Ratio	0.57		0.24				0.31		
Level-of-Service	D		B				B		
Control Delay (Seconds)	27.7		14.1				12.9		
Intersection LOS	TWSC								
95th Percentile Queue (veh)	3.3		0.9				1.3		

The 2021 analysis of the intersection of Driveway “A” / Carlisle Blvd. demonstrates that the delays and the queuing will be acceptable for all conditions analyzed in this report. Therefore, no recommendations are made for the intersection of Driveway “A” / Carlisle Blvd.

#10 – Driveway “B” / Carlisle Blvd. – Pages A-116 thru A-165

The results of the 2021 analysis of the right-in, right-out only access unsignalized intersection of Driveway “B” / Carlisle Blvd. are summarized in the following table:

Driveway "B" / Carlisle Blvd. 2021 Conditions	WB (Driveway "B")			NB (Carlisle Blvd.)			SB (Carlisle Blvd.)		
	L	T	R	L	T	R	L	T	R
Proposed Lane Geometry			1		3>			3	
AM Peak Hour									
2021 BUILD Conditions Volumes	0		31		1,192	57	0	1,557	
V/C Ratio			0.05						
Level-of-Service			B						
Control Delay (Seconds)			10.9						
Intersection LOS	TWSC								
95th Percentile Queue (veh)			0.2						
PM Peak Hour									
2021 BUILD Conditions Volumes	0		58		1,669	105	0	1,661	
V/C Ratio			0.12						
Level-of-Service			B						
Control Delay (Seconds)			12.9						
Intersection LOS	TWSC								
95th Percentile Queue (veh)			0.4						

The 2021 analysis of the intersection of Driveway “B” / Carlisle Blvd. demonstrates that the delays will be acceptable for all conditions analyzed in this report. Therefore, no recommendations are made for the intersection of Driveway “B” / Carlisle Blvd..

#11 – Indian School Rd. / Driveway “C” - Pages A-116 thru A-165

The results of the 2021 analyses of the full access unsignalized intersection of Indian School Rd. / Driveway “C” are summarized in the following tables:

Indian Sch. Rd. / Driveway “C” 2021 Conditions	EB (Indian Sch. Rd.)			WB (Indian Sch. Rd.)			SB (Driveway “C”)		
	L	T	R	L	T	R	L	T	R
Proposed Lane Geometry	1	2			2>			<1>	
AM Peak Hour									
2021 BUILD Conditions Volumes	37	491			469	55	38		26
V/C Ratio	0.04						0.15		
Level-of-Service	A						B		
Control Delay (Seconds)	8.9						14.0		
Intersection LOS	TWSC								
95th Percentile Queue (veh)	0.1						0.5		
PM Peak Hour									
2021 BUILD Conditions Volumes	75	842			615	87	100		65
V/C Ratio	0.10						0.50		
Level-of-Service	A						C		
Control Delay (Seconds)	9.7						24.5		
Intersection LOS	TWSC								
95th Percentile Queue (veh)	0.3						2.6		

The 2021 analysis of the intersection of Indian School Rd. / Driveway “C” demonstrates that the delays and queueing will be acceptable for all conditions analyzed in this report. Therefore, no recommendations are made for the intersection of Indian School Rd. / Driveway “C”.

Analysis of Horizon Year Conditions

Traffic Analysis – Horizon Year (2031)

A capacity analysis using existing traffic signal timing (see Appendix Pages A-166 thru A-215) was conducted for the Horizon Year (2031) NO BUILD and BUILD Conditions. Additionally, the 95th Percentile Queueing data is based on the Horizon Year volumes and existing signal timing. The calculated 95th Percentile Queueing lengths are determined based on Highway Capacity Manual, 6th Edition methodology. The results are summarized as follows:

#1 – Indian School Rd. / Girard Ct. - Pages A-166 thru A-215

The results of the 2031 analyses of the full access signalized intersection of Indian School Rd. / Girard Ct. are summarized in the following tables:

Indian Sch. Rd. / Girard Ct. 2031 Conditions	EB (Indian Sch. Rd.)			WB (Indian Sch. Rd.)			NB (Girard Ct.)			SB (Girard Ct.)		
	L	T	R	L	T	R	L	T	R	L	T	R
Existing Lane Geometry	1	2>	0	1	2>	0	1	1>	0	1	1>	0
AM Peak Hour												
2031 NO BUILD Condition Volumes	21	242	22	10	567	66	46	12	1	73	19	30
V/C Ratio	0.04	0.11	0.11	0.01	0.27	0.27	0.22	0.00	0.07	0.30	0.00	0.31
Level-of-Service	A	A	A	A	A	A	C	A	C	C	A	C
Control Delay (Seconds)	5.8	2.6	2.6	7.3	9.7	9.7	24.9	0.0	22.4	24.4	0.0	23.8
Intersection LOS	B - 10.3											
95th Percentile Queue (veh)	0.2	0.4	0.4	0.1	3.8	3.9	1.1	0.0	0.3	1.7	0.0	1.2
2031 BUILD Conditions Volumes	21	255	22	11	576	67	46	12	2	74	19	30
V/C Ratio	0.04	0.12	0.12	0.01	0.28	0.28	0.21	0.00	0.08	0.30	0.00	0.31
Level-of-Service	A	A	A	A	A	A	C	A	C	C	A	C
Control Delay (Seconds)	5.9	2.7	2.7	7.4	9.8	9.8	24.8	0.0	22.3	24.3	0.0	23.7
Intersection LOS	B - 10.3											
95th Percentile Queue (veh)	0.2	0.4	0.4	0.1	4.0	4.0	1.1	0.0	0.3	1.7	0.0	1.2
PM Peak Hour												
2031 NO BUILD Condition Volumes	31	494	41	12	681	92	74	23	2	78	17	23
V/C Ratio	0.06	0.23	0.23	0.02	0.33	0.33	0.32	0.00	0.13	0.32	0.00	0.22
Level-of-Service	A	A	A	A	A	A	C	A	C	C	A	C
Control Delay (Seconds)	3.1	3.3	3.3	0.7	0.9	0.9	26.9	0.0	24.0	26.4	0.0	24.5
Intersection LOS	A - 5.2											
95th Percentile Queue (veh)	0.2	1.1	1.2	0.0	0.5	0.5	2.0	0.0	0.6	2.1	0.0	1.0
2031 BUILD Conditions Volumes	31	510	41	15	698	93	74	23	5	79	17	23
V/C Ratio	0.06	0.23	0.23	0.02	0.34	0.34	0.32	0.00	0.14	0.33	0.00	0.22
Level-of-Service	A	A	A	A	A	A	C	A	C	C	A	C
Control Delay (Seconds)	3.1	3.3	3.3	0.8	0.9	0.9	26.9	0.0	24.1	26.5	0.0	24.5
Intersection LOS	A - 5.2											
95th Percentile Queue (veh)	0.2	1.2	1.2	0.0	0.5	0.5	2.0	0.0	0.7	2.1	0.0	1.0

The 2031 analysis of the intersection of Indian School Rd. / Girard Ct. demonstrates that the delays will be acceptable for all conditions analyzed in this report. Therefore, no recommendations are made for the intersection of Indian School Rd. / Girard Ct.

The following queuing summary table demonstrates that the existing auxiliary lanes are all of sufficient length to contain the projected horizon year 95th Percentile Queueing:

Queuing Summary

	EB (Indian Sch. Rd.)			WB (Indian Sch. Rd.)			NB (Girard Ct.)			SB (Girard Ct.)		
	L	T	R	L	T	R	L	T	R	L	T	R
2031 NO BUILD Conditions (Max Queue)	0.2	1.1	1.2	0.1	3.8	3.9	2.0	0.0	0.6	2.1	0.0	1.2
20231BUILD Conditions (Max Queue)	0.2	1.2	1.2	0.1	4.0	4.0	2.0	0.0	0.7	2.1	0.0	1.2
Percent Heavy Commercial Traffic	3%											
2031 NO BUILD Conditions (Max Queue) - Ft.	5	28	31	3	98	100	52	0	15	54	0	31
2031 BUILD Conditions (Max Queue) - Ft.	5	31	31	3	103	103	52	0	18	54	0	31
Length of Existing Lane	125			60			40			100		

There are no significant deficiencies of storage lane capacities for the intersection of Indian School Rd. / Girard Ct. Therefore, no recommendation is made for this intersection.

#2 – I-40 N. Ramp / Carlisle Blvd. - Pages A-166 thru A-215

The results of the 2031 analyses of the full access signalized intersection of I-40 N. Ramp / Carlisle Blvd. are summarized in the following tables:

I-40 N. Ramp / Carlisle Blvd. 2031 Conditions	WB (I-40 N. Ramp)			NB (Carlisle Blvd.)			SB (Carlisle Blvd.)		
	L	T	R	L	T	R	L	T	R
Existing Lane Geometry	1	<1	1	2	3	0	0	3	1
AM Peak Hour									
2031 NO BUILD Condition Volumes	436	11	413	443	1,084	0	0	821	308
V/C Ratio	0.45	0.00	0.94	0.90	0.38	0.00	0.00	0.44	
Level-of-Service	C	A	E	D	A	A	A	C	
Control Delay (Seconds)	31.3	0.0	64.6	50.4	0.3	0.0	0.0	24.3	0.0
Intersection LOS	C - 26.0								
95th Percentile Queue (veh)	8.9	0.0	21.6	9.7	0.2	0.0	0.0	9.4	0.0
2031 BUILD Conditions Volumes	465	11	413	449	1,120	0	0	874	308
V/C Ratio	0.48	0.00	0.94	0.90	0.40	0.00	0.00	0.47	
Level-of-Service	C	A	E	D	A	A	A	C	
Control Delay (Seconds)	31.7	0.0	64.5	50.6	0.3	0.0	0.0	24.9	0.0
Intersection LOS	C - 26.0								
95th Percentile Queue (veh)	9.5	0.0	21.6	9.8	0.2	0.0	0.0	10.1	0.0
Mitigated Lane Geometry	1	<1>	1	2	3	0	0	3	1
2031 BUILD Conditions [Mitigated] Volumes	465	11	413	449	1,120	0	0	874	308
V/C Ratio	0.80	0.00	0.84	0.90	0.35	0.00	0.00	0.39	
Level-of-Service	D	A	D	D	A	A	A	B	
Control Delay (Seconds)	43.2	0.0	49.9	50.6	0.2	0.0	0.0	19.1	0.0
Intersection LOS	C - 23.9								
95th Percentile Queue (veh)	13.4	0.0	13.5	9.8	0.1	0.0	0.0	8.9	0.0

PM Peak Hour									
2031 NO BUILD Condition Volumes	326	7	352	529	1,364	0	0	1,199	507
V/C Ratio	0.39	0.00	0.94	0.96	0.45	0.00	0.00	0.58	
Level-of-Service	D	A	E	E	A	A	A	C	
Control Delay (Seconds)	36.9	0.0	72.4	61.5	0.3	0.0	0.0	26.4	0.0
Intersection LOS	C - 27.1								
95th Percentile Queue (veh)	7.8	0.0	20.5	12.9	0.2	0.0	0.0	14.3	0.0
2031 BUILD Conditions Volumes	363	7	352	540	1,432	0	0	1,267	507
V/C Ratio	0.44	0.00	0.94	0.98	0.47	0.00	0.00	0.62	
Level-of-Service	D	A	E	E	A	A	A	C	
Control Delay (Seconds)	37.5	0.0	72.2	65.8	0.4	0.0	0.0	27.1	0.0
Intersection LOS	C - 27.7								
95th Percentile Queue (veh)	8.6	0.0	20.5	13.5	0.2	0.0	0.0	15.3	0.0
Mitigated Lane Geometry	1	<1>	1	2	3	0	0	3	1
2031 BUILD Conditions [Mitigated] Volumes	363	7	352	540	1,432	0	0	1,267	507
V/C Ratio	0.75	0.00	0.85	0.98	0.43	0.00	0.00	0.54	
Level-of-Service	D	A	E	E	A	A	A	C	
Control Delay (Seconds)	47.9	0.0	57.6	65.8	0.3	0.0	0.0	20.9	0.0
Intersection LOS	C - 25.0								
95th Percentile Queue (veh)	12.0	0.0	13.1	13.5	0.2	0.0	0.0	13.4	0.0

The 2031 analysis of the intersection of I-40 N. Ramp / Carlisle Blvd. demonstrates that the overall intersection delays will be acceptable for all conditions analyzed in this report. Similar to the Implementation Year analysis, the westbound right turn movement is projected to experience moderately long delays during the AM and PM NO BUILD and BUILD conditions. This project does not contribute any new traffic to the subject westbound right turn movement. Also, the proposed development has no significant impact on this intersection. Therefore, no recommendations are made for the intersection of I-40 N. Ramp / Carlisle Blvd. It would be beneficial to the operation of the intersection to convert the westbound thru / left turn lane to a thru / left / right turn lane.

The following queuing summary table demonstrates that the existing auxiliary lanes are all of sufficient length to contain the projected horizon year 95th Percentile Queueing:

Queuing Summary	WB (I-40 N. Ramp)			NB (Carlisle Blvd.)			SB (Carlisle Blvd.)			
	L	T	R	L	T	R	L	T	R	
2031 NO BUILD Conditions (Max Queue)	8.9	0.0	21.6	12.9	0.2	0.0	0.0	14.3	0.0	
20231 BUILD Conditions (Max Queue)	9.5	0.0	21.6	13.5	0.2	0.0	0.0	15.3	0.0	
Percent Heavy Commercial Traffic										
2031 NO BUILD Conditions (Max Queue) - Ft.	229	0	556	332	5	0	0	368	0	
2031 BUILD Conditions (Max Queue) - Ft.	245	0	556	348	5	0	0	394	0	
Length of Existing Lane	175			175			250			380

The queuing analysis for the intersection of the I-40 N. Ramp / Carlisle Blvd. based on the 2031 AM and PM Peak Hour volumes demonstrates that there are storage lane deficiencies for both the NO BUILD and the BUILD conditions. The proposed Kmart Site Redevelopment Project contributes a slight volume of traffic to the westbound left turn movement so that the calculated 95th Percentile queue length is increased from 229 feet to 245 feet (about 1 vehicle length). A similar case is demonstrated for the northbound left turn lane on Carlisle Blvd. at the I-40 N. Ramp where the calculated queue length increases from 332 feet to 248 feet (about 1 vehicle length). Therefore, it can be concluded that the proposed Kmart Site Redevelopment Project does not have a significant impact on the intersection of the I-40 N. Ramp / Carlisle Blvd. Therefore, no recommendation is made related to the queueing analysis.

#3 – I-40 S. Ramp / Carlisle Blvd. - Pages A-166 thru A-215

The results of the 2031 analyses of the full access signalized intersection of I-40 S. Ramp / Carlisle Blvd. are summarized in the following tables:

I-40 S. Ramp / Carlisle Blvd. 2031 Conditions	EB (I-40 S. Ramp)			NB (Carlisle Blvd.)			SB (Carlisle Blvd.)		
	L	T	R	L	T	R	L	T	R
Existing Lane Geometry	2	1>	2	0	5	1	2	3	0
AM Peak Hour									
2031 NO BUILD Condition Volumes	711	7	733	0	931	269	205	957	0
V/C Ratio	0.89	0.00	0.69	0.00	0.25	0.35	0.78	0.31	0.00
Level-of-Service	D	A	D	A	A	A	D	A	A
Control Delay (Seconds)	50.7	0.0	39.3	0.0	0.0	0.4	54.7	2.6	0.0
Intersection LOS	C - 20.7								
95th Percentile Queue (veh)	16.8	0.0	10.9	0.0	0.0	0.2	5.7	1.8	0.0
2031 BUILD Conditions Volumes	711	7	742	0	974	289	205	1,039	0
V/C Ratio	0.89	0.00	0.70	0.00	0.26	0.37	0.78	0.34	0.00
Level-of-Service	D	A	D	A	A	A	D	A	A
Control Delay (Seconds)	50.7	0.0	39.5	0.0	0.2	1.3	54.6	2.7	0.0
Intersection LOS	C - 20.2								
95th Percentile Queue (veh)	16.8	0.0	11.0	0.0	0.1	0.5	5.7	2.0	0.0

PM Peak Hour									
2031 NO BUILD Condition Volumes	691	15	649	0	1,340	461	439	1,047	0
V/C Ratio	0.85	0.00	0.61	0.00	0.41	0.68	0.89	0.34	0.00
Level-of-Service	D	A	D	A	B	B	D	A	A
Control Delay (Seconds)	50.0	0.0	40.6	0.0	14.2	17.0	50.5	0.2	0.0
Intersection LOS	C - 23.8								
95th Percentile Queue (veh)	17.0	0.0	10.4	0.0	4.4	8.7	9.9	0.1	0.0
2031 BUILD Conditions Volumes	691	15	660	0	1,419	498	439	1,151	0
V/C Ratio	0.85	0.00	0.62	0.00	0.44	0.73	0.89	0.37	0.00
Level-of-Service	D	A	D	A	C	C	D	A	A
Control Delay (Seconds)	49.9	0.0	40.8	0.0	21.6	32.1	50.1	0.2	0.0
Intersection LOS	C - 26.9								
95th Percentile Queue (veh)	17.0	0.0	10.6	0.0	9.7	19.3	9.8	0.1	0.0

The 2031 analysis of the intersection of I-40 S. Ramp / Carlisle Blvd. demonstrates that the delays will be acceptable for all conditions analyzed in this report. Therefore, no recommendations are made for the intersection of I-40 S. Ramp / Carlisle Blvd.

Following is the Queuing Summary Table for the intersection of the I-40 S. Ramp / Carlisle Blvd.:

Queuing Summary	EB (I-40 S. Ramp)			NB (Carlisle Blvd.)			SB (Carlisle Blvd.)		
	L	T	R	L	T	R	L	T	R
2031 NO BUILD Conditions (Max Queue)	17.0	0.0	10.9	0.0	4.4	8.7	9.9	1.8	0.0
20231 BUILD Conditions (Max Queue)	17.0	0.0	11.0	0.0	9.7	19.3	9.8	2.0	0.0
Percent Heavy Commercial Traffic	3%								
2031 NO BUILD Conditions (Max Queue) - Ft.	438	0	281	0	113	224	255	46	0
2031 BUILD Conditions (Max Queue) - Ft.	438	0	283	0	250	497	252	52	0
Length of Existing Lane	450			450			310		310

The preceding table indicates that the northbound right turn lane queuing for the horizon year BUILD PM Peak Hour condition is 497 feet long. The existing northbound right turn lane is

approximately 310 feet long at which point it is intersected by Driveway “A” of this project. The northbound right turn lane extends south of Driveway “A” to provide a total length of approximately 450 feet plus transition. The total length of the existing northbound right turn lane is of sufficient length to contain almost all of the 95th Percentile queue length calculated in this report. There is a very small probability that the lane will spill into the thru lane a couple of vehicles during the 2031 PM Peak Hour. Therefore, no recommendation is made with regard to queuing at this intersection.

#4 – Indian School Rd. / Carlisle Blvd. – Pages A-166 thru A-215

The results of the 2031 analysis of the full access signalized intersection of Indian School Rd. / Carlisle Blvd. are summarized in the following table:

Indian Sch. Rd. / Carlisle Blvd. 2031 Conditions	EB (Indian Sch. Rd.)			WB (Indian Sch. Rd.)			NB (Carlisle Blvd.)			SB (Carlisle Blvd.)		
	L	T	R	L	T	R	L	T	R	L	T	R
Existing Lane Geometry	1	2>	0	1	2>	0	1	3>	0	1	2	1
AM Peak Hour												
2031 NO BUILD Condition Volumes	506	313	62	54	303	135	96	891	51	234	798	536
V/C Ratio	1.27	0.36	0.37	0.19	0.81	0.83	0.42	0.56	0.56	0.71	0.61	0.63
Level-of-Service	F	C	C	D	D	D	C	C	C	C	C	B
Control Delay (Seconds)	165.0	20.0	20.1	35.3	52.5	55.0	22.7	30.8	32.4	25.5	21.5	14.0
Intersection LOS	D - 44.9											
95th Percentile Queue (veh)	36.3	4.9	5.0	2.3	11.1	11.1	3.1	11.6	12.6	7.3	10.9	10.8
2031 BUILD Conditions Volumes	514	321	62	74	309	135	96	974	80	234	855	541
V/C Ratio	1.29	0.38	0.39	0.24	0.81	0.83	0.39	0.64	0.64	0.76	0.66	0.63
Level-of-Service	F	C	C	C	D	E	C	C	C	C	B	A
Control Delay (Seconds)	174.0	21.0	21.0	34.8	52.9	55.4	22.0	32.7	34.9	28.8	10.3	7.9
Intersection LOS	D - 43.2											
95th Percentile Queue (veh)	37.8	5.2	5.3	3.1	11.3	11.3	3.1	13.2	14.3	7.5	5.5	5.2
Mitigated Lane Geometry	1	2>	0	1	2	1	1	3>	0	1	2	1
2031 BUILD Conditions [Mitigated] Volumes	514	321	62	74	309	135	96	974	80	234	855	541
V/C Ratio	1.20	0.42	0.43	0.28	0.75	0.40	0.37	0.59	0.59	0.73	0.62	0.59
Level-of-Service	F	C	C	D	D	D	B	C	C	C	A	A
Control Delay (Seconds)	136.0	24.0	24.1	38.8	48.8	36.3	19.9	29.6	31.3	24.9	7.1	5.1
Intersection LOS	D - 35.9											
95th Percentile Queue (veh)	33.7	5.8	5.9	3.3	8.0	6.0	2.9	12.6	13.6	6.8	4.0	3.6
PM Peak Hour												
2031 NO BUILD Condition Volumes	565	802	116	75	350	239	157	1,376	68	242	914	465
V/C Ratio	1.39	0.78	0.78	0.32	0.91	0.93	0.68	1.04	1.04	0.92	0.84	0.59
Level-of-Service	F	B	B	D	E	E	C	F	F	E	C	B
Control Delay (Seconds)	209.0	19.7	19.7	35.2	72.0	76.6	33.7	79.8	89.5	55.2	24.2	11.7
Intersection LOS	E - 65.0											
95th Percentile Queue (veh)	44.7	9.3	9.3	3.4	17.5	17.0	6.6	26.8	30.2	10.6	10.6	7.4
2031 BUILD Conditions Volumes	575	813	116	112	361	239	157	1,482	105	242	1,021	475
V/C Ratio	1.42	0.83	0.83	0.46	0.92	0.93	0.76	1.15	1.15	0.92	0.95	0.61
Level-of-Service	F	C	C	D	E	E	D	F	F	E	D	B
Control Delay (Seconds)	222.0	24.9	24.8	35.1	74.6	79.3	39.7	121.0	129.0	57.3	35.6	12.6
Intersection LOS	F - 80.7											
95th Percentile Queue (veh)	46.9	10.7	10.8	5.0	18.3	17.7	6.9	35.3	38.7	11.1	15.3	8.0
Mitigated Lane Geometry	1	2>	0	1	2	1	1	3>	0	1	2	1
2031 BUILD Conditions [Mitigated] Volumes	575	813	116	112	361	239	157	1,482	105	242	1,021	475
V/C Ratio	1.30	0.93	0.93	0.57	0.65	0.55	0.68	1.02	1.02	0.92	0.84	0.56
Level-of-Service	F	D	D	D	D	D	C	F	F	E	B	A
Control Delay (Seconds)	176.0	45.2	45.1	40.3	47.9	36.4	31.1	70.6	80.1	58.3	19.6	8.4
Intersection LOS	E - 58.6											
95th Percentile Queue (veh)	42.5	16.1	16.2	5.4	9.3	10.5	6.2	27.7	31.1	11.1	9.8	5.7

The 2031 analysis of the intersection of Indian School Rd. / Carlisle Blvd. demonstrates that the overall intersection delays will be acceptable for the 2031 AM Peak Hour conditions analyzed in this report. However, the 2031 PM Peak Hour conditions shows moderate to significantly long delays for both the NO BUILD and the BUILD conditions. There are marginally to significantly high delays expected for some individual turning movements at the intersection during the 2031 AM / PM NO BUILD and BUILD condition. It is demonstrated in the analysis above for the 2031 conditions that construction of a new westbound right turn lane at the intersection will mitigate the impact of this development on the intersection of Indian School Rd. / Carlisle Blvd.

Following is the Queuing Summary Table for the intersection of the Indian School Rd. / Carlisle Blvd:

Queuing Summary	EB (Indian Sch. Rd.)			WB (Indian Sch. Rd.)			NB (Carlisle Blvd.)			SB (Carlisle Blvd.)			
	L	T	R	L	T	R	L	T	R	L	T	R	
2031 NO BUILD Conditions (Max Queue)	44.7	9.3	9.3	3.4	17.5	17.0	6.6	26.8	30.2	10.6	10.9	10.8	
20231BUILD Conditions (Max Queue)	46.9	10.7	10.8	5.0	18.3	17.7	6.9	35.3	38.7	11.1	15.3	8.0	
Percent Heavy Commercial Traffic	3%												
2031 NO BUILD Conditions (Max Queue) - Ft.	1,151	239	239	88	451	438	170	690	778	273	281	278	
2031 BUILD Conditions (Max Queue) - Ft.	1,208	276	278	129	471	456	178	909	997	286	394	206	
Length of Existing Lane	260			150			100			250			200

The preceding table indicates that there is a significant deficit in queuing for the eastbound left turn movement on Indian School Rd. at Carlisle Blvd. The eastbound left turn lane is reported as 260 feet long at which point it transitions to a center two-way left turn lane which extends an additional 400 feet through existing driveways and intersections. Total queuing, therefore, for the eastbound left turn movement can be up to 660 feet but it would block existing driveways and intersections along Indian School Rd. at that length. The proposed Kmart Redevelopment Project only adds approximately 50 feet to the 2031 NO BUILD queue length of 1,151 feet. The impact of the proposed Kmart Redevelopment Project to the eastbound queue length is not significant. The northbound left turn queue is approximately 78 feet deficient to contain the projected 2031 PM Peak Hour queuing. However, the northbound left turn lane length cannot be extended without adversely affecting the complementary southbound left turn lane on Carlisle Blvd. into the small retail center on the east side of Carlisle Blvd. The southbound left turn lane is approximately 36 feet deficient to contain the projected 2031 PM Peak Hour queuing. The southbound left turn lane length cannot be extended without adversely affecting the length of the complementary northbound left turn lane into the shopping center on the west side of Carlisle Blvd. Therefore, no recommendation is made with regard to queuing at this intersection.

#5 – Indian School Rd. / Washington St. – Pages A-166 thru A-215

The results of the 2031 analysis of the full access signalized intersection of Indian School Rd. / Washington St. are summarized in the following table:

Indian Sch. Rd. / Washington St. 2031 Conditions	EB (Indian Sch. Rd.)			WB (Indian Sch. Rd.)			NB (Washington St.)			SB (Washington St.)		
	L	T	R	L	T	R	L	T	R	L	T	R
Existing Lane Geometry	1	2>	0	1	2>	0	1	1>	0	1	1>	0
AM Peak Hour												
2031 NO BUILD Condition Volumes	65	228	41	19	242	36	70	176	38	40	126	154
V/C Ratio	0.12	0.20	0.21	0.04	0.21	0.21	0.31	0.00	0.60	0.14	0.00	0.84
Level-of-Service	B	B	B	B	B	B	C	A	C	C	A	D
Control Delay (Seconds)	11.8	15.8	15.9	11.4	15.9	15.9	23.5	0.0	29.5	21.9	0.0	37.5
Intersection LOS	C - 23.5											
95th Percentile Queue (veh)	1.1	3.0	3.1	0.3	3.1	3.2	1.9	0.0	7.2	1.1	0.0	10.1
2031 BUILD Conditions Volumes	66	257	48	19	284	36	81	176	38	40	126	156
V/C Ratio	0.13	0.23	0.24	0.04	0.24	0.24	0.36	0.00	0.60	0.14	0.00	0.84
Level-of-Service	B	B	B	B	B	B	C	A	C	C	A	D
Control Delay (Seconds)	12.0	16.2	16.3	11.5	16.3	16.3	23.8	0.0	29.4	21.8	0.0	37.8
Intersection LOS	C - 23.3											
95th Percentile Queue (veh)	1.1	3.4	3.5	0.3	3.6	3.7	2.3	0.0	7.2	1.1	0.0	10.3
PM Peak Hour												
2031 NO BUILD Condition Volumes	187	504	87	43	312	63	74	282	55	54	277	149
V/C Ratio	0.40	0.46	0.47	0.12	0.32	0.33	0.42	0.00	0.74	0.22	0.00	0.96
Level-of-Service	B	C	C	B	C	C	C	A	D	C	A	E
Control Delay (Seconds)	16.2	22.6	22.7	16.9	22.8	22.9	26.0	0.0	35.5	23.0	0.0	63.4
Intersection LOS	C - 32.5											
95th Percentile Queue (veh)	4.4	8.8	8.8	1.0	5.7	5.8	2.2	0.0	12.4	1.6	0.0	19.9
2031 BUILD Conditions Volumes	189	558	101	43	366	63	88	282	55	54	277	151
V/C Ratio	0.43	0.52	0.52	0.14	0.37	0.38	0.49	0.00	0.73	0.22	0.00	0.97
Level-of-Service	B	C	C	B	C	C	C	A	C	C	A	E
Control Delay (Seconds)	16.7	24.0	24.0	17.4	23.8	23.9	26.6	0.0	34.9	23.2	0.0	66.6
Intersection LOS	C - 33.2											
95th Percentile Queue (veh)	4.5	10.0	10.0	1.0	6.8	6.9	2.7	0.0	12.4	1.6	0.0	20.5

The 2031 analysis of the intersection of Indian School Rd. / Washington St. demonstrates that the delays will be acceptable for all conditions analyzed in this report. The southbound thru / right turn approach is projected to experience marginally long delays during the PM Peak Hour NO BUILD and BUILD conditions, but the impact of this development on that particular delay is minimal. There is no significant impact to the intersection caused by the traffic generated by the Kmart Redevelopment Project. Therefore, no recommendations are made for the intersection of Indian School Rd. / Washington St.

Following is the Queuing Summary Table for the intersection of the Indian School Rd. / Washington St.:

Queuing Summary

	EB (Indian Sch. Rd.)			WB (Indian Sch. Rd.)			NB (Washington St.)			SB (Washington St.)		
	L	T	R	L	T	R	L	T	R	L	T	R
2031 NO BUILD Conditions (Max Queue)	4.4	8.8	8.8	1.0	5.7	5.8	2.2	0.0	12.4	1.6	0.0	19.9
20231BUILD Conditions (Max Queue)	4.5	10.0	10.0	1.0	6.8	6.9	2.7	0.0	12.4	1.6	0.0	20.5
Percent Heavy Commercial Traffic	3%											
2031 NO BUILD Conditions (Max Queue) - Ft.	113	227	227	26	147	149	57	0	319	41	0	512
2031 BUILD Conditions (Max Queue) - Ft.	116	258	258	26	175	178	70	0	319	41	0	528
Length of Existing Lane	90			75			125			150		

There is slight deficiency in the current length of the eastbound left turn lane to accommodate the 2031 PM Peak Hour 95th Percentile queueing. Lengthening the eastbound left turn lane by about 25 feet would involve restriping the approach. Since the deficiency is so minor and the impact of this development on the queue for the turning movement is insignificant, no recommendation is made related to the queueing analysis.

#6 – Constitution Ave. / Carlisle Blvd. – Pages A-166 thru A-215

The results of the 2031 analysis of the full access signalized intersection of Constitution Ave. / Carlisle Blvd. are summarized in the following table:

Constitution Ave. / Carlisle Blvd. 2031 Conditions	EB (Constitution Ave.)			WB (Constitution Ave.)			NB (Carlisle Blvd.)			SB (Carlisle Blvd.)		
	L	T	R	L	T	R	L	T	R	L	T	R
Existing Lane Geometry	1	1	1	1	1	1	1	2>	0	1	1	1
AM Peak Hour												
2031 NO BUILD Condition Volumes	104	92	15	59	166	90	15	493	21	70	544	215
V/C Ratio	0.56	0.26	0.05	0.23	0.46	0.30	0.03	0.22	0.22	0.13	0.46	0.21
Level-of-Service	D	D	C	D	D	D	A	A	A	A	A	A
Control Delay (Seconds)	49.3	36.6	34.7	40.8	38.8	37.1	5.2	6.3	6.3	0.6	0.8	0.3
Intersection LOS	B - 13.3											
95th Percentile Queue (veh)	5.6	4.1	0.6	2.8	7.7	4.1	0.2	3.8	4.0	0.1	0.5	0.2
2031 BUILD Condition Volumes	108	92	15	59	166	105	15	585	21	81	608	218
V/C Ratio	0.57	0.25	0.05	0.23	0.45	0.34	0.03	0.26	0.26	0.16	0.51	0.22
Level-of-Service	D	D	C	D	D	D	A	A	A	A	A	A
Control Delay (Seconds)	49.1	36.1	34.3	40.3	38.3	37.1	5.4	6.8	6.8	0.9	1.0	0.3
Intersection LOS	B - 12.9											
95th Percentile Queue (veh)	5.9	4.1	0.6	2.8	7.7	4.8	0.2	4.8	4.9	0.1	0.6	0.2
PM Peak Hour												
2031 NO BUILD Condition Volumes	226	209	17	84	171	102	19	746	39	80	634	135
V/C Ratio	0.75	0.38	0.04	0.28	0.31	0.22	0.05	0.40	0.40	0.24	0.63	0.16
Level-of-Service	D	C	C	D	C	C	B	B	B	A	A	A
Control Delay (Seconds)	51.4	31.6	27.7	39.1	30.7	29.6	10.5	14.3	14.2	2.9	1.3	0.2
Intersection LOS	B - 17.3											
95th Percentile Queue (veh)	12.3	8.9	0.7	4.1	7.4	4.3	0.5	10.1	10.4	0.5	0.7	0.1
2031 BUILD Condition Volumes	231	209	17	84	171	122	19	864	39	100	753	140
V/C Ratio	0.76	0.37	0.03	0.28	0.30	0.25	0.05	0.47	0.47	0.36	0.75	0.17
Level-of-Service	D	C	C	D	C	C	B	B	B	A	A	A
Control Delay (Seconds)	51.8	30.9	27.1	38.3	30.0	29.5	11.0	15.8	15.7	4.6	1.3	0.1
Intersection LOS	B - 17.0											
95th Percentile Queue (veh)	12.6	8.8	0.6	4.1	7.3	5.1	0.5	12.1	12.4	1.2	0.7	0.0

The 2031 analysis of the intersection of Constitution Ave. / Carlisle Blvd. demonstrates that the delays will be acceptable for all conditions analyzed in this report. The average intersection delays in this analysis actually are reduced slightly as a result of the traffic added by the Kmart Redevelopment Project since the average intersection delay is a weighted average, and this project contributes mostly northbound and southbound thru movements which have low calculated average delays. Therefore, no recommendations are made for the intersection of Constitution Ave. / Carlisle Blvd.

Following is the Queuing Summary Table for the intersection of the Constitution Ave. / Carlisle Blvd.:

Queuing Summary

	EB (Constitution Ave.)			WB (Constitution Ave.)			NB (Carlisle Blvd.)			SB (Carlisle Blvd.)		
	L	T	R	L	T	R	L	T	R	L	T	R
2031 NO BUILD Conditions (Max Queue)	12.3	8.9	0.7	4.1	7.7	4.3	0.5	10.1	10.4	0.5	0.7	0.2
20231BUILD Conditions (Max Queue)	12.6	8.8	0.6	4.1	7.7	5.1	0.5	12.1	12.4	1.2	0.7	0.2
Percent Heavy Commercial Traffic	3%											
2031 NO BUILD Conditions (Max Queue) - Ft.	317	229	18	106	198	111	13	260	268	13	18	5
2031 BUILD Conditions (Max Queue) - Ft.	324	227	15	106	198	131	13	312	319	31	18	5
Length of Existing Lane	25			75			75	100	75			900

There is a projected queueing deficiency demonstrated in the preceding table for the eastbound left turn lane and westbound left turn lane on Constitution Ave. There are geometric constraints on the west leg of Constitution Ave. that preclude the eastbound left turn lane from being extended. The proposed Kmart Redevelopment Project does not contribute any traffic to the westbound left turn movement. Therefore, no recommendation is made.

#7 – I-40 S. Ramp / San Mateo Blvd. – Pages A-166 thru A-215

The results of the 2031 analysis of the full access signalized intersection of I-40 S. Ramp / San Mateo Blvd. are summarized in the following table:

I-40 S. Ramp / San Mateo Blvd 2031 Conditions	EB (I-40 S. Ramp)			NB (San Mateo Blvd)			SB (San Mateo Blvd)		
	L	T	R	L	T	R	L	T	R
Existing Lane Geometry	2	1>	1	0	3	1	2	3	0
AM Peak Hour									
2031 NO BUILD Condition Volumes	584	1	948	0	1,083	147	237	902	0
V/C Ratio	0.71	0.00	1.29	0.00	0.45		0.80	0.30	0.00
Level-of-Service	D	A	F	A	B		E	B	A
Control Delay (Seconds)	39.8	0.0	180.0	0.0	17.4	0.0	58.5	14.7	0.0
Intersection LOS	E - 63.9								
95th Percentile Queue (veh)	12.6	0.0	39.4	0.0	10.3	0.0	6.8	9.2	0.0
2031 BUILD Conditions Volumes	596	1	948	0	1,095	149	237	922	0
V/C Ratio	0.72	0.00	1.29	0.00	0.46		0.80	0.30	0.00
Level-of-Service	D	A	F	A	B		E	B	A
Control Delay (Seconds)	40.3	0.0	180.0	0.0	17.5	0.0	58.4	14.8	0.0
Intersection LOS	E - 63.5								
95th Percentile Queue (veh)	12.9	0.0	39.4	0.0	10.5	0.0	6.7	9.3	0.0
Mitigated Lane Geometry	2	1>	1	0	3	1	2	3	0
2031 BUILD Conditions [Mitigated] Volumes	596	1	948	0	1,095	149	237	922	0
V/C Ratio	0.65	0.00	1.16	0.00	0.48		0.79	0.32	0.00
Level-of-Service	D	A	F	A	B		D	A	A
Control Delay (Seconds)	36.2	0.0	125.0	0.0	19.6	0.0	54.1	9.7	0.0
Intersection LOS	D - 48.4								
95th Percentile Queue (veh)	12.3	0.0	32.8	0.0	11.1	0.0	6.4	6.3	0.0
PM Peak Hour									
2031 NO BUILD Condition Volumes	413	15	556	0	1,729	387	454	1,003	0
V/C Ratio	0.56	0.00	0.87	0.00	0.69		1.33	0.31	0.00
Level-of-Service	D	A	D	A	C		F	C	A
Control Delay (Seconds)	41.8	0.0	53.5	0.0	21.5	0.0	213.0	22.7	0.0
Intersection LOS	D - 49.1								
95th Percentile Queue (veh)	10.0	0.0	14.7	0.0	18.6	0.0	20.3	13.1	0.0
2031 BUILD Conditions Volumes	436	15	556	0	1,752	391	454	1,029	0
V/C Ratio	0.59	0.00	0.86	0.00	0.70		1.33	0.32	0.00
Level-of-Service	D	A	D	A	C		F	C	A
Control Delay (Seconds)	42.3	0.0	53.4	0.0	21.8	0.0	213.0	23.0	0.0
Intersection LOS	D - 48.9								
95th Percentile Queue (veh)	10.5	0.0	14.7	0.0	18.9	0.0	20.2	13.4	0.0
Mitigated Lane Geometry	2	1>	1	0	3	1	2	3	0
2031 BUILD Conditions [Mitigated] Volumes	436	15	556	0	1,752	391	454	1,029	0
V/C Ratio	0.62	0.00	0.90	0.00	0.77		0.86	0.32	0.00
Level-of-Service	D	A	E	A	C		D	A	A
Control Delay (Seconds)	44.0	0.0	60.7	0.0	27.2	0.0	50.9	7.0	0.0
Intersection LOS	C - 31.0								
95th Percentile Queue (veh)	10.7	0.0	15.5	0.0	21.2	0.0	10.0	5.2	0.0

The 2031 analysis of the intersection of I-40 S. Ramp / San Mateo Blvd. is somewhat similar to the 2021 analysis in that it demonstrates that the overall intersection delays will be acceptable for the 2031 PM Peak Hour conditions analyzed in this report and marginal for the 2031 AM Peak Hour conditions. The volumes of traffic generated by the proposed Kmart Redevelopment project through the I-40 / San Mateo ramps are very minor. Thus, the impact to the interchange ramps is insignificant. The analysis of the I-40 South Ramp / San Mateo Blvd. does reveal a couple of stressed turning movements for both the AM Peak Hour and the PM Peak Hour. The eastbound right turn movement shows long delays during the AM Peak Hour and the southbound left turn movement shows long delays during the PM Peak Hour. The long delays for these turning movements exist for both the NO BUILD as well as the BUILD conditions since this proposed project does not contribute traffic to either of the two turning movements. Also, the overall intersection levels-of-service and associated delays seem to indicate that the issue can be remedied by modifying the traffic signal timing splits at the intersection for both the AM and PM Peak Hour periods. However, this Study cannot make that recommendation conclusively since this analysis is limited and does not evaluate the San Mateo Blvd. signalized coordinated corridor. The signal timing sheets for this intersection furnished by the City of Albuquerque indicate that the signal timing has not been adjusted for about eight years. Based on the results of this analysis and the fact that the signal timing has not been adjusted for about eight years, this Study recommends that the City of Albuquerque and / or the New Mexico Department of Transportation revisit the signal timing for this portion of the San Mateo Blvd. corridor. It appears from this analysis that the levels-of-service / delays / queueing issues at the I-40 S. Ramp / San Mateo Blvd. may be resolved with modifications to the signal timing / coordination plan that currently exists. Additionally, the impact of the proposed Kmart Redevelopment Project at this intersection is insignificant. Therefore, no recommendations are made for the intersection of I-40 S. Ramp / San Mateo Blvd.

Following is the Queuing Summary Table for the intersection of the I-40 S. Ramp / San Mateo Blvd:

Queuing Summary	EB (I-40 S. Ramp)			NB (San Mateo Blvd)			SB (San Mateo Blvd)		
	L	T	R	L	T	R	L	T	R
2031 NO BUILD Conditions (Max Queue)	12.6	0.0	39.4	0.0	18.6	0.0	20.3	13.1	0.0
20231 BUILD Conditions (Max Queue)	12.9	0.0	39.4	0.0	18.9	0.0	20.2	13.4	0.0
Percent Heavy Commercial Traffic	3%								
2031 NO BUILD Conditions (Max Queue) - Ft.	324	0	1,015	0	479	0	523	337	0
2031 BUILD Conditions (Max Queue) - Ft.	332	0	1,015	0	487	0	520	345	0
Length of Existing Lane	250+			135+			200		340

The preceding Queuing Summary Table demonstrates that there are deficiencies in storage capacity for the eastbound left and right turn movements as well as the southbound left turn movement based on 2031 AM or PM Peak Hour volumes. Even though there are deficiencies, it is important to note that the impact of the proposed Kmart Site Redevelopment Project has only minimal impact on the calculated queue lengths. Secondly, even though the eastbound

auxiliary lanes are deficient, the spillover will still be contained within the I-40 S. Ramp which has a total length of well over 1,300 feet to contain the calculated queues. The outside lane of the I-40 segment west of San Mateo is designated as a ramp exit only lane, so there should be no thru traffic in that lane. The southbound left turn queue for the 2031 PM Peak Hour condition is problematic, but as demonstrated in this report, it possibly may be reduced significantly by adjusting the traffic signal timing plan. Therefore, no recommendation is made for this intersection as a result of the queuing analysis.

#8 – I-40 N. Ramp / San Mateo Blvd. – Pages A-166 thru A-215

The results of the 2031 analysis of the full access signalized intersection of I-40 N. Ramp / San Mateo Blvd. are summarized in the following table:

I-40 N. Ramp / San Mateo Blvd 2031 Conditions	EB (I-40 N. Ramp)			WB (I-40 N. Ramp)			NB (San Mateo Blvd)			SB (San Mateo Blvd)		
	L	T	R	L	T	R	L	T	R	L	T	R
Existing Lane Geometry	2	0	1	2	1	1	2	3	0	0	3	1
AM Peak Hour												
2031 NO BUILD Condition Volumes	62	0	188	342	172	406	149	974	0	0	1,083	96
V/C Ratio	0.43			0.36	0.48	1.34	0.71	0.34	0.00	0.00	0.47	0.12
Level-of-Service	D			C	D	F	D	A	A	A	B	B
Control Delay (Seconds)	53.0			30.4	39.2	216.0	52.5	4.9	0.0	0.0	18.7	12.6
Intersection LOS	D - 43.3											
95th Percentile Queue (veh)	1.7			7.0	8.0	37.7	4.0	3.2	0.0	0.0	10.6	2.3
2031 BUILD Conditions Volumes	62	0	188	345	172	406	149	998	0	0	1,101	114
V/C Ratio	0.43			0.36	0.48	1.34	0.71	0.35	0.00	0.00	0.48	0.15
Level-of-Service	D			C	D	F	D	A	A	A	B	B
Control Delay (Seconds)	53.0			30.5	39.2	216.0	52.5	4.9	0.0	0.0	18.8	12.8
Intersection LOS	D - 42.8											
95th Percentile Queue (veh)	1.7			7.1	8.0	37.7	4.0	3.2	0.0	0.0	10.7	2.8
Mitigated Lane Geometry	2	0	1	2	1	1	2	3	0	0	3	1
2031 BUILD Conditions [Mitigated] Volumes	62	0	188	345	172	406	149	998	0	0	1,101	114
V/C Ratio	0.43			0.33	0.43	1.19	0.71	0.37	0.00	0.00	0.50	0.15
Level-of-Service	D			C	D	F	D	A	A	A	C	B
Control Delay (Seconds)	53.0			28.1	36.3	150.0	52.5	6.3	0.0	0.0	21.0	14.4
Intersection LOS	D - 35.5											
95th Percentile Queue (veh)	1.7			6.7	7.7	31.4	4.0	4.0	0.0	0.0	11.3	3.0
PM Peak Hour												
2031 NO BUILD Condition Volumes	195	0	524	238	142	315	196	1,317	0	0	1,421	118
V/C Ratio	0.78			0.23	0.40	1.04	0.77	0.48	0.00	0.00	0.66	0.15
Level-of-Service	E			C	D	F	E	C	A	A	C	B
Control Delay (Seconds)	63.2			29.3	41.7	109.0	60.8	32.4	0.0	0.0	26.1	13.9
Intersection LOS	D - 38.8											
95th Percentile Queue (veh)	6.3			4.9	7.2	22.3	5.9	18.5	0.0	0.0	16.7	3.2
2031 BUILD Conditions Volumes	195	0	524	242	142	315	196	1,362	0	0	1,444	141
V/C Ratio	0.78			0.23	0.40	1.04	0.77	0.50	0.00	0.00	0.67	0.18
Level-of-Service	E			C	D	F	E	C	A	A	C	B
Control Delay (Seconds)	63.2			29.4	41.7	109.0	60.7	32.9	0.0	0.0	26.4	14.3
Intersection LOS	D - 38.8											
95th Percentile Queue (veh)	6.3			5.0	7.2	22.3	5.8	19.0	0.0	0.0	17.1	3.9
Mitigated Lane Geometry	2	0	1	2	1	1	2	3	0	0	3	1
2031 BUILD Conditions [Mitigated] Volumes	195	0	524	242	142	315	196	1,362	0	0	1,444	141
V/C Ratio	0.79			0.21	0.35	0.91	0.80	0.52	0.00	0.00	0.71	0.19
Level-of-Service	E			C	D	E	E	B	A	A	C	B
Control Delay (Seconds)	65.3			26.8	38.4	65.2	62.6	16.9	0.0	0.0	29.4	16.0
Intersection LOS	C - 31.0											
95th Percentile Queue (veh)	6.4			4.8	6.9	17.7	5.7	11.7	0.0	0.0	18.0	4.2

The 2031 analyses of the signalized intersection of the I-40 N. Ramp / San Mateo Blvd. yield results that are much like the 2021 analysis and are similar in some ways to the preceding analyses of the South Ramp. The Summary Table above demonstrates that, while the overall intersection delays are acceptable, there are a limited number of stressed turning movements for both the AM and PM Peak Hour NO BUILD and BUILD Conditions. Normally, multiple period analyses would be required for this intersection (and the South Ramp) since one or more individual turning movements are calculated to have a v/c ratio of 1.0 or greater. However, in the cases of the I-40 N. Ramp / San Mateo Blvd. (and the South Ramp), the proposed Kmart Redevelopment Project does not contribute any traffic to those particular oversaturated turning movements. Secondly, the overall intersection delays for both signalized intersections are found to be acceptable. Finally, the traffic signal timing sheets for the two intersections indicate that the signal timing for these two intersections was last established in 2011 (about eight years ago). It seems reasonable to assume that if the New Mexico Department of Transportation does not accept traffic count data that is more than two years old to be utilized in Traffic Impact Studies, it seems logical to assume that a signal timing plan based on 8-year old traffic counts would be suspect. The results of the signal analyses for the two Interchange Ramps on I-40 at San Mateo seem to suggest that it may be time to re-evaluate the traffic signal timing at the two ramps along with the timing / offset plan for the San Mateo corridor. The mitigated conditions reported in the preceding table for this intersection simple optimize the signal timing for the intersection to achieve a significantly improved performance. However, it is acknowledged that this analysis falls short in that it does not consider the San Mateo interconnected corridor in full. For the reasons stated above, no recommendation is made for the I-40 N. Ramp / San Mateo Blvd.

Following is the Queuing Summary Table for the intersection of the I-40 N. Ramp / San Mateo Blvd:

Queuing Summary	EB (I-40 N. Ramp)			WB (I-40 N. Ramp)			NB (San Mateo Blvd)			SB (San Mateo Blvd)			
	L	T	R	L	T	R	L	T	R	L	T	R	
2031 NO BUILD Conditions (Max Queue)	6.3	0.0	0.0	7.0	8.0	37.7	5.9	18.5	0.0	0.0	16.7	3.2	
20231 BUILD Conditions (Max Queue)	6.3	0.0	0.0	7.1	8.0	37.7	5.8	19.0	0.0	0.0	17.1	3.9	
Percent Heavy Commercial Traffic	3%												
2031 NO BUILD Conditions (Max Queue) - Ft.	162	0	0	180	206	971	152	476	0	0	430	82	
2031 BUILD Conditions (Max Queue) - Ft.	162	0	0	183	206	971	149	489	0	0	440	100	
Length of Existing Lane	330+			350			240+			450+			150

The only deficient storage lane at the intersection of the I-40 N. Ramp / San Mateo Blvd. is for the westbound right turn movement. The proposed Kmart Site Redevelopment Project does not contribute any traffic to this movement. Also, any spillover beyond the existing westbound right turn storage lane will be accommodated by the I-40 westbound off-ramp which is well over 1,200 feet long. Therefore, no recommendation is made for this intersection with regard to the queuing analysis.

#9 – Driveway “A” / Carlisle Blvd. – Pages A-166 thru A-215

The results of the analysis of the full access unsignalized intersection of Driveway “A” / Carlisle Blvd. are summarized in the following table:

Driveway "A" / Carlisle Blvd. 2031 Conditions	WB (Driveway "A")			NB (Carlisle Blvd.)			SB (Carlisle Blvd.)		
	L	T	R	L	T	R	L	T	R
Proposed Lane Geometry	1		1		3	1	1	3	
AM Peak Hour									
2031 BUILD Conditions Volumes	97		66		1,563	69	126	1,568	
V/C Ratio	0.36		0.13				0.20		
Level-of-Service	C		B				B		
Control Delay (Seconds)	23.7		12.4				11.4		
Intersection LOS	TWSC								
95th Percentile Queue (veh)	1.6		0.4				0.7		
PM Peak Hour									
2031 BUILD Conditions Volumes	186		118		2,206	72	187	1,580	
V/C Ratio	0.77		0.33				0.42		
Level-of-Service	F		C				C		
Control Delay (Seconds)	53.5		18.7				17.5		
Intersection LOS	TWSC								
95th Percentile Queue (veh)	5.7		1.4				2.0		

The 2031 analysis of the intersection of Driveway “A” / Carlisle Blvd. demonstrates that the delays and the queuing will be acceptable for all conditions analyzed in this report except that the westbound left turn movement will have long delays during the 2031 PM Peak Hour period. During that period, exiting vehicles have the option to go to Driveway “C” on Indian School Rd. and exit using that alternative driveway. Therefore, no recommendations are made for the intersection of Driveway “A” / Carlisle Blvd.

Maximum queuing for 2031 conditions is the westbound left turn lane which is expected to queue about 150 feet. Therefore, the westbound left turn lane in Driveway “A” should be a minimum of 150 feet in length.

#10 – Driveway “B” / Carlisle Blvd. – Pages A-166 thru A-215

The results of the analysis of the right-in, right-out only access unsignalized intersection of Driveway “B” / Carlisle Blvd. are summarized in the following table:

Driveway "B" / Carlisle Blvd. 2031 Conditions	WB (Driveway "B")			NB (Carlisle Blvd.)			SB (Carlisle Blvd.)		
	L	T	R	L	T	R	L	T	R
Proposed Lane Geometry			1		3>			3	
AM Peak Hour									
2031 BUILD Conditions Volumes	0		31		1,565	57	0	1,630	
V/C Ratio			0.06						
Level-of-Service			B						
Control Delay (Seconds)			11.9						
Intersection LOS	TWSC								
95th Percentile Queue (veh)			0.2						
PM Peak Hour									
2031 BUILD Conditions Volumes	0		58		2,190	105	0	1,738	
V/C Ratio			0.15						
Level-of-Service			C						
Control Delay (Seconds)			15.3						
Intersection LOS	TWSC								
95th Percentile Queue (veh)			0.5						

The 2031 analysis of the intersection of Driveway “B” / Carlisle Blvd. demonstrates that the delays will be acceptable for all conditions analyzed in this report. Therefore, no recommendations are made for the intersection of Driveway “B” / Carlisle Blvd.

Maximum queuing for 2031 conditions is expected to queue less than one vehicle. Therefore, the westbound right turn lane in Driveway “B” should be a minimum of 30 feet in length.

#11 – Indian School Rd. / Driveway “C” - Pages A-166 thru A-215

The results of the 2031 analyses of the full access unsignalized intersection of Indian School Rd. / Driveway “C” are summarized in the following tables:

Indian Sch. Rd. / Driveway “C” 2031 Conditions	EB (Indian Sch. Rd.)			WB (Indian Sch. Rd.)			SB (Driveway “C”)		
	L	T	R	L	T	R	L	T	R
Proposed Lane Geometry	1	2			2>			<1>	
AM Peak Hour									
2031 BUILD Conditions Volumes	37	598			492	55	38		26
V/C Ratio	0.04						0.14		
Level-of-Service	A						B		
Control Delay (Seconds)	8.9						13.4		
Intersection LOS	TWSC								
95th Percentile Queue (veh)	0.1						0.5		

PM Peak Hour									
2031 BUILD Conditions Volumes	75	1,084			647	87	100		65
V/C Ratio	0.10						0.52		
Level-of-Service	A						D		
Control Delay (Seconds)	9.9						26.1		
Intersection LOS	TWSC								
95th Percentile Queue (veh)	0.3						2.8		

The 2031 analysis of the intersection of Indian School Rd. / Driveway “C” demonstrates that the delays and queueing will be acceptable for all conditions analyzed in this report. Therefore, no recommendations are made for the intersection of Indian School Rd. / Driveway “C”.

The 95th Percentile calculated queue for the southbound approach in Driveway “C” is 2.8 vehicles. Therefore, the throat depth for southbound lane of Driveway “C” should be 75 feet minimum.

Impact Assessment

The proposed development will have minimal to moderate adverse impact on the adjacent transportation system. All the levels-of-service for the implementation year analyses were determined to be acceptable for the overall intersections. The majority of the impact is near the project – especially the intersection of Indian School Rd. / Carlisle Blvd. The capacity issues are not prolific and are relatively minor. Due to the fact that this area is virtually fully developed, there is insufficient right-of-way that prevents widening of the intersections to provide more laneage. Also, there are structures in the field that preclude such improvements. Based on the results of the analyses in this Study, the mitigation recommendations are focused on improvements to the signalized intersection of Indian School Rd. / Carlisle Blvd. and the proposed access (driveways).

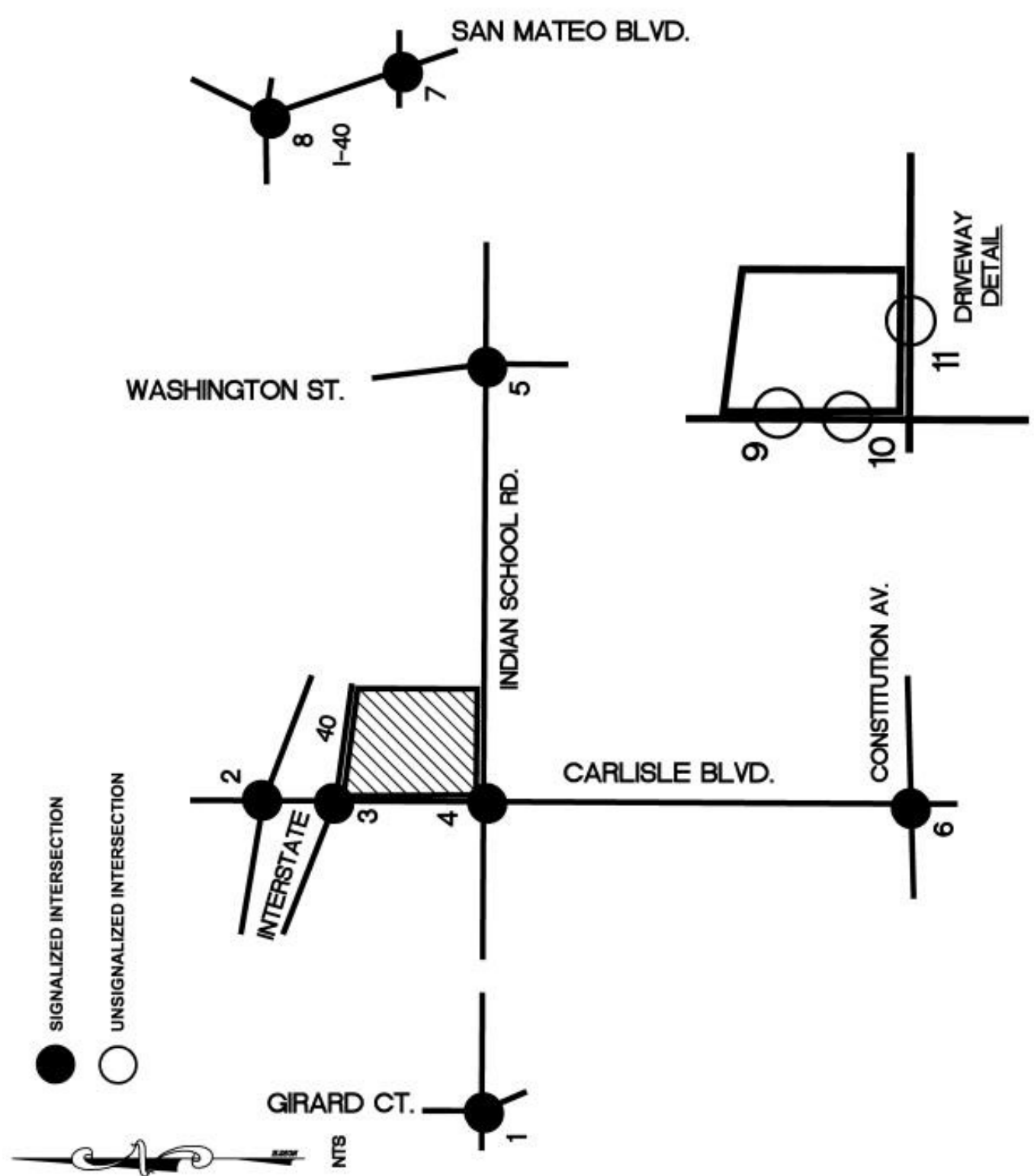
Access Design Specifications

Sight distances at Driveway “A” are adequate as are the sight distances at Driveways “B” and “C”. There are no vertical or horizontal curves along this portion of Menaul Blvd. nor Carlisle Blvd., and there are no structures that are blocking sight distance into and out of the driveway. The New Mexico Department of Transportation has mandated that the right-turn exit only driveway on the north side of Burger King for drive-thru traffic be closed. Burger King drive-thru traffic will be required to exit directly into the Kmart Site parking lot and maneuver to Driveway “A”, “B”, or “C” to exit the center. The exiting Burger King right-turn-exit only driveway for drive-thru traffic is located too close to the I-40 S. Ramp and, therefore, does not meet the New Mexico Department of Transportation’s driveway spacing standards.

Design and construction of the proposed driveways on Indian School Rd. and the one on Carlisle Blvd. are required to meet the standards of the City of Albuquerque Development Process Manual. Driveway “A” is a full access unsignalized intersection on Carlisle Blvd. with two exiting lanes and one entering lane. The northbound traffic on Carlisle Blvd. at Driveway “A” has a northbound right turn deceleration lane and a southbound left turn deceleration lane to serve the driveway. Driveway “B” on Carlisle Blvd. is a right-in, right-out only driveway south of Driveway “A” and north of Indian School Rd. Driveway “C” is a full access unsignalized driveway on Indian School Rd. with one exiting lane and one entering lane. There is an existing eastbound left turn lane that will serve Driveway “C”. Finally, there is a service / delivery vehicle driveway at the extreme southeast corner of the project site to delivery trucks and service vehicles. The service / delivery driveway will be restricted to right-turn-in only movement.

Summary of Deficiencies, Anticipated Impacts, and Recommendations

The proposed Kmart Site Redevelopment Project will have no significant adverse impact to the adjacent transportation system provided that the recommendation listed in the Executive Summary of this report are followed.

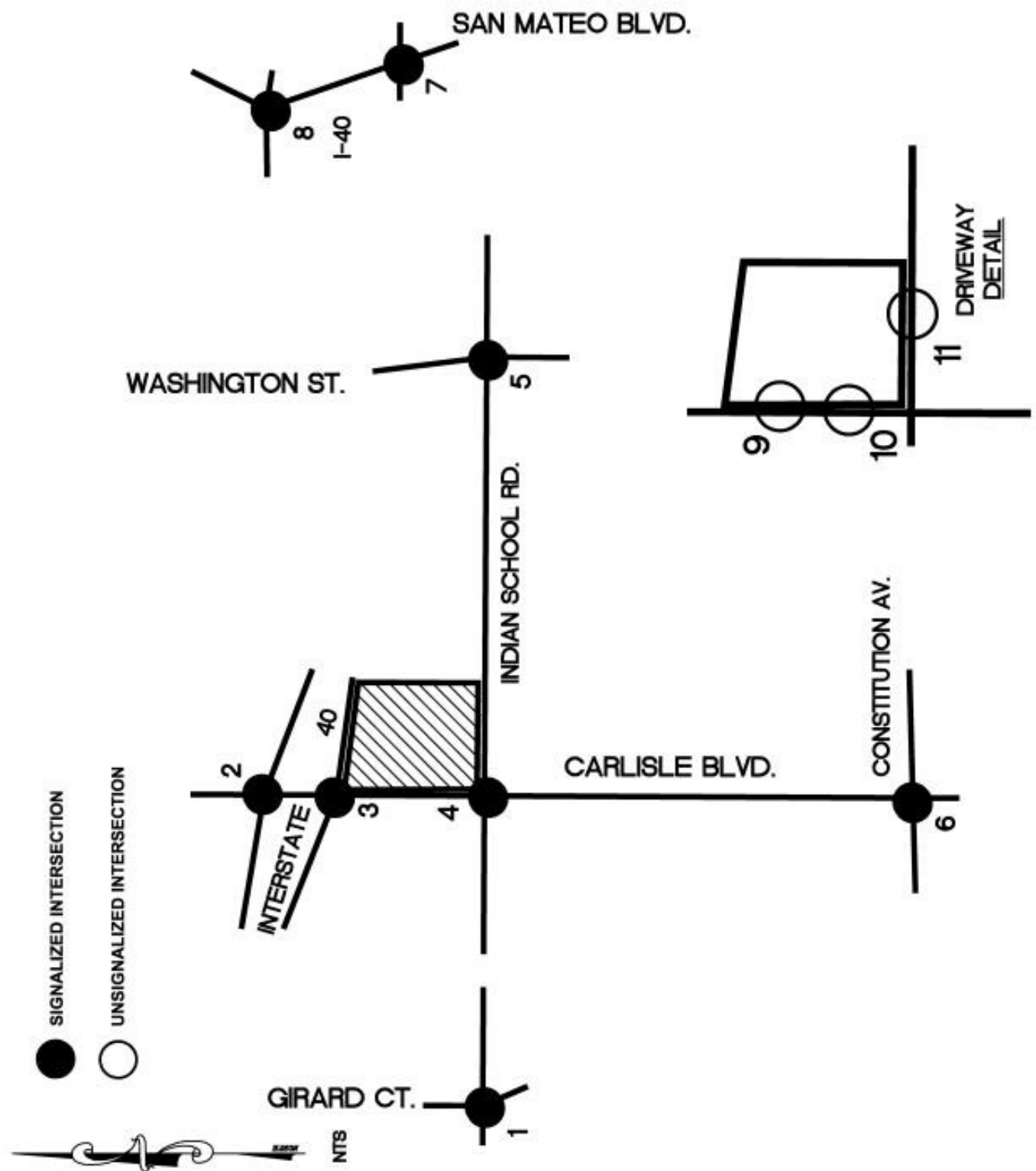


2021 NO BUILD Conditions 2021 BUILD Conditions 2021 BUILD Conditions [Mitigated]

<p>1: Girard Ct. & Indian School Rd.</p>	<p>1: Girard Ct. & Indian School Rd.</p>	<p>NO RECOMMENDATIONS</p>
<p>2: Carlisle Blvd. & I-40 WB Ramp</p>	<p>2: Carlisle Blvd. & I-40 WB Ramp</p>	<p>Convert WB thru/left to thru/left/right</p> <p>2: Carlisle Blvd. & I-40 WB Ramp</p>
<p>3: Carlisle Blvd. & I-40 EB Ramp</p>	<p>3: Carlisle Blvd. & I-40 EB Ramp</p>	<p>NO RECOMMENDATIONS</p>
<p>4: Carlisle Blvd. & Indian School Rd.</p>	<p>4: Carlisle Blvd. & Indian School Rd.</p>	<p>Construct new WB right turn lane</p> <p>4: Carlisle Blvd. & Indian School Rd.</p>

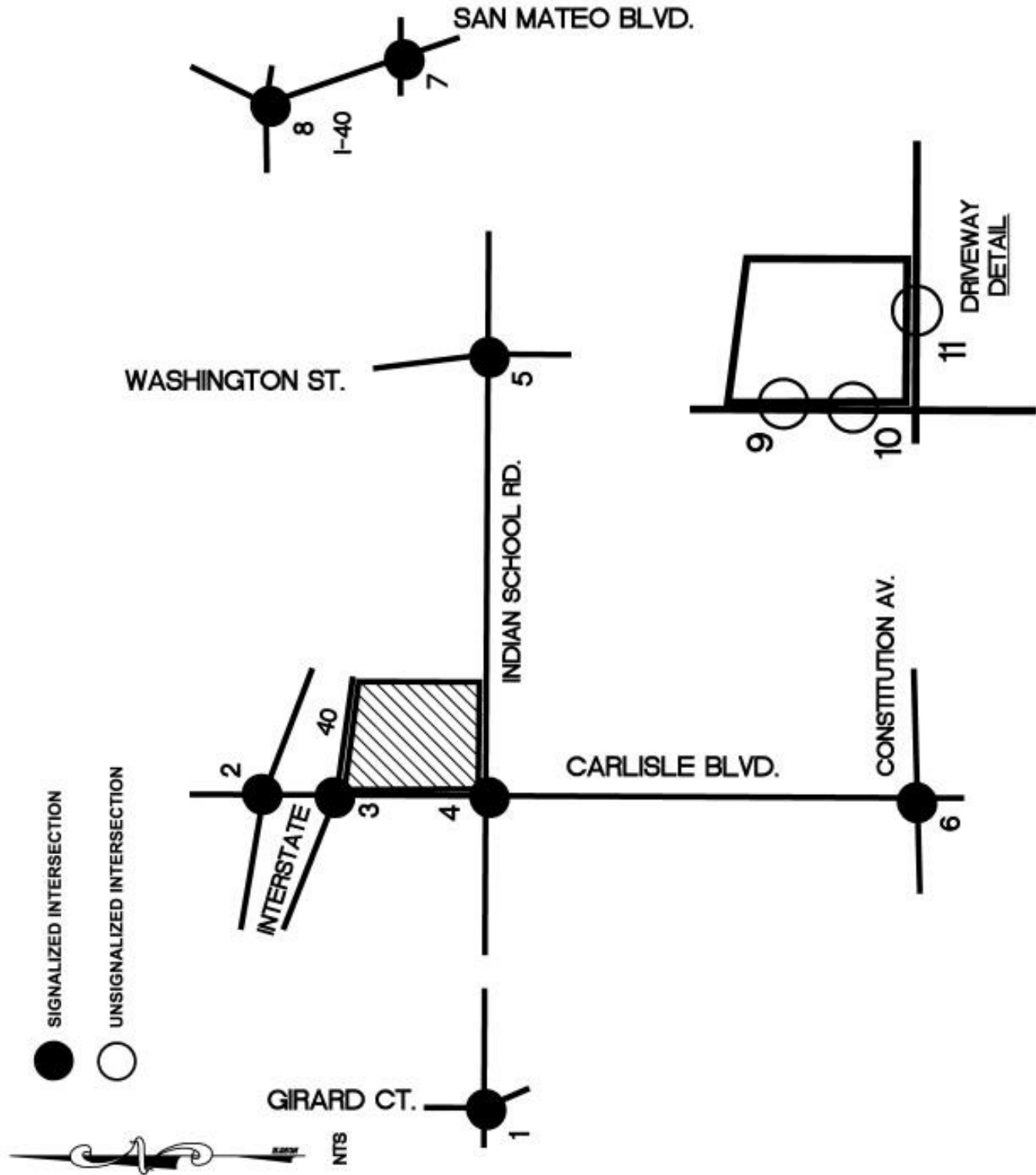
KMart Site Redevelopment Project
 (Interstate 40 / Carlisle Blvd.)
 LOS / Volume Analysis Map

AM(PM)



2021 NO BUILD Conditions	2021 BUILD Conditions	2021 BUILD Conditions [Mitigated]
<p>5: Washington St. & Indian School Rd.</p> <p>C(C) 24.2(30.1)</p>	<p>5: Washington St. & Indian School Rd.</p> <p>C(C) 24.1(30.3)</p>	NO RECOMMENDATIONS
<p>6: Carlisle Blvd. & Constitution Ave.</p> <p>B(B) 12.6(16.4)</p>	<p>6: Carlisle Blvd. & Constitution Ave.</p> <p>B(B) 12.2(15.8)</p>	NO RECOMMENDATIONS
<p>7: San Mateo Blvd. & I-40 EB Ramp</p> <p>C(D) 34.6(43.4)</p>	<p>7: San Mateo Blvd. & I-40 EB Ramp</p> <p>C(D) 34.5(43.3)</p>	<p>7: San Mateo Blvd. & I-40 EB Ramp</p> <p>C(C) 28.5(27.0)</p> <p>Adjust Signal Timing</p>
<p>8: San Mateo Blvd. & I-40 WB Ramp</p> <p>C(C) 26.0(32.3)</p>	<p>8: San Mateo Blvd. & I-40 WB Ramp</p> <p>C(C) 25.7(32.3)</p>	<p>8: San Mateo Blvd. & I-40 WB Ramp</p> <p>C(C) 22.5(23.0)</p> <p>Adjust Signal Timing</p>

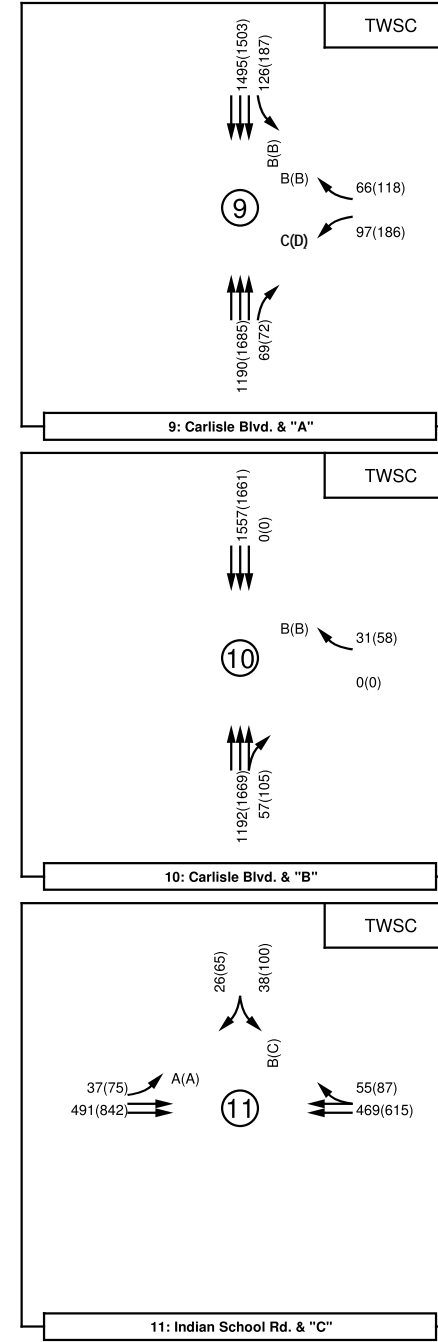
KMart Site Redevelopment Project
 (Interstate 40 / Carlisle Blvd.)
 LOS / Volume Analysis Map



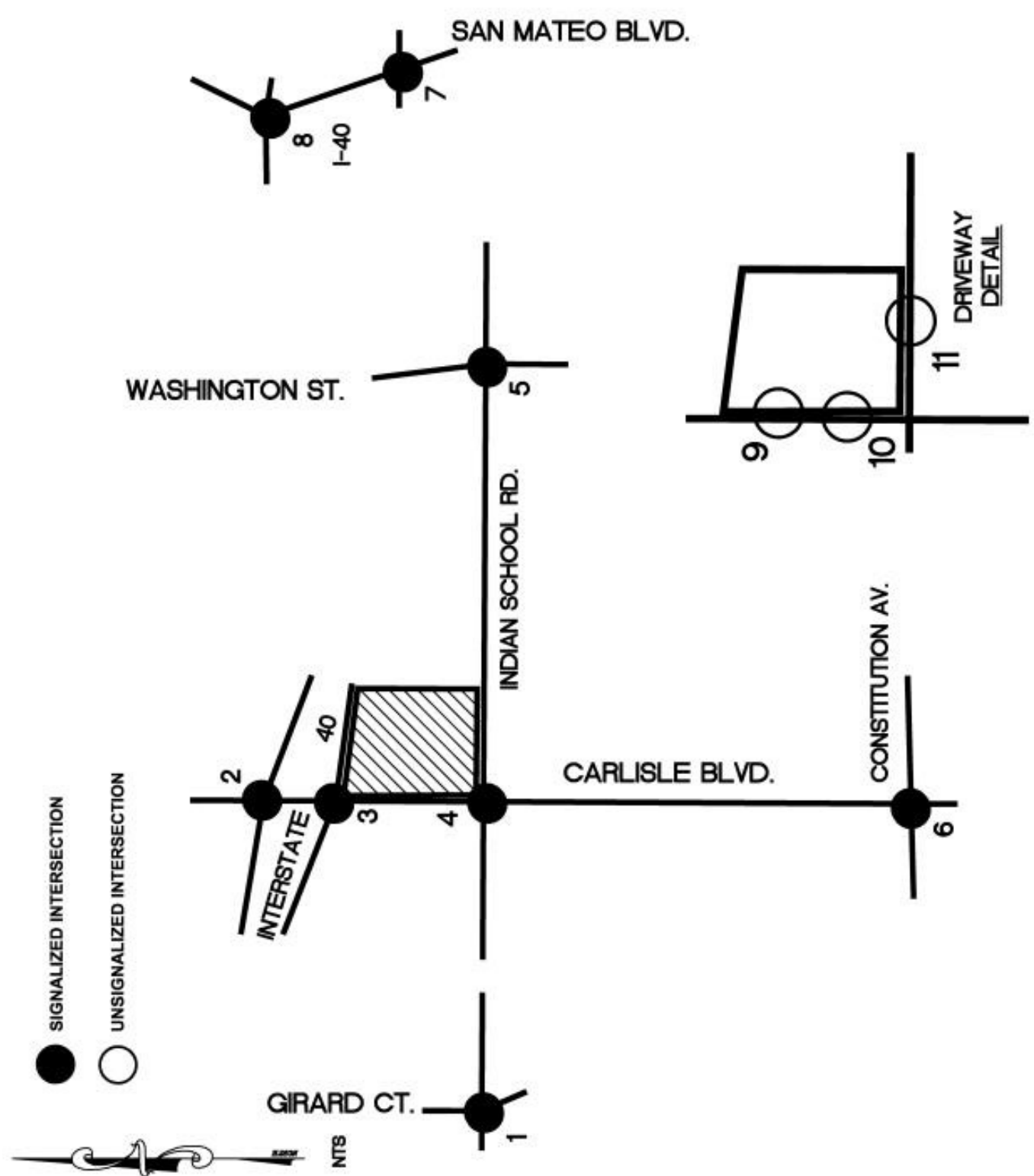
2021 NO BUILD Conditions

2021 BUILD Conditions

Driveways "A", "B", & "C" Exist but traffic volumes in and out are minimal. Therefore, a NO BUILD analysis was not performed.



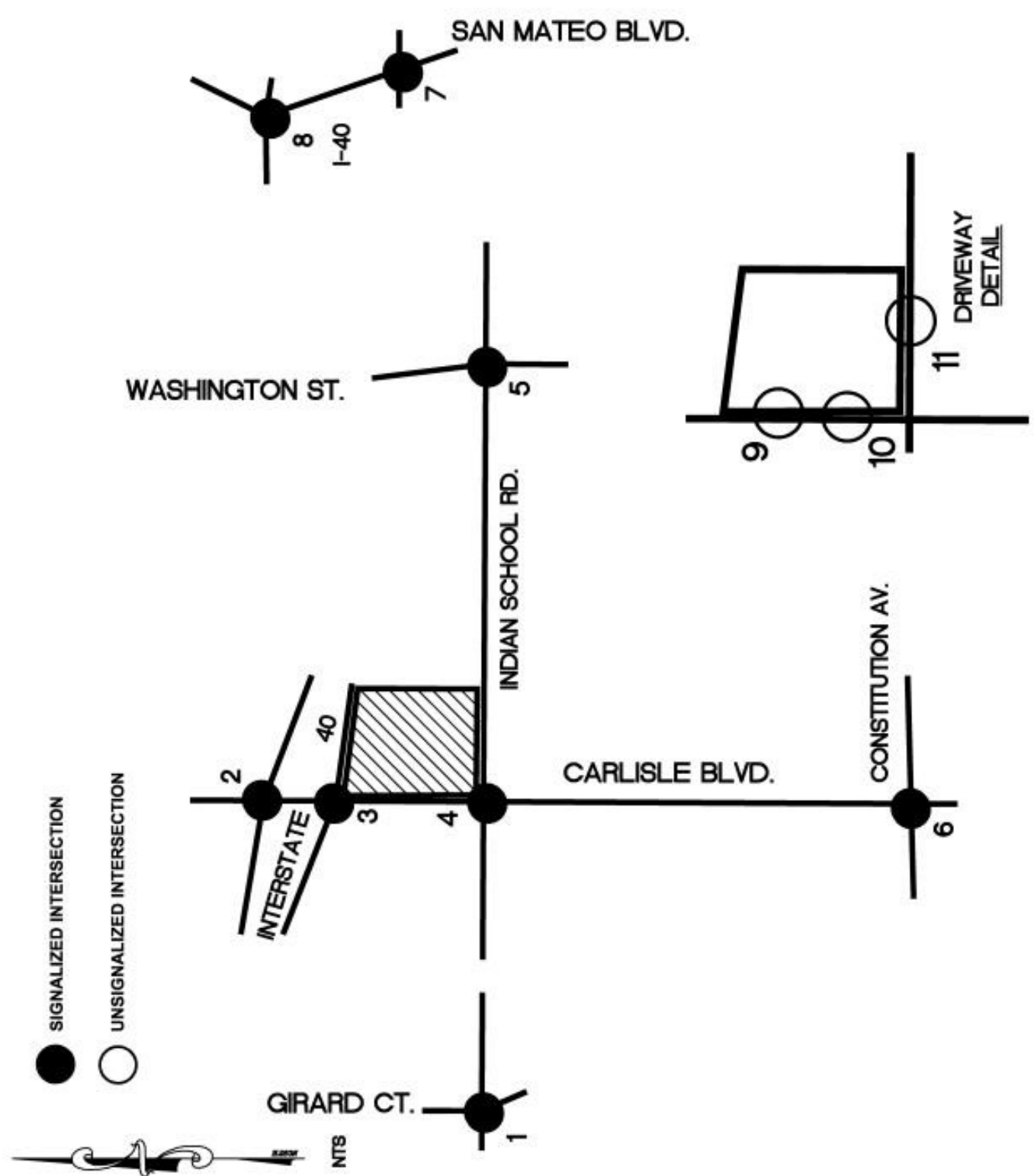
KMart Site Redevelopment Project
 (Interstate 40 / Carlisle Blvd.)
 LOS / Volume Analysis Map



2031 NO BUILD Condition	2031 BUILD Conditions	2031 BUILD Conditions [Mitigated]
<p>1: Girard Ct. & Indian School Rd.</p> <p>B(A) 10.3(5.2)</p>	<p>1: Girard Ct. & Indian School Rd.</p> <p>B(A) 10.3(5.2)</p>	<p>NO RECOMMENDATIONS</p>
<p>2: Carlisle Blvd. & I-40 WB Ramp</p> <p>C(C) 26.0(27.1)</p>	<p>2: Carlisle Blvd. & I-40 WB Ramp</p> <p>C(C) 26.0(27.7)</p>	<p>Convert WB thru/left to thru/left/right</p> <p>C(C) 23.9(25.0)</p>
<p>3: Carlisle Blvd. & I-40 EB Ramp</p> <p>C(C) 20.7(23.8)</p>	<p>3: Carlisle Blvd. & I-40 EB Ramp</p> <p>C(C) 20.2(26.9)</p>	<p>NO RECOMMENDATIONS</p>
<p>4: Carlisle Blvd. & Indian School Rd.</p> <p>D(E) 44.9(65.0)</p>	<p>4: Carlisle Blvd. & Indian School Rd.</p> <p>D(F) 43.2(80.7)</p>	<p>Construct new WB right turn lane</p> <p>D(E) 35.9(58.6)</p>

KMart Site Redevelopment Project
 (Interstate 40 / Carlisle Blvd.)
 LOS / Volume Analysis Map

AM(PM)



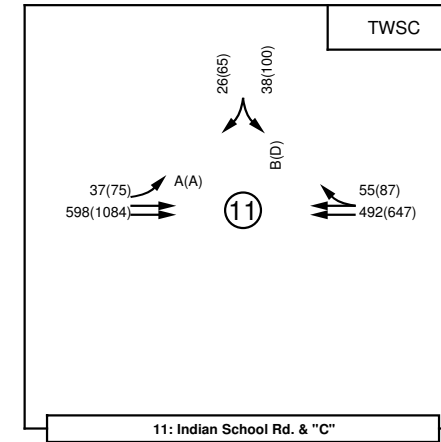
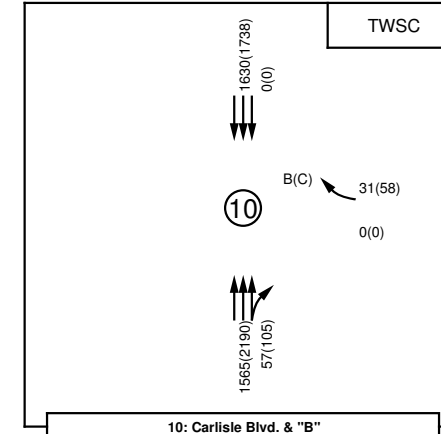
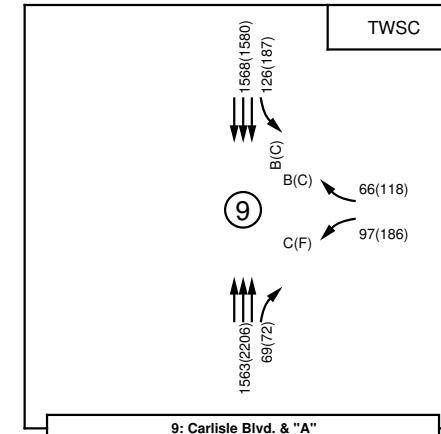
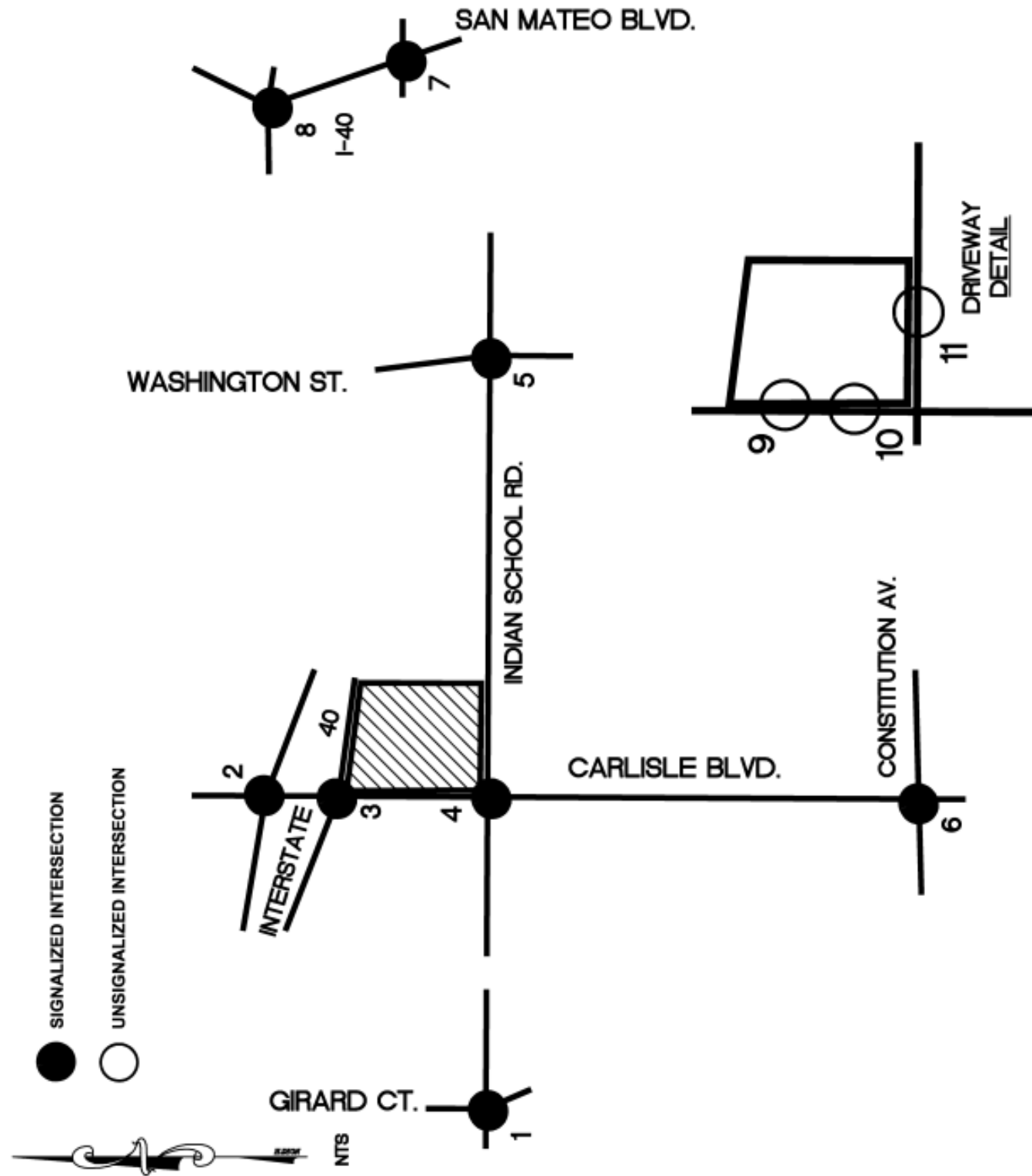
2031 NO BUILD Condition	2031 BUILD Conditions	2031 BUILD Conditions [Mitigated]
<p>5: Washington St. & Indian School Rd.</p> <p>C(C) 23.5(32.5)</p>	<p>5: Washington St. & Indian School Rd.</p> <p>C(C) 23.3(33.2)</p>	NO RECOMMENDATIONS
<p>6: Carlisle Blvd. & Constitution Ave.</p> <p>B(B) 13.3(17.3)</p>	<p>6: Carlisle Blvd. & Constitution Ave.</p> <p>B(B) 12.9(17.0)</p>	NO RECOMMENDATIONS
<p>7: San Mateo Blvd. & I-40 EB Ramp</p> <p>E(D) 63.9(49.1)</p>	<p>7: San Mateo Blvd. & I-40 EB Ramp</p> <p>E(D) 63.5(48.9)</p>	<p>Adjust Signal Timing</p> <p>D(C) 48.4(31.0)</p>
<p>8: San Mateo Blvd. & I-40 WB Ramp</p> <p>D(D) 43.3(38.8)</p>	<p>8: San Mateo Blvd. & I-40 WB Ramp</p> <p>D(D) 42.8(38.8)</p>	<p>Adjust Signal Timing</p> <p>D(C) 35.5(31.0)</p>

KMart Site Redevelopment Project
 (Interstate 40 / Carlisle Blvd.)
 LOS / Volume Analysis Map

2031 NO BUILD Condition

2031 BUILD Conditions

2031 BUILD Conditions [Mitigated]



KMart Site Redevelopment Project
 (Interstate 40 / Carlsle Blvd.)
 LOS / Volume Analysis Map

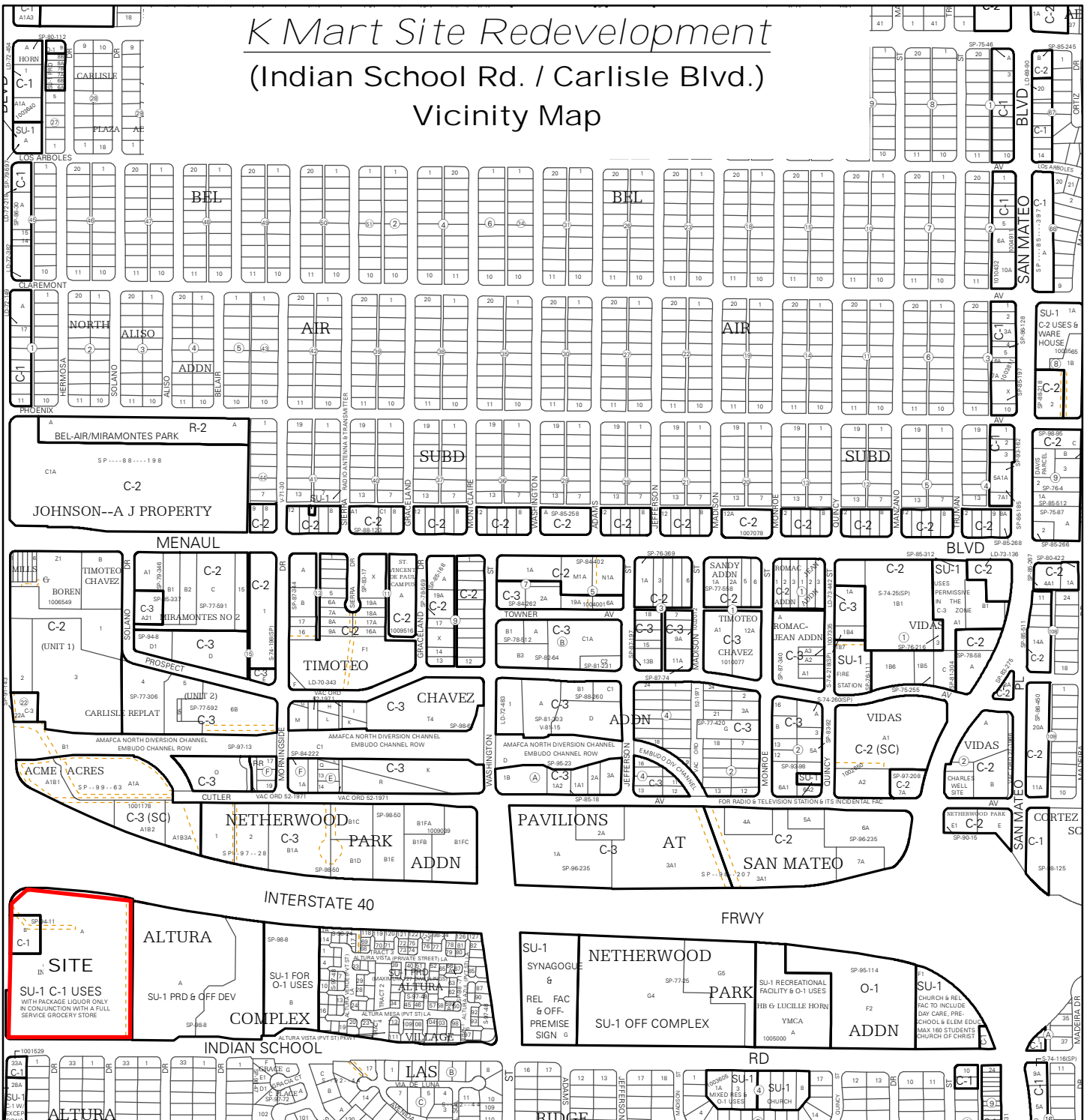
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Intersection #6 - Signalized Intersection Analyses (Constitution Ave. / Carlisle Blvd.)	
Intersection #7 - Signalized Intersection Analysis (I-40 S. Ramp / San Mateo Blvd.)	
Intersection #8 - Signalized Intersection Analyses (I-40 N. Ramp / San Mateo Blvd.)	
<u>IMPLEMENTATION YEAR (2021) INTERSECTION ANALYSES</u>	
Intersection #1 - Signalized Intersection Analyses (Indian School Rd. / Girard Ct.)	A-116 thru A-165
Intersection #2 - Signalized Intersection Analysis (I-40 N. Ramp / Carlisle Blvd.)	
Intersection #3 - Signalized Intersection Analysis (I-40 S. Ramp/ Carlisle Blvd.)	
Intersection #4 - Signalized Intersection Analyses (Indian School Rd. / Carlisle Blvd.)	
Intersection #5 - Signalized Intersection Analysis (Indian School Rd. / Washington St.)	
Intersection #6 - Signalized Intersection Analyses (Constitution Ave. / Carlisle Blvd.)	
Intersection #7 - Signalized Intersection Analysis (I-40 S. Ramp / San Mateo Blvd.)	
Intersection #8 - Signalized Intersection Analyses (I-40 N. Ramp / San Mateo Blvd.)	

Intersection #9 - Unsignalized Intersection Analysis (Driveway "A" / Carlisle Blvd.)	
Intersection #10 - Unsignalized Intersection Analyses (Driveway "B" / Carlisle Blvd.)	
Intersection #11 - Unsignalized Intersection Analysis (Indian School Rd. / Driveway "C")	
<u>HORIZON YEAR (2031) INTERSECTION ANALYSES</u>	
Intersection #1 - Signalized Intersection Analyses (Indian School Rd. / Girard Ct.)	A-166 thru A-215
Intersection #2 - Signalized Intersection Analysis (I-40 N. Ramp / Carlisle Blvd.)	
Intersection #3 - Signalized Intersection Analysis (I-40 S. Ramp / Carlisle Blvd.)	
Intersection #4 - Signalized Intersection Analyses (Indian School Rd. / Carlisle Blvd.)	
Intersection #5 - Signalized Intersection Analysis (Indian School Rd. / Washington St.)	
Intersection #6 - Signalized Intersection Analyses (Constitution Ave. / Carlisle Blvd.)	
Intersection #7 - Signalized Intersection Analysis (I-40 S. Ramp / San Mateo Blvd.)	
Intersection #8 - Signalized Intersection Analyses (I-40 N. Ramp / San Mateo Blvd.)	
Intersection #9 - Unsignalized Intersection Analysis (Driveway "A" / Carlisle Blvd.)	
Intersection #10 - Unsignalized Intersection Analyses (Driveway "B" / Carlisle Blvd.)	
Intersection #11 - Unsignalized Intersection Analysis (Indian School Rd. / Driveway "C")	
<u>Miscellaneous Data</u>	
Traffic Count Data	A-216 thru A-223
ABQ Ride Route Schedules	A-224
City of Albuquerque Scoping Letter	A-225 thru A-227

APPENDIX

K Mart Site Redevelopment (Indian School Rd. / Carlisle Blvd.) Vicinity Map



For more current information and details visit: <http://www.cabq.gov/gis>

Map amended through: 1/28/2016

Zone Atlas Page:
H-17-Z

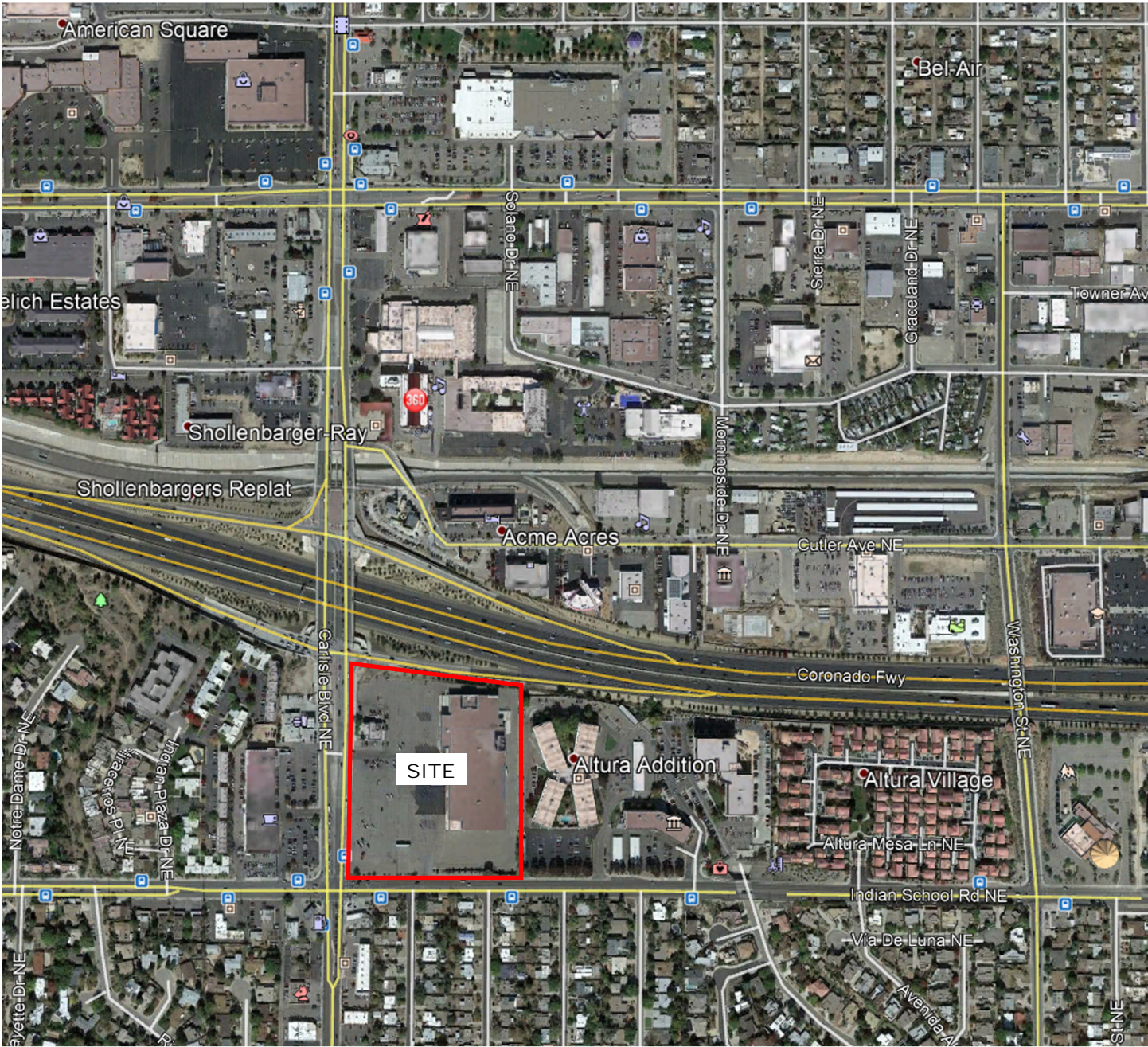
Selected Symbols

SECTOR PLANS	Escarpment
Design Overlay Zones	2 Mile Airport Zone
City Historic Zones	Airport Noise Contours
H-1 Buffer Zone	Wall Overlay Zone
Petroglyph Mon.	

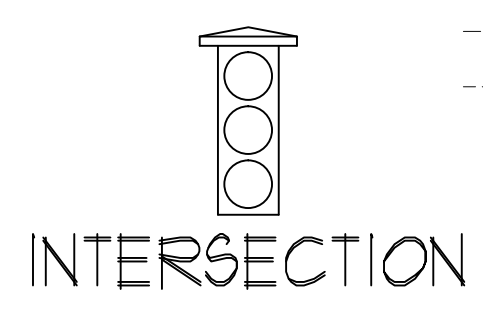
Note: Grey Shading Represents Area Outside of the City Limits

0 750 1,500 Feet

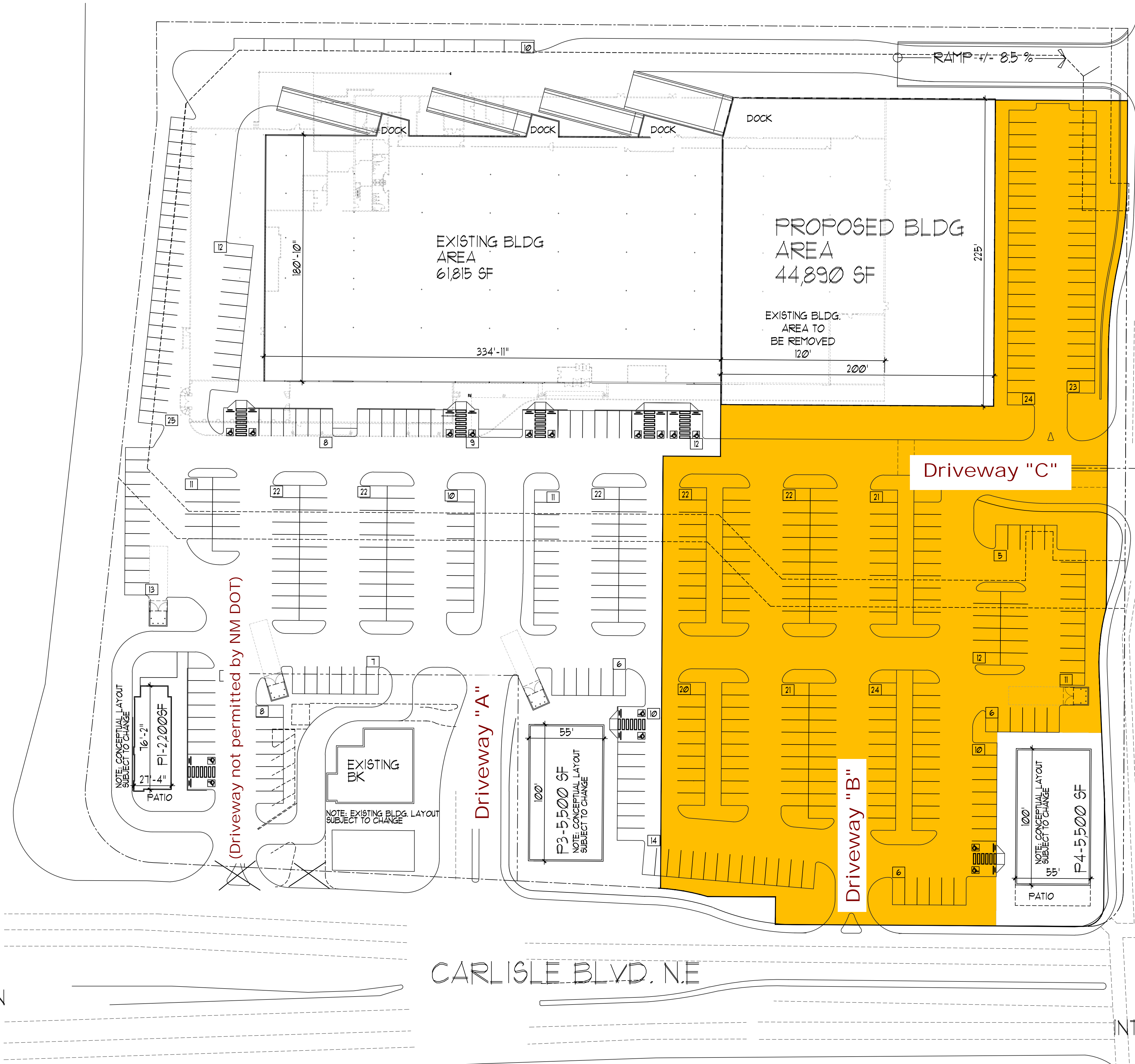
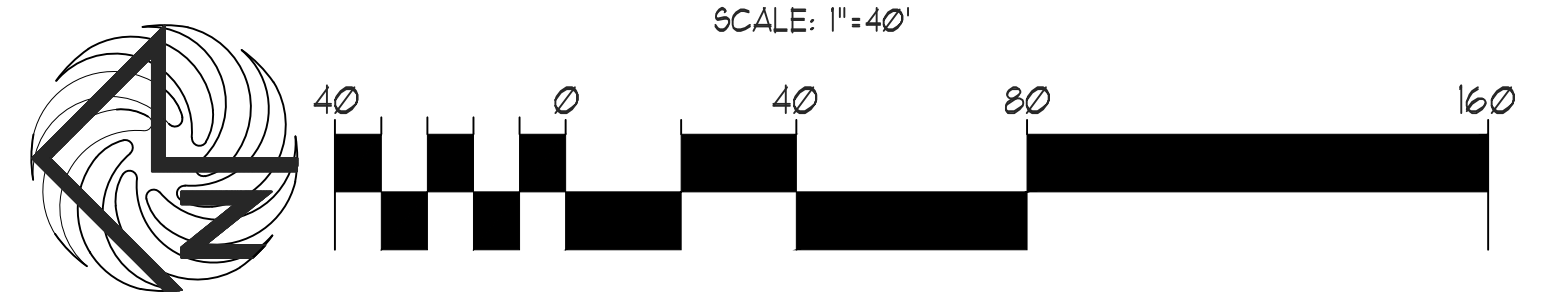
A-1



K Mart Site Redevelopment
(Indian School Rd. / Carlisle Blvd.)
Aerial Map



CONCEPTUAL SITEPLAN-SUBJECT TO CHANGE/GOVERNMENTAL APPROVAL



*123,405 TOTAL PROPOSED SF
 *468 TOTAL PROV PARKS
 *3.19 PER 1K SPACE AVERAGE

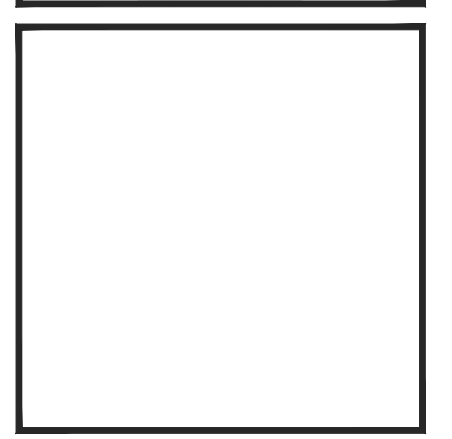
PARKING FIELD AVERAGE WITHIN
 [Yellow Box] AREA
 *240 TOTAL PROV PARKS
 *4.74 PER 1K SPACE AVERAGE

INDIAN SCHOOL RD. N.E

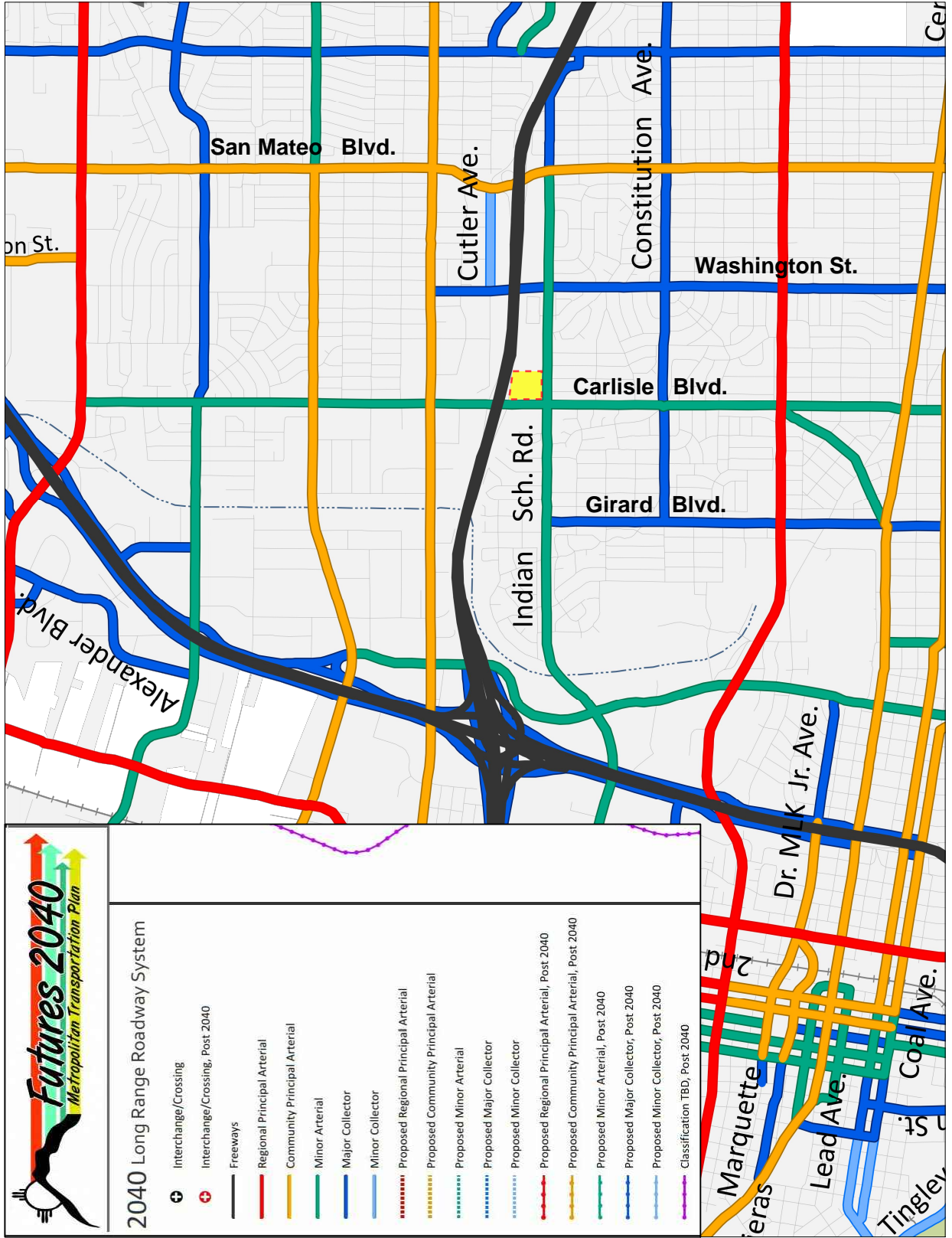
CARLISLE BLVD. N.E

REV	DATE	BY	REVISION
1			
2			
3			
4			
5			

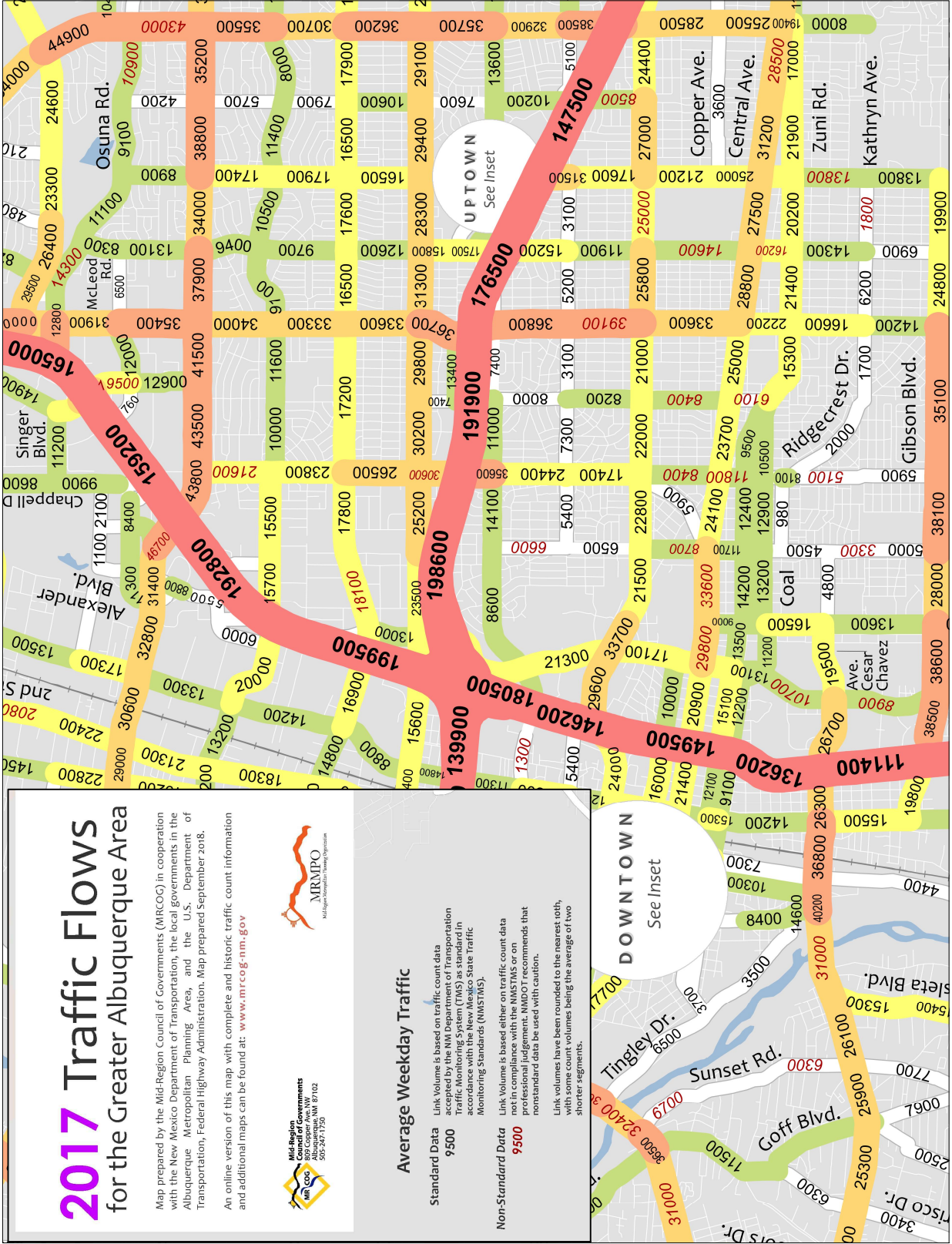
MODULUS ARCHITECTS
 100 SUN AVE. N.W. SUITE 305
 ALBUQUERQUE, NEW MEXICO 87109
 PHONE (505) 338-1499 FAX (505) 338-1498



PROJECT TITLE CARLISLE MARKETPLACE NEC OF CARLISLE BLVD + INDIAN SCHOOL RD ALBUQUERQUE, NEW MEXICO	JOB NO. C-MARKET	DRAWN BY: S
PROJECT MANAGER STEPHEN DUNBAR AIA	SHEET TITLE CONCEPTUAL SITE PLAN	
DATE 2-04-2019	SHEET NO. CP-1	
SCALE RE: SCALE	DATE	



Portion of Futures 2040 Long Range Roadway System
(from Mid-Region Council of Governments)



2017 Traffic Flows for the Greater Albuquerque Area

Map prepared by the Mid-Region Council of Governments (MRCOG) in cooperation with the New Mexico Department of Transportation, the local governments in the Albuquerque Metropolitan Planning Area, and the U.S. Department of Transportation, Federal Highway Administration. Map prepared September 2018.

An online version of this map with complete and historic traffic count information and additional maps can be found at: www.mrcog-nm.gov



Average Weekday Traffic

Standard Data
Link Volume is based on traffic count data accepted by the NM Department of Transportation Traffic Monitoring System (TMS) as standard in accordance with the New Mexico State Traffic Monitoring Standards (NMSTMS).

Non-Standard Data
Link Volume is based either on traffic count data not in compliance with the NMSTMS or on professional judgement. NMDOT recommends that nonstandard data be used with caution.

Link volumes have been rounded to the nearest 10th, with some count volumes being the average of two shorter segments.

Portion of 2017 Traffic Flow Map
(from Mid-Region Council of Governments)

Old K-Mart Site Redevelopment (I-40 / Carlisle Blvd.)
Trip Generation Data (ITE Trip Generation Manual - 10th Edition)

COMMENT	USE (ITE CODE)	DESCRIPTION	24 HR VOL GROSS	A. M. PEAK HR.		P. M. PEAK HR.	
				ENTER	EXIT	ENTER	EXIT
Summary Sheet							
Tract No.		Units					
P1	Supermarket (850)	50.00	4,757	115	76	238	228
P3, P4 & Remainder P1	Fast Food Restaurant w/ Drive-Thru Window (934)	2.20	1,036	45	43	37	34
	Shopping Center (820)	67.71	4,611	115	71	195	212
	Net New Trips Generated		10,404	275	190	470	474
	<i>Pass-by Trips (PM ONLY)</i>	25%			118	119	
	Net New Primary Trips Generated		10,404	275	190	352	355

NOTE: Trip Generation Rates above do not include existing Burger King Fast Food Restaurant (to remain):

Exist. Burger King FF Rest. Fast Food Restaurant w/ Drive-Thru Window (934) 3.50 1,648 72 69 59 55

*Old K-Mart Site Redevelopment (I-40 / Carlisle Blvd.)
Trip Generation Data (ITE Trip Generation Manual - 10th Edition)*

USE (ITE CODE)	24 HOUR TWO-WAY VOLUME		A.M. PEAK HOUR		P.M. PEAK HOUR		
	GROSS	ENTER	EXIT	ENTER	EXIT	ENTER	EXIT
	4,757	115	76	238			228

Units

Supermarket (850)

50.00	115	76	238	228
-------	-----	----	-----	-----

1,000 S.F.

ITE Trip Generation Equations:

Average Vehicle Trip Ends on a Weekday (24 HOUR TWO-WAY VOLUME)

$$T = 70.89 (X) + 1212.64$$

50% Enter, 50% Exit

Average Vehicle Trip Ends on a Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 7am and 9am (A.M. PEAK HOUR)

$$T = 3.82 (X) + 0$$

60% Enter, 40% Exit

Average Vehicle Trip Ends on a Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 4pm and 6pm (P.M. PEAK HOUR)

$$Ln(T) = 0.75 Ln(X) + 3.21$$

51% Enter, 49% Exit

Comments:

Tract No.

Based on ITE Trip Generation Manual - 10th Edition

*Old K-Mart Site Redevelopment (I-40 / Carlisle Blvd.)
Trip Generation Data (ITE Trip Generation Manual - 10th Edition)*

USE (ITE CODE)	24 HOUR TWO-WAY VOLUME		A. M. PEAK HOUR		P. M. PEAK HOUR	
	GROSS	ENTER	ENTER	EXIT	ENTER	EXIT
Fast Food Restaurant w/ Drive-Thru Window (934)	1,036	45	43	37	34	34

Units

2.20

1,000 S.F.

ITE Trip Generation Equations:

Average Vehicle Trip Ends on a Weekday (24 HOUR TWO-WAY VOLUME)

$$T = 470.95 (X) + 0$$

50% Enter, 50% Exit

Average Vehicle Trip Ends on a Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 7am and 9am (A.M. PEAK HOUR)

$$T = 40.19 (X) + 0$$

51% Enter, 49% Exit

Average Vehicle Trip Ends on a Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 4pm and 6pm (P.M. PEAK HOUR)

$$T = 32.67 (X) + 0$$

52% Enter, 48% Exit

Comments:

P1

Based on ITE Trip Generation Manual - 10th Edition

*Old K-Mart Site Redevelopment (I-40 / Carlisle Blvd.)
Trip Generation Data (ITE Trip Generation Manual - 10th Edition)*

USE (ITE CODE)	24 HOUR TWO-WAY VOLUME		A. M. PEAK HOUR		P. M. PEAK HOUR	
	GROSS	ENTER	ENTER	EXIT	ENTER	EXIT
Shopping Center (820)	4,611	115	71	195	212	

Units

67.71

1,000 S.F.

ITE Trip Generation Equations:

Average Vehicle Trip Ends on a Weekday (24 HOUR TWO-WAY VOLUME)

$$\text{Ln}(T) = 0.68 \text{ Ln}(X) + 5.57$$

50% Enter, 50% Exit

Average Vehicle Trip Ends on a Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 7am and 9am (A.M. PEAK HOUR)

$$T = 0.5 (X) + 151.78$$

62% Enter, 38% Exit

Average Vehicle Trip Ends on a Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 4pm and 6pm (P.M. PEAK HOUR)

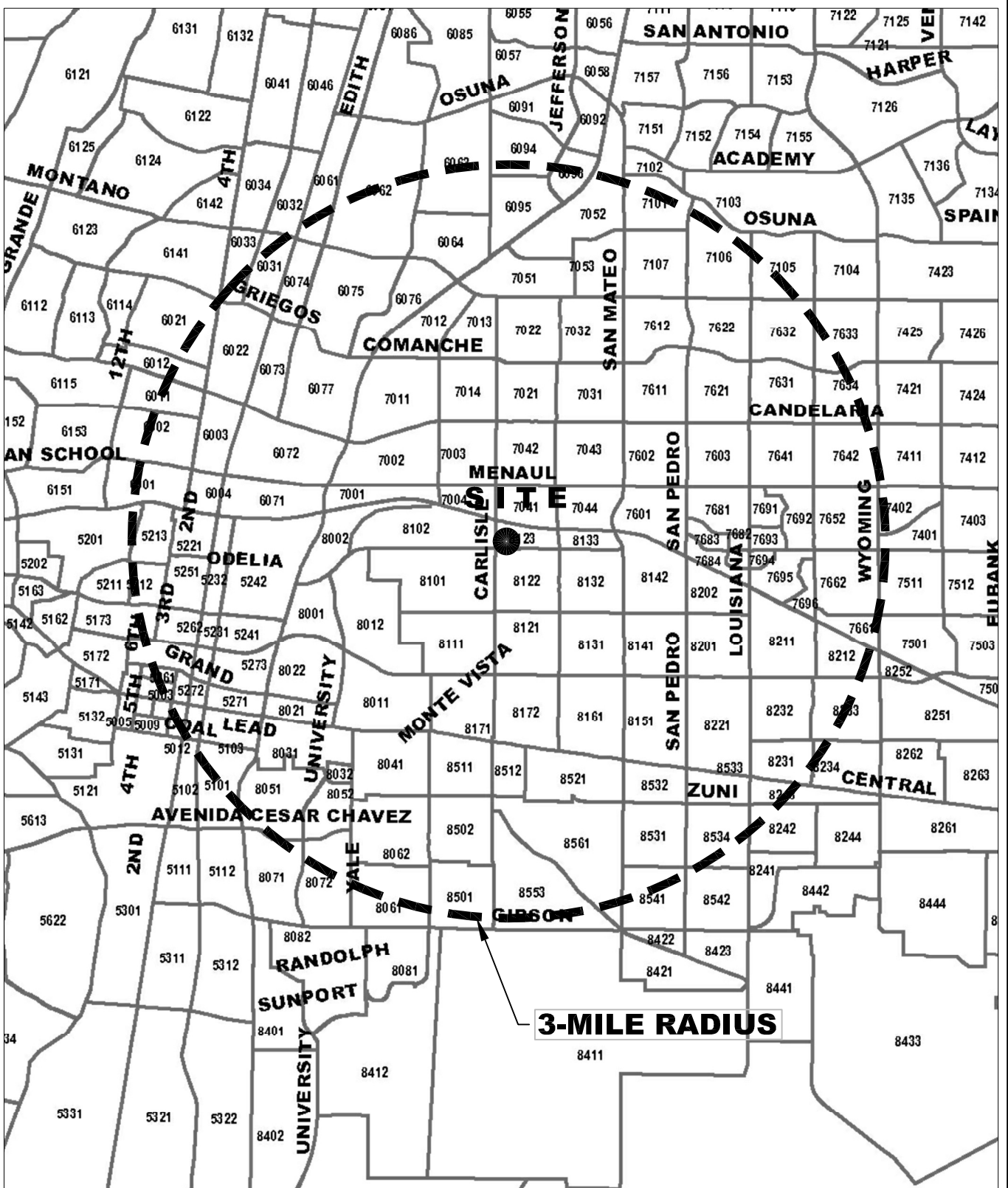
$$\text{Ln}(T) = 0.74 \text{ Ln}(X) + 2.89$$

48% Enter, 52% Exit

Comments:

P3, P4 & Remainder P1

Based on ITE Trip Generation Manual - 10th Edition



DATA ANALYSIS SUBZONE (DASZ) MAP

Old KMart Site Redevelopment Project (Interstate 40 / Carlisle Blvd.)

Trip Distribution Table

Kmart Site Redevelopment Project (Interstate 40 / Carlisle Blvd.)

Data Analysis Subzone Population Data for determination of Local Trip Distribution for Proposed **Retail Commercial Trips**

*2012 and 2040 Data Taken from Mid-Region Council of Governments'
2040 Socioeconomic Forecasts by Data Analysis Subzones for the Mid-Region of New Mexico*

DASZ #	% Sub Area in Study	2012 Population	2040 Population	Interpolated Population for the Year	Population in Study	Percent Population	(CN) Carlisle Blvd. North			(CoE) Constitution Av. East			(4E) Interstate 40 East		
							% Utilizing	% Population Utilizing	Population	% Utilizing	% Population Utilizing	Population	% Utilizing	% Population Utilizing	Population
		2012	2040	2021											
Boundary Specified on DASZ Map															
5001	80%	0	98	32	26	0.02%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5002	100%	0	930	299	299	0.23%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5003	45%	0	465	149	67	0.05%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5007	10%	2	206	68	7	0.01%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5008	65%	126	461	234	152	0.12%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5011	100%	215	2371	908	908	0.69%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5012	95%	55	198	101	96	0.07%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5101	55%	1615	1785	1,670	919	0.70%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5102	5%	479	518	492	25	0.02%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5103	100%	650	1077	787	787	0.60%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5173	15%	972	1230	1,055	158	0.12%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5201	5%	756	2031	1,166	58	0.04%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5212	95%	479	603	519	493	0.37%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5213	100%	240	381	285	285	0.22%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5221	100%	24	69	38	38	0.03%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5231	100%	0	0	0	0	0.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5232	100%	0	0	0	0	0.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5241	100%	474	570	505	505	0.38%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5242	100%	1473	1958	1,629	1,629	1.23%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5251	100%	77	449	197	197	0.15%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5261	80%	765	3822	1,748	1,398	1.06%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5262	100%	69	1067	390	390	0.30%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5271	100%	408	866	555	555	0.42%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5272	100%	0	9	3	3	0.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5273	100%	365	734	484	484	0.37%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6001	60%	534	612	559	335	0.25%	50%	0.13%	168	0%	0.00%	0	0%	0.00%	0
6002	60%	1295	1393	1,327	796	0.60%	50%	0.30%	398	0%	0.00%	0	0%	0.00%	0
6003	100%	607	723	644	644	0.49%	50%	0.24%	322	0%	0.00%	0	0%	0.00%	0
6004	100%	76	160	103	103	0.08%	50%	0.04%	52	0%	0.00%	0	0%	0.00%	0
6011	50%	545	678	588	294	0.22%	100%	0.22%	294	0%	0.00%	0	0%	0.00%	0
6012	25%	1031	1031	1,031	258	0.20%	100%	0.20%	258	0%	0.00%	0	0%	0.00%	0
6021	20%	2060	2275	2,129	426	0.32%	50%	0.16%	213	0%	0.00%	0	0%	0.00%	0
6022	100%	997	1079	1,023	1,023	0.78%	50%	0.39%	512	0%	0.00%	0	0%	0.00%	0
6031	85%	322	301	315	268	0.20%	100%	0.20%	268	0%	0.00%	0	0%	0.00%	0
6033	25%	617	592	609	152	0.12%	100%	0.12%	152	0%	0.00%	0	0%	0.00%	0
6061	15%	354	378	362	54	0.04%	100%	0.04%	54	0%	0.00%	0	0%	0.00%	0
6062	50%	1323	1733	1,455	728	0.55%	100%	0.55%	728	0%	0.00%	0	0%	0.00%	0
6063	45%	0	0	0	0	0.00%	100%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6064	100%	0	1967	632	632	0.48%	100%	0.48%	632	0%	0.00%	0	0%	0.00%	0
6071	100%	463	563	495	495	0.38%	75%	0.28%	371	0%	0.00%	0	0%	0.00%	0

Trip Distribution Table

Kmart Site Redevelopment Project (Interstate 40 / Carlisle Blvd.)

Data Analysis Subzone Population Data for determination of Local Trip Distribution for Proposed **Retail Commercial Trips**

*2012 and 2040 Data Taken from Mid-Region Council of Governments'
2040 Socioeconomic Forecasts by Data Analysis Subzones for the Mid-Region of New Mexico*

DASZ #	% Sub Area in Study						(CN) Carlisle Blvd. North			(CoE) Constitution Av. East			(4E) Interstate 40 East		
		2012 Population	2040 Population	Interpolated Population for the Year	Population in Study	Percent Population	% Utilizing	% Population Utilizing	Population	% Utilizing	% Population Utilizing	Population	% Utilizing	% Population Utilizing	Population
		2012	2040	2021											
Boundary Specified on DASZ Map															
6072	100%	471	550	496	496	0.38%	75%	0.28%	372	0%	0.00%	0	0%	0.00%	0
6073	100%	44	54	47	47	0.04%	75%	0.03%	35	0%	0.00%	0	0%	0.00%	0
6074	100%	42	43	42	42	0.03%	100%	0.03%	42	0%	0.00%	0	0%	0.00%	0
6075	100%	82	101	88	88	0.07%	100%	0.07%	88	0%	0.00%	0	0%	0.00%	0
6076	100%	0	0	0	0	0.00%	100%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6077	100%	290	377	318	318	0.24%	100%	0.24%	318	0%	0.00%	0	0%	0.00%	0
6094	10%	0	0	0	0	0.00%	100%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6095	100%	0	0	0	0	0.00%	100%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6096	55%	0	0	0	0	0.00%	100%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7001	100%	0	16	5	5	0.00%	100%	0.00%	5	0%	0.00%	0	0%	0.00%	0
7002	100%	55	103	70	70	0.05%	100%	0.05%	70	0%	0.00%	0	0%	0.00%	0
7003	100%	125	201	149	149	0.11%	100%	0.11%	149	0%	0.00%	0	0%	0.00%	0
7004	100%	0	4	1	1	0.00%	100%	0.00%	1	0%	0.00%	0	0%	0.00%	0
7011	100%	0	0	0	0	0.00%	100%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7012	100%	582	799	652	652	0.49%	100%	0.49%	652	0%	0.00%	0	0%	0.00%	0
7013	100%	1198	1230	1,208	1,208	0.92%	100%	0.92%	1,208	0%	0.00%	0	0%	0.00%	0
7014	100%	2145	2460	2,246	2,246	1.70%	100%	1.70%	2,246	0%	0.00%	0	0%	0.00%	0
7021	100%	1285	1217	1,263	1,263	0.96%	100%	0.96%	1,263	0%	0.00%	0	0%	0.00%	0
7022	100%	1668	1742	1,692	1,692	1.28%	100%	1.28%	1,692	0%	0.00%	0	0%	0.00%	0
7031	100%	1976	2439	2,125	2,125	1.61%	50%	0.81%	1,063	0%	0.00%	0	0%	0.00%	0
7032	100%	1649	2056	1,780	1,780	1.35%	50%	0.67%	890	0%	0.00%	0	0%	0.00%	0
7041	100%	201	236	212	212	0.16%	50%	0.08%	106	0%	0.00%	0	0%	0.00%	0
7042	100%	1104	1608	1,266	1,266	0.96%	100%	0.96%	1,266	0%	0.00%	0	0%	0.00%	0
7043	100%	1456	1508	1,473	1,473	1.12%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7044	100%	0	254	82	82	0.06%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7051	100%	3374	3860	3,530	3,530	2.68%	100%	2.68%	3,530	0%	0.00%	0	0%	0.00%	0
7052	65%	0	3	1	1	0.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7053	100%	120	257	164	164	0.12%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7101	70%	2375	3067	2,597	1,818	1.38%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7105	25%	1963	2694	2,198	550	0.42%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7106	85%	2011	2240	2,085	1,772	1.34%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7107	100%	2629	3860	3,025	3,025	2.29%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7401	5%	743	800	761	38	0.03%	100%	0.03%	38	0%	0.00%	0	0%	0.00%	0
7402	5%	1134	1821	1,355	68	0.05%	100%	0.05%	68	0%	0.00%	0	0%	0.00%	0
7511	5%	1281	1256	1,273	64	0.05%	0%	0.00%	0	0%	0.00%	0	100%	0.05%	64
7601	100%	943	915	934	934	0.71%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7602	100%	1103	1143	1,116	1,116	0.85%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7603	100%	1243	1484	1,320	1,320	1.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7611	100%	1797	1772	1,789	1,789	1.36%	50%	0.68%	895	0%	0.00%	0	0%	0.00%	0
7612	100%	936	1054	974	974	0.74%	50%	0.37%	487	0%	0.00%	0	0%	0.00%	0

Trip Distribution Table Kmart Site Redevelopment Project (Interstate 40 / Carlisle Blvd.)

Data Analysis Subzone Population Data for determination of Local Trip Distribution for Proposed **Retail Commercial Trips**

*2012 and 2040 Data Taken from Mid-Region Council of Governments'
2040 Socioeconomic Forecasts by Data Analysis Subzones for the Mid-Region of New Mexico*

DASZ #	% Sub Area in Study	2012 Population	2040 Population	Interpolated Population for the Year	Population in Study	Percent Population	(CN) Carlisle Blvd. North			(CoE) Constitution Av. East			(4E) Interstate 40 East		
							% Utilizing	% Population Utilizing	Population	% Utilizing	% Population Utilizing	Population	% Utilizing	% Population Utilizing	Population
		2012	2040	2021											
Boundary Specified on DASZ Map															
7621	100%	1223	1271	1,238	1,238	0.94%	50%	0.47%	619	0%	0.00%	0	0%	0.00%	0
7622	100%	1036	1232	1,099	1,099	0.83%	50%	0.42%	550	0%	0.00%	0	0%	0.00%	0
7631	100%	1166	1220	1,183	1,183	0.90%	50%	0.45%	592	0%	0.00%	0	0%	0.00%	0
7632	95%	989	1107	1,027	976	0.74%	50%	0.37%	488	0%	0.00%	0	0%	0.00%	0
7633	20%	1869	2020	1,918	384	0.29%	50%	0.15%	192	0%	0.00%	0	0%	0.00%	0
7634	60%	688	718	698	419	0.32%	50%	0.16%	210	0%	0.00%	0	0%	0.00%	0
7641	100%	1291	1372	1,317	1,317	1.00%	50%	0.50%	659	0%	0.00%	0	0%	0.00%	0
7642	95%	841	906	862	819	0.62%	50%	0.31%	410	0%	0.00%	0	0%	0.00%	0
7652	100%	1035	1040	1,037	1,037	0.79%	50%	0.39%	519	0%	0.00%	0	0%	0.00%	0
7661	95%	298	503	364	346	0.26%	0%	0.00%	0	0%	0.00%	0	100%	0.26%	346
7662	100%	1724	1769	1,738	1,738	1.32%	0%	0.00%	0	0%	0.00%	0	100%	1.32%	1,738
7681	100%	0	2510	807	807	0.61%	25%	0.15%	202	0%	0.00%	0	0%	0.00%	0
7682	100%	0	300	96	96	0.07%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7683	100%	127	349	198	198	0.15%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7684	100%	855	1798	1,158	1,158	0.88%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7685	100%	0	447	144	144	0.11%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7691	100%	277	2619	1,030	1,030	0.78%	0%	0.00%	0	0%	0.00%	0	100%	0.78%	1,030
7692	100%	501	789	594	594	0.45%	0%	0.00%	0	0%	0.00%	0	100%	0.45%	594
7693	100%	184	500	286	286	0.22%	0%	0.00%	0	0%	0.00%	0	100%	0.22%	286
7694	100%	0	946	304	304	0.23%	0%	0.00%	0	0%	0.00%	0	100%	0.23%	304
7695	100%	0	4111	1,321	1,321	1.00%	0%	0.00%	0	0%	0.00%	0	100%	1.00%	1,321
7696	100%	798	1373	983	983	0.75%	0%	0.00%	0	0%	0.00%	0	100%	0.75%	983
8001	100%	9	457	153	153	0.12%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8002	100%	418	745	523	523	0.40%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8011	100%	2431	2935	2,593	2,593	1.97%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8012	100%	505	1570	847	847	0.64%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8021	100%	835	2133	1,252	1,252	0.95%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8022	100%	1064	2062	1,385	1,385	1.05%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8031	100%	1717	2591	1,998	1,998	1.51%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8032	100%	2	2	2	2	0.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8041	100%	2899	4149	3,301	3,301	2.50%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8051	95%	0	0	0	0	0.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8052	100%	454	471	459	459	0.35%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8061	60%	1292	3401	1,970	1,182	0.90%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8062	100%	3048	3304	3,130	3,130	2.37%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8071	5%	864	2836	1,498	75	0.06%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8072	45%	1274	3872	2,109	949	0.72%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8101	100%	2332	2652	2,435	2,435	1.85%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8102	100%	1540	1760	1,611	1,611	1.22%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8111	100%	1708	1796	1,736	1,736	1.32%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0

Trip Distribution Table Kmart Site Redevelopment Project (Interstate 40 / Carlisle Blvd.)

Data Analysis Subzone Population Data for determination of Local Trip Distribution for Proposed **Retail Commercial Trips**

*2012 and 2040 Data Taken from Mid-Region Council of Governments'
2040 Socioeconomic Forecasts by Data Analysis Subzones for the Mid-Region of New Mexico*

DASZ #	% Sub Area in Study	2012 Population	2040 Population	Interpolated Population for the Year 2021	Population in Study	Percent Population	(CN) Carlisle Blvd. North			(CoE) Constitution Av. East			(4E) Interstate 40 East		
							% Utilizing	% Population Utilizing	Population	% Utilizing	% Population Utilizing	Population	% Utilizing	% Population Utilizing	Population
Boundary Specified on DASZ Map															
8121	100%	1238	1314	1,262	1,262	0.96%	0%	0.00%	0	30%	0.29%	379	0%	0.00%	0
8122	100%	1230	1306	1,254	1,254	0.95%	0%	0.00%	0	35%	0.33%	439	0%	0.00%	0
8123	100%	509	639	551	551	0.42%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8131	100%	1229	1397	1,283	1,283	0.97%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8132	100%	1156	1233	1,181	1,181	0.90%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8133	100%	0	0	0	0	0.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8141	100%	998	1149	1,047	1,047	0.79%	0%	0.00%	0	40%	0.32%	419	0%	0.00%	0
8142	100%	1527	1582	1,545	1,545	1.17%	0%	0.00%	0	40%	0.47%	618	0%	0.00%	0
8151	100%	1800	2142	1,910	1,910	1.45%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8161	100%	1960	2795	2,228	2,228	1.69%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8171	100%	1017	1134	1,055	1,055	0.80%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8172	100%	1590	1908	1,692	1,692	1.28%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8201	100%	1131	1186	1,149	1,149	0.87%	0%	0.00%	0	35%	0.30%	402	0%	0.00%	0
8202	100%	861	873	865	865	0.66%	0%	0.00%	0	25%	0.16%	216	0%	0.00%	0
8211	100%	1609	2364	1,852	1,852	1.40%	0%	0.00%	0	50%	0.70%	926	0%	0.00%	0
8212	90%	283	407	323	291	0.22%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8221	100%	10	42	20	20	0.02%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8231	95%	1542	1609	1,564	1,486	1.13%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8232	100%	1496	1814	1,598	1,598	1.21%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8233	50%	2775	2735	2,762	1,381	1.05%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8234	5%	2086	3417	2,514	126	0.10%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8242	10%	3662	3958	3,757	376	0.28%	0%	0.00%	0	35%	0.10%	132	0%	0.00%	0
8243	35%	994	2228	1,391	487	0.37%	0%	0.00%	0	35%	0.13%	170	0%	0.00%	0
8501	90%	1930	2355	2,067	1,860	1.41%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8502	100%	1219	1343	1,259	1,259	0.95%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8511	100%	1087	1322	1,163	1,163	0.88%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8512	100%	394	635	471	471	0.36%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8521	100%	856	1773	1,151	1,151	0.87%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8531	100%	2014	2283	2,100	2,100	1.59%	0%	0.00%	0	50%	0.80%	1,050	0%	0.00%	0
8532	100%	869	1425	1,048	1,048	0.79%	0%	0.00%	0	50%	0.40%	524	0%	0.00%	0
8533	100%	708	1833	1,070	1,070	0.81%	0%	0.00%	0	50%	0.41%	535	0%	0.00%	0
8534	85%	2140	2539	2,268	1,928	1.46%	0%	0.00%	0	50%	0.73%	964	0%	0.00%	0
8541	30%	3350	4409	3,690	1,107	0.84%	0%	0.00%	0	50%	0.42%	554	0%	0.00%	0
8553	85%	2455	3118	2,668	2,268	1.72%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8561	95%	2711	3136	2,848	2,706	2.05%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
				39,719	131,943	100.00%				25,342	7,327	6,666			
										19.21%	5.55%	5.05%			

Trip Distribution Table Kmart Site Redevelopment Project (Interstate 40 / Carlisle Blvd.)

Data Analysis Subzone Population Data for determination of Local Trip Distribution for Proposed **Retail Commercial**

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DASZ #	% Sub Area in Study	2012 Population	2040 Population	Interpolated Population for the Year	Population in Study	Percent Population	(WN) Washington St. North			(IE) Indian School Rd. East			(WS) Washington St. South		
							% Utilizing	% Population Utilizing	Population	% Utilizing	% Population Utilizing	Population	% Utilizing	% Population Utilizing	Population
		2012	2040	2021											
Boundary Specified on DASZ Map															
5001	80%	0	98	32	26	0.02%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5002	100%	0	930	299	299	0.23%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5003	45%	0	465	149	67	0.05%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5007	10%	2	206	68	7	0.01%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5008	65%	126	461	234	152	0.12%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5011	100%	215	2371	908	908	0.69%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5012	95%	55	198	101	96	0.07%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5101	55%	1615	1785	1,670	919	0.70%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5102	5%	479	518	492	25	0.02%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5103	100%	650	1077	787	787	0.60%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5173	15%	972	1230	1,055	158	0.12%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5201	5%	756	2031	1,166	58	0.04%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5212	95%	479	603	519	493	0.37%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5213	100%	240	381	285	285	0.22%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5221	100%	24	69	38	38	0.03%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5231	100%	0	0	0	0	0.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5232	100%	0	0	0	0	0.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5241	100%	474	570	505	505	0.38%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5242	100%	1473	1958	1,629	1,629	1.23%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5251	100%	77	449	197	197	0.15%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5261	80%	765	3822	1,748	1,398	1.06%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5262	100%	69	1067	390	390	0.30%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5271	100%	408	866	555	555	0.42%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5272	100%	0	9	3	3	0.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5273	100%	365	734	484	484	0.37%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6001	60%	534	612	559	335	0.25%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6002	60%	1295	1393	1,327	796	0.60%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6003	100%	607	723	644	644	0.49%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6004	100%	76	160	103	103	0.08%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6011	50%	545	678	588	294	0.22%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6012	25%	1031	1031	1,031	258	0.20%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6021	20%	2060	2275	2,129	426	0.32%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6022	100%	997	1079	1,023	1,023	0.78%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6031	85%	322	301	315	268	0.20%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6033	25%	617	592	609	152	0.12%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6061	15%	354	378	362	54	0.04%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6062	50%	1323	1733	1,455	728	0.55%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6063	45%	0	0	0	0	0.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6064	100%	0	1967	632	632	0.48%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6071	100%	463	563	495	495	0.38%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0

Trip Distribution Table

Kmart Site Redevelopment Project (Interstate 40 / Carlisle Blvd.)

Data Analysis Subzone Population Data for determination of Local Trip Distribution for Proposed **Retail Commercial**

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DASZ #	% Sub Area in Study	2012 Population	2040 Population	Interpolated Population for the Year	Population in Study	Percent Population	(WN) Washington St. North			(IE) Indian School Rd. East			(WS) Washington St. South		
							% Utilizing	% Population Utilizing	Population	% Utilizing	% Population Utilizing	Population	% Utilizing	% Population Utilizing	Population
		2012	2040	2021											
Boundary Specified on DASZ Map															
6072	100%	471	550	496	496	0.38%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6073	100%	44	54	47	47	0.04%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6074	100%	42	43	42	42	0.03%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6075	100%	82	101	88	88	0.07%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6076	100%	0	0	0	0	0.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6077	100%	290	377	318	318	0.24%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6094	10%	0	0	0	0	0.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6095	100%	0	0	0	0	0.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6096	55%	0	0	0	0	0.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7001	100%	0	16	5	5	0.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7002	100%	55	103	70	70	0.05%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7003	100%	125	201	149	149	0.11%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7004	100%	0	4	1	1	0.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7011	100%	0	0	0	0	0.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7012	100%	582	799	652	652	0.49%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7013	100%	1198	1230	1,208	1,208	0.92%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7014	100%	2145	2460	2,246	2,246	1.70%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7021	100%	1285	1217	1,263	1,263	0.96%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7022	100%	1668	1742	1,692	1,692	1.28%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7031	100%	1976	2439	2,125	2,125	1.61%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7032	100%	1649	2056	1,780	1,780	1.35%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7041	100%	201	236	212	212	0.16%	50%	0.08%	106	0%	0.00%	0	0%	0.00%	0
7042	100%	1104	1608	1,266	1,266	0.96%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7043	100%	1456	1508	1,473	1,473	1.12%	50%	0.56%	737	0%	0.00%	0	0%	0.00%	0
7044	100%	0	254	82	82	0.06%	50%	0.03%	41	0%	0.00%	0	0%	0.00%	0
7051	100%	3374	3860	3,530	3,530	2.68%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7052	65%	0	3	1	1	0.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7053	100%	120	257	164	164	0.12%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7101	70%	2375	3067	2,597	1,818	1.38%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7105	25%	1963	2694	2,198	550	0.42%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7106	85%	2011	2240	2,085	1,772	1.34%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7107	100%	2629	3860	3,025	3,025	2.29%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7401	5%	743	800	761	38	0.03%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7402	5%	1134	1821	1,355	68	0.05%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7511	5%	1281	1256	1,273	64	0.05%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7601	100%	943	915	934	934	0.71%	0%	0.00%	0	50%	0.35%	467	0%	0.00%	0
7602	100%	1103	1143	1,116	1,116	0.85%	0%	0.00%	0	50%	0.42%	558	0%	0.00%	0
7603	100%	1243	1484	1,320	1,320	1.00%	0%	0.00%	0	100%	1.00%	1,320	0%	0.00%	0
7611	100%	1797	1772	1,789	1,789	1.36%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7612	100%	936	1054	974	974	0.74%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0

Trip Distribution Table

Kmart Site Redevelopment Project (Interstate 40 / Carlisle Blvd.)

Data Analysis Subzone Population Data for determination of Local Trip Distribution for Proposed **Retail Commercial**

*2012 and 2040 Data Taken from Mid-Region Council of Governments'
2040 Socioeconomic Forecasts by Data Analysis Subzones for the Mid-Region of New Mexico*

DASZ #	% Sub Area in Study	2012 Population	2040 Population	Interpolated Population for the Year	Population in Study	Percent Population	(WN) Washington St. North			(IE) Indian School Rd. East			(WS) Washington St. South		
							% Utilizing	% Population Utilizing	Population	% Utilizing	% Population Utilizing	Population	% Utilizing	% Population Utilizing	Population
		2012	2040	2021											
Boundary Specified on DASZ Map															
7621	100%	1223	1271	1,238	1,238	0.94%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7622	100%	1036	1232	1,099	1,099	0.83%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7631	100%	1166	1220	1,183	1,183	0.90%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7632	95%	989	1107	1,027	976	0.74%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7633	20%	1869	2020	1,918	384	0.29%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7634	60%	688	718	698	419	0.32%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7641	100%	1291	1372	1,317	1,317	1.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7642	95%	841	906	862	819	0.62%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7652	100%	1035	1040	1,037	1,037	0.79%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7661	95%	298	503	364	346	0.26%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7662	100%	1724	1769	1,738	1,738	1.32%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7681	100%	0	2510	807	807	0.61%	0%	0.00%	0	50%	0.31%	404	0%	0.00%	0
7682	100%	0	300	96	96	0.07%	0%	0.00%	0	100%	0.07%	96	0%	0.00%	0
7683	100%	127	349	198	198	0.15%	0%	0.00%	0	100%	0.15%	198	0%	0.00%	0
7684	100%	855	1798	1,158	1,158	0.88%	0%	0.00%	0	100%	0.88%	1,158	0%	0.00%	0
7685	100%	0	447	144	144	0.11%	0%	0.00%	0	100%	0.11%	144	0%	0.00%	0
7691	100%	277	2619	1,030	1,030	0.78%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7692	100%	501	789	594	594	0.45%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7693	100%	184	500	286	286	0.22%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7694	100%	0	946	304	304	0.23%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7695	100%	0	4111	1,321	1,321	1.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7696	100%	798	1373	983	983	0.75%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8001	100%	9	457	153	153	0.12%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8002	100%	418	745	523	523	0.40%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8011	100%	2431	2935	2,593	2,593	1.97%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8012	100%	505	1570	847	847	0.64%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8021	100%	835	2133	1,252	1,252	0.95%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8022	100%	1064	2062	1,385	1,385	1.05%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8031	100%	1717	2591	1,998	1,998	1.51%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8032	100%	2	2	2	2	0.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8041	100%	2899	4149	3,301	3,301	2.50%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8051	95%	0	0	0	0	0.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8052	100%	454	471	459	459	0.35%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8061	60%	1292	3401	1,970	1,182	0.90%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8062	100%	3048	3304	3,130	3,130	2.37%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8071	5%	864	2836	1,498	75	0.06%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8072	45%	1274	3872	2,109	949	0.72%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8101	100%	2332	2652	2,435	2,435	1.85%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8102	100%	1540	1760	1,611	1,611	1.22%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8111	100%	1708	1796	1,736	1,736	1.32%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0

Trip Distribution Table Kmart Site Redevelopment Project (Interstate 40 / Carlisle Blvd.)

Data Analysis Subzone Population Data for determination of Local Trip Distribution for Proposed **Retail Commercial**

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DASZ #	% Sub Area in Study	2012 Population	2040 Population	Interpolated Population for the Year 2021	Population in Study	Percent Population	(WN) Washington St. North			(IE) Indian School Rd. East			(WS) Washington St. South		
							% Utilizing	% Population Utilizing	Population	% Utilizing	% Population Utilizing	Population	% Utilizing	% Population Utilizing	Population
Boundary Specified on DASZ Map															
8121	100%	1238	1314	1,262	1,262	0.96%	0%	0.00%	0	0%	0.00%	0	30%	0.29%	379
8122	100%	1230	1306	1,254	1,254	0.95%	0%	0.00%	0	0%	0.00%	0	35%	0.33%	439
8123	100%	509	639	551	551	0.42%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8131	100%	1229	1397	1,283	1,283	0.97%	0%	0.00%	0	0%	0.00%	0	25%	0.24%	321
8132	100%	1156	1233	1,181	1,181	0.90%	0%	0.00%	0	50%	0.45%	591	25%	0.22%	295
8133	100%	0	0	0	0	0.00%	0%	0.00%	0	100%	0.00%	0	0%	0.00%	0
8141	100%	998	1149	1,047	1,047	0.79%	0%	0.00%	0	30%	0.24%	314	30%	0.24%	314
8142	100%	1527	1582	1,545	1,545	1.17%	0%	0.00%	0	30%	0.35%	464	30%	0.35%	464
8151	100%	1800	2142	1,910	1,910	1.45%	0%	0.00%	0	40%	0.58%	764	30%	0.43%	573
8161	100%	1960	2795	2,228	2,228	1.69%	0%	0.00%	0	0%	0.00%	0	50%	0.84%	1,114
8171	100%	1017	1134	1,055	1,055	0.80%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8172	100%	1590	1908	1,692	1,692	1.28%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8201	100%	1131	1186	1,149	1,149	0.87%	0%	0.00%	0	35%	0.30%	402	30%	0.26%	345
8202	100%	861	873	865	865	0.66%	0%	0.00%	0	75%	0.49%	649	0%	0.00%	0
8211	100%	1609	2364	1,852	1,852	1.40%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8212	90%	283	407	323	291	0.22%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8221	100%	10	42	20	20	0.02%	0%	0.00%	0	50%	0.01%	10	25%	0.00%	5
8231	95%	1542	1609	1,564	1,486	1.13%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8232	100%	1496	1814	1,598	1,598	1.21%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8233	50%	2775	2735	2,762	1,381	1.05%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8234	5%	2086	3417	2,514	126	0.10%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8242	10%	3662	3958	3,757	376	0.28%	0%	0.00%	0	0%	0.00%	0	30%	0.09%	113
8243	35%	994	2228	1,391	487	0.37%	0%	0.00%	0	0%	0.00%	0	30%	0.11%	146
8501	90%	1930	2355	2,067	1,860	1.41%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8502	100%	1219	1343	1,259	1,259	0.95%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8511	100%	1087	1322	1,163	1,163	0.88%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8512	100%	394	635	471	471	0.36%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8521	100%	856	1773	1,151	1,151	0.87%	0%	0.00%	0	0%	0.00%	0	50%	0.44%	576
8531	100%	2014	2283	2,100	2,100	1.59%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8532	100%	869	1425	1,048	1,048	0.79%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8533	100%	708	1833	1,070	1,070	0.81%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8534	85%	2140	2539	2,268	1,928	1.46%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8541	30%	3350	4409	3,690	1,107	0.84%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8553	85%	2455	3118	2,668	2,268	1.72%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8561	95%	2711	3136	2,848	2,706	2.05%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
				39,719	131,943	100.00%	884 0.67%			7,538 5.71%			5,082 3.85%		

Trip Distribution Table

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DASZ #	% Sub Area in Study	2012 Population	2040 Population	Interpolated Population for the Year	Population in Study	Percent Population	(CS) Carlisle Blvd. South			(IW) Indian School Rd. West			(4W) Interstate 40 West		
							% Utilizing	% Population Utilizing	Population	% Utilizing	% Population Utilizing	Population	% Utilizing	% Population Utilizing	Population
		2012	2040	2021											
Boundary Specified on DASZ Map															
5001	80%	0	98	32	26	0.02%	100%	0.02%	26	0%	0.00%	0	0%	0.00%	0
5002	100%	0	930	299	299	0.23%	100%	0.23%	299	0%	0.00%	0	0%	0.00%	0
5003	45%	0	465	149	67	0.05%	100%	0.05%	67	0%	0.00%	0	0%	0.00%	0
5007	10%	2	206	68	7	0.01%	100%	0.01%	7	0%	0.00%	0	0%	0.00%	0
5008	65%	126	461	234	152	0.12%	100%	0.12%	152	0%	0.00%	0	0%	0.00%	0
5011	100%	215	2371	908	908	0.69%	100%	0.69%	908	0%	0.00%	0	0%	0.00%	0
5012	95%	55	198	101	96	0.07%	100%	0.07%	96	0%	0.00%	0	0%	0.00%	0
5101	55%	1615	1785	1,670	919	0.70%	100%	0.70%	919	0%	0.00%	0	0%	0.00%	0
5102	5%	479	518	492	25	0.02%	100%	0.02%	25	0%	0.00%	0	0%	0.00%	0
5103	100%	650	1077	787	787	0.60%	100%	0.60%	787	0%	0.00%	0	0%	0.00%	0
5173	15%	972	1230	1,055	158	0.12%	50%	0.06%	79	0%	0.00%	0	50%	0.06%	79
5201	5%	756	2031	1,166	58	0.04%	0%	0.00%	0	0%	0.00%	0	100%	0.04%	58
5212	95%	479	603	519	493	0.37%	0%	0.00%	0	0%	0.00%	0	100%	0.37%	493
5213	100%	240	381	285	285	0.22%	0%	0.00%	0	0%	0.00%	0	100%	0.22%	285
5221	100%	24	69	38	38	0.03%	0%	0.00%	0	0%	0.00%	0	100%	0.03%	38
5231	100%	0	0	0	0	0.00%	0%	0.00%	0	100%	0.00%	0	0%	0.00%	0
5232	100%	0	0	0	0	0.00%	0%	0.00%	0	50%	0.00%	0	50%	0.00%	0
5241	100%	474	570	505	505	0.38%	25%	0.10%	126	75%	0.29%	379	0%	0.00%	0
5242	100%	1473	1958	1,629	1,629	1.23%	0%	0.00%	0	75%	0.93%	1,222	25%	0.31%	407
5251	100%	77	449	197	197	0.15%	0%	0.00%	0	0%	0.00%	0	100%	0.15%	197
5261	80%	765	3822	1,748	1,398	1.06%	75%	0.79%	1,049	0%	0.00%	0	25%	0.26%	350
5262	100%	69	1067	390	390	0.30%	75%	0.22%	293	0%	0.00%	0	25%	0.07%	98
5271	100%	408	866	555	555	0.42%	75%	0.32%	416	0%	0.00%	0	25%	0.11%	139
5272	100%	0	9	3	3	0.00%	75%	0.00%	2	0%	0.00%	0	25%	0.00%	1
5273	100%	365	734	484	484	0.37%	75%	0.28%	363	0%	0.00%	0	25%	0.09%	121
6001	60%	534	612	559	335	0.25%	0%	0.00%	0	0%	0.00%	0	50%	0.13%	168
6002	60%	1295	1393	1,327	796	0.60%	0%	0.00%	0	0%	0.00%	0	50%	0.30%	398
6003	100%	607	723	644	644	0.49%	0%	0.00%	0	0%	0.00%	0	50%	0.24%	322
6004	100%	76	160	103	103	0.08%	0%	0.00%	0	0%	0.00%	0	50%	0.04%	52
6011	50%	545	678	588	294	0.22%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6012	25%	1031	1031	1,031	258	0.20%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6021	20%	2060	2275	2,129	426	0.32%	0%	0.00%	0	0%	0.00%	0	50%	0.16%	213
6022	100%	997	1079	1,023	1,023	0.78%	0%	0.00%	0	0%	0.00%	0	50%	0.39%	512
6031	85%	322	301	315	268	0.20%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6033	25%	617	592	609	152	0.12%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6061	15%	354	378	362	54	0.04%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6062	50%	1323	1733	1,455	728	0.55%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6063	45%	0	0	0	0	0.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6064	100%	0	1967	632	632	0.48%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6071	100%	463	563	495	495	0.38%	0%	0.00%	0	0%	0.00%	0	25%	0.09%	124

Trip Distribution Table Kmart Site Redevelopment Project (Interstate 40 / Carlisle Blvd.)

Data Analysis Subzone Population Data for determination of Local Trip Distribution for Proposed **Retail Commercial**

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2040 Socioeconomic Forecasts by Data Analysis Subzones for the Mid-Region of New Mexico*

DASZ #	% Sub Area in Study	2012 Population	2040 Population	Interpolated Population for the Year	Population in Study	Percent Population	(CS) Carlisle Blvd. South			(IW) Indian School Rd. West			(4W) Interstate 40 West		
							% Utilizing	% Population Utilizing	Population	% Utilizing	% Population Utilizing	Population	% Utilizing	% Population Utilizing	Population
		2012	2040	2021											
Boundary Specified on DASZ Map															
6072	100%	471	550	496	496	0.38%	0%	0.00%	0	0%	0.00%	0	25%	0.09%	124
6073	100%	44	54	47	47	0.04%	0%	0.00%	0	0%	0.00%	0	25%	0.01%	12
6074	100%	42	43	42	42	0.03%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6075	100%	82	101	88	88	0.07%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6076	100%	0	0	0	0	0.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6077	100%	290	377	318	318	0.24%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6094	10%	0	0	0	0	0.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6095	100%	0	0	0	0	0.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6096	55%	0	0	0	0	0.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7001	100%	0	16	5	5	0.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7002	100%	55	103	70	70	0.05%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7003	100%	125	201	149	149	0.11%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7004	100%	0	4	1	1	0.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7011	100%	0	0	0	0	0.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7012	100%	582	799	652	652	0.49%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7013	100%	1198	1230	1,208	1,208	0.92%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7014	100%	2145	2460	2,246	2,246	1.70%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7021	100%	1285	1217	1,263	1,263	0.96%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7022	100%	1668	1742	1,692	1,692	1.28%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7031	100%	1976	2439	2,125	2,125	1.61%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7032	100%	1649	2056	1,780	1,780	1.35%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7041	100%	201	236	212	212	0.16%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7042	100%	1104	1608	1,266	1,266	0.96%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7043	100%	1456	1508	1,473	1,473	1.12%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7044	100%	0	254	82	82	0.06%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7051	100%	3374	3860	3,530	3,530	2.68%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7052	65%	0	3	1	1	0.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7053	100%	120	257	164	164	0.12%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7101	70%	2375	3067	2,597	1,818	1.38%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7105	25%	1963	2694	2,198	550	0.42%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7106	85%	2011	2240	2,085	1,772	1.34%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7107	100%	2629	3860	3,025	3,025	2.29%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7401	5%	743	800	761	38	0.03%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7402	5%	1134	1821	1,355	68	0.05%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7511	5%	1281	1256	1,273	64	0.05%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7601	100%	943	915	934	934	0.71%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7602	100%	1103	1143	1,116	1,116	0.85%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7603	100%	1243	1484	1,320	1,320	1.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7611	100%	1797	1772	1,789	1,789	1.36%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7612	100%	936	1054	974	974	0.74%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0

Trip Distribution Table Kmart Site Redevelopment Project (Interstate 40 / Carlisle Blvd.)

Data Analysis Subzone Population Data for determination of Local Trip Distribution for Proposed **Retail Commercial**

*2012 and 2040 Data Taken from Mid-Region Council of Governments'
2040 Socioeconomic Forecasts by Data Analysis Subzones for the Mid-Region of New Mexico*

DASZ #	% Sub Area in Study	2012 Population	2040 Population	Interpolated Population for the Year	Population in Study	Percent Population	(CS) Carlisle Blvd. South			(IW) Indian School Rd. West			(4W) Interstate 40 West		
							% Utilizing	% Population Utilizing	Population	% Utilizing	% Population Utilizing	Population	% Utilizing	% Population Utilizing	Population
		2012	2040	2021											
Boundary Specified on DASZ Map															
7621	100%	1223	1271	1,238	1,238	0.94%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7622	100%	1036	1232	1,099	1,099	0.83%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7631	100%	1166	1220	1,183	1,183	0.90%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7632	95%	989	1107	1,027	976	0.74%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7633	20%	1869	2020	1,918	384	0.29%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7634	60%	688	718	698	419	0.32%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7641	100%	1291	1372	1,317	1,317	1.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7642	95%	841	906	862	819	0.62%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7652	100%	1035	1040	1,037	1,037	0.79%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7661	95%	298	503	364	346	0.26%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7662	100%	1724	1769	1,738	1,738	1.32%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7681	100%	0	2510	807	807	0.61%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7682	100%	0	300	96	96	0.07%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7683	100%	127	349	198	198	0.15%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7684	100%	855	1798	1,158	1,158	0.88%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7685	100%	0	447	144	144	0.11%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7691	100%	277	2619	1,030	1,030	0.78%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7692	100%	501	789	594	594	0.45%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7693	100%	184	500	286	286	0.22%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7694	100%	0	946	304	304	0.23%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7695	100%	0	4111	1,321	1,321	1.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7696	100%	798	1373	983	983	0.75%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8001	100%	9	457	153	153	0.12%	0%	0.00%	0	100%	0.12%	153	0%	0.00%	0
8002	100%	418	745	523	523	0.40%	0%	0.00%	0	100%	0.40%	523	0%	0.00%	0
8011	100%	2431	2935	2,593	2,593	1.97%	100%	1.97%	2,593	0%	0.00%	0	0%	0.00%	0
8012	100%	505	1570	847	847	0.64%	50%	0.32%	424	50%	0.32%	424	0%	0.00%	0
8021	100%	835	2133	1,252	1,252	0.95%	25%	0.24%	313	75%	0.71%	939	0%	0.00%	0
8022	100%	1064	2062	1,385	1,385	1.05%	0%	0.00%	0	100%	1.05%	1,385	0%	0.00%	0
8031	100%	1717	2591	1,998	1,998	1.51%	100%	1.51%	1,998	0%	0.00%	0	0%	0.00%	0
8032	100%	2	2	2	2	0.00%	100%	0.00%	2	0%	0.00%	0	0%	0.00%	0
8041	100%	2899	4149	3,301	3,301	2.50%	100%	2.50%	3,301	0%	0.00%	0	0%	0.00%	0
8051	95%	0	0	0	0	0.00%	100%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8052	100%	454	471	459	459	0.35%	100%	0.35%	459	0%	0.00%	0	0%	0.00%	0
8061	60%	1292	3401	1,970	1,182	0.90%	100%	0.90%	1,182	0%	0.00%	0	0%	0.00%	0
8062	100%	3048	3304	3,130	3,130	2.37%	100%	2.37%	3,130	0%	0.00%	0	0%	0.00%	0
8071	5%	864	2836	1,498	75	0.06%	100%	0.06%	75	0%	0.00%	0	0%	0.00%	0
8072	45%	1274	3872	2,109	949	0.72%	100%	0.72%	949	0%	0.00%	0	0%	0.00%	0
8101	100%	2332	2652	2,435	2,435	1.85%	0%	0.00%	0	20%	0.37%	487	0%	0.00%	0
8102	100%	1540	1760	1,611	1,611	1.22%	0%	0.00%	0	40%	0.49%	644	0%	0.00%	0
8111	100%	1708	1796	1,736	1,736	1.32%	50%	0.66%	868	0%	0.00%	0	0%	0.00%	0

Trip Distribution Table Kmart Site Redevelopment Project (Interstate 40 / Carlisle Blvd.)

Data Analysis Subzone Population Data for determination of Local Trip Distribution for Proposed **Retail Commercial**

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DASZ #	% Sub Area in Study	2012 Population	2040 Population	Interpolated Population for the Year	Population in Study	Percent Population	(CS) Carlisle Blvd. South			(IW) Indian School Rd. West			(4W) Interstate 40 West		
							% Utilizing	% Population Utilizing	Population	% Utilizing	% Population Utilizing	Population	% Utilizing	% Population Utilizing	Population
		2012	2040	2021											
Boundary Specified on DASZ Map															
8121	100%	1238	1314	1,262	1,262	0.96%	40%	0.38%	505	0%	0.00%	0	0%	0.00%	0
8122	100%	1230	1306	1,254	1,254	0.95%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8123	100%	509	639	551	551	0.42%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8131	100%	1229	1397	1,283	1,283	0.97%	50%	0.49%	642	0%	0.00%	0	0%	0.00%	0
8132	100%	1156	1233	1,181	1,181	0.90%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8133	100%	0	0	0	0	0.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8141	100%	998	1149	1,047	1,047	0.79%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8142	100%	1527	1582	1,545	1,545	1.17%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8151	100%	1800	2142	1,910	1,910	1.45%	30%	0.43%	573	0%	0.00%	0	0%	0.00%	0
8161	100%	1960	2795	2,228	2,228	1.69%	50%	0.84%	1,114	0%	0.00%	0	0%	0.00%	0
8171	100%	1017	1134	1,055	1,055	0.80%	100%	0.80%	1,055	0%	0.00%	0	0%	0.00%	0
8172	100%	1590	1908	1,692	1,692	1.28%	100%	1.28%	1,692	0%	0.00%	0	0%	0.00%	0
8201	100%	1131	1186	1,149	1,149	0.87%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8202	100%	861	873	865	865	0.66%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8211	100%	1609	2364	1,852	1,852	1.40%	50%	0.70%	926	0%	0.00%	0	0%	0.00%	0
8212	90%	283	407	323	291	0.22%	100%	0.22%	291	0%	0.00%	0	0%	0.00%	0
8221	100%	10	42	20	20	0.02%	25%	0.00%	5	0%	0.00%	0	0%	0.00%	0
8231	95%	1542	1609	1,564	1,486	1.13%	50%	0.56%	743	0%	0.00%	0	0%	0.00%	0
8232	100%	1496	1814	1,598	1,598	1.21%	50%	0.61%	799	0%	0.00%	0	0%	0.00%	0
8233	50%	2775	2735	2,762	1,381	1.05%	50%	0.52%	691	0%	0.00%	0	0%	0.00%	0
8234	5%	2086	3417	2,514	126	0.10%	50%	0.05%	63	0%	0.00%	0	0%	0.00%	0
8242	10%	3662	3958	3,757	376	0.28%	35%	0.10%	132	0%	0.00%	0	0%	0.00%	0
8243	35%	994	2228	1,391	487	0.37%	35%	0.13%	170	0%	0.00%	0	0%	0.00%	0
8501	90%	1930	2355	2,067	1,860	1.41%	100%	1.41%	1,860	0%	0.00%	0	0%	0.00%	0
8502	100%	1219	1343	1,259	1,259	0.95%	100%	0.95%	1,259	0%	0.00%	0	0%	0.00%	0
8511	100%	1087	1322	1,163	1,163	0.88%	100%	0.88%	1,163	0%	0.00%	0	0%	0.00%	0
8512	100%	394	635	471	471	0.36%	100%	0.36%	471	0%	0.00%	0	0%	0.00%	0
8521	100%	856	1773	1,151	1,151	0.87%	50%	0.44%	576	0%	0.00%	0	0%	0.00%	0
8531	100%	2014	2283	2,100	2,100	1.59%	50%	0.80%	1,050	0%	0.00%	0	0%	0.00%	0
8532	100%	869	1425	1,048	1,048	0.79%	50%	0.40%	524	0%	0.00%	0	0%	0.00%	0
8533	100%	708	1833	1,070	1,070	0.81%	50%	0.41%	535	0%	0.00%	0	0%	0.00%	0
8534	85%	2140	2539	2,268	1,928	1.46%	50%	0.73%	964	0%	0.00%	0	0%	0.00%	0
8541	30%	3350	4409	3,690	1,107	0.84%	50%	0.42%	554	0%	0.00%	0	0%	0.00%	0
8553	85%	2455	3118	2,668	2,268	1.72%	100%	1.72%	2,268	0%	0.00%	0	0%	0.00%	0
8561	95%	2711	3136	2,848	2,706	2.05%	100%	2.05%	2,706	0%	0.00%	0	0%	0.00%	0
				39,719	131,943	100.00%				44,236				6,155	4,188
										33.53%				4.67%	3.17%

Trip Distribution Table Kmart Site Redevelopment Project (Interstate 40 / Carlisle Blvd.)

Data Analysis Subzone Population Data for determination of Local Trip Distribution for Proposed **Retail Commercial**

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DASZ #	% Sub Area in Study	2012 Population	2040 Population	Interpolated Population for the Year	Population in Study	Percent Population	(CoW) Constitution Av. West			(IC) Indian School Rd. Central			(SN) San Mateo Blvd. North		
							% Utilizing	% Population Utilizing	Population	% Utilizing	% Population Utilizing	Population	% Utilizing	% Population Utilizing	Population
		2012	2040	2021											
Boundary Specified on DASZ Map															
5001	80%	0	98	32	26	0.02%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5002	100%	0	930	299	299	0.23%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5003	45%	0	465	149	67	0.05%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5007	10%	2	206	68	7	0.01%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5008	65%	126	461	234	152	0.12%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5011	100%	215	2371	908	908	0.69%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5012	95%	55	198	101	96	0.07%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5101	55%	1615	1785	1,670	919	0.70%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5102	5%	479	518	492	25	0.02%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5103	100%	650	1077	787	787	0.60%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5173	15%	972	1230	1,055	158	0.12%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5201	5%	756	2031	1,166	58	0.04%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5212	95%	479	603	519	493	0.37%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5213	100%	240	381	285	285	0.22%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5221	100%	24	69	38	38	0.03%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5231	100%	0	0	0	0	0.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5232	100%	0	0	0	0	0.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5241	100%	474	570	505	505	0.38%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5242	100%	1473	1958	1,629	1,629	1.23%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5251	100%	77	449	197	197	0.15%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5261	80%	765	3822	1,748	1,398	1.06%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5262	100%	69	1067	390	390	0.30%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5271	100%	408	866	555	555	0.42%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5272	100%	0	9	3	3	0.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5273	100%	365	734	484	484	0.37%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6001	60%	534	612	559	335	0.25%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6002	60%	1295	1393	1,327	796	0.60%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6003	100%	607	723	644	644	0.49%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6004	100%	76	160	103	103	0.08%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6011	50%	545	678	588	294	0.22%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6012	25%	1031	1031	1,031	258	0.20%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6021	20%	2060	2275	2,129	426	0.32%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6022	100%	997	1079	1,023	1,023	0.78%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6031	85%	322	301	315	268	0.20%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6033	25%	617	592	609	152	0.12%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6061	15%	354	378	362	54	0.04%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6062	50%	1323	1733	1,455	728	0.55%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6063	45%	0	0	0	0	0.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6064	100%	0	1967	632	632	0.48%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6071	100%	463	563	495	495	0.38%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0

Trip Distribution Table Kmart Site Redevelopment Project (Interstate 40 / Carlisle Blvd.)

Data Analysis Subzone Population Data for determination of Local Trip Distribution for Proposed **Retail Commercial**

*2012 and 2040 Data Taken from Mid-Region Council of Governments'
2040 Socioeconomic Forecasts by Data Analysis Subzones for the Mid-Region of New Mexico*

DASZ #	% Sub Area in Study	2012 Population	2040 Population	Interpolated Population for the Year	Population in Study	Percent Population	(CoW) Constitution Av. West			(IC) Indian School Rd. Central			(SN) San Mateo Blvd. North		
							% Utilizing	% Population Utilizing	Population	% Utilizing	% Population Utilizing	Population	% Utilizing	% Population Utilizing	Population
		2012	2040	2021											
Boundary Specified on DASZ Map															
6072	100%	471	550	496	496	0.38%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6073	100%	44	54	47	47	0.04%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6074	100%	42	43	42	42	0.03%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6075	100%	82	101	88	88	0.07%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6076	100%	0	0	0	0	0.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6077	100%	290	377	318	318	0.24%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6094	10%	0	0	0	0	0.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6095	100%	0	0	0	0	0.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6096	55%	0	0	0	0	0.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7001	100%	0	16	5	5	0.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7002	100%	55	103	70	70	0.05%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7003	100%	125	201	149	149	0.11%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7004	100%	0	4	1	1	0.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7011	100%	0	0	0	0	0.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7012	100%	582	799	652	652	0.49%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7013	100%	1198	1230	1,208	1,208	0.92%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7014	100%	2145	2460	2,246	2,246	1.70%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7021	100%	1285	1217	1,263	1,263	0.96%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7022	100%	1668	1742	1,692	1,692	1.28%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7031	100%	1976	2439	2,125	2,125	1.61%	0%	0.00%	0	0%	0.00%	0	50%	0.81%	1,063
7032	100%	1649	2056	1,780	1,780	1.35%	0%	0.00%	0	0%	0.00%	0	50%	0.67%	890
7041	100%	201	236	212	212	0.16%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7042	100%	1104	1608	1,266	1,266	0.96%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7043	100%	1456	1508	1,473	1,473	1.12%	0%	0.00%	0	0%	0.00%	0	50%	0.56%	737
7044	100%	0	254	82	82	0.06%	0%	0.00%	0	0%	0.00%	0	50%	0.03%	41
7051	100%	3374	3860	3,530	3,530	2.68%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7052	65%	0	3	1	1	0.00%	0%	0.00%	0	0%	0.00%	0	100%	0.00%	1
7053	100%	120	257	164	164	0.12%	0%	0.00%	0	0%	0.00%	0	100%	0.12%	164
7101	70%	2375	3067	2,597	1,818	1.38%	0%	0.00%	0	0%	0.00%	0	100%	1.38%	1,818
7105	25%	1963	2694	2,198	550	0.42%	0%	0.00%	0	0%	0.00%	0	100%	0.42%	550
7106	85%	2011	2240	2,085	1,772	1.34%	0%	0.00%	0	0%	0.00%	0	100%	1.34%	1,772
7107	100%	2629	3860	3,025	3,025	2.29%	0%	0.00%	0	0%	0.00%	0	100%	2.29%	3,025
7401	5%	743	800	761	38	0.03%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7402	5%	1134	1821	1,355	68	0.05%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7511	5%	1281	1256	1,273	64	0.05%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7601	100%	943	915	934	934	0.71%	0%	0.00%	0	0%	0.00%	0	50%	0.35%	467
7602	100%	1103	1143	1,116	1,116	0.85%	0%	0.00%	0	0%	0.00%	0	50%	0.42%	558
7603	100%	1243	1484	1,320	1,320	1.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7611	100%	1797	1772	1,789	1,789	1.36%	0%	0.00%	0	0%	0.00%	0	50%	0.68%	895
7612	100%	936	1054	974	974	0.74%	0%	0.00%	0	0%	0.00%	0	50%	0.37%	487

Trip Distribution Table Kmart Site Redevelopment Project (Interstate 40 / Carlisle Blvd.)

Data Analysis Subzone Population Data for determination of Local Trip Distribution for Proposed **Retail Commercial**

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DASZ #	% Sub Area in Study	2012 Population	2040 Population	Interpolated Population for the Year	Population in Study	Percent Population	(CoW) Constitution Av. West			(IC) Indian School Rd. Central			(SN) San Mateo Blvd. North		
							% Utilizing	% Population Utilizing	Population	% Utilizing	% Population Utilizing	Population	% Utilizing	% Population Utilizing	Population
		2012	2040	2021											
Boundary Specified on DASZ Map															
7621	100%	1223	1271	1,238	1,238	0.94%	0%	0.00%	0	0%	0.00%	0	50%	0.47%	619
7622	100%	1036	1232	1,099	1,099	0.83%	0%	0.00%	0	0%	0.00%	0	50%	0.42%	550
7631	100%	1166	1220	1,183	1,183	0.90%	0%	0.00%	0	0%	0.00%	0	50%	0.45%	592
7632	95%	989	1107	1,027	976	0.74%	0%	0.00%	0	0%	0.00%	0	50%	0.37%	488
7633	20%	1869	2020	1,918	384	0.29%	0%	0.00%	0	0%	0.00%	0	50%	0.15%	192
7634	60%	688	718	698	419	0.32%	0%	0.00%	0	0%	0.00%	0	50%	0.16%	210
7641	100%	1291	1372	1,317	1,317	1.00%	0%	0.00%	0	0%	0.00%	0	50%	0.50%	659
7642	95%	841	906	862	819	0.62%	0%	0.00%	0	0%	0.00%	0	50%	0.31%	410
7652	100%	1035	1040	1,037	1,037	0.79%	0%	0.00%	0	0%	0.00%	0	50%	0.39%	519
7661	95%	298	503	364	346	0.26%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7662	100%	1724	1769	1,738	1,738	1.32%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7681	100%	0	2510	807	807	0.61%	0%	0.00%	0	0%	0.00%	0	25%	0.15%	202
7682	100%	0	300	96	96	0.07%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7683	100%	127	349	198	198	0.15%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7684	100%	855	1798	1,158	1,158	0.88%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7685	100%	0	447	144	144	0.11%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7691	100%	277	2619	1,030	1,030	0.78%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7692	100%	501	789	594	594	0.45%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7693	100%	184	500	286	286	0.22%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7694	100%	0	946	304	304	0.23%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7695	100%	0	4111	1,321	1,321	1.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7696	100%	798	1373	983	983	0.75%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8001	100%	9	457	153	153	0.12%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8002	100%	418	745	523	523	0.40%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8011	100%	2431	2935	2,593	2,593	1.97%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8012	100%	505	1570	847	847	0.64%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8021	100%	835	2133	1,252	1,252	0.95%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8022	100%	1064	2062	1,385	1,385	1.05%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8031	100%	1717	2591	1,998	1,998	1.51%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8032	100%	2	2	2	2	0.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8041	100%	2899	4149	3,301	3,301	2.50%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8051	95%	0	0	0	0	0.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8052	100%	454	471	459	459	0.35%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8061	60%	1292	3401	1,970	1,182	0.90%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8062	100%	3048	3304	3,130	3,130	2.37%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8071	5%	864	2836	1,498	75	0.06%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8072	45%	1274	3872	2,109	949	0.72%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8101	100%	2332	2652	2,435	2,435	1.85%	40%	0.74%	974	0%	0.00%	0	0%	0.00%	0
8102	100%	1540	1760	1,611	1,611	1.22%	0%	0.00%	0	30%	0.37%	483	0%	0.00%	0
8111	100%	1708	1796	1,736	1,736	1.32%	50%	0.66%	868	0%	0.00%	0	0%	0.00%	0

Trip Distribution Table Kmart Site Redevelopment Project (Interstate 40 / Carlisle Blvd.)

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							% Utilizing	% Population Utilizing	Population	% Utilizing	% Population Utilizing	Population	% Utilizing	% Population Utilizing	Population
Boundary Specified on DASZ Map															
8121	100%	1238	1314	1,262	1,262	0.96%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8122	100%	1230	1306	1,254	1,254	0.95%	0%	0.00%	0	30%	0.29%	376	0%	0.00%	0
8123	100%	509	639	551	551	0.42%	0%	0.00%	0	100%	0.42%	551	0%	0.00%	0
8131	100%	1229	1397	1,283	1,283	0.97%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8132	100%	1156	1233	1,181	1,181	0.90%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8133	100%	0	0	0	0	0.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8141	100%	998	1149	1,047	1,047	0.79%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8142	100%	1527	1582	1,545	1,545	1.17%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8151	100%	1800	2142	1,910	1,910	1.45%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8161	100%	1960	2795	2,228	2,228	1.69%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8171	100%	1017	1134	1,055	1,055	0.80%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8172	100%	1590	1908	1,692	1,692	1.28%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8201	100%	1131	1186	1,149	1,149	0.87%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8202	100%	861	873	865	865	0.66%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8211	100%	1609	2364	1,852	1,852	1.40%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8212	90%	283	407	323	291	0.22%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8221	100%	10	42	20	20	0.02%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8231	95%	1542	1609	1,564	1,486	1.13%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8232	100%	1496	1814	1,598	1,598	1.21%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8233	50%	2775	2735	2,762	1,381	1.05%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8234	5%	2086	3417	2,514	126	0.10%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8242	10%	3662	3958	3,757	376	0.28%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8243	35%	994	2228	1,391	487	0.37%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8501	90%	1930	2355	2,067	1,860	1.41%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8502	100%	1219	1343	1,259	1,259	0.95%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8511	100%	1087	1322	1,163	1,163	0.88%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8512	100%	394	635	471	471	0.36%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8521	100%	856	1773	1,151	1,151	0.87%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8531	100%	2014	2283	2,100	2,100	1.59%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8532	100%	869	1425	1,048	1,048	0.79%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8533	100%	708	1833	1,070	1,070	0.81%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8534	85%	2140	2539	2,268	1,928	1.46%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8541	30%	3350	4409	3,690	1,107	0.84%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8553	85%	2455	3118	2,668	2,268	1.72%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8561	95%	2711	3136	2,848	2,706	2.05%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
							39,719	131,943	100.00%	1,842	1,411	16,904	1.40%	1.07%	12.81%

Trip Distribution Table

Kmart Site Redevelopment Project (Interstate 40 / Carlisle Blvd.)

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DASZ #	% Sub Area in Study	2012 Population	2040 Population	Interpolated Population for the Year	Population in Study	Percent Population	(SS) San Mateo Blvd. South			(GN) Girard Ct. North			(GS) Girard Ct. South		
							% Utilizing	% Population Utilizing	Population	% Utilizing	% Population Utilizing	Population	% Utilizing	% Population Utilizing	Population
		2012	2040	2021											
Boundary Specified on DASZ Map															
5001	80%	0	98	32	26	0.02%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5002	100%	0	930	299	299	0.23%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5003	45%	0	465	149	67	0.05%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5007	10%	2	206	68	7	0.01%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5008	65%	126	461	234	152	0.12%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5011	100%	215	2371	908	908	0.69%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5012	95%	55	198	101	96	0.07%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5101	55%	1615	1785	1,670	919	0.70%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5102	5%	479	518	492	25	0.02%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5103	100%	650	1077	787	787	0.60%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5173	15%	972	1230	1,055	158	0.12%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5201	5%	756	2031	1,166	58	0.04%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5212	95%	479	603	519	493	0.37%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5213	100%	240	381	285	285	0.22%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5221	100%	24	69	38	38	0.03%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5231	100%	0	0	0	0	0.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5232	100%	0	0	0	0	0.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5241	100%	474	570	505	505	0.38%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5242	100%	1473	1958	1,629	1,629	1.23%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5251	100%	77	449	197	197	0.15%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5261	80%	765	3822	1,748	1,398	1.06%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5262	100%	69	1067	390	390	0.30%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5271	100%	408	866	555	555	0.42%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5272	100%	0	9	3	3	0.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5273	100%	365	734	484	484	0.37%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6001	60%	534	612	559	335	0.25%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6002	60%	1295	1393	1,327	796	0.60%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6003	100%	607	723	644	644	0.49%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6004	100%	76	160	103	103	0.08%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6011	50%	545	678	588	294	0.22%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6012	25%	1031	1031	1,031	258	0.20%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6021	20%	2060	2275	2,129	426	0.32%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6022	100%	997	1079	1,023	1,023	0.78%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6031	85%	322	301	315	268	0.20%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6033	25%	617	592	609	152	0.12%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6061	15%	354	378	362	54	0.04%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6062	50%	1323	1733	1,455	728	0.55%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6063	45%	0	0	0	0	0.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6064	100%	0	1967	632	632	0.48%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6071	100%	463	563	495	495	0.38%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0

Trip Distribution Table

Kmart Site Redevelopment Project (Interstate 40 / Carlisle Blvd.)

Data Analysis Subzone Population Data for determination of Local Trip Distribution for Proposed **Retail Commercial**

*2012 and 2040 Data Taken from Mid-Region Council of Governments'
2040 Socioeconomic Forecasts by Data Analysis Subzones for the Mid-Region of New Mexico*

DASZ #	% Sub Area in Study	2012 Population	2040 Population	Interpolated Population for the Year	Population in Study	Percent Population	(SS) San Mateo Blvd. South			(GN) Girard Ct. North			(GS) Girard Ct. South		
							% Utilizing	% Population Utilizing	Population	% Utilizing	% Population Utilizing	Population	% Utilizing	% Population Utilizing	Population
		2012	2040	2021											
Boundary Specified on DASZ Map															
6072	100%	471	550	496	496	0.38%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6073	100%	44	54	47	47	0.04%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6074	100%	42	43	42	42	0.03%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6075	100%	82	101	88	88	0.07%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6076	100%	0	0	0	0	0.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6077	100%	290	377	318	318	0.24%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6094	10%	0	0	0	0	0.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6095	100%	0	0	0	0	0.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6096	55%	0	0	0	0	0.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7001	100%	0	16	5	5	0.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7002	100%	55	103	70	70	0.05%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7003	100%	125	201	149	149	0.11%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7004	100%	0	4	1	1	0.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7011	100%	0	0	0	0	0.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7012	100%	582	799	652	652	0.49%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7013	100%	1198	1230	1,208	1,208	0.92%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7014	100%	2145	2460	2,246	2,246	1.70%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7021	100%	1285	1217	1,263	1,263	0.96%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7022	100%	1668	1742	1,692	1,692	1.28%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7031	100%	1976	2439	2,125	2,125	1.61%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7032	100%	1649	2056	1,780	1,780	1.35%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7041	100%	201	236	212	212	0.16%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7042	100%	1104	1608	1,266	1,266	0.96%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7043	100%	1456	1508	1,473	1,473	1.12%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7044	100%	0	254	82	82	0.06%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7051	100%	3374	3860	3,530	3,530	2.68%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7052	65%	0	3	1	1	0.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7053	100%	120	257	164	164	0.12%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7101	70%	2375	3067	2,597	1,818	1.38%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7105	25%	1963	2694	2,198	550	0.42%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7106	85%	2011	2240	2,085	1,772	1.34%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7107	100%	2629	3860	3,025	3,025	2.29%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7401	5%	743	800	761	38	0.03%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7402	5%	1134	1821	1,355	68	0.05%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7511	5%	1281	1256	1,273	64	0.05%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7601	100%	943	915	934	934	0.71%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7602	100%	1103	1143	1,116	1,116	0.85%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7603	100%	1243	1484	1,320	1,320	1.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7611	100%	1797	1772	1,789	1,789	1.36%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7612	100%	936	1054	974	974	0.74%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0

Trip Distribution Table Kmart Site Redevelopment Project (Interstate 40 / Carlisle Blvd.)

Data Analysis Subzone Population Data for determination of Local Trip Distribution for Proposed **Retail Commercial**

*2012 and 2040 Data Taken from Mid-Region Council of Governments'
2040 Socioeconomic Forecasts by Data Analysis Subzones for the Mid-Region of New Mexico*

DASZ #	% Sub Area in Study	2012 Population	2040 Population	Interpolated Population for the Year	Population in Study	Percent Population	(SS) San Mateo Blvd. South			(GN) Girard Ct. North			(GS) Girard Ct. South		
							% Utilizing	% Population Utilizing	Population	% Utilizing	% Population Utilizing	Population	% Utilizing	% Population Utilizing	Population
		2012	2040	2021											
Boundary Specified on DASZ Map															
7621	100%	1223	1271	1,238	1,238	0.94%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7622	100%	1036	1232	1,099	1,099	0.83%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7631	100%	1166	1220	1,183	1,183	0.90%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7632	95%	989	1107	1,027	976	0.74%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7633	20%	1869	2020	1,918	384	0.29%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7634	60%	688	718	698	419	0.32%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7641	100%	1291	1372	1,317	1,317	1.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7642	95%	841	906	862	819	0.62%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7652	100%	1035	1040	1,037	1,037	0.79%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7661	95%	298	503	364	346	0.26%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7662	100%	1724	1769	1,738	1,738	1.32%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7681	100%	0	2510	807	807	0.61%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7682	100%	0	300	96	96	0.07%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7683	100%	127	349	198	198	0.15%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7684	100%	855	1798	1,158	1,158	0.88%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7685	100%	0	447	144	144	0.11%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7691	100%	277	2619	1,030	1,030	0.78%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7692	100%	501	789	594	594	0.45%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7693	100%	184	500	286	286	0.22%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7694	100%	0	946	304	304	0.23%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7695	100%	0	4111	1,321	1,321	1.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7696	100%	798	1373	983	983	0.75%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8001	100%	9	457	153	153	0.12%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8002	100%	418	745	523	523	0.40%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8011	100%	2431	2935	2,593	2,593	1.97%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8012	100%	505	1570	847	847	0.64%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8021	100%	835	2133	1,252	1,252	0.95%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8022	100%	1064	2062	1,385	1,385	1.05%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8031	100%	1717	2591	1,998	1,998	1.51%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8032	100%	2	2	2	2	0.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8041	100%	2899	4149	3,301	3,301	2.50%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8051	95%	0	0	0	0	0.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8052	100%	454	471	459	459	0.35%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8061	60%	1292	3401	1,970	1,182	0.90%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8062	100%	3048	3304	3,130	3,130	2.37%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8071	5%	864	2836	1,498	75	0.06%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8072	45%	1274	3872	2,109	949	0.72%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8101	100%	2332	2652	2,435	2,435	1.85%	0%	0.00%	0	0%	0.00%	0	40%	0.74%	974
8102	100%	1540	1760	1,611	1,611	1.22%	0%	0.00%	0	30%	0.37%	483	0%	0.00%	0
8111	100%	1708	1796	1,736	1,736	1.32%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0

Trip Distribution Table Kmart Site Redevelopment Project (Interstate 40 / Carlisle Blvd.)

Data Analysis Subzone Population Data for determination of Local Trip Distribution for Proposed **Retail Commercial**

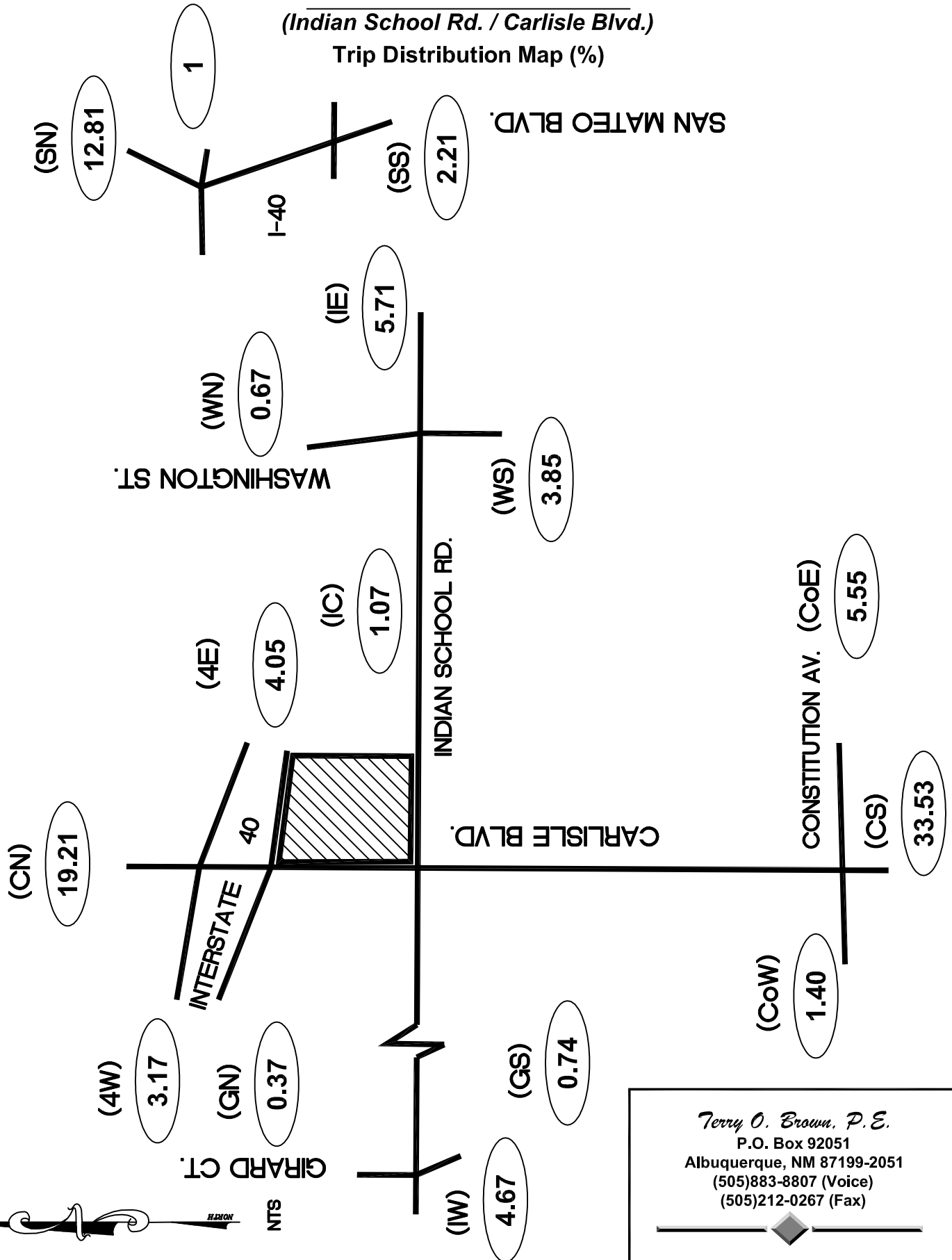
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DASZ #	% Sub Area in Study	2012 Population	2040 Population	Interpolated Population for the Year 2021	Population in Study	Percent Population	(SS) San Mateo Blvd. South			(GN) Girard Ct. North			(GS) Girard Ct. South		
							% Utilizing	% Population Utilizing	Population	% Utilizing	% Population Utilizing	Population	% Utilizing	% Population Utilizing	Population
Boundary Specified on DASZ Map															
8121	100%	1238	1314	1,262	1,262	0.96%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8122	100%	1230	1306	1,254	1,254	0.95%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8123	100%	509	639	551	551	0.42%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8131	100%	1229	1397	1,283	1,283	0.97%	25%	0.24%	321	0%	0.00%	0	0%	0.00%	0
8132	100%	1156	1233	1,181	1,181	0.90%	25%	0.22%	295	0%	0.00%	0	0%	0.00%	0
8133	100%	0	0	0	0	0.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8141	100%	998	1149	1,047	1,047	0.79%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8142	100%	1527	1582	1,545	1,545	1.17%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8151	100%	1800	2142	1,910	1,910	1.45%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8161	100%	1960	2795	2,228	2,228	1.69%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8171	100%	1017	1134	1,055	1,055	0.80%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8172	100%	1590	1908	1,692	1,692	1.28%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8201	100%	1131	1186	1,149	1,149	0.87%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8202	100%	861	873	865	865	0.66%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8211	100%	1609	2364	1,852	1,852	1.40%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8212	90%	283	407	323	291	0.22%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8221	100%	10	42	20	20	0.02%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8231	95%	1542	1609	1,564	1,486	1.13%	50%	0.56%	743	0%	0.00%	0	0%	0.00%	0
8232	100%	1496	1814	1,598	1,598	1.21%	50%	0.61%	799	0%	0.00%	0	0%	0.00%	0
8233	50%	2775	2735	2,762	1,381	1.05%	50%	0.52%	691	0%	0.00%	0	0%	0.00%	0
8234	5%	2086	3417	2,514	126	0.10%	50%	0.05%	63	0%	0.00%	0	0%	0.00%	0
8242	10%	3662	3958	3,757	376	0.28%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8243	35%	994	2228	1,391	487	0.37%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8501	90%	1930	2355	2,067	1,860	1.41%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8502	100%	1219	1343	1,259	1,259	0.95%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8511	100%	1087	1322	1,163	1,163	0.88%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8512	100%	394	635	471	471	0.36%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8521	100%	856	1773	1,151	1,151	0.87%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8531	100%	2014	2283	2,100	2,100	1.59%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8532	100%	869	1425	1,048	1,048	0.79%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8533	100%	708	1833	1,070	1,070	0.81%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8534	85%	2140	2539	2,268	1,928	1.46%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8541	30%	3350	4409	3,690	1,107	0.84%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8553	85%	2455	3118	2,668	2,268	1.72%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8561	95%	2711	3136	2,848	2,706	2.05%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
							39,719	131,943	100.00%	2,912	483	974	2.21%	0.37%	0.74%

Old KMart Site Redevelopment Project

(Indian School Rd. / Carlisle Blvd.)

Trip Distribution Map (%)

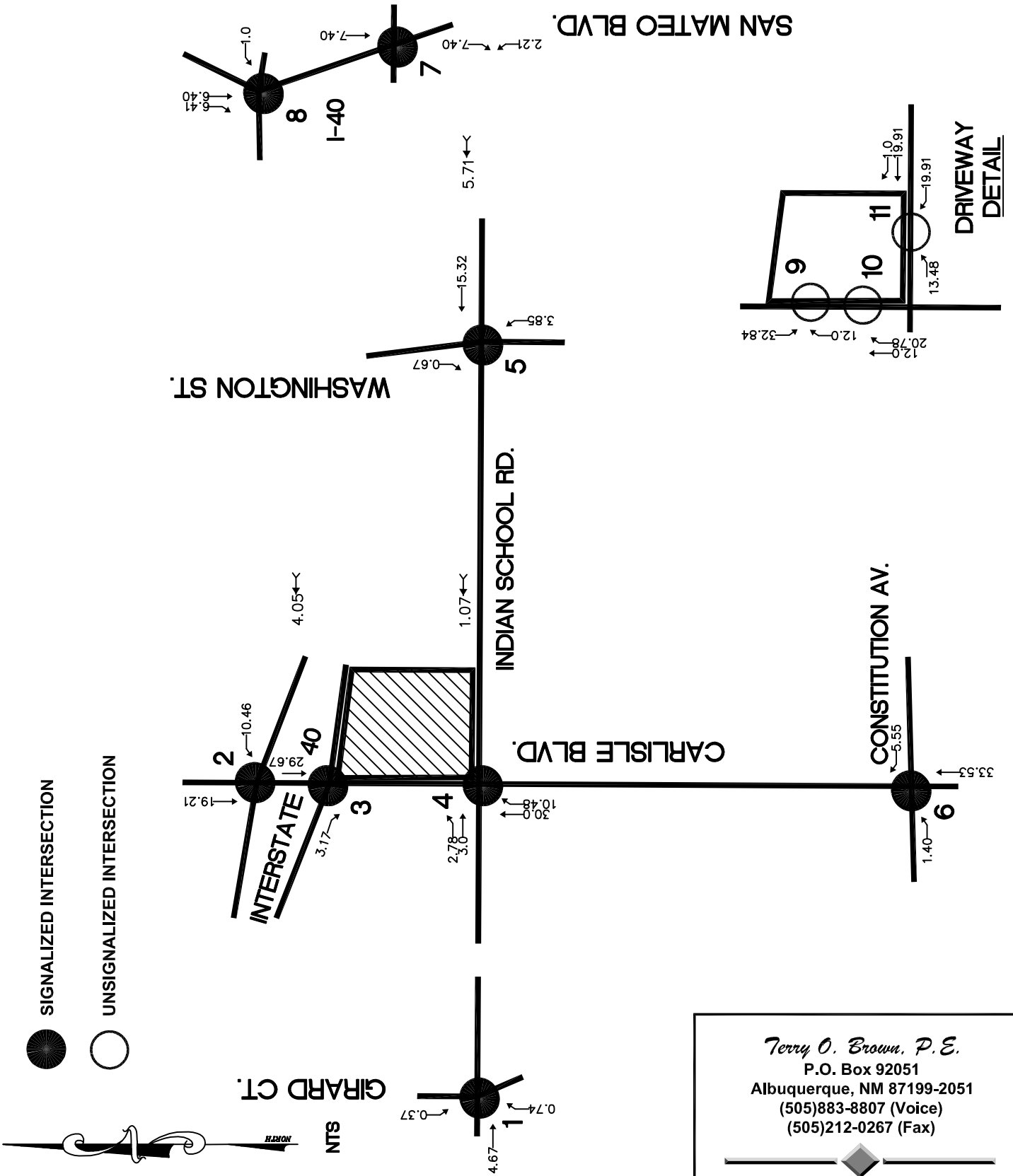


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Old KMart Site Redevelopment Project

(Indian School Rd. / Carlisle Blvd.)

Trip Assignments (% Entering)

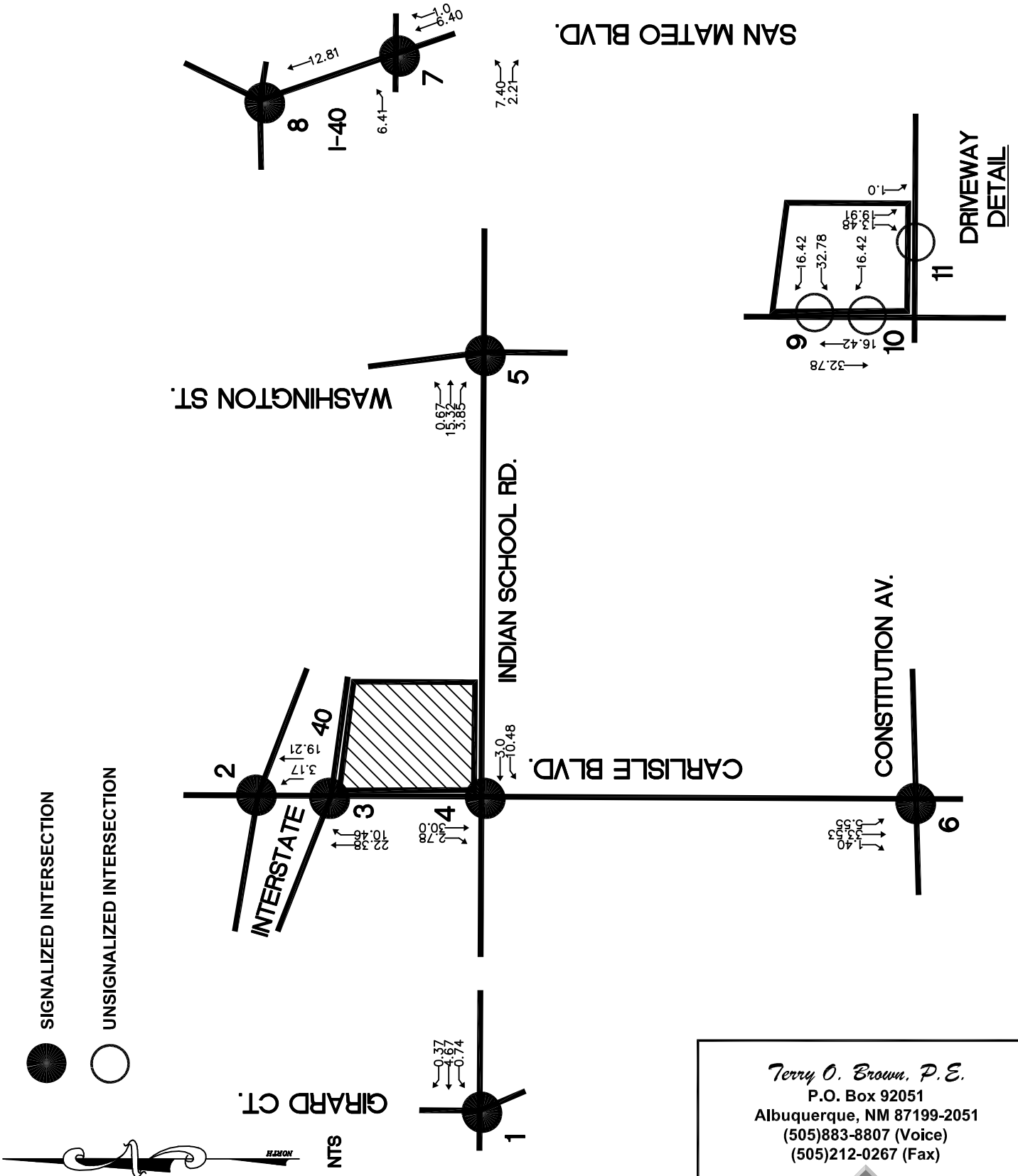


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Old KMart Site Redevelopment Project

(Indian School Rd. / Carlisle Blvd.)

Trip Assignments (% Exiting)

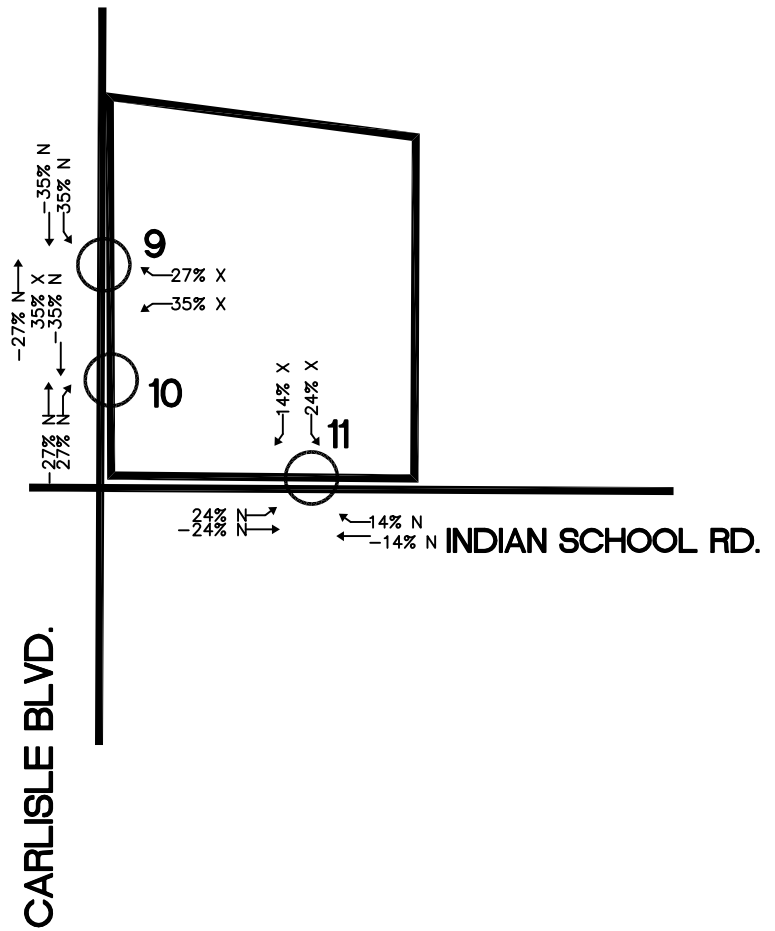


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Old KMart Site Redevelopment Project
 (Indian School Rd. / Carlisle Blvd.)
 PM Passby Trip Assignments (eNtering, eXiting)



NTS



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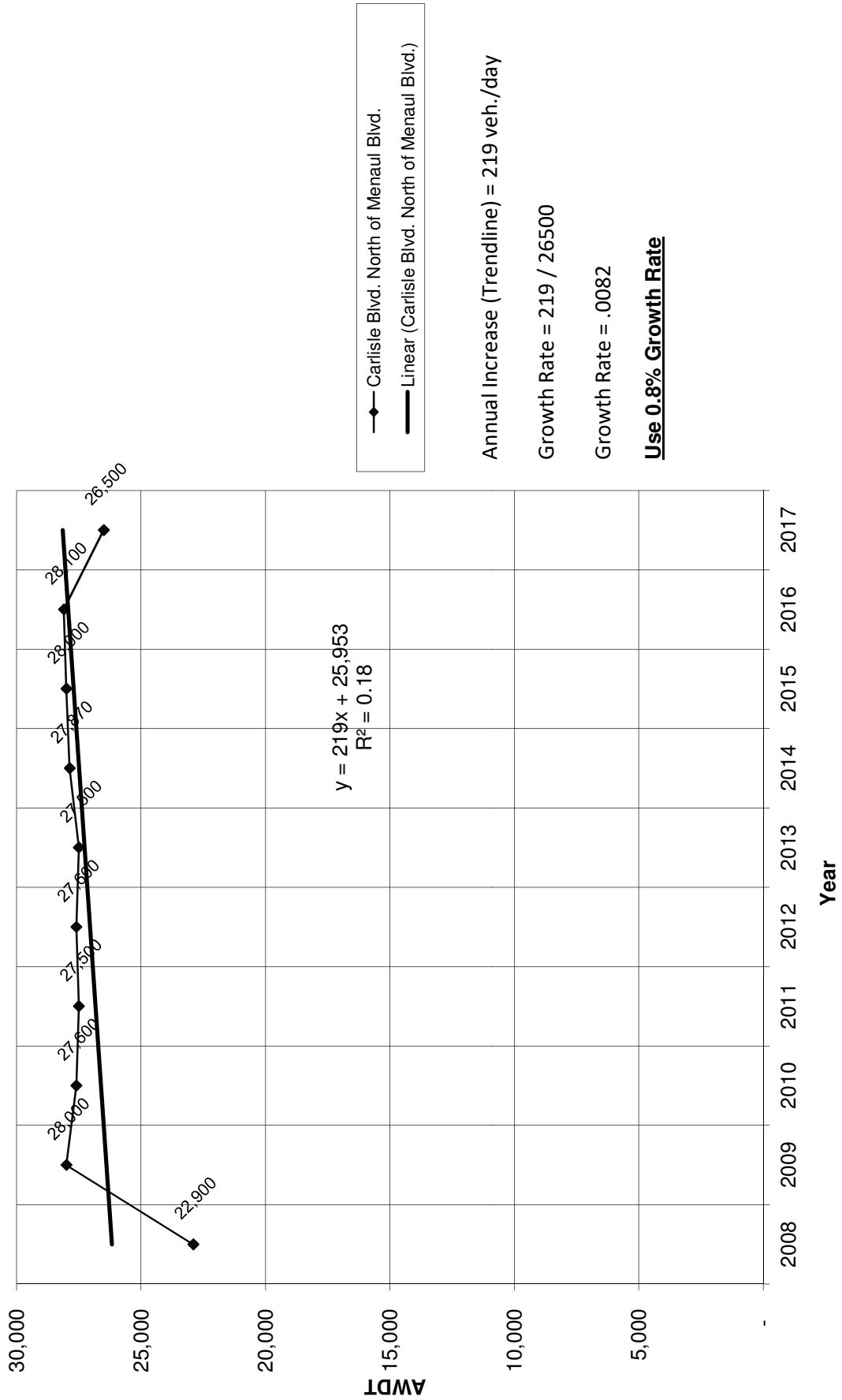
KMart Site Redevelopment Project (Interstate 40 / Carlisle Blvd.)

Historic Growth Rate Table

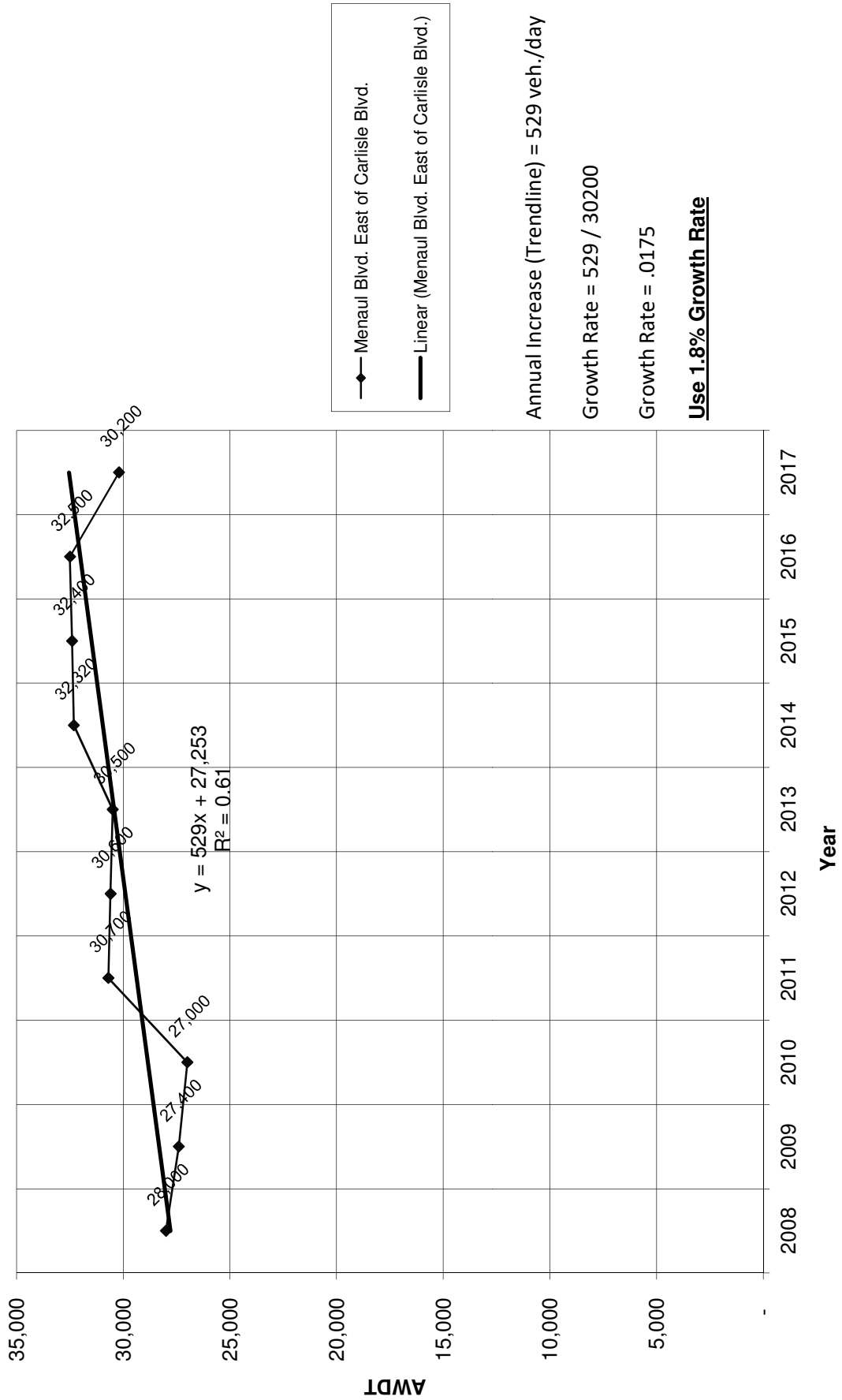
Traffic Flows from MRCOG Map

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Carlisle Blvd. North of Menaul Blvd.	22,900	28,000	27,600	27,500	27,600	27,500	27,870	28,000	28,100	26,500
Menaul Blvd. East of Carlisle Blvd.	28,000	27,400	27,000	30,700	30,600	30,500	32,320	32,400	32,500	30,200
Interstate 40 East of Carlisle Blvd.	152,600	145,300	149,700	170,200	176,500	175,500	180,100	188,800	186,400	191,900
Indian School Rd. East of Washington St.	9,800	9,700	9,500	7,500	7,500	7,500	9,240	9,300	9,300	7,400
Washington St. South of Indian School Rd.	8,100	8,000	7,800	6,800	6,800	6,800	6,700	6,700	6,700	8,000
Indian School btwn Washington & Carlisle	16,300	15,900	15,700	11,200	11,200	11,100	12,810	12,900	12,900	11,000
Carlisle Blvd. South of Indian School Rd.	19,300	19,000	18,700	23,400	23,400	23,300	26,930	27,000	27,100	24,400
Indian School Rd. West of Carlisle Blvd.	10,700	10,500	10,400	14,700	14,600	14,600	15,220	15,300	15,300	14,100
Interstate 40 West of Carlisle Blvd.	161,900	154,200	160,400	180,000	185,100	185,100	197,500	207,000	204,700	198,600
Menaul Blvd. West of Carlisle Blvd.	26,900	26,400	26,000	20,800	20,800	22,100	21,970	22,100	25,100	25,200
Washington St. South of Menaul Blvd.	9,800	9,600	9,500	8,300	8,300	8,300	8,000	8,000	8,000	7,400

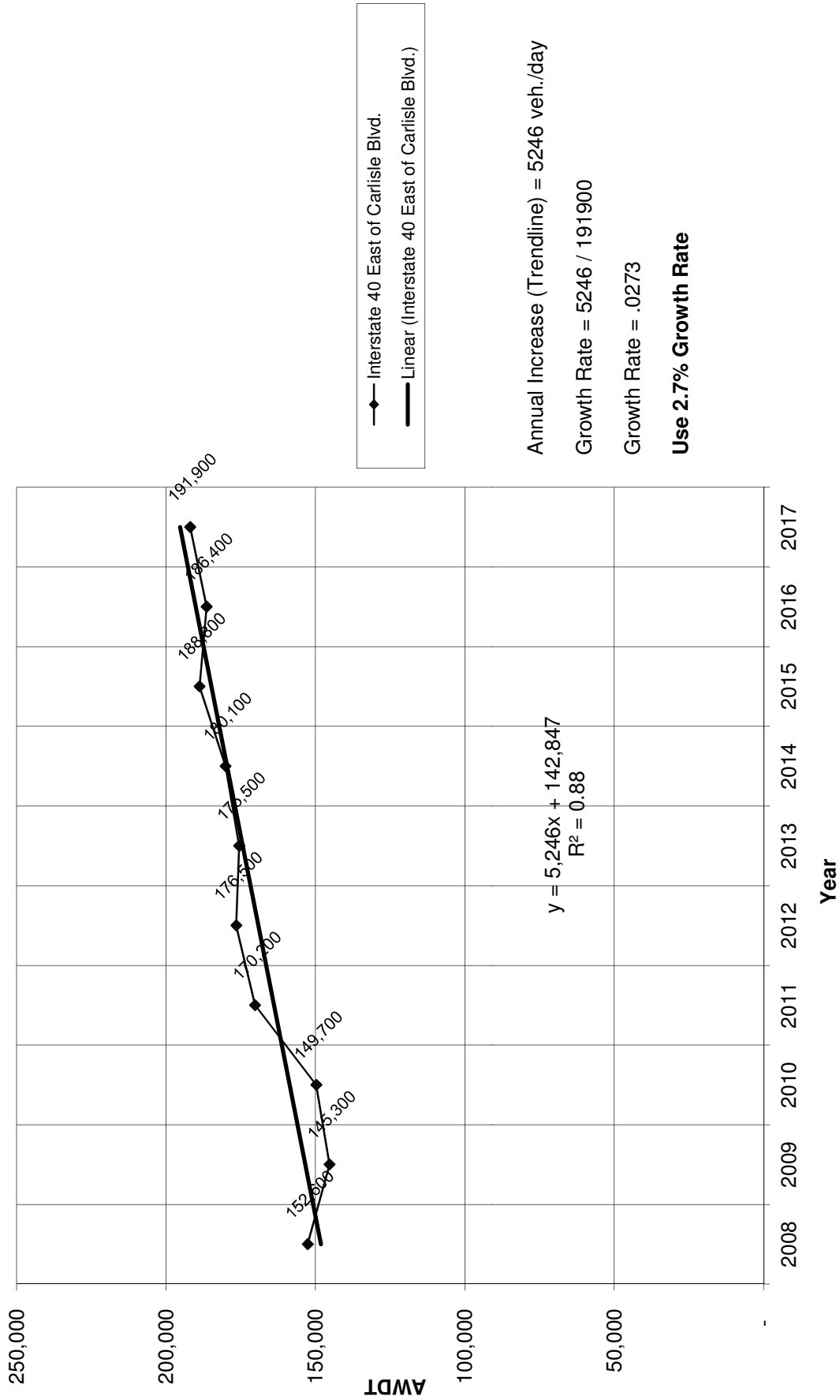
Historic Growth Chart Carlisle Blvd. North of Menaul Blvd. (2008-2017)



Historic Growth Chart Menaul Blvd. East of Carlisle Blvd. (2008-2017)



Historic Growth Chart Interstate 40 East of Carlisle Blvd. (2008-2017)



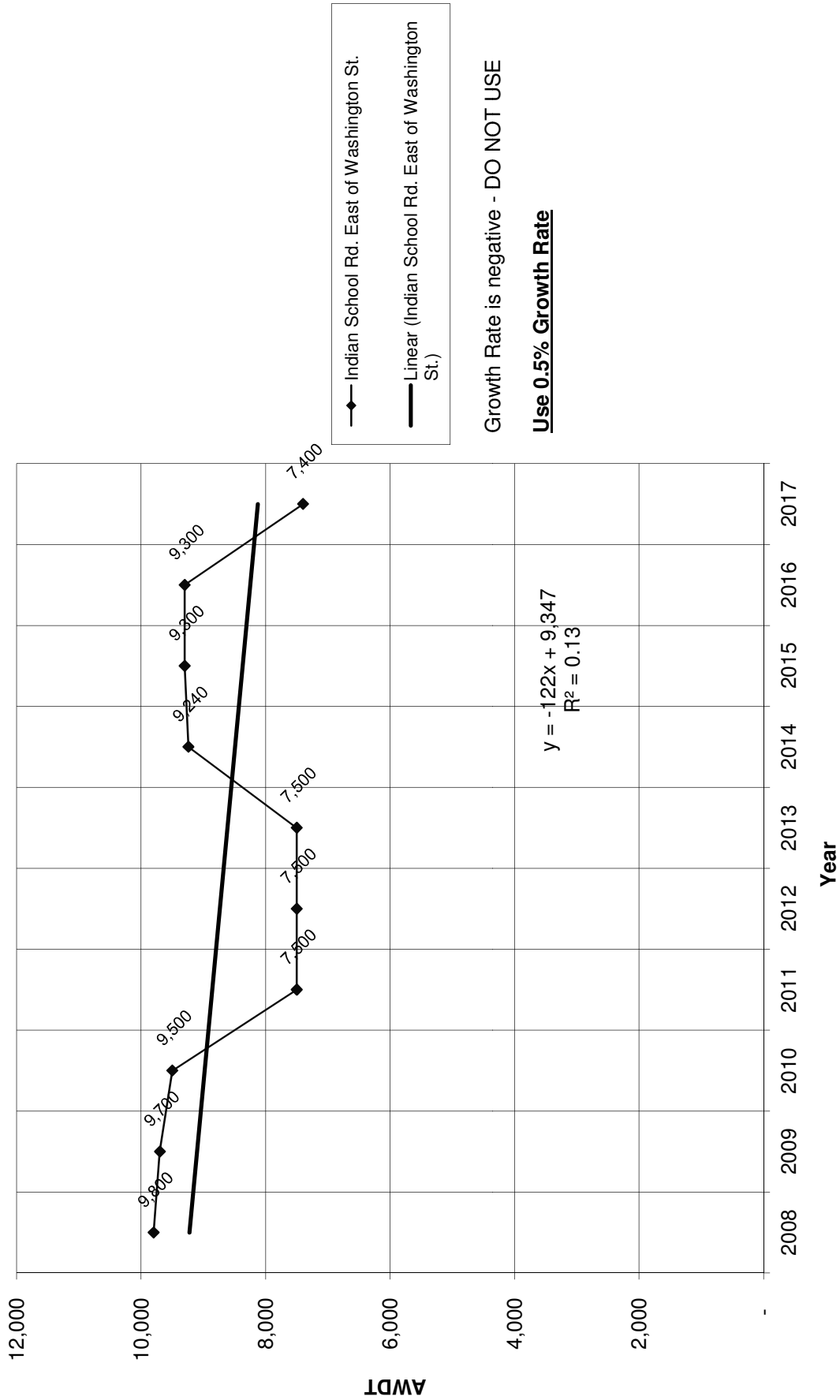
Annual Increase (Trendline) = 5246 veh./day

Growth Rate = 5246 / 191900

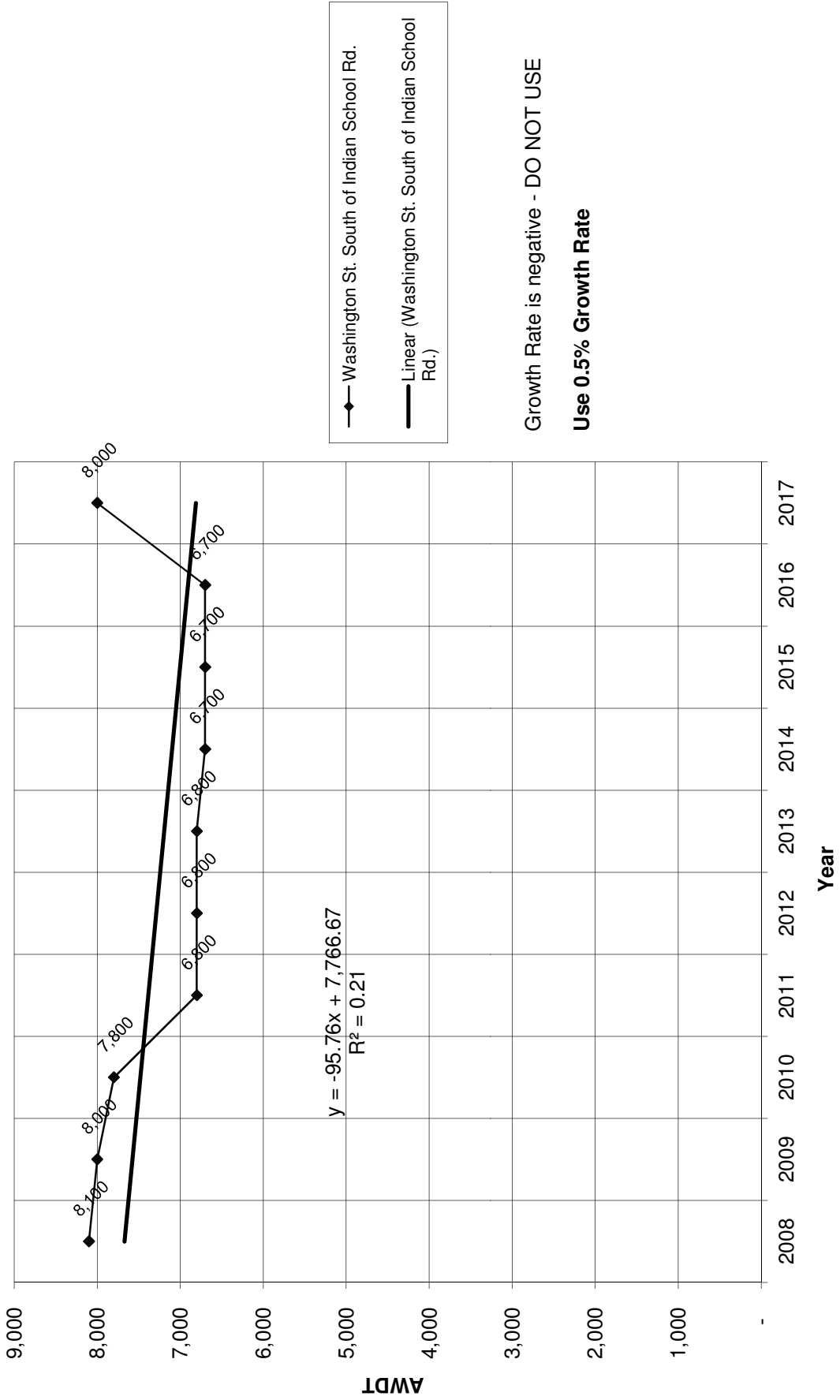
Growth Rate = .0273

Use 2.7% Growth Rate

Historic Growth Chart Indian School Rd. East of Washington St. (2008-2017)



Historic Growth Chart Washington St. South of Indian School Rd. (2008-2017)

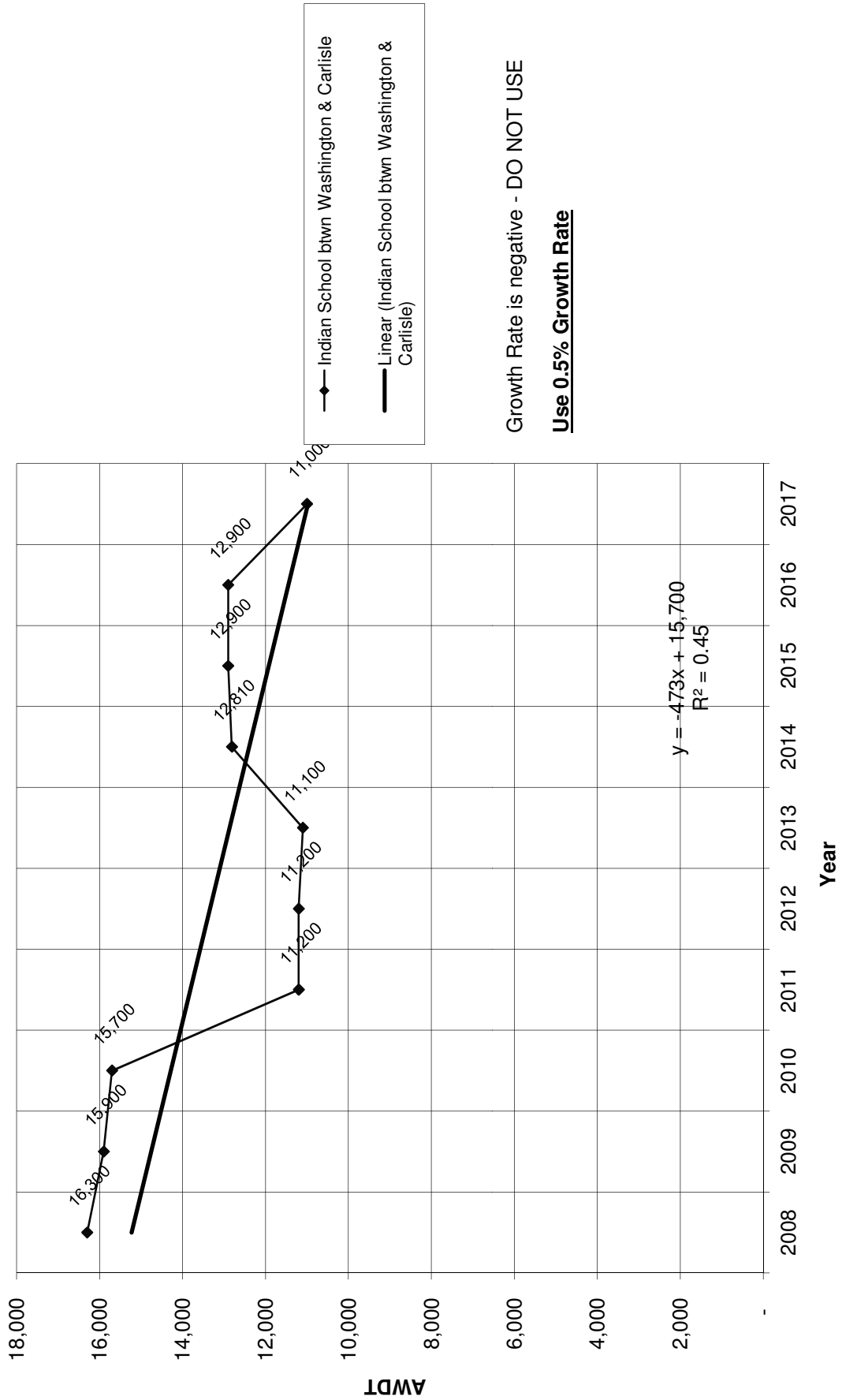


◆ Washington St. South of Indian School Rd.
 — Linear (Washington St. South of Indian School Rd.)

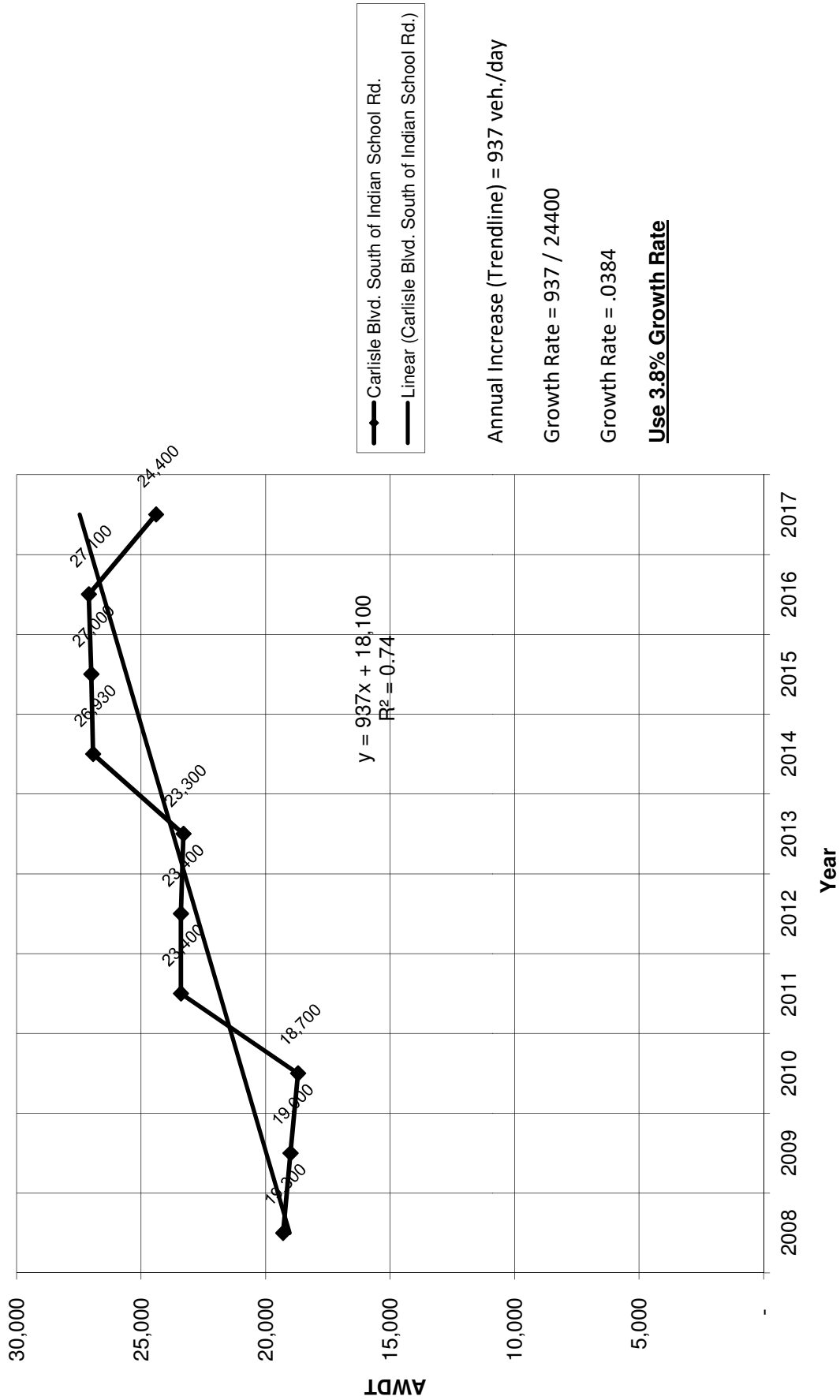
Growth Rate is negative - DO NOT USE

Use 0.5% Growth Rate

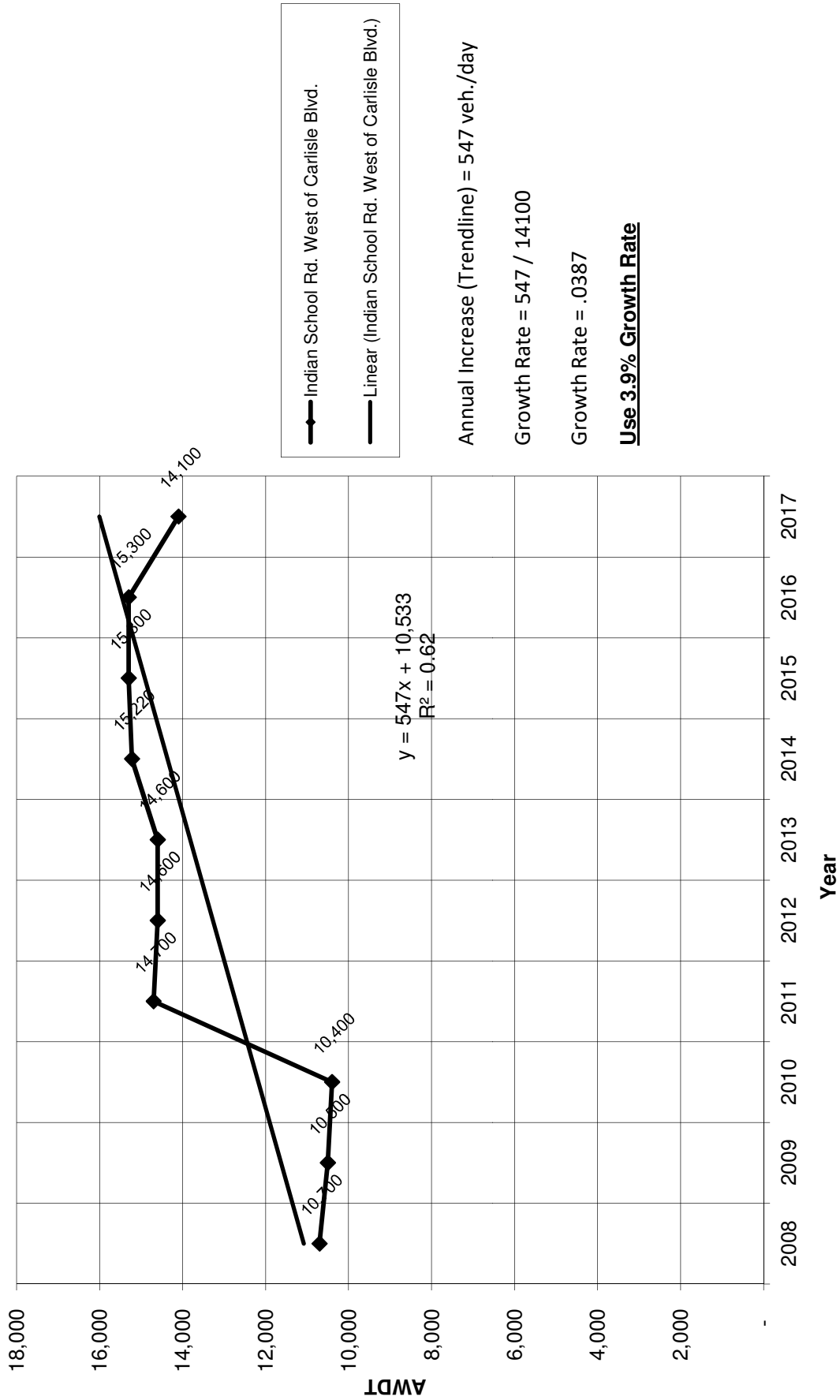
Historic Growth Chart Indian School btwn Washington & Carlisle (2008-2017)



Historic Growth Chart Carlisle Blvd. South of Indian School Rd. (2008-2017)

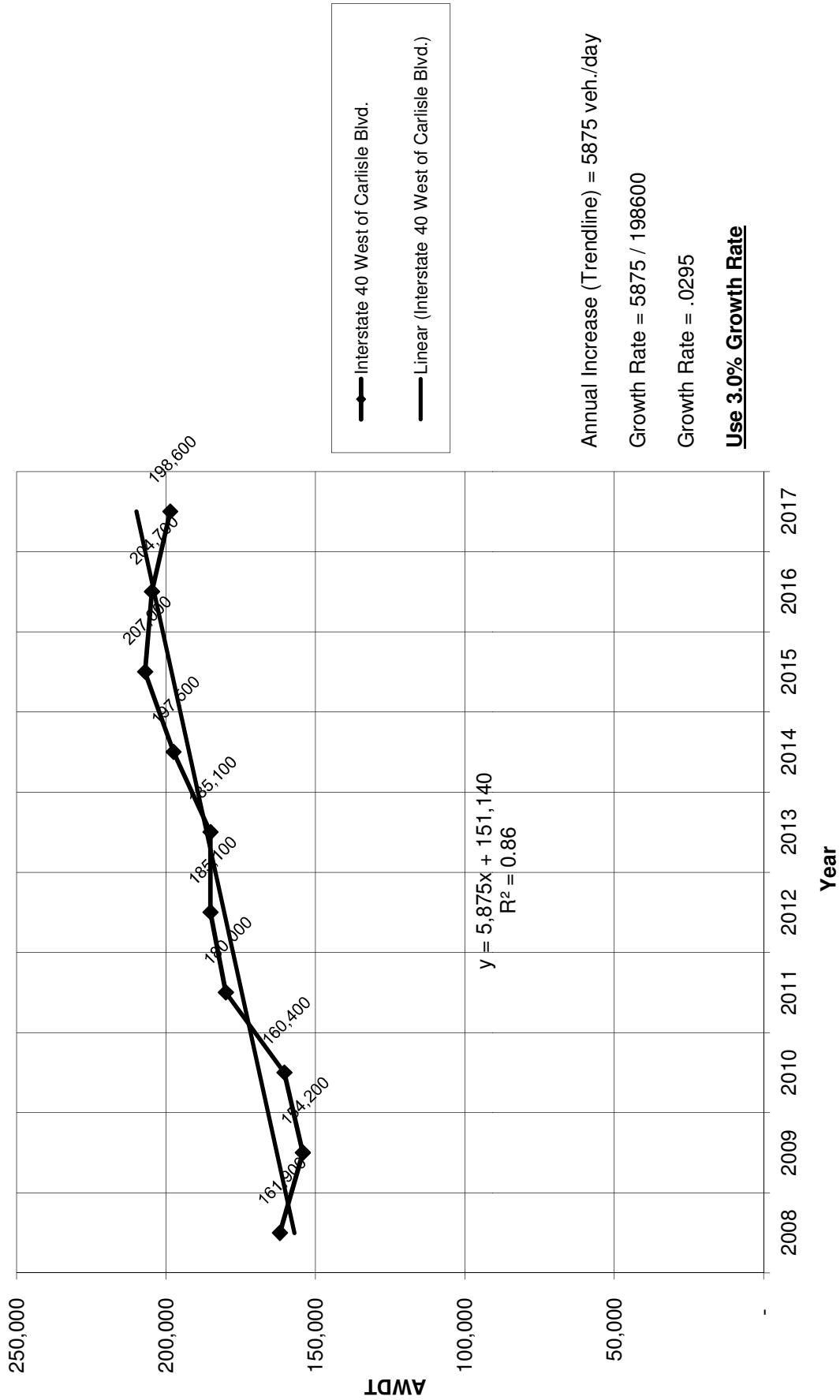


Historic Growth Chart Indian School Rd. West of Carlisle Blvd. (2008-2017)

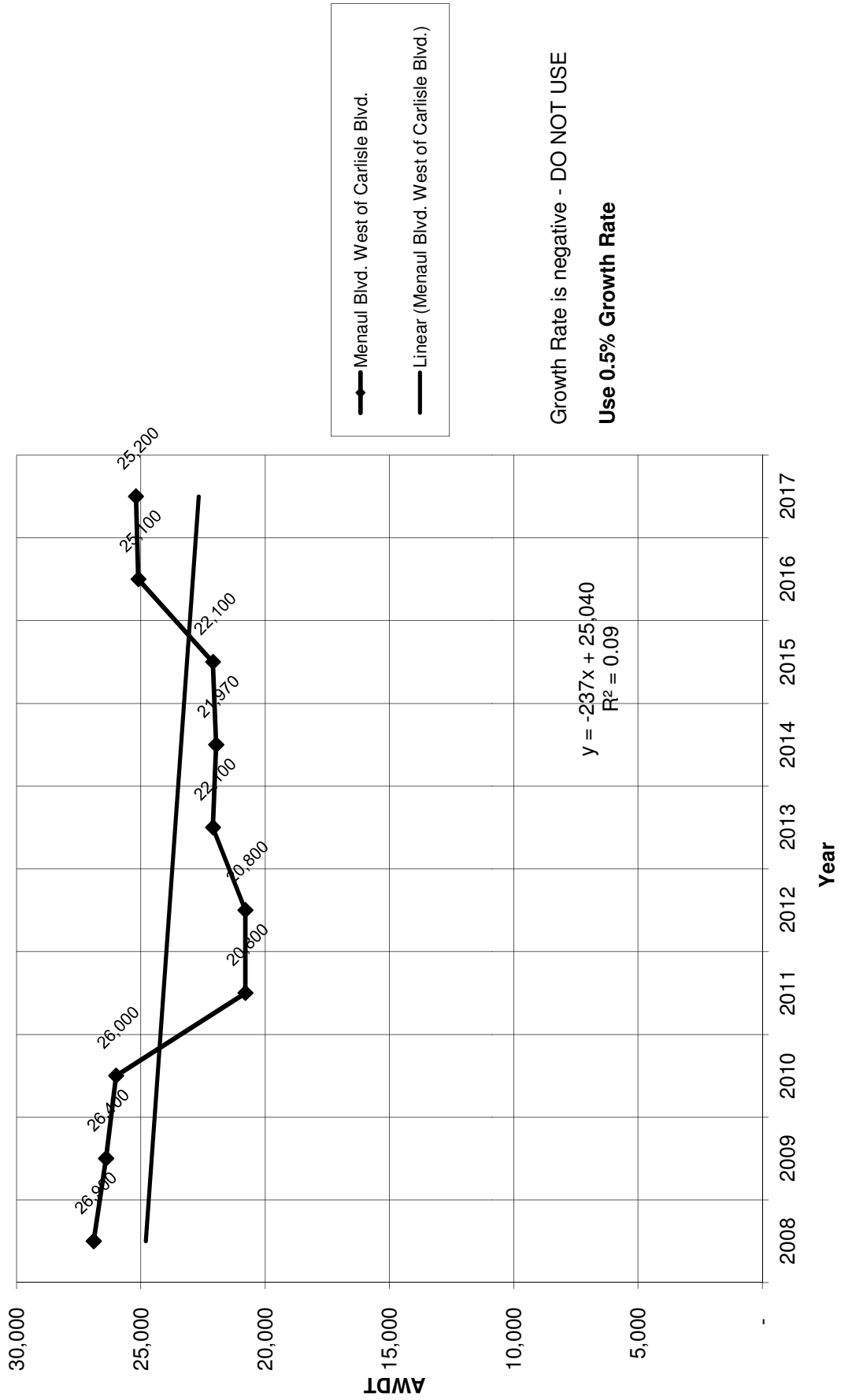


Annual Increase (Trendline) = 547 veh./day
 Growth Rate = 547 / 14100
 Growth Rate = .0387
Use 3.9% Growth Rate

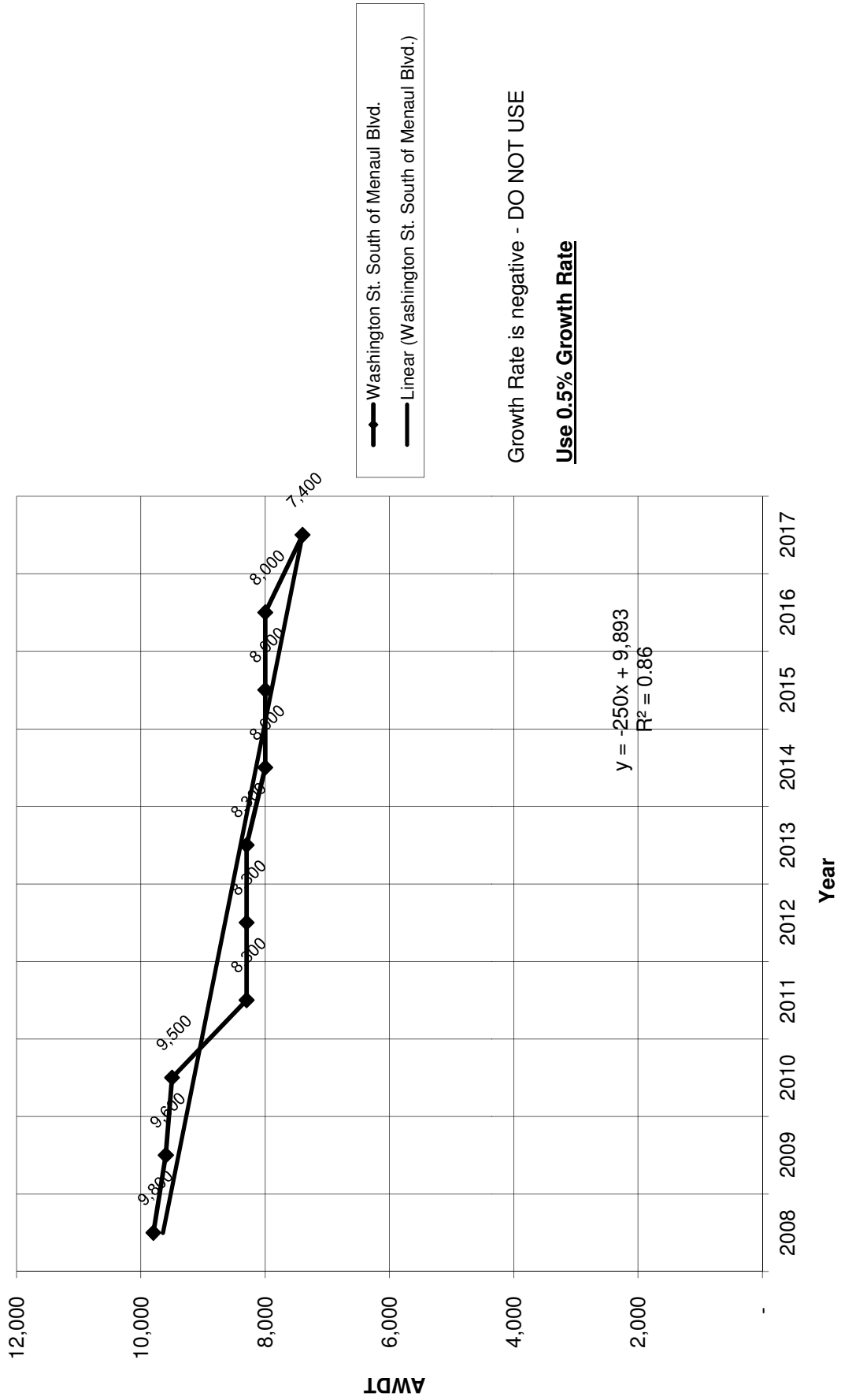
Historic Growth Chart Interstate 40 West of Carlisle Blvd. (2008-2017)



Historic Growth Chart Menaul Blvd. West of Carlisle Blvd. (2008-2017)



Historic Growth Chart Washington St. South of Menaul Blvd. (2008-2017)



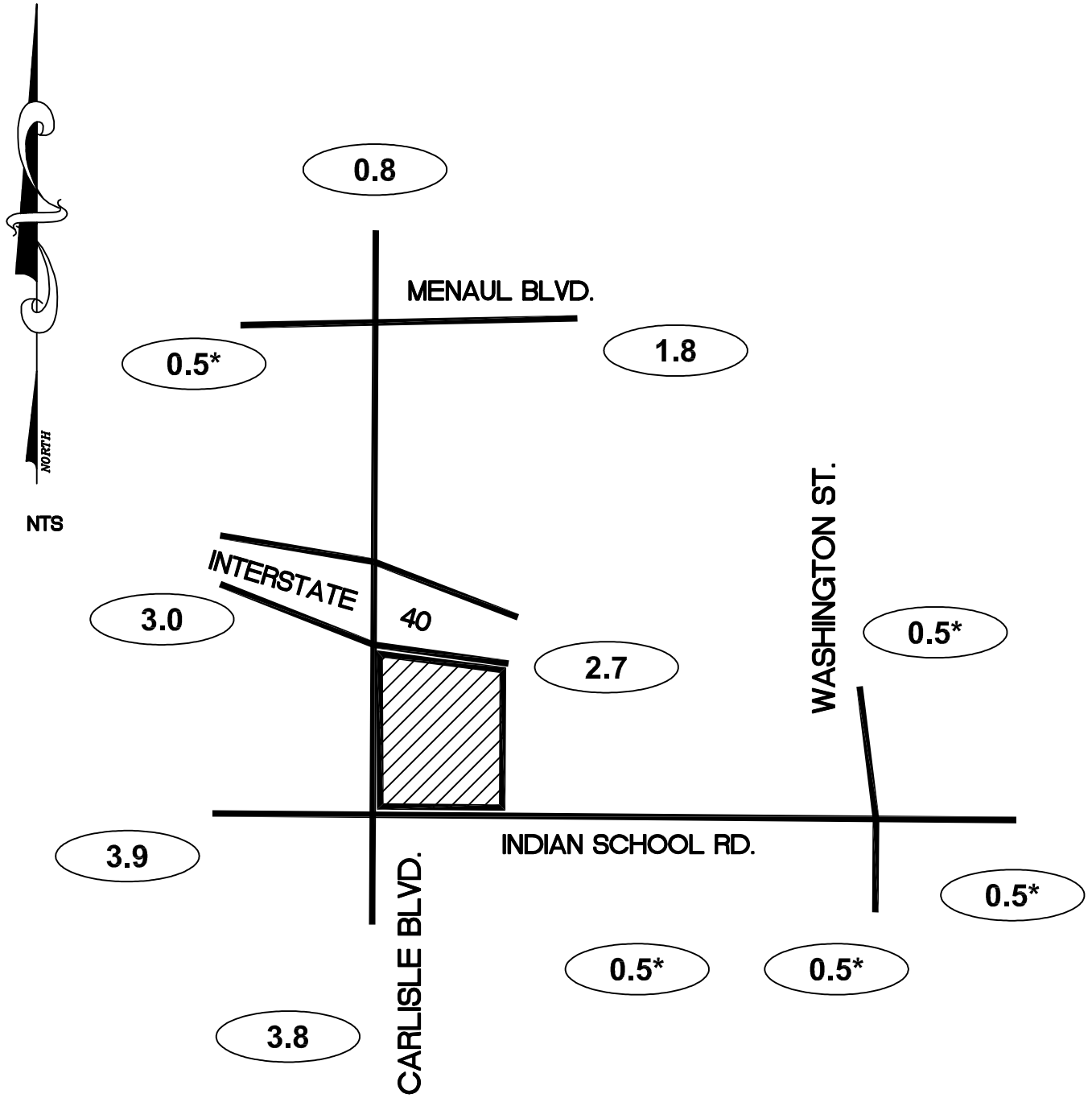
Growth Rate is negative - DO NOT USE

Use 0.5% Growth Rate

Old KMart Site Redevelopment Project

(Indian School Rd. / Carlisle Blvd.)

Growth Rate Map (%)



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Kmart Site Redevelopment Project (Interstate 40 / Carlisle Blvd.)

Projected Turning Movements SUMMARY PROPOSED DEVELOPMENT (2021) - 100% Development

INTERSECTION: Summary

Indian School Rd. / Girard Ct. 0.87 0.87 0.87 0.87 PHF

	Eastbound (Indian School Rd.)			Westbound (Indian School Rd.)			Northbound (Girard Ct.)			Southbound (Girard Ct.)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
(1) 3.0% Truck												
Existing (2019)	20	228	21	7	386	45	43	11	0	69	18	28
2021 (NO BUILD - A.M.)	20	230	21	8	416	49	43	11	0	70	18	28
2021 (BUILD - A.M.)	20	243	21	9	425	50	43	11	2	71	18	28

	Eastbound (Indian School Rd.)			Westbound (Indian School Rd.)			Northbound (Girard Ct.)			Southbound (Girard Ct.)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing (2019)	29	466	39	8	464	63	70	22	2	74	16	22
2021 (NO BUILD - P.M.)	29	471	39	9	500	68	71	22	2	75	16	22
2021 (BUILD - P.M.)	29	487	39	12	517	69	71	22	5	76	16	22

I-40 N.Ramp / Carlisle Blvd. 0.89 0.89 0.89 0.89 PHF

	Eastbound (I-40 N.Ramp)			Westbound (I-40 N.Ramp)			Northbound (Carlisle Blvd.)			Southbound (Carlisle Blvd.)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
(2) 3.0% Truck												
Existing (2019)	0	0	0	329	8	312	418	1,023	0	0	749	281
2021 (NO BUILD - A.M.)	0	0	0	347	8	329	422	1,033	0	0	761	285
2021 (BUILD - A.M.)	0	0	0	376	8	329	428	1,069	0	0	814	285

	Eastbound (I-40 N.Ramp)			Westbound (I-40 N.Ramp)			Northbound (Carlisle Blvd.)			Southbound (Carlisle Blvd.)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing (2019)	0	0	0	246	5	266	499	1,287	0	0	1,094	463
2021 (NO BUILD - P.M.)	0	0	0	259	5	280	504	1,300	0	0	1,112	470
2021 (BUILD - P.M.)	0	0	0	296	5	280	515	1,368	0	0	1,180	470

I-40 S. Ramp / Carlisle Blvd. 0.87 0.87 0.87 0.87 PHF

	Eastbound (I-40 S. Ramp)			Westbound (I-40 S. Ramp)			Northbound (Carlisle Blvd.)			Southbound (Carlisle Blvd.)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
(3) 3.0% Truck												
Existing (2019)	523	5	539	0	0	0	0	878	254	187	873	0
2021 (NO BUILD - A.M.)	554	5	571	0	0	0	0	887	257	190	887	0
2021 (BUILD - A.M.)	554	5	580	0	0	0	0	930	277	190	969	0

	Eastbound (I-40 S. Ramp)			Westbound (I-40 S. Ramp)			Northbound (Carlisle Blvd.)			Southbound (Carlisle Blvd.)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing (2019)	508	11	477	0	0	0	0	1,264	435	401	955	0
2021 (NO BUILD - P.M.)	538	12	506	0	0	0	0	1,277	439	407	970	0
2021 (BUILD - P.M.)	538	12	517	0	0	0	0	1,356	476	407	1,074	0

Indian School Rd. / Carlisle Blvd. 0.89 0.89 0.89 0.89 PHF

	Eastbound (Indian School Rd.)			Westbound (Indian School Rd.)			Northbound (Carlisle Blvd.)			Southbound (Carlisle Blvd.)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
(4) 3.0% Truck												
Existing (2019)	345	213	42	51	286	127	66	612	35	221	753	506
2021 (NO BUILD - A.M.)	372	230	45	52	289	128	71	659	38	223	761	511
2021 (BUILD - A.M.)	380	238	45	72	295	128	71	742	67	223	818	516

	Eastbound (Indian School Rd.)			Westbound (Indian School Rd.)			Northbound (Carlisle Blvd.)			Southbound (Carlisle Blvd.)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing (2019)	385	546	79	71	330	225	108	945	47	228	862	439
2021 (NO BUILD - P.M.)	415	589	85	72	333	227	116	1,017	51	230	871	443
2021 (BUILD - P.M.)	425	600	85	109	344	227	116	1,123	88	230	978	453

Kmart Site Redevelopment Project (Interstate 40 / Carlisle Blvd.)
 Projected Turning Movements SUMMARY
PROPOSED DEVELOPMENT (2021) - 100% Development

INTERSECTION: Summary

Driveway "A" / Carlisle Blvd. 0.89 0.89 0.89 0.89 PHF

(9)	Eastbound (Driveway "A")			Westbound (Driveway "A")			Northbound (Carlisle Blvd.)			Southbound (Carlisle Blvd.)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
3.0% Truck												
Existing (2019)	0	0	0	0	0	0	0	0	0	0	0	0
2021 (NO BUILD - A.M.)	0	0	0	35	0	35	0	1,159	36	36	1,495	0
2021 (BUILD - A.M.)	0	0	0	97	0	66	0	1,190	69	126	1,495	0

0.93 0.93 0.93 0.93 PHF

Existing (2019)	Eastbound (Driveway "A")			Westbound (Driveway "A")			Northbound (Carlisle Blvd.)			Southbound (Carlisle Blvd.)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing (2019)	0	0	0	0	0	0	0	0	0	0	0	0
2021 (NO BUILD - P.M.)	0	0	0	28	0	28	0	1,659	30	30	1,544	0
2021 (BUILD - P.M.)	0	0	0	186	0	118	0	1,685	72	187	1,503	0

Driveway "B" / Carlisle Blvd. 0.89 0.89 0.89 0.89 PHF

(10)	Eastbound (Driveway "B")			Westbound (Driveway "B")			Northbound (Carlisle Blvd.)			Southbound (Carlisle Blvd.)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
3.0% Truck												
Existing (2019)	0	0	0	0	0	0	0	0	0	0	0	0
2021 (NO BUILD - A.M.)	0	0	0	0	0	0	0	1,159	0	0	1,495	0
2021 (BUILD - A.M.)	0	0	0	0	0	31	0	1,192	57	0	1,557	0

0.93 0.93 0.93 0.93 PHF

Existing (2019)	Eastbound (Driveway "B")			Westbound (Driveway "B")			Northbound (Carlisle Blvd.)			Southbound (Carlisle Blvd.)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing (2019)	0	0	0	0	0	0	0	0	0	0	0	0
2021 (NO BUILD - P.M.)	0	0	0	0	0	0	0	1,659	0	0	1,544	0
2021 (BUILD - P.M.)	0	0	0	0	0	58	0	1,669	105	0	1,661	0

Indian School Rd. / Driveway "C" 0.89 0.89 0.89 0.89 PHF

(11)	Eastbound (Indian School Rd.)			Westbound (Indian School Rd.)			Northbound (Driveway "C")			Southbound (Driveway "C")		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
3.0% Truck												
Existing (2019)	0	0	0	0	0	0	0	0	0	0	0	0
2021 (NO BUILD - A.M.)	0	491	0	0	469	0	0	0	0	0	0	0
2021 (BUILD - A.M.)	37	491	0	0	469	55	0	0	0	38	0	26

0.93 0.93 0.93 0.93 PHF

Existing (2019)	Eastbound (Indian School Rd.)			Westbound (Indian School Rd.)			Northbound (Driveway "C")			Southbound (Driveway "C")		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing (2019)	0	0	0	0	0	0	0	0	0	0	0	0
2021 (NO BUILD - P.M.)	0	870	0	0	632	0	0	0	0	0	0	0
2021 (BUILD - P.M.)	75	842	0	0	615	87	0	0	0	100	0	65

Kmart Site Redevelopment Project (Interstate 40 / Carlisle Blvd.)
 Projected Turning Movements Worksheet
Indian School Rd. / Girard Ct.

INTERSECTION : E-W Street: **Indian School Rd.** (1)
 N-S Street: **Girard Ct.**
 Year of Existing Counts: 2019
 Implementation Year: **2021**

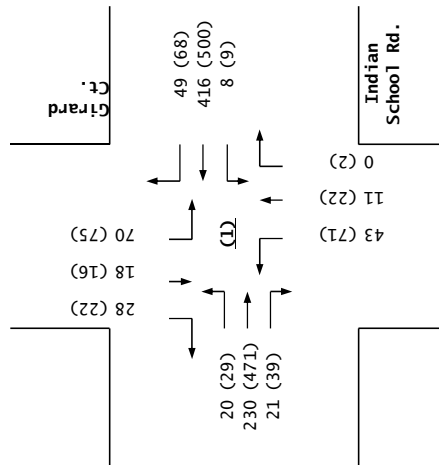
	0.50%			3.90%			0.50%			0.50%		
	Eastbound (Indian School Rd.)			Westbound (Indian School Rd.)			Northbound (Girard Ct.)			Southbound (Girard Ct.)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	20	228	21	7	386	45	43	11	0	69	18	28
Background Traffic Growth	0	2	0	1	30	4	0	0	0	1	0	0
Subtotal (NO BUILD - A.M.)	20	230	21	8	416	49	43	11	0	70	18	28
Percent Commercial Trips Generated(Entering)	0.00%	4.67%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.74%	0.37%	0.00%	0.00%
Percent Commercial Trips Generated(Exiting)	0.00%	0.00%	0.00%	0.74%	4.67%	0.37%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Total Trips Generated	0	13	0	1	9	1	0	0	2	1	0	0
Total AM Peak Hour BUILD Volumes	20	243	21	9	425	50	43	11	2	71	18	28

	0.50%			3.90%			0.50%			0.50%		
	Eastbound (Indian School Rd.)			Westbound (Indian School Rd.)			Northbound (Girard Ct.)			Southbound (Girard Ct.)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	29	466	39	8	464	63	70	22	2	74	16	22
Background Traffic Growth	0	5	0	1	36	5	1	0	0	1	0	0
Subtotal (NO BUILD - P.M.)	29	471	39	9	500	68	71	22	2	75	16	22
Percent Commercial Trips Generated(Entering)	0.00%	4.67%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.74%	0.37%	0.00%	0.00%
Percent Commercial Trips Generated(Exiting)	0.00%	0.00%	0.00%	0.74%	4.67%	0.37%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Total Trips Generated	0	16	0	3	17	1	0	0	3	1	0	0
Total PM Peak Hour BUILD Volumes	29	487	39	12	517	69	71	22	5	76	16	22

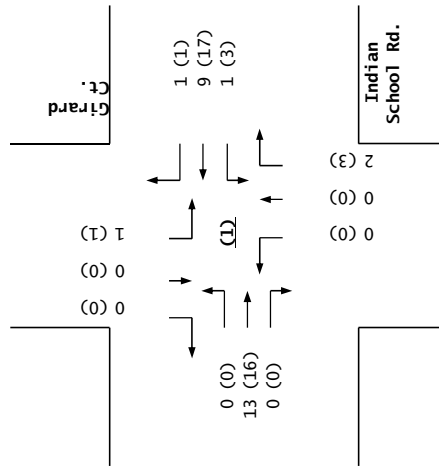
Number of Commercial Trips Generated

Entering	275	190	A.M.	100% Commercial Development
Exiting	352	355	P.M.	

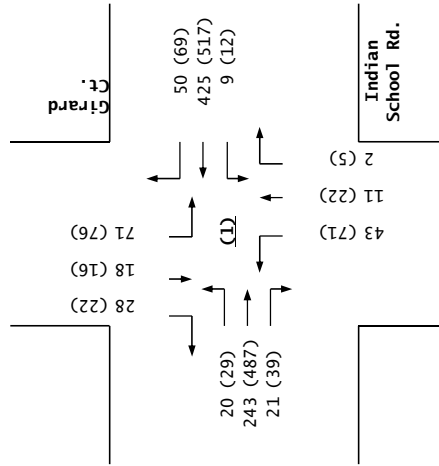
2021
NO BUILD



Trips



2021
BUILD



Indian School Rd. / Girard Ct.

Kmart Site Redevelopment Project (Interstate 40 / Carlisle Blvd.)
 Projected Turning Movements Worksheet
I-40 N.Ramp / Carlisle Blvd.

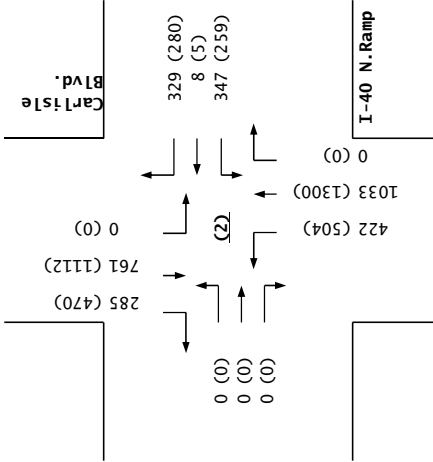
INTERSECTION : E-W Street: **I-40 N.Ramp** (2)
 N-S Street: **Carlisle Blvd.**
 Year of Existing Counts: 2019
 Implementation Year: **2021**

	3.00%			2.70%			0.50%			0.80%		
	Eastbound (I-40 N.Ramp)			Westbound (I-40 N.Ramp)			Northbound (Carlisle Blvd.)			Southbound (Carlisle Blvd.)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	0	0	0	329	8	312	418	1,023	0	0	749	281
Background Traffic Growth	0	0	0	18	0	17	4	10	0	0	12	4
Subtotal (NO BUILD - A.M.)	0	0	0	347	8	329	422	1,033	0	0	761	285
Percent Commercial Trips Generated(Entering)	0.00%	0.00%	0.00%	10.46%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	19.21%	0.00%
Percent Commercial Trips Generated(Exiting)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	3.17%	19.21%	0.00%	0.00%	0.00%	0.00%
Total Trips Generated	0	0	0	29	0	0	6	36	0	0	53	0
Total AM Peak Hour BUILD Volumes	0	0	0	376	8	329	428	1,069	0	0	814	285

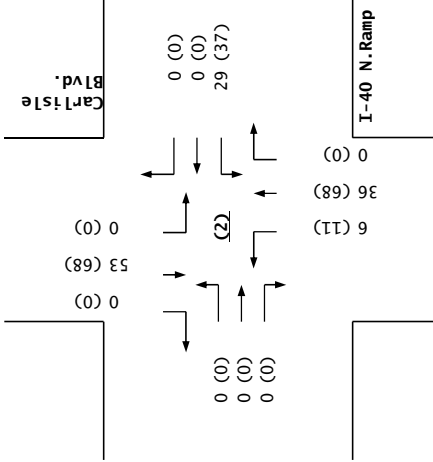
	3.00%			2.70%			0.50%			0.80%		
	Eastbound (I-40 N.Ramp)			Westbound (I-40 N.Ramp)			Northbound (Carlisle Blvd.)			Southbound (Carlisle Blvd.)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	0	0	0	246	5	266	499	1,287	0	0	1,094	463
Background Traffic Growth	0	0	0	13	0	14	5	13	0	0	18	7
Subtotal (NO BUILD - P.M.)	0	0	0	259	5	280	504	1,300	0	0	1,112	470
Percent Commercial Trips Generated(Entering)	0.00%	0.00%	0.00%	10.46%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	19.21%	0.00%
Percent Commercial Trips Generated(Exiting)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	3.17%	19.21%	0.00%	0.00%	0.00%	0.00%
Total Trips Generated	0	0	0	37	0	0	11	68	0	0	68	0
Total PM Peak Hour BUILD Volumes	0	0	0	296	5	280	515	1,368	0	0	1,180	470

Number of Commercial Trips Generated	Entering	Exiting	A.M.	100% Commercial Development
	275	190		
	352	355	P.M.	

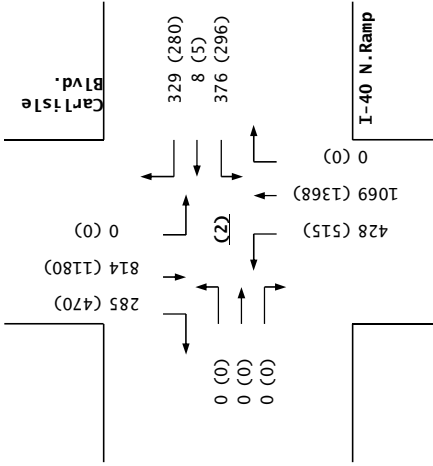
2021
NO BUILD



Trips



2021
BUILD



I-40 N. Ramp / Carlisle Blvd.

Kmart Site Redevelopment Project (Interstate 40 / Carlisle Blvd.)
 Projected Turning Movements Worksheet
I-40 S. Ramp / Carlisle Blvd.

INTERSECTION : E-W Street: **I-40 S. Ramp** (3)
 N-S Street: **Carlisle Blvd.**
 Year of Existing Counts: 2019
 Implementation Year: **2021**

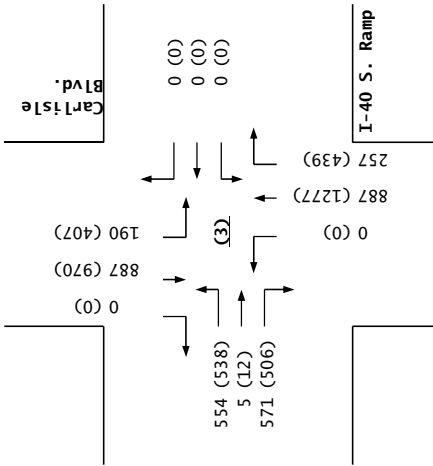
	3.00%			2.70%			0.50%			0.80%		
	Eastbound (I-40 S. Ramp)			Westbound (I-40 S. Ramp)			Northbound (Carlisle Blvd.)			Southbound (Carlisle Blvd.)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	523	5	539	0	0	0	0	878	254	187	873	0
Background Traffic Growth	31	0	32	0	0	0	0	9	3	3	14	0
Subtotal (NO BUILD - A.M.)	554	5	571	0	0	0	0	887	257	190	887	0
Percent Commercial Trips Generated(Entering)	0.00%	0.00%	3.17%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	29.67%	0.00%
Percent Commercial Trips Generated(Exiting)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	22.38%	10.46%	0.00%	0.00%	0.00%
Total Trips Generated	0	0	9	0	0	0	0	43	20	0	82	0
Total AM Peak Hour BUILD Volumes	554	5	580	0	0	0	0	930	277	190	969	0

	3.00%			2.70%			0.50%			0.80%		
	Eastbound (I-40 S. Ramp)			Westbound (I-40 S. Ramp)			Northbound (Carlisle Blvd.)			Southbound (Carlisle Blvd.)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	508	11	477	0	0	0	0	1,264	435	401	955	0
Background Traffic Growth	30	1	29	0	0	0	0	13	4	6	15	0
Subtotal (NO BUILD - P.M.)	538	12	506	0	0	0	0	1,277	439	407	970	0
Percent Commercial Trips Generated(Entering)	0.00%	0.00%	3.17%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	29.67%	0.00%
Percent Commercial Trips Generated(Exiting)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	22.38%	10.46%	0.00%	0.00%	0.00%
Total Trips Generated	0	0	11	0	0	0	0	79	37	0	104	0
Total PM Peak Hour BUILD Volumes	538	12	517	0	0	0	0	1,356	476	407	1,074	0

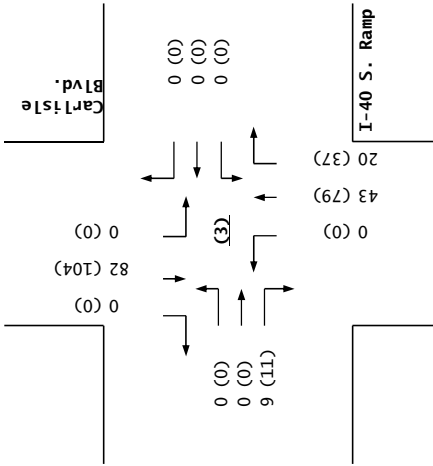
Number of Commercial Trips Generated

Entering	275	190	A.M.	100% Commercial Development
Exiting	352	355	P.M.	

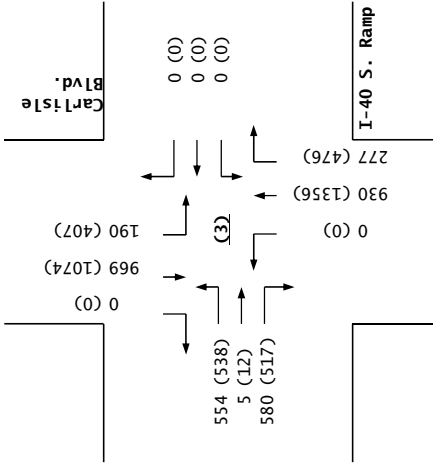
2021
NO BUILD



Trips



2021
BUILD



I-40 S. Ramp / Carlisle Blvd.

Kmart Site Redevelopment Project (Interstate 40 / Carlisle Blvd.)
 Projected Turning Movements Worksheet
Indian School Rd. / Carlisle Blvd.

INTERSECTION : E-W Street: **Indian School Rd.** (4)
 N-S Street: **Carlisle Blvd.**
 Year of Existing Counts: 2019
 Implementation Year: **2021**

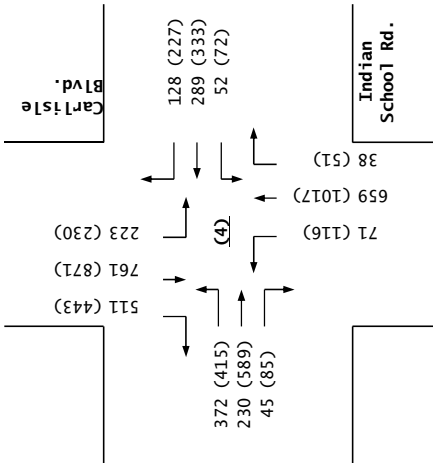
	3.90%			0.50%			3.80%			0.50%		
	Eastbound (Indian School Rd.)			Westbound (Indian School Rd.)			Northbound (Carlisle Blvd.)			Southbound (Carlisle Blvd.)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	345	213	42	51	286	127	66	612	35	221	753	506
Background Traffic Growth	27	17	3	1	3	1	5	47	3	2	8	5
Subtotal (NO BUILD - A.M.)	372	230	45	52	289	128	71	659	38	223	761	511
Percent Commercial Trips Generated(Entering)	2.78%	3.00%	0.00%	0.00%	0.00%	0.00%	0.00%	30.00%	10.48%	0.00%	0.00%	0.00%
Percent Commercial Trips Generated(Exiting)	0.00%	0.00%	0.00%	10.48%	3.00%	0.00%	0.00%	0.00%	0.00%	0.00%	30.00%	2.78%
Total Trips Generated	8	8	0	20	6	0	0	83	29	0	57	5
Total AM Peak Hour BUILD Volumes	380	238	45	72	295	128	71	742	67	223	818	516

	3.90%			0.50%			3.80%			0.50%		
	Eastbound (Indian School Rd.)			Westbound (Indian School Rd.)			Northbound (Carlisle Blvd.)			Southbound (Carlisle Blvd.)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	385	546	79	71	330	225	108	945	47	228	862	439
Background Traffic Growth	30	43	6	1	3	2	8	72	4	2	9	4
Subtotal (NO BUILD - P.M.)	415	589	85	72	333	227	116	1,017	51	230	871	443
Percent Commercial Trips Generated(Entering)	2.78%	3.00%	0.00%	0.00%	0.00%	0.00%	0.00%	30.00%	10.48%	0.00%	0.00%	0.00%
Percent Commercial Trips Generated(Exiting)	0.00%	0.00%	0.00%	10.48%	3.00%	0.00%	0.00%	0.00%	0.00%	0.00%	30.00%	2.78%
Total Trips Generated	10	11	0	37	11	0	0	106	37	0	107	10
Total PM Peak Hour BUILD Volumes	425	600	85	109	344	227	116	1,123	88	230	978	453

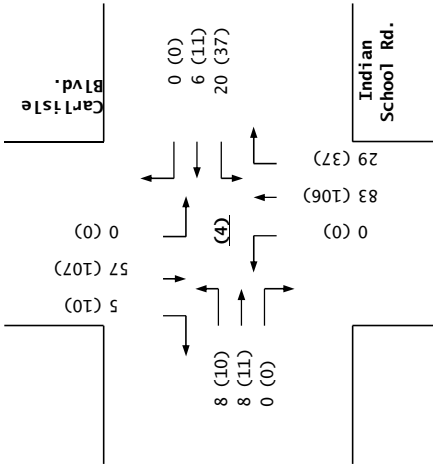
Number of Commercial Trips Generated

Entering	Exiting		
275	190	A.M.	100% Commercial Development
352	355	P.M.	

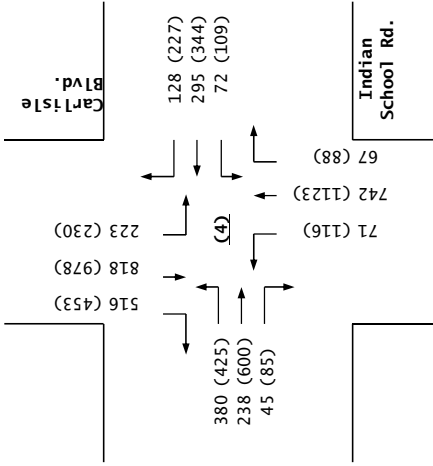
2021
NO BUILD



Trips



2021
BUILD



Indian School Rd. / Carlisle Blvd.

Kmart Site Redevelopment Project (Interstate 40 / Carlisle Blvd.)
 Projected Turning Movements Worksheet
Indian School Rd. / Washington St.

INTERSECTION : E-W Street: **Indian School Rd.** (5)
 N-S Street: **Washington St.**
 Year of Existing Counts: 2019
 Implementation Year: **2021**

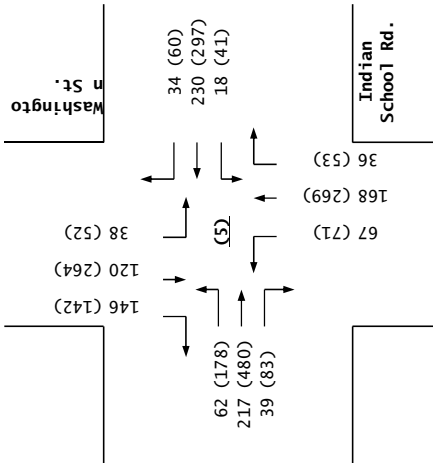
	0.50%			0.50%			0.50%			0.50%		
	Eastbound (Indian School Rd.)			Westbound (Indian School Rd.)			Northbound (Washington St.)			Southbound (Washington St.)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	61	215	39	18	228	34	66	166	36	38	119	145
Background Traffic Growth	1	2	0	0	2	0	1	2	0	0	1	1
Subtotal (NO BUILD - A.M.)	62	217	39	18	230	34	67	168	36	38	120	146
Percent Commercial Trips Generated(Entering)	0.00%	0.00%	0.00%	0.00%	15.32%	0.00%	3.85%	0.00%	0.00%	0.00%	0.00%	0.67%
Percent Commercial Trips Generated(Exiting)	0.67%	15.32%	3.85%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Total Trips Generated	1	29	7	0	42	0	11	0	0	0	0	2
Total AM Peak Hour BUILD Volumes	63	246	46	18	272	34	78	168	36	38	120	148

	0.50%			0.50%			0.50%			0.50%		
	Eastbound (Indian School Rd.)			Westbound (Indian School Rd.)			Northbound (Washington St.)			Southbound (Washington St.)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	176	475	82	41	294	59	70	266	52	51	261	141
Background Traffic Growth	2	5	1	0	3	1	1	3	1	1	3	1
Subtotal (NO BUILD - P.M.)	178	480	83	41	297	60	71	269	53	52	264	142
Percent Commercial Trips Generated(Entering)	0.00%	0.00%	0.00%	0.00%	15.32%	0.00%	3.85%	0.00%	0.00%	0.00%	0.00%	0.67%
Percent Commercial Trips Generated(Exiting)	0.67%	15.32%	3.85%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Total Trips Generated	2	54	14	0	54	0	14	0	0	0	0	2
Total PM Peak Hour BUILD Volumes	180	534	97	41	351	60	85	269	53	52	264	144

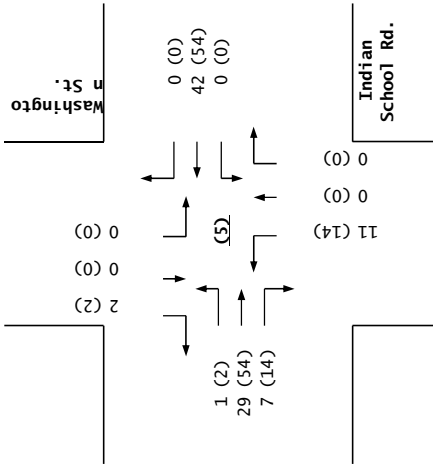
Number of Commercial Trips Generated

Entering	275	190	A.M.	100% Commercial Development
Exiting	352	355	P.M.	

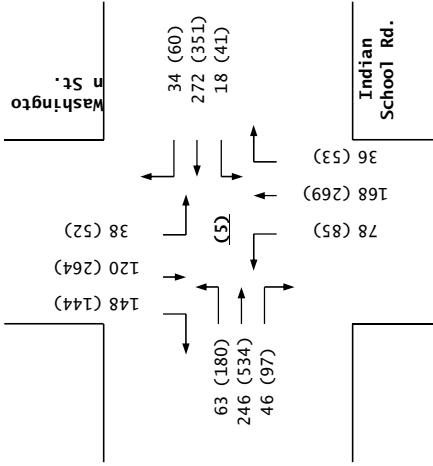
2021
NO BUILD



Trips



2021
BUILD



Indian School Rd. / Washington St.

Kmart Site Redevelopment Project (Interstate 40 / Carlisle Blvd.)
 Projected Turning Movements Worksheet
Constitution Av. / Carlisle Blvd.

INTERSECTION : E-W Street: **Constitution Av.** (6)
 N-S Street: **Carlisle Blvd.**
 Year of Existing Counts: 2019
 Implementation Year: **2021**

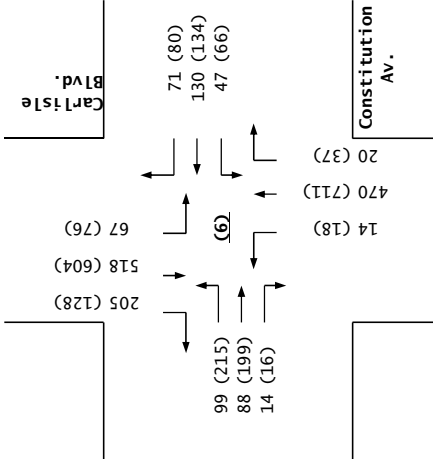
Growth Rates: 0.50% 2.90% 0.50% 0.50%

	Eastbound (Constitution Av.)			Westbound (Constitution Av.)			Northbound (Carlisle Blvd.)			Southbound (Carlisle Blvd.)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	98	87	14	44	123	67	14	465	20	66	513	203
Background Traffic Growth	1	1	0	3	7	4	0	5	0	1	5	2
Subtotal (NO BUILD - A.M.)	99	88	14	47	130	71	14	470	20	67	518	205
Percent Commercial Trips Generated(Entering)	1.40%	0.00%	0.00%	0.00%	0.00%	5.55%	0.00%	33.53%	0.00%	0.00%	0.00%	0.00%
Percent Commercial Trips Generated(Exiting)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	5.55%	33.53%	1.40%
Total Trips Generated	4	0	0	0	0	15	0	92	0	11	64	3
Total AM Peak Hour BUILD Volumes	103	88	14	47	130	86	14	562	20	78	582	208

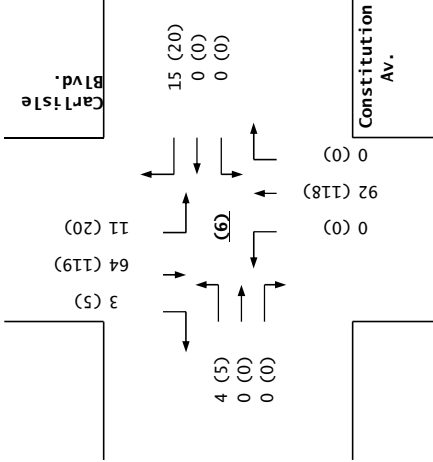
	Eastbound (Constitution Av.)			Westbound (Constitution Av.)			Northbound (Carlisle Blvd.)			Southbound (Carlisle Blvd.)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	213	197	16	62	127	76	18	704	37	75	598	127
Background Traffic Growth	2	2	0	4	7	4	0	7	0	1	6	1
Subtotal (NO BUILD - P.M.)	215	199	16	66	134	80	18	711	37	76	604	128
Percent Commercial Trips Generated(Entering)	1.40%	0.00%	0.00%	0.00%	0.00%	5.55%	0.00%	33.53%	0.00%	0.00%	0.00%	0.00%
Percent Commercial Trips Generated(Exiting)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	5.55%	33.53%	1.40%
Total Trips Generated	5	0	0	0	0	20	0	118	0	20	119	5
Total PM Peak Hour BUILD Volumes	220	199	16	66	134	100	18	829	37	96	723	133

Number of Commercial Trips Generated: Entering 275, Exiting 190, A.M. 100% Commercial Development, 352, 355, P.M.

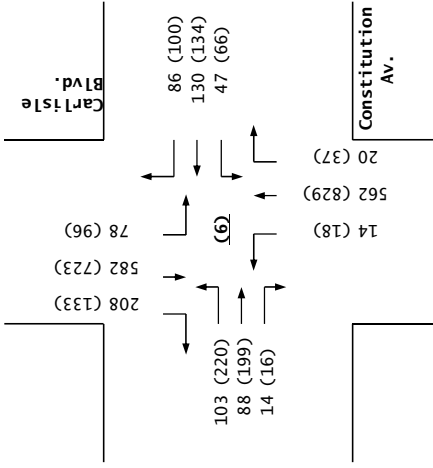
2021
NO BUILD



Trips



2021
BUILD



Constitution Av. / Carlsle Blvd.

Kmart Site Redevelopment Project (Interstate 40 / Carlisle Blvd.)
 Projected Turning Movements Worksheet
I-40 EB Ramp / San Mateo Blvd.

INTERSECTION : E-W Street: **I-40 EB Ramp** (7)
 N-S Street: **San Mateo Blvd.**
 Year of Existing Counts: 2019
 Implementation Year: **2021**

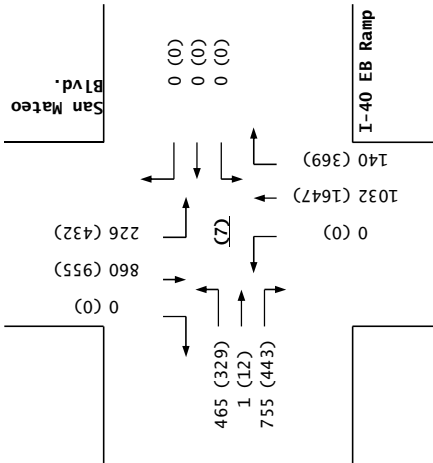
Growth Rates: 2.70% 2.80% 0.50% 0.50%

	2.70%			2.80%			0.50%			0.50%		
	Eastbound (I-40 EB Ramp)			Westbound (I-40 EB Ramp)			Northbound (San Mateo Blvd.)			Southbound (San Mateo Blvd.)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	441	1	716	0	0	0	0	1,022	139	224	851	0
Background Traffic Growth	24	0	39	0	0	0	0	10	1	2	9	0
Subtotal (NO BUILD - A.M.)	465	1	755	0	0	0	0	1,032	140	226	860	0
Percent Commercial Trips Generated(Entering)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	7.40%	0.00%
Percent Commercial Trips Generated(Exiting)	6.41%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	6.40%	1.00%	0.00%	0.00%	0.00%
Total Trips Generated	12	0	0	0	0	0	0	12	2	0	20	0
Total AM Peak Hour BUILD Volumes	477	1	755	0	0	0	0	1,044	142	226	880	0

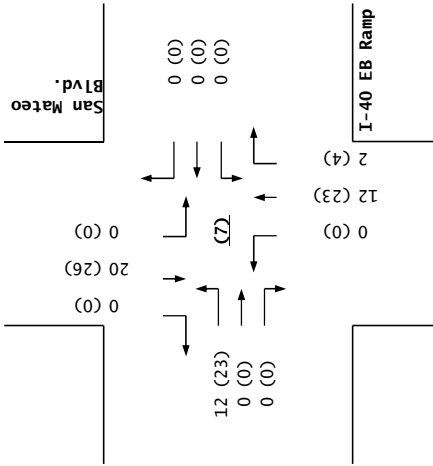
	2.70%			2.80%			0.50%			0.50%		
	Eastbound (I-40 EB Ramp)			Westbound (I-40 EB Ramp)			Northbound (San Mateo Blvd.)			Southbound (San Mateo Blvd.)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	312	11	420	0	0	0	0	1,631	365	428	946	0
Background Traffic Growth	17	1	23	0	0	0	0	16	4	4	9	0
Subtotal (NO BUILD - P.M.)	329	12	443	0	0	0	0	1,647	369	432	955	0
Percent Commercial Trips Generated(Entering)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	7.40%	0.00%
Percent Commercial Trips Generated(Exiting)	6.41%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	6.40%	1.00%	0.00%	0.00%	0.00%
Total Trips Generated	23	0	0	0	0	0	0	23	4	0	26	0
Total PM Peak Hour BUILD Volumes	352	12	443	0	0	0	0	1,670	373	432	981	0

Number of Commercial Trips Generated: Entering 275, Exiting 190, A.M. 100% Commercial Development, Entering 352, Exiting 355, P.M.

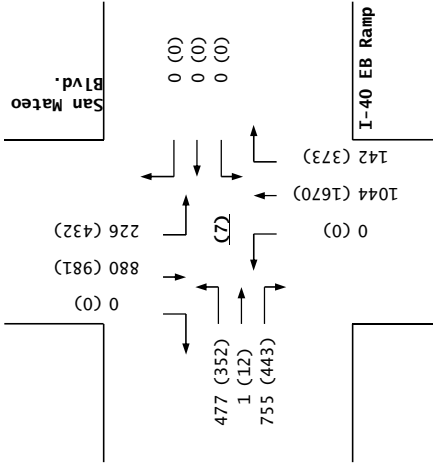
2021
NO BUILD



Trips



2021
BUILD



I-40 EB Ramp / San Mateo Blvd.

Kmart Site Redevelopment Project (Interstate 40 / Carlisle Blvd.)
 Projected Turning Movements Worksheet
I-40 WB Ramp / San Mateo Blvd.

INTERSECTION : E-W Street: **I-40 WB Ramp** (8)
 N-S Street: **San Mateo Blvd.**
 Year of Existing Counts: 2019
 Implementation Year: **2021**

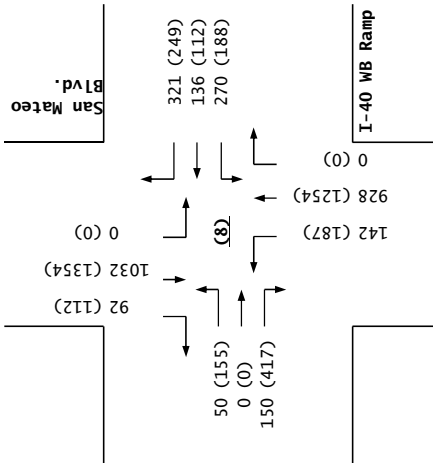
	2.70%			2.80%			0.50%			0.50%		
	Eastbound (I-40 WB Ramp)			Westbound (I-40 WB Ramp)			Northbound (San Mateo Blvd.)			Southbound (San Mateo Blvd.)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	47	0	142	256	129	304	141	919	0	0	1,022	91
Background Traffic Growth	3	0	8	14	7	17	1	9	0	0	10	1
Subtotal (NO BUILD - A.M.)	50	0	150	270	136	321	142	928	0	0	1,032	92
Percent Commercial Trips Generated(Entering)	0.00%	0.00%	0.00%	1.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	6.40%	6.41%
Percent Commercial Trips Generated(Exiting)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	12.81%	0.00%	0.00%	0.00%	0.00%
Total Trips Generated	0	0	0	3	0	0	0	24	0	0	18	18
Total AM Peak Hour BUILD Volumes	50	0	150	273	136	321	142	952	0	0	1,050	110

	2.70%			2.80%			0.50%			0.50%		
	Eastbound (I-40 WB Ramp)			Westbound (I-40 WB Ramp)			Northbound (San Mateo Blvd.)			Southbound (San Mateo Blvd.)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	147	0	396	178	106	236	185	1,242	0	0	1,341	111
Background Traffic Growth	8	0	21	10	6	13	2	12	0	0	13	1
Subtotal (NO BUILD - P.M.)	155	0	417	188	112	249	187	1,254	0	0	1,354	112
Percent Commercial Trips Generated(Entering)	0.00%	0.00%	0.00%	1.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	6.40%	6.41%
Percent Commercial Trips Generated(Exiting)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	12.81%	0.00%	0.00%	0.00%	0.00%
Total Trips Generated	0	0	0	4	0	0	0	45	0	0	23	23
Total PM Peak Hour BUILD Volumes	155	0	417	192	112	249	187	1,299	0	0	1,377	135

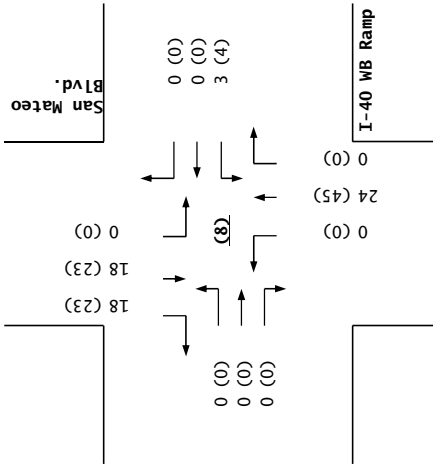
Number of Commercial Trips Generated

Entering	275	190	A.M.	100% Commercial Development
Exiting	352	355	P.M.	

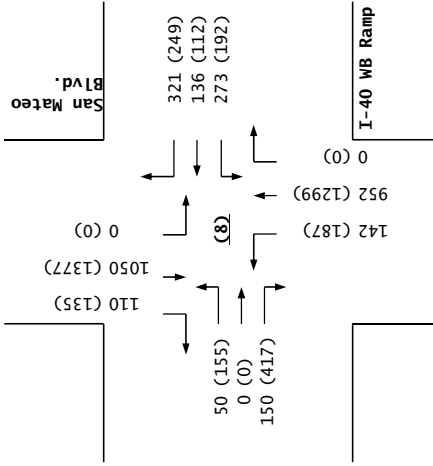
2021
NO BUILD



Trips



2021
BUILD



I-40 WB Ramp / San Mateo Blvd.

Kmart Site Redevelopment Project (Interstate 40 / Carlisle Blvd.)
 Projected Turning Movements Worksheet
Driveway "A" / Carlisle Blvd.

INTERSECTION : E-W Street: **Driveway "A"** (9)
 N-S Street: **Carlisle Blvd.**
 Year of Existing Counts: 2019
 Implementation Year: **2021**

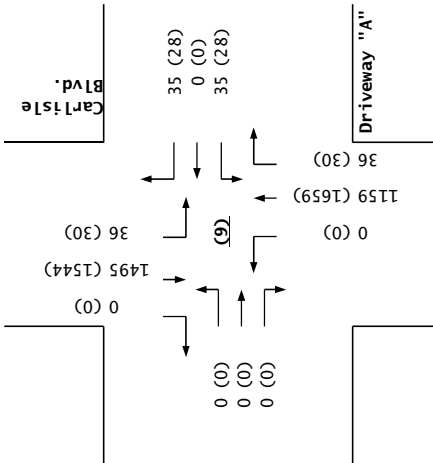
	0.50%			0.50%			0.50%			0.50%		
	Eastbound (Driveway "A")			Westbound (Driveway "A")			Northbound (Carlisle Blvd.)			Southbound (Carlisle Blvd.)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	0	0	0	0	0	0	0	0	0	0	0	0
Background Traffic Growth	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal	0	0	0	0	0	0	0	0	0	0	0	0
Burger King Adjustment	0	0	0	35	0	35	0	0	36	36	0	0
Subtotal (NO BUILD - A.M.)	0	0	0	35	0	35	0	1,159	36	36	1,495	0
Percent Commercial Trips Generated(Entering)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	12.00%	32.84%	0.00%	0.00%
Percent Commercial Trips Generated(Exiting)	0.00%	0.00%	0.00%	32.78%	0.00%	16.42%	0.00%	16.42%	0.00%	0.00%	0.00%	0.00%
Total Trips Generated	0	0	0	62	0	31	0	31	33	90	0	0
Total AM Peak Hour BUILD Volumes	0	0	0	97	0	66	0	1,190	69	126	1,495	0

	0.50%			0.50%			0.50%			0.50%		
	Eastbound (Driveway "A")			Westbound (Driveway "A")			Northbound (Carlisle Blvd.)			Southbound (Carlisle Blvd.)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	0	0	0	0	0	0	0	0	0	0	0	0
Background Traffic Growth	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal	0	0	0	0	0	0	0	0	0	0	0	0
Burger King Adjustment	0	0	0	28	0	28	0	0	30	30	0	0
Subtotal (NO BUILD - P.M.)	0	0	0	28	0	28	0	1,659	30	30	1,544	0
Percent Commercial Trips Generated(Entering)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	12.00%	32.84%	0.00%	0.00%
Percent Commercial Trips Generated(Exiting)	0.00%	0.00%	0.00%	32.78%	0.00%	16.42%	0.00%	16.42%	0.00%	0.00%	0.00%	0.00%
Total Trips Generated	0	0	0	116	0	58	0	58	42	116	0	0
Subtotal PM Pk Hr. BUILD Volumes	0	0	0	144	0	86	0	1,717	72	146	1,544	0
Pass-by Trip Adjustments	0	0	0	42	0	32	0	-32	0	41	-41	0
Total PM Peak Hour BUILD Volumes	0	0	0	186	0	118	0	1,685	72	187	1,503	0

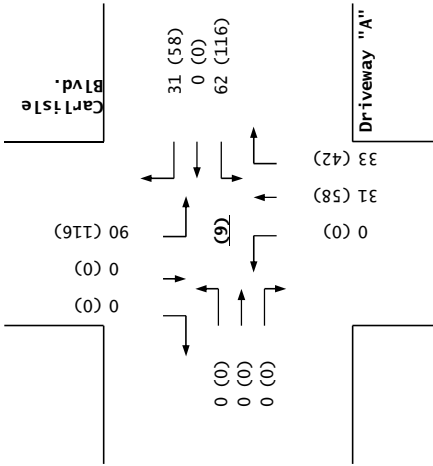
Number of Commercial Trips Generated

Entering	Exiting		
275	190	A.M.	100% Commercial Development
352	355	P.M.	

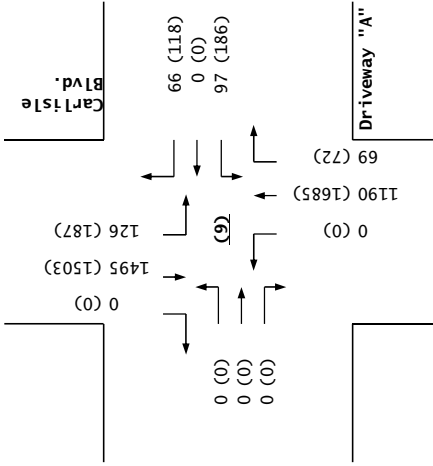
2021
NO BUILD



Trips



2021
BUILD



Driveway "A" / Carlisle Blvd.

Kmart Site Redevelopment Project (Interstate 40 / Carlisle Blvd.)
 Projected Turning Movements Worksheet
Driveway "B" / Carlisle Blvd.

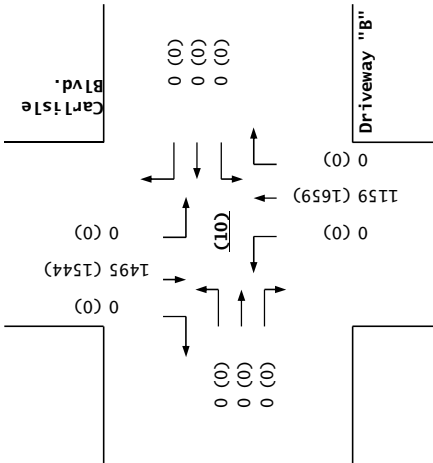
INTERSECTION : E-W Street: **Driveway "B"** (10)
 N-S Street: **Carlisle Blvd.**
 Year of Existing Counts: 2019
 Implementation Year: **2021**

	0.50%			0.50%			0.50%			0.50%		
	Eastbound (Driveway "B")			Westbound (Driveway "B")			Northbound (Carlisle Blvd.)			Southbound (Carlisle Blvd.)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	0	0	0	0	0	0	0	0	0	0	0	0
Background Traffic Growth	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal (NO BUILD - A.M.)	0	0	0	0	0	0	0	1,159	0	0	1,495	0
Percent Commercial Trips Generated(Entering)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	12.00%	20.78%	0.00%	0.00%	0.00%
Percent Commercial Trips Generated(Exiting)	0.00%	0.00%	0.00%	0.00%	0.00%	16.42%	0.00%	0.00%	0.00%	0.00%	32.78%	0.00%
Total Trips Generated	0	0	0	0	0	31	0	33	57	0	62	0
Total AM Peak Hour BUILD Volumes	0	0	0	0	0	31	0	1,192	57	0	1,557	0

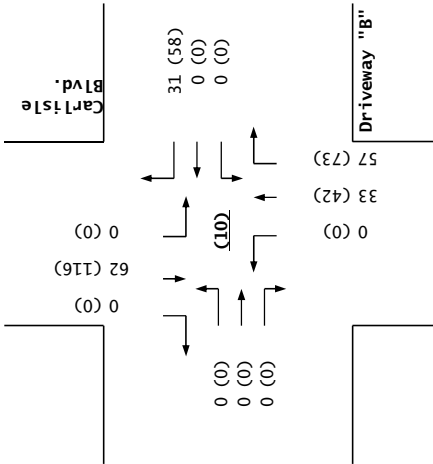
	0.50%			0.50%			0.50%			0.50%		
	Eastbound (Driveway "B")			Westbound (Driveway "B")			Northbound (Carlisle Blvd.)			Southbound (Carlisle Blvd.)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	0	0	0	0	0	0	0	0	0	0	0	0
Background Traffic Growth	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal (NO BUILD - P.M.)	0	0	0	0	0	0	0	1,659	0	0	1,544	0
Percent Commercial Trips Generated(Entering)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	12.00%	20.78%	0.00%	0.00%	0.00%
Percent Commercial Trips Generated(Exiting)	0.00%	0.00%	0.00%	0.00%	0.00%	16.42%	0.00%	0.00%	0.00%	0.00%	32.78%	0.00%
Total Trips Generated	0	0	0	0	0	58	0	42	73	0	116	0
Subtotal PM Pk Hr. BUILD Volumes	0	0	0	0	0	58	0	1,701	73	0	1,660	0
Pass-by Trip Adjustments	0	0	0	0	0	0	0	-32	32	0	1	0
Total PM Peak Hour BUILD Volumes	0	0	0	0	0	58	0	1,669	105	0	1,661	0

Number of Commercial Trips Generated: Entering **275**, Exiting **190** A.M. 100% Commercial Development
 Entering **352**, Exiting **355** P.M.

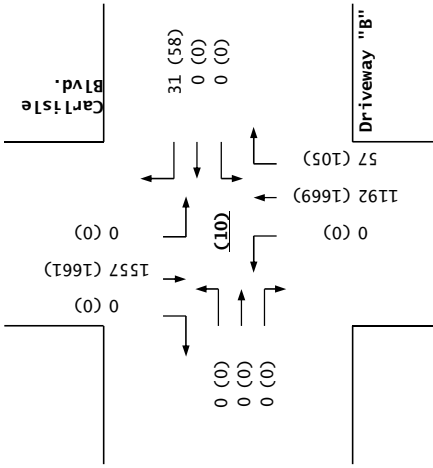
2021
NO BUILD



Trips



2021
BUILD



Driveway "B" / Carlisle Blvd.

Kmart Site Redevelopment Project (Interstate 40 / Carlisle Blvd.)
 Projected Turning Movements Worksheet
Indian School Rd. / Driveway "C"

INTERSECTION : E-W Street: **Indian School Rd.** (11)
 N-S Street: **Driveway "C"**

Year of Existing Counts 2019
 Implementation Year **2021**

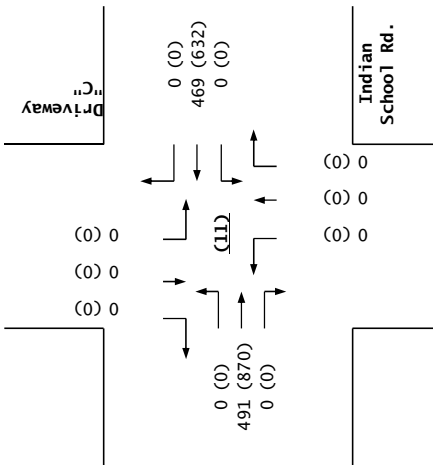
Growth Rates 0.50% 0.50% 0.50% 0.50%

	Eastbound (Indian School Rd.)			Westbound (Indian School Rd.)			Northbound (Driveway "C")			Southbound (Driveway "C")		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	0	0	0	0	0	0	0	0	0	0	0	0
Background Traffic Growth	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal (NO BUILD - A.M.)	0	491	0	0	469	0	0	0	0	0	0	0
Percent Commercial Trips Generated(Entering)	13.48%	0.00%	0.00%	0.00%	0.00%	19.91%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Percent Commercial Trips Generated(Exiting)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	19.91%	0.00%	13.48%
Total Trips Generated	37	0	0	0	0	55	0	0	0	38	0	26
Total AM Peak Hour BUILD Volumes	37	491	0	0	469	55	0	0	0	38	0	26

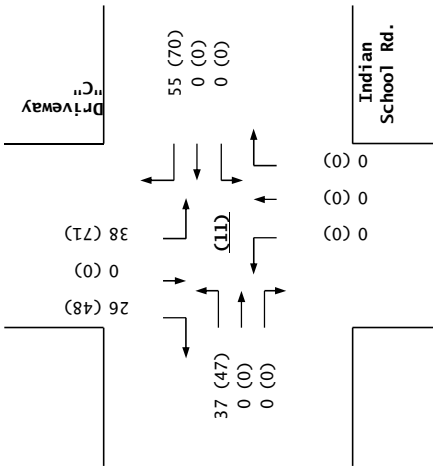
	Eastbound (Indian School Rd.)			Westbound (Indian School Rd.)			Northbound (Driveway "C")			Southbound (Driveway "C")		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	0	0	0	0	0	0	0	0	0	0	0	0
Background Traffic Growth	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal (NO BUILD - P.M.)	0	870	0	0	632	0	0	0	0	0	0	0
Percent Commercial Trips Generated(Entering)	13.48%	0.00%	0.00%	0.00%	0.00%	19.91%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Percent Commercial Trips Generated(Exiting)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	19.91%	0.00%	13.48%
Total Trips Generated	47	0	0	0	0	70	0	0	0	71	0	48
Subtotal PM Pk Hr. BUILD Volumes	47	870	0	0	632	70	0	0	0	71	0	48
Pass-by Trip Adjustments	28	-28	0	0	-17	17	0	0	0	29	0	17
Total PM Peak Hour BUILD Volumes	75	842	0	0	615	87	0	0	0	100	0	65

Number of Commercial Trips Generated
 Entering 275 190 A.M. 100% Commercial Development
 Exiting 352 355 P.M.

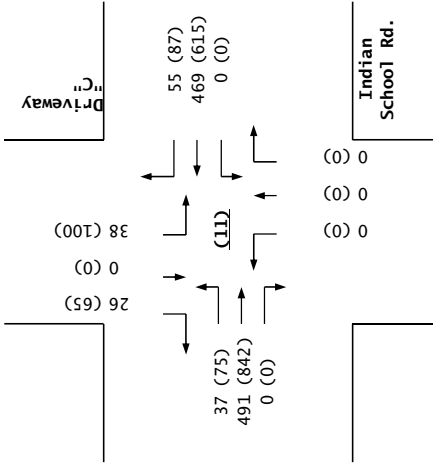
2021
NO BUILD



Trips



2021
BUILD



Indian School Rd. / Driveway "C"

Kmart Site Redevelopment Project (Interstate 40 / Carlisle Blvd.)

Projected Turning Movements SUMMARY PROPOSED DEVELOPMENT (2031) - 100% Development

INTERSECTION: Summary

Indian School Rd. / Girard Ct. 0.87 0.87 0.87 0.87 PHF

	Eastbound (Indian School Rd.)			Westbound (Indian School Rd.)			Northbound (Girard Ct.)			Southbound (Girard Ct.)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
(1) 3.0% Truck												
Existing (2019)	20	228	21	7	386	45	43	11	0	69	18	28
2031 (NO BUILD - A.M.)	21	242	22	10	567	66	46	12	0	73	19	30
2031 (BUILD - A.M.)	21	255	22	11	576	67	46	12	2	74	19	30

0.92 0.92 0.92 0.92 PHF

	Eastbound (Indian School Rd.)			Westbound (Indian School Rd.)			Northbound (Girard Ct.)			Southbound (Girard Ct.)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing (2019)	29	466	39	8	464	63	70	22	2	74	16	22
2031 (NO BUILD - P.M.)	31	494	41	12	681	92	74	23	2	78	17	23
2031 (BUILD - P.M.)	31	510	41	15	698	93	74	23	5	79	17	23

I-40 N.Ramp / Carlisle Blvd. 0.89 0.89 0.89 0.89 PHF

	Eastbound (I-40 N.Ramp)			Westbound (I-40 N.Ramp)			Northbound (Carlisle Blvd.)			Southbound (Carlisle Blvd.)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
(2) 3.0% Truck												
Existing (2019)	0	0	0	329	8	312	418	1,023	0	0	749	281
2031 (NO BUILD - A.M.)	0	0	0	436	11	413	443	1,084	0	0	821	308
2031 (BUILD - A.M.)	0	0	0	465	11	413	449	1,120	0	0	874	308

0.94 0.94 0.94 0.94 PHF

	Eastbound (I-40 N.Ramp)			Westbound (I-40 N.Ramp)			Northbound (Carlisle Blvd.)			Southbound (Carlisle Blvd.)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing (2019)	0	0	0	246	5	266	499	1,287	0	0	1,094	463
2031 (NO BUILD - P.M.)	0	0	0	326	7	352	529	1,364	0	0	1,199	507
2031 (BUILD - P.M.)	0	0	0	363	7	352	540	1,432	0	0	1,267	507

I-40 S. Ramp / Carlisle Blvd. 0.87 0.87 0.87 0.87 PHF

	Eastbound (I-40 S. Ramp)			Westbound (I-40 S. Ramp)			Northbound (Carlisle Blvd.)			Southbound (Carlisle Blvd.)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
(3) 3.0% Truck												
Existing (2019)	523	5	539	0	0	0	0	878	254	187	873	0
2031 (NO BUILD - A.M.)	711	7	733	0	0	0	0	931	269	205	957	0
2031 (BUILD - A.M.)	711	7	742	0	0	0	0	974	289	205	1,039	0

0.93 0.93 0.93 0.93 PHF

	Eastbound (I-40 S. Ramp)			Westbound (I-40 S. Ramp)			Northbound (Carlisle Blvd.)			Southbound (Carlisle Blvd.)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing (2019)	508	11	477	0	0	0	0	1,264	435	401	955	0
2031 (NO BUILD - P.M.)	691	15	649	0	0	0	0	1,340	461	439	1,047	0
2031 (BUILD - P.M.)	691	15	660	0	0	0	0	1,419	498	439	1,151	0

Indian School Rd. / Carlisle Blvd. 0.89 0.89 0.89 0.89 PHF

	Eastbound (Indian School Rd.)			Westbound (Indian School Rd.)			Northbound (Carlisle Blvd.)			Southbound (Carlisle Blvd.)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
(4) 3.0% Truck												
Existing (2019)	345	213	42	51	286	127	66	612	35	221	753	506
2031 (NO BUILD - A.M.)	506	313	62	54	303	135	96	891	51	234	798	536
2031 (BUILD - A.M.)	514	321	62	74	309	135	96	974	80	234	855	541

0.93 0.93 0.93 0.93 PHF

	Eastbound (Indian School Rd.)			Westbound (Indian School Rd.)			Northbound (Carlisle Blvd.)			Southbound (Carlisle Blvd.)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing (2019)	385	546	79	71	330	225	108	945	47	228	862	439
2031 (NO BUILD - P.M.)	565	802	116	75	350	239	157	1,376	68	242	914	465
2031 (BUILD - P.M.)	575	813	116	112	361	239	157	1,482	105	242	1,021	475

Kmart Site Redevelopment Project (Interstate 40 / Carlisle Blvd.)
 Projected Turning Movements SUMMARY
PROPOSED DEVELOPMENT (2031) - 100% Development

INTERSECTION: Summary

Driveway "A" / Carlisle Blvd. 0.89 0.89 0.89 0.89 PHF

(9)	Eastbound (Driveway "A")			Westbound (Driveway "A")			Northbound (Carlisle Blvd.)			Southbound (Carlisle Blvd.)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
3.0% Truck												
Existing (2019)	0	0	0	0	0	0	0	0	0	0	0	0
2031 (NO BUILD - A.M.)	0	0	0	35	0	35	0	1,532	36	36	1,568	0
2031 (BUILD - A.M.)	0	0	0	97	0	66	0	1,563	69	126	1,568	0

Existing (2019)	Eastbound (Driveway "A")			Westbound (Driveway "A")			Northbound (Carlisle Blvd.)			Southbound (Carlisle Blvd.)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing (2019)	0	0	0	0	0	0	0	0	0	0	0	0
2031 (NO BUILD - P.M.)	0	0	0	28	0	28	0	2,180	30	30	1,621	0
2031 (BUILD - P.M.)	0	0	0	186	0	118	0	2,206	72	187	1,580	0

Driveway "B" / Carlisle Blvd. 0.89 0.89 0.89 0.89 PHF

(10)	Eastbound (Driveway "B")			Westbound (Driveway "B")			Northbound (Carlisle Blvd.)			Southbound (Carlisle Blvd.)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
3.0% Truck												
Existing (2019)	0	0	0	0	0	0	0	0	0	0	0	0
2031 (NO BUILD - A.M.)	0	0	0	0	0	0	0	1,532	0	0	1,568	0
2031 (BUILD - A.M.)	0	0	0	0	0	31	0	1,565	57	0	1,630	0

Existing (2019)	Eastbound (Driveway "B")			Westbound (Driveway "B")			Northbound (Carlisle Blvd.)			Southbound (Carlisle Blvd.)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing (2019)	0	0	0	0	0	0	0	0	0	0	0	0
2031 (NO BUILD - P.M.)	0	0	0	0	0	0	0	2,180	0	0	1,621	0
2031 (BUILD - P.M.)	0	0	0	0	0	58	0	2,190	105	0	1,738	0

Indian School Rd. / Driveway "C" 0.89 0.89 0.89 0.89 PHF

(11)	Eastbound (Indian School Rd.)			Westbound (Indian School Rd.)			Northbound (Driveway "C")			Southbound (Driveway "C")		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
3.0% Truck												
Existing (2019)	0	0	0	0	0	0	0	0	0	0	0	0
2031 (NO BUILD - A.M.)	0	598	0	0	492	0	0	0	0	0	0	0
2031 (BUILD - A.M.)	37	598	0	0	492	55	0	0	0	38	0	26

Existing (2019)	Eastbound (Indian School Rd.)			Westbound (Indian School Rd.)			Northbound (Driveway "C")			Southbound (Driveway "C")		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing (2019)	0	0	0	0	0	0	0	0	0	0	0	0
2031 (NO BUILD - P.M.)	0	1,112	0	0	664	0	0	0	0	0	0	0
2031 (BUILD - P.M.)	75	1,084	0	0	647	87	0	0	0	100	0	65

Kmart Site Redevelopment Project (Interstate 40 / Carlisle Blvd.)
 Projected Turning Movements Worksheet
Indian School Rd. / Girard Ct.

INTERSECTION : E-W Street: **Indian School Rd.** (1)
 N-S Street: **Girard Ct.**
 Year of Existing Counts: 2019
 Horizon Year: **2031**

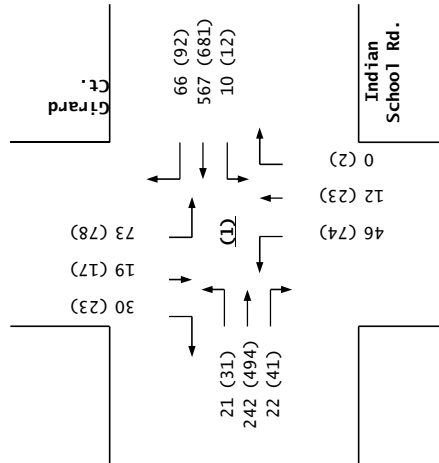
	0.50%			3.90%			0.50%			0.50%		
	Eastbound (Indian School Rd.)			Westbound (Indian School Rd.)			Northbound (Girard Ct.)			Southbound (Girard Ct.)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	20	228	21	7	386	45	43	11	0	69	18	28
Background Traffic Growth	1	14	1	3	181	21	3	1	0	4	1	2
Subtotal (NO BUILD - A.M.)	21	242	22	10	567	66	46	12	0	73	19	30
Percent Commercial Trips Generated(Entering)	0.00%	4.67%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.74%	0.37%	0.00%	0.00%
Percent Commercial Trips Generated(Exiting)	0.00%	0.00%	0.00%	0.74%	4.67%	0.37%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Total Trips Generated	0	13	0	1	9	1	0	0	2	1	0	0
Total AM Peak Hour BUILD Volumes	21	255	22	11	576	67	46	12	2	74	19	30

	0.50%			3.90%			0.50%			0.50%		
	Eastbound (Indian School Rd.)			Westbound (Indian School Rd.)			Northbound (Girard Ct.)			Southbound (Girard Ct.)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	29	466	39	8	464	63	70	22	2	74	16	22
Background Traffic Growth	2	28	2	4	217	29	4	1	0	4	1	1
Subtotal (NO BUILD - P.M.)	31	494	41	12	681	92	74	23	2	78	17	23
Percent Commercial Trips Generated(Entering)	0.00%	4.67%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.74%	0.37%	0.00%	0.00%
Percent Commercial Trips Generated(Exiting)	0.00%	0.00%	0.00%	0.74%	4.67%	0.37%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Total Trips Generated	0	16	0	3	17	1	0	0	3	1	0	0
Total PM Peak Hour BUILD Volumes	31	510	41	15	698	93	74	23	5	79	17	23

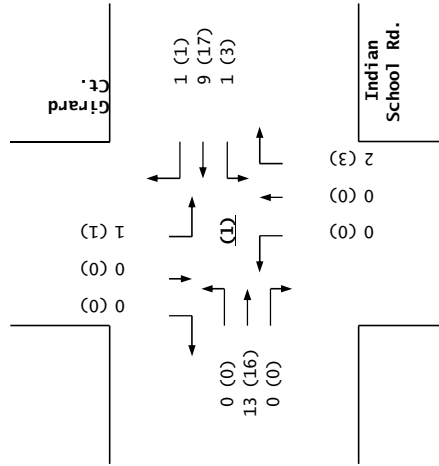
Number of Commercial Trips Generated

Entering	Exiting		
275	190	A.M.	100% Commercial Development
352	355	P.M.	

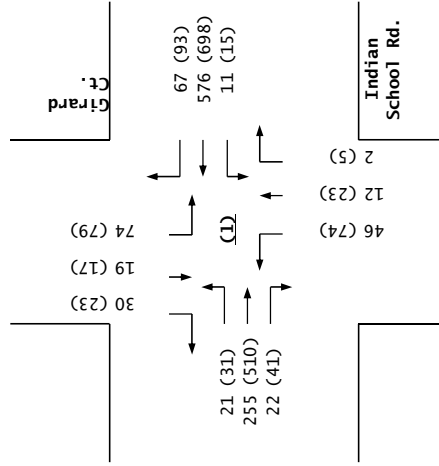
2031
NO BUILD



Trips



2031
BUILD



Indian School Rd. / Girard Ct.

Kmart Site Redevelopment Project (Interstate 40 / Carlisle Blvd.)
 Projected Turning Movements Worksheet
I-40 N.Ramp / Carlisle Blvd.

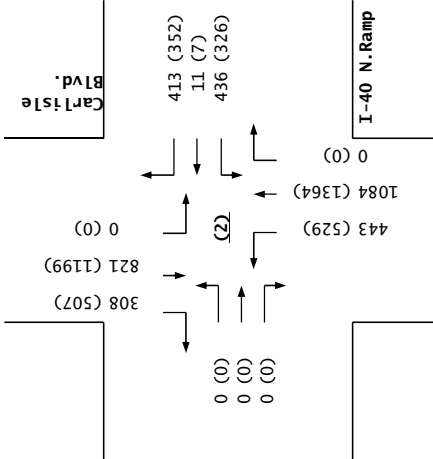
INTERSECTION : E-W Street: **I-40 N.Ramp** (2)
 N-S Street: **Carlisle Blvd.**
 Year of Existing Counts: 2019
 Horizon Year: **2031**

	3.00%			2.70%			0.50%			0.80%		
	Eastbound (I-40 N.Ramp)			Westbound (I-40 N.Ramp)			Northbound (Carlisle Blvd.)			Southbound (Carlisle Blvd.)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	0	0	0	329	8	312	418	1,023	0	0	749	281
Background Traffic Growth	0	0	0	107	3	101	25	61	0	0	72	27
Subtotal (NO BUILD - A.M.)	0	0	0	436	11	413	443	1,084	0	0	821	308
Percent Commercial Trips Generated(Entering)	0.00%	0.00%	0.00%	10.46%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	19.21%	0.00%
Percent Commercial Trips Generated(Exiting)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	3.17%	19.21%	0.00%	0.00%	0.00%	0.00%
Total Trips Generated	0	0	0	29	0	0	6	36	0	0	53	0
Total AM Peak Hour BUILD Volumes	0	0	0	465	11	413	449	1,120	0	0	874	308

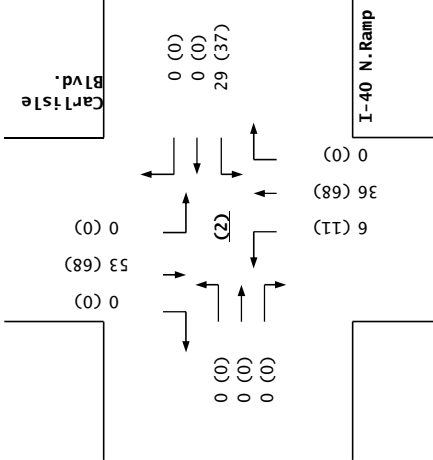
	3.00%			2.70%			0.50%			0.80%		
	Eastbound (I-40 N.Ramp)			Westbound (I-40 N.Ramp)			Northbound (Carlisle Blvd.)			Southbound (Carlisle Blvd.)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	0	0	0	246	5	266	499	1,287	0	0	1,094	463
Background Traffic Growth	0	0	0	80	2	86	30	77	0	0	105	44
Subtotal (NO BUILD - P.M.)	0	0	0	326	7	352	529	1,364	0	0	1,199	507
Percent Commercial Trips Generated(Entering)	0.00%	0.00%	0.00%	10.46%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	19.21%	0.00%
Percent Commercial Trips Generated(Exiting)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	3.17%	19.21%	0.00%	0.00%	0.00%	0.00%
Total Trips Generated	0	0	0	37	0	0	11	68	0	0	68	0
Total PM Peak Hour BUILD Volumes	0	0	0	363	7	352	540	1,432	0	0	1,267	507

Number of Commercial Trips Generated	Entering	Exiting	A.M.	100% Commercial Development
	275	190		
	352	355	P.M.	

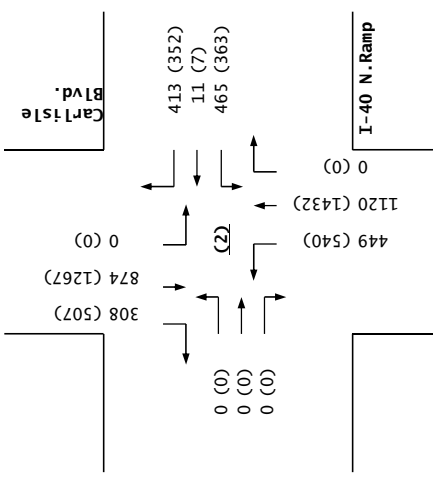
2031
NO BUILD



Trips



2031
BUILD



I-40 N. Ramp / Carlisle Blvd.

Kmart Site Redevelopment Project (Interstate 40 / Carlisle Blvd.)
 Projected Turning Movements Worksheet
I-40 S. Ramp / Carlisle Blvd.

INTERSECTION : E-W Street: **I-40 S. Ramp** (3)
 N-S Street: **Carlisle Blvd.**
 Year of Existing Counts: 2019
 Horizon Year: **2031**

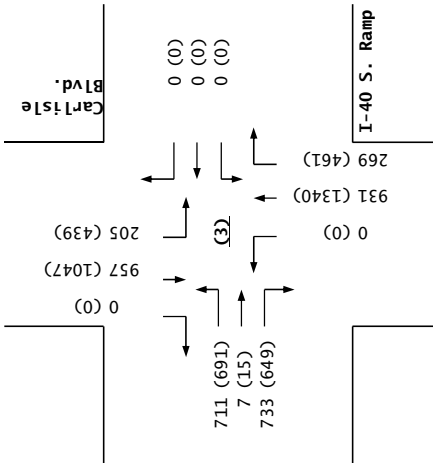
	3.00%			2.70%			0.50%			0.80%		
	Eastbound (I-40 S. Ramp)			Westbound (I-40 S. Ramp)			Northbound (Carlisle Blvd.)			Southbound (Carlisle Blvd.)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	523	5	539	0	0	0	0	878	254	187	873	0
Background Traffic Growth	188	2	194	0	0	0	0	53	15	18	84	0
Subtotal (NO BUILD - A.M.)	711	7	733	0	0	0	0	931	269	205	957	0
Percent Commercial Trips Generated(Entering)	0.00%	0.00%	3.17%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	29.67%	0.00%
Percent Commercial Trips Generated(Exiting)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	22.38%	10.46%	0.00%	0.00%	0.00%
Total Trips Generated	0	0	9	0	0	0	0	43	20	0	82	0
Total AM Peak Hour BUILD Volumes	711	7	742	0	0	0	0	974	289	205	1,039	0

	3.00%			2.70%			0.50%			0.80%		
	Eastbound (I-40 S. Ramp)			Westbound (I-40 S. Ramp)			Northbound (Carlisle Blvd.)			Southbound (Carlisle Blvd.)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	508	11	477	0	0	0	0	1,264	435	401	955	0
Background Traffic Growth	183	4	172	0	0	0	0	76	26	38	92	0
Subtotal (NO BUILD - P.M.)	691	15	649	0	0	0	0	1,340	461	439	1,047	0
Percent Commercial Trips Generated(Entering)	0.00%	0.00%	3.17%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	29.67%	0.00%
Percent Commercial Trips Generated(Exiting)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	22.38%	10.46%	0.00%	0.00%	0.00%
Total Trips Generated	0	0	11	0	0	0	0	79	37	0	104	0
Total PM Peak Hour BUILD Volumes	691	15	660	0	0	0	0	1,419	498	439	1,151	0

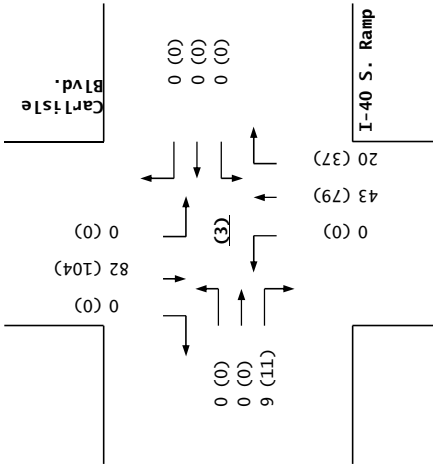
Number of Commercial Trips Generated

Entering	275	190	A.M.	100% Commercial Development
Exiting	352	355	P.M.	

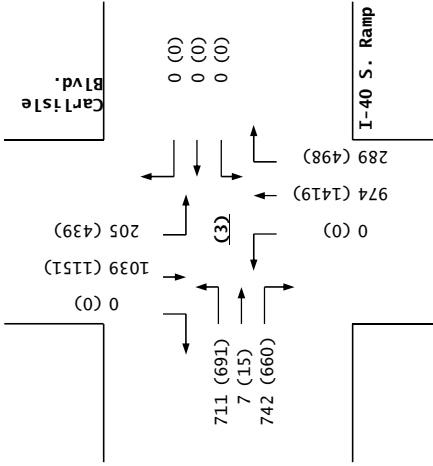
2031
NO BUILD



Trips



2031
BUILD



I-40 S. Ramp / Carlisle Blvd.

Kmart Site Redevelopment Project (Interstate 40 / Carlisle Blvd.)
 Projected Turning Movements Worksheet
Indian School Rd. / Carlisle Blvd.

INTERSECTION : E-W Street: **Indian School Rd.** (4)
 N-S Street: **Carlisle Blvd.**
 Year of Existing Counts: 2019
 Horizon Year: **2031**

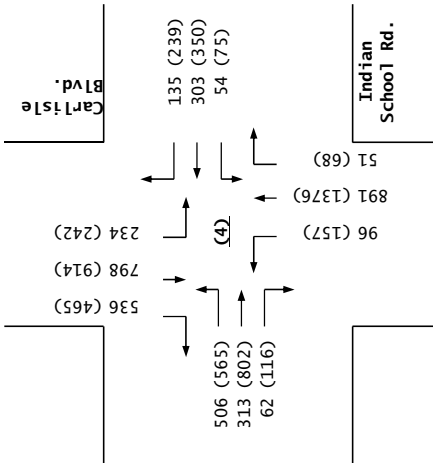
	3.90%			0.50%			3.80%			0.50%		
	Eastbound (Indian School Rd.)			Westbound (Indian School Rd.)			Northbound (Carlisle Blvd.)			Southbound (Carlisle Blvd.)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	345	213	42	51	286	127	66	612	35	221	753	506
Background Traffic Growth	161	100	20	3	17	8	30	279	16	13	45	30
Subtotal (NO BUILD - A.M.)	506	313	62	54	303	135	96	891	51	234	798	536
Percent Commercial Trips Generated(Entering)	2.78%	3.00%	0.00%	0.00%	0.00%	0.00%	0.00%	30.00%	10.48%	0.00%	0.00%	0.00%
Percent Commercial Trips Generated(Exiting)	0.00%	0.00%	0.00%	10.48%	3.00%	0.00%	0.00%	0.00%	0.00%	0.00%	30.00%	2.78%
Total Trips Generated	8	8	0	20	6	0	0	83	29	0	57	5
Total AM Peak Hour BUILD Volumes	514	321	62	74	309	135	96	974	80	234	855	541

	3.90%			0.50%			3.80%			0.50%		
	Eastbound (Indian School Rd.)			Westbound (Indian School Rd.)			Northbound (Carlisle Blvd.)			Southbound (Carlisle Blvd.)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	385	546	79	71	330	225	108	945	47	228	862	439
Background Traffic Growth	180	256	37	4	20	14	49	431	21	14	52	26
Subtotal (NO BUILD - P.M.)	565	802	116	75	350	239	157	1,376	68	242	914	465
Percent Commercial Trips Generated(Entering)	2.78%	3.00%	0.00%	0.00%	0.00%	0.00%	0.00%	30.00%	10.48%	0.00%	0.00%	0.00%
Percent Commercial Trips Generated(Exiting)	0.00%	0.00%	0.00%	10.48%	3.00%	0.00%	0.00%	0.00%	0.00%	0.00%	30.00%	2.78%
Total Trips Generated	10	11	0	37	11	0	0	106	37	0	107	10
Total PM Peak Hour BUILD Volumes	575	813	116	112	361	239	157	1,482	105	242	1,021	475

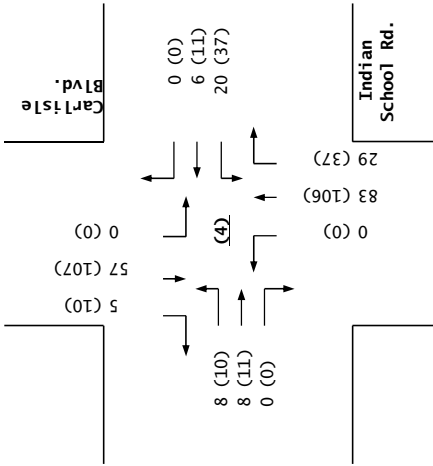
Number of Commercial Trips Generated

Entering	275	190	A.M.	100% Commercial Development
Exiting	352	355	P.M.	

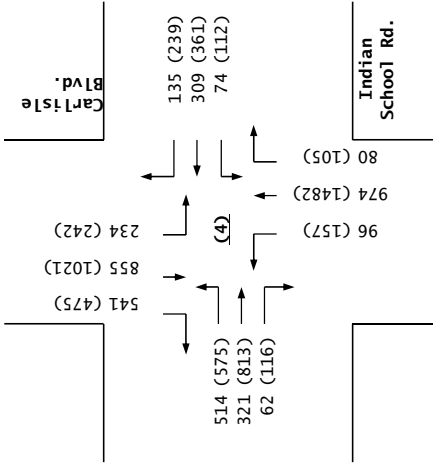
2031
NO BUILD



Trips



2031
BUILD



Indian School Rd. / Carlisle Blvd.

Kmart Site Redevelopment Project (Interstate 40 / Carlisle Blvd.)
 Projected Turning Movements Worksheet
Indian School Rd. / Washington St.

INTERSECTION : E-W Street: **Indian School Rd.** (5)
 N-S Street: **Washington St.**
 Year of Existing Counts: 2019
 Horizon Year: **2031**

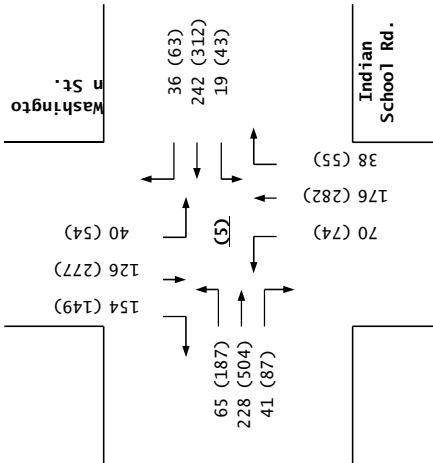
	0.50%			0.50%			0.50%			0.50%		
	Eastbound (Indian School Rd.)			Westbound (Indian School Rd.)			Northbound (Washington St.)			Southbound (Washington St.)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	61	215	39	18	228	34	66	166	36	38	119	145
Background Traffic Growth	4	13	2	1	14	2	4	10	2	2	7	9
Subtotal (NO BUILD - A.M.)	65	228	41	19	242	36	70	176	38	40	126	154
Percent Commercial Trips Generated(Entering)	0.00%	0.00%	0.00%	0.00%	15.32%	0.00%	3.85%	0.00%	0.00%	0.00%	0.00%	0.67%
Percent Commercial Trips Generated(Exiting)	0.67%	15.32%	3.85%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Total Trips Generated	1	29	7	0	42	0	11	0	0	0	0	2
Total AM Peak Hour BUILD Volumes	66	257	48	19	284	36	81	176	38	40	126	156

	0.50%			0.50%			0.50%			0.50%		
	Eastbound (Indian School Rd.)			Westbound (Indian School Rd.)			Northbound (Washington St.)			Southbound (Washington St.)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	176	475	82	41	294	59	70	266	52	51	261	141
Background Traffic Growth	11	29	5	2	18	4	4	16	3	3	16	8
Subtotal (NO BUILD - P.M.)	187	504	87	43	312	63	74	282	55	54	277	149
Percent Commercial Trips Generated(Entering)	0.00%	0.00%	0.00%	0.00%	15.32%	0.00%	3.85%	0.00%	0.00%	0.00%	0.00%	0.67%
Percent Commercial Trips Generated(Exiting)	0.67%	15.32%	3.85%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Total Trips Generated	2	54	14	0	54	0	14	0	0	0	0	2
Total PM Peak Hour BUILD Volumes	189	558	101	43	366	63	88	282	55	54	277	151

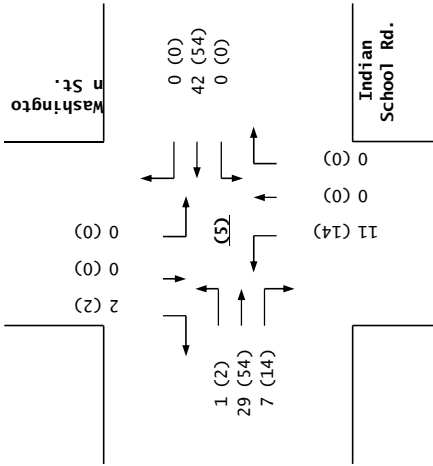
Number of Commercial Trips Generated

Entering	275	190	A.M.	100% Commercial Development
Exiting	352	355	P.M.	

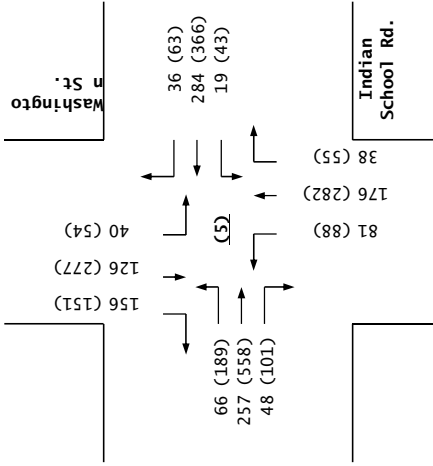
2031
NO BUILD



Trips



2031
BUILD



Indian School Rd. / Washington St.

Kmart Site Redevelopment Project (Interstate 40 / Carlisle Blvd.)
 Projected Turning Movements Worksheet
Constitution Av. / Carlisle Blvd.

INTERSECTION : E-W Street: **Constitution Av.** (6)
 N-S Street: **Carlisle Blvd.**
 Year of Existing Counts: 2019
 Horizon Year: **2031**

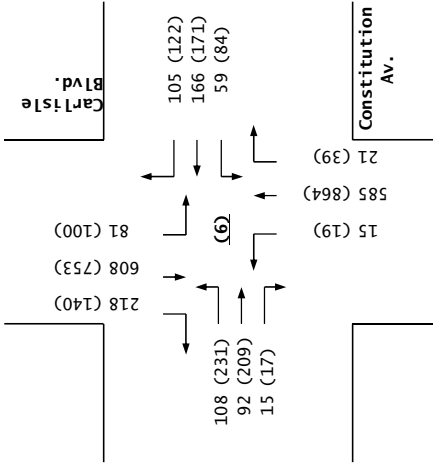
Growth Rates: 0.50% 2.90% 0.50% 0.50%

	Eastbound (Constitution Av.)			Westbound (Constitution Av.)			Northbound (Carlisle Blvd.)			Southbound (Carlisle Blvd.)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	98	87	14	44	123	67	14	465	20	66	513	203
Background Traffic Growth	6	5	1	15	43	23	1	28	1	4	31	12
Subtotal (NO BUILD - A.M.)	104	92	15	59	166	90	15	493	21	70	544	215
Percent Commercial Trips Generated(Entering)	1.40%	0.00%	0.00%	0.00%	0.00%	5.55%	0.00%	33.53%	0.00%	0.00%	0.00%	0.00%
Percent Commercial Trips Generated(Exiting)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	5.55%	33.53%	1.40%
Total Trips Generated	4	0	0	0	0	15	0	92	0	11	64	3
Total AM Peak Hour BUILD Volumes	108	92	15	59	166	105	15	585	21	81	608	218

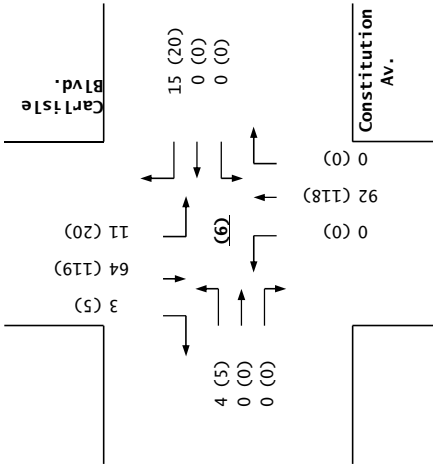
	Eastbound (Constitution Av.)			Westbound (Constitution Av.)			Northbound (Carlisle Blvd.)			Southbound (Carlisle Blvd.)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	213	197	16	62	127	76	18	704	37	75	598	127
Background Traffic Growth	13	12	1	22	44	26	1	42	2	5	36	8
Subtotal (NO BUILD - P.M.)	226	209	17	84	171	102	19	746	39	80	634	135
Percent Commercial Trips Generated(Entering)	1.40%	0.00%	0.00%	0.00%	0.00%	5.55%	0.00%	33.53%	0.00%	0.00%	0.00%	0.00%
Percent Commercial Trips Generated(Exiting)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	5.55%	33.53%	1.40%
Total Trips Generated	5	0	0	0	0	20	0	118	0	20	119	5
Total PM Peak Hour BUILD Volumes	231	209	17	84	171	122	19	864	39	100	753	140

Number of Commercial Trips Generated: Entering 275, Exiting 190, A.M. 100% Commercial Development, 352, 355, P.M.

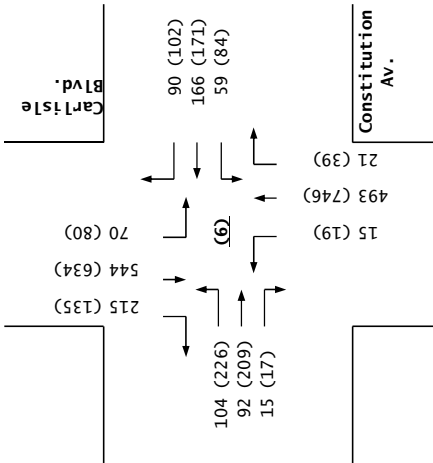
2031
BUILD



Trips



2031
NO BUILD



Constitution Av. / Carlsle Blvd.

Kmart Site Redevelopment Project (Interstate 40 / Carlisle Blvd.)
 Projected Turning Movements Worksheet
I-40 EB Ramp / San Mateo Blvd.

INTERSECTION : E-W Street: **I-40 EB Ramp** (7)
 N-S Street: **San Mateo Blvd.**
 Year of Existing Counts: 2019
 Horizon Year: **2031**

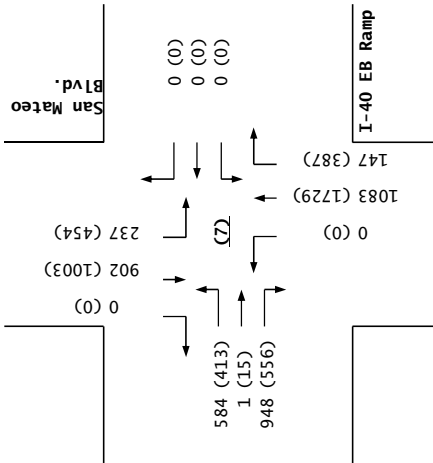
	2.70%			2.80%			0.50%			0.50%		
	Eastbound (I-40 EB Ramp)			Westbound (I-40 EB Ramp)			Northbound (San Mateo Blvd.)			Southbound (San Mateo Blvd.)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	441	1	716	0	0	0	0	1,022	139	224	851	0
Background Traffic Growth	143	0	232	0	0	0	0	61	8	13	51	0
Subtotal (NO BUILD - A.M.)	584	1	948	0	0	0	0	1,083	147	237	902	0
Percent Commercial Trips Generated(Entering)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	7.40%	0.00%
Percent Commercial Trips Generated(Exiting)	6.41%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	6.40%	1.00%	0.00%	0.00%	0.00%
Total Trips Generated	12	0	0	0	0	0	0	12	2	0	20	0
Total AM Peak Hour BUILD Volumes	596	1	948	0	0	0	0	1,095	149	237	922	0

	2.70%			2.80%			0.50%			0.50%		
	Eastbound (I-40 EB Ramp)			Westbound (I-40 EB Ramp)			Northbound (San Mateo Blvd.)			Southbound (San Mateo Blvd.)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	312	11	420	0	0	0	0	1,631	365	428	946	0
Background Traffic Growth	101	4	136	0	0	0	0	98	22	26	57	0
Subtotal (NO BUILD - P.M.)	413	15	556	0	0	0	0	1,729	387	454	1,003	0
Percent Commercial Trips Generated(Entering)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	7.40%	0.00%
Percent Commercial Trips Generated(Exiting)	6.41%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	6.40%	1.00%	0.00%	0.00%	0.00%
Total Trips Generated	23	0	0	0	0	0	0	23	4	0	26	0
Total PM Peak Hour BUILD Volumes	436	15	556	0	0	0	0	1,752	391	454	1,029	0

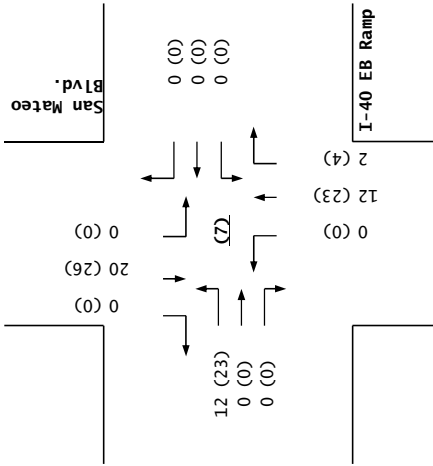
Number of Commercial Trips Generated

Entering	275	190	A.M.	100% Commercial Development
Exiting	352	355	P.M.	

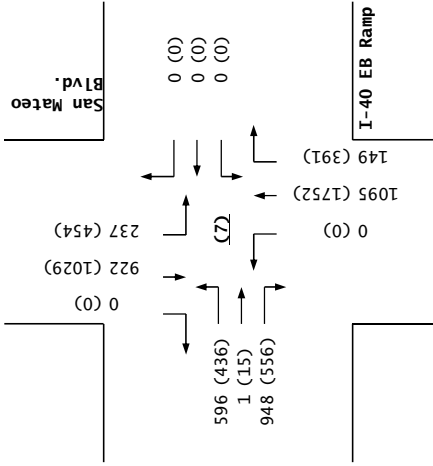
2031
NO BUILD



Trips



2031
BUILD



I-40 EB Ramp / San Mateo Blvd.

Kmart Site Redevelopment Project (Interstate 40 / Carlisle Blvd.)
 Projected Turning Movements Worksheet
I-40 WB Ramp / San Mateo Blvd.

INTERSECTION : E-W Street: **I-40 WB Ramp** (8)
 N-S Street: **San Mateo Blvd.**
 Year of Existing Counts: 2019
 Horizon Year: **2031**

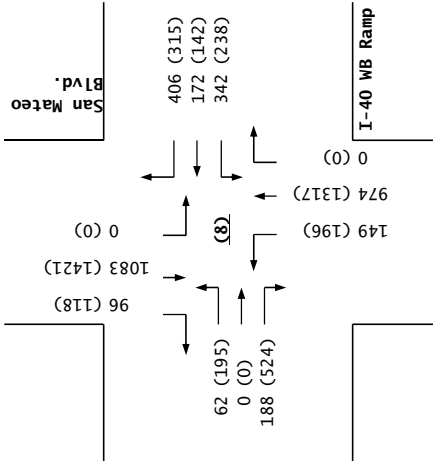
	2.70%			2.80%			0.50%			0.50%		
	Eastbound (I-40 WB Ramp)			Westbound (I-40 WB Ramp)			Northbound (San Mateo Blvd.)			Southbound (San Mateo Blvd.)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	47	0	142	256	129	304	141	919	0	0	1,022	91
Background Traffic Growth	15	0	46	86	43	102	8	55	0	0	61	5
Subtotal (NO BUILD - A.M.)	62	0	188	342	172	406	149	974	0	0	1,083	96
Percent Commercial Trips Generated(Entering)	0.00%	0.00%	0.00%	1.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	6.40%	6.41%
Percent Commercial Trips Generated(Exiting)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	12.81%	0.00%	0.00%	0.00%	0.00%
Total Trips Generated	0	0	0	3	0	0	0	24	0	0	18	18
Total AM Peak Hour BUILD Volumes	62	0	188	345	172	406	149	998	0	0	1,101	114

	2.70%			2.80%			0.50%			0.50%		
	Eastbound (I-40 WB Ramp)			Westbound (I-40 WB Ramp)			Northbound (San Mateo Blvd.)			Southbound (San Mateo Blvd.)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	147	0	396	178	106	236	185	1,242	0	0	1,341	111
Background Traffic Growth	48	0	128	60	36	79	11	75	0	0	80	7
Subtotal (NO BUILD - P.M.)	195	0	524	238	142	315	196	1,317	0	0	1,421	118
Percent Commercial Trips Generated(Entering)	0.00%	0.00%	0.00%	1.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	6.40%	6.41%
Percent Commercial Trips Generated(Exiting)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	12.81%	0.00%	0.00%	0.00%	0.00%
Total Trips Generated	0	0	0	4	0	0	0	45	0	0	23	23
Total PM Peak Hour BUILD Volumes	195	0	524	242	142	315	196	1,362	0	0	1,444	141

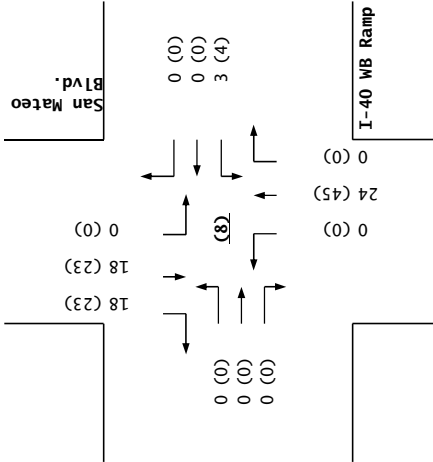
Number of Commercial Trips Generated

Entering	275	190	A.M.	100% Commercial Development
Exiting	352	355	P.M.	

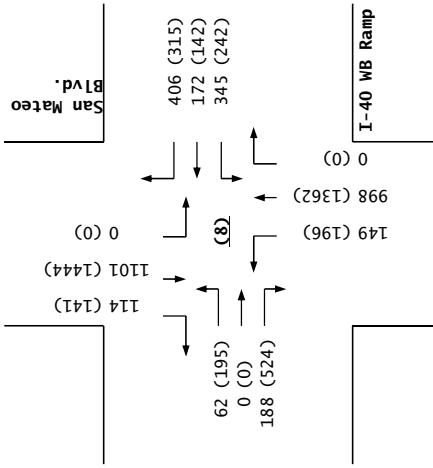
2031
NO BUILD



Trips



2031
BUILD



I-40 WB Ramp / San Mateo Blvd.

Kmart Site Redevelopment Project (Interstate 40 / Carlisle Blvd.)
 Projected Turning Movements Worksheet
Driveway "A" / Carlisle Blvd.

INTERSECTION : E-W Street: **Driveway "A"** (9)
 N-S Street: **Carlisle Blvd.**
 Year of Existing Counts: 2019
 Horizon Year: **2031**

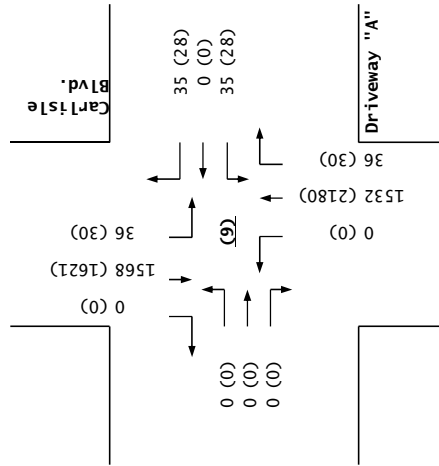
Growth Rates: **0.50%** **0.50%** **0.50%** **0.50%**

	Eastbound (Driveway "A")			Westbound (Driveway "A")			Northbound (Carlisle Blvd.)			Southbound (Carlisle Blvd.)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	0	0	0	0	0	0	0	0	0	0	0	0
Background Traffic Growth	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal	0	0	0	0	0	0	0	0	0	0	0	0
Burger King Adjustment	0	0	0	35	0	35	0	0	36	36	0	0
Subtotal (NO BUILD - A.M.)	0	0	0	35	0	35	0	1,532	36	36	1,568	0
Percent Commercial Trips Generated(Entering)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	12.00%	32.84%	0.00%	0.00%
Percent Commercial Trips Generated(Exiting)	0.00%	0.00%	0.00%	32.78%	0.00%	16.42%	0.00%	16.42%	0.00%	0.00%	0.00%	0.00%
Total Trips Generated	0	0	0	62	0	31	0	31	33	90	0	0
Total AM Peak Hour BUILD Volumes	0	0	0	97	0	66	0	1,563	69	126	1,568	0

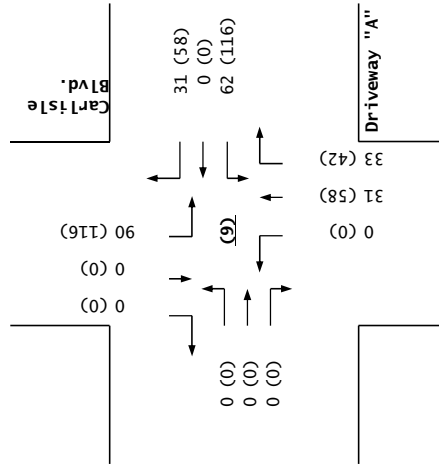
	Eastbound (Driveway "A")			Westbound (Driveway "A")			Northbound (Carlisle Blvd.)			Southbound (Carlisle Blvd.)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	0	0	0	0	0	0	0	0	0	0	0	0
Background Traffic Growth	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal	0	0	0	0	0	0	0	0	0	0	0	0
Burger King Adjustment	0	0	0	28	0	28	0	0	30	30	0	0
Subtotal (NO BUILD - P.M.)	0	0	0	28	0	28	0	2,180	30	30	1,621	0
Percent Commercial Trips Generated(Entering)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	12.00%	32.84%	0.00%	0.00%
Percent Commercial Trips Generated(Exiting)	0.00%	0.00%	0.00%	32.78%	0.00%	16.42%	0.00%	16.42%	0.00%	0.00%	0.00%	0.00%
Total Trips Generated	0	0	0	116	0	58	0	58	42	116	0	0
Subtotal PM Pk Hr. BUILD Volumes	0	0	0	144	0	86	0	2,238	72	146	1,621	0
Pass-by Trip Adjustments	0	0	0	42	0	32	0	-32	0	41	-41	0
Total PM Peak Hour BUILD Volumes	0	0	0	186	0	118	0	2,206	72	187	1,580	0

Number of Commercial Trips Generated: Entering **275** Exiting **190** A.M. 100% Commercial Development
 352 355 P.M.

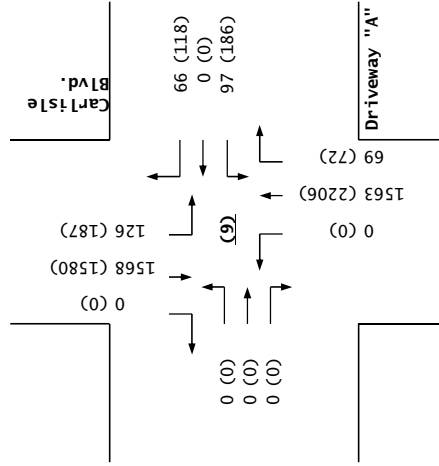
2031
NO BUILD



Trips



2031
BUILD



Driveway "A" / Carlisle Blvd.

Kmart Site Redevelopment Project (Interstate 40 / Carlisle Blvd.)
 Projected Turning Movements Worksheet
Driveway "B" / Carlisle Blvd.

INTERSECTION : E-W Street: **Driveway "B"** (10)
 N-S Street: **Carlisle Blvd.**
 Year of Existing Counts 2019
 Horizon Year **2031**

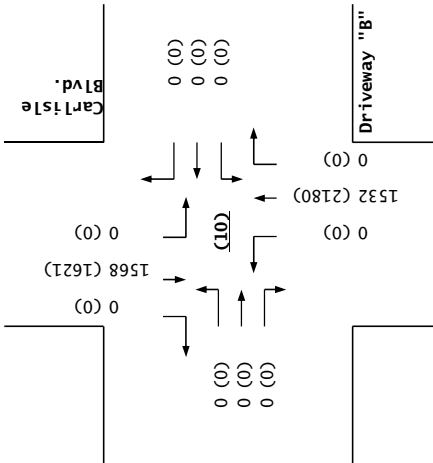
Growth Rates 0.50% 0.50% 0.50% 0.50%

	Eastbound (Driveway "B")			Westbound (Driveway "B")			Northbound (Carlisle Blvd.)			Southbound (Carlisle Blvd.)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	0	0	0	0	0	0	0	0	0	0	0	0
Background Traffic Growth	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal (NO BUILD - A.M.)	0	0	0	0	0	0	0	1,532	0	0	1,568	0
Percent Commercial Trips Generated(Entering)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	12.00%	20.78%	0.00%	0.00%	0.00%
Percent Commercial Trips Generated(Exiting)	0.00%	0.00%	0.00%	0.00%	0.00%	16.42%	0.00%	0.00%	0.00%	0.00%	32.78%	0.00%
Total Trips Generated	0	0	0	0	0	31	0	33	57	0	62	0
Total AM Peak Hour BUILD Volumes	0	0	0	0	0	31	0	1,565	57	0	1,630	0

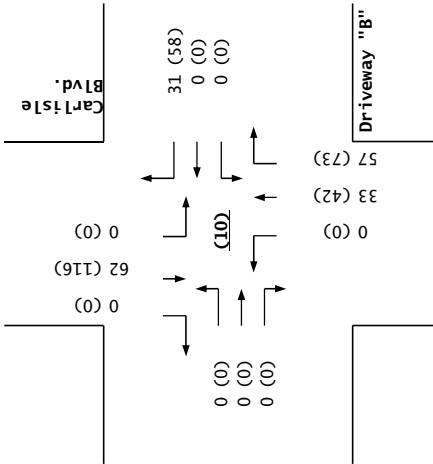
	Eastbound (Driveway "B")			Westbound (Driveway "B")			Northbound (Carlisle Blvd.)			Southbound (Carlisle Blvd.)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	0	0	0	0	0	0	0	0	0	0	0	0
Background Traffic Growth	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal (NO BUILD - P.M.)	0	0	0	0	0	0	0	2,180	0	0	1,621	0
Percent Commercial Trips Generated(Entering)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	12.00%	20.78%	0.00%	0.00%	0.00%
Percent Commercial Trips Generated(Exiting)	0.00%	0.00%	0.00%	0.00%	0.00%	16.42%	0.00%	0.00%	0.00%	0.00%	32.78%	0.00%
Total Trips Generated	0	0	0	0	0	58	0	42	73	0	116	0
Subtotal PM Pk Hr. BUILD Volumes	0	0	0	0	0	58	0	2,222	73	0	1,737	0
Pass-by Trip Adjustments	0	0	0	0	0	0	0	-32	32	0	1	0
Total PM Peak Hour BUILD Volumes	0	0	0	0	0	58	0	2,190	105	0	1,738	0

Number of Commercial Trips Generated
 Entering 275 190 A.M. 100% Commercial Development
 Exiting 352 355 P.M.

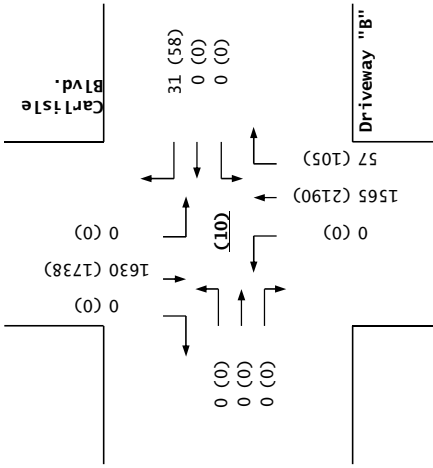
2031
NO BUILD



Trips



2031
BUILD



Driveway "B" / Carlisle Blvd.

Kmart Site Redevelopment Project (Interstate 40 / Carlisle Blvd.)
 Projected Turning Movements Worksheet
Indian School Rd. / Driveway "C"

INTERSECTION : E-W Street: **Indian School Rd.** (11)
 N-S Street: **Driveway "C"**
 Year of Existing Counts 2019
 Horizon Year **2031**

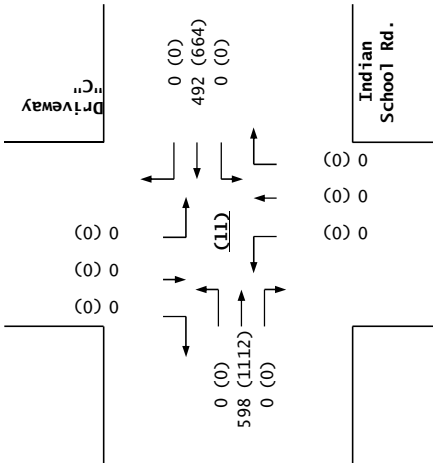
Growth Rates 0.50% 0.50% 0.50% 0.50%

	Eastbound (Indian School Rd.)			Westbound (Indian School Rd.)			Northbound (Driveway "C")			Southbound (Driveway "C")		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	0	0	0	0	0	0	0	0	0	0	0	0
Background Traffic Growth	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal (NO BUILD - A.M.)	0	598	0	0	492	0	0	0	0	0	0	0
Percent Commercial Trips Generated(Entering)	13.48%	0.00%	0.00%	0.00%	0.00%	19.91%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Percent Commercial Trips Generated(Exiting)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	19.91%	0.00%	13.48%
Total Trips Generated	37	0	0	0	0	55	0	0	0	38	0	26
Total AM Peak Hour BUILD Volumes	37	598	0	0	492	55	0	0	0	38	0	26

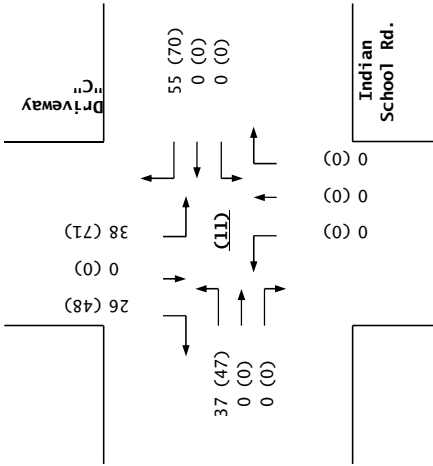
	Eastbound (Indian School Rd.)			Westbound (Indian School Rd.)			Northbound (Driveway "C")			Southbound (Driveway "C")		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	0	0	0	0	0	0	0	0	0	0	0	0
Background Traffic Growth	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal (NO BUILD - P.M.)	0	1,112	0	0	664	0	0	0	0	0	0	0
Percent Commercial Trips Generated(Entering)	13.48%	0.00%	0.00%	0.00%	0.00%	19.91%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Percent Commercial Trips Generated(Exiting)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	19.91%	0.00%	13.48%
Total Trips Generated	47	0	0	0	0	70	0	0	0	71	0	48
Subtotal PM Pk Hr. BUILD Volumes	47	1,112	0	0	664	70	0	0	0	71	0	48
Pass-by Trip Adjustments	28	-28	0	0	-17	17	0	0	0	29	0	17
Total PM Peak Hour BUILD Volumes	75	1,084	0	0	647	87	0	0	0	100	0	65

Number of Commercial Trips Generated
 Entering 275 190 A.M. 100% Commercial Development
 Exiting 352 355 P.M.

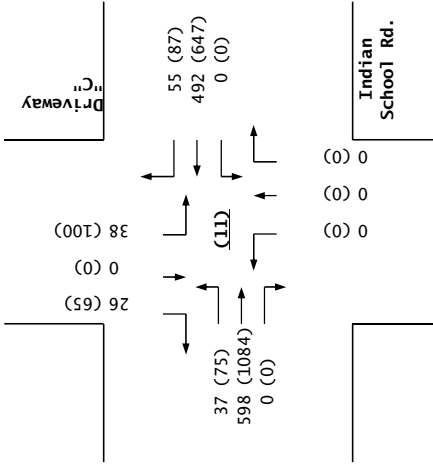
2031
NO BUILD



Trips



2031
BUILD



Indian School Rd. / Driveway "C"

Existing Analyses (2019)

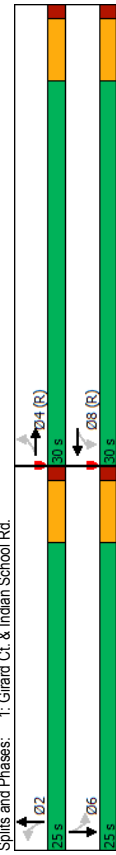
Timings
1: Girard Ct. & Indian School Rd.

HCM 6th Signalized Intersection Summary
1: Girard Ct. & Indian School Rd.

Terry O. Brown, PE
06/27/2019

Terry O. Brown, PE
06/27/2019

EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
20	228	7	386	43	11	69	18
20	228	7	386	43	11	69	18
Perm	NA	Perm	NA	Perm	NA	Perm	NA
4	4	8	8	2	2	6	6
4	4	8	8	2	2	6	6
5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
30.0	30.0	30.0	30.0	25.0	25.0	25.0	25.0
54.5%	54.5%	54.5%	54.5%	45.5%	45.5%	45.5%	45.5%
4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
C-Max	C-Max	C-Max	C-Max	Min	Min	Min	Min
36.4	36.4	36.4	36.4	8.6	8.6	8.6	8.6
0.66	0.66	0.66	0.66	0.16	0.16	0.16	0.16
0.04	0.12	0.01	0.22	0.24	0.05	0.37	0.18
4.3	3.7	2.3	2.7	21.9	17.8	24.7	12.2
4.3	3.7	2.3	2.7	21.9	17.8	24.7	12.2
A	A	A	A	C	B	C	B
3.8	2.7	2.7	2.7	21.0	19.7	19.7	19.7
A	A	A	A	C	C	B	B
55	55	55	55	55	55	55	55
17.6 (32%)	17.6 (32%)	17.6 (32%)	17.6 (32%)	17.6 (32%)	17.6 (32%)	17.6 (32%)	17.6 (32%)
45	45	45	45	45	45	45	45
Actuated-Coordinated	Actuated-Coordinated	Actuated-Coordinated	Actuated-Coordinated	Actuated-Coordinated	Actuated-Coordinated	Actuated-Coordinated	Actuated-Coordinated
0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37
6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
35.4%	35.4%	35.4%	35.4%	35.4%	35.4%	35.4%	35.4%
15	15	15	15	15	15	15	15



2019 AM Peak Existing Conditions - Existing Geometry
Synchro 10 Report
2019AX.syn

EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
20	228	7	386	43	11	69	18
20	228	7	386	43	11	69	18
0	0	0	0	0	0	0	0
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1856	1856	1856	1856	1856	1856	1856	1856
23	262	24	8	444	52	49	13
0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
3	3	3	3	3	3	3	3
669	2332	212	878	2270	265	232	178
0.71	0.71	0.71	0.24	0.24	0.10	0.10	0.10
894	3268	297	1085	3181	371	1341	1701
23	140	146	8	245	251	49	0
894	1763	1802	1085	1763	1789	1341	0
0.6	1.4	1.4	0.3	6.1	6.2	1.9	0.0
6.8	1.4	1.4	1.7	6.1	6.2	3.5	0.0
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
669	1258	1286	878	1258	1277	232	0
0.03	0.11	0.11	0.01	0.19	0.20	0.21	0.00
669	1258	1286	878	1258	1277	232	0
1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00
1.00	1.00	1.00	0.77	0.77	0.77	1.00	1.00
4.5	2.4	2.5	7.2	8.4	8.4	24.4	0.0
0.1	0.2	0.2	0.0	0.3	0.3	0.4	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.1	0.4	0.4	0.1	2.1	2.2	1.1	0.0
4.6	2.6	2.6	7.2	8.6	8.6	24.9	0.0
A	A	A	A	A	A	C	A
309	2.8	2.8	504	8.6	24.3	63	132
A	A	A	A	A	C	C	C
2	4	4	6	8	8	8	8
10.7	44.3	44.3	10.7	44.3	44.3	44.3	44.3
5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
20.0	25.0	25.0	20.0	25.0	25.0	25.0	25.0
5.5	8.8	8.8	5.4	8.2	8.2	8.2	8.2
0.1	1.4	1.4	0.4	2.5	2.5	2.5	2.5
9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8
A	A	A	A	A	A	A	A

2019 AM Peak Existing Conditions - Existing Geometry
Synchro 10 Report
2019AX.syn

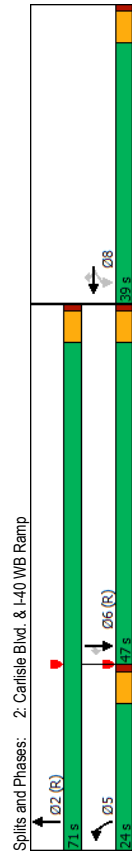
Timings
2: Carlisle Blvd. & I-40 WB Ramp

HCM 6th Signalized Intersection Summary
2: Carlisle Blvd. & I-40 WB Ramp

Terry O. Brown, PE
06/27/2019

Terry O. Brown, PE
06/27/2019

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations	←	←	←	←	←	←	←
Traffic Volume (vph)	329	8	312	418	1023	749	281
Future Volume (vph)	329	8	312	418	1023	749	281
Turn Type	Perm	NA	Perm	Prot	NA	NA	Perm
Protected Phases	8	8	8	5	2	6	6
Permitted Phases	8	8	8	5	2	6	6
Detector Phase							
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	21.0	21.0	21.0	10.0	21.0	21.0	21.0
Total Split (s)	39.0	39.0	39.0	24.0	71.0	47.0	47.0
Total Split (%)	35.5%	35.5%	35.5%	21.8%	64.5%	42.7%	42.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag				Lead		Lag	Lag
Lead-Lag Optimize?							
Recall Mode	Min	Min	Min	Min	C-Max	C-Max	C-Max
Act Effct Green (s)	29.3	29.3	29.3	18.5	70.7	47.1	47.1
Actuated g/C Ratio	0.27	0.27	0.27	0.17	0.64	0.43	0.43
v/c Ratio	0.43	0.43	0.84	0.82	0.36	0.39	0.37
Control Delay	35.5	35.4	55.8	54.9	14.5	23.3	3.9
Queue Delay	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Total Delay	35.5	35.4	55.8	54.9	14.6	23.3	3.9
LOS	D	D	E	D	B	C	A
Approach Delay		45.2			26.3	18.0	
Approach LOS		D			C	B	
Intersection Summary							
Cycle Length: 110							
Actuated Cycle Length: 110							
Offset: 101.2 (92%), Referenced to phase 2:NBT and 6:SBT, Start of Green							
Natural Cycle: 60							
Control Type: Actuated-Coordinated							
Maximum v/c Ratio: 0.84							
Intersection Signal Delay: 27.5							
Intersection Capacity Utilization 51.1%							
Analysis Period (min) 15							



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				←	←	←	←	←	←	←	←	←
Traffic Volume (veh/h)	0	0	0	329	8	312	418	1023	0	0	749	281
Future Volume (veh/h)	0	0	0	329	8	312	418	1023	0	0	749	281
Initial Q (Ob), veh				1.00	0	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A, pbT)				1.00	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
Work Zone On Approach				No	No	No	No	No	No	No	No	No
Adj Sat Flow, veh/h/ln				1856	1856	1856	1856	1856	0	0	1856	1856
Adj Flow Rate, veh/h				376	0	351	470	1149	0	0	842	0
Peak Hour Factor				0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %				3	3	3	3	3	3	3	3	3
Cap, veh/h				886	0	394	526	3336	0	0	2328	0
Arrive On Green				0.25	0.00	0.25	0.31	1.00	0.00	0.00	0.46	0.00
Sat Flow, veh/h				3534	0	1572	3428	5233	0	0	5233	1572
Grp Volume(v), veh/h				376	0	351	470	1149	0	0	842	0
Grp Sat Flow(s),veh/h/ln				1767	0	1572	1714	1689	0	0	1689	1572
Q Serve(g, s), s				9.8	0.0	23.7	14.4	0.0	0.0	0.0	11.9	0.0
Cycle Q Clear(g, c), s				9.8	0.0	23.7	14.4	0.0	0.0	0.0	11.9	0.0
Prop In Lane				1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Lane Grp Cap(c), veh/h				886	0	394	526	3336	0	0	2328	0
V/C Ratio(X)				0.42	0.00	0.89	0.89	0.34	0.00	0.00	0.36	0.00
Avail Cap(c, a), veh/h				1092	0	486	592	3336	0	0	2328	0
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(l)				1.00	0.00	1.00	0.90	0.90	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				34.6	0.0	39.8	37.2	0.0	0.0	0.0	19.3	0.0
Incr Delay (d2), s/veh				0.3	0.0	15.9	13.5	0.3	0.0	0.0	0.4	0.0
Initial Q Delay(Q3), s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%), veh/ln				7.6	0.0	16.2	9.7	0.1	0.0	0.0	8.1	0.0
Unsig. Movement Delay, s/veh				34.9	0.0	55.7	50.8	0.3	0.0	0.0	19.7	0.0
LnGrp Delay(d),s/veh				C	A	E	D	A	A	A	B	A
LnGrp LOS				C	A	E	D	A	A	A	B	A
Approach Vol, veh/h				727			1619				842	
Approach Delay, s/veh				44.9			14.9				19.7	
Approach LOS				D			B				B	
Timer - Assigned Phis				2		5	6				8	
Phis Duration (G+Y+Rc), s				77.4		21.9	55.5				32.6	
Change Period (Y+Rc), s				5.0		5.0	5.0				5.0	
Max Green Setting (Gmax), s				66.0		19.0	42.0				34.0	
Max Q Clear Time (g, c+H1), s				2.0		16.4	13.9				25.7	
Green Ext Time (p, c), s				10.8		0.5	6.4				1.9	
Intersection Summary												
HCM 6th Ctrl Delay				23.0								
HCM 6th LOS				C								
Notes												
User approved volume balancing among the lanes for turning movement.												
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.												

2019 AM Peak Existing Conditions - Existing Geometry
Synchro 10 Report
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2019 AM Peak Existing Conditions - Existing Geometry
Synchro 10 Report
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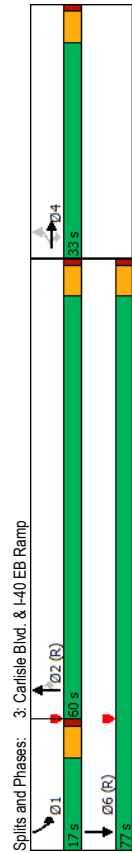
Timings
3: Carlisle Blvd. & I-40 EB Ramp

HCM 6th Signalized Intersection Summary
3: Carlisle Blvd. & I-40 EB Ramp

Terry O. Brown, PE
06/27/2019

Terry O. Brown, PE
06/27/2019

EBL	EBT	EBR	NBT	NBT	NBR	SBL	SBT
523	5	539	878	878	254	187	873
523	5	539	878	878	254	187	873
Perm	NA	Perm	NA	Perm	Prot	NA	NA
4	4	4	2	2	1	6	6
4	4	4	2	2	1	6	6
5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
33.0	33.0	33.0	60.0	60.0	17.0	77.0	77.0
30.0%	30.0%	30.0%	54.5%	54.5%	15.5%	70.0%	70.0%
4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Min	Min	Min	C-Max	C-Max	Min	C-Max	Min
26.4	26.4	26.4	57.5	57.5	11.1	73.6	11.1
0.24	0.24	0.24	0.52	0.52	0.10	0.67	0.10
0.74	0.62	0.61	0.26	0.30	0.63	0.30	0.30
44.5	45.5	41.1	12.1	2.7	71.5	10.0	10.0
44.5	45.5	41.1	12.1	2.7	71.5	10.0	10.0
D	D	D	B	A	E	B	B
43.5	10.0	10.0	A	C			
Intersection Summary							
Cycle Length: 110							
Actuated Cycle Length: 110							
Offset: 101.2 (92%), Referenced to phase 2:NBT and 6:SBT, Start of Green							
Natural Cycle: 55							
Control Type: Actuated-Coordinated							
Maximum v/c Ratio: 0.74							
Intersection Signal Delay: 24.5							
Intersection Capacity Utilization 51.1%							
Analysis Period (min) 15							



2019 AM Peak Existing Conditions - Existing Geometry
Synchro 10 Report
2019AX.syn

EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
523	5	539	0	0	0	0	878	254	187	873	0
523	5	539	0	0	0	0	878	254	187	873	0
0	0	0	0	0	0	0	0	0	0	0	0
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	No	No	No	No	No	No	No	No	No
1856	1856	1856	0	0	0	0	1856	1856	1856	1856	0
601	0	624	0	0	0	0	1009	292	215	1003	0
0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
3	3	3	0	0	0	0	3	3	3	3	0
746	0	995	0	0	0	0	4295	899	278	3536	0
0.21	0.00	0.21	0.00	0.00	0.00	0.00	1.00	1.00	0.11	0.93	0.00
3534	0	4717	0	0	0	0	7867	1572	3428	5233	0
601	0	624	0	0	0	0	1009	292	215	1003	0
1767	0	1572	0	0	0	0	1503	1572	1714	1689	0
17.8	0.0	13.2	0.0	0.0	0.0	0.0	0.0	0.0	6.7	2.1	0.0
17.8	0.0	13.2	0.0	0.0	0.0	0.0	0.0	0.0	6.7	2.1	0.0
1.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00
746	0	995	0	0	0	0	4295	899	278	3536	0
0.81	0.00	0.63	0.00	0.00	0.00	0.00	0.23	0.32	0.77	0.28	0.00
900	0	1201	0	0	0	0	4295	899	374	3536	0
1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	1.33	1.00	1.00
1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.76	0.76	0.92	0.92	0.00
41.3	0.0	39.5	0.0	0.0	0.0	0.0	0.0	0.0	48.1	1.3	0.0
4.6	0.0	0.7	0.0	0.0	0.0	0.0	0.1	0.1	6.4	0.2	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12.8	0.0	8.9	0.0	0.0	0.0	0.0	0.0	0.3	5.4	1.0	0.0
458	0.0	40.2	0.0	0.0	0.0	0.0	0.1	0.7	54.4	1.4	0.0
D	A	D	A	D	A	A	A	A	D	A	A
1225	43.0	1301	0.2	0.2	1218	10.8					
D	D	A	A	B							
1	2	4	6								
13.9	67.9	28.2	81.8								
5.0	5.0	5.0	5.0								
12.0	55.0	28.0	72.0								
8.7	2.0	19.8	4.1								
0.2	10.5	3.4	8.9								
Intersection Summary											
HCM 6th Ctrl Delay 17.7											
HCM 6th LOS B											

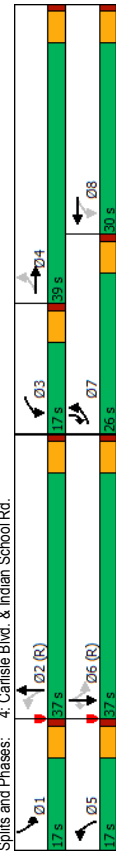
User approved volume balancing among the lanes for turning movement

2019 AM Peak Existing Conditions - Existing Geometry
Synchro 10 Report
2019AX.syn

Timings
4: Carlisle Blvd. & Indian School Rd.

Terry O. Brown, PE
06/27/2019

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	345	213	51	286	66	612	221	753	506
Future Volume (vph)	345	213	51	286	66	612	221	753	506
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+ov
Protected Phases	7	4	3	8	5	2	1	6	7
Permitted Phases	4	4	3	8	5	2	1	6	6
Detector Phase	7	4	3	8	5	2	1	6	7
Switch Phase	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Initial (s)	10.0	21.0	10.0	21.0	10.0	21.0	10.0	21.0	10.0
Minimum Split (s)	26.0	39.0	17.0	30.0	17.0	37.0	17.0	37.0	26.0
Total Split (s)	23.6%	35.5%	15.5%	27.3%	15.5%	33.6%	15.5%	33.6%	23.6%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Min	Min	Min	Min	Min	Min	Min	Min	Min
Recall Mode	45.0	32.4	26.6	19.0	44.9	36.9	54.2	42.0	68.0
Act Effct Green (s)	0.41	0.29	0.24	0.17	0.41	0.34	0.49	0.38	0.62
Actuated g/C Ratio	0.94	0.28	0.19	0.74	0.28	0.43	0.65	0.63	0.52
v/c Ratio	58.6	28.9	21.4	44.5	16.8	29.2	23.9	26.5	14.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.6	28.9	21.4	44.5	16.8	29.2	23.9	26.5	14.6
LOS	E	C	C	D	B	C	C	C	B
Approach Delay	46.0	42.0	42.0	42.0	28.1	28.1	22.0	22.0	22.0
Approach LOS	D	D	D	D	C	C	C	C	C
Intersection Summary									
Cycle Length: 110									
Actuated Cycle Length: 110									
Offset: 8.8 (8%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green									
Natural Cycle: 70									
Control Type: Actuated-Coordinated									
Maximum v/c Ratio: 0.94									
Intersection Signal Delay: 30.6									
Intersection Capacity Utilization 72.7%									
Analysis Period (min) 15									



2019 AM Peak Existing Conditions - Existing Geometry
Synchro 10 Report
2019AX.syn

HCM 6th Signalized Intersection Summary
4: Carlisle Blvd. & Indian School Rd.

Terry O. Brown, PE
06/27/2019

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Movement	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (veh/h)	345	213	42	51	286	127	66	612	35
Future Volume (veh/h)	345	213	42	51	286	127	66	612	35
Initial Q (Ob), veh	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	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No	No	No	No	No	No	No	No	No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	388	239	47	57	321	143	74	688	39
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3
Arrive On Green	0.32	0.52	0.05	0.17	0.17	0.03	0.24	0.14	0.55
Sat Flow, veh/h	1767	2946	570	1767	2388	1042	1767	4906	277
Grip Volume(v), veh/h	388	141	145	57	235	229	74	473	254
Grip Sat Flow(s) veh/h/ln	1767	1763	1753	1767	1763	1668	1767	1689	1806
Q Serve(g, s), s	20.1	4.9	5.0	2.9	14.1	14.6	2.9	12.9	13.0
Cycle Q Clear(g, c), s	20.1	4.9	5.0	2.9	14.1	14.6	2.9	12.9	13.0
Prop In Lane	1.00	0.33	1.00	0.62	1.00	0.62	1.00	0.15	1.00
V/C Ratio(X)	0.89	0.26	0.26	0.17	0.80	0.83	0.30	0.40	0.59
Avail Cap(c, a), veh/h	434	549	546	438	401	379	356	1204	644
HCM Platoon Ratio	1.67	1.67	1.67	1.00	1.00	1.00	0.67	0.67	1.33
Upstream Filter(I)	0.99	0.99	0.99	0.98	0.98	0.98	0.97	0.97	0.93
Uniform Delay (d), s/veh	24.8	19.3	19.4	35.3	44.1	44.3	21.5	31.9	18.2
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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
%ile BackOfQ(95%) veh/ln	13.7	3.4	3.5	2.2	10.8	10.8	2.2	9.5	10.3
Unsig. Movement Delay, s/veh	45.2	19.6	19.6	35.6	52.1	54.5	22.2	32.8	33.7
LnGrip Delay(d) s/veh	D	B	B	D	D	D	C	C	C
LnGrip LOS	D	B	B	D	D	D	C	C	C
Approach Vol, veh/h	674	343	343	521	51.4	801	1663	17.3	17.3
Approach Delay, s/veh	34.3	34.3	34.3	51.4	32.1	32.1	17.3	17.3	17.3
Approach LOS	C	C	C	D	D	C	C	C	B
Timer - Assigned Phis	1	2	3	4	5	6	7	8	
Phis Duration (G+Y+Rc), s	16.5	44.2	10.0	39.3	10.0	50.7	26.0	23.3	
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Max Green Setting (Gmax), s	12.0	32.0	12.0	34.0	12.0	32.0	21.0	25.0	
Max Q Clear Time (g, c+H1), s	11.5	15.0	4.9	7.0	4.9	25.1	22.1	16.6	
Green Ext Time (p, c), s	0.0	4.2	0.0	1.5	0.1	4.2	0.0	1.7	
Intersection Summary									
HCM 6th Ctrl Delay	28.5								
HCM 6th LOS	C								

2019 AM Peak Existing Conditions - Existing Geometry
Synchro 10 Report
2019AX.syn

Timings
6: Carlisle Blvd. & Constitution Ave.

Terry O. Brown, PE
06/27/2019

EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
98	87	14	44	123	67	14	465	66	513	203
98	87	14	44	123	67	14	465	66	513	203
Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm
4	4	4	8	8	8	2	2	6	6	6
4	4	4	8	8	8	2	2	6	6	6
5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
38.0	38.0	38.0	38.0	38.0	38.0	72.0	72.0	72.0	72.0	72.0
34.5%	34.5%	34.5%	34.5%	34.5%	34.5%	65.5%	65.5%	65.5%	65.5%	65.5%
4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Min	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min
15.0	15.0	15.0	15.0	15.0	15.0	85.0	85.0	85.0	85.0	85.0
0.14	0.14	0.14	0.14	0.14	0.14	0.77	0.77	0.77	0.77	0.77
0.75	0.37	0.06	0.27	0.53	0.26	0.02	0.19	0.11	0.39	0.17
74.7	45.8	13.0	44.4	50.6	11.4	4.1	3.9	0.5	2.1	0.2
74.7	45.8	13.0	44.4	50.6	11.4	4.1	3.9	0.5	2.1	0.2
E	D	B	D	D	B	A	A	A	A	A
57.7			38.2			3.9			1.5	
E			D			A			A	
110										
63.8 (58%)										
45										
13.7										
59.7%										
15										
6: Carlisle Blvd. & Constitution Ave.										
02 (R)										
04										
06 (R)										
08										

Timings
6: Carlisle Blvd. & Constitution Ave.

Terry O. Brown, PE
06/27/2019

EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
98	87	14	44	123	67	14	465	20	66	513
98	87	14	44	123	67	14	465	20	66	513
0	0	0	0	0	0	0	0	0	0	0
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
105	94	15	47	132	72	15	500	22	71	552
0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
3	3	3	3	3	3	3	3	3	3	3
197	326	276	233	326	276	574	2523	111	666	1361
0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.73	0.73	1.00	1.00
1169	1856	1572	1274	1856	1572	693	3440	151	873	1856
105	94	15	47	132	72	15	256	266	71	552
1169	1856	1572	1274	1856	1572	693	1763	1828	873	1856
9.6	4.8	0.9	3.7	6.9	4.4	0.6	5.0	5.0	0.6	0.0
16.6	4.8	0.9	8.5	6.9	4.4	0.6	5.0	5.0	0.6	0.0
1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.08	1.00	1.00	1.00
0.53	0.29	0.05	0.20	0.40	0.26	0.03	0.20	0.20	0.11	0.41
342	557	472	392	557	472	574	1293	1341	666	1361
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
47.6	39.4	37.7	43.1	40.2	39.2	4.0	4.6	4.6	0.2	0.0
2.2	0.5	0.1	0.4	0.8	0.5	0.1	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5.3	4.1	0.6	2.1	5.8	3.1	0.2	2.9	3.1	0.1	0.5
498	39.8	37.8	43.5	41.0	39.7	4.1	4.9	4.9	0.4	0.7
D	D	D	D	D	D	D	A	A	A	A
214				251			537			841
44.6				41.1			4.9			0.6
D				D			A			A
2			4			6				8
85.7			24.3			85.7				24.3
5.0			5.0			5.0				5.0
67.0			33.0			67.0				33.0
7.0			18.6			7.6				10.5
3.5			0.7			5.4				1.1
12.5										
B										

2019 AM Peak Existing Conditions - Existing Geometry

2019 AM Peak Existing Conditions - Existing Geometry

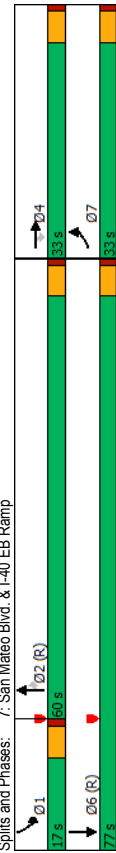
Timings
7: San Mateo Blvd. & I-40 EB Ramp

HCM 6th Signalized Intersection Summary
7: San Mateo Blvd. & I-40 EB Ramp

Terry O. Brown, PE
06/27/2019

Terry O. Brown, PE
06/27/2019

EBL	EBT	EBR	NBT	NBT	NBR	SBL	SBT
441	1	716	1022	139	224	851	
441	1	716	1022	139	224	851	
Prot	NA	Perm	NA	Perm	Prot	NA	
7	4	4	2	2	1	6	
7	4	4	2	2	1	6	
5.0	5.0	5.0	5.0	5.0	5.0	5.0	
10.0	21.0	21.0	21.0	21.0	10.0	21.0	
33.0	33.0	33.0	60.0	60.0	17.0	77.0	
30.0%	30.0%	30.0%	54.5%	54.5%	15.5%	70.0%	
4.0	4.0	4.0	4.0	4.0	4.0	4.0	
1.0	1.0	1.0	1.0	1.0	1.0	1.0	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	
5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Min	Min	Min	C-Max	C-Max	Min	C-Max	
23.0	23.0	23.0	60.4	60.4	11.6	77.0	
0.21	0.21	0.21	0.55	0.55	0.11	0.70	
0.86	0.85	0.84	0.39	0.16	0.67	0.26	
44.0	39.1	38.8	15.6	2.8	48.7	3.8	
44.0	39.1	38.8	15.6	2.8	48.7	3.8	
D	D	D	B	A	D	A	
40.9			14.0		13.1		
D	B	B	B	B	B	B	
110							
90.2 (82%)							
55							
Actuated/Coordinated							
22.9							
54.3%							
15							



EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
441	1	716	0	0	0	0	1022	139	224	851	0
441	1	716	0	0	0	0	1022	139	224	851	0
0	0	0	0	0	0	0	0	0	0	0	0
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	No	No	No	No	No	No	No	No	No
1856	1856	1856	0	0	0	0	1856	1856	1856	1856	0
469	0	763	0	0	0	0	1087	0	238	905	0
0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
3	3	3	0	0	0	0	3	3	3	3	0
900	0	801	0	0	0	0	2637	0	303	3316	0
0.25	0.00	0.25	0.00	0.00	0.00	0.00	0.52	0.00	0.06	0.44	0.00
3534	0	3145	0	0	0	0	5233	1572	3428	5233	0
469	0	763	0	0	0	0	1087	0	238	905	0
1767	0	1572	0	0	0	0	1689	1572	1714	1689	0
12.5	0.0	26.3	0.0	0.0	0.0	0.0	14.4	0.0	7.5	12.5	0.0
12.5	0.0	26.3	0.0	0.0	0.0	0.0	14.4	0.0	7.5	12.5	0.0
1.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00
900	0	801	0	0	0	0	2637	0	303	3316	0
0.52	0.00	0.95	0.00	0.00	0.00	0.00	0.41	0.00	0.78	0.27	0.00
900	0	801	0	0	0	0	2637	0	374	3316	0
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.67	1.00	0.00
1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.86	0.86	0.00
352	0.0	40.4	0.0	0.0	0.0	0.0	16.1	0.0	50.7	14.2	0.0
0.5	0.0	21.1	0.0	0.0	0.0	0.0	0.5	0.0	7.4	0.2	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9.3	0.0	18.1	0.0	0.0	0.0	0.0	9.4	0.0	6.5	8.8	0.0
358	0.0	61.5	0.0	0.0	0.0	0.0	16.6	0.0	58.1	14.4	0.0
D	A	E	A	B	B	B	A	B	E	B	A
1232							1087		1143		
51.7							16.6		23.5		
D	D	D	B	B	B	B	B	B	C	C	C
1	2	4	6								
14.7	62.3	33.0	77.0								
5.0	5.0	5.0	5.0								
12.0	55.0	28.0	72.0								
9.5	16.4	28.3	14.5								
0.2	9.9	0.0	8.1								
31.4											
C											

Notes
User approved volume balancing among the lanes for turning movement.
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

2019 AM Peak Existing Conditions - Existing Geometry
Synchro 10 Report
2019AX.syn

2019 AM Peak Existing Conditions - Existing Geometry
Synchro 10 Report
2019AX.syn

Timings
8: San Mateo Blvd. & I-40 WB Ramp

Terry O. Brown, PE
06/27/2019

EBL	EBR	WBL	WBR	NBL	NBT	SBL	SBR
47	142	256	304	141	919	1022	91
47	142	256	304	141	919	1022	91
7	4	3	8	5	2	6	7
7	4	3	8	5	2	6	7
5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
10.0	21.0	10.0	21.0	10.0	21.0	21.0	10.0
15.0	25.0	18.0	28.0	18.0	67.0	49.0	15.0
13.6%	22.7%	16.4%	25.5%	16.4%	60.9%	44.5%	13.6%
4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
7.1	12.3	12.4	17.6	17.6	10.2	70.3	55.1
0.06	0.11	0.11	0.16	0.16	0.09	0.64	0.50
0.23	0.49	0.72	0.47	0.83	0.48	0.31	0.44
5.10	12.1	58.5	45.9	38.7	48.5	14.4	19.6
5.10	12.1	58.5	45.9	38.7	48.5	14.4	19.6
D	B	E	D	D	D	B	A
D	B	E	D	D	D	B	A
D	B	E	D	D	D	B	A
110							
49.5 (45%)							
65							
Actuated-Coordinated							
0.83							
C							
51.6%							
15							

Splits and Phases: 8: San Mateo Blvd. & I-40 WB Ramp

01 (R)	02 (R)	03	04	05	06 (R)	07	08
57.5 s	18.5 s	18.5 s	25.5 s	18.5 s	18.5 s	15.5 s	18.5 s

HCM 6th Signalized Intersection Summary
8: San Mateo Blvd. & I-40 WB Ramp

Terry O. Brown, PE
06/27/2019

EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
47	0	142	256	129	304	141	919	0	0	1022	91
47	0	142	256	129	304	141	919	0	0	1022	91
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1856	0	1856	1856	1856	1856	1856	1856	0	0	1856	1856
51	0	153	275	139	327	152	988	0	0	1099	98
0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
3	0	3	3	3	3	3	3	0	0	3	3
156	0	1028	388	329	215	3085	0	0	0	2537	859
0.05	0.00	0.00	0.30	0.21	0.21	0.13	1.00	0.00	0.00	0.50	0.50
3428	51	3428	1856	1572	3428	5233	0	0	0	5233	1572
51	52.1	275	139	327	152	988	0	0	0	1099	98
1714	D	1714	1856	1572	1714	1689	0	0	0	1689	1572
1.6	6.7	7.0	22.8	4.7	0.0	0.0	0.0	0.0	0.0	15.2	3.3
1.6	6.7	7.0	22.8	4.7	0.0	0.0	0.0	0.0	0.0	15.2	3.3
1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	1.00	1.00
156	1028	388	329	215	3085	0	0	0	0	2537	859
0.33	0.27	0.36	0.99	0.71	0.32	0.00	0.00	0.00	0.00	0.43	0.11
312	1028	388	329	405	3085	0	0	0	0	2537	859
1.00	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	0.88	0.88	0.00	0.00	0.00	0.00	1.00	1.00
50.9	29.3	37.2	43.4	47.1	0.0	0.0	0.0	0.0	0.0	17.5	12.1
1.2	0.1	0.6	48.1	3.7	0.2	0.0	0.0	0.0	0.0	0.5	0.3
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1.3	5.0	5.9	19.1	3.6	0.1	0.0	0.0	0.0	0.0	9.8	2.2
52.1	29.4	37.7	91.5	50.9	0.2	0.0	0.0	0.0	0.0	18.0	12.3
D	C	D	F	D	A	A	A	A	A	A	B
741						1140				1197	
98.4						7.0				17.6	
E						A				B	
2	3	5	6	7	8						
72.0	38.0	11.9	60.1	10.0	28.0						
5.0	5.0	5.0	5.0	5.0	5.0						
62.0	13.0	13.0	44.0	10.0	23.0						
2.0	8.7	6.7	17.2	3.6	24.8						
8.7	0.4	0.2	9.1	0.0	0.0						
23.9											
C											

2019 AM Peak Existing Conditions - Existing Geometry

Synchro 10 Report
2019AX.syn

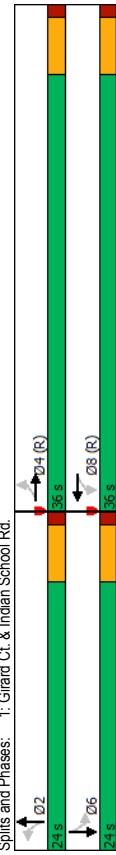
2019 AM Peak Existing Conditions - Existing Geometry

Synchro 10 Report
2019AX.syn

Timings
1: Girard Ct. & Indian School Rd.

Terry O. Brown, PE
06/27/2019

EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
29	466	8	464	70	22	74	16
29	466	8	464	70	22	74	16
Perm	NA	Perm	NA	Perm	NA	Perm	NA
4	4	8	8	2	2	6	6
4	4	8	8	2	2	6	6
5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
36.0	36.0	36.0	36.0	24.0	24.0	24.0	24.0
60.0%	60.0%	60.0%	60.0%	40.0%	40.0%	40.0%	40.0%
4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
C-Max	C-Max	C-Max	C-Max	Min	Min	Min	Min
41.1	41.1	41.1	41.1	8.9	8.9	8.9	8.9
0.68	0.68	0.68	0.68	0.15	0.15	0.15	0.15
0.06	0.23	0.02	0.24	0.38	0.10	0.39	0.15
4.2	4.1	4.9	5.2	27.6	20.1	27.9	13.8
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4.2	4.1	4.9	5.2	27.6	20.1	27.9	13.8
A	A	A	A	C	C	C	B
4.1	4.1	5.2	5.2	25.7	23.1	23.1	23.1
A	A	A	A	C	C	C	C
Intersection Summary							
Cycle Length: 60							
Actuated Cycle Length: 60							
Offset: 22.2 (37%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green							
Natural Cycle: 45							
Control Type: Actuated-Coordinated							
Maximum v/c Ratio: 0.39							
Intersection Signal Delay: 7.8							
Intersection Capacity Utilization: 42.3%							
Analysis Period (min): 15							



2021 PM Peak Existing Conditions - Existing Geometry
Synchro 10 Report
2019PX.syn

HCM 6th Signalized Intersection Summary
1: Girard Ct. & Indian School Rd.

Terry O. Brown, PE
06/27/2019

EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
29	466	8	464	70	22	74	16
29	466	8	464	70	22	74	16
0	0	0	0	0	0	0	0
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1856	1856	1856	1856	1856	1856	1856	1856
32	507	42	9	504	68	76	24
0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
3	3	3	3	3	3	3	3
720	2375	196	690	2249	302	243	191
0.72	0.72	0.72	1.00	1.00	1.00	1.00	1.00
834	3297	272	852	3123	420	1355	1689
32	270	279	9	284	288	76	0
834	1763	1807	852	1763	1780	1355	0
0.7	3.0	3.1	0.0	0.0	0.0	3.2	0.0
0.7	3.0	3.1	0.0	0.0	0.0	4.6	0.0
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
720	1270	1301	690	1270	1282	243	0
0.04	0.21	0.21	0.01	0.22	0.22	0.31	0.00
720	1270	1301	690	1270	1282	243	0
1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00
1.00	1.00	1.00	0.71	0.71	0.71	1.00	1.00
2.4	2.8	2.8	0.1	0.0	0.0	26.3	0.0
0.1	0.4	0.4	0.0	0.3	0.3	0.7	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.1	1.0	1.0	0.0	0.2	0.2	1.9	0.0
2.6	3.2	3.2	0.1	0.3	0.3	27.0	0.0
581	581	581	581	102	102	26.5	0.0
3.1	3.1	0.3	0.3	26.3	26.3	25.9	0.0
A	A	A	A	C	C	C	C
2	4	4	6	8	8	8	8
11.8	48.2	48.2	11.8	48.2	48.2	48.2	48.2
5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
19.0	31.0	31.0	19.0	31.0	31.0	31.0	31.0
6.6	5.1	5.1	6.1	6.1	5.1	5.1	5.1
0.2	3.4	3.4	0.3	3.4	3.4	0.3	3.4
Intersection Summary							
HCM 6th Ctrl Delay: 5.6							
HCM 6th LOS: A							

2021 PM Peak Existing Conditions - Existing Geometry
Synchro 10 Report
2019PX.syn

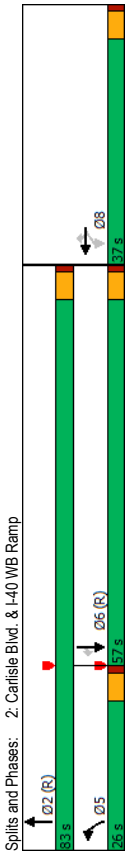
Timings
2: Carlisle Blvd. & I-40 WB Ramp

HCM 6th Signalized Intersection Summary
2: Carlisle Blvd. & I-40 WB Ramp

Terry O. Brown, PE
06/27/2019

Terry O. Brown, PE
06/27/2019

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	246	5	266	499	1287	1094	463
Future Volume (vph)	246	5	266	499	1287	1094	463
Turn Type	Perm	NA	Perm	Prot	NA	INA	Perm
Protected Phases	8	8	8	5	2	6	6
Permitted Phases	8	8	8	5	2	6	6
Detector Phase							
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	21.0	21.0	21.0	10.0	21.0	21.0	21.0
Total Split (s)	37.0	37.0	37.0	26.0	83.0	57.0	57.0
Total Split (%)	30.8%	30.8%	30.8%	21.7%	69.2%	47.5%	47.5%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag				Lead	Lag	Lag	Lag
Lead-Lag Optimize?							
Recall Mode	Min	Min	Min	Min	C-Max	C-Max	C-Max
Act Effct Green (s)	26.5	26.5	21.8	83.5	56.7	56.7	56.7
Actuated g/C Ratio	0.22	0.22	0.22	0.18	0.70	0.47	0.47
v/c Ratio	0.37	0.36	0.82	0.86	0.39	0.49	0.49
Control Delay	41.2	41.1	62.8	57.3	9.6	23.5	3.7
Queue Delay	0.0	0.0	0.0	0.0	0.2	0.0	0.0
Total Delay	41.2	41.1	62.8	57.3	9.8	23.5	3.7
LOS	D	D	E	E	A	C	A
Approach Delay			52.3			23.1	17.6
Approach LOS			D			C	B
Intersection Summary							
Cycle Length: 120							
Actuated Cycle Length: 120							
Offset: 92 (77%), Referenced to phase 2:NBT and 6:SBT, Start of Green							
Natural Cycle: 60							
Control Type: Actuated-Coordinated							
Maximum v/c Ratio: 0.86							
Intersection Signal Delay: 24.8							
Intersection Capacity Utilization 65.4%							
Analysis Period (min) 15							



2021 PM Peak Existing Conditions - Existing Geometry
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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	246	5	266	499	1287	0	0	1094	463
Future Volume (veh/h)	0	0	0	246	5	266	499	1287	0	0	1094	463
Initial Q (Ob), veh				1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A, pbT)				1.00	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
Work Zone On Approach				No	No	No	No	No	No	No	No	No
Adj Sat Flow, veh/h/ln				1856	1856	1856	1856	1856	0	0	1856	1856
Adj Flow Rate, veh/h				266	0	283	531	1369	0	0	1164	0
Peak Hour Factor				0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %				3	3	3	3	3	3	3	3	3
Cap, veh/h				719	0	320	576	3614	0	0	2552	0
Arrive On Green				0.20	0.00	0.20	0.34	1.00	0.00	0.00	0.50	0.00
Sat Flow, veh/h				3534	0	1572	3428	5233	0	0	5233	1572
Grip Volume(v), veh/h				266	0	283	531	1369	0	0	1164	0
Grip Sat Flow(s), veh/h/ln				1767	0	1572	1714	1689	0	0	1689	1572
Q Serve(g, s), s				7.8	0.0	21.0	17.9	0.0	0.0	0.0	17.8	0.0
Cycle Q Clear(g, c), s				7.8	0.0	21.0	17.9	0.0	0.0	0.0	17.8	0.0
Prop In Lane				1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00
Lane Grip Cap(c), veh/h				719	0	320	576	3614	0	0	2552	0
VIC Ratio(X)				0.37	0.00	0.89	0.92	0.38	0.00	0.00	0.46	0.00
Avail Cap(c, a), veh/h				942	0	419	600	3614	0	0	2552	0
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(l)				1.00	0.00	1.00	0.88	0.88	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				41.2	0.0	46.4	39.1	0.0	0.0	0.0	19.2	0.0
Incr Delay (d2), s/veh				0.3	0.0	16.2	17.7	0.3	0.0	0.0	0.6	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
%ile BackOfQ(95%), veh/ln				6.2	0.0	14.7	11.8	0.2	0.0	0.0	11.2	0.0
Unsig. Movement Delay, s/veh				41.5	0.0	62.6	56.8	0.3	0.0	0.0	19.8	0.0
LnGrip Delay(d), s/veh				D	A	E	E	A	A	A	A	B
LnGrip LOS				D	A	E	E	A	A	A	A	B
Approach Vol, veh/h				549				1900			1164	
Approach Delay, s/veh				52.4				16.1			19.8	
Approach LOS				D				B			B	
Timer - Assigned Phis				2		5	6	8				
Phis Duration (G+Y+Rc), s				90.6		25.2	65.4	29.4				
Change Period (Y+Rc), s				5.0		5.0	5.0	5.0				
Max Green Setting (Gmax), s				78.0		21.0	52.0	32.0				
Max Q Clear Time (g, c+H1), s				2.0		19.9	19.8	23.0				
Green Ext Time (p, c), s				14.6		0.3	9.9	1.4				
Intersection Summary												
HCM 6th Ctrl Delay				22.8								
HCM 6th LOS				C								
Notes												
User approved volume balancing among the lanes for turning movement.												
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.												

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Timings
 3: Carlisle Blvd. & I-40 EB Ramp

HCM 6th Signalized Intersection Summary
 3: Carlisle Blvd. & I-40 EB Ramp

Terry O. Brown, PE
 06/27/2019

Terry O. Brown, PE
 06/27/2019

EBL	EBT	EBR	NBT	NBT	NBR	SBL	SBT
508	11	477	1264	435	401	955	
508	11	477	1264	435	401	955	
Perm	NA	Perm	NA	Perm	Prot	NA	
4	4	4	2	2	1	6	
4	4	4	2	2	1	6	
5.0	5.0	5.0	5.0	5.0	5.0	5.0	
21.0	21.0	21.0	21.0	21.0	10.0	21.0	
38.0	38.0	38.0	54.0	54.0	28.0	82.0	
31.7%	31.7%	31.7%	45.0%	45.0%	23.3%	68.3%	
4.0	4.0	4.0	4.0	4.0	4.0	4.0	
1.0	1.0	1.0	1.0	1.0	1.0	1.0	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	
5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Min	Min	Min	C-Max	C-Max	Min	C-Max	
28.0	28.0	28.0	57.1	57.1	19.9	82.0	
0.23	0.23	0.23	0.48	0.48	0.17	0.68	
0.89	0.52	0.52	0.38	0.47	0.77	0.30	
46.3	45.2	42.5	25.8	9.1	83.0	4.9	
46.3	45.2	42.5	25.8	9.1	83.0	5.0	
D	D	D	C	A	F	A	
44.9			21.5			28.0	
D			C			C	
Intersection Summary							
Cycle Length: 120							
Actuated Cycle Length: 120							
Offset: 110.4 (92%), Referenced to phase 2:NBT and 6:SBT, Start of Green							
Natural Cycle: 55							
Control Type: Actuated-Coordinated							
Maximum v/c Ratio: 0.77							
Intersection Signal Delay: 29.4							
Intersection Capacity Utilization 65.4%							
Analysis Period (min) 15							
Splits and Phases: 3: Carlisle Blvd. & I-40 EB Ramp							
01	02 (R)	03 (L)	04	05 (R)	06 (L)	07 (L)	08 (R)

EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
508	11	477	0	0	0	1264	435	401	955		
508	11	477	0	0	0	1264	435	401	955		
0	0	0	0	0	0	0	0	0	0	0	0
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	No	No	No	No	No	No	No	No	No
1856	1856	1856	0	0	0	1856	1856	1856	1856	1856	1856
546	0	521	0	0	0	1359	468	431	1027	0	0
0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
3	3	3	0	0	0	3	3	3	3	3	3
691	0	923	0	0	0	4025	842	493	3653	0	0
0.20	0.00	0.20	0.00	0.00	0.00	1.00	1.00	1.00	0.29	1.00	0.00
3534	0	4717	0	0	0	7867	1572	3428	5233	0	0
546	0	521	0	0	0	1359	468	431	1027	0	0
1767	0	1572	0	0	0	1503	1572	1714	1689	0	0
17.6	0.0	12.0	0.0	0.0	0.0	0.0	0.0	14.4	0.0	0.0	0.0
17.6	0.0	12.0	0.0	0.0	0.0	0.0	0.0	14.4	0.0	0.0	0.0
1.00	1.00	1.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00	0.00
691	0	923	0	0	0	4025	842	493	3653	0	0
0.79	0.00	0.56	0.00	0.00	0.34	0.56	0.87	0.28	0.00	0.00	0.00
972	0	1297	0	0	0	4025	842	657	3653	0	0
1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00
1.00	0.00	1.00	0.00	0.55	0.55	0.87	0.87	0.87	0.00	0.00	0.00
45.9	0.0	43.6	0.0	0.0	0.0	0.0	0.0	41.7	0.0	0.0	0.0
3.0	0.0	0.5	0.0	0.0	0.1	1.5	8.8	0.2	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12.7	0.0	8.3	0.0	0.0	0.1	0.6	9.3	0.1	0.0	0.0	0.0
48.9	0.0	44.2	0.0	0.0	0.1	1.5	50.5	0.2	0.0	0.0	0.0
D	A	D	A	D	A	A	D	A	D	A	A
1067			1827			1827			1456		
46.6			0.5			0.5			15.0		
D			A			A			B		
1	2	4	6								
22.3	69.3	28.5	91.5								
5.0	5.0	5.0	5.0								
23.0	49.0	33.0	77.0								
16.4	2.0	19.6	2.0								
0.9	17.3	3.8	9.2								
Intersection Summary											
HCM 6th Ctrl Delay 16.7											
HCM 6th LOS B											
Notes											
User approved volume balancing among the lanes for turning movement.											

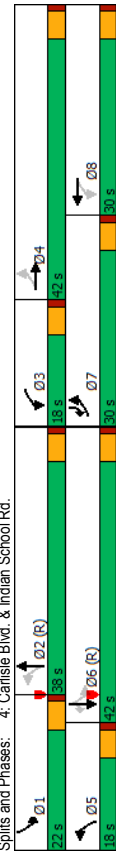
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Timings
4: Carlisle Blvd. & Indian School Rd.

Terry O. Brown, PE
06/27/2019

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	385	546	71	330	108	945	228	862	439
Future Volume (vph)	385	546	71	330	108	945	228	862	439
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+ov
Protected Phases	7	4	3	8	5	2	1	6	7
Permitted Phases	4	4	3	8	2	2	1	6	6
Detector Phase	7	4	3	8	5	2	1	6	7
Switch Phase	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Initial (s)	10.0	21.0	10.0	21.0	10.0	21.0	10.0	21.0	10.0
Minimum Split (s)	30.0	42.0	18.0	30.0	18.0	38.0	22.0	42.0	30.0
Total Split (%)	25.0%	35.0%	15.0%	25.0%	15.0%	31.7%	18.3%	35.0%	25.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Min	Min	Min	Min	Min	Min	Min	Min	Min
Recall Mode	52.1	38.6	30.6	22.1	47.1	37.1	57.5	42.9	72.9
Act Effct Green (s)	0.43	0.32	0.26	0.18	0.39	0.31	0.48	0.36	0.61
Actuated g/C Ratio	0.97	0.60	0.29	0.84	0.49	0.69	0.81	0.74	0.45
v/c Ratio	68.5	35.5	24.3	48.3	25.9	37.7	49.8	38.9	6.6
Control Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Delay	68.5	35.5	24.3	48.3	25.9	37.7	49.8	38.9	6.6
Total Delay	E	D	C	D	C	D	D	D	A
LOS	D	D	D	D	D	D	D	D	C
Approach Delay	48.1	45.6	45.6	36.5	36.5	31.3			
Approach LOS	D	D	D	D	D	C			
Intersection Summary									
Cycle Length: 120									
Actuated Cycle Length: 120									
Offset: 9.6 (8%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green									
Natural Cycle: 80									
Control Type: Actuated-Coordinated									
Maximum v/c Ratio: 0.97									
Intersection Signal Delay: 38.7									
Intersection Capacity Utilization 86.3%									
Analysis Period (min) 15									



2021 PM Peak Existing Conditions - Existing Geometry
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HCM 6th Signalized Intersection Summary
4: Carlisle Blvd. & Indian School Rd.

Terry O. Brown, PE
06/27/2019

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Movement	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (veh/h)	385	546	71	330	108	945	228	862	439
Future Volume (veh/h)	385	546	71	330	108	945	228	862	439
Initial Q (Ob), veh	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	1.00
Parking Bus, Adj	No	No	No	No	No	No	No	No	No
Work Zone On Approach									
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	414	587	85	76	355	242	116	1016	51
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3
Cap, veh/h	443	1090	157	300	399	267	230	1583	79
Arrive On Green	0.41	0.71	0.71	0.05	0.20	0.20	0.04	0.21	0.21
Sat Flow, veh/h	1767	3091	447	1767	2021	1354	1767	4940	248
Grip Volume(v), veh/h	414	334	338	76	309	288	116	694	373
Grip Sat Flow(s) veh/h/ln	1767	1763	1775	1767	1763	1612	1767	1689	1811
Q Serve(g, s), s	22.7	10.8	10.9	4.1	20.5	21.0	5.2	22.5	22.5
Cycle Q Clear(g, c), s	22.7	10.8	10.9	4.1	20.5	21.0	5.2	22.5	22.5
Prop In Lane	1.00	0.25	1.00	0.84	1.00	0.84	1.00	1.00	1.00
VIC Ratio(X)	0.93	0.54	0.54	0.25	0.89	0.91	0.50	0.64	0.64
Avail Cap(c, a), veh/h	447	622	626	401	367	336	314	1082	580
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	0.67	0.67	1.33
Upstream Filter(l)	0.98	0.98	0.98	0.96	0.96	0.96	0.91	0.91	0.91
Uniform Delay (d), s/veh	21.8	13.0	13.0	35.4	46.9	47.1	27.3	40.8	40.9
Incr Delay (d2), s/veh	26.5	0.9	0.9	0.4	20.8	25.3	1.6	2.7	4.9
Initial Q Delay(d3) s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%) veh/ln	14.1	5.7	5.8	3.2	16.1	15.7	4.2	15.1	16.5
Unsig. Movement Delay, s/veh	48.3	13.9	14.0	35.8	67.7	72.4	28.9	43.5	45.8
LnGrip Delay(d) s/veh	D	B	B	D	E	C	D	D	C
LnGrip LOS	D	B	B	D	E	C	D	D	C
Approach Vol, veh/h	1086			673			1183		1644
Approach Delay, s/veh	27.0			66.1			42.8		25.1
Approach LOS	C			E			D		C
Timer - Assigned Phis	1	2	3	4	5	6	7	8	
Phis Duration (G+Y+Rc), s	18.1	43.5	11.1	47.3	12.3	49.2	29.7	28.7	
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Max Green Setting (Gmax), s	17.0	33.0	13.0	37.0	13.0	37.0	25.0	25.0	
Max Q Clear Time (g, c+H), s	12.8	24.5	6.1	12.9	7.2	26.7	24.7	23.0	
Green Ext Time (p, c), s	0.3	4.3	0.1	4.0	0.1	5.7	0.1	0.7	
Intersection Summary									
HCM 6th Ctrl Delay	36.1								
HCM 6th LOS	D								

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Timings
6: Carlisle Blvd. & Constitution Ave.

Terry O. Brown, PE
06/27/2019

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations	←	←	←	←	←	←	←	←	←	←	←
Traffic Volume (vph)	213	197	16	62	127	76	18	704	75	598	127
Future Volume (vph)	213	197	16	62	127	76	18	704	75	598	127
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm
Protected Phases	4	4	4	8	8	8	2	2	6	6	6
Permitted Phases	4	4	4	8	8	8	2	2	6	6	6
Detector Phase	4	4	4	8	8	8	2	2	6	6	6
Switch Phase	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Initial (s)	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
Minimum Split (s)	48.0	48.0	48.0	48.0	48.0	48.0	72.0	72.0	72.0	72.0	72.0
Total Split (s)	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	60.0%	60.0%	60.0%	60.0%	60.0%
Total Split (%)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Yellow Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
All-Red Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lost Time Adjust (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Total Lost Time (s)											
Lead/Lag											
Lead-Lag Optimize?											
Recall Mode	Min	Min	Min	Min	Min	Min	C-Max	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	28.1	28.1	28.1	28.1	28.1	28.1	81.9	81.9	81.9	81.9	81.9
Actuated g/C Ratio	0.23	0.23	0.23	0.23	0.23	0.23	0.68	0.68	0.68	0.68	0.68
v/c Ratio	0.83	0.48	0.04	0.32	0.31	0.19	0.04	0.32	0.19	0.49	0.12
Control Delay	67.8	41.8	11.8	39.4	37.7	7.5	9.1	9.1	2.7	7.5	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.8	41.8	11.8	39.4	37.7	7.5	9.1	9.1	2.7	7.5	0.5
LOS	E	D	B	D	D	A	A	A	A	A	A
Approach Delay	53.7			29.5			9.1			5.9	
Approach LOS	D			C			A			A	
Intersection Summary											
Cycle Length: 120											
Actuated Cycle Length: 120											
Offset: 69.6 (58%), Referenced to phase 2:NBTL and 6:SBTL - Start of Green											
Natural Cycle: 55											
Control Type: Actuated-Coordinated											
Maximum v/c Ratio: 0.83											
Intersection Signal Delay: 18.8											
Intersection Capacity Utilization 70.8%											
Analysis Period (min) 15											



2021 PM Peak Existing Conditions - Existing Geometry
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HCM 6th Signalized Intersection Summary
6: Carlisle Blvd. & Constitution Ave.

Terry O. Brown, PE
06/27/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	←	←	←	←	←	←	←	←	←	←	←	←
Traffic Volume (veh/h)	213	197	16	62	127	76	18	704	37	75	598	127
Future Volume (veh/h)	213	197	16	62	127	76	18	704	37	75	598	127
Initial Q (Obs), 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	1.00	1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No	No	No	No	No	No	No	No	No	No	No	No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	222	205	17	65	132	79	19	733	39	78	623	132
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	311	504	427	268	504	427	514	2196	117	439	1197	1014
Arrive On Green	0.27	0.27	0.27	0.27	0.27	0.27	0.64	0.64	0.64	0.64	1.00	1.00
Sat Flow, veh/h	1161	1856	1572	1150	1856	1572	703	3405	181	692	1856	1572
Grip Volume(v), veh/h	222	205	17	65	132	79	19	379	393	78	623	132
Grip Sat Flow(s), veh/h/ln	1161	1856	1572	1150	1856	1572	703	1763	1823	692	1856	1572
Q Serve(g, s), s	222	10.9	1.0	5.9	6.7	4.6	1.2	11.7	11.7	2.5	0.0	0.0
Cycle Q Clear(g, c), s	289	10.9	1.0	16.7	6.7	4.6	1.2	11.7	11.7	14.2	0.0	0.0
Prop In Lane	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Line Grip Cap(c), veh/h	311	504	427	268	504	427	514	1137	1176	439	1197	1014
VIC Ratio(X)	0.71	0.41	0.04	0.24	0.26	0.18	0.04	0.33	0.33	0.18	0.52	0.13
Avail Cap(c, a), veh/h	411	665	563	368	665	563	514	1137	1176	439	1197	1014
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(l)	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	45.6	35.8	32.2	42.6	34.3	33.5	7.8	9.6	9.6	1.1	0.0	0.0
Incr Delay (d2), s/veh	3.9	0.5	0.0	0.5	0.3	0.2	0.1	0.8	0.8	0.6	0.0	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(95%), veh/ln	11.0	8.7	0.7	3.1	5.5	3.2	0.3	7.9	8.1	0.2	0.6	0.1
Unsig. Movement Delay, s/veh	49.5	36.3	32.2	43.1	34.5	33.7	7.9	10.4	10.4	1.6	1.0	0.2
LnGrip Delay(d), s/veh	D	D	C	D	C	C	A	B	B	A	A	A
LnGrip LOS	D	D	C	D	C	C	A	B	B	A	A	A
Approach Vol, veh/h	444			276			791			833		
Approach Delay, s/veh	42.7			36.3			10.4			1.0		
Approach LOS	D			D			B			A		
Timer - Assigned Phis	2	4	6	8								
Phis Duration (G+Y+Rc), s	82.4	37.6	82.4	37.6								
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0								
Max Green Setting (Gmax), s	67.0	43.0	67.0	43.0								
Max Q Clear Time (g, c+H1), s	13.7	30.9	16.2	18.7								
Green Ext Time (p, c), s	5.6	1.7	6.1	1.2								
Intersection Summary												
HCM 6th Ctrl Delay	16.2											
HCM 6th LOS	B											

2021 PM Peak Existing Conditions - Existing Geometry
Synchro 10 Report
2019PX.syn

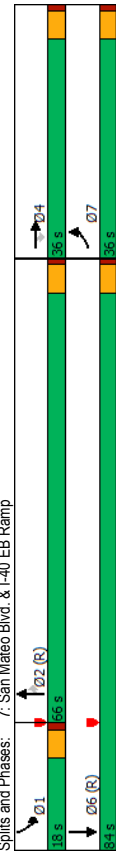
Timings
7: San Mateo Blvd. & I-40 EB Ramp

HCM 6th Signalized Intersection Summary
7: San Mateo Blvd. & I-40 EB Ramp

Terry O. Brown, PE
06/27/2019

Terry O. Brown, PE
06/27/2019

EBL	EBT	EBR	NBT	NBT	NBR	SBL	SBT
312	11	420	1631	365	428	946	
312	11	420	1631	365	428	946	
7	4	4	2	2	1	6	
7	4	4	2	2	1	6	
5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
10.0	21.0	21.0	21.0	21.0	10.0	21.0	21.0
36.0	36.0	36.0	66.0	66.0	18.0	84.0	
30.0%	30.0%	30.0%	55.0%	55.0%	15.0%	70.0%	
4.0	4.0	4.0	4.0	4.0	4.0	4.0	
1.0	1.0	1.0	1.0	1.0	1.0	1.0	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	
5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Min	Min	Min	C-Max	C-Max	Min	C-Max	
17.7	17.7	17.7	61.5	61.5	25.8	92.3	
0.15	0.15	0.15	0.51	0.51	0.22	0.77	
0.67	0.68	0.68	0.68	0.39	0.63	0.26	
54.8	28.9	28.7	23.6	2.8	34.6	4.6	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	
54.8	28.9	28.7	23.6	2.8	34.6	4.6	
D	C	C	C	A	C	A	
39.7			19.8			13.9	
D			B			B	
Intersection Summary							
Cycle Length: 120							
Actuated Cycle Length: 120							
Offset: 103.2 (66%), Referenced to phase 2:NBT and 6:SBT, Start of Green							
Natural Cycle: 65							
Control Type: Actuated-Coordinated							
Maximum v/c Ratio: 0.68							
Intersection Signal Delay: 21.4							
Intersection Capacity Utilization 65.5%							
Analysis Period (min) 15							



EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
312	11	420	0	0	0	0	1631	365	428	946	0
312	11	420	0	0	0	0	1631	365	428	946	0
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1856	1856	1856	0	0	0	0	1856	1856	1856	1856	0
335	0	460	0	0	0	0	1754	0	460	1017	0
0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
3	3	3	0	0	0	0	3	3	3	3	0
634	0	564	0	0	0	0	2975	0	371	3735	0
0.18	0.00	0.18	0.00	0.00	0.00	0.00	0.59	0.00	0.04	0.24	0.00
3534	0	3145	0	0	0	0	5233	1572	3428	5233	0
335	0	460	0	0	0	0	1754	0	460	1017	0
1767	0	1572	0	0	0	0	1689	1572	1714	1689	0
10.3	0.0	16.9	0.0	0.0	0.0	0.0	26.2	0.0	13.0	19.5	0.0
10.3	0.0	16.9	0.0	0.0	0.0	0.0	26.2	0.0	13.0	19.5	0.0
1.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00
634	0	564	0	0	0	0	2975	0	371	3735	0
0.53	0.00	0.82	0.00	0.00	0.00	0.00	0.59	0.00	1.24	0.27	0.00
913	0	812	0	0	0	0	2975	0	371	3735	0
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.69	0.69	0.00
44.6	0.0	47.3	0.0	0.0	0.0	0.0	15.6	0.0	57.9	19.3	0.0
0.7	0.0	4.3	0.0	0.0	0.0	0.0	0.9	0.0	122.6	0.1	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8.1	0.0	11.2	0.0	0.0	0.0	0.0	15.1	0.0	18.6	12.9	0.0
453	0.0	51.6	0.0	0.0	0.0	0.0	16.5	0.0	180.4	19.4	0.0
D	A	D	A	D	A	D	A	B	F	B	A
796			1754				165		1477		
49.0			16.5				69.6				
D			B				E				
1	2	4	6								
18.0	75.5	26.5	93.5								
5.0	5.0	5.0	5.0								
13.0	61.0	31.0	79.0								
15.0	28.2	18.9	21.5								
0.0	17.9	2.6	9.5								
Intersection Summary											
HCM 6th Ctrl Delay 42.4											
HCM 6th LOS D											

Notes
User approved volume balancing among the lanes for turning movement.
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

2021 PM Peak Existing Conditions - Existing Geometry
Synchro 10 Report
2019PX.syn

2021 PM Peak Existing Conditions - Existing Geometry
Synchro 10 Report
2019PX.syn

2021 AM Peak Hour
NO BUILD Analyses

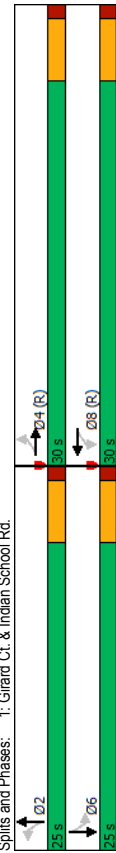
Timings
1 : Girard Ct. & Indian School Rd.

HCM 6th Signalized Intersection Summary
1 : Girard Ct. & Indian School Rd.

Terry O. Brown, PE
06/27/2019

Terry O. Brown, PE
06/27/2019

EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
4	4	8	8	2	2	6	6
5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
30.0	30.0	30.0	30.0	25.0	25.0	25.0	25.0
54.5%	54.5%	54.5%	54.5%	45.5%	45.5%	45.5%	45.5%
4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
C-Max	C-Max	C-Max	C-Max	Min	Min	Min	Min
36.4	36.4	36.4	36.4	8.6	8.6	8.6	8.6
0.66	0.66	0.66	0.66	0.16	0.16	0.16	0.16
0.04	0.13	0.01	0.23	0.24	0.05	0.37	0.18
4.3	3.8	2.1	2.7	21.9	17.8	24.8	12.2
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4.3	3.8	2.1	2.7	21.9	17.8	24.8	12.2
A	A	A	A	C	B	C	B
3.8	2.7	2.7	2.7	21.0	19.8		
A	A	A	A	C	C	B	B
Intersection Summary							
Cycle Length: 55							
Actuated Cycle Length: 55							
Offset: 17.6 (32%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green							
Natural Cycle: 45							
Control Type: Actuated-Coordinated							
Maximum v/c Ratio: 0.37							
Intersection Signal Delay: 6.3							
Intersection Capacity Utilization 35.5%							
Analysis Period (min) 15							



2021 AM Peak NOBUILD Conditions - Existing Geometry
Synchro 10 Report
2021/ANX.syn

EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
20	230	8	416	43	11	70	18
20	230	8	416	43	11	70	18
0	0	0	0	0	0	0	0
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1856	1856	1856	1856	1856	1856	1856	1856
23	264	24	9	478	56	49	13
0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
3	3	3	3	3	3	3	3
642	2332	210	875	2268	265	233	179
0.71	0.71	0.71	0.24	0.24	0.11	0.11	0.11
863	3270	295	1083	3180	371	1341	1701
23	141	147	9	264	270	49	0
863	1763	1802	1083	1763	1789	1341	0
0.6	1.4	1.4	0.4	6.6	6.7	1.9	0.0
7.3	1.4	1.4	1.8	6.6	6.7	3.5	0.0
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
642	1257	1285	875	1257	1275	233	0
0.04	0.11	0.11	0.01	0.21	0.21	0.00	0.07
642	1257	1285	875	1257	1275	233	0
1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00
1.00	1.00	1.00	0.77	0.77	0.77	1.00	1.00
4.7	2.5	2.5	7.2	8.6	8.6	24.4	0.0
0.1	0.2	0.2	0.0	0.3	0.3	0.4	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.2	0.4	0.4	0.1	2.4	2.5	1.1	0.0
4.8	2.6	2.6	7.3	8.9	8.9	24.8	0.0
A	A	A	A	A	A	C	C
311	2.8	2.8	543	63	24.3	133	24.1
A	A	A	A	C	C	C	C
2	4	4	6	8			
10.8	44.2	44.2	10.8	44.2			
5.0	5.0	5.0	5.0	5.0			
20.0	25.0	25.0	20.0	25.0			
5.5	9.3	9.3	5.4	8.7			
0.1	1.4	1.4	0.4	2.7			
Intersection Summary							
HCM 6th Ctrl Delay 9.9							
HCM 6th LOS A							

2021 AM Peak NOBUILD Conditions - Existing Geometry
Synchro 10 Report
2021/ANX.syn

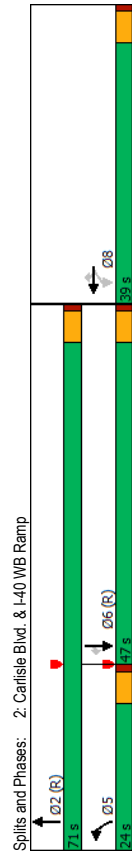
Timings
2: Carlisle Blvd. & I-40 WB Ramp

HCM 6th Signalized Intersection Summary
2: Carlisle Blvd. & I-40 WB Ramp

Terry O. Brown, PE
06/27/2019

Terry O. Brown, PE
06/27/2019

Lane Group	WBL	WBT	WBR	NBL	NBT	SBR
Lane Configurations	←	←	←	←	←	←
Traffic Volume (vph)	347	8	329	422	1033	761
Future Volume (vph)	347	8	329	422	1033	761
Turn Type	Perm	NA	Perm	Prot	NA	Perm
Protected Phases	8	8	8	5	2	6
Permitted Phases	8	8	8	5	2	6
Detector Phase	8	8	8	5	2	6
Switch Phase	8	8	8	5	2	6
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	21.0	21.0	21.0	10.0	21.0	21.0
Total Split (s)	39.0	39.0	39.0	24.0	71.0	47.0
Total Split (%)	35.5%	35.5%	35.5%	21.8%	64.5%	42.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag				Lead	Lag	Lag
Lead-Lag Optimize?						
Recall Mode	Min	Min	Min	Min	C-Max	C-Max
Act Effct Green (s)	30.2	30.2	18.5	69.8	46.3	46.3
Actuated g/C Ratio	0.27	0.27	0.27	0.17	0.63	0.42
v/c Ratio	0.44	0.44	0.86	0.83	0.36	0.40
Control Delay	35.2	35.2	57.3	54.6	15.5	23.9
Queue Delay	0.0	0.0	0.0	0.0	0.1	0.0
Total Delay	35.2	35.2	57.3	54.6	15.6	23.9
LOS	D	D	E	D	B	C
Approach Delay	45.8				26.9	18.4
Approach LOS	D				C	B
Intersection Summary						
Cycle Length: 110						
Actuated Cycle Length: 110						
Offset: 101.2 (92%), Referenced to phase 2:NBT and 6:SBT, Start of Green						
Natural Cycle: 60						
Control Type: Actuated-Coordinated						
Maximum v/c Ratio: 0.86						
Intersection Signal Delay: 28.2						
Intersection Capacity Utilization 52.0%						
Analysis Period (min) 15						



Splits and Phases: 2: Carlisle Blvd. & I-40 WB Ramp

2021 AM Peak NOBUILD Conditions - Existing Geometry
Synchro 10 Report
2021/ANX.syn

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations				←	←	←	←	←	←	←	←
Traffic Volume (veh/h)	0	0	0	347	8	329	422	1033	0	0	761
Future Volume (veh/h)	0	0	0	347	8	329	422	1033	0	0	761
Initial Q (Ob), veh				1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A, pbT)				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking Bus, Adj				No	No	No	No	No	No	No	No
Work Zone On Approach											
Adj Sat Flow, veh/h/in				1856	1856	1856	1856	1856	0	0	1856
Adj Flow Rate, veh/h				396	0	370	474	1161	0	0	855
Peak Hour Factor				0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %				3	3	3	3	3	3	3	3
Cap, veh/h				925	0	412	530	3279	0	0	2266
Arrive On Green				0.26	0.00	0.26	0.31	1.00	0.00	0.00	0.45
Sat Flow, veh/h				3534	0	1572	3428	5233	0	0	5233
Grip Volume(v), veh/h				396	0	370	474	1161	0	0	855
Grip Sat Flow(s),veh/h/in				1767	0	1572	1714	1689	0	0	1689
Q Serve(g, s), s				10.2	0.0	25.0	14.5	0.0	0.0	0.0	12.3
Cycle Q Clear(g, c), s				10.2	0.0	25.0	14.5	0.0	0.0	0.0	12.3
Prop In Lane				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Grip Cap(c), veh/h				925	0	412	530	3279	0	0	2266
V/C Ratio(X)				0.43	0.00	0.90	0.89	0.35	0.00	0.00	0.38
Avail Cap(c, a), veh/h				1092	0	486	592	3279	0	0	2266
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(l)				1.00	0.00	1.00	0.89	0.89	0.00	0.00	1.00
Uniform Delay (d), s/veh				33.8	0.0	39.2	37.1	0.0	0.0	0.0	20.2
Incr Delay (d2), s/veh				0.3	0.0	17.6	13.7	0.3	0.0	0.0	0.5
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/in				7.9	0.0	17.1	9.7	0.1	0.0	0.0	8.4
Unsig. Movement Delay, s/veh				34.1	0.0	56.8	50.8	0.3	0.0	0.0	20.7
LnGrip Delay(d),s/veh				C	A	E	D	A	A	A	C
LnGrip LOS				C	A	E	D	A	A	A	C
Approach Vol, veh/h				766				1635			855
Approach Delay, s/veh				45.0				14.9			20.7
Approach LOS				D				B			C
Timer - Assigned Phis				2		5	6	8			
Phis Duration (G+Y+Rc), s				76.2		22.0	54.2	33.8			
Change Period (Y+Rc), s				5.0		5.0	5.0	5.0			
Max Green Setting (Gmax), s				66.0		19.0	42.0	34.0			
Max Q Clear Time (g, c+H1), s				2.0		16.5	14.3	27.0			
Green Ext Time (p, c), s				11.0		0.5	6.4	1.8			
Intersection Summary											
HCM 6th Ctrl Delay				23.5							
HCM 6th LOS				C							
Notes											
User approved volume balancing among the lanes for turning movement.											
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.											

2021 AM Peak NOBUILD Conditions - Existing Geometry
Synchro 10 Report
2021/ANX.syn

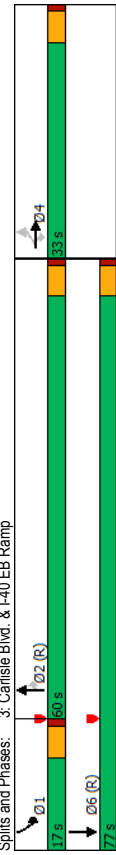
Timings
3: Carlisle Blvd. & I-40 EB Ramp

HCM 6th Signalized Intersection Summary
3: Carlisle Blvd. & I-40 EB Ramp

Terry O. Brown, PE
06/27/2019

Terry O. Brown, PE
06/27/2019

EBL	EBT	EBR	NBT	NBT	NBR	SBL	SBT
554	5	571	887	257	190	887	887
554	5	571	887	257	190	887	887
Perm	NA	Perm	NA	Perm	Prct	NA	6
4	4	4	2	2	2	1	6
4	4	4	2	2	2	1	6
5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
33.0	33.0	33.0	60.0	60.0	17.0	77.0	77.0
30.0%	30.0%	30.0%	54.5%	54.5%	15.5%	70.0%	70.0%
4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Min	Min	Min	C-Max	C-Max	Min	C-Max	C-Max
26.9	26.9	26.9	57.0	57.0	11.2	73.1	73.1
0.24	0.24	0.24	0.52	0.52	0.10	0.66	0.66
0.77	0.63	0.63	0.26	0.31	0.63	0.30	0.30
45.4	46.0	41.5	12.1	2.7	71.3	10.3	10.3
45.4	46.0	41.5	12.1	2.7	71.3	10.4	10.4
D	D	D	B	A	E	B	B
44.2	10.0					21.1	
D	A					C	
Intersection Summary							
Cycle Length: 110							
Actuated Cycle Length: 110							
Offset: 101.2 (92%), Referenced to phase 2:NBT and 6:SBT, Start of Green							
Natural Cycle: 55							
Control Type: Actuated-Coordinated							
Maximum v/c Ratio: 0.77							
Intersection Signal Delay: 25.1							
Intersection Capacity Utilization 52.0%							
Analysis Period (min) 15							



EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
554	5	571	0	0	0	887	257	190	887	887	0
554	5	571	0	0	0	887	257	190	887	887	0
0	0	0	0	0	0	0	0	0	0	0	0
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	No	No	No	No	No	No	No	No	No
1856	1856	1856	0	0	0	1856	1856	1856	1856	1856	0
637	0	660	0	0	0	1020	295	218	1020	1020	0
0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
3	3	3	0	0	0	3	3	3	3	3	0
777	0	1037	0	0	0	4223	884	281	3492	3492	0
0.22	0.00	0.22	0.00	0.00	0.00	1.00	1.00	1.00	0.11	0.92	0.00
3534	0	4717	0	0	0	7867	1572	3428	5233	5233	0
637	0	660	0	0	0	1020	295	218	1020	1020	0
1767	0	1572	0	0	0	1503	1572	1714	1689	1689	0
18.9	0.0	14.0	0.0	0.0	0.0	0.0	0.0	6.8	2.5	2.5	0.0
18.9	0.0	14.0	0.0	0.0	0.0	0.0	0.0	6.8	2.5	2.5	0.0
1.00	1.00	1.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00
777	0	1037	0	0	0	4223	884	281	3492	3492	0
0.82	0.00	0.64	0.00	0.00	0.00	0.24	0.33	0.78	0.29	0.29	0.00
900	0	1201	0	0	0	4223	884	374	3492	3492	0
1.00	1.00	1.00	1.00	2.00	2.00	1.33	1.33	1.00	1.33	1.00	0.00
1.00	0.00	1.00	0.00	0.70	0.70	0.92	0.92	0.92	0.92	0.92	0.00
40.8	0.0	38.9	0.0	0.0	0.0	0.0	0.0	48.0	1.5	1.5	0.0
5.4	0.0	0.9	0.0	0.0	0.0	0.1	0.7	6.6	0.2	0.2	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13.6	0.0	9.3	0.0	0.0	0.0	0.0	0.0	0.3	5.5	1.2	0.0
46.2	0.0	39.8	0.0	0.1	0.1	0.7	54.6	1.7	0.0	0.0	A
D	A	D	A	A	A	A	A	A	D	A	A
1297						1315					1238
43.0						0.2					11.0
D	D	D	A	A	A	A					B
1	2	4	6								
14.0	66.8	29.2	80.8								
5.0	5.0	5.0	5.0								
12.0	55.0	28.0	72.0								
8.8	2.0	20.9	4.5								
0.2	10.7	3.3	9.1								
Intersection Summary											
HCM 6th Ctrl Delay 18.1											
HCM 6th LOS B											

User approved volume balancing among the lanes for turning movement.

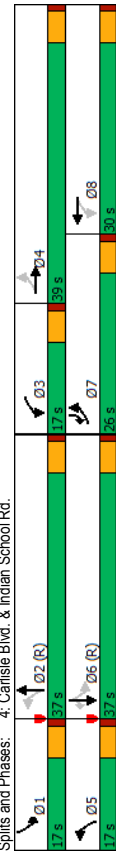
2021 AM Peak NOBUILD Conditions - Existing Geometry
Synchro 10 Report
2021/ANX.syn

2021 AM Peak NOBUILD Conditions - Existing Geometry
Synchro 10 Report
2021/ANX.syn

Timings
4: Carlisle Blvd. & Indian School Rd.

Terry O. Brown, PE
06/27/2019

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	372	230	52	289	71	659	223	761	511
Future Volume (vph)	372	230	52	289	71	659	223	761	511
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+ov
Protected Phases	7	4	3	8	5	2	1	6	7
Permitted Phases	4	4	3	8	2	2	1	6	6
Detector Phase	7	4	3	8	5	2	1	6	7
Switch Phase	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Initial (s)	10.0	21.0	10.0	21.0	10.0	21.0	10.0	21.0	10.0
Minimum Split (s)	26.0	39.0	17.0	30.0	17.0	37.0	17.0	37.0	26.0
Total Split (%)	23.6%	35.5%	15.5%	27.3%	15.5%	33.6%	15.5%	33.6%	23.6%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?									
Recall Mode	Min	Min	Min	Min	Min	Min	Min	Min	Min
Act Effct Green (s)	45.2	32.6	26.8	19.2	44.8	36.5	53.9	41.5	67.5
Actuated g/C Ratio	0.41	0.30	0.24	0.17	0.41	0.33	0.49	0.38	0.61
v/c Ratio	1.01	0.30	0.19	0.74	0.30	0.47	0.88	0.65	0.53
Control Delay	75.4	29.1	21.4	44.6	17.4	30.0	27.1	27.0	15.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	75.4	29.1	21.4	44.6	17.4	30.0	27.1	27.0	15.8
LOS	E	C	C	D	B	C	C	C	B
Approach Delay	55.7	42.0	42.0	28.9			23.2		
Approach LOS	E	D	D	D	C	C	C	C	C
Intersection Summary									
Cycle Length: 110									
Actuated Cycle Length: 110									
Offset: 8.8 (8%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green									
Natural Cycle: 75									
Control Type: Actuated-Coordinated									
Maximum v/c Ratio: 1.01									
Intersection Signal Delay: 33.3									
Intersection LOS: C									
Intersection Capacity Utilization 75.3%									
Analysis Period (min) 15									



2021 AM Peak NOBUILD Conditions - Existing Geometry
Synchro 10 Report
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HCM 6th Signalized Intersection Summary
4: Carlisle Blvd. & Indian School Rd.

Terry O. Brown, PE
06/27/2019

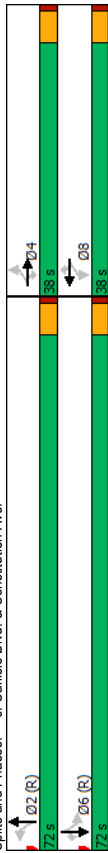
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (veh/h)	372	230	45	52	289	128	71	659	38	223	761	511
Future Volume (veh/h)	372	230	45	52	289	128	71	659	38	223	761	511
Initial Q (Ob), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A, pbT)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No	No	No	No	No	No	No	No	No	No	No	No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	418	258	51	58	325	144	80	740	43	251	855	574
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Arrive On Green	0.32	0.52	0.52	0.05	0.17	0.17	0.03	0.24	0.24	0.14	0.55	0.55
Sat Flow, veh/h	1767	2943	573	1767	2392	1039	1767	4898	283	1767	3526	1572
Grip Volume(v), veh/h	418	153	156	58	238	231	80	509	274	251	855	574
Grip Sat Flow(s) veh/h/ln	1767	1763	1752	1767	1763	1669	1767	1689	1805	1767	1763	1572
Q Serve(g, s)	21.0	5.3	5.5	2.9	14.3	14.7	3.1	14.1	14.2	9.7	17.8	23.8
Cycle Q Clear(g, c), s	21.0	5.3	5.5	2.9	14.3	14.7	3.1	14.1	14.2	9.7	17.8	23.8
Prop In Lane	1.00	0.33	1.00	0.33	1.00	0.62	1.00	0.62	1.00	0.16	1.00	1.00
Lane Grip Cap(c), veh/h	433	551	548	324	295	279	242	1194	638	407	1455	949
V/C Ratio(X)	0.96	0.28	0.28	0.18	0.81	0.83	0.33	0.43	0.43	0.62	0.59	0.60
Avail Cap(c, a), veh/h	433	551	548	436	401	379	352	1194	638	412	1455	949
HCM Platoon Ratio	1.67	1.67	1.00	1.00	1.00	1.00	0.67	0.67	0.67	1.33	1.33	1.33
Upstream Filter(l)	0.99	0.99	0.99	0.97	0.97	0.97	0.97	0.97	0.97	0.92	0.92	0.92
Uniform Delay (d), s/veh	26.1	19.3	19.4	35.2	44.1	44.3	21.8	32.5	32.5	18.6	18.6	10.3
Incr Delay (d2), s/veh	33.8	0.3	0.3	0.3	8.1	10.3	0.8	1.1	2.0	2.5	1.6	2.6
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(95%), veh/ln	16.7	3.7	3.7	2.3	10.9	10.9	2.4	10.2	11.1	6.9	10.4	10.0
Unsig. Movement Delay, s/veh	599	19.6	19.6	35.5	52.2	54.6	22.5	33.6	34.6	21.1	20.2	12.9
LnGrip Delay(d),s/veh	E	B	B	D	D	D	D	C	C	C	C	B
LnGrip LOS	E	B	B	D	D	D	D	C	C	C	C	B
Approach Vol, veh/h	727			527			863			1680		
Approach Delay, s/veh	42.8			51.4			32.9			17.8		
Approach LOS	D			D			C			B		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.7	43.9	10.0	39.4	10.2	50.4	26.0	23.4				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	12.0	32.0	12.0	34.0	12.0	32.0	21.0	25.0				
Max Q Clear Time (g, c+H), s	11.7	16.2	4.9	7.5	5.1	25.8	23.0	16.7				
Green Ext Time (p, c), s	0.0	4.5	0.0	1.7	0.1	3.9	0.0	1.7				
Intersection Summary												
HCM 6th Ctrl Delay	30.7											
HCM 6th LOS	C											

2021 AM Peak NOBUILD Conditions - Existing Geometry
Synchro 10 Report
2021/ANX.syn

Timings
6: Carlisle Blvd. & Constitution Ave.

Terry O. Brown, PE
06/27/2019

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations	→	→	→	←	←	←	←	←	←	←	←
Traffic Volume (vph)	99	88	14	47	130	71	14	470	67	518	205
Future Volume (vph)	99	88	14	47	130	71	14	470	67	518	205
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases	4										
Permitted Phases	4	4	4	8	8	8	2	2	6	6	6
Detector Phase	4	4	4	8	8	8	2	2	6	6	6
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	38.0	38.0	38.0	38.0	38.0	38.0	38.0	38.0	38.0	38.0	38.0
Total Split (%)	34.5%	34.5%	34.5%	34.5%	34.5%	34.5%	65.5%	65.5%	65.5%	65.5%	65.5%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag											
Lead-Lag Optimize?											
Recall Mode	Min	Min	Min	Min	Min	Min	C-Max	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	15.4	15.4	15.4	15.4	15.4	15.4	84.6	84.6	84.6	84.6	84.6
Actuated g/C Ratio	0.14	0.14	0.14	0.14	0.14	0.14	0.77	0.77	0.77	0.77	0.77
v/c Ratio	0.77	0.37	0.06	0.29	0.54	0.27	0.03	0.20	0.11	0.39	0.18
Control Delay	77.1	45.4	12.9	44.5	50.9	11.1	4.3	4.0	0.6	2.1	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	77.1	45.4	12.9	44.5	50.9	11.1	4.3	4.0	0.6	2.1	0.2
LOS	E	D	B	D	D	B	A	A	A	A	A
Approach Delay	58.7			38.3			4.0		1.5		
Approach LOS	E			D			A		A		
Intersection Summary											
Cycle Length: 110											
Actuated Cycle Length: 110											
Offset: 63.8 (58%), Referenced to phase 2:NBTL and 6:SBTL - Start of Green											
Natural Cycle: 45											
Control Type: Actuated-Coordinated											
Maximum v/c Ratio: 0.77											
Intersection Signal Delay: 14.1											
Intersection Capacity Utilization 60.4%											
Analysis Period (min) 15											



Splits and Phases: 6: Carlisle Blvd. & Constitution Ave.

06/27/2019

HCM 6th Signalized Intersection Summary
6: Carlisle Blvd. & Constitution Ave.

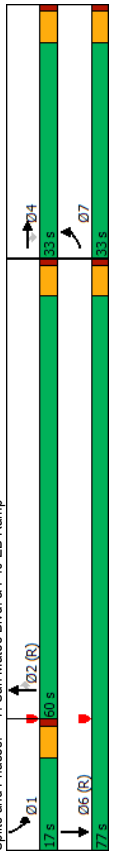
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	→	→	→	←	←	←	←	←	←	←	←	←
Traffic Volume (veh/h)	99	88	14	47	130	71	14	470	20	67	518	205
Future Volume (veh/h)	99	88	14	47	130	71	14	470	20	67	518	205
Initial Q (Obs), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A, pbT)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No	No	No	No	No	No	No	No	No	No	No	No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	106	95	15	51	140	76	15	505	22	72	557	220
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	198	336	285	240	336	285	567	2505	109	657	1351	1145
Arrive On Green	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.73	0.73	1.00	1.00	1.00
Sat Flow, veh/h	1156	1856	1572	1273	1856	1572	689	3442	150	869	1856	1572
Grip Volume(v), veh/h	106	95	15	51	140	76	15	258	269	72	557	220
Grip Sat Flow(s)/veh/ln	1156	1856	1572	1273	1856	1572	689	1763	1829	869	1856	1572
Q Serve(g, s), s	9.8	4.9	0.9	4.0	7.4	4.6	0.7	5.1	5.2	0.7	0.0	0.0
Cycle Q Clear(g, c), s	17.2	4.9	0.9	8.8	7.4	4.6	0.7	5.1	5.2	0.7	0.0	0.0
Prop In Lane	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
VIC Ratio(X)	0.54	0.28	0.05	0.21	0.42	0.27	0.03	0.20	0.20	0.11	0.41	0.19
Avail Cap(c, a), veh/h	335	557	472	391	557	472	567	1283	1331	657	1351	1145
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(l)	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	47.5	38.9	37.2	42.7	39.9	38.7	4.2	4.8	4.8	0.2	0.0	0.0
Incr Delay (d2), s/veh	2.3	0.5	0.1	0.4	0.8	0.5	0.1	0.4	0.3	0.3	0.7	0.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%), veh/ln	5.3	4.1	0.6	2.3	6.2	3.3	0.2	3.1	3.2	0.1	0.5	0.2
Unsig. Movement Delay, s/veh	49.7	39.3	37.3	43.1	40.7	39.2	4.2	5.1	5.1	0.4	0.7	0.3
LnGrp Delay(d), s/veh	D	D	D	D	D	D	A	A	A	A	A	A
LnGrp LOS	D	D	D	D	D	D	A	A	A	A	A	A
Approach Vol, veh/h	216			267			542			849		
Approach Delay, s/veh	44.3			40.7			5.1			0.6		
Approach LOS	D			D			A			A		
Timer - Assigned Phis	2			4			6			8		
Phis Duration (G+Y+Rc), s	85.1			24.9			85.1			24.9		
Change Period (Y+Rc), s	5.0			5.0			5.0			5.0		
Max Green Setting (Gmax), s	67.0			33.0			67.0			33.0		
Max Q Clear Time (g, c+H1), s	7.2			19.2			7.8			10.8		
Green Ext Time (p, c), s	3.5			0.7			5.5			1.1		
Intersection Summary												
HCM 6th Ctrl Delay	12.6											
HCM 6th LOS	B											

2021 AM Peak NOBUILD Conditions - Existing Geometry

Synchro 10 Report
2021/ANX.syn

Timings Terry O. Brown, PE
06/27/2019
7: San Mateo Blvd. & I-40 EB Ramp

	EBL	EBT	EBR	NBT	NBT	NBR	SBL	SBT
Lane Group	EBL	EBT	EBR	NBT	NBT	NBR	SBL	SBT
Lane Configurations	465	1	755	1032	140	226	860	860
Traffic Volume (vph)	465	1	755	1032	140	226	860	860
Future Volume (vph)	465	1	755	1032	140	226	860	860
Turn Type	Prot	NA	Perm	NA	Perm	Prot	NA	NA
Protected Phases	7	4	4	2	2	1	6	6
Permitted Phases	7	4	4	2	2	1	6	6
Detector Phase								
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	21.0	21.0	21.0	21.0	10.0	21.0	21.0
Total Split (s)	33.0	33.0	33.0	60.0	60.0	17.0	77.0	77.0
Total Split (%)	30.0%	30.0%	30.0%	54.5%	54.5%	15.5%	70.0%	70.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	Min	Min	Min	C-Max	C-Max	Min	C-Max	C-Max
Act Effct Green (s)	24.3	24.3	24.3	59.2	59.2	11.5	75.7	75.7
Actuated g/C Ratio	0.22	0.22	0.22	0.54	0.54	0.10	0.69	0.69
v/c Ratio	0.86	0.87	0.86	0.41	0.41	0.16	0.68	0.26
Control Delay	43.0	42.3	41.7	16.3	2.9	49.9	3.7	3.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.0	42.3	41.7	16.3	2.9	49.9	3.7	3.7
LOS	D	D	D	B	A	D	A	A
Approach Delay								
Approach LOS	D	D	D	B	B	B	B	B
Intersection Summary								
Cycle Length: 110								
Actuated Cycle Length: 110								
Offset: 90.2 (82%), Referenced to phase 2:NBT and 6:SBT, Start of Green								
Natural Cycle: 55								
Control Type: Actuated-Coordinated								
Maximum v/c Ratio: 0.87								
Intersection Signal Delay: 24.0								
Intersection Capacity Utilization 56.1%								
Analysis Period (min) 15								



2021 AM Peak NOBUILD Conditions - Existing Geometry
Synchro 10 Report
2021/ANX.syn

HCM 6th Signalized Intersection Summary Terry O. Brown, PE
06/27/2019
7: San Mateo Blvd. & I-40 EB Ramp

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	465	1	755	0	0	0	1032	140	226	860	860	0
Traffic Volume (veh/h)	465	1	755	0	0	0	1032	140	226	860	860	0
Future Volume (veh/h)	465	1	755	0	0	0	1032	140	226	860	860	0
Initial Q (Ob), 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	1.00	1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No	No	No	No	No	No	No	No	No	No	No	No
Adj Sat Flow, veh/h/in	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	495	0	804	0	0	0	1098	0	240	915	0	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	900	0	801	0	0	0	2635	0	305	3316	0	0
Arrive On Green	0.25	0.00	0.25	0.00	0.00	0.00	0.52	0.00	0.06	0.44	0.00	0.00
Sat Flow, veh/h	3534	0	3145	0	0	0	5233	1572	3428	5233	0	0
Grip Volume(v), veh/h	495	0	804	0	0	0	1098	0	240	915	0	0
Grip Sat Flow(s),veh/h/in	1767	0	1572	0	0	0	1689	1572	1714	1689	0	0
Q Serve(g, s), s	13.4	0.0	28.0	0.0	0.0	0.0	14.6	0.0	7.6	12.7	0.0	0.0
Cycle Q Clear(g, c), s	13.4	0.0	28.0	0.0	0.0	0.0	14.6	0.0	7.6	12.7	0.0	0.0
Prop In Lane	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
VIC Ratio(X)	0.55	0.00	1.00	0.00	0.00	0.00	0.42	0.00	0.79	0.28	0.00	0.00
Avail Cap(c, a), veh/h	900	0	801	0	0	0	2635	0	374	3316	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.67	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.85	0.85	0.00
Uniform Delay (d), s/veh	35.5	0.0	41.0	0.0	0.0	0.0	16.2	0.0	50.7	14.2	0.0	0.0
Incr Delay (d2), s/veh	0.7	0.0	32.9	0.0	0.0	0.0	0.5	0.0	7.5	0.2	0.0	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(95%),veh/h	9.8	0.0	20.6	0.0	0.0	0.0	9.5	0.0	6.5	8.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrip Delay(d),s/veh	363	0	73.9	0	0	0	16.7	0	58.2	14.4	0	0
LnGrip LOS	D	A	F	A	A	A	B	B	E	B	A	A
Approach Vol, veh/h	1299						1098				1155	
Approach Delay, s/veh	59.5						16.7				23.5	
Approach LOS	E						B				C	
Timer - Assigned Phis	1	2	4	6								
Phis Duration (G+Y+Rc), s	14.8	62.2	33.0	77.0								
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0								
Max Green Setting (Gmax), s	12.0	55.0	28.0	72.0								
Max Q Clear Time (g, c+H), s	9.6	16.6	30.0	14.7								
Green Ext Time (p, c), s	0.2	10.0	0.0	8.2								
Intersection Summary												
HCM 6th Ctrl Delay							34.6					
HCM 6th LOS							C					
Notes												
User approved volume balancing among the lanes for turning movement.												
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.												

2021 AM Peak NOBUILD Conditions - Existing Geometry
Synchro 10 Report
2021/ANX.syn

Timings
8: San Mateo Blvd. & I-40 WB Ramp

Terry O. Brown, PE
06/27/2019

EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBR
→	→	→	→	→	→	→	→
←	←	←	←	←	←	←	←
↔	↔	↔	↔	↔	↔	↔	↔
↖	↖	↖	↖	↖	↖	↖	↖
↗	↗	↗	↗	↗	↗	↗	↗

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBR
Lane Configurations	→	→	→	→	→	→	→	→
Traffic Volume (vph)	50	150	270	136	321	142	928	1032
Future Volume (vph)	50	150	270	136	321	142	928	1032
Turn Type	Prot	Perm	Prot	NA	Perm	Prot	NA	pmt-ov
Protected Phases	7	4	3	8	5	2	6	7
Permitted Phases	7	4	3	8	5	2	6	7
Detector Phase								
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	21.0	10.0	21.0	10.0	21.0	21.0	10.0
Total Split (s)	15.0	25.0	18.0	28.0	18.0	28.0	28.0	15.0
Total Split (%)	13.6%	22.7%	16.4%	25.5%	16.4%	25.5%	25.5%	13.6%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?								
Recall Mode	Min	Min	Min	Min	Min	Min	C-Max	C-Max
Act Effct Green (s)	7.2	13.7	12.6	19.1	19.1	10.2	66.7	53.5
Actuated g/C Ratio	0.07	0.12	0.11	0.17	0.17	0.09	0.62	0.49
v/c Ratio	0.24	0.48	0.75	0.46	0.85	0.48	0.32	0.45
Control Delay	51.0	11.2	59.9	44.1	41.0	48.7	14.8	20.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.0	11.2	59.9	44.1	41.0	48.7	14.8	20.8
LOS	D	B	E	D	D	D	B	C
Approach Delay								
Approach LOS								
Intersection Summary								
Cycle Length: 110								
Actuated Cycle Length: 110								
Offset: 49.5 (45%), Referenced to phase 2:NBT and 6:SBT, Start of Green								
Natural Cycle: 65								
Control Type: Actuated-Coordinated								
Maximum v/c Ratio: 0.85								
Intersection Signal Delay: 26.3								
Intersection Capacity Utilization 52.8%								
Analysis Period (min) 15								

8: San Mateo Blvd. & I-40 WB Ramp

Terry O. Brown, PE
06/27/2019

EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBR
→	→	→	→	→	→	→	→
←	←	←	←	←	←	←	←
↔	↔	↔	↔	↔	↔	↔	↔
↖	↖	↖	↖	↖	↖	↖	↖
↗	↗	↗	↗	↗	↗	↗	↗

Movement	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBR
Lane Configurations	→	→	→	→	→	→	→	→
Traffic Volume (veh/h)	50	150	270	136	321	142	928	1032
Future Volume (veh/h)	50	150	270	136	321	142	928	1032
Initial Q (Ob), veh	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
Work Zone On Approach	No	No	No	No	No	No	No	No
Adj Sat Flow, veh/h/in	1856	0	1856	1856	1856	1856	0	1856
Adj Flow Rate, veh/h	54	0	161	290	146	345	153	998
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	3	0	3	3	3	3	0	3
Cap, veh/h	156	0	1028	388	329	216	3085	0
Arrive On Green	0.05	0.00	0.00	0.21	0.21	0.13	1.00	0.00
Sat Flow, veh/h	3428	54	522	290	146	345	153	998
Grip Volume(v), veh/h	54	522	290	146	345	153	998	0
Grip Sat Flow(s)/veh/h/in	1714	D	1714	1856	1572	1714	1689	0
Q Serve(g.s), s	1.7	7.1	7.4	23.0	4.7	0.0	0.0	15.4
Cycle Q Clear(g.c), s	1.7	7.1	7.4	23.0	4.7	0.0	0.0	15.4
Prop In Lane	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
VIC Ratio(X)	0.35	0.28	0.38	1.05	0.71	0.32	0.00	0.44
Avail Cap(c.a), veh/h	312	1028	388	329	405	3085	0	2536
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	0.87	0.87	0.00	1.00
Uniform Delay (d), s/veh	50.9	29.4	37.3	43.5	47.1	0.0	0.0	17.6
Incr Delay (d2), s/veh	1.3	0.1	0.6	63.1	3.7	0.2	0.0	0.6
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%), veh/h	1.3	5.3	6.2	21.4	3.6	0.1	0.0	9.9
Unsig. Movement Delay, s/veh								
LnGrip Delay(d), s/veh	52.2	29.6	37.9	106.6	50.8	0.2	0.0	18.1
LnGrip LOS	D	D	F	D	D	A	A	B
Approach Vol, veh/h				781		1151		1209
Approach Delay, s/veh				65.2		7.0		17.6
Approach LOS				E		A		B
Timer - Assigned Phis	2	3	5	6	7	8		
Phis Duration (G+Y+Rc), s	72.0	38.0	11.9	60.1	10.0	28.0		
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0		
Max Green Setting (Gmax), s	62.0	13.0	13.0	44.0	10.0	23.0		
Max Q Clear Time (g, c+H), s	2.0	9.1	6.7	17.4	3.7	25.0		
Green Ext Time (p, c), s	8.8	0.4	0.2	9.2	0.0	0.0		
Intersection Summary								
HCM 6th Chl Delay	26.0							
HCM 6th LOS	C							

2021 AM Peak NOBUILD Conditions - Existing Geometry

Synchro 10 Report
2021ANX.syn

2021 AM Peak NOBUILD Conditions - Existing Geometry

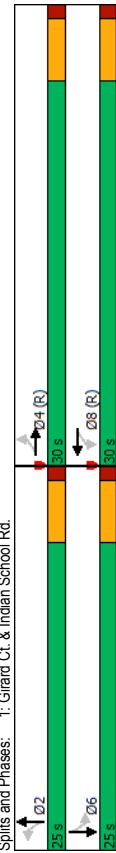
Synchro 10 Report
2021ANX.syn

2021 AM Peak Hour
BUILD Analyses

Timings
1: Girard Ct. & Indian School Rd.

Terry O. Brown, PE
06/27/2019

EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
4	4	8	8	2	2	6	6
5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
30.0	30.0	30.0	30.0	25.0	25.0	25.0	25.0
54.5%	54.5%	54.5%	54.5%	45.5%	45.5%	45.5%	45.5%
4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
C-Max	C-Max	C-Max	C-Max	Min	Min	Min	Min
36.3	36.3	36.3	36.3	8.7	8.7	8.7	8.7
0.66	0.66	0.66	0.66	0.16	0.16	0.16	0.16
0.04	0.13	0.01	0.24	0.23	0.05	0.38	0.18
4.5	3.8	2.3	2.7	21.7	17.2	24.8	12.1
4.5	3.8	2.3	2.7	21.7	17.2	24.8	12.1
A	A	A	A	C	B	C	B
3.9	2.7	2.7	2.7	20.7	19.8		
A	A	A	A	C	C	B	B
Intersection Summary							
Cycle Length: 55							
Actuated Cycle Length: 55							
Offset: 17.6 (32%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green							
Natural Cycle: 45							
Control Type: Actuated-Coordinated							
Maximum v/c Ratio: 0.38							
Intersection Signal Delay: 6.3							
Intersection Capacity Utilization 35.6%							
Analysis Period (min) 15							

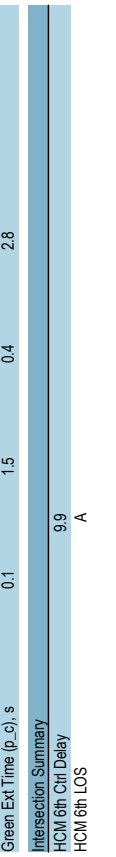


2021 AM Peak BUILD Conditions - Existing Geometry
Synchro 10 Report
2021ABX.syn

HCM 6th Signalized Intersection Summary
1: Girard Ct. & Indian School Rd.

Terry O. Brown, PE
06/27/2019

EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
20	243	21	9	425	50	43	11
20	243	21	9	425	50	43	11
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1856	1856	1856	1856	1856	1856	1856	1856
23	279	24	10	489	57	49	13
0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
3	3	3	3	3	3	3	3
632	2337	200	861	2263	263	235	168
0.71	0.71	0.71	0.23	0.23	0.11	0.11	0.11
854	3287	281	1068	3182	370	1341	1570
23	149	154	10	270	276	49	0
854	1763	1805	1068	1763	1789	1341	0
0.6	1.5	1.5	0.4	6.8	6.8	1.9	0.0
7.5	1.5	1.5	1.9	6.8	6.8	3.5	0.0
1.00	0.16	1.00	1.00	0.21	1.00	0.13	1.00
632	1253	1283	861	1253	1272	235	0
0.04	0.12	0.12	0.01	0.22	0.22	0.21	0.00
632	1253	1283	861	1253	1272	235	0
1.00	1.00	1.00	0.33	0.33	1.00	1.00	1.00
1.00	1.00	1.00	0.76	0.76	1.00	1.00	1.00
4.8	2.5	2.5	7.4	8.7	8.7	24.3	0.0
0.1	0.2	0.2	0.0	0.3	0.3	0.4	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.2	0.4	0.4	0.1	2.5	2.6	1.1	0.0
4.9	2.7	2.7	7.4	9.0	9.0	24.7	0.0
A	A	A	A	A	A	C	A
326	2.9	2.9	556	64	64	24.0	135
A	A	A	A	A	A	C	C
2	2	4	6	8	8	8	8
10.9	44.1	44.1	10.9	44.1	44.1	44.1	44.1
5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
20.0	25.0	25.0	20.0	25.0	25.0	25.0	25.0
5.5	9.5	9.5	5.5	8.8	8.8	8.8	8.8
0.1	1.5	1.5	0.4	0.4	0.4	2.8	2.8
Intersection Summary							
HCM 6th Ctrl Delay 9.9							
HCM 6th LOS A							



2021 AM Peak BUILD Conditions - Existing Geometry
Synchro 10 Report
2021ABX.syn

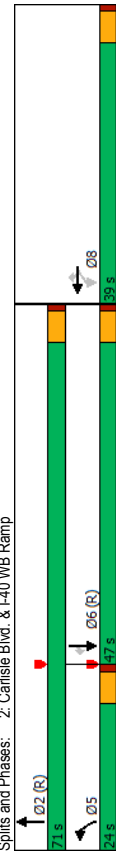
Timings
2: Carlisle Blvd. & I-40 WB Ramp

HCM 6th Signalized Intersection Summary
2: Carlisle Blvd. & I-40 WB Ramp

Terry O. Brown, PE
06/27/2019

Terry O. Brown, PE
06/27/2019

Lane Group	WBL	WBT	WBR	NBL	NBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	376	8	329	428	1069	814
Future Volume (vph)	376	8	329	428	1069	814
Turn Type	Perm	NA	Perm	Prot	NA	Perm
Protected Phases	8	8	8	5	2	6
Permitted Phases	8	8	8	5	2	6
Detector Phase	8	8	8	5	2	6
Switch Phase	8	8	8	5	2	6
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	21.0	21.0	21.0	10.0	21.0	21.0
Total Split (s)	39.0	39.0	39.0	24.0	71.0	47.0
Total Split (%)	35.5%	35.5%	35.5%	21.8%	64.5%	42.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag				Lead	Lag	Lag
Lead-Lag Optimize?						
Recall Mode	Min	Min	Min	Min	C-Max	C-Max
Act Effct Green (s)	30.5	30.5	30.5	18.5	69.5	46.0
Actuated g/C Ratio	0.28	0.28	0.28	0.17	0.63	0.42
v/c Ratio	0.47	0.47	0.85	0.84	0.38	0.43
Control Delay	35.7	35.7	56.0	56.2	15.8	24.4
Queue Delay	0.0	0.0	0.0	0.0	0.1	0.0
Total Delay	35.7	35.7	56.0	56.2	15.9	24.4
LOS	D	D	E	E	B	C
Approach Delay	45.1				27.4	19.1
Approach LOS	D				C	B
Intersection Summary						
Cycle Length: 110						
Actuated Cycle Length: 110						
Offset: 101.2 (92%), Referenced to phase 2:NBT and 6:SBT, Start of Green						
Natural Cycle: 60						
Control Type: Actuated-Coordinated						
Maximum v/c Ratio: 0.85						
Intersection Signal Delay: 28.5						
Intersection Capacity Utilization 53.0%						
Analysis Period (min) 15						



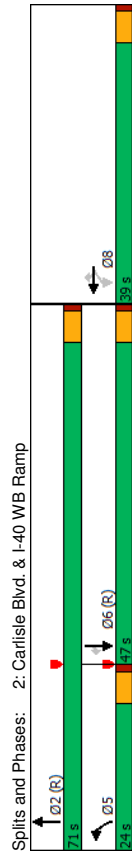
2021 AM Peak BUILD Conditions - Existing Geometry
Synchro 10 Report
2021ABX.syn

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations				↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (veh/h)	0	0	0	376	8	329	428	1069	0	0	814
Future Volume (veh/h)	0	0	0	376	8	329	428	1069	0	0	814
Initial Q (Ob), veh				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A, pbT)				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking Bus, Adj				No	No	No	No	No	No	No	No
Work Zone On Approach											
Adj Sat Flow, veh/h/ln				1856	1856	1856	1856	1856	0	0	1856
Adj Flow Rate, veh/h				428	0	370	481	1201	0	0	915
Peak Hour Factor				0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %				3	3	3	3	3	3	3	3
Cap, veh/h				927	0	412	536	3276	0	0	2254
Arrive On Green				0.26	0.00	0.26	0.31	1.00	0.00	0.00	0.45
Sat Flow, veh/h				3534	0	1572	3428	5233	0	0	5233
Grip Volume(v), veh/h				428	0	370	481	1201	0	0	915
Grip Sat Flow(s), veh/h/ln				1767	0	1572	1714	1689	0	0	1689
Q Serve(g, s), s				11.2	0.0	25.0	14.7	0.0	0.0	0.0	13.5
Cycle Q Clear(g, c), s				11.2	0.0	25.0	14.7	0.0	0.0	0.0	13.5
Prop In Lane				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Grip Cap(c), veh/h				927	0	412	536	3276	0	0	2254
V/C Ratio(X)				0.46	0.00	0.90	0.90	0.37	0.00	0.00	0.41
Avail Cap(c, a), veh/h				1092	0	486	592	3276	0	0	2254
HCM Platoon Ratio				1.00	1.00	1.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(l)				1.00	0.00	1.00	0.89	0.89	0.00	0.00	1.00
Uniform Delay (d), s/veh				34.1	0.0	39.1	37.0	0.0	0.0	0.0	20.7
Incr Delay (d2), s/veh				0.4	0.0	17.3	14.1	0.3	0.0	0.0	0.5
Initial Q Delay(Q3), s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%), veh/ln				8.4	0.0	17.1	9.9	0.2	0.0	0.0	9.0
Unsig. Movement Delay, s/veh				34.4	0.0	56.5	51.1	0.3	0.0	0.0	21.2
LnGrip Delay(d), s/veh				C	A	E	D	A	A	A	C
LnGrip LOS				C	A	E	D	A	A	A	C
Approach Vol, veh/h				798			1682				915
Approach Delay, s/veh				44.6			14.8				21.2
Approach LOS				D			B				C
Timer - Assigned Phis				2		5	6				8
Phis Duration (G+Y+Rc), s				76.1		22.2	54.0				33.9
Change Period (Y+Rc), s				5.0		5.0	5.0				5.0
Max Green Setting (Gmax), s				66.0		19.0	42.0				34.0
Max Q Clear Time (g, c+H1), s				2.0		16.7	15.5				27.0
Green Ext Time (p, c), s				11.6		0.5	6.9				1.9
Intersection Summary											
HCM 6th Ctrl Delay				23.5							
HCM 6th LOS				C							
Notes											
User approved volume balancing among the lanes for turning movement.											
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.											

2021 AM Peak BUILD Conditions - Existing Geometry
Synchro 10 Report
2021ABX.syn

2: Carlisle Blvd. & I-40 WB Ramp

	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group							
Lane Configurations	376	8	329	428	1069	814	285
Traffic Volume (vph)	376	8	329	428	1069	814	285
Future Volume (vph)	376	8	329	428	1069	814	285
Turn Type	Perm	NA	Perm	Prot	NA	NA	Perm
Protected Phases	8	8	8	5	2	6	6
Permitted Phases	8	8	8	5	2	6	6
Detector Phase	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Switch Phase	21.0	21.0	21.0	10.0	21.0	21.0	21.0
Minimum Initial (s)	39.0	39.0	39.0	24.0	71.0	47.0	47.0
Minimum Split (s)	35.5%	35.5%	35.5%	21.8%	64.5%	42.7%	42.7%
Total Split (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Yellow Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
All-Red Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lost Time Adjust (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Total Lost Time (s)	Lead Lag						
Lead/Lag	Lead Lag						
Lead-Lag Optimize?	Lead Lag						
Recall Mode	Min	Min	Min	Min	C-Max	C-Max	C-Max
Act. Effect Green (s)	26.3	26.3	26.3	19.4	73.7	49.3	49.3
Actuated g/C Ratio	0.24	0.24	0.24	0.18	0.67	0.45	0.45
v/c Ratio	0.70	0.74	0.71	0.80	0.36	0.41	0.36
Control Delay	47.1	50.4	48.6	49.9	13.3	22.4	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.2	0.0	0.0
Total Delay	47.1	50.4	48.6	49.9	13.5	22.4	3.8
LOS	D	D	D	D	B	C	A
Approach Delay	48.7						
Approach LOS	D						
Intersection Summary	C B						
Cycle Length: 110							
Actuated Cycle Length: 110							
Offset: 101.2 (92%), Referenced to phase 2:NBT and 6:SBT, Start of Green							
Natural Cycle: 60							
Control Type: Actuated-Coordinated							
Maximum v/c Ratio: 0.80							
Intersection Signal Delay: 27.1	Intersection LOS: C						
Intersection Capacity Utilization: 56.3%	ICU Level of Service B						
Analysis Period (min): 15							



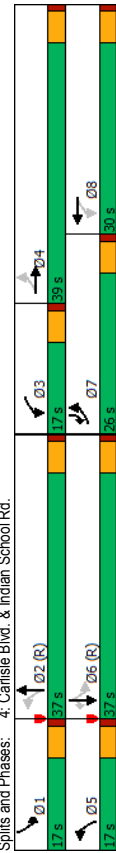
2: Carlisle Blvd. & I-40 WB Ramp

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement												
Lane Configurations	0	0	0	376	8	329	428	1069	0	0	814	285
Traffic Volume (veh/h)	0	0	0	376	8	329	428	1069	0	0	814	285
Future Volume (veh/h)	0	0	0	376	8	329	428	1069	0	0	814	285
Initial Q (Ob), veh	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking Bus, Adj	No	No	No	No	No	No	No	No	No	No	No	No
Work Zone On Approach	1856	1856	1856	1856	1856	1856	1856	1856	0	0	1856	1856
Adj Sat Flow, veh/h/in	541	0	250	481	1201	0	0	915	0	0	915	0
Adj Flow Rate, veh/h	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Peak Hour Factor	3	3	3	3	3	3	3	3	3	3	3	3
Percent Heavy Veh, %	688	0	306	536	3618	0	0	2596	0	0	2596	0
Cap, veh/h	0.19	0.00	0.19	0.31	1.00	0.00	0.00	0.51	0.00	0.00	0.51	0.00
Arrive On Green	3534	0	1572	3428	5233	0	0	5233	1572	0	5233	1572
Sat Flow, veh/h	541	0	250	481	1201	0	0	915	0	0	915	0
Grp Volume(v), veh/h	1767	0	1572	1714	1689	0	0	1689	1572	0	1689	1572
Grp Sat Flow(s), veh/h/in	16.0	0.0	16.7	14.7	0.0	0.0	0.0	11.8	0.0	0.0	11.8	0.0
Q Serve(g_s), s	16.0	0.0	16.7	14.7	0.0	0.0	0.0	11.8	0.0	0.0	11.8	0.0
Cycle Q Clear(g_c), s	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Prop In Lane	688	0	306	536	3618	0	0	2596	0	0	2596	0
Lane Grp Cap(c), veh/h	0.79	0.00	0.82	0.90	0.33	0.00	0.00	0.35	0.00	0.00	0.35	0.00
V/C Ratio(X)	1092	0	486	592	3618	0	0	2596	0	0	2596	0
Avail Cap(c_a), veh/h	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
HCM Platoon Ratio	1.00	0.00	1.00	0.89	0.89	0.00	0.00	1.00	0.00	0.00	1.00	0.00
Upstream Filter(l)	42.1	0.0	42.4	37.0	0.0	0.0	0.0	16.0	0.0	0.0	16.0	0.0
Uniform Delay (d), s/veh	2.0	0.0	5.8	14.1	0.2	0.0	0.0	0.4	0.0	0.0	0.4	0.0
Incr Delay (d2), 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
Initial Q Delay(d3), s/veh	11.5	0.0	11.3	9.9	0.1	0.0	0.0	8.0	0.0	0.0	8.0	0.0
%ile BackOf(95%), veh/h	44.1	0.0	48.2	51.1	0.2	0.0	0.0	16.3	0.0	0.0	16.3	0.0
Unsig. Movement Delay, s/veh	D	A	D	D	D	A	A	A	A	A	A	B
LnGrp Delay(d), s/veh	791	45.4	1682	14.8	16.3	16.3	16.3	16.3	16.3	16.3	16.3	16.3
Approach Vol, veh/h	Approach LOS											
Approach Delay, s/veh	Approach LOS											
Approach LOS	Approach LOS											
Timer - Assigned Phs	2											
Phs Duration (G+Y+Rc), s	83.6											
Change Period (Y+Rc), s	5.0											
Max Green Setting (Gmax), s	66.0											
Max Q Clear Time (g_c+1), s	2.0											
Green Ext Time (p_c), s	11.6											
Intersection Summary	Intersection Summary											
HCM 6th Ctrl Delay	22.3											
HCM 6th LOS	C											
Notes	User approved volume balancing among the lanes for turning movement.											
Unsignalized Delay for [SBR]	Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.											

Timings
4: Carlisle Blvd. & Indian School Rd.

Terry O. Brown, PE
06/27/2019

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	←	←	←	←	←	←	←	←	←
Traffic Volume (vph)	380	238	72	295	71	742	223	818	516
Future Volume (vph)	380	238	72	295	71	742	223	818	516
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+ov
Protected Phases	7	4	3	8	5	2	1	6	7
Permitted Phases	4	4	3	8	5	2	1	6	6
Detector Phase	7	4	3	8	5	2	1	6	7
Switch Phase	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Initial (s)	10.0	21.0	10.0	21.0	10.0	21.0	10.0	21.0	10.0
Minimum Split (s)	26.0	39.0	17.0	30.0	17.0	37.0	17.0	37.0	26.0
Total Split (%)	23.6%	35.5%	15.5%	27.3%	15.5%	33.6%	15.5%	33.6%	23.6%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Min	Min	Min	Min	Min	Min	Min	Min	Min
Recall Mode	45.4	31.9	28.0	19.4	43.8	35.6	53.8	41.3	67.3
Act Effct Green (s)	0.41	0.29	0.25	0.18	0.40	0.32	0.49	0.38	0.61
Actuated g/C Ratio	1.03	0.32	0.25	0.74	0.33	0.56	0.74	0.70	0.54
v/c Ratio	80.9	30.0	22.2	44.7	18.3	31.5	34.4	28.4	14.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	80.9	30.0	22.2	44.7	18.3	31.5	34.4	28.4	14.9
LOS	F	C	C	D	B	C	C	C	B
Approach Delay	59.2	41.4	41.4	30.5	30.5	24.8	24.8	24.8	24.8
Approach LOS	E	D	D	D	C	C	C	C	C
Intersection Summary									
Cycle Length: 110									
Actuated Cycle Length: 110									
Offset: 8.8 (8%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green									
Natural Cycle: 80									
Control Type: Actuated-Coordinated									
Maximum v/c Ratio: 1.03									
Intersection Signal Delay: 34.8									
Intersection LOS: C									
Intersection Capacity Utilization 78.2%									
Analysis Period (min) 15									



2021 AM Peak BUILD Conditions - Existing Geometry
Synchro 10 Report
2021ABX.syn

HCM 6th Signalized Intersection Summary
4: Carlisle Blvd. & Indian School Rd.

Terry O. Brown, PE
06/27/2019

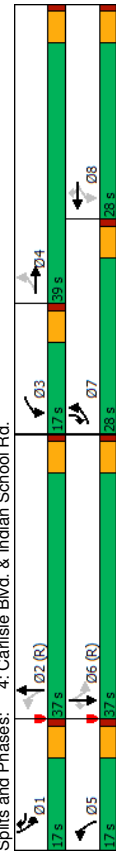
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	←	←	←	←	←	←	←	←	←	←	←	←
Traffic Volume (veh/h)	380	238	45	72	295	128	71	742	67	223	818	516
Future Volume (veh/h)	380	238	45	72	295	128	71	742	67	223	818	516
Initial Q (Ob), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A, pbT)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No	No	No	No	No	No	No	No	No	No	No	No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	427	267	51	81	331	144	80	834	75	251	919	580
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	433	900	169	342	407	174	258	1653	148	377	1448	946
Arrive On Green	0.32	0.51	0.51	0.06	0.17	0.17	0.03	0.23	0.23	0.22	0.82	0.82
Sat Flow, veh/h	1767	2961	557	1767	2407	1027	1767	4733	424	1767	3526	1572
Grip Volume(v), veh/h	427	157	161	81	241	234	80	594	315	251	919	580
Grip Sat Flow(s) veh/h/ln	1767	1763	1755	1767	1763	1671	1767	1689	1779	1767	1763	1572
Q Serve(g, s), s	21.0	5.7	5.9	4.1	14.5	14.9	3.1	16.8	16.9	10.0	10.7	18.7
Cycle Q Clear(g, c), s	21.0	5.7	5.9	4.1	14.5	14.9	3.1	16.8	16.9	10.0	10.7	18.7
Prop In Lane	1.00	0.32	1.00	1.00	0.61	1.00	0.61	1.00	0.24	1.00	1.00	1.00
V/C Ratio(X)	0.99	0.29	0.30	0.24	0.81	0.83	0.31	0.50	0.51	0.67	0.63	0.61
Avail Cap(c, a), veh/h	433	945	543	436	401	380	367	1719	621	377	1448	946
HCM Platoon Ratio	1.67	1.67	1.67	1.00	1.00	1.00	0.67	0.67	0.67	2.00	2.00	2.00
Upstream Filter(I)	0.99	0.99	0.99	1.00	1.00	1.00	0.96	0.96	0.96	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.5	20.3	20.3	34.6	44.0	44.2	21.4	33.9	33.9	17.8	6.7	3.8
Incr Delay (d2), s/veh	39.1	0.3	0.3	0.4	8.7	10.9	0.6	1.5	2.8	4.4	2.1	3.0
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(95%) veh/h	17.8	3.9	4.0	3.2	11.2	11.2	2.4	11.8	12.7	6.6	4.8	4.5
Unsig. Movement Delay, s/veh	656	20.6	20.6	35.0	52.7	55.1	22.1	35.3	36.7	22.2	8.9	6.7
LnGrip Delay(d) s/veh	E	C	C	C	D	E	C	D	D	C	C	A
LnGrip LOS	E	C	C	C	D	E	C	D	D	C	C	A
Approach Vol, veh/h	745	46.4	46.4	556	51.1	51.1	989	34.7	34.7	1750	10.1	10.1
Approach Delay, s/veh	46.4	46.4	46.4	51.1	51.1	51.1	34.7	34.7	34.7	10.1	10.1	10.1
Approach LOS	D	D	D	D	D	D	C	C	C	B	B	B
Timer - Assigned Phs	1	2	3	4	5	6	7	8	8	8	8	8
Phs Duration (G+Y+Rc), s	17.0	43.4	11.2	38.4	10.2	50.2	26.0	23.6	23.6	23.6	23.6	23.6
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	12.0	32.0	12.0	34.0	12.0	32.0	21.0	25.0	25.0	25.0	25.0	25.0
Max Q Clear Time (g, c+H), s	12.0	18.9	6.1	7.9	5.1	20.7	23.0	16.9	16.9	16.9	16.9	16.9
Green Ext Time (p, c), s	0.0	4.8	0.1	1.7	0.1	6.4	0.0	1.7	1.7	6.6	4.8	4.5
Intersection Summary												
HCM 6th Ctrl Delay	28.4											
HCM 6th LOS	C											

2021 AM Peak BUILD Conditions - Existing Geometry
Synchro 10 Report
2021ABX.syn

Timings
4: Carlisle Blvd. & Indian School Rd.

Terry O. Brown, PE
06/27/2019

	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group										
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	380	238	72	295	128	71	742	223	818	516
Future Volume (vph)	380	238	72	295	128	71	742	223	818	516
Turn Type	pm-pt	NA	pm+pt	NA	pm+ov	pm-pt	NA	pm+pt	NA	pm+ov
Protected Phases	7	4	3	8	1	5	2	1	6	7
Permitted Phases	4	4	3	8	8	2	2	1	6	6
Detector Phase	7	4	3	8	8	1	5	2	1	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	21.0	10.0	21.0	10.0	21.0	10.0	21.0	10.0	21.0
Total Split (s)	28.0	39.0	17.0	28.0	17.0	37.0	17.0	37.0	28.0	38.0
Total Split (%)	25.5%	35.5%	15.5%	25.5%	15.5%	33.6%	15.5%	33.6%	25.5%	33.6%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?										
Recall Mode	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min
Act. Effect Green (s)	43.5	29.9	24.3	15.6	35.7	44.5	36.3	56.4	43.3	71.3
Actuated g/C Ratio	0.40	0.27	0.22	0.14	0.32	0.40	0.33	0.51	0.39	0.65
v/c Ratio	0.92	0.34	0.29	0.67	0.24	0.32	0.55	0.69	0.67	0.52
Control Delay	54.7	31.3	24.6	51.3	7.6	17.8	30.9	28.5	26.2	13.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.7	31.3	24.6	51.3	7.6	17.8	30.9	28.5	26.2	13.6
LOS	D	C	C	D	A	B	C	C	C	B
Approach Delay	44.7									
Approach LOS	D									
Intersection Summary										
Cycle Length: 110										
Actuated Cycle Length: 110										
Offset: 8.8 (8%), Referenced to phase 2:NBLT and 6:SBTL, Start of Green										
Natural Cycle: 75										
Control Type: Actuated-Coordinated										
Maximum v/c Ratio: 0.92										
Intersection Signal Delay: 30.2										
Intersection Capacity Utilization: 74.1%										
Analysis Period (min): 15										



2021 AM Peak BUILD Conditions - Mitigated Conditions
Synchro 10 Report
2021AB_MIT_syn

HCM 6th Signalized Intersection Summary
4: Carlisle Blvd. & Indian School Rd.

Terry O. Brown, PE
06/27/2019

	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Movement	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (veh/h)	380	238	45	72	295	128	71	742	223	818
Future Volume (veh/h)	380	238	45	72	295	128	71	742	223	818
Initial Q (Ob), veh	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	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
Work Zone On Approach	No	No	No	No	No	No	No	No	No	No
Adj Sat Flow, veh/h/in	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	427	267	51	81	331	144	80	834	75	251
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	467	819	154	300	443	364	275	1788	160	391
Arrive On Green	0.35	0.46	0.46	0.06	0.13	0.13	0.03	0.25	0.25	0.21
Sat Flow, veh/h	1767	2961	557	1767	3526	1572	1767	4733	424	1767
Grip Volume(v), veh/h	427	157	161	81	331	144	80	594	315	251
Grip Sat Flow(s), veh/h/in	1767	1763	1755	1767	1763	1572	1767	1689	1779	1767
O Serve(g.s), s	23.0	6.2	6.4	4.3	10.0	8.5	3.0	16.4	16.5	9.6
Cycle Q Clear(g_c), s	23.0	6.2	6.4	4.3	10.0	8.5	3.0	16.4	16.5	9.6
Prop In Lane	1.00	0.32	1.00	1.00	1.00	1.00	1.00	0.24	1.00	1.00
Lane Grp Cap(c), veh/h	467	488	486	300	443	364	275	1276	672	391
V/C Ratio(X)	0.91	0.32	0.33	0.27	0.75	0.40	0.29	0.47	0.47	0.64
Avail Cap(c_a), veh/h	467	545	543	391	737	495	386	1276	672	397
HCM Platoon Ratio	1.67	1.67	1.67	1.00	1.00	1.00	0.67	0.67	0.67	2.00
Upstream Filter(f)	0.99	0.99	0.99	1.00	1.00	1.00	0.96	0.96	0.96	1.00
Uniform Delay (d), s/veh	26.3	23.1	23.1	38.4	46.4	35.8	19.4	31.7	31.7	16.3
Incr Delay (d2), s/veh	22.4	0.4	0.4	0.5	2.5	0.7	0.6	1.2	2.2	3.4
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%), veh/h	4.3	4.4	4.4	3.4	7.9	5.9	2.3	11.5	12.3	6.2
Unsig. Movement Delay, s/veh										
LnGrp Delay(d), s/veh	48.7	23.4	23.5	38.9	48.9	36.5	20.0	32.9	34.0	19.7
LnGrp LOS	D	C	C	D	D	D	B	C	C	B
Approach Vol, veh/h	745									
Approach Delay, s/veh	37.9									
Approach LOS	D									
Timer - Assigned Phs	1	2	3	4	5	6	7	8		
Phs Duration (G+Y+Rc), s	16.6	11.4	35.4	10.1	53.1	28.0	18.8			
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0			
Max Green Setting (Gmax), s	32.0	12.0	34.0	12.0	32.0	23.0	23.0			
Max Q Clear Time (g_c+11)s	18.5	6.3	8.4	5.0	14.2	25.0	12.0			
Green Ext Time (p_c), s	0.0	4.9	0.1	1.7	0.1	8.4	0.0	1.9		
Intersection Summary										
HCM 6th Ctrl Delay	24.2									
HCM 6th LOS	C									

2021 AM Peak BUILD Conditions - Mitigated Conditions
Synchro 10 Report
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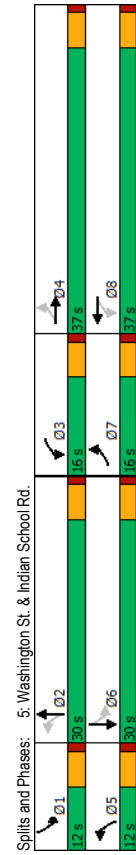
Timings
5: Washington St. & Indian School Rd.

HCM 6th Signalized Intersection Summary
5: Washington St. & Indian School Rd.

Terry O. Brown, PE
06/27/2019

Terry O. Brown, PE
06/27/2019

EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
63	246	18	272	78	168	38	120
63	246	18	272	78	168	38	120
NA	pm+pt	NA	pm+pt	NA	pm+pt	NA	NA
7	4	3	8	5	2	1	6
4	8	8	8	5	2	1	6
5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
10.0	21.0	10.0	21.0	10.0	21.0	10.0	21.0
16.0	37.0	16.0	37.0	12.0	30.0	12.0	30.0
16.8%	38.9%	16.8%	38.9%	12.6%	31.6%	12.6%	31.6%
4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Min	Max	Min	Max	Min	Max	Min	Max
41.2	33.7	38.3	32.2	25.3	18.5	24.7	18.2
0.49	0.40	0.45	0.38	0.30	0.22	0.29	0.21
0.15	0.26	0.04	0.28	0.39	0.62	0.15	0.79
12.2	17.6	11.8	19.5	23.5	36.1	19.2	40.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12.2	17.6	11.8	19.5	23.5	36.1	19.2	40.0
B	B	B	B	C	D	B	D
16.6	19.1	19.1	32.6	37.4			
Intersection Summary							
Cycle Length: 95							
Actuated Cycle Length: 84.9							
Natural Cycle: 65							
Control Type: Semi Act-Uncoord							
Maximum v/c Ratio: 0.79							
Intersection Signal Delay: 25.8							
Intersection Capacity Utilization 49.1%							
Analysis Period (min) 15							



EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
63	246	46	18	272	34	78	168
63	246	46	18	272	34	78	168
0	0	0	0	0	0	0	0
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1856	1856	1856	1856	1856	1856	1856	1856
77	300	56	22	332	41	95	205
0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
3	3	3	3	3	3	3	3
527	1183	218	534	1258	154	247	339
0.06	0.40	0.40	0.06	0.40	0.40	0.07	0.23
1767	2972	548	1767	3161	387	1767	1481
77	176	180	22	184	189	95	0
1767	1763	1757	1767	1763	1786	1767	0
2.0	5.4	5.5	0.5	5.6	5.7	3.2	0.0
2.0	5.4	5.5	0.5	5.6	5.7	3.2	0.0
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
527	701	699	534	701	711	247	0
0.15	0.25	0.26	0.04	0.26	0.27	0.38	0.00
688	701	699	666	701	711	285	0
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
12.5	16.2	16.2	12.1	16.3	16.3	22.9	0.0
0.1	0.9	0.9	0.0	0.9	0.9	1.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1.3	3.9	3.9	0.4	4.1	4.2	2.5	0.0
12.6	17.1	17.1	12.1	17.2	17.2	23.8	0.0
B	B	B	B	B	B	C	A
433				395			344
16.3				16.9			27.7
B	B	B	B	B	B	C	D
1	2	3	4	5	6	7	8
10.0	23.4	10.0	37.0	10.3	23.1	10.0	37.0
5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
7.0	25.0	11.0	32.0	7.0	25.0	11.0	32.0
3.5	12.0	2.5	7.5	5.2	16.9	4.0	7.7
0.0	1.1	0.0	1.9	0.0	1.2	0.1	2.0
Intersection Summary							
HCM 6th Ctrl Delay 24.1							
HCM 6th LOS C							

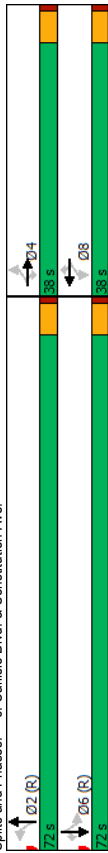
2021 AM Peak BUILD Conditions - Existing Geometry
Synchro 10 Report
2021ABX.syn

2021 AM Peak BUILD Conditions - Existing Geometry
Synchro 10 Report
2021ABX.syn

Timings
6: Carlisle Blvd. & Constitution Ave.

Terry O. Brown, PE
06/27/2019

EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
103	88	14	47	130	86	14	562	78	582	208
103	88	14	47	130	86	14	562	78	582	208
Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm
4	4	4	8	8	8	2	2	6	6	6
4	4	4	8	8	8	2	2	6	6	6
5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
38.0	38.0	38.0	38.0	38.0	38.0	72.0	72.0	72.0	72.0	72.0
34.5%	34.5%	34.5%	34.5%	34.5%	34.5%	65.5%	65.5%	65.5%	65.5%	65.5%
4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Min	Min	Min	Min	Min	Min	C-Max	C-Max	C-Max	C-Max	C-Max
15.8	15.8	15.8	15.8	15.8	15.8	84.2	84.2	84.2	84.2	84.2
0.14	0.14	0.14	0.14	0.14	0.14	0.77	0.77	0.77	0.77	0.77
0.78	0.36	0.06	0.28	0.53	0.30	0.03	0.23	0.14	0.44	0.18
76.9	44.6	12.6	43.7	49.7	10.5	4.5	4.4	0.8	3.0	0.2
76.9	44.6	12.6	43.7	49.7	10.5	4.5	4.4	0.8	3.0	0.2
E	D	B	D	D	B	A	A	A	A	A
58.7			35.9			4.4		2.1		
E			D			A		A		
110										
63.8 (58%)										
50										
Actuated										
13.4										
64.0%										
15										



Splits and Phases: 6: Carlisle Blvd. & Constitution Ave.

Intersection Summary

6: Carlisle Blvd. & Constitution Ave.

Terry O. Brown, PE
06/27/2019

EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
103	88	14	47	130	86	14	562	78	582	208
103	88	14	47	130	86	14	562	78	582	208
0	0	0	0	0	0	0	0	0	0	0
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
111	95	15	51	140	92	15	604	22	84	626
0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
3	3	3	3	3	3	3	3	3	3	3
202	346	293	247	346	293	530	2507	91	592	1341
0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.72	0.72	1.00
1139	1856	1572	1273	1856	1572	643	3469	126	793	1856
111	95	15	51	140	92	15	307	319	84	626
1139	1856	1572	1273	1856	1572	643	1763	1833	793	1856
10.4	4.8	0.9	3.9	7.3	5.6	0.7	6.4	6.4	1.1	0.0
17.8	4.8	0.9	8.8	7.3	5.6	0.7	6.4	6.4	7.5	0.0
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.07	1.00	1.00
0.55	0.27	0.05	0.21	0.40	0.31	0.03	0.24	0.24	0.14	0.47
332	557	472	391	557	472	530	1274	1324	592	1341
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.70	0.70
47.2	38.4	36.8	42.1	39.4	38.7	4.3	5.1	5.1	0.3	0.0
2.3	0.4	0.1	0.4	0.8	0.6	0.1	0.4	0.4	0.4	0.8
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5.5	4.0	0.6	2.3	6.1	4.0	0.2	3.9	4.0	0.1	0.5
49.5	38.8	36.8	42.5	40.1	39.3	4.4	5.6	5.6	0.7	0.8
D	D	D	D	D	D	A	A	A	A	A
221				283			641			984
44.0				40.3			5.5			0.7
D				D			A			A
2			4			6				8
84.5			25.5			84.5				25.5
5.0			5.0			5.0				5.0
67.0			33.0			67.0				33.0
8.4			19.8			9.5				10.8
4.3			0.8			6.5				1.2
12.2										
B										

2021 AM Peak BUILD Conditions - Existing Geometry

Synchro 10 Report
2021/ABX.syn

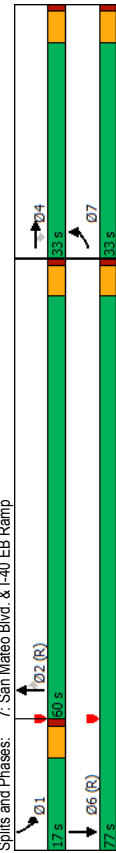
Timings
7: San Mateo Blvd. & I-40 EB Ramp

HCM 6th Signalized Intersection Summary
7: San Mateo Blvd. & I-40 EB Ramp

Terry O. Brown, PE
06/27/2019

Terry O. Brown, PE
06/27/2019

EBL	EBT	EBR	NBT	NBT	NBR	SBL	SBT
7	4	4	2	2	2	1	6
7	4	4	2	2	2	1	6
5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
10.0	21.0	21.0	21.0	21.0	10.0	21.0	21.0
33.0	33.0	33.0	60.0	60.0	17.0	77.0	77.0
30.0%	30.0%	30.0%	54.5%	54.5%	15.5%	70.0%	70.0%
4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Min	Min	Min	C-Max	C-Max	Min	C-Max	
24.6	24.6	24.6	59.0	59.0	11.4	75.4	
0.22	0.22	0.22	0.54	0.54	0.10	0.69	
0.87	0.87	0.87	0.41	0.17	0.68	0.27	
43.1	43.6	43.0	16.4	2.8	50.8	3.7	
43.1	43.6	43.0	16.4	2.8	50.8	3.7	
D	D	D	B	A	D	A	
43.2	43.2	43.2	14.8	14.8	13.3	13.3	
D	D	D	B	B	B	B	
Intersection Summary							
Cycle Length: 110							
Actuated Cycle Length: 110							
Offset: 90.2 (82%), Referenced to phase 2:NBT and 6:SBT, Start of Green							
Natural Cycle: 55							
Control Type: Actuated-Coordinated							
Maximum v/c Ratio: 0.87							
Intersection Signal Delay: 24.3							
Intersection Capacity Utilization 56.5%							
Analysis Period (min) 15							



EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
477	1	755	0	0	0	0	1044	142	226	880	0
477	1	755	0	0	0	0	1044	142	226	880	0
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1856	1856	1856	0	0	0	0	1856	1856	1856	1856	0
507	0	804	0	0	0	0	1111	0	240	936	0
0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
3	3	3	0	0	0	0	3	3	3	3	0
900	0	801	0	0	0	0	2635	0	305	3316	0
0.25	0.00	0.25	0.00	0.00	0.00	0.00	0.52	0.00	0.06	0.44	0.00
3534	0	3145	0	0	0	0	5233	1572	3428	5233	0
507	0	804	0	0	0	0	1111	0	240	936	0
1767	0	1572	0	0	0	0	1689	1572	1714	1689	0
13.7	0.0	28.0	0.0	0.0	0.0	0.0	14.8	0.0	7.6	13.0	0.0
13.7	0.0	28.0	0.0	0.0	0.0	0.0	14.8	0.0	7.6	13.0	0.0
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
900	0	801	0	0	0	0	2635	0	305	3316	0
0.56	0.00	1.00	0.00	0.00	0.00	0.00	0.42	0.00	0.79	0.28	0.00
900	0	801	0	0	0	0	2635	0	374	3316	0
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.67	1.00	1.00
1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.84	0.84	0.00
35.7	0.0	41.0	0.0	0.0	0.0	0.0	16.2	0.0	50.7	14.3	0.0
0.8	0.0	32.9	0.0	0.0	0.0	0.0	0.5	0.0	7.4	0.2	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10.0	0.0	20.6	0.0	0.0	0.0	0.0	9.6	0.0	6.5	9.0	0.0
365	0	73.9	0	0	0	0	16.7	0.0	58.1	14.5	0.0
D	A	F	A	A	A	A	B	B	E	B	A
1311	1311	1311	1111	1111	1111	1111	1111	A	E	B	A
59.4	59.4	59.4	16.7	16.7	16.7	16.7	16.7	B	23.4	23.4	C
E	E	E	B	B	B	B	B	B	C	C	C
1	2	4	6	6	6	6	6	6	6	6	6
14.8	62.2	33.0	77.0	77.0	77.0	77.0	77.0	77.0	77.0	77.0	77.0
5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
12.0	55.0	28.0	72.0	72.0	72.0	72.0	72.0	72.0	72.0	72.0	72.0
9.6	16.8	30.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
0.2	10.2	0.0	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5
Intersection Summary											
HCM 6th Ctrl Delay 34.5											
HCM 6th LOS C											

Notes
User approved volume balancing among the lanes for turning movement.
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

2021 AM Peak BUILD Conditions - Existing Geometry
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2021 AM Peak BUILD Conditions - Existing Geometry
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Timings
7: San Mateo Blvd. & I-40 EB Ramp

Terry O. Brown, PE
06/27/2019

	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations	1	1	1	1	1	1	1
Traffic Volume (vph)	477	1	755	1044	142	226	880
Future Volume (vph)	477	1	755	1044	142	226	880
Turn Type	Prot	NA	Perm	NA	Perm	Prot	NA
Protected Phases	7	4	4	2	2	1	6
Permitted Phases	7	4	4	2	2	1	6
Detector Phase	7	4	4	2	2	1	6
Switch Phase	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Initial (s)	10.0	21.0	21.0	21.0	21.0	10.0	21.0
Minimum Split (s)	36.0	36.0	36.0	55.0	55.0	19.0	74.0
Total Split (s)	32.7%	32.7%	32.7%	50.0%	50.0%	17.3%	67.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?							
Recall Mode	Min	Min	Min	C-Max	C-Max	Min	C-Max
Act. Effect Green (s)	0.24	0.24	0.24	0.51	0.51	0.11	0.67
Actuated g/C Ratio	0.63	0.86	0.86	0.43	0.17	0.63	0.28
v/c Ratio	40.8	42.6	42.1	18.3	3.3	46.6	2.1
Queue Delay	40.8	42.6	42.1	18.3	3.3	46.6	2.1
Total Delay	D	D	D	B	A	D	A
Approach Delay	41.7			16.5		11.2	
Approach LOS	D			B		B	
Intersection Summary							
Cycle Length: 110							
Actuated Cycle Length: 110							
Offset: 90.2 (82%), Referenced to phase 2:NBT and 6:SBT, Start of Green							
Natural Cycle: 55							
Control Type: Actuated-Coordinated							
Maximum v/c Ratio: 0.86							
Intersection Signal Delay: 23.7							
Intersection Capacity Utilization: 56.5%							
ICU Level of Service: B							
Analysis Period (min): 15							



2021 AM Peak BUILD Conditions - Mitigated Conditions
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HCM 6th Signalized Intersection Summary
7: San Mateo Blvd. & I-40 EB Ramp

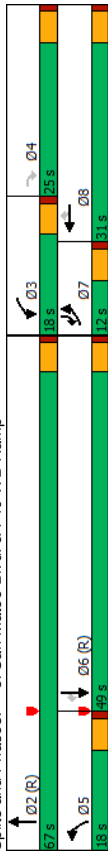
Terry O. Brown, PE
06/27/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1	1	1	0	0	0	0	0	0	1	1	1
Traffic Volume (veh/h)	477	1	755	0	0	0	0	1044	142	226	880	0
Future Volume (veh/h)	477	1	755	0	0	0	0	1044	142	226	880	0
Initial Q (Ob), 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	1.00	1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	No	No	No	No	No	No	No	No	No
Work Zone On Approach												
Adj Sat Flow, veh/h/in	1856	1856	1856	0	0	0	0	1856	1856	1856	1856	0
Adj Flow Rate, veh/h	507	0	804	0	0	0	0	1111	0	240	936	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	3	0	0	0	0	3	3	3	3	0
Cap, veh/h	975	0	868	0	0	0	0	2523	0	307	3207	0
Arrive On Green	0.28	0.00	0.28	0.00	0.00	0.00	0.00	0.50	0.00	0.09	0.63	0.00
Sat Flow, veh/h	3534	0	3145	0	0	0	0	5233	1572	3428	5233	0
Grip Volume(v), veh/h	507	0	804	0	0	0	0	1111	0	240	936	0
Grip Sat Flow(s), veh/h/in	1767	0	1572	0	0	0	0	1689	1572	1714	1689	0
O Serve(g_s), s	13.3	0.0	27.4	0.0	0.0	0.0	0.0	15.5	0.0	7.5	9.1	0.0
Cycle Q Clear(g_c), s	13.3	0.0	27.4	0.0	0.0	0.0	0.0	15.5	0.0	7.5	9.1	0.0
Prop In Lane	1.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00
Lane Grp Cap(c), veh/h	975	0	868	0	0	0	0	2523	0	307	3207	0
V/C Ratio(X)	0.52	0.00	0.93	0.00	0.00	0.00	0.00	0.44	0.00	0.78	0.29	0.00
Avail Cap(c), veh/h	996	0	886	0	0	0	0	2523	0	436	3207	0
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(l)	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.84	0.84	0.00
Uniform Delay (d), s/veh	33.7	0.0	38.7	0.0	0.0	0.0	0.0	17.8	0.0	49.0	9.1	0.0
Incr Delay (d2), s/veh	0.5	0.0	15.3	0.0	0.0	0.0	0.0	0.6	0.0	4.9	0.2	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(95%), veh/in	9.7	0.0	18.0	0.0	0.0	0.0	0.0	10.1	0.0	6.2	5.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	34.1	0.0	54.0	0.0	0.0	0.0	0.0	18.3	0.0	53.9	9.3	0.0
LnGrp LOS	C	A	D	A	D	A	A	B	D	D	A	A
Approach Vol, veh/h	1311							1111	A	1176		
Approach Delay, s/veh	46.3							18.3		18.4		
Approach LOS	D							B		B		
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	14.9	59.8	35.4	74.6								
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0								
Max Green Setting (Gmax), s	460	50.0	31.0	69.0								
Max Q Clear Time (g_c+11)95%	17.5	29.4	11.1	11.1								
Green Ext Time (p_c), s	0.3	9.8	1.0	8.5								
Intersection Summary												
HCM 6th Ctrl Delay	28.5											
HCM 6th LOS	C											
Notes	User approved volume balancing among the lanes for turning movement. Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.											

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Timings Terry O. Brown, PE 06/27/2019
8: San Mateo Blvd. & I-40 WB Ramp

	EBL	EBR	WBL	WBR	NBL	NBT	SBT	SBR
Lane Group	EBL	EBR	WBL	WBR	NBL	NBT	SBT	SBR
Lane Configurations	50	150	273	136	321	142	952	1050
Traffic Volume (vph)	50	150	273	136	321	142	952	1050
Future Volume (vph)	50	150	273	136	321	142	952	1050
Turn Type	7	4	3	8	8	5	2	6
Protected Phases	7	4	3	8	8	5	2	6
Permitted Phases	7	4	3	8	8	5	2	6
Detector Phase	7	4	3	8	8	5	2	6
Switch Phase	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Initial (s)	10.0	21.0	10.0	21.0	10.0	21.0	10.0	21.0
Minimum Split (s)	12.0	25.0	18.0	31.0	18.0	31.0	12.0	25.0
Total Split (%)	10.9%	22.7%	16.4%	28.2%	16.4%	28.2%	10.9%	22.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Min	Min	Min	Min	Min	Min	Min	Min
Recall Mode	6.6	15.0	12.6	20.9	10.2	67.5	52.2	63.8
Act. Effect Green (s)	0.06	0.14	0.11	0.19	0.09	0.61	0.47	0.58
Actuated g/C Ratio	0.26	0.45	0.76	0.42	0.86	0.48	0.33	0.47
v/c Ratio	52.6	9.6	60.5	41.5	47.4	48.9	16.2	21.7
Control Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Delay	52.6	9.6	60.5	41.5	47.4	48.9	16.2	21.7
Total Delay	D	A	E	D	D	D	B	C
Approach Delay	51.2						20.5	19.9
Approach LOS	D						C	B
Intersection Summary								
Cycle Length: 110								
Actuated Cycle Length: 110								
Offset: 49.5 (45%), Referenced to phase 2:NBT and 6:SBT, Start of Green								
Natural Cycle: 65								
Control Type: Actuated-Coordinated								
Maximum v/c Ratio: 0.86								
Intersection Signal Delay: 27.3								
Intersection Capacity Utilization: 53.3%								
ICU Level of Service: A								
Analysis Period (min): 15								



2021 AM Peak BUILD Conditions - Mitigated Conditions Synchro 10 Report 2021AB_MIT_syn

HCM 6th Signalized Intersection Summary Terry O. Brown, PE 06/27/2019
8: San Mateo Blvd. & I-40 WB Ramp

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR
Lane Configurations	50	0	150	273	136	321	142	952	0	0	1050
Traffic Volume (veh/h)	50	0	150	273	136	321	142	952	0	0	1050
Future Volume (veh/h)	50	0	150	273	136	321	142	952	0	0	1050
Initial Q (Ob), veh	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	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
Work Zone On Approach	No	No	No	No	No	No	No	No	No	No	No
Adj Sat Flow, veh/h	1856	0	1856	1856	1856	1856	1856	1856	0	0	1856
Adj Sat Flow, veh/h	54	0	161	294	146	345	153	1024	0	0	1129
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	3	0	3	3	3	3	3	3	0	0	3
Cap, veh/h	156	0	1115	435	368	216	2958	0	0	0	2409
Arrive On Green	0.05	0.00	0.00	0.33	0.23	0.23	0.13	1.00	0.00	0.00	0.48
Sat Flow, veh/h	3428	54	3428	1856	1572	3428	5233	0	0	5233	1572
Grip Volume(v), veh/h	54	52.2	294	146	345	153	1024	0	0	1129	118
Grip Sat Flow(s)/veh/h/in	1714	D	1714	1856	1572	1714	1689	0	0	1689	1572
Q Serve(g.s), s	1.7	7.0	7.2	23.7	4.7	0.0	0.0	0.0	0.0	0.0	16.5
Cycle Q Clear(g_c), s	1.7	7.0	7.2	23.7	4.7	0.0	0.0	0.0	0.0	0.0	16.5
Prop In Lane	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	1.00
Lane Grp Cap(c), veh/h	156	1115	435	368	216	2958	0	0	0	0	2409
V/C Ratio(X)	0.35	0.26	0.34	0.94	0.71	0.35	0.00	0.00	0.00	0.00	0.47
Avail Cap(c_a), veh/h	218	1115	439	372	405	2958	0	0	0	0	2409
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
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
Uniform Delay (d), s/veh	50.9	27.4	35.0	41.3	47.1	0.0	0.0	0.0	0.0	0.0	19.5
Incr Delay (d2), s/veh	1.3	0.1	0.5	30.9	3.7	0.3	0.0	0.0	0.0	0.0	0.7
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%), veh/in	1.3	5.2	6.0	18.0	3.6	0.1	0.0	0.0	0.0	0.0	10.5
Unsig. Movement Delay, s/veh	52.2										
LnGrp Delay(d), s/veh	52.2										
LnGrp LOS	D										
Approach Vol, veh/h	785										
Approach Delay, s/veh	48.6										
Approach LOS	D										
Timer - Assigned Phs	2	3	3	5	6	7	8				
Phs Duration (G+Y+Rc), s	69.2	40.8	11.9	57.3	10.0	30.8					
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0					
Max Green Setting (Gmax), s	62.0	13.0	44.0	7.0	26.0						
Max Q Clear Time (g_c+11), s	2.0	9.0	6.7	18.5	3.7	25.7					
Green Ext Time (p_c), s	9.1	0.4	0.2	9.3	0.0	0.1					
Intersection Summary											
HCM 6th Ctrl Delay	22.5										
HCM 6th LOS	C										

2021 AM Peak BUILD Conditions - Mitigated Conditions Synchro 10 Report 2021AB_MIT_syn

Intersection						
Int Delay, s/veh	1.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑↑↑	↗	↘	↑↑↑
Traffic Vol, veh/h	97	66	1190	69	126	1495
Future Vol, veh/h	97	66	1190	69	126	1495
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	30	0	-	115	220	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	109	74	1337	78	142	1680

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	2293	669	0	0	1415	0
Stage 1	1337	-	-	-	-	-
Stage 2	956	-	-	-	-	-
Critical Hdwy	5.76	7.16	-	-	5.36	-
Critical Hdwy Stg 1	6.66	-	-	-	-	-
Critical Hdwy Stg 2	6.06	-	-	-	-	-
Follow-up Hdwy	3.83	3.93	-	-	3.13	-
Pot Cap-1 Maneuver	*443	*649	-	-	695	-
Stage 1	*631	-	-	-	-	-
Stage 2	*593	-	-	-	-	-
Platoon blocked, %	1	1	-	-	1	-
Mov Cap-1 Maneuver	*353	*649	-	-	695	-
Mov Cap-2 Maneuver	*353	-	-	-	-	-
Stage 1	*631	-	-	-	-	-
Stage 2	*472	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.3	0	0.9
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	353	649	695
HCM Lane V/C Ratio	-	-	0.309	0.114	0.204
HCM Control Delay (s)	-	-	19.7	11.3	11.5
HCM Lane LOS	-	-	C	B	B
HCM 95th %tile Q(veh)	-	-	1.3	0.4	0.8

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection						
Int Delay, s/veh	0.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗ ↑↑↑	↑↑↑ ↘			↑↑↑
Traffic Vol, veh/h	0	31	1192	57	0	1557
Future Vol, veh/h	0	31	1192	57	0	1557
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	35	1339	64	0	1749

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	-	702	0	0	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	7.16	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	3.93	-	-	-
Pot Cap-1 Maneuver	0	*649	-	-	0
Stage 1	0	-	-	-	0
Stage 2	0	-	-	-	0
Platoon blocked, %		1	-	-	-
Mov Cap-1 Maneuver	-	*649	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.9	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	-	649
HCM Lane V/C Ratio	-	-	0.054
HCM Control Delay (s)	-	-	10.9
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0.2

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection						
Int Delay, s/veh	1.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↑↑	↑↑		↘	
Traffic Vol, veh/h	37	491	469	55	38	26
Future Vol, veh/h	37	491	469	55	38	26
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	80	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	42	552	527	62	43	29

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	589	0	-	0	918
Stage 1	-	-	-	-	558
Stage 2	-	-	-	-	360
Critical Hdwy	4.16	-	-	-	6.86
Critical Hdwy Stg 1	-	-	-	-	5.86
Critical Hdwy Stg 2	-	-	-	-	5.86
Follow-up Hdwy	2.23	-	-	-	3.53
Pot Cap-1 Maneuver	976	-	-	-	*405
Stage 1	-	-	-	-	*534
Stage 2	-	-	-	-	*856
Platoon blocked, %		-	-	-	1
Mov Cap-1 Maneuver	976	-	-	-	*388
Mov Cap-2 Maneuver	-	-	-	-	*388
Stage 1	-	-	-	-	*511
Stage 2	-	-	-	-	*856

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	14
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	976	-	-	-	473
HCM Lane V/C Ratio	0.043	-	-	-	0.152
HCM Control Delay (s)	8.9	-	-	-	14
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.5

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

2021 PM Peak Hour
NO BUILD Analyses

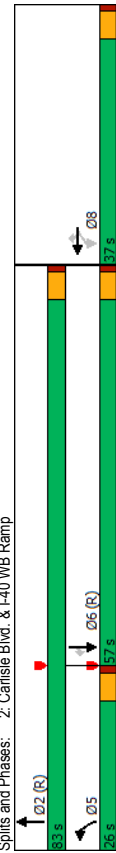
Timings
2: Carlisle Blvd. & I-40 WB Ramp

HCM 6th Signalized Intersection Summary
2: Carlisle Blvd. & I-40 WB Ramp

Terry O. Brown, PE
06/27/2019

Terry O. Brown, PE
06/27/2019

Lane Group	WBL	WBT	WBR	NBL	NBT	SBL	SBR
Lane Configurations	←	←	←	←	←	←	←
Traffic Volume (vph)	259	5	280	504	1300	1112	470
Future Volume (vph)	259	5	280	504	1300	1112	470
Turn Type	Perm	NA	Perm	Prot	NA	NA	Perm
Protected Phases	8	8	8	5	2	6	6
Permitted Phases	8	8	8	5	2	6	6
Detector Phase							
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	21.0	21.0	21.0	10.0	21.0	21.0	21.0
Total Split (s)	37.0	37.0	37.0	26.0	83.0	57.0	57.0
Total Split (%)	30.8%	30.8%	30.8%	21.7%	69.2%	47.5%	47.5%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag				Lead		Lag	Lag
Lead-Lag Optimize?							
Recall Mode	Min	Min	Min	Min	C-Max	C-Max	C-Max
Act Effct Green (s)	27.2	27.2	27.2	21.8	82.8	56.1	56.1
Actuated g/C Ratio	0.23	0.23	0.23	0.18	0.69	0.47	0.47
v/c Ratio	0.37	0.37	0.37	0.84	0.87	0.40	0.50
Control Delay	41.0	40.9	64.6	57.9	9.4	24.0	3.7
Queue Delay	0.0	0.0	0.0	0.0	0.2	0.0	0.0
Total Delay	41.0	40.9	64.6	57.9	9.7	24.0	3.7
LOS	D	D	E	E	A	C	A
Approach Delay							
Approach LOS							
Intersection Summary							
Cycle Length: 120							
Actuated Cycle Length: 120							
Offset: 92 (77%), Referenced to phase 2:NBT and 6:SBL, Start of Green							
Natural Cycle: 60							
Control Type: Actuated-Coordinated							
Maximum v/c Ratio: 0.87							
Intersection Signal Delay: 25.2							
Intersection Capacity Utilization 66.6%							
Analysis Period (min) 15							



Splits and Phases: 2: Carlisle Blvd. & I-40 WB Ramp

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations				←	←	←	←	←	←	←	←
Traffic Volume (veh/h)	0	0	0	259	5	280	504	1300	0	0	1112
Future Volume (veh/h)	0	0	0	259	5	280	504	1300	0	0	1112
Initial Q (Ob), veh				1.00	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
Work Zone On Approach				No	No	No	No	No	No	No	No
Adj Sat Flow, veh/h/ln				1856	1856	1856	1856	1856	0	0	1856
Adj Flow Rate, veh/h				280	0	298	536	1383	0	0	1183
Peak Hour Factor				0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %				3	3	3	3	3	3	3	3
Cap, veh/h				751	0	334	580	3567	0	0	2499
Arrive On Green				0.21	0.00	0.21	0.34	1.00	0.00	0.00	0.49
Sat Flow, veh/h				3534	0	1572	3428	5233	0	0	5233
Grip Volume(v), veh/h				280	0	298	536	1383	0	0	1183
Grip Sat Flow(s)/veh/ln				1767	0	1572	1714	1689	0	0	1689
Q Serve(g, s), s				8.1	0.0	22.1	18.1	0.0	0.0	0.0	18.5
Cycle Q Clear(g, c), s				8.1	0.0	22.1	18.1	0.0	0.0	0.0	18.5
Prop In Lane				1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00
Lane Grip Cap(c), veh/h				751	0	334	580	3567	0	0	2499
V/C Ratio(X)				0.37	0.00	0.89	0.82	0.39	0.00	0.00	0.47
Avail Cap(c, a), veh/h				942	0	419	600	3667	0	0	2499
HCM Platoon Ratio				1.00	1.00	1.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(l)				1.00	0.00	1.00	0.87	0.87	0.00	0.00	1.00
Uniform Delay (d), s/veh				40.4	0.0	45.9	39.0	0.0	0.0	0.0	20.1
Incr Delay (d2), s/veh				0.3	0.0	17.8	18.0	0.3	0.0	0.0	0.6
Initial Q Delay(Q3), s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%), veh/ln				6.5	0.0	15.5	11.8	0.2	0.0	0.0	11.6
Unsig. Movement Delay, s/veh				40.7	0.0	63.7	57.0	0.3	0.0	0.0	20.7
LnGrip Delay(d), s/veh				D	A	E	E	A	A	A	C
LnGrip LOS				D	A	E	E	A	A	A	C
Approach Vol, veh/h				578			1919				1183
Approach Delay, s/veh				52.6			16.1				20.7
Approach LOS				D			B				C
Timer - Assigned Phis				2			5				6
Phis Duration (G+Y+Rc), s				89.5			25.3				30.5
Change Period (Y+Rc), s				5.0			5.0				5.0
Max Green Setting (Gmax), s				78.0			21.0				32.0
Max Q Clear Time (g, c+H1), s				2.0			20.1				24.1
Green Ext Time (p, c), s				14.8			0.2				1.4
Intersection Summary											
HCM 6th Ctrl Delay				23.3							
HCM 6th LOS				C							
Notes											
User approved volume balancing among the lanes for turning movement.											
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.											

2021 PM Peak NOBUILD Conditions - Existing Geometry
Synchro 10 Report
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2021 PM Peak NOBUILD Conditions - Existing Geometry
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Timings
3: Carlisle Blvd. & I-40 EB Ramp

HCM 6th Signalized Intersection Summary
3: Carlisle Blvd. & I-40 EB Ramp

Terry O. Brown, PE
06/27/2019

Terry O. Brown, PE
06/27/2019

EBL	EBT	EBR	NBT	NBT	NBR	SBL	SBT
538	12	506	1277	439	407	970	
538	12	506	1277	439	407	970	
Perm	NA	Perm	NA	Perm	Prot	NA	
4	4	4	2	2	1	6	
4	4	4	2	2	1	6	
5.0	5.0	5.0	5.0	5.0	5.0	5.0	
21.0	21.0	21.0	21.0	21.0	10.0	21.0	
38.0	38.0	38.0	54.0	54.0	28.0	82.0	
31.7%	31.7%	31.7%	45.0%	45.0%	23.3%	68.3%	
4.0	4.0	4.0	4.0	4.0	4.0	4.0	
1.0	1.0	1.0	1.0	1.0	1.0	1.0	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	
5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Min	Min	Min	C-Max	C-Max	Min	C-Max	
28.9	28.9	28.9	56.1	56.1	20.0	81.1	
0.24	0.24	0.24	0.47	0.47	0.17	0.68	
0.71	0.54	0.54	0.39	0.48	0.77	0.31	
46.3	45.1	42.2	28.3	10.2	82.9	5.2	
46.3	45.1	42.2	28.3	10.2	82.9	5.3	
D	D	D	C	B	F	A	
44.8			23.6		28.3		
D			C		C		
120							
110.4 (92%)							
55							
Actuated-Coordinated							
0.77							
30.6							
66.6%							
15							
01	02 (R)	03 (R)	04	05 (L)	06 (R)	07 (L)	
33.5	54.5	38.5	38.5	38.5	38.5	38.5	

EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
538	12	506	0	0	0	0	1277	439	407	970	0
538	12	506	0	0	0	0	1277	439	407	970	0
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1856	1856	1856	0	0	0	0	1856	1856	1856	1856	0
578	0	553	0	0	0	0	1373	472	438	1043	0
0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
3	3	3	0	0	0	0	3	3	3	3	0
724	0	967	0	0	0	0	3940	824	500	3605	0
0.20	0.00	0.20	0.00	0.00	0.00	0.00	1.00	1.00	0.29	1.00	0.00
3534	0	4717	0	0	0	0	7867	1572	3428	5233	0
578	0	553	0	0	0	0	1373	472	438	1043	0
1767	0	1572	0	0	0	0	1503	1572	1714	1689	0
18.7	0.0	12.7	0.0	0.0	0.0	0.0	0.0	0.0	14.6	0.0	0.0
18.7	0.0	12.7	0.0	0.0	0.0	0.0	0.0	0.0	14.6	0.0	0.0
1.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00
724	0	967	0	0	0	0	3940	824	500	3605	0
0.80	0.00	0.57	0.00	0.00	0.00	0.00	0.35	0.57	0.88	0.29	0.00
972	0	1297	0	0	0	0	3940	824	657	3605	0
1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00
1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.44	0.44	0.87	0.87	0.00
45.3	0.0	43.0	0.0	0.0	0.0	0.0	0.0	0.0	41.5	0.0	0.0
3.4	0.0	0.5	0.0	0.0	0.0	0.0	0.1	1.3	9.1	0.2	0.0
13.3	0.0	8.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
488	0.0	43.5	0.0	0.0	0.0	0.0	0.1	1.3	50.6	0.2	0.0
D	A	D	A	A	A	A	A	A	D	A	A
1131							1845				1481
46.2							0.4				15.1
D							A				B
1	2	4	6								
22.5	67.9	29.6	90.4								
5.0	5.0	5.0	5.0								
230	490	330	770								
16.6	2.0	20.7	2.0								
0.9	17.6	3.9	9.4								
16.9											
B											

User approved volume balancing among the lanes for turning movement.

2021 PM Peak NOBUILD Conditions - Existing Geometry
Synchro 10 Report
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2021 PM Peak NOBUILD Conditions - Existing Geometry
Synchro 10 Report
2021PNX.syn

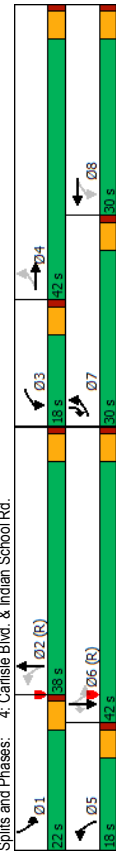
Timings
4: Carlisle Blvd. & Indian School Rd.

HCM 6th Signalized Intersection Summary
4: Carlisle Blvd. & Indian School Rd.

Terry O. Brown, PE
06/27/2019

Terry O. Brown, PE
06/27/2019

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	415	589	72	333	116	1017	230	871	443
Future Volume (vph)	415	589	72	333	116	1017	230	871	443
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+ov
Protected Phases	7	4	3	8	5	2	1	6	7
Permitted Phases	4	4	3	8	5	2	1	6	6
Detector Phase	7	4	3	8	5	2	1	6	7
Switch Phase	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Initial (s)	10.0	21.0	10.0	21.0	10.0	21.0	10.0	21.0	10.0
Minimum Split (s)	30.0	42.0	18.0	30.0	18.0	38.0	22.0	42.0	30.0
Total Split (%)	25.0%	35.0%	15.0%	25.0%	15.0%	31.7%	18.3%	35.0%	25.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Min	Min	Min	Min	Min	Min	Min	Min	Min
Recall Mode	52.4	38.9	31.0	22.4	47.0	36.8	57.2	42.4	72.4
Act Effct Green (s)	0.44	0.32	0.26	0.19	0.39	0.31	0.48	0.35	0.60
Actuated g/C Ratio	1.05	0.65	0.31	0.84	0.54	0.75	0.85	0.76	0.46
v/c Ratio	89.1	36.6	24.4	48.0	29.4	39.5	58.2	40.0	7.6
Control Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Delay	89.1	36.6	24.4	48.0	29.4	39.5	58.2	40.0	7.6
Total Delay	F	D	C	D	C	D	E	D	A
LOS	F	D	C	D	C	D	E	D	A
Approach Delay	56.6	45.3	45.3	38.5	38.5	38.5	33.4	33.4	33.4
Approach LOS	E	D	D	D	D	D	C	C	C
Intersection Summary									
Cycle Length: 120									
Actuated Cycle Length: 120									
Offset: 9.6 (8%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green									
Natural Cycle: 90									
Control Type: Actuated-Coordinated									
Maximum v/c Ratio: 1.05									
Intersection Signal Delay: 42.1									
Intersection Capacity Utilization 89.7%									
Analysis Period (min) 15									



2021 PM Peak NOBUILD Conditions - Existing Geometry
Synchro 10 Report
2021PNX.syn

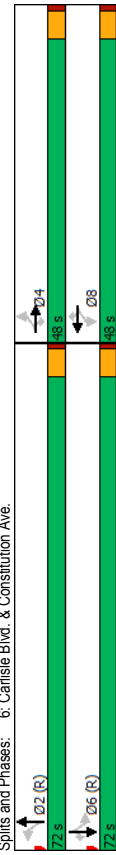
Movement	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (veh/h)	415	589	85	72	333	227	116	1017	51
Future Volume (veh/h)	415	589	85	72	333	227	116	1017	51
Initial Q (Obs), veh	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A, pbT)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No	No	No	No	No	No	No	No	No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	446	633	91	77	358	244	125	1094	55
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3
Cap, veh/h	446	1100	158	295	401	269	252	1549	78
Arrive On Green	0.42	0.71	0.71	0.05	0.20	0.20	0.04	0.21	0.21
Sat Flow, veh/h	1767	3094	444	1767	2020	1354	1767	4940	248
Grip Volume(v), veh/h	446	360	364	77	312	290	125	748	401
Grip Sat Flow(s)/veh/ln	1767	1763	1776	1767	1763	1612	1767	1689	1811
Q Serve(g, s), s	25.0	12.0	12.0	4.1	20.6	21.1	5.7	24.6	24.7
Cycle Q Clear(g, c), s	25.0	12.0	12.0	4.1	20.6	21.1	5.7	24.6	24.7
Prop In Lane	1.00	0.25	1.00	0.84	1.00	0.84	1.00	1.00	1.00
V/C Ratio(X)	1.00	0.57	0.58	0.26	0.89	0.91	0.50	0.71	0.71
Avail Cap(c, a), veh/h	446	626	631	395	367	336	329	1059	568
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	0.67	0.67	2.00
Upstream Filter(l)	0.98	0.98	0.98	0.95	0.95	0.95	0.91	0.91	0.94
Uniform Delay (d), s/veh	22.6	12.9	12.9	35.3	46.8	47.0	26.6	42.3	42.3
Incr Delay (d2), s/veh	42.0	1.3	1.3	0.4	21.2	25.6	1.4	3.6	6.6
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%), veh/ln	17.5	6.2	6.3	3.2	16.2	15.7	4.5	16.4	18.0
Unsig. Movement Delay, s/veh	64.6	14.2	14.2	35.7	68.0	72.6	28.0	45.9	48.9
LnGrip Delay(d), s/veh	E	B	B	D	E	C	D	D	C
LnGrip LOS	E	B	B	D	E	C	D	D	C
Approach Vol, veh/h	1170	679	679	66.3	1274	45.1	16.8	1660	16.8
Approach Delay, s/veh	33.4	66.3	66.3	66.3	45.1	16.8	16.8	16.8	16.8
Approach LOS	C	C	C	E	D	D	B	B	B
Timer - Assigned Phs	1	2	3	4	5	6	7	8	
Phs Duration (G+Y+Rc), s	18.6	42.6	11.2	47.6	12.8	48.4	30.0	28.8	
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Max Green Setting (Gmax), s	17.0	33.0	13.0	37.0	13.0	37.0	25.0	25.0	
Max Q Clear Time (g, c+H), s	13.3	26.7	6.1	14.0	7.7	20.8	27.0	23.1	
Green Ext Time (p, c), s	0.2	3.6	0.1	4.3	0.1	7.6	0.0	0.7	
Intersection Summary									
HCM 6th Ctrl Delay	35.4								
HCM 6th LOS	D								

2021 PM Peak NOBUILD Conditions - Existing Geometry
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Timings
6: Carlisle Blvd. & Constitution Ave.

Terry O. Brown, PE
06/27/2019

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations	215	199	16	66	134	80	18	711	76	604	128
Traffic Volume (vph)	215	199	16	66	134	80	18	711	76	604	128
Future Volume (vph)	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm
Turn Type	4	4	4	8	8	8	2	2	6	6	6
Protected Phases	4	4	4	8	8	8	2	2	6	6	6
Permitted Phases	4	4	4	8	8	8	2	2	6	6	6
Detector Phase	4	4	4	8	8	8	2	2	6	6	6
Switch Phase	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Initial (s)	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
Minimum Split (s)	48.0	48.0	48.0	48.0	48.0	48.0	48.0	48.0	48.0	48.0	48.0
Total Split (s)	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	60.0%	60.0%	60.0%	60.0%	60.0%
Total Split (%)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Yellow Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
All-Red Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lost Time Adjust (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Total Lost Time (s)	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min
Lead/Lag	28.6	28.6	28.6	28.6	28.6	28.6	81.4	81.4	81.4	81.4	81.4
Lead-Lag Optimize?	0.24	0.24	0.24	0.24	0.24	0.24	0.68	0.68	0.68	0.68	0.68
Recall Mode	0.85	0.47	0.04	0.33	0.32	0.19	0.04	0.33	0.19	0.50	0.12
Act Effct Green (s)	69.0	41.2	11.6	39.3	37.6	7.3	9.3	9.4	3.1	7.7	0.6
Actuated g/C Ratio	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
v/c Ratio	69.0	41.2	11.6	39.3	37.6	7.3	9.3	9.4	3.1	7.7	0.6
Control Delay	E	D	B	D	D	A	A	A	A	A	A
Queue Delay	54.0			29.4			9.4	9.4	6.2		
Total Delay	D			C			A	A	A	A	A
LOS	Intersection Summary										
Approach Delay	Cycle Length: 120										
Approach LOS	Actuated Cycle Length: 120										
	Offset: 69.6 (58%), Referenced to phase 2:NBTL and 6:SBTL - Start of Green										
	Natural Cycle: 55										
	Control Type: Actuated-Coordinated										
	Maximum v/c Ratio: 0.85										
	Intersection Signal Delay: 19.1										
	Intersection Capacity Utilization 71.6%										
	ICU Level of Service C										
	Analysis Period (min) 15										



Splits and Phases: 6: Carlisle Blvd. & Constitution Ave.

Terry O. Brown, PE
06/27/2019

HCM 6th Signalized Intersection Summary
6: Carlisle Blvd. & Constitution Ave.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	215	199	16	66	134	80	18	711	37	76	604	128
Traffic Volume (veh/h)	215	199	16	66	134	80	18	711	37	76	604	128
Future Volume (veh/h)	0	0	0	0	0	0	0	0	0	0	0	0
Initial Q (Obs), veh	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A, pbT)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking Bus, Adj	No	No	No	No	No	No	No	No	No	No	No	No
Work Zone On Approach	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Sat Flow, veh/h/ln	224	207	17	69	140	83	19	741	39	79	629	133
Adj Flow Rate, veh/h	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Peak Hour Factor	3	3	3	3	3	3	3	3	3	3	3	3
Percent Heavy Veh, %	312	517	438	276	517	438	506	2174	114	429	1184	1004
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.28	0.64	0.64	0.64	0.64	1.00	1.00
Sat Flow, veh/h	1149	1856	1572	1148	1856	1572	699	3407	179	687	1856	1572
Grip Volume(v), veh/h	224	207	17	69	140	83	19	383	397	79	629	133
Grip Sat Flow(s)/veh/ln	1149	1856	1572	1148	1856	1572	699	1763	1823	687	1856	1572
Q Serve(g, s), s	22.7	10.9	0.9	6.2	7.1	4.8	1.2	12.1	12.1	12.1	2.7	0.0
Cycle Q Clear(g, c), s	298	10.9	0.9	17.1	7.1	4.8	1.2	12.1	12.1	14.7	0.0	0.0
Prop In Lane	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Grip Cap(c), veh/h	312	517	438	276	517	438	506	1125	1164	429	1184	1004
V/C Ratio(X)	0.72	0.40	0.04	0.25	0.27	0.19	0.04	0.34	0.34	0.18	0.53	0.13
Avail Cap(c, a), veh/h	404	665	563	367	665	563	506	1125	1164	429	1184	1004
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.62	0.62
Uniform Delay (d), s/veh	45.4	35.2	31.6	42.1	33.8	33.0	8.1	10.0	10.0	1.2	0.0	0.0
Incr Delay (d2), s/veh	4.3	0.5	0.0	0.5	0.3	0.2	0.1	0.8	0.8	0.6	1.1	0.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%), veh/ln	11.1	8.7	0.7	3.3	5.8	3.4	0.4	8.2	8.4	0.2	0.6	0.1
Unsig. Movement Delay, s/veh	49.7	35.7	31.6	42.6	34.1	33.2	8.2	10.9	10.8	1.7	1.1	0.2
LnGrip Delay(d), s/veh	D	D	C	D	C	C	A	B	B	A	A	A
LnGrip LOS	D	D	C	D	C	C	A	B	B	A	A	A
Approach Vol, veh/h	448			292			799			841		
Approach Delay, s/veh	42.5			35.8			10.8			1.0		
Approach LOS	D			D			B			A		
Timer - Assigned Phis	2	4	4	6	8	8						
Phis Duration (G+Y+Rc), s	81.6	38.4	38.4	81.6	38.4	38.4						
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0						
Max Green Setting (Gmax), s	67.0	43.0	43.0	67.0	43.0	43.0						
Max Q Clear Time (g, c+H1), s	14.1	31.8	31.8	16.7	19.1	19.1						
Green Ext Time (p, c), s	5.7	1.7	1.7	6.2	1.3	1.3						
Intersection Summary	Intersection Summary											
HCM 6th Ctrl Delay	16.4											
HCM 6th LOS	B											

2021 PM Peak NOBUILD Conditions - Existing Geometry
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Timings
7: San Mateo Blvd. & I-40 EB Ramp

HCM 6th Signalized Intersection Summary
7: San Mateo Blvd. & I-40 EB Ramp

Terry O. Brown, PE
06/27/2019

EBL	EBT	EBR	NBT	NBT	NBR	SBL	SBT
329	12	443	1647	1647	369	432	955
329	12	443	1647	1647	369	432	955
Prot	NA	Perm	NA	Perm	Prot	NA	NA
7	4	4	2	2	2	1	6
7	4	4	2	2	2	1	6
5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
10.0	21.0	21.0	21.0	21.0	10.0	21.0	21.0
36.0	36.0	36.0	66.0	66.0	18.0	84.0	84.0
30.0%	30.0%	30.0%	55.0%	55.0%	15.0%	70.0%	70.0%
4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Min	Min	Min	C-Max	C-Max	Min	C-Max	C-Max
18.5	18.5	18.5	61.1	61.1	25.4	91.5	91.5
0.15	0.15	0.15	0.51	0.51	0.21	0.76	0.76
0.88	0.70	0.70	0.69	0.40	0.65	0.27	0.27
54.1	31.1	30.7	24.1	2.8	35.4	4.6	4.6
54.1	31.1	30.7	24.1	2.8	35.4	4.6	4.6
D	C	C	C	A	D	A	A
40.7			20.2			14.2	
D			C			B	
120							
120							
103.2 (66%)							
65							
Actuated-Coordinated							
0.70							
22.0							
66.4%							
15							
0.1	0.4	0.4	0.4	0.4	0.4	0.4	0.4
0.1	0.4	0.4	0.4	0.4	0.4	0.4	0.4
0.1	0.4	0.4	0.4	0.4	0.4	0.4	0.4
0.1	0.4	0.4	0.4	0.4	0.4	0.4	0.4

Terry O. Brown, PE
06/27/2019

EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
329	12	443	0	0	0	1647	1647	369	432	955	0
329	12	443	0	0	0	1647	1647	369	432	955	0
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1856	1856	1856	0	0	0	1856	1856	1856	1856	1856	0
354	0	485	0	0	0	1771	0	465	1027	0	0
0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
3	3	3	0	0	0	3	3	3	3	3	0
663	0	590	0	0	0	2934	0	371	3694	0	0
0.19	0.00	0.19	0.00	0.00	0.00	0.58	0.00	0.04	0.24	0.00	0.00
3534	0	3145	0	0	0	5233	1572	3428	5233	0	0
354	0	485	0	0	0	1771	0	465	1027	0	0
1767	0	1572	0	0	0	1689	1572	1714	1689	0	0
10.9	0.0	17.8	0.0	0.0	0.0	27.1	0.0	13.0	19.8	0.0	0.0
10.9	0.0	17.8	0.0	0.0	0.0	27.1	0.0	13.0	19.8	0.0	0.0
1.00	1.00	1.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00	0.00
663	0	590	0	0	0	2934	0	371	3694	0	0
0.53	0.00	0.82	0.00	0.00	0.00	0.60	0.00	1.25	0.28	0.00	0.00
913	0	812	0	0	0	2934	0	371	3694	0	0
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.65	0.65	0.00	0.00
44.0	0.0	46.8	0.0	0.0	0.0	16.3	0.0	57.9	19.9	0.0	0.0
0.7	0.0	4.9	0.0	0.0	0.0	0.9	0.0	127.3	0.1	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8.4	0.0	11.8	0.0	0.0	0.0	15.6	0.0	18.9	12.9	0.0	0.0
44.7	0.0	51.7	0.0	0.0	0.0	17.3	0.0	185.2	20.0	0.0	0.0
D	A	D	A	D	A	B	B	F	B	A	A
839						1771		1492			
48.8						17.3		71.5			
D						B		E			
1	2	4	6								
18.0	74.5	27.5	92.5								
5.0	5.0	5.0	5.0								
13.0	61.0	31.0	79.0								
15.0	29.1	19.8	21.8								
0.0	17.9	2.7	9.6								
43.4											
D											

Terry O. Brown, PE
06/27/2019

EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
18.3	0.1	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
0.1	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
0.1	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
0.1	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4

Terry O. Brown, PE
06/27/2019

EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
18.3	0.1	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
0.1	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
0.1	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
0.1	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4

Terry O. Brown, PE
06/27/2019

EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
18.3	0.1	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
0.1	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
0.1	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
0.1	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4

Terry O. Brown, PE
06/27/2019

EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
18.3	0.1	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
0.1	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
0.1	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
0.1	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4

Terry O. Brown, PE
06/27/2019

EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
18.3	0.1	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
0.1	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
0.1	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
0.1	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4

Terry O. Brown, PE
06/27/2019

EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
18.3	0.1	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
0.1	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
0.1	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
0.1	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4

Terry O. Brown, PE
06/27/2019

EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
18.3	0.1	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
0.1	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
0.1	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
0.1	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4

Terry O. Brown, PE
06/27/2019

EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
18.3	0.1	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
0.1	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
0.1	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
0.1	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4

Terry O. Brown, PE
06/27/2019

EBL	EBT	EBR	WBL</
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2021 PM Peak Hour
BUILD Analyses

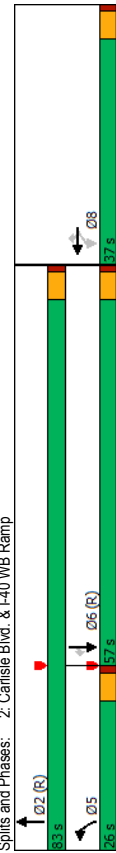
Timings
2: Carlisle Blvd. & I-40 WB Ramp

HCM 6th Signalized Intersection Summary
2: Carlisle Blvd. & I-40 WB Ramp

Terry O. Brown, PE
06/27/2019

Terry O. Brown, PE
06/27/2019

Lane Group	WBL	WBT	WBR	NBL	NBT	SBR
Lane Configurations	←	←	←	←	←	←
Traffic Volume (vph)	296	5	280	515	1368	1180
Future Volume (vph)	296	5	280	515	1368	1180
Turn Type	Perm	NA	Perm	Prot	NA	Perm
Protected Phases	8	8	8	5	2	6
Permitted Phases	8	8	8	5	2	6
Detector Phase	8	8	8	5	2	6
Switch Phase	8	8	8	5	2	6
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	21.0	21.0	21.0	10.0	21.0	21.0
Total Split (s)	37.0	37.0	37.0	26.0	83.0	57.0
Total Split (%)	30.8%	30.8%	30.8%	21.7%	69.2%	47.5%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag				Lead	Lag	Lag
Lead-Lag Optimize?						
Recall Mode	Min	Min	Min	Min	C-Max	C-Max
Act Effct Green (s)	27.3	27.3	27.3	22.0	82.7	55.6
Actuated g/C Ratio	0.23	0.23	0.23	0.18	0.69	0.46
v/c Ratio	0.42	0.42	0.83	0.88	0.42	0.54
Control Delay	42.2	42.0	63.9	59.6	9.2	24.8
Queue Delay	0.0	0.0	0.0	0.0	0.2	0.0
Total Delay	42.2	42.0	63.9	59.6	9.4	24.8
LOS	D	D	E	E	A	C
Approach Delay	52.6				23.1	18.8
Approach LOS	D				C	B
Intersection Summary						
Cycle Length: 120						
Actuated Cycle Length: 120						
Offset: 92 (77%), Referenced to phase 2:NBT and 6:SBT, Start of Green						
Natural Cycle: 60						
Control Type: Actuated-Coordinated						
Maximum v/c Ratio: 0.88						
Intersection Signal Delay: 25.6						
Intersection Capacity Utilization 68.9%						
Analysis Period (min) 15						



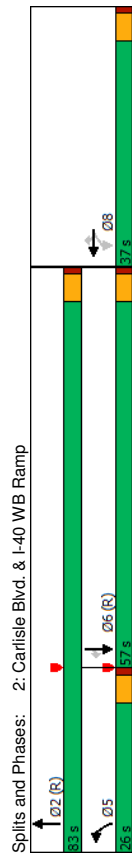
2021 PM Peak BUILD Conditions - Existing Geometry
Synchro 10 Report
2021PBX.syn

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations				←	←	←	←	←	←	←	←
Traffic Volume (veh/h)	0	0	0	296	5	280	515	1368	0	0	1180
Future Volume (veh/h)	0	0	0	296	5	280	515	1368	0	0	1180
Initial Q (Ob), veh				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
Work Zone On Approach				No	No	No	No	No	No	No	No
Adj Sat Flow, veh/h/ln				1856	1856	1856	1856	1856	0	0	1856
Adj Flow Rate, veh/h				319	0	298	548	1455	0	0	1255
Peak Hour Factor				0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %				3	3	3	3	3	3	3	3
Cap, veh/h				754	0	335	589	3563	0	0	2481
Arrive On Green				0.21	0.00	0.21	0.34	1.00	0.00	0.00	0.49
Sat Flow, veh/h				3534	0	1572	3428	5233	0	0	5233
Grip Volume(v), veh/h				319	0	298	548	1455	0	0	1255
Grip Sat Flow(s)/veh/ln				1767	0	1572	1714	1689	0	0	1689
Q Serve(g, s), s				9.4	0.0	22.1	18.5	0.0	0.0	0.0	20.2
Cycle Q Clear(g, c), s				9.4	0.0	22.1	18.5	0.0	0.0	0.0	20.2
Prop In Lane				1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00
Lane Grip Cap(c), veh/h				754	0	335	589	3563	0	0	2481
VIC Ratio(X)				0.42	0.00	0.89	0.93	0.41	0.00	0.00	0.51
Avail Cap(c, a), veh/h				942	0	419	600	3563	0	0	2481
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(l)				1.00	0.00	1.00	0.86	0.86	0.00	0.00	1.00
Uniform Delay (d), s/veh				40.8	0.0	45.8	38.7	0.0	0.0	0.0	20.8
Incr Delay (d2), s/veh				0.4	0.0	17.4	18.8	0.3	0.0	0.0	0.7
Initial Q Delay(Q3), s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%), veh/ln				7.4	0.0	15.4	12.1	0.2	0.0	0.0	12.5
Unsig. Movement Delay, s/veh				41.2	0.0	63.2	57.5	0.3	0.0	0.0	21.5
LnGrip Delay(d), s/veh				D	A	E	E	A	A	A	C
LnGrip LOS				D	A	E	E	A	A	A	C
Approach Vol, veh/h				617				2003			1255
Approach Delay, s/veh				51.8				15.9			21.5
Approach LOS				D				B			C
Timer - Assigned Phis				2				8			
Phis Duration (G+Y+Rc), s				89.4				30.6			
Change Period (Y+Rc), s				5.0				5.0			
Max Green Setting (Gmax), s				78.0				32.0			
Max Q Clear Time (g, c+H1), s				2.0				24.1			
Green Ext Time (p, c), s				16.2				1.5			
Intersection Summary											
HCM 6th Ctrl Delay				23.5							
HCM 6th LOS				C							
Notes											
User approved volume balancing among the lanes for turning movement.											
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.											

2021 PM Peak BUILD Conditions - Existing Geometry
Synchro 10 Report
2021PBX.syn

2: Carlisle Blvd. & I-40 WB Ramp

	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group							
Lane Configurations	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	296	5	280	515	1368	1180	470
Future Volume (vph)	296	5	280	515	1368	1180	470
Turn Type	Perm	NA	Perm	Prot	NA	NA	Perm
Protected Phases	8	8	8	5	2	6	6
Permitted Phases	8	8	8	5	2	6	6
Detector Phase							
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	21.0	21.0	21.0	10.0	21.0	21.0	21.0
Total Split (s)	37.0	37.0	37.0	26.0	83.0	57.0	57.0
Total Split (%)	30.8%	30.8%	30.8%	21.7%	69.2%	47.5%	47.5%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	Min	Min	Min	Min	C-Max	C-Max	C-Max
Act. Effect Green (s)	22.8	22.8	22.8	23.4	87.2	58.8	58.8
Actuated g/C Ratio	0.19	0.19	0.19	0.20	0.73	0.49	0.49
v/c Ratio	0.68	0.72	0.70	0.83	0.40	0.51	0.49
Control Delay	55.1	58.7	57.5	50.6	8.2	22.8	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.2	0.0	0.0
Total Delay	55.1	58.7	57.5	50.6	8.5	22.8	3.6
LOS	E	E	E	D	A	C	A
Approach Delay	57.1				20.0	17.3	
Approach LOS	E				B	B	
Intersection Summary							
Cycle Length: 120							
Actuated Cycle Length: 120							
Offset: 92 (77%), Referenced to phase 2:NBT and 6:SBT, Start of Green							
Natural Cycle: 60							
Control Type: Actuated-Coordinated							
Maximum v/c Ratio: 0.83							
Intersection Signal Delay: 24.2							
Intersection Capacity Utilization: 68.9%							
ICU Level of Service: C							
Analysis Period (min): 15							



2: Carlisle Blvd. & I-40 WB Ramp

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement												
Lane Configurations				↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (veh/h)	0	0	0	296	5	280	515	1368	0	0	1180	470
Future Volume (veh/h)	0	0	0	296	5	280	515	1368	0	0	1180	470
Initial Q (Ob), veh				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	1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No	No	No	No	No	No	No	No	No
Adj Sat Flow, veh/h/in				1856	1856	1856	1856	1856	0	0	1856	1856
Adj Flow Rate, veh/h				410	0	200	548	1455	0	0	1255	0
Peak Hour Factor				0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %				3	3	3	3	3	3	3	3	3
Cap, veh/h				552	0	246	589	3852	0	0	2770	0
Arrive On Green				0.16	0.00	0.16	0.34	1.00	0.00	0.00	0.55	0.00
Sat Flow, veh/h				3534	0	1572	3428	5233	0	0	5233	1572
Grp Volume(v), veh/h				410	0	200	548	1455	0	0	1255	0
Grp Sat Flow(s),veh/h/in				1767	0	1572	1714	1689	0	0	1689	1572
O Serve(g_s), s				13.3	0.0	14.8	18.5	0.0	0.0	0.0	17.9	0.0
Cycle Q Clear(g_c), s				13.3	0.0	14.8	18.5	0.0	0.0	0.0	17.9	0.0
Prop In Lane				1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Lane Grp Cap(c), veh/h				552	0	246	589	3852	0	0	2770	0
V/C Ratio(X)				0.74	0.00	0.81	0.93	0.38	0.00	0.00	0.45	0.00
Avail Cap(c_a), veh/h				942	0	419	600	3852	0	0	2770	0
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(l)				1.00	0.00	1.00	0.86	0.86	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				48.3	0.0	48.9	38.7	0.0	0.0	0.0	16.4	0.0
Incr Delay (d2), s/veh				2.0	0.0	6.4	18.8	0.2	0.0	0.0	0.5	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
%ile BackOfQ(95%),veh/ln				10.0	0.0	10.3	12.1	0.2	0.0	0.0	11.1	0.0
Unsig. Movement Delay, s/veh				50.3	0.0	55.4	57.5	0.2	0.0	0.0	16.9	0.0
LnGrp Delay(d),s/veh				D	A	E	E	A	A	A	B	B
LnGrp LOS				D	A	E	E	A	A	A	B	B
Approach Vol, veh/h				610				2003			1255	
Approach Delay, s/veh				52.0				15.9			16.9	
Approach LOS				D				B			B	
Timer - Assigned Phs				2		5	6	8				
Phs Duration (G+Y+Rc), s				96.3		25.6	70.6	23.7				
Change Period (Y+Rc), s				5.0		5.0	5.0	5.0				
Max Green Setting (Gmax), s				78.0		21.0	52.0	32.0				
Max Q Clear Time (g_c+1), s				2.0		20.5	19.9	16.8				
Green Ext Time (p_c), s				16.2		0.1	10.9	2.0				
Intersection Summary												
HCM 6th Ctrl Delay	21.9											
HCM 6th LOS	C											
Notes	User approved volume balancing among the lanes for turning movement.											
Unsignalized Delay for [SBR]	is excluded from calculations of the approach delay and intersection delay.											

Timings
3: Carlisle Blvd. & I-40 EB Ramp

Terry O. Brown, PE
06/27/2019

EBL	EBT	EBR	NBT	NBT	NBR	SBL	SBT
538	12	517	1356	476	407	1074	
538	12	517	1356	476	407	1074	
Perm	NA	Perm	NA	Perm	Prot	NA	
4	4	4	4	2	2	1	6
4	4	4	4	2	2	1	6
5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
21.0	21.0	21.0	21.0	21.0	10.0	21.0	
38.0	38.0	38.0	54.0	54.0	28.0	82.0	
31.7%	31.7%	31.7%	45.0%	45.0%	23.3%	68.3%	
4.0	4.0	4.0	4.0	4.0	4.0	4.0	
1.0	1.0	1.0	1.0	1.0	1.0	1.0	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	
5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Min	Min	Min	C-Max	C-Max	Min	C-Max	
28.9	28.9	28.9	56.1	56.1	20.0	81.1	
0.24	0.24	0.24	0.47	0.47	0.17	0.68	
0.71	0.55	0.55	0.42	0.51	0.77	0.34	
46.3	45.5	42.5	29.3	10.3	82.5	5.8	
46.3	45.5	42.5	29.3	10.3	82.5	5.9	
D	D	D	C	B	F	A	
44.9			24.3		27.0		
D			C		C		
120							
110.4 (92%)							
60							
Actuated-Coordinated							
0.77							
30.2							
68.9%							
15							
01	02 (R)	03 (R)	04	05 (L)	06 (R)	07 (L)	

2021 PM Peak BUILD Conditions - Existing Geometry
Synchro 10 Report
2021PBX.syn

HCM 6th Signalized Intersection Summary
3: Carlisle Blvd. & I-40 EB Ramp

Terry O. Brown, PE
06/27/2019

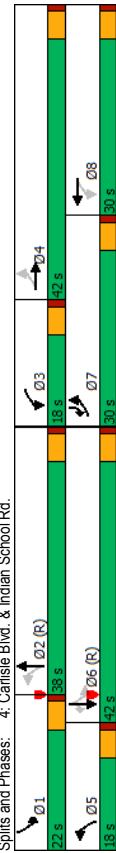
EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
538	12	517	0	0	0	0	1356	476	407	1074	0
538	12	517	0	0	0	0	1356	476	407	1074	0
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1856	1856	1856	0	0	0	0	1856	1856	1856	1856	0
578	0	565	0	0	0	0	1458	512	438	1155	0
0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
3	3	3	0	0	0	0	3	3	3	3	0
0.21	0.00	0.21	0.00	0.00	0.00	0.00	0.70	0.70	0.29	1.00	0.00
3534	0	4717	0	0	0	0	7867	1572	3428	5233	0
578	0	565	0	0	0	0	1458	512	438	1155	0
1767	0	1572	0	0	0	0	1503	1572	1714	1689	0
18.6	0.0	13.0	0.0	0.0	0.0	0.0	9.5	20.9	14.6	0.0	0.0
18.6	0.0	13.0	0.0	0.0	0.0	0.0	9.5	20.9	14.6	0.0	0.0
1.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00
726	0	969	0	0	0	0	3937	824	500	3603	0
0.80	0.00	0.58	0.00	0.00	0.00	0.00	0.37	0.62	0.88	0.32	0.00
972	0	1297	0	0	0	0	3937	824	657	3603	0
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.33	2.00	2.00	1.00	1.00
1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	1.00	0.84	0.84	0.00
45.3	0.0	43.0	0.0	0.0	0.0	0.0	10.1	11.8	41.5	0.0	0.0
3.4	0.0	0.6	0.0	0.0	0.0	0.0	0.3	3.5	8.8	0.2	0.0
13.3	0.0	8.8	0.0	0.0	0.0	0.0	5.0	10.3	9.4	0.1	0.0
487	0.0	43.6	0.0	0.0	0.0	0.0	10.4	15.3	50.3	0.2	0.0
D	A	D	A	D	A	D	B	B	D	A	A
1143							1970		1583		
46.2							11.7		14.0		
D							B		B		
1	2	4	6								
22.5	67.9	29.6	90.4								
5.0	5.0	5.0	5.0								
230	490	33.0	77.0								
16.6	22.9	20.6	2.0								
0.9	14.8	4.0	11.0								
20.8											
C											

2021 PM Peak BUILD Conditions - Existing Geometry
Synchro 10 Report
2021PBX.syn

Timings
4: Carlisle Blvd. & Indian School Rd.

Terry O. Brown, PE
06/27/2019

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	425	600	109	344	116	1123	230	978	453
Future Volume (vph)	425	600	109	344	116	1123	230	978	453
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+ov
Protected Phases	7	4	3	8	5	2	1	6	7
Permitted Phases	4	4	3	8	5	2	1	6	6
Detector Phase	7	4	3	8	5	2	1	6	7
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	21.0	10.0	21.0	10.0	21.0	10.0	21.0	10.0
Total Split (s)	30.0	42.0	18.0	30.0	18.0	38.0	22.0	42.0	30.0
Total Split (%)	25.0%	35.0%	15.0%	25.0%	15.0%	31.7%	18.3%	35.0%	25.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?									
Recall Mode	Min	Min	Min	Min	Min	Min	Min	Min	Min
Act Effct Green (s)	52.9	37.7	33.0	22.9	46.7	36.5	56.8	41.9	71.9
Actuated g/C Ratio	0.44	0.31	0.28	0.19	0.39	0.30	0.47	0.35	0.60
v/c Ratio	1.07	0.68	0.44	0.85	0.80	0.86	0.86	0.86	0.48
Control Delay	96.3	38.3	27.0	49.6	38.0	43.5	59.6	44.7	8.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	96.3	38.3	27.0	49.6	38.0	43.5	59.6	44.7	8.6
LOS	F	D	C	D	D	D	E	D	A
Approach Delay	60.5		46.0		43.0		36.9		
Approach LOS	E		D		D		D		D
Intersection Summary									
Cycle Length: 120									
Actuated Cycle Length: 120									
Offset: 9.6 (8%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green									
Natural Cycle: 90									
Control Type: Actuated-Coordinated									
Maximum v/c Ratio: 1.07									
Intersection Signal Delay: 45.4									
Intersection Capacity Utilization 93.4%									
Analysis Period (min) 15									



2021 PM Peak BUILD Conditions - Existing Geometry
Synchro 10 Report
2021PBX.syn

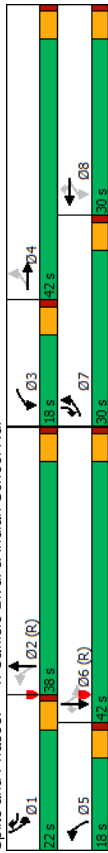
HCM 6th Signalized Intersection Summary
4: Carlisle Blvd. & Indian School Rd.

Terry O. Brown, PE
06/27/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (veh/h)	425	600	85	109	344	227	116	1123	88	230	978	453
Future Volume (veh/h)	425	600	85	109	344	227	116	1123	88	230	978	453
Initial Q (Ob), 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	1.00	1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No	No	No	No	No	No	No	No	No	No	No	No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	457	645	91	117	370	244	125	1208	95	247	1052	487
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	445	1054	149	326	411	267	225	1489	117	290	1266	892
Arrive On Green	0.42	0.68	0.68	0.07	0.20	0.20	0.04	0.21	0.21	0.23	0.72	0.72
Sat Flow, veh/h	1767	3103	437	1767	2048	1330	1767	4788	376	1767	3526	1572
Grip Volume(v), veh/h	457	366	370	117	318	296	125	852	451	247	1052	487
Grip Sat Flow(s) veh/h/ln	1767	1763	1777	1767	1763	1616	1767	1689	1788	1767	1763	1572
Q Serve(g, s), s	25.0	13.7	13.7	6.2	21.1	21.5	5.7	28.8	28.9	11.4	25.0	18.6
Cycle Q Clear(g, c), s	25.0	13.7	13.7	6.2	21.1	21.5	5.7	28.8	28.9	11.4	25.0	18.6
Prop In Lane	1.00	0.25	1.00	0.82	1.00	0.82	1.00	0.21	1.00	1.00	1.00	1.00
V/C Ratio(X)	1.03	0.61	0.61	0.36	0.90	0.91	0.55	0.81	0.81	0.85	0.83	0.55
Avail Cap(c, a), veh/h	445	599	604	395	367	337	302	1050	556	340	1266	892
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	0.67	0.67	2.00	2.00	2.00
Upstream Filter(l)	0.97	0.97	0.97	1.00	1.00	1.00	0.89	0.89	0.89	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.4	14.9	14.9	34.2	46.7	46.9	28.3	44.2	44.2	24.2	14.4	6.7
Incr Delay (d2), s/veh	48.9	1.8	1.8	0.7	23.3	27.8	1.9	6.1	11.0	16.4	6.4	2.4
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%), veh/ln	18.8	7.2	7.2	4.8	16.8	16.4	4.6	19.0	20.9	8.8	10.0	6.0
Unsig. Movement Delay, s/veh	71.3	16.6	16.7	34.9	70.0	74.7	30.2	50.3	55.2	40.7	20.8	9.1
LnGrip Delay(d), s/veh	F	B	B	C	E	E	C	D	E	D	C	A
LnGrip LOS	F	B	B	C	E	E	C	D	E	D	C	A
Approach Vol, veh/h	1198			731			1428			1786		
Approach Delay, s/veh	37.6			66.3			50.1			20.4		
Approach LOS	D			E			D			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	18.6	42.3	13.3	45.8	12.8	48.1	30.0	29.1				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	17.0	33.0	13.0	37.0	13.0	37.0	25.0	25.0				
Max Q Clear Time (g, c+H), s	13.4	30.9	8.2	15.7	7.7	27.0	27.0	23.5				
Green Ext Time (p, c), s	0.2	1.6	0.1	4.3	0.1	6.1	0.0	0.6				
Intersection Summary												
HCM 6th Ctrl Delay												
HCM 6th LOS												

2021 PM Peak BUILD Conditions - Existing Geometry
Synchro 10 Report
2021PBX.syn

	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations	425	600	109	344	227	116	1123	230	978	453
Traffic Volume (vph)	425	600	109	344	227	116	1123	230	978	453
Future Volume (vph)	425	600	109	344	227	116	1123	230	978	453
Turn Type	pm-pt	NA	pm+pt	NA	pm+ov	pm-pt	NA	pm+pt	NA	pm+ov
Protected Phases	7	4	3	8	1	5	2	1	6	7
Permitted Phases	4	4	3	8	8	2	2	1	6	6
Detector Phase	7	4	3	8	8	1	5	2	1	6
Switch Phase	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Initial (s)	10.0	21.0	10.0	21.0	10.0	21.0	10.0	21.0	10.0	21.0
Minimum Split (s)	30.0	42.0	18.0	30.0	22.0	18.0	38.0	22.0	42.0	30.0
Total Split (s)	25.0%	35.0%	15.0%	25.0%	18.3%	15.0%	31.7%	18.3%	35.0%	25.0%
Total Split (%)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Yellow Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
All-Red Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lost Time Adjust (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Total Lost Time (s)	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead/Lag	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min
Lead-Lag Optimize?	48.8	33.3	29.2	18.8	40.4	49.7	39.6	60.9	46.2	76.2
Recall Mode	0.41	0.28	0.24	0.16	0.34	0.41	0.33	0.51	0.38	0.64
Act. Effect Green (s)	1.00	0.76	0.50	0.68	0.41	0.56	0.79	0.82	0.78	0.46
Act. Effect Green Ratio	70.8	44.1	31.1	53.6	17.3	34.9	38.5	52.4	38.1	7.9
v/c Ratio	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Delay	70.8	44.1	31.1	53.6	17.3	34.9	38.5	52.4	38.1	7.9
Control Delay	E	D	C	D	B	C	D	D	D	A
Total Delay	54.3	37.9	D	D	D	D	D	D	D	C
Approach Delay	Intersection Summary									
Approach LOS	Cycle Length: 120									
Actuated Cycle Length: 120	Offset: 9.6 (8%), Referenced to phase 2:NBLT and 6:SBTL, Start of Green									
Offset: 9.6 (8%), Referenced to phase 2:NBLT and 6:SBTL, Start of Green	Natural Cycle: 90									
Offset: 9.6 (8%), Referenced to phase 2:NBLT and 6:SBTL, Start of Green	Control Type: Actuated-Coordinated									
Offset: 9.6 (8%), Referenced to phase 2:NBLT and 6:SBTL, Start of Green	Maximum v/c Ratio: 1.00									
Offset: 9.6 (8%), Referenced to phase 2:NBLT and 6:SBTL, Start of Green	Intersection Signal Delay: 39.7									
Offset: 9.6 (8%), Referenced to phase 2:NBLT and 6:SBTL, Start of Green	Intersection Capacity Utilization: 86.1%									
Offset: 9.6 (8%), Referenced to phase 2:NBLT and 6:SBTL, Start of Green	Analysis Period (min): 15									



	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	425	600	85	109	344	227	116	1123	88	230	978	453
Traffic Volume (veh/h)	425	600	85	109	344	227	116	1123	88	230	978	453
Future Volume (veh/h)	425	600	85	109	344	227	116	1123	88	230	978	453
Initial Q (Ob), 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	1.00	1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No	No	No	No	No	No	No	No	No	No	No	No
Adj Sat Flow, veh/h	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	457	645	91	117	370	244	125	1208	95	247	1052	487
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	482	937	132	301	582	430	252	1684	132	301	1402	953
Arrive On Green	0.42	0.60	0.60	0.07	0.17	0.17	0.04	0.24	0.24	0.22	0.80	0.80
Sat Flow, veh/h	1767	3103	437	1767	3526	1572	1767	4788	376	1767	3526	1572
Grip Volume(v), veh/h	457	366	370	117	370	244	125	852	451	247	1052	487
Grip Sat Flow(s), veh/h/in	1767	1767	1767	1767	1767	1767	1767	1689	1788	1767	1767	1767
O Serve(g.s), s	25.0	16.9	17.0	6.5	11.7	16.0	5.3	27.8	27.9	10.7	18.2	13.1
Cycle Q Clear(g_c), s	25.0	16.9	17.0	6.5	11.7	16.0	5.3	27.8	27.9	10.7	18.2	13.1
Prop In Lane	1.00	0.25	1.00	1.00	1.00	1.00	1.00	0.21	1.00	1.00	1.00	1.00
Lane Grp Cap(c), veh/h	482	532	536	301	582	430	252	1187	629	301	1402	953
V/C Ratio(X)	0.95	0.69	0.69	0.39	0.64	0.57	0.50	0.72	0.72	0.82	0.75	0.51
Avail Cap(c_a), veh/h	482	544	548	366	734	498	334	1187	629	360	1402	953
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	0.67	0.67	0.67	2.00	2.00	2.00
Upstream Filter(f)	0.97	0.97	0.97	1.00	1.00	1.00	0.89	0.89	0.89	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.1	19.9	20.0	37.4	46.7	37.5	23.8	40.4	40.4	22.6	9.3	4.0
Incr Delay (d2), s/veh	27.7	3.4	3.5	0.8	1.2	1.2	1.3	3.3	6.2	12.0	3.7	2.0
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 BackOf(95%), veh/h	8.9	9.0	5.1	8.9	10.2	4.2	18.0	19.5	8.0	7.4	4.2	4.2
Unsig. Movement Delay, s/veh	52.9	23.4	23.4	38.3	47.9	38.7	25.1	43.7	46.6	34.6	13.0	6.0
LnGrp Delay(d), s/veh	D	C	C	D	D	D	C	D	D	C	B	A
LnGrp LOS	D	C	C	D	D	D	C	D	D	C	B	A
Approach Vol, veh/h	1193	34.7	731	433	1786	14.1	430	14.1	430	14.1	430	14.1
Approach Delay, s/veh	34.7	C	D	D	1786	14.1	430	14.1	430	14.1	430	14.1
Approach LOS	C	C	D	D	B	B	D	D	D	C	B	A
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	18.0	47.2	13.6	41.2	12.5	52.7	30.0	24.8				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	33.0	13.0	37.0	13.0	37.0	25.0	25.0	25.0				
Max Q Clear Time (g_c+112s), s	29.9	8.5	19.0	7.3	20.2	27.0	18.0	18.0				
Green Ext Time (p_c), s	0.3	2.2	0.1	4.1	0.1	8.6	0.0	1.8				
Intersection Summary	HCM 6th Ctrl Delay											
HCM 6th Ctrl Delay	31.1											
HCM 6th LOS	C											

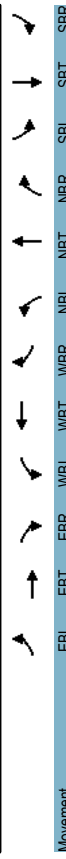
Timings
5: Washington St. & Indian School Rd.

HCM 6th Signalized Intersection Summary
5: Washington St. & Indian School Rd.

Terry O. Brown, PE
06/27/2019

Terry O. Brown, PE
06/27/2019

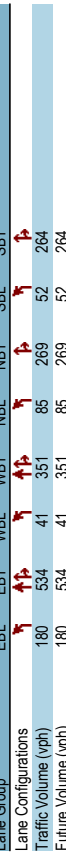
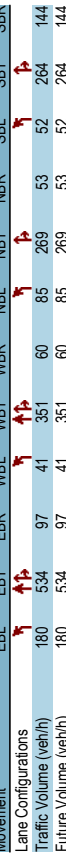
Movement	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (veh/h)	180	534	97	41	351	60	85	269	53	264
Future Volume (veh/h)	180	534	97	41	351	60	85	269	53	264
Initial Q (Ob), veh	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A, pbT)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	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
Work Zone On Approach	No	No	No	No	No	No	No	No	No	No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	194	574	104	44	377	65	91	289	57	284
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	489	1169	211	365	1072	183	208	412	81	283
Arrive On Green	0.09	0.39	0.06	0.06	0.36	0.06	0.27	0.06	0.27	0.27
Sat Flow, veh/h	1767	2982	539	1767	3011	515	1767	1505	297	1767
Grip Volume(v), veh/h	194	339	339	44	219	223	91	0	346	56
Grip Sat Flow(s) veh/h/ln	1767	1763	1759	1767	1763	1763	1767	0	1802	1767
Q Serve(g, s), s	6.1	13.0	13.1	1.3	8.2	8.4	3.3	0.0	15.5	2.0
Cycle Q Clear(g, c), s	6.1	13.0	13.1	1.3	8.2	8.4	3.3	0.0	15.5	2.0
Prop In Lane	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Grip Cap(c), veh/h	489	691	690	365	628	628	208	0	494	283
VIC Ratio(X)	0.40	0.49	0.49	0.12	0.35	0.35	0.44	0.00	0.70	0.20
Avail Cap(c, a), veh/h	544	691	690	483	628	628	242	0	501	322
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	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	15.8	20.5	20.6	16.5	21.3	21.3	24.3	0.0	29.3	22.4
Incr Delay (d2), s/veh	0.5	2.5	2.5	0.1	1.5	1.6	1.4	0.0	4.3	0.3
Initial Q Delay(d3) s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%) veh/h	4.2	9.3	9.3	0.9	6.2	6.3	2.5	0.0	11.5	1.5
Unsig. Movement Delay, s/veh	16.3	23.0	23.1	16.7	22.8	22.9	25.7	0.0	33.6	22.8
LnGrip Delay(d) s/veh	B	C	C	B	C	C	C	A	C	A
LnGrip LOS	B	C	C	B	C	C	C	A	C	A
Approach Vol, veh/h	872	215	486	486	437	437	437	486	486	486
Approach Delay, s/veh	21.5	22.3	22.3	22.3	31.9	31.9	31.9	22.3	22.3	22.3
Approach LOS	C	C	C	C	C	C	C	D	D	D
Timer - Assigned Phis	1	2	3	4	5	6	7	8		
Phis Duration (G+Y+Rc), s	10.0	29.6	10.0	40.2	10.3	29.3	13.2	37.0		
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		
Max Green Setting (Gmax), s	7.0	25.0	11.0	32.0	7.0	25.0	11.0	32.0		
Max Q Clear Time (g, c+H), s	4.0	17.5	3.3	15.1	5.3	24.0	8.1	10.4		
Green Ext Time (p, c), s	0.0	1.2	0.0	3.6	0.0	0.3	0.1	2.4		
Intersection Summary										
HCM 6th Ctrl Delay	30.3									
HCM 6th LOS	C									



Terry O. Brown, PE
06/27/2019

Terry O. Brown, PE
06/27/2019

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	
Traffic Volume (vph)	180	534	41	351	85	269	53	264	144	
Future Volume (vph)	180	534	41	351	85	269	53	264	144	
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA	NA	
Protected Phases	7	4	3	8	5	2	1	6		
Permitted Phases	4	4	8	8	2	2	1	6		
Detector Phase	7	4	3	8	5	2	1	6		
Switch Phase	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Minimum Initial (s)	10.0	21.0	10.0	21.0	10.0	21.0	10.0	21.0	10.0	
Minimum Split (s)	16.0	37.0	16.0	37.0	12.0	30.0	12.0	30.0	16.0	
Total Split (%)	16.8%	38.9%	16.8%	38.9%	12.6%	31.6%	12.6%	31.6%	16.8%	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	
Lead-Lag Optimize?										
Recall Mode	Min	Max	Min	Max	Min	Max	Min	Max	Min	
Act Effct Green (s)	45.6	35.5	38.8	32.1	31.1	24.3	30.6	24.1		
Actuated g/C Ratio	0.49	0.38	0.42	0.34	0.33	0.26	0.33	0.26		
v/c Ratio	0.42	0.51	0.13	0.37	0.44	0.73	0.21	0.93		
Control Delay	16.0	23.4	13.4	23.2	25.8	40.8	20.5	60.4		
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Delay	16.0	23.4	13.4	23.2	25.8	40.8	20.5	60.4		
LOS	B	C	B	C	C	D	C	E		
Approach Delay	21.8	22.3	22.3	22.3	37.7	37.7	37.7	22.3		
Approach LOS	C	C	C	C	D	D	D	E		
Intersection Summary										
Cycle Length: 95										
Actuated Cycle Length: 93.1										
Natural Cycle: 65										
Control Type: Semi Act-Uncoord										
Maximum v/c Ratio: 0.93										
Intersection Signal Delay: 32.3										
Intersection Capacity Utilization 66.1%										
Analysis Period (min) 15										



Terry O. Brown, PE
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Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	180	534	41	351	85	269	53	264	144
Future Volume (vph)	180	534	41	351	85	269	53	264	144
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA	NA
Protected Phases	7	4	3	8	5	2	1	6	
Permitted Phases	4	4	8	8	2	2	1	6	
Detector Phase	7	4	3	8	5	2	1	6	
Switch Phase	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Initial (s)	10.0	21.0	10.0	21.0	10.0	21.0	10.0	21.0	10.0
Minimum Split (s)	16.0	37.0	16.0	37.0	12.0	30.0	12.0	30.0	16.0
Total Split (%)	16.8%	38.9%	16.8%	38.9%	12.6%	31.6%	12.6%	31.6%	16.8%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?									
Recall Mode	Min	Max	Min	Max	Min	Max	Min	Max	Min
Act Effct Green (s)	45.6	35.5	38.8	32.1	31.1	24.3	30.6	24.1	
Actuated g/C Ratio	0.49	0.38	0.42	0.34	0.33	0.26	0.33	0.26	
v/c Ratio	0.42	0.51	0.13	0.37	0.44	0.73	0.21	0.93	
Control Delay	16.0	23.4	13.4	23.2	25.8	40.8	20.5	60.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	16.0	23.4	13.4	23.2	25.8	40.8	20.5	60.4	
LOS	B	C	B	C	C	D	C	E	
Approach Delay	21.8	22.3	22.3	22.3	37.7	37.7	37.7	22.3	
Approach LOS	C	C	C	C	D				

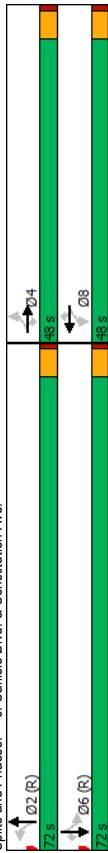
Timings
6: Carlisle Blvd. & Constitution Ave.

HCM 6th Signalized Intersection Summary
6: Carlisle Blvd. & Constitution Ave.

Terry O. Brown, PE
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Terry O. Brown, PE
06/27/2019

EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
220	199	16	66	134	100	18	829	99	723	133
220	199	16	66	134	100	18	829	99	723	133
Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm
4	4	4	8	8	8	2	2	6	6	6
4	4	4	8	8	8	2	2	6	6	6
5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
48.0	48.0	48.0	48.0	48.0	48.0	48.0	48.0	48.0	48.0	48.0
40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%
4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Min	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min
29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1
0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24
0.85	0.46	0.04	0.32	0.31	0.23	0.06	0.38	0.30	0.61	0.13
68.5	40.6	11.5	38.7	37.1	6.7	9.8	10.2	5.6	10.2	0.6
68.5	40.6	11.5	38.7	37.1	6.7	9.8	10.2	5.6	10.2	0.6
E	D	B	D	D	A	A	B	A	B	A
53.6			27.4				10.2		8.4	
D			C				B		A	
Intersection Summary										
Cycle Length: 120										
Actuated Cycle Length: 120										
Offset: 69.6 (58%), Referenced to phase 2:NBTL and 6:SBTL - Start of Green										
Natural Cycle: 60										
Control Type: Actuated-Coordinated										
Maximum v/c Ratio: 0.85										
Intersection Signal Delay: 18.9										
Intersection Capacity Utilization 78.1%										
Analysis Period (min) 15										



2021 PM Peak BUILD Conditions - Existing Geometry
Synchro 10 Report
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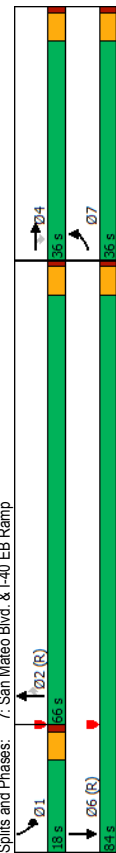
EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
220	199	16	66	134	100	18	829	99	723	133
220	199	16	66	134	100	18	829	37	99	723
0	0	0	0	0	0	0	0	0	0	0
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
229	207	17	69	140	104	19	864	39	103	753
0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
3	3	3	3	3	3	3	3	3	3	3
316	530	449	285	530	449	450	2168	98	370	1171
0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.63	0.63	0.63	0.63
1127	1856	1572	1148	1856	1572	619	3435	155	612	1856
229	207	17	69	140	104	19	443	460	103	753
236	108	0.9	6.2	7.0	6.1	1.4	14.9	14.9	5.4	0.0
306	108	0.9	16.9	7.0	6.1	1.4	14.9	14.9	20.3	0.0
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
316	530	449	285	530	449	450	1112	1153	370	1171
0.72	0.39	0.04	0.24	0.26	0.23	0.04	0.40	0.40	0.28	0.64
398	665	563	368	665	563	450	1112	1153	370	1171
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
450	34.5	31.0	41.3	33.1	32.8	8.4	10.9	10.9	2.0	0.0
4.8	0.5	0.0	0.4	0.3	0.3	0.2	1.1	1.0	0.9	1.3
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11.3	8.6	0.7	3.2	5.8	4.3	0.4	9.7	10.0	0.6	0.8
498	34.9	31.0	41.7	33.4	33.1	8.6	12.0	11.9	2.9	1.3
D	C	C	D	C	C	A	B	B	A	A
463			313			922			985	
42.3			35.1			11.9			1.3	
D			D			B			A	
2	4	6	8							
80.7	39.3	80.7	39.3							
5.0	5.0	5.0	5.0							
67.0	43.0	67.0	43.0							
16.9	32.6	22.3	18.9							
7.0	1.6	8.4	1.4							
Intersection Summary										
HCM 6th Ctrl Delay 15.8										
HCM 6th LOS B										

2021 PM Peak BUILD Conditions - Existing Geometry
Synchro 10 Report
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Timings
7: San Mateo Blvd. & I-40 EB Ramp

Terry O. Brown, PE
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	EBL	EBT	EBR	NBT	NBT	NBR	SBL	SBT
Lane Group	EBL	EBT	EBR	NBT	NBT	NBR	SBL	SBT
Lane Configurations	352	12	443	1670	1670	373	432	981
Traffic Volume (vph)	352	12	443	1670	1670	373	432	981
Future Volume (vph)	352	12	443	1670	1670	373	432	981
Turn Type	Prot	NA	Perm	NA	Perm	Prot	NA	NA
Protected Phases	7	4	4	2	2	1	6	6
Permitted Phases	7	4	4	2	2	2	1	6
Detector Phase	7	4	4	2	2	2	1	6
Switch Phase	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Initial (s)	10.0	21.0	21.0	21.0	21.0	21.0	10.0	21.0
Minimum Split (s)	36.0	36.0	36.0	66.0	66.0	18.0	84.0	84.0
Total Split (s)	30.0%	30.0%	30.0%	55.0%	55.0%	15.0%	70.0%	70.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag				Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?								
Recall Mode	Min	Min	Min	C-Max	C-Max	Min	C-Max	C-Max
Act Effct Green (s)	19.2	19.2	19.2	61.0	61.0	24.8	90.8	90.8
Actuated g/C Ratio	0.16	0.16	0.16	0.51	0.51	0.21	0.76	0.76
v/c Ratio	0.89	0.70	0.70	0.70	0.70	0.40	0.66	0.28
Control Delay	54.1	32.1	31.6	24.4	2.8	36.4	4.9	4.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.1	32.1	31.6	24.4	2.8	36.4	4.9	4.9
LOS	D	C	C	C	C	A	D	A
Approach Delay	41.6			20.5			14.5	
Approach LOS	D			C			B	
Intersection Summary								
Cycle Length: 120								
Actuated Cycle Length: 120								
Offset: 103.2 (86%), Referenced to phase 2:NBT and 6:SBT, Start of Green								
Natural Cycle: 65								
Control Type: Actuated-Coordinated								
Maximum v/c Ratio: 0.70								
Intersection Signal Delay: 22.5								
Intersection Capacity Utilization 67.1%								
Analysis Period (min) 15								



2021 PM Peak BUILD Conditions - Existing Geometry
Synchro 10 Report
2021PBX.syn

HCM 6th Signalized Intersection Summary
7: San Mateo Blvd. & I-40 EB Ramp

Terry O. Brown, PE
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	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	352	12	443	0	0	0	0	1670	373	432	981	0
Traffic Volume (veh/h)	352	12	443	0	0	0	0	1670	373	432	981	0
Future Volume (veh/h)	352	12	443	0	0	0	0	1670	373	432	981	0
Initial Q (Ob), 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	1.00	1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No	No	No	No	No	No	No	No	No	No	No	No
Adj Sat Flow, veh/h/in	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	378	0	485	0	0	0	0	1796	0	465	1055	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	665	0	591	0	0	0	0	2931	0	371	3691	0
Arrive On Green	0.19	0.00	0.19	0.00	0.00	0.00	0.00	0.58	0.00	0.04	0.24	0.00
Sat Flow, veh/h	3534	0	3145	0	0	0	0	5233	1572	3428	5233	0
Grip Volume(v), veh/h	378	0	485	0	0	0	0	1796	0	465	1055	0
Grip Sat Flow(s),veh/h/in	1767	0	1572	0	0	0	0	1689	1572	1714	1689	0
Q Serve(g, s), s	11.7	0.0	17.8	0.0	0.0	0.0	0.0	27.8	0.0	13.0	20.4	0.0
Cycle Q Clear(g, c), s	11.7	0.0	17.8	0.0	0.0	0.0	0.0	27.8	0.0	13.0	20.4	0.0
Prop In Lane	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
VIC Ratio(X)	0.57	0.00	0.82	0.00	0.00	0.00	0.00	0.61	0.00	1.25	0.29	0.00
Avail Cap(c, a), veh/h	913	0	812	0	0	0	0	2931	0	371	3691	0
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(l)	1.00	0.00	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	44.3	0.0	46.8	0.0	0.0	0.0	0.0	16.5	0.0	57.9	20.1	0.0
Incr Delay (d2), s/veh	0.8	0.0	4.8	0.0	0.0	0.0	0.0	1.0	0.0	127.1	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/h	8.9	0.0	11.8	0.0	0.0	0.0	0.0	15.9	0.0	18.8	13.2	0.0
Unsig. Movement Delay, s/veh	45.1	0.0	51.6	0.0	0.0	0.0	0.0	17.5	0.0	185.0	20.2	0.0
LnGrip Delay(d),s/veh	D	A	D	A	D	A	D	A	B	F	C	A
LnGrip LOS	D	A	D	A	D	A	D	A	B	F	C	A
Approach Vol, veh/h	863							1796	A	1520		
Approach Delay, s/veh	48.7							17.5		70.6		
Approach LOS	D							B		E		
Timer - Assigned Phis	1	2	4	6								
Phis Duration (G+Y+Rc), s	18.0	74.4	27.6	92.4								
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0								
Max Green Setting (Gmax), s	13.0	61.0	31.0	79.0								
Max Q Clear Time (g, c+H), s	15.0	29.8	19.8	22.4								
Green Ext Time (p, c), s	0.0	18.0	2.8	10.0								
Intersection Summary												
HCM 6th Ctrl Delay				43.3								
HCM 6th LOS				D								
Notes												
User approved volume balancing among the lanes for turning movement.												
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.												

2021 PM Peak BUILD Conditions - Existing Geometry
Synchro 10 Report
2021PBX.syn

Timings Terry O. Brown, PE 06/27/2019

7: San Mateo Blvd. & I-40 EB Ramp

	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations	352	12	443	1670	373	432	981
Traffic Volume (vph)	352	12	443	1670	373	432	981
Future Volume (vph)	352	12	443	1670	373	432	981
Turn Type	Prot	NA	Perm	NA	Perm	Prot	NA
Protected Phases	7	4	4	2	2	1	6
Permitted Phases	7	4	4	2	2	1	6
Detector Phase	7	4	4	2	2	1	6
Switch Phase	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Initial (s)	10.0	21.0	21.0	21.0	21.0	10.0	21.0
Minimum Split (s)	32.0	32.0	32.0	54.0	54.0	34.0	88.0
Total Split (s)	26.7%	26.7%	26.7%	45.0%	45.0%	28.3%	73.3%
Total Split (%)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Yellow Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
All-Red Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lost Time Adjust (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Total Lost Time (s)	Lag Lag Lead						
Lead/Lag	Lag Lag Lead						
Lead-Lag Optimize?	Min	Min	Min	C-Max	C-Max	Min	C-Max
Recall Mode	19.0	19.0	19.0	64.4	64.4	21.6	91.0
Act. Effect Green (s)	0.16	0.16	0.16	0.54	0.54	0.18	0.76
Actuated g/C Ratio	0.70	0.68	0.68	0.66	0.39	0.76	0.28
v/c Ratio	54.9	28.7	28.2	22.8	3.1	44.9	1.9
Control Delay	54.9	28.7	28.2	22.8	3.1	44.9	1.9
Queue Delay	D	C	C	C	A	D	A
Total Delay	40.0	D	D	B	B	15.0	B
Approach Delay	Intersection Summary						
Approach LOS	Cycle Length: 120						
Cycle Length: 120	Actuated Cycle Length: 120						
Actuated Cycle Length: 120	Offset: 103.2 (86%), Referenced to phase 2:NBT and 6:SBT, Start of Green						
Offset: 103.2 (86%), Referenced to phase 2:NBT and 6:SBT, Start of Green	Natural Cycle: 65						
Natural Cycle: 65	Control Type: Actuated-Coordinated						
Control Type: Actuated-Coordinated	Maximum v/c Ratio: 0.76						
Maximum v/c Ratio: 0.76	Intersection Signal Delay: 21.8						
Intersection Signal Delay: 21.8	Intersection LOS: C						
Intersection LOS: C	Intersection Capacity Utilization: 67.1%						
Intersection Capacity Utilization: 67.1%	ICU Level of Service: C						
ICU Level of Service: C	Analysis Period (min): 15						
Analysis Period (min): 15	Splits and Phases: 7: San Mateo Blvd. & I-40 EB Ramp						



2021 PM Peak BUILD Conditions - Mitigated Conditions
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HCM 6th Signalized Intersection Summary Terry O. Brown, PE 06/27/2019

7: San Mateo Blvd. & I-40 EB Ramp

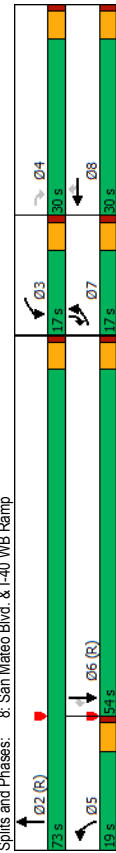
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	352	12	443	0	0	0	0	1670	373	432	981	0
Traffic Volume (veh/h)	352	12	443	0	0	0	0	1670	373	432	981	0
Future Volume (veh/h)	352	12	443	0	0	0	0	1670	373	432	981	0
Initial Q (Ob), veh	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	1.00	1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	No	No	No	No	No	No	No	No	No
Work Zone On Approach	1856	1856	1856	0	0	0	0	1796	0	465	1055	0
Adj Sat Flow, veh/h/in	378	0	485	0	0	0	0	1796	0	465	1055	0
Adj Flow Rate, veh/h	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Peak Hour Factor	3	3	3	3	3	3	3	3	3	3	3	3
Percent Heavy Veh, %	649	0	578	0	0	0	0	2693	0	548	3713	0
Cap, veh/h	0.18	0.00	0.18	0.00	0.00	0.00	0.00	0.53	0.00	0.16	0.73	0.00
Arrive On Green	3534	0	3145	0	0	0	0	5233	1572	3428	5233	0
Sat Flow, veh/h	378	0	485	0	0	0	0	1796	0	465	1055	0
Grip Volume(v), veh/h	1767	0	1572	0	0	0	0	1689	1572	1714	1689	0
Grip Sat Flow(s), veh/h/in	11.7	0.0	17.9	0.0	0.0	0.0	0.0	30.9	0.0	15.8	8.4	0.0
O Serve(g_s), s	11.7	0.0	17.9	0.0	0.0	0.0	0.0	30.9	0.0	15.8	8.4	0.0
Cycle Q Clear(g_c), s	1.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00
Prop In Lane	0.58	0.00	0.84	0.00	0.00	0.00	0.00	0.67	0.85	0.28	0.00	0.00
V/C Ratio(X)	795	0	708	0	0	0	0	2693	0	829	3713	0
Lane Grp Cap(c), veh/h	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Avail Cap(c_a), veh/h	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.62	0.62	0.00
HCM Platoon Ratio	44.8	0.0	47.3	0.0	0.0	0.0	0.0	20.4	0.0	49.0	5.4	0.0
Upstream Filter(f)	0.8	0.0	7.5	0.0	0.0	0.0	0.0	1.3	0.0	3.4	0.1	0.0
Uniform Delay (d), 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
Incr Delay (d2), 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
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(95%), veh/in	9.0	0.0	12.1	0.0	0.0	0.0	0.0	17.9	0.0	10.4	4.8	0.0
Unsig. Movement Delay, s/veh	Intersection Summary											
LnGrp Delay(d), s/veh	45.6	0.0	54.8	0.0	0.0	0.0	0.0	21.7	0.0	52.4	5.5	0.0
LnGrp LOS	D	A	D	A	A	A	C	C	D	D	A	A
Approach Vol, veh/h	863	A	D	1796	A	1520	19.9	19.9	19.9	19.9	19.9	19.9
Approach Delay, s/veh	50.7	D	D	21.7	C	21.7	21.7	21.7	21.7	21.7	21.7	21.7
Approach LOS	D	D	D	C	C	C	C	C	C	C	C	C
Timer - Assigned Phs	1	2	4	6	6	6	6	6	6	6	6	6
Phs Duration (G+Y+Rc), s	24.2	68.8	27.0	93.0	93.0	93.0	93.0	93.0	93.0	93.0	93.0	93.0
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	27.0	49.0	27.0	83.0	83.0	83.0	83.0	83.0	83.0	83.0	83.0	83.0
Max Q Clear Time (g_c+1178), s	32.9	32.9	19.9	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4
Green Ext Time (p_c), s	1.3	11.5	2.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2
Intersection Summary	Intersection Summary											
HCM 6th Ctrl Delay	27.0											
HCM 6th LOS	C											
Notes	User approved volume balancing among the lanes for turning movement.											
Unsignalized Delay for [NBR]	is excluded from calculations of the approach delay and intersection delay.											

2021 PM Peak BUILD Conditions - Mitigated Conditions
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Timings
8: San Mateo Blvd. & I-40 WB Ramp

Terry O. Brown, PE
06/27/2019

EBL	EBR	WBL	WBR	NBL	NBT	SBL	SBR
155	417	192	112	249	187	1299	1377
155	417	192	112	249	187	1299	1377
7	4	3	8	8	5	2	6
7	4	3	8	8	5	2	6
5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
10.0	21.0	10.0	21.0	10.0	21.0	21.0	10.0
17.0	30.0	17.0	30.0	19.0	73.0	54.0	17.0
14.2%	25.0%	14.2%	25.0%	15.8%	60.8%	45.0%	14.2%
4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Min	Min	Min	Min	Min	Min	C-Max	Min
10.6	22.5	11.2	23.1	23.1	12.0	71.3	54.3
0.09	0.19	0.09	0.19	0.19	0.10	0.59	0.45
0.95	0.94	0.64	0.34	0.68	0.59	0.46	0.64
59.3	53.1	62.1	43.8	35.1	43.6	11.5	28.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
59.3	53.1	62.1	43.8	35.1	43.6	11.5	28.0
E	D	E	D	D	D	B	C
E	D	E	D	D	D	B	C
46.2						15.6	25.8
Intersection Summary							
Cycle Length: 120							
Actuated Cycle Length: 120							
Offset: 44.4 (37%), Referenced to phase 2:NBT and 6:SBT, Start of Green							
Natural Cycle: 65							
Control Type: Actuated-Coordinated							
Maximum v/c Ratio: 0.94							
Intersection Signal Delay: 28.9							
Intersection LOS: C							
Intersection Capacity Utilization 70.4%							
Analysis Period (min) 15							



2021 PM Peak BUILD Conditions - Existing Geometry
Synchro 10 Report
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HCM 6th Signalized Intersection Summary
8: San Mateo Blvd. & I-40 WB Ramp

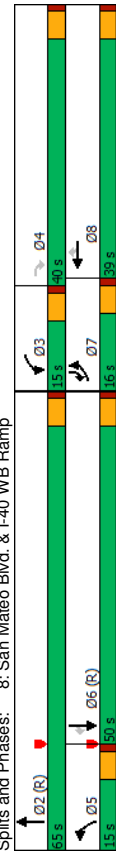
Terry O. Brown, PE
06/27/2019

EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
155	0	417	192	112	249	187	1299	0	0	1377	135
155	0	417	192	112	249	187	1299	0	0	1377	135
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1856	0	1856	1856	1856	1856	1856	1856	0	0	1856	1856
165	0	444	204	119	265	199	1382	0	0	1465	144
0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
3	0	3	3	3	3	3	3	0	0	3	3
224	0	1005	345	292	263	3159	0	0	2560	898	0
0.07	0.00	0.00	0.29	0.19	0.19	0.03	0.21	0.00	0.00	0.51	0.51
3428	165		3428	1856	1572	3428	5233	0	0	5233	1572
165	59.7		204	119	265	199	1382	0	0	1465	144
1714	E		1714	1856	1572	1714	1689	0	0	1689	1572
5.7			5.4	6.7	19.8	6.9	28.6	0.0	0.0	24.2	5.2
5.7			5.4	6.7	19.8	6.9	28.6	0.0	0.0	24.2	5.2
1.00			1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
0.74			0.20	0.34	0.91	0.76	0.44	0.00	0.00	0.57	0.16
343			1005	387	328	400	3159	0	0	2560	898
1.00			1.00	1.00	1.00	1.00	1.00	0.33	1.00	1.00	1.00
1.00			1.00	1.00	1.00	1.00	1.00	0.65	0.65	0.00	1.00
55.1			31.9	42.5	47.8	57.4	29.3	0.0	0.0	20.7	12.2
4.6			0.1	0.6	25.9	2.9	0.3	0.0	0.0	0.9	0.4
0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4.7			4.1	5.6	15.0	5.6	17.7	0.0	0.0	14.5	3.4
59.7			32.0	43.1	73.7	60.3	29.6	0.0	0.0	21.6	12.6
E			C	D	E	E	C	A	A	A	B
588			588	53.0				1581		1609	
53.0			53.0					33.4		20.8	
Approach LOS											
D											
Timer - Assigned Phs											
2 3											
Phs Duration (G+Y+Rc), s											
79.8 40.2											
Change Period (Y+Rc), s											
5.0 5.0											
Max Green Setting (Gmax), s											
68.0 12.0											
Max Q Clear Time (g_c+H1), s											
30.6 7.4											
Green Ext Time (p_c), s											
13.1 0.3											
Intersection Summary											
32.3											
HCM 6th Ctrl Delay											
C											

2021 PM Peak BUILD Conditions - Existing Geometry
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Timings Terry O. Brown, PE 06/27/2019
8: San Mateo Blvd. & I-40 WB Ramp

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations	155	417	192	112	249	187	1299	1377	135	135
Traffic Volume (vph)	155	417	192	112	249	187	1299	1377	135	135
Future Volume (vph)	155	417	192	112	249	187	1299	1377	135	135
Turn Type	Prot	Perm	Prot	NA	Perm	Prot	NA	NA	pm+ov	7
Protected Phases	7	4	3	8	8	8	5	2	6	7
Permitted Phases	7	4	3	8	8	8	5	2	6	7
Detector Phase	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Switch Phase	10.0	21.0	10.0	21.0	10.0	21.0	10.0	21.0	10.0	21.0
Minimum Initial (s)	16.0	40.0	15.0	39.0	32.5%	32.5%	12.5%	54.2%	41.7%	13.3%
Minimum Split (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Total Split (%)	13.3%	33.3%	12.5%	32.5%	32.5%	32.5%	12.5%	54.2%	41.7%	13.3%
Yellow Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
All-Red Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lost Time Adjust (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Total Lost Time (s)	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead/Lag	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min
Lead-Lag Optimize?	10.2	27.2	9.8	26.9	26.9	10.8	67.9	52.1	67.3	67.3
Recall Mode	0.08	0.23	0.08	0.22	0.22	0.09	0.57	0.43	0.56	0.56
Act.Effect Green (s)	0.57	0.90	0.73	0.29	0.61	0.65	0.48	0.67	0.15	0.15
Actuated g/C Ratio	60.9	48.5	69.8	38.7	29.2	49.6	21.9	30.3	4.5	4.5
v/c Ratio	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Delay	E	D	E	D	C	D	C	C	C	A
Queue Delay	60.9	48.5	69.8	38.7	29.2	49.6	21.9	30.3	4.5	4.5
Total Delay	45.2									
Approach Delay	D	D	D	D	D	D	D	D	D	D
Approach LOS	C	C	C	C	C	C	C	C	C	C
Intersection Summary										
Cycle Length: 120										
Actuated Cycle Length: 120										
Offset: 44.4 (37%), Referenced to phase 2:NBT and 6:SBT, Start of Green										
Natural Cycle: 65										
Control Type: Actuated-Coordinated										
Maximum v/c Ratio: 0.90										
Intersection Signal Delay: 32.7										
Intersection Capacity Utilization 70.4%										
ICU Level of Service C										
Analysis Period (min) 15										



2021 PM Peak BUILD Conditions - Mitigated Conditions
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HCM 6th Signalized Intersection Summary Terry O. Brown, PE 06/27/2019
8: San Mateo Blvd. & I-40 WB Ramp

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations	155	417	192	112	249	187	1299	1377	135	135
Traffic Volume (veh/h)	155	417	192	112	249	187	1299	1377	135	135
Future Volume (veh/h)	155	417	192	112	249	187	1299	1377	135	135
Initial Q (Ob), veh	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	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
Work Zone On Approach	No	No	No	No	No	No	No	No	No	No
Adj Sat Flow, veh/h	1856	0	1856	1856	1856	1856	1856	1856	0	1856
Adj Flow Rate, veh/h	165	0	444	204	119	265	199	1382	0	1465
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	0	3	3	3	3	3	3	0	3
Cap, veh/h	223	0	1022	355	301	254	3134	0	2548	893
Arrive On Green	0.07	0.00	0.00	0.30	0.19	0.19	0.10	0.82	0.00	0.50
Sat Flow, veh/h	3428	165	3428	1856	1572	3428	5233	0	5233	1572
Grip Volume(v), veh/h	165	60.6	204	119	265	199	1382	0	1465	144
Grip Sat Flow(s), veh/h/in	1714	E	1714	1856	1572	1714	1689	0	1689	1572
O Serve(g.s), s	5.7	5.3	6.7	19.7	6.8	9.1	0.0	0.0	24.3	5.2
Cycle Q Clear(g_c), s	5.7	5.3	6.7	19.7	6.8	9.1	0.0	0.0	24.3	5.2
Prop In Lane	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Grp Cap(c), veh/h	223	1022	355	301	254	3134	0	2548	893	0.16
V/C Ratio(X)	0.74	0.20	0.34	0.88	0.78	0.44	0.00	0.00	0.00	0.57
Avail Cap(c_a), veh/h	314	1022	526	446	286	3134	0	2548	893	0.16
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.33	1.33	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.69	0.69	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	55.1	31.4	41.9	47.2	53.2	4.9	0.0	0.0	20.9	12.3
Incr Delay (d2), s/veh	5.5	0.1	0.6	13.0	8.6	0.3	0.0	0.0	1.0	0.4
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%), veh/in	4.7	4.0	5.6	13.6	5.6	4.4	0.0	0.0	14.5	3.4
Unsig. Movement Delay, s/veh	60.6	31.5	42.5	60.3	61.7	5.2	0.0	0.0	21.8	12.7
LnGrp Delay(d), s/veh	E	C	D	E	E	E	A	A	A	C
LnGrp LOS	E	C	D	E	E	E	A	A	A	C
Approach Vol, veh/h	588	46.7	1581	12.3	1609	21.0	1609	21.0	1609	21.0
Approach Delay, s/veh	46.7	12.3	1609	21.0	1609	21.0	1609	21.0	1609	21.0
Approach LOS	D	D	B	B	C	C	C	C	C	C
Timer - Assigned Phs	2	3	3	5	6	7	8	8	8	8
Phs Duration (G+Y+Rc), s	79.2	40.8	13.9	65.4	12.8	27.9	27.9	27.9	27.9	27.9
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	60.0	10.0	10.0	45.0	11.0	34.0	34.0	34.0	34.0	34.0
Max Q Clear Time (g_c+1), s	11.1	7.3	8.8	26.3	7.7	21.7	21.7	21.7	21.7	21.7
Green Ext Time (p_c), s	14.0	0.2	0.1	10.7	0.1	1.3	1.3	1.3	1.3	1.3
Intersection Summary										
HCM 6th Ctrl Delay	23.0									
HCM 6th LOS	C									

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Intersection						
Int Delay, s/veh	2.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑↑↑	↗	↘	↑↑↑
Traffic Vol, veh/h	186	118	1685	72	187	1503
Future Vol, veh/h	186	118	1685	72	187	1503
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	30	0	-	115	220	-
Veh in Median Storage, #	2	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	200	127	1812	77	201	1616

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	2860	906	0	0	1889
Stage 1	1812	-	-	-	-
Stage 2	1048	-	-	-	-
Critical Hdwy	5.76	7.16	-	-	5.36
Critical Hdwy Stg 1	6.66	-	-	-	-
Critical Hdwy Stg 2	6.06	-	-	-	-
Follow-up Hdwy	3.83	3.93	-	-	3.13
Pot Cap-1 Maneuver	*337	*520	-	-	*653
Stage 1	*533	-	-	-	-
Stage 2	*578	-	-	-	-
Platoon blocked, %	1	1	-	-	1
Mov Cap-1 Maneuver	*233	*520	-	-	*653
Mov Cap-2 Maneuver	*353	-	-	-	-
Stage 1	*533	-	-	-	-
Stage 2	*400	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	22.4	0	1.4
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	353	520	* 653
HCM Lane V/C Ratio	-	-	0.567	0.244	0.308
HCM Control Delay (s)	-	-	27.7	14.1	12.9
HCM Lane LOS	-	-	D	B	B
HCM 95th %tile Q(veh)	-	-	3.3	0.9	1.3

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection						
Int Delay, s/veh	0.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↑ ↑ ↑	↑ ↑ ↑			↑ ↑ ↑
Traffic Vol, veh/h	0	58	1669	105	0	1661
Future Vol, veh/h	0	58	1669	105	0	1661
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	62	1795	113	0	1786

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	-	954	0	0	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	7.16	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	3.93	-	-	-
Pot Cap-1 Maneuver	0	*520	-	-	0
Stage 1	0	-	-	-	0
Stage 2	0	-	-	-	0
Platoon blocked, %		1	-	-	-
Mov Cap-1 Maneuver	-	*520	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.9	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	-	520
HCM Lane V/C Ratio	-	-	0.12
HCM Control Delay (s)	-	-	12.9
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0.4

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection						
Int Delay, s/veh	2.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↑↑	↑↑		↘	
Traffic Vol, veh/h	75	842	615	87	100	65
Future Vol, veh/h	75	842	615	87	100	65
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	80	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	81	905	661	94	108	70

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	755	0	-	0	1323 378
Stage 1	-	-	-	-	708 -
Stage 2	-	-	-	-	615 -
Critical Hdwy	4.16	-	-	-	6.86 6.96
Critical Hdwy Stg 1	-	-	-	-	5.86 -
Critical Hdwy Stg 2	-	-	-	-	5.86 -
Follow-up Hdwy	2.23	-	-	-	3.53 3.33
Pot Cap-1 Maneuver	845	-	-	-	*311 617
Stage 1	-	-	-	-	*447 -
Stage 2	-	-	-	-	*702 -
Platoon blocked, %		-	-	-	1
Mov Cap-1 Maneuver	845	-	-	-	*281 617
Mov Cap-2 Maneuver	-	-	-	-	*281 -
Stage 1	-	-	-	-	*404 -
Stage 2	-	-	-	-	*702 -

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	24.5
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	845	-	-	-	358
HCM Lane V/C Ratio	0.095	-	-	-	0.496
HCM Control Delay (s)	9.7	-	-	-	24.5
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.3	-	-	-	2.6

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

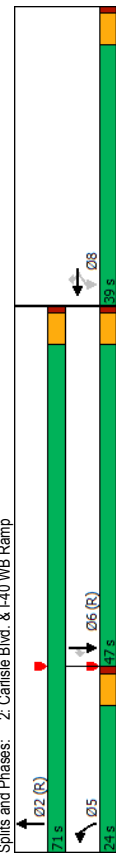
2031 AM Peak Hour
NO BUILD Analyses

Timings
2: Carlisle Blvd. & I-40 WB Ramp

HCM 6th Signalized Intersection Summary
2: Carlisle Blvd. & I-40 WB Ramp

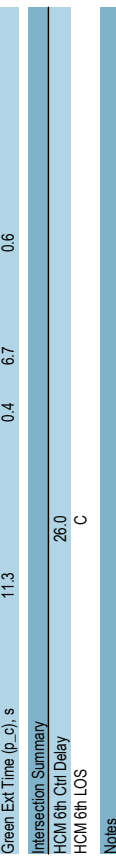
Terry O. Brown, PE
06/27/2019

WBL	WBT	WBR	NBL	NBT	SBR
436	11	413	443	1084	821
436	11	413	443	1084	821
Perm	NA	Perm	Prot	NA	Perm
8	8	8	5	2	6
8	8	8	5	2	6
5.0	5.0	5.0	5.0	5.0	5.0
21.0	21.0	10.0	21.0	21.0	21.0
39.0	39.0	39.0	24.0	71.0	47.0
35.5%	35.5%	35.5%	21.8%	64.5%	42.7%
4.0	4.0	4.0	4.0	4.0	4.0
1.0	1.0	1.0	1.0	1.0	1.0
0.0	0.0	0.0	0.0	0.0	0.0
5.0	5.0	5.0	5.0	5.0	5.0
Min	Min	Min	Min	C-Max	C-Max
33.3	33.3	18.4	66.7	43.3	43.3
0.30	0.30	0.30	0.17	0.61	0.39
0.48	0.48	0.95	0.85	0.39	0.45
34.9	34.9	68.4	54.1	17.0	25.8
0.0	0.0	0.0	0.0	0.2	0.0
34.9	34.9	68.4	54.1	17.2	25.8
C	C	E	D	B	C
51.0				28.0	19.9
D				C	B
110					
101.2 (92%)					
60					
Actuated-Coordinated					
0.96					
31.0					
56.6%					
15					



Terry O. Brown, PE
06/27/2019

EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBR
0	0	0	436	11	413	443	1084	821
0	0	0	436	11	413	443	1084	821
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1856	1856	1856	1856	1856	1856	1856	1856	1856
483	0	449	482	1178	0	0	892	0
0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
3	3	3	3	3	3	3	3	3
1069	0	475	537	3074	0	0	2050	0
0.30	0.00	0.30	0.31	1.00	0.00	0.00	0.40	0.00
3534	0	1572	3428	5233	0	0	5233	1572
483	0	449	482	1178	0	0	892	0
1767	0	1572	1714	1689	0	0	1689	1572
12.1	0.0	30.7	14.8	0.0	0.0	0.0	14.0	0.0
12.1	0.0	30.7	14.8	0.0	0.0	0.0	14.0	0.0
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
0.45	0.00	0.94	0.90	0.38	0.00	0.00	0.44	0.00
1092	0	486	592	3074	0	0	2050	0
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	0.00	1.00	0.83	0.83	0.00	0.00	1.00	0.00
31.0	0.0	37.5	36.9	0.0	0.0	0.0	23.7	0.0
0.3	0.0	27.2	13.4	0.3	0.0	0.0	0.7	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8.9	0.0	21.6	9.7	0.2	0.0	0.0	9.4	0.0
31.3	0.0	64.6	50.4	0.3	0.0	0.0	24.3	0.0
932	A	47.4	1660	882	A	24.3	882	A
2	5	6	8	8	C			
71.7	22.2	49.5	38.3	38.3				
5.0	5.0	5.0	5.0	5.0				
66.0	19.0	42.0	34.0	34.0				
2.0	16.8	16.0	32.7	32.7				
11.3	0.4	6.7	0.6	0.6				
26.0								
C								



Notes
User approved volume balancing among the lanes for turning movement.
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

2031 AM Peak NOBUILD Conditions - Existing Geometry
Synchro 10 Report
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2031 AM Peak NOBUILD Conditions - Existing Geometry
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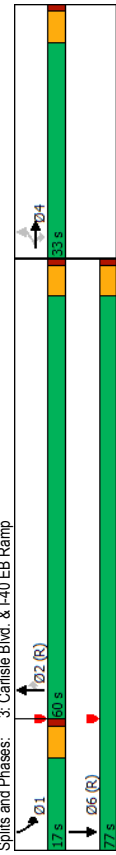
Timings
3: Carlisle Blvd. & I-40 EB Ramp

HCM 6th Signalized Intersection Summary
3: Carlisle Blvd. & I-40 EB Ramp

Terry O. Brown, PE
06/27/2019

Terry O. Brown, PE
06/27/2019

Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations	711	7	733	931	269	205	957
Traffic Volume (vph)	711	7	733	931	269	205	957
Future Volume (vph)	711	7	733	931	269	205	957
Turn Type	Perm	NA	Perm	NA	Perm	Prot	NA
Protected Phases	4	4	4	2	2	1	6
Permitted Phases	4	4	4	2	2	1	6
Detector Phase	4	4	4	2	2	1	6
Switch Phase	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Initial (s)	21.0	21.0	21.0	21.0	21.0	10.0	21.0
Minimum Split (s)	33.0	33.0	33.0	60.0	60.0	17.0	77.0
Total Split (s)	30.0%	30.0%	30.0%	54.5%	54.5%	15.5%	70.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?							
Recall Mode	Min	Min	Min	C-Max	C-Max	Min	C-Max
Act Effct Green (s)	28.0	28.0	28.0	55.8	55.8	11.2	72.0
Actuated g/C Ratio	0.25	0.25	0.25	0.51	0.51	0.10	0.65
v/c Ratio	0.89	0.74	0.74	0.27	0.31	0.64	0.32
Control Delay	53.7	51.6	44.6	14.7	3.4	69.0	11.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Total Delay	53.7	51.6	44.6	14.7	3.4	69.0	11.4
LOS	D	D	D	B	A	E	B
Approach Delay	50.3			12.2			21.6
Approach LOS	D			B			C
Intersection Summary							
Cycle Length: 110							
Actuated Cycle Length: 110							
Offset: 101.2 (92%), Referenced to phase 2:NBT and 6:SBT, Start of Green							
Natural Cycle: 55							
Control Type: Actuated-Coordinated							
Maximum v/c Ratio: 0.89							
Intersection Signal Delay: 29.5							
Intersection Capacity Utilization 56.6%							
Analysis Period (min) 15							



2031 AM Peak NOBUILD Conditions - Existing Geometry
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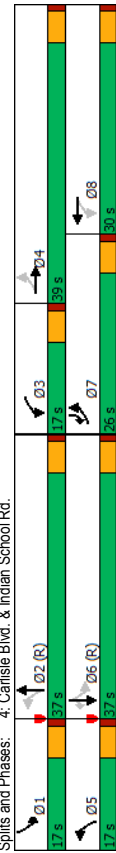
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	711	7	733	0	0	0	0	931	269	205	957	0
Traffic Volume (veh/h)	711	7	733	0	0	0	0	931	269	205	957	0
Future Volume (veh/h)	711	7	733	0	0	0	0	931	269	205	957	0
Initial Q (Ob), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A, pbT)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No	No	No	No	No	No	No	No	No	No	No	No
Adj Sat Flow, veh/h/in	1856	1856	1856	0	0	0	0	1856	1856	1856	1856	0
Adj Flow Rate, veh/h	773	0	802	0	0	0	0	1012	292	223	1040	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, %	3	3	3	0	0	0	0	3	3	3	3	0
Cap, veh/h	869	0	1160	0	0	0	0	4016	840	286	3359	0
Arrive On Green	0.25	0.00	0.25	0.00	0.00	0.00	0.00	1.00	1.00	0.11	0.88	0.00
Sat Flow, veh/h	3534	0	4717	0	0	0	0	7867	1572	3428	5233	0
Grip Volume(v), veh/h	773	0	802	0	0	0	0	1012	292	223	1040	0
Grip Sat Flow(s),veh/h/in	1767	0	1572	0	0	0	0	1503	1572	1714	1689	0
Q Serve(g, s), s	232	0.0	17.0	0.0	0.0	0.0	0.0	0.0	0.0	7.0	3.7	0.0
Cycle Q Clear(g, c), s	232	0.0	17.0	0.0	0.0	0.0	0.0	0.0	0.0	7.0	3.7	0.0
Prop In Lane	1.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00
Lane Grip Cap(c), veh/h	869	0	1160	0	0	0	0	4016	840	286	3359	0
VIC Ratio(X)	0.89	0.00	0.69	0.00	0.00	0.00	0.00	0.25	0.35	0.78	0.31	0.00
Avail Cap(c, a), veh/h	900	0	1201	0	0	0	0	4016	840	374	3359	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00	1.33	1.33	1.00	1.33	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.33	0.33	0.89	0.89	0.00
Uniform Delay (d), s/veh	40.0	0.0	37.7	0.0	0.0	0.0	0.0	0.0	0.0	47.9	2.4	0.0
Incr Delay (d2), s/veh	10.7	0.0	1.6	0.0	0.0	0.0	0.0	0.0	0.0	6.8	0.2	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(95%),veh/ln	16.8	0.0	10.9	0.0	0.0	0.0	0.0	0.0	0.2	5.7	1.8	0.0
Unsig. Movement Delay, s/veh	50.7	0.0	39.3	0.0	0.0	0.0	0.0	0.0	0.4	54.7	2.6	0.0
LnGrip Delay(d),s/veh	D	A	D	A	D	A	A	A	A	D	A	A
LnGrip LOS	D	A	D	A	D	A	A	A	A	D	A	A
Approach Vol, veh/h	1575							1304				1263
Approach Delay, s/veh	44.9							0.1				11.8
Approach LOS	D							A				B
Timer - Assigned Phis	1	2	4	6								
Phis Duration (G+Y+Rc), s	14.2	63.8	32.1	77.9								
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0								
Max Green Setting (Gmax), s	12.0	55.0	28.0	72.0								
Max Q Clear Time (g, c+11), s	9.0	2.0	25.2	5.7								
Green Ext Time (p, c), s	0.2	10.6	1.8	9.4								
Intersection Summary												
HCM 6th Ctrl Delay			20.7									
HCM 6th LOS			C									
Notes												
User approved volume balancing among the lanes for turning movement												

2031 AM Peak NOBUILD Conditions - Existing Geometry
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Timings
4: Carlisle Blvd. & Indian School Rd.

Terry O. Brown, PE
06/27/2019

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	506	313	54	303	96	891	234	798	536
Future Volume (vph)	506	313	54	303	96	891	234	798	536
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+ov
Protected Phases	7	4	3	8	5	2	1	6	7
Permitted Phases	4	4	3	8	5	2	1	6	6
Detector Phase	7	4	3	8	5	2	1	6	7
Switch Phase	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Initial (s)	10.0	21.0	10.0	21.0	10.0	21.0	10.0	21.0	10.0
Minimum Split (s)	26.0	39.0	17.0	30.0	17.0	37.0	17.0	37.0	26.0
Total Split (s)	23.6%	35.5%	15.5%	27.3%	15.5%	33.6%	15.5%	33.6%	23.6%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?									
Recall Mode	Min	Min	Min	Min	Min	Min	Min	Min	Min
Act Effct Green (s)	45.4	32.8	27.1	19.4	43.3	34.2	53.5	40.5	66.5
Actuated g/C Ratio	0.41	0.30	0.25	0.18	0.39	0.31	0.49	0.37	0.60
v/c Ratio	1.33	0.39	0.20	0.74	0.39	0.66	0.77	0.67	0.55
Control Delay	191.4	30.6	21.5	44.5	19.4	34.5	39.0	29.0	19.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	191.4	30.6	21.5	44.5	19.4	34.5	39.0	29.0	19.2
LOS	F	C	C	D	B	C	D	C	B
Approach Delay	123.0		42.0		33.1		27.1		
Approach LOS	F		D		C		C		C
Intersection Summary									
Cycle Length: 110									
Actuated Cycle Length: 110									
Offset: 8.8 (8%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green									
Natural Cycle: 90									
Control Type: Actuated-Coordinated									
Maximum v/c Ratio: 1.33									
Intersection Signal Delay: 51.7									
Intersection Capacity Utilization 88.7%									
Analysis Period (min) 15									



2031 AM Peak NOBUILD Conditions - Existing Geometry
Synchro 10 Report
2031ANX.syn

HCM 6th Signalized Intersection Summary
4: Carlisle Blvd. & Indian School Rd.

Terry O. Brown, PE
06/27/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (veh/h)	506	313	62	54	303	135	96	891	51	234	798	536
Future Volume (veh/h)	506	313	62	54	303	135	96	891	51	234	798	536
Initial Q (Ob), 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	1.00	1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No	No	No	No	No	No	No	No	No	No	No	No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	550	340	67	59	329	147	104	968	55	254	867	583
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Arrive On Green	0.32	0.53	0.53	0.05	0.17	0.17	0.06	0.35	0.35	0.14	0.53	0.53
Sat Flow, veh/h	1767	2942	573	1767	2385	1045	1767	4904	278	1767	3526	1572
Grip Volume(v), veh/h	550	202	65	59	241	235	104	666	357	254	867	583
Grip Sat Flow(s)/veh/ln	1767	1763	1752	1767	1763	1667	1767	1689	1805	1767	1763	1572
Q Serve(g, s), s	21.0	7.4	7.6	3.0	14.5	15.0	4.1	17.6	17.6	9.8	18.7	25.5
Cycle Q Clear(g, c), s	21.0	7.4	7.6	3.0	14.5	15.0	4.1	17.6	17.6	9.8	18.7	25.5
Prop In Lane	1.00	0.33	0.33	1.00	0.63	0.63	1.00	0.15	0.15	1.00	1.00	1.00
Lane Grip Cap(c), veh/h	433	555	551	311	299	282	249	1183	632	360	1416	932
Lane Grip Cap(c), veh/h	127	0.36	0.37	0.19	0.81	0.83	0.42	0.56	0.56	0.71	0.61	0.63
Avail Cap(c, a), veh/h	433	555	551	423	401	379	343	1183	632	362	1416	932
HCM Platoon Ratio	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33
Upstream Filter(l)	0.99	0.99	0.99	0.98	0.98	0.98	0.96	0.96	0.96	0.89	0.89	0.89
Uniform Delay (d), s/veh	269	19.7	19.7	35.1	44.0	44.2	21.7	28.9	28.9	20.0	19.7	11.2
Incr Delay (d2), s/veh	138.2	0.4	0.4	0.3	8.6	10.8	1.1	1.9	3.5	5.5	1.8	2.8
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%), veh/ln	36.3	4.9	5.0	2.3	11.1	11.1	3.1	11.6	12.6	7.3	10.9	10.8
Unsig. Movement Delay, s/veh	165.1	20.0	20.1	35.3	52.5	55.0	22.7	30.8	32.4	25.5	21.5	14.0
LnGrip Delay(d), s/veh	F	C	C	D	D	D	C	C	C	C	C	B
LnGrip LOS	F	C	C	D	D	D	C	C	C	C	C	B
Approach Vol, veh/h	957			535			1127			1704		
Approach Delay, s/veh	103.4			51.7			30.6			19.5		
Approach LOS	F			D			C			B		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.8	43.5	10.0	39.6	11.2	49.2	26.0	23.6				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	12.0	32.0	12.0	34.0	12.0	32.0	21.0	25.0				
Max Q Clear Time (g, c+H), s	11.8	19.6	5.0	9.6	6.1	27.5	23.0	17.0				
Green Ext Time (p, c), s	0.0	5.2	0.0	2.2	0.1	3.0	0.0	1.7				
Intersection Summary												
HCM 6th Ctrl Delay	44.9											
HCM 6th LOS	D											

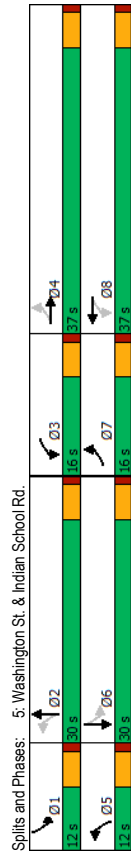
2031 AM Peak NOBUILD Conditions - Existing Geometry
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Timings
5: Washington St. & Indian School Rd.

HCM 6th Signalized Intersection Summary
5: Washington St. & Indian School Rd.

Terry O. Brown, PE
06/27/2019

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	65	228	19	242	70	176	40	126
Future Volume (vph)	65	228	19	242	70	176	40	126
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	7	4	3	8	5	2	1	6
Permitted Phases	4	4	3	8	2	2	1	6
Detector Phase	7	4	3	8	5	2	1	6
Switch Phase	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Initial (s)	10.0	21.0	10.0	21.0	10.0	21.0	10.0	21.0
Minimum Split (s)	16.0	37.0	16.0	37.0	12.0	30.0	12.0	30.0
Total Split (%)	16.8%	38.9%	16.8%	38.9%	12.6%	31.6%	12.6%	31.6%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?								
Recall Mode	Min	Max	Min	Max	Min	Max	Min	Max
Act Effct Green (s)	40.8	33.5	38.3	32.2	24.2	17.4	23.6	17.1
Actuated g/C Ratio	0.49	0.40	0.46	0.39	0.29	0.21	0.28	0.20
v/c Ratio	0.13	0.21	0.04	0.23	0.30	0.61	0.14	0.77
Control Delay	11.7	16.6	11.5	18.0	21.7	35.6	19.1	37.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.7	16.6	11.5	18.0	21.7	35.6	19.1	37.9
LOS	B	B	B	B	C	D	B	D
Approach Delay	15.6	17.6	17.6	17.6	32.2	35.6	35.6	35.6
Approach LOS	B	B	B	B	C	C	D	D
Intersection Summary								
Cycle Length: 95								
Actuated Cycle Length: 83.6								
Natural Cycle: 65								
Control Type: Semi Act-Uncoord								
Maximum v/c Ratio: 0.77								
Intersection Signal Delay: 25.1								
Intersection Capacity Utilization 48.9%								
Analysis Period (min) 15								



2031 AM Peak NOBUILD Conditions - Existing Geometry
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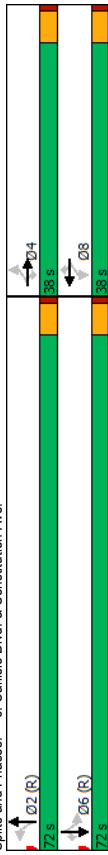
	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Movement	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (veh/h)	65	228	41	19	242	36	70	176
Future Volume (veh/h)	65	228	41	19	242	36	70	176
Initial Q (Ob), veh	0	0	0	0	0	0	0	0
Ped-Bike Adj(A, pbT)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No	No	No	No	No	No	No	No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	71	248	45	21	263	39	76	191
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3
Cap, veh/h	577	1212	217	582	183	247	317	68
Arrive On Green	0.06	0.41	0.41	0.06	0.41	0.06	0.21	0.06
Sat Flow, veh/h	1767	2988	534	1767	3085	452	1767	1481
Grip Volume(v), veh/h	71	145	148	21	149	153	76	0
Grip Sat Flow(s) veh/h/ln	1767	1763	1759	1767	1763	1774	1767	0
Q Serve(g, s), s	1.8	4.2	4.3	0.5	4.3	4.4	2.6	0.0
Cycle Q Clear(g, c), s	1.8	4.2	4.3	0.5	4.3	4.4	2.6	0.0
Prop In Lane	1.00	0.30	1.00	1.00	0.25	1.00	0.18	1.00
Lane Grip Cap(c), veh/h	577	715	714	582	715	720	247	0
VIC Ratio(X)	0.12	0.20	0.21	0.04	0.21	0.21	0.31	0.00
Avail Cap(c, a), veh/h	711	715	714	716	715	720	292	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.7	15.2	15.2	11.4	15.2	22.8	0.0	28.0
Incr Delay (d2), s/veh	0.1	0.6	0.7	0.0	0.7	0.7	0.0	1.5
Initial Q Delay(d3) s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%) veh/ln	1.1	3.0	3.1	0.3	3.1	3.2	1.9	0.0
Unsig. Movement Delay, s/veh	11.8	15.8	15.9	11.4	15.9	23.5	0.0	29.5
LnGrip Delay(d) s/veh	B	B	B	B	B	C	A	C
LnGrip LOS	B	B	B	B	B	C	A	C
Approach Vol, veh/h	364	150	323	347	308	280	355	347
Approach Delay, s/veh	15.0	15.6	15.6	15.6	32.3	35.5	35.5	35.5
Approach LOS	B	B	B	B	C	C	D	D
Timer - Assigned Phis	1	2	3	4	5	6	7	8
Phis Duration (G+Y+Rc), s	10.0	21.9	10.0	37.0	10.0	21.9	10.0	37.0
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	7.0	25.0	11.0	32.0	7.0	25.0	11.0	32.0
Max Q Clear Time (g, c+H), s	3.4	11.2	2.5	6.3	4.6	15.6	3.8	6.4
Green Ext Time (p, c), s	0.0	1.1	0.0	1.6	0.0	1.2	0.1	1.6
Intersection Summary								
HCM 6th Ctrl Delay	23.5							
HCM 6th LOS	C							

2031 AM Peak NOBUILD Conditions - Existing Geometry
Synchro 10 Report
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Timings
6: Carlisle Blvd. & Constitution Ave.

Terry O. Brown, PE
06/27/2019

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations	→	→	→	←	←	←	←	←	←	←	←
Traffic Volume (vph)	104	92	15	59	166	90	15	493	70	544	215
Future Volume (vph)	104	92	15	59	166	90	15	493	70	544	215
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases	4	4	4	8	8	8	2	2	6	6	6
Permitted Phases	4	4	4	8	8	8	2	2	6	6	6
Detector Phase											
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	38.0	38.0	38.0	38.0	38.0	38.0	38.0	38.0	38.0	38.0	38.0
Total Split (%)	34.5%	34.5%	34.5%	34.5%	34.5%	34.5%	65.5%	65.5%	65.5%	65.5%	65.5%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag											
Lead-Lag Optimize?											
Recall Mode	Min	Min	Min	Min	Min	Min	C-Max	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	17.4	17.4	17.4	17.4	17.4	17.4	82.6	82.6	82.6	82.6	82.6
Actuated g/C Ratio	0.16	0.16	0.16	0.16	0.16	0.16	0.75	0.75	0.75	0.75	0.75
v/c Ratio	0.87	0.34	0.06	0.33	0.62	0.30	0.03	0.21	0.12	0.43	0.19
Control Delay	94.3	42.8	12.5	43.5	51.6	9.9	5.0	4.7	0.7	2.8	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	94.3	42.8	12.5	43.5	51.6	9.9	5.0	4.7	0.7	2.8	0.3
LOS	F	D	B	D	D	A	A	A	A	A	A
Approach Delay	66.1			38.2			4.8				2.0
Approach LOS	E			D			A				A
Intersection Summary											
Cycle Length: 110											
Actuated Cycle Length: 110											
Offset: 63.8 (58%), Referenced to phase 2:NBTL and 6:SBTL - Start of Green											
Natural Cycle: 45											
Control Type: Actuated-Coordinated											
Maximum v/c Ratio: 0.87											
Intersection Signal Delay: 16.0											
Intersection Capacity Utilization 64.0%											
Analysis Period (min) 15											



2031 AM Peak NOBUILD Conditions - Existing Geometry
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HCM 6th Signalized Intersection Summary
6: Carlisle Blvd. & Constitution Ave.

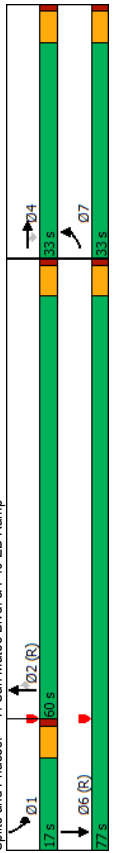
Terry O. Brown, PE
06/27/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	→	→	→	←	←	←	←	←	←	←	←	←
Traffic Volume (veh/h)	104	92	15	59	166	90	15	493	21	70	544	215
Future Volume (veh/h)	104	92	15	59	166	90	15	493	21	70	544	215
Initial Q (Obs), 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	1.00	1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No	No	No	No	No	No	No	No	No	No	No	No
Adj Sat Flow, veh/h/in	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	113	100	16	64	180	98	16	536	23	76	591	234
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Arrive On Green	203	390	331	275	390	331	526	2406	103	608	1296	1099
Cap, veh/h	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21
Sat Flow, veh/h	1092	1856	1572	1266	1856	1572	659	3444	148	844	1856	1572
Grip Volume(v), veh/h	113	100	16	64	180	98	16	274	285	76	591	234
Grip Sat Flow(s), veh/h/in	1092	1856	1572	1266	1856	1572	659	1763	1829	844	1856	1572
Q Serve(g, s), s	11.1	4.9	0.9	4.9	9.3	5.8	0.8	6.1	6.1	6.1	0.9	0.0
Cycle Q Clear(g, c), s	20.4	4.9	0.9	9.8	9.3	5.8	0.8	6.1	6.1	7.0	0.0	0.0
Prop In Lane	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
V/C Ratio(X)	0.56	0.26	0.05	0.23	0.46	0.30	0.03	0.22	0.22	0.13	0.46	0.21
Avail Cap(c, a), veh/h	301	557	472	388	557	472	526	1232	1278	608	1296	1099
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.72	0.72
Uniform Delay (d), s/veh	46.9	36.2	34.6	40.3	38.0	36.6	5.1	5.9	5.9	0.3	0.0	0.0
Incr Delay (d2), s/veh	2.4	0.3	0.1	0.4	0.8	0.5	0.1	0.4	0.4	0.3	0.8	0.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%), veh/in	5.6	4.1	0.6	2.8	7.7	4.1	0.2	3.8	4.0	0.1	0.5	0.2
Unsig. Movement Delay, s/veh	493	36.6	34.7	40.8	38.8	37.1	5.2	6.3	6.3	0.6	0.8	0.3
LnGrip Delay(d), s/veh	D	D	C	D	D	D	A	A	A	A	A	A
LnGrip LOS	D	D	C	D	D	D	A	A	A	A	A	A
Approach Vol, veh/h	229			342			575				901	
Approach Delay, s/veh	42.7			38.7			6.3				0.7	
Approach LOS	D			D			A				A	
Timer - Assigned Phis	2	4	4	6	8	8						
Phis Duration (G+Y+Rc), s	81.9	28.1	28.1	81.9	28.1	28.1						
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0						
Max Green Setting (Gmax), s	67.0	33.0	33.0	67.0	33.0	33.0						
Max Q Clear Time (g, c+H1), s	8.1	22.4	22.4	9.0	11.8	11.8						
Green Ext Time (p, c), s	3.8	0.7	0.7	6.0	1.5	1.5						
Intersection Summary												
HCM 6th Ctrl Delay	13.3											
HCM 6th LOS	B											

2031 AM Peak NOBUILD Conditions - Existing Geometry
Synchro 10 Report
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Timings Terry O. Brown, PE
06/27/2019
7: San Mateo Blvd. & I-40 EB Ramp

	EBL	EBT	EBR	NBT	NBT	NBR	SBL	SBT
Lane Group	EBL	EBT	EBR	NBT	NBT	NBR	SBL	SBT
Lane Configurations	584	1	948	1083	147	237	902	902
Traffic Volume (vph)	584	1	948	1083	147	237	902	902
Future Volume (vph)	584	1	948	1083	147	237	902	902
Turn Type	Prot	NA	Perm	NA	Perm	Prot	NA	NA
Protected Phases	7	4	4	2	2	1	6	6
Permitted Phases	7	4	4	2	2	1	6	6
Detector Phase	7	4	4	2	2	1	6	6
Switch Phase	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Initial (s)	10.0	21.0	21.0	21.0	21.0	10.0	21.0	21.0
Minimum Split (s)	33.0	33.0	33.0	60.0	60.0	17.0	77.0	77.0
Total Split (s)	30.0%	30.0%	30.0%	54.5%	54.5%	15.5%	70.0%	70.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag				Lag	Lag	Lead		
Lead-Lag Optimize?								
Recall Mode	Min	Min	Min	C-Max	C-Max	Min	C-Max	C-Max
Act Effct Green (s)	28.0	28.0	28.0	55.4	55.4	11.6	72.0	72.0
Actuated g/C Ratio	0.25	0.25	0.25	0.50	0.50	0.11	0.65	0.65
v/c Ratio	0.73	1.05	1.05	0.46	0.46	0.18	0.72	0.30
Control Delay	43.5	83.1	82.5	18.5	2.8	52.0	2.5	2.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.5	83.1	82.5	18.5	2.8	52.0	2.5	2.5
LOS	D	F	F	B	A	D	A	A
Approach Delay		67.8		16.6		12.8		
Approach LOS		E		B		B		B
Intersection Summary								
Cycle Length: 110								
Actuated Cycle Length: 110								
Offset: 90.2 (82%), Referenced to phase 2:NBT and 6:SBT, Start of Green								
Natural Cycle: 55								
Control Type: Actuated-Coordinated								
Maximum v/c Ratio: 1.05								
Intersection Signal Delay: 35.6								
Intersection Capacity Utilization 64.9%								
Analysis Period (min) 15								



Splits and Phases: 7: San Mateo Blvd. & I-40 EB Ramp

Synchro 10 Report
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HCM 6th Signalized Intersection Summary Terry O. Brown, PE
06/27/2019
7: San Mateo Blvd. & I-40 EB Ramp

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	584	1	948	0	0	0	0	1083	147	237	902	902
Traffic Volume (veh/h)	584	1	948	0	0	0	0	1083	147	237	902	902
Future Volume (veh/h)	584	1	948	0	0	0	0	1083	147	237	902	902
Initial Q (Ob), 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	1.00	1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No	No	No	No	No	No	No	No	No	No	No	No
Adj Sat Flow, veh/h/in	1856	1856	1856	0	0	0	0	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	635	0	1031	0	0	0	0	1177	0	258	980	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, %	3	3	3	0	0	0	0	3	3	3	3	3
Cap, veh/h	900	0	801	0	0	0	0	2609	0	322	3316	0
Arrive On Green	0.25	0.00	0.25	0.00	0.00	0.00	0.00	0.52	0.00	0.06	0.44	0.00
Sat Flow, veh/h	3534	0	3145	0	0	0	0	5233	1572	3428	5233	0
Grip Volume(v), veh/h	635	0	1031	0	0	0	0	1177	0	258	980	0
Grip Sat Flow(s),veh/h/in	1767	0	1572	0	0	0	0	1689	1572	1714	1689	0
Q Serve(g, s), s	18.0	0.0	28.0	0.0	0.0	0.0	0.0	16.1	0.0	8.2	13.7	0.0
Cycle Q Clear(g, c), s	18.0	0.0	28.0	0.0	0.0	0.0	0.0	16.1	0.0	8.2	13.7	0.0
Prop In Lane	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00
Lane Grip Cap(c), veh/h	900	0	801	0	0	0	0	2609	0	322	3316	0
VIC Ratio(X)	0.71	0.00	1.29	0.00	0.00	0.00	0.00	0.45	0.00	0.80	0.30	0.00
Avail Cap(c, a), veh/h	900	0	801	0	0	0	0	2609	0	374	3316	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.67	1.00	0.00
Upstream Filter(l)	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.75	0.75	0.00
Uniform Delay (d), s/veh	37.3	0.0	41.0	0.0	0.0	0.0	0.0	16.8	0.0	50.5	14.5	0.0
Incr Delay (d2), s/veh	2.5	0.0	138.9	0.0	0.0	0.0	0.0	0.6	0.0	8.0	0.2	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(95%),veh/h	12.6	0.0	39.4	0.0	0.0	0.0	0.0	10.3	0.0	6.8	9.2	0.0
Unsig. Movement Delay, s/veh												
LnGrip Delay(d),s/veh	398	0.0	179.9	0.0	0.0	0.0	0.0	17.4	0.0	58.5	14.7	0.0
LnGrip LOS	D	A	F	A	A	A	A	B	B	E	B	A
Approach Vol, veh/h	1666							1177	A	E	B	A
Approach Delay, s/veh	126.5							17.4	A	23.8		
Approach LOS	F							B	B	C		
Timer - Assigned Phis	1	2	4									
Phis Duration (G+Y+Rc), s	15.3	61.7	33.0									
Change Period (Y+Rc), s	5.0	5.0	5.0									
Max Green Setting (Gmax), s	12.0	55.0	28.0									
Max Q Clear Time (g, c+H1), s	10.2	18.1	30.0									
Green Ext Time (p, c), s	0.2	10.9	9.0									
Intersection Summary												
HCM 6th Ctrl Delay			63.9									
HCM 6th LOS			E									
Notes												
User approved volume balancing among the lanes for turning movement.												
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.												

2031 AM Peak NOBUILD Conditions - Existing Geometry
Synchro 10 Report
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2031 AM Peak Hour
BUILD Analyses

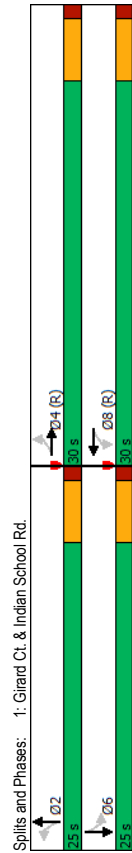
Timings
1: Girard Ct. & Indian School Rd.

HCM 6th Signalized Intersection Summary
1: Girard Ct. & Indian School Rd.

Terry O. Brown, PE
06/27/2019

Terry O. Brown, PE
06/27/2019

EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
4	4	8	8	2	2	6	6
4	4	8	8	2	2	6	6
5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
30.0	30.0	30.0	30.0	25.0	25.0	25.0	25.0
54.5%	54.5%	54.5%	54.5%	45.5%	45.5%	45.5%	45.5%
4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
C-Max	C-Max	C-Max	C-Max	Min	Min	Min	Min
36.4	36.4	36.4	36.4	8.6	8.6	8.6	8.6
0.66	0.66	0.66	0.66	0.16	0.16	0.16	0.16
0.05	0.13	0.02	0.31	0.24	0.05	0.37	0.19
4.5	3.8	2.4	2.9	22.0	17.3	24.8	12.1
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4.5	3.8	2.4	2.9	22.0	17.3	24.8	12.1
A	A	A	A	C	B	C	B
3.8	2.9	2.9	2.9	20.9	19.7	19.7	19.7
A	A	A	A	C	C	C	B
Intersection Summary							
Cycle Length: 55							
Actuated Cycle Length: 55							
Offset: 17.6 (32%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green							
Natural Cycle: 45							
Control Type: Actuated-Coordinated							
Maximum v/c Ratio: 0.37							
Intersection Signal Delay: 5.9							
Intersection Capacity Utilization 37.2%							
Analysis Period (min) 15							



2031 AM Peak BUILD Conditions - Existing Geometry
Synchro 10 Report
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EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
21	255	11	576	46	12	74	19
21	255	11	576	46	12	74	19
0	0	0	0	0	0	0	0
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1856	1856	1856	1856	1856	1856	1856	1856
23	277	24	626	73	50	80	21
0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
3	3	3	3	3	3	3	3
539	2340	201	864	2266	264	233	166
0.71	0.71	0.71	0.24	0.24	0.11	0.11	0.11
741	3265	283	1070	3181	370	1339	1570
23	148	153	12	346	353	50	15
741	1763	1805	1070	1763	1789	1339	0
0.8	1.4	1.5	0.5	8.8	8.9	2.0	0.0
9.7	1.4	1.5	1.9	8.8	8.9	3.6	0.0
1.00	0.16	1.00	1.00	0.21	1.00	0.13	1.00
539	1256	1286	864	1256	1274	233	0
0.04	0.12	0.12	0.01	0.28	0.28	0.21	0.00
539	1256	1286	864	1256	1274	578	0
1.00	1.00	1.00	0.33	0.33	1.00	1.00	1.00
1.00	1.00	1.00	0.74	0.74	1.00	1.00	1.00
5.7	2.5	2.5	7.4	9.4	24.4	0.0	22.2
0.1	0.2	0.2	0.0	0.4	0.4	0.5	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.2	0.4	0.4	0.1	4.0	4.0	1.1	0.0
5.9	2.7	2.7	7.4	9.8	24.8	0.0	22.3
A	A	A	A	A	A	C	C
324	2.9	2.9	7.11	9.8	24.3	65	184
A	A	A	A	A	C	C	C
2	4	4	6	8	8	8	8
10.8	44.2	44.2	10.8	44.2	44.2	44.2	44.2
5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
20.0	25.0	25.0	20.0	25.0	25.0	25.0	25.0
5.6	11.7	11.7	5.4	10.9	10.9	10.9	10.9
0.1	0.1	1.4	0.4	3.5	3.5	3.5	3.5
Intersection Summary							
HCM 6th Ctrl Delay 10.3							
HCM 6th LOS B							

2031 AM Peak BUILD Conditions - Existing Geometry
Synchro 10 Report
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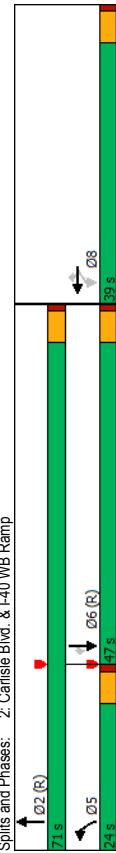
Timings
2: Carlisle Blvd. & I-40 WB Ramp

HCM 6th Signalized Intersection Summary
2: Carlisle Blvd. & I-40 WB Ramp

Terry O. Brown, PE
06/27/2019

Terry O. Brown, PE
06/27/2019

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations	←	←	←	←	←	←	←
Traffic Volume (vph)	465	11	413	449	1120	874	308
Future Volume (vph)	465	11	413	449	1120	874	308
Turn Type	Perm	NA	Perm	Prot	NA	NA	Perm
Protected Phases	8	8	8	5	2	6	6
Permitted Phases	8	8	8	5	2	6	6
Detector Phase							
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	21.0	21.0	21.0	10.0	21.0	21.0	21.0
Total Split (s)	39.0	39.0	39.0	24.0	71.0	47.0	47.0
Total Split (%)	35.5%	35.5%	35.5%	21.8%	64.5%	42.7%	42.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag				Lead	Lag	Lag	Lag
Lead-Lag Optimize?							
Recall Mode	Min	Min	Min	Min	C-Max	C-Max	C-Max
Act Effct Green (s)	33.3	33.3	33.3	18.5	66.7	43.2	43.2
Actuated g/C Ratio	0.30	0.30	0.30	0.17	0.61	0.39	0.39
v/c Ratio	0.51	0.51	0.95	0.86	0.40	0.48	0.41
Control Delay	35.7	35.7	68.4	58.8	16.6	26.3	4.1
Queue Delay	0.0	0.0	0.0	0.0	0.2	0.0	0.0
Total Delay	35.7	35.7	68.4	58.8	16.8	26.3	4.1
LOS	D	D	E	E	B	C	A
Approach Delay	50.9				27.9	20.5	
Approach LOS	D				C	C	
Intersection Summary							
Cycle Length: 110							
Actuated Cycle Length: 110							
Offset: 101.2 (92%), Referenced to phase 2:NBT and 6:SBT, Start of Green							
Natural Cycle: 60							
Control Type: Actuated-Coordinated							
Maximum v/c Ratio: 0.95							
Intersection Signal Delay: 31.1							
Intersection Capacity Utilization 57.5%							
Analysis Period (min) 15							



Splits and Phases: 2: Carlisle Blvd. & I-40 WB Ramp

2031 AM Peak BUILD Conditions - Existing Geometry

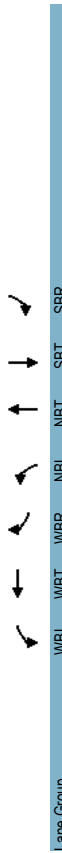
Synchro 10 Report
2031ABX.syn

Synchro 10 Report
2031ABX.syn

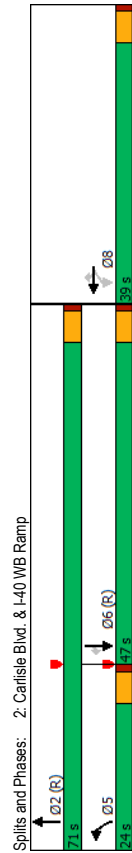
Timings
2: Carlisle Blvd. & I-40 WB Ramp

HCM 6th Signalized Intersection Summary
2: Carlisle Blvd. & I-40 WB Ramp

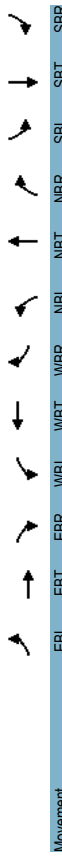
Terry O. Brown, PE
06/28/2019



Lane Group	WBL	WBT	WBR	NBL	NBT	SBL	SBR
Lane Configurations	←	←	←	←	←	←	←
Traffic Volume (vph)	465	11	413	449	1120	874	308
Future Volume (vph)	465	11	413	449	1120	874	308
Turn Type	Perm	NA	Perm	Prot	NA	NA	Perm
Protected Phases	8	8	8	5	2	6	6
Detector Phase	8	8	8	5	2	6	6
Switch Phase	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Initial (s)	21.0	21.0	21.0	10.0	21.0	21.0	21.0
Minimum Split (s)	39.0	39.0	39.0	24.0	71.0	47.0	47.0
Total Split (s)	35.5%	35.5%	35.5%	21.8%	64.5%	42.7%	42.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag				Lead		Lag	Lag
Lead-Lag Optimize?							
Recall Mode	Min	Min	Min	Min	C-Max	C-Max	C-Max
Act Effct Green (s)	29.5	29.5	29.5	18.9	70.5	46.5	46.5
Actuated g/C Ratio	0.27	0.27	0.27	0.17	0.64	0.42	0.42
v/c Ratio	0.75	0.80	0.76	0.83	0.38	0.45	0.39
Control Delay	47.1	52.3	49.6	51.2	14.5	24.4	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.2	0.0	0.0
Total Delay	47.1	52.3	49.6	51.2	14.7	24.4	4.0
LOS	D	D	D	D	B	C	A
Approach Delay	49.7				25.1	19.1	
Approach LOS	D				C	B	
Intersection Summary							
Cycle Length: 110							
Actuated Cycle Length: 110							
Offset: 101.2 (92%), Referenced to phase 2:NBT and 6:SBT, Start of Green							
Natural Cycle: 60							
Control Type: Actuated-Coordinated							
Maximum v/c Ratio: 0.83							
Intersection Signal Delay: 29.1							
Intersection Capacity Utilization 61.7%							
Analysis Period (min) 15							



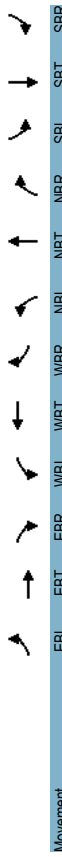
Terry O. Brown, PE
06/28/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations				←	←	←	←	←	←	←	←
Traffic Volume (veh/h)	0	0	0	465	11	413	449	1120	0	0	874
Future Volume (veh/h)	0	0	0	465	11	413	449	1120	0	0	874
Initial Q (Ob), veh				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
Work Zone On Approach				No	No	No	No	No	No	No	No
Adj Sat Flow, veh/h/ln				1856	1856	1856	1856	1856	0	0	1856
Adj Flow Rate, veh/h				650	0	303	488	1217	0	0	950
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				3	3	3	3	3	0	0	3
Cap, veh/h				811	0	361	542	3443	0	0	2412
Arrive On Green				0.23	0.00	0.23	0.32	1.00	0.00	0.00	0.48
Sat Flow, veh/h				3534	0	1572	3428	5233	0	0	5233
Grip Volume(v), veh/h				650	0	303	488	1217	0	0	950
Grip Sat Flow(s)/veh/ln				1767	0	1572	1714	1689	0	0	1689
Q Serve(g, s), s				19.1	0.0	20.2	15.0	0.0	0.0	0.0	13.3
Cycle Q Clear(g, c), s				19.1	0.0	20.2	15.0	0.0	0.0	0.0	13.3
Prop In Lane				1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00
Lane Grip Cap(c), veh/h				811	0	361	542	3443	0	0	2412
V/C Ratio(X)				0.80	0.00	0.84	0.90	0.35	0.00	0.00	0.39
Avail Cap(c, a), veh/h				1092	0	486	592	3443	0	0	2412
HCM Platoon Ratio				1.00	1.00	1.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(l)				1.00	0.00	1.00	0.83	0.83	0.00	0.00	1.00
Uniform Delay (d), s/veh				40.0	0.0	40.4	36.8	0.0	0.0	0.0	18.6
Incr Delay (d2), s/veh				3.2	0.0	9.5	13.8	0.2	0.0	0.0	0.5
Initial Q Delay(Q3), s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%), veh/ln				13.4	0.0	13.5	9.8	0.1	0.0	0.0	8.9
Unsig. Movement Delay, s/veh				43.2	0.0	49.9	50.6	0.2	0.0	0.0	19.1
LnGrip Delay(d), s/veh				D	A	D	D	A	A	A	B
LnGrip LOS				D	A	D	D	A	A	A	B
Approach Vol, veh/h				953				1705			950
Approach Delay, s/veh				45.3				14.6			19.1
Approach LOS				D				B			B
Timer - Assigned Phis				2		5	6	8			
Phis Duration (G+Y+Rc), s				79.8		22.4	57.4	30.2			
Change Period (Y+Rc), s				5.0		5.0	5.0	5.0			
Max Green Setting (Gmax), s				66.0		19.0	42.0	34.0			
Max Q Clear Time (g, c+H1), s				2.0		17.0	15.3	22.2			
Green Ext Time (p, c), s				11.8		0.4	7.2	3.0			
Intersection Summary											
HCM 6th Ctrl Delay	23.9										
HCM 6th LOS	C										
Notes											
User approved volume balancing among the lanes for turning movement.											
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.											

2031 AM Peak BUILD Conditions - Mitigated Conditions

Terry O. Brown, PE
06/28/2019



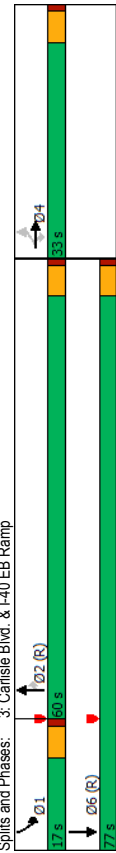
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations				←	←	←	←	←	←	←	←
Traffic Volume (veh/h)	0	0	0	465	11	413	449	1120	0	0	874
Future Volume (veh/h)	0	0	0	465	11	413	449	1120	0	0	874
Initial Q (Ob), veh				0	0	0	0	0	0	0	0
Ped-Bike Adj(A, pbT)				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No	No	No	No	No	No	No	No
Adj Sat Flow, veh/h/ln				1856	1856	1856	1856	1856	0	0	1856
Adj Flow Rate, veh/h				650	0	303	488	1217	0	0	950
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				3	3	3	3	3	0	0	3
Cap, veh/h				811	0	361	542	3443	0	0	2412
Arrive On Green				0.23	0.00	0.23	0.32	1.00	0.00	0.00	0.48
Sat Flow, veh/h				3534	0	1572	3428	5233	0	0	5233
Grip Volume(v), veh/h				650	0	303	488	1217	0	0	950
Grip Sat Flow(s)/veh/ln				1767	0	1572	1714	1689	0	0	1689
Q Serve(g, s), s				19.1	0.0	20.2	15.0	0.0	0.0	0.0	13.3
Cycle Q Clear(g, c), s				19.1	0.0	20.2	15.0	0.0	0.0	0.0	13.3
Prop In Lane				1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00
Lane Grip Cap(c), veh/h				811	0	361	542	3443	0	0	2412
V/C Ratio(X)				0.80	0.00	0.84	0.90	0.35	0.00	0.00	0.39
Avail Cap(c, a), veh/h				1092	0	486	592	3443	0	0	2412
HCM Platoon Ratio				1.00	1.00	1.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(l)				1.00	0.00	1.00	0.83	0.83	0.00	0.00	1.00
Uniform Delay (d), s/veh				40.0	0.0	40.4	36.8	0.0	0.0	0.0	18.6
Incr Delay (d2), s/veh				3.2	0.0	9.5	13.8	0.2	0.0	0.0	0.5
Initial Q Delay(Q3), s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%), veh/ln				13.4	0.0	13.5	9.8	0.1	0.0	0.0	8.9
Unsig. Movement Delay, s/veh				43.2	0.0	49.9	50.6	0.2	0.0	0.0	19.1
LnGrip Delay(d), s/veh				D	A	D	D	A	A	A	B
LnGrip LOS				D	A	D	D	A	A	A	B
Approach Vol, veh/h				953				1705			950
Approach Delay, s/veh				45.3				14.6			19.1
Approach LOS				D				B			B
Timer - Assigned Phis				2		5	6	8			
Phis Duration (G+Y+Rc), s				79.8		22.4	57.4	30.2			
Change Period (Y+Rc), s				5.0		5.0	5.0	5.0			
Max Green Setting (Gmax), s				66.0		19.0	42.0	34.0			
Max Q Clear Time (g, c+H1), s				2.0		17.0	15.3	22.2			
Green Ext Time (p, c), s				11.8		0.4	7.2	3.0			
Intersection Summary											
HCM 6th Ctrl Delay	23.9										
HCM 6th LOS	C										
Notes											
User approved volume balancing among the lanes for turning movement.											
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.											

Timings
3: Carlisle Blvd. & I-40 EB Ramp

HCM 6th Signalized Intersection Summary
3: Carlisle Blvd. & I-40 EB Ramp

Terry O. Brown, PE
06/27/2019

	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations	711	7	742	974	289	205	1039
Traffic Volume (vph)	711	7	742	974	289	205	1039
Future Volume (vph)	711	7	742	974	289	205	1039
Turn Type	Perm	NA	Perm	NA	Perm	Prot	NA
Protected Phases	4	4	4	2	2	1	6
Permitted Phases	4	4	4	2	2	1	6
Detector Phase	4	4	4	2	2	1	6
Switch Phase	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Initial (s)	21.0	21.0	21.0	21.0	21.0	10.0	21.0
Minimum Split (s)	33.0	33.0	33.0	60.0	60.0	17.0	77.0
Total Split (s)	30.0%	30.0%	30.0%	54.5%	54.5%	15.5%	70.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag				Lag	Lag	Lead	Lead
Lead-Lag Optimize?							
Recall Mode	Min	Min	Min	C-Max	C-Max	Min	C-Max
Act Effct Green (s)	28.0	28.0	28.0	55.8	55.8	11.2	72.0
Actuated g/C Ratio	0.25	0.25	0.25	0.51	0.51	0.10	0.65
v/c Ratio	0.89	0.75	0.75	0.28	0.33	0.64	0.34
Control Delay	53.7	52.1	45.0	16.4	4.1	68.5	11.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Total Delay	53.7	52.1	45.0	16.4	4.1	68.5	11.4
LOS	D	D	D	B	A	E	B
Approach Delay	50.5			13.6			20.8
Approach LOS	D			B			C
Intersection Summary							
Cycle Length: 110							
Actuated Cycle Length: 110							
Offset: 101.2 (92%), Referenced to phase 2:NBT and 6:SBT, Start of Green							
Natural Cycle: 55							
Control Type: Actuated-Coordinated							
Maximum v/c Ratio: 0.89							
Intersection Signal Delay: 29.4							
Intersection Capacity Utilization 57.5%							
Analysis Period (min) 15							



Terry O. Brown, PE
06/27/2019

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	711	7	742	0	0	0	0	974	289	205	1039	0
Traffic Volume (veh/h)	711	7	742	0	0	0	0	974	289	205	1039	0
Future Volume (veh/h)	711	7	742	0	0	0	0	974	289	205	1039	0
Initial Q (Ob), 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	1.00	1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No	No	No	No	No	No	No	No	No	No	No	No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	773	0	812	0	0	0	0	1059	314	223	1129	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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	869	0	1160	0	0	0	0	4015	840	286	3359	0
Arrive On Green	0.25	0.00	0.25	0.00	0.00	0.00	0.00	1.00	1.00	0.11	0.88	0.00
Sat Flow, veh/h	3534	0	4717	0	0	0	0	7867	1572	3428	5233	0
Grip Volume(v), veh/h	773	0	812	0	0	0	0	1059	314	223	1129	0
Grip Sat Flow(s),veh/h/ln	1767	0	1572	0	0	0	0	1503	1572	1714	1689	0
Q Serve(g, s), s	23.2	0.0	17.2	0.0	0.0	0.0	0.0	0.0	0.0	7.0	4.1	0.0
Cycle Q Clear(g, c), s	23.2	0.0	17.2	0.0	0.0	0.0	0.0	0.0	0.0	7.0	4.1	0.0
Prop In Lane	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Grip Cap(c), veh/h	869	0	1160	0	0	0	0	4015	840	286	3359	0
VIC Ratio(X)	0.89	0.00	0.70	0.00	0.00	0.00	0.00	0.26	0.37	0.78	0.34	0.00
Avail Cap(c, a), veh/h	900	0	1201	0	0	0	0	4015	840	374	3359	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	1.33	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	1.00	0.87	0.87	0.00
Uniform Delay (d), s/veh	40.0	0.0	37.8	0.0	0.0	0.0	0.0	0.0	0.0	47.9	2.4	0.0
Incr Delay (d2), s/veh	10.7	0.0	1.8	0.0	0.0	0.0	0.0	0.2	1.3	6.7	0.2	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(95%),veh/ln	16.8	0.0	11.0	0.0	0.0	0.0	0.0	0.1	0.5	5.7	2.0	0.0
Unsig. Movement Delay, s/veh	50.7	0.0	39.5	0.0	0.0	0.0	0.0	0.2	1.3	54.6	2.7	0.0
LnGrip Delay(d),s/veh	D	A	D	A	D	A	A	A	A	D	A	A
LnGrip LOS	D	A	D	A	D	A	A	A	A	D	A	A
Approach Vol, veh/h	1586							1373				1362
Approach Delay, s/veh	45.0							0.4				11.2
Approach LOS	D							A				B
Timer - Assigned Phis	1	2	4	6								
Phs Duration (G+Y+Rc), s	14.2	63.8	32.1	77.9								
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0								
Max Green Setting (Gmax), s	12.0	55.0	28.0	72.0								
Max Q Clear Time (g, c+H1), s	9.0	2.0	25.2	6.1								
Green Ext Time (p, c), s	0.2	11.4	1.8	10.6								
Intersection Summary												
HCM 6th Ctrl Delay								20.2				
HCM 6th LOS								C				
Notes												
User approved volume balancing among the lanes for turning movement												

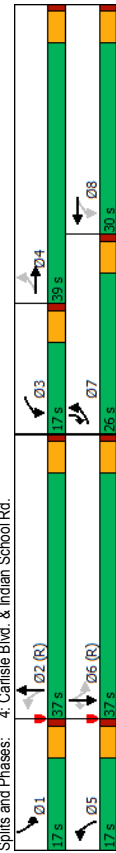
Terry O. Brown, PE
06/27/2019

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	711	7	742	0	0	0	0	974	289	205	1039	0
Traffic Volume (veh/h)	711	7	742	0	0	0	0	974	289	205	1039	0
Future Volume (veh/h)	711	7	742	0	0	0	0	974	289	205	1039	0
Initial Q (Ob), 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	1.00	1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No	No	No	No	No	No	No	No	No	No	No	No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	773	0	812	0	0	0	0	1059	314	223	1129	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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	869	0	1160	0	0	0	0	4015	840	286	3359	0
Arrive On Green	0.25	0.00	0.25	0.00	0.00	0.00	0.00	1.00	1.00	0.11	0.88	0.00
Sat Flow, veh/h	3534	0	4717	0	0	0	0	7867	1572	3428	5233	0
Grip Volume(v), veh/h	773	0	812	0	0	0	0	1059	314	223	1129	0
Grip Sat Flow(s),veh/h/ln	1767	0	1572	0	0	0	0	1503	1572	1714	1689	0
Q Serve(g, s), s	23.2	0.0	17.2	0.0	0.0	0.0	0.0	0.0	0.0	7.0	4.1	0.0
Cycle Q Clear(g, c), s	23.2	0.0	17.2	0.0	0.0	0.0	0.0	0.0	0.0	7.0	4.1	0.0
Prop In Lane	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Grip Cap(c), veh/h	869	0	1160	0	0	0	0	4015	840	286	3359	0
VIC Ratio(X)	0.89	0.00	0.70	0.00	0.00	0.00	0.00	0.26	0.37	0.78	0.34	0.00
Avail Cap(c, a), veh/h	900	0	1201	0	0	0	0	4015	840	374	3359	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	1.33	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	1.00	0.87	0.87	0.00
Uniform Delay (d), s/veh	40.0	0.0	37.8	0.0	0.0	0.0	0.0	0.0	0.0	47.9	2.4	0.0
Incr Delay (d2), s/veh	10.7	0.0	1.8	0.0	0.0	0.0	0.0	0.2	1.3	6.7	0.2	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(95%),veh/ln	16.8	0.0	11.0	0.0	0.0	0.0	0.0	0.1	0.5	5.7	2.0	0.0
Unsig. Movement Delay, s/veh	50.7	0.0	39.5	0.0	0.0	0.0	0.0	0.2	1.3	54.6	2.7	0.

Timings
4: Carlisle Blvd. & Indian School Rd.

Terry O. Brown, PE
06/27/2019

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	514	321	74	309	96	974	234	855	541
Future Volume (vph)	514	321	74	309	96	974	234	855	541
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+ov
Protected Phases	7	4	3	8	5	2	1	6	7
Permitted Phases	4	4	8	8	5	2	1	6	6
Detector Phase	7	4	3	8	5	2	1	6	7
Switch Phase	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Initial (s)	10.0	21.0	10.0	21.0	10.0	21.0	10.0	21.0	10.0
Minimum Split (s)	26.0	39.0	17.0	30.0	17.0	37.0	17.0	37.0	26.0
Total Split (s)	23.6%	35.5%	15.5%	27.3%	15.5%	33.6%	15.5%	33.6%	23.6%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Min	Min	Min	Min	Min	Min	Min	Min	Min
Recall Mode	45.6	32.1	28.1	19.6	42.6	33.5	53.2	40.3	66.3
Act Effct Green (s)	0.41	0.29	0.26	0.18	0.39	0.30	0.48	0.37	0.60
Actuated g/C Ratio	1.36	0.41	0.26	0.75	0.43	0.75	0.80	0.72	0.56
v/c Ratio	201.7	31.5	22.3	44.9	20.7	36.9	44.9	30.3	18.4
Control Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Delay	201.7	31.5	22.3	44.9	20.7	36.9	44.9	30.3	18.4
Total Delay	F	C	C	D	C	D	D	C	B
LOS	F	C	C	D	C	D	D	C	B
Approach Delay	129.1	41.7	41.7	35.5	28.4				
Approach LOS	F	C	C	D	D	D	C		
Intersection Summary									
Cycle Length: 110									
Actuated Cycle Length: 110									
Offset: 8.8 (8%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green									
Natural Cycle: 90									
Control Type: Actuated-Coordinated									
Maximum v/c Ratio: 1.36									
Intersection Signal Delay: 53.5									
Intersection Capacity Utilization 91.6%									
Analysis Period (min) 15									



2031 AM Peak BUILD Conditions - Existing Geometry
Synchro 10 Report
2031ABX.syn

HCM 6th Signalized Intersection Summary
4: Carlisle Blvd. & Indian School Rd.

Terry O. Brown, PE
06/27/2019

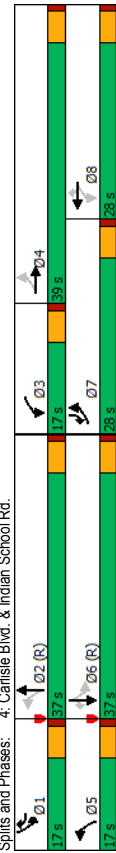
	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Movement	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (veh/h)	514	321	74	309	135	974	80	234	855
Future Volume (veh/h)	514	321	74	309	135	974	80	234	855
Initial Q (Ob), veh	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A, pbT)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No	No	No	No	No	No	No	No	No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	559	349	67	80	336	147	104	1059	87
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3
Cap, veh/h	433	906	172	328	411	177	263	1655	136
Arrive On Green	0.32	0.51	0.51	0.06	0.17	0.17	0.06	0.35	0.35
Sat Flow, veh/h	1767	2956	561	1767	2402	1031	1767	4771	391
Grip Volume(v), veh/h	559	207	209	80	245	238	104	749	397
Grip Sat Flow(s) veh/h/ln	1767	1763	1754	1767	1763	1670	1767	1689	1785
Q Serve(g, s), s	21.0	7.8	8.0	4.0	14.7	15.2	4.1	20.5	20.5
Cycle Q Clear(g, c), s	21.0	7.8	8.0	4.0	14.7	15.2	4.1	20.5	20.5
Prop In Lane	1.00	0.32	1.00	0.62	1.00	0.62	1.00	0.22	1.00
Lane Grip Cap(c), veh/h	433	541	538	328	302	286	263	1172	619
Lane Ratio(X)	1.29	0.38	0.39	0.24	0.81	0.83	0.39	0.64	0.64
Avail Cap(c, a), veh/h	433	545	542	423	401	380	357	1172	619
HCM Platoon Ratio	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.99	0.99	0.99	1.00	1.00	1.00	0.95	0.95	1.00
Uniform Delay (d), s/veh	26.7	20.5	20.6	34.5	43.9	44.1	21.1	30.1	30.2
Incr Delay (d2), s/veh	147.1	0.4	0.5	0.4	9.1	11.3	0.9	2.5	4.8
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%), veh/ln	37.8	5.2	5.3	3.1	11.3	11.3	3.1	13.2	14.3
Unsig. Movement Delay, s/veh	1738	21.0	21.0	34.8	52.9	55.4	22.0	32.7	34.9
LnGrip Delay(d), s/veh	F	C	C	C	D	E	C	C	C
LnGrip LOS	F	C	C	C	D	E	C	C	C
Approach Vol, veh/h	976			563				1771	
Approach Delay, s/veh	108.6			51.4				12.2	
Approach LOS	F	C	C	D				B	
Timer - Assigned Phis	1	2	3	4	5	6	7	8	
Phis Duration (G+Y+Rc), s	17.0	43.2	11.1	38.7	11.2	49.0	26.0	23.8	
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Max Green Setting (Gmax), s	12.0	32.0	12.0	34.0	12.0	32.0	21.0	25.0	
Max Q Clear Time (g, c+H), s	12.2	22.5	6.0	10.0	6.1	24.3	23.0	17.2	
Green Ext Time (p, c), s	0.0	4.9	0.1	2.3	0.1	4.8	0.0	1.7	
Intersection Summary									
HCM 6th Ctrl Delay	43.2								
HCM 6th LOS	D								

2031 AM Peak BUILD Conditions - Existing Geometry
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Timings
4: Carlisle Blvd. & Indian School Rd.

Terry O. Brown, PE
06/28/2019

EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
514	321	74	309	135	96	974	234	855
514	321	74	309	135	96	974	234	855
pm+pt	NA	pm+pt	NA	pm+ov	pm+pt	NA	pm+pt	NA
7	4	3	8	1	5	2	1	6
4	8	8	8	2	2	6	6	6
5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
10.0	21.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
28.0	39.0	17.0	28.0	17.0	17.0	37.0	37.0	28.0
25.5%	35.5%	15.5%	25.5%	15.5%	33.6%	15.5%	33.6%	25.5%
4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead
Min	Min	Min	Min	Min	Min	Min	Min	Min
43.8	30.2	24.4	15.8	38.2	42.9	33.8	55.8	42.2
0.40	0.27	0.22	0.14	0.35	0.39	0.31	0.51	0.38
1.21	0.44	0.29	0.67	0.24	0.41	0.74	0.89	0.54
140.0	33.1	24.6	51.1	7.6	20.0	36.5	37.4	27.9
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140.0	33.1	24.6	51.1	7.6	20.0	36.5	37.4	27.9
F	C	C	D	A	B	D	D	C
94.4	36.0	D	D	D	D	D	D	25.6
F	D	D	D	D	D	D	D	C
110	110	110	110	110	110	110	110	110
8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8
90	90	90	90	90	90	90	90	90
Actuated	Actuated	Actuated	Actuated	Actuated	Actuated	Actuated	Actuated	Actuated
1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21
44.2	44.2	44.2	44.2	44.2	44.2	44.2	44.2	44.2
87.2%	87.2%	87.2%	87.2%	87.2%	87.2%	87.2%	87.2%	87.2%
15	15	15	15	15	15	15	15	15



2031 AM Peak BUILD Conditions - Mitigated Conditions
Synchro 10 Report
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HCM 6th Signalized Intersection Summary
4: Carlisle Blvd. & Indian School Rd.

Terry O. Brown, PE
06/28/2019

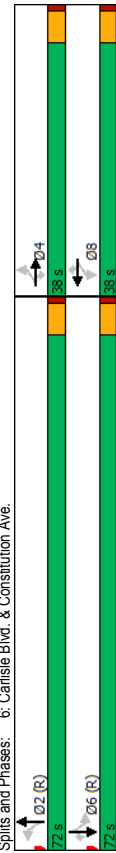
EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
514	321	62	74	309	135	96	974	234
514	321	62	74	309	135	96	974	234
0	0	0	0	0	0	0	0	0
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1856	1856	1856	1856	1856	1856	1856	1856	1856
559	349	67	80	336	147	104	1059	87
0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
3	3	3	3	3	3	3	3	3
467	824	157	289	448	368	280	1788	147
0.35	0.47	0.47	0.06	0.13	0.13	0.05	0.37	0.21
1767	2956	561	1767	3526	1572	1767	4771	391
559	207	209	80	336	147	104	749	397
1767	1763	1754	1767	1763	1572	1767	1689	1785
230	8.6	8.8	4.3	10.1	8.7	3.9	19.6	19.7
230	8.6	8.8	4.3	10.1	8.7	3.9	19.6	19.7
1.00	0.32	1.00	1.00	1.00	1.00	1.00	0.22	1.00
467	492	489	289	448	368	280	1266	669
1.20	0.42	0.43	0.28	0.75	0.40	0.37	0.59	0.59
467	545	542	381	737	497	376	1266	669
1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	2.00
0.99	0.99	0.99	1.00	1.00	1.00	0.95	0.95	1.00
282	235	235	38.3	46.3	35.6	19.1	27.6	27.6
107.9	0.6	0.6	0.5	2.5	0.7	0.8	1.9	3.7
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
33.7	5.8	5.9	3.3	8.0	6.0	2.9	12.6	13.6
136.1	24.0	24.1	38.8	48.8	36.3	19.9	29.6	31.3
F	C	C	D	D	D	B	C	C
97.6	563	563	44.1	44.1	1250	1771	29.3	90
F	F	F	D	D	C	C	C	A
1	2	3	4	5	6	7	8	
16.8	46.2	11.3	35.7	11.0	52.0	28.0	19.0	
5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
12.0	32.0	12.0	34.0	12.0	32.0	23.0	23.0	
11.8	21.7	6.3	10.8	5.9	17.1	25.0	12.1	
0.0	5.2	0.1	2.3	0.1	7.7	0.0	1.9	
35.9								
D								

2031 AM Peak BUILD Conditions - Mitigated Conditions
Synchro 10 Report
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Timings
6: Carlisle Blvd. & Constitution Ave.

Terry O. Brown, PE
06/27/2019

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations	108	92	15	59	166	105	15	585	81	608	218
Traffic Volume (vph)	108	92	15	59	166	105	15	585	81	608	218
Future Volume (vph)	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm
Protected Phases	4	4	4	8	8	8	2	2	6	6	6
Permitted Phases	4	4	4	8	8	8	2	2	6	6	6
Detector Phase	4	4	4	8	8	8	2	2	6	6	6
Switch Phase	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Initial (s)	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
Minimum Split (s)	38.0	38.0	38.0	38.0	38.0	38.0	72.0	72.0	72.0	72.0	72.0
Total Split (%)	34.5%	34.5%	34.5%	34.5%	34.5%	34.5%	65.5%	65.5%	65.5%	65.5%	65.5%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag											
Lead-Lag Optimize?											
Recall Mode	Min	Min	Min	Min	Min	Min	C-Max	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	17.7	17.7	17.7	17.7	17.7	17.7	82.3	82.3	82.3	82.3	82.3
Actuated g/C Ratio	0.16	0.16	0.16	0.16	0.16	0.16	0.75	0.75	0.75	0.75	0.75
v/c Ratio	0.87	0.34	0.06	0.32	0.61	0.33	0.03	0.25	0.16	0.48	0.19
Control Delay	93.4	42.3	12.4	42.9	50.7	9.5	5.2	5.1	0.9	3.8	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	93.4	42.3	12.4	42.9	50.7	9.5	5.2	5.1	0.9	3.8	0.3
LOS	F	D	B	D	D	A	A	A	A	A	A
Approach Delay	65.9			36.2							2.7
Approach LOS	E			D							A
Intersection Summary											
Cycle Length: 110											
Actuated Cycle Length: 110											
Offset: 63.8 (58%), Referenced to phase 2:NBTL and 6:SBTL - Start of Green											
Natural Cycle: 50											
Control Type: Actuated-Coordinated											
Maximum v/c Ratio: 0.87											
Intersection Signal Delay: 15.3											
Intersection Capacity Utilization 67.6%											
Analysis Period (min) 15											



2031 AM Peak BUILD Conditions - Existing Geometry
Synchro 10 Report
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HCM 6th Signalized Intersection Summary
6: Carlisle Blvd. & Constitution Ave.

Terry O. Brown, PE
06/27/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	108	92	15	59	166	105	15	585	21	81	608	218
Traffic Volume (veh/h)	108	92	15	59	166	105	15	585	21	81	608	218
Future Volume (veh/h)	0	0	0	0	0	0	0	0	0	0	0	0
Initial Q (Obs), veh	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A, pbT)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking Bus, Adj	No	No	No	No	No	No	No	No	No	No	No	No
Work Zone On Approach												
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	117	100	16	64	180	114	16	636	23	88	661	237
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Arrive On Green	206	399	338	281	399	338	492	2409	87	546	1288	1091
Cap, veh/h	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.69	0.69	0.69	1.00	1.00
Sat Flow, veh/h	1077	1856	1572	1266	1856	1572	615	3470	125	769	1856	1572
Grip Volume(v), veh/h	117	100	16	64	180	114	16	323	336	88	661	237
Grip Sat Flow(s), veh/h/ln	1077	1856	1572	1266	1856	1572	615	1763	1833	769	1856	1572
Q Serve(g, s), s	11.7	4.9	0.9	4.9	9.3	6.7	0.9	7.5	7.6	9.1	0.0	0.0
Cycle Q Clear(g, c), s	20.9	4.9	0.9	9.8	9.3	6.7	0.9	7.5	7.6	9.1	0.0	0.0
Prop In Lane	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.07	1.00	1.00	1.00
Lane Grip Cap(c), veh/h	206	399	338	281	399	338	492	1223	1272	546	1288	1091
VIC Ratio(X)	0.57	0.25	0.05	0.23	0.45	0.34	0.03	0.26	0.26	0.16	0.51	0.22
Avail Cap(c, a), veh/h	298	557	472	389	557	472	492	1223	1272	546	1288	1091
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.67
Uniform Delay (d), s/veh	46.6	35.8	34.2	39.9	37.5	36.5	5.3	6.3	6.3	0.4	0.0	0.0
Incr Delay (d2), s/veh	2.4	0.3	0.1	0.4	0.8	0.6	0.1	0.5	0.5	0.4	0.0	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(95%), veh/ln	5.9	4.1	0.6	2.8	7.7	4.8	0.2	4.8	4.9	0.1	0.6	0.2
Unsig. Movement Delay, s/veh	49.1	36.1	34.3	40.3	38.3	37.1	5.4	6.8	6.8	0.9	1.0	0.3
LnGrip Delay(d), s/veh	D	D	C	D	D	D	A	A	A	A	A	A
LnGrip LOS	D	D	C	D	D	D	A	A	A	A	A	A
Approach Vol, veh/h	238			358			675			966		
Approach Delay, s/veh	42.5			38.3			6.8			0.8		
Approach LOS	D			D			A			A		
Timer - Assigned Phis	2		4	6		8						
Phis Duration (G+Y+Rc), s	81.3		28.7	81.3		28.7						
Change Period (Y+Rc), s	5.0		5.0	5.0		5.0						
Max Green Setting (Gmax), s	67.0		33.0	67.0		33.0						
Max Q Clear Time (g, c+H1), s	9.6		22.9	11.1		11.8						
Green Ext Time (p, c), s	4.6		0.7	7.1		1.6						
Intersection Summary												
HCM 6th Ctrl Delay	12.9											
HCM 6th LOS	B											

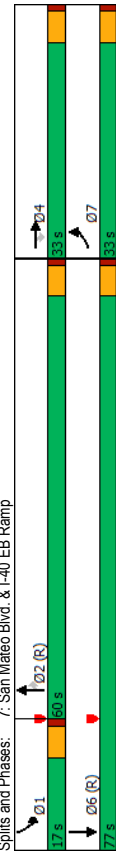
2031 AM Peak BUILD Conditions - Existing Geometry
Synchro 10 Report
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Timings
7: San Mateo Blvd. & I-40 EB Ramp

HCM 6th Signalized Intersection Summary
7: San Mateo Blvd. & I-40 EB Ramp

Terry O. Brown, PE
06/27/2019

	EBL	EBT	EBR	NBT	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	NBT	NBT	NBR	SBL	SBT	SBR
Lane Configurations	586	1	948	1095	149	237	922	922	0
Traffic Volume (vph)	586	1	948	1095	149	237	922	922	0
Future Volume (vph)	586	1	948	1095	149	237	922	922	0
Turn Type	Prot	NA	Perm	NA	Perm	Prot	NA	NA	6
Protected Phases	7	4	4	2	2	1	6	6	
Permitted Phases	7	4	4	2	2	1	6	6	
Detector Phase	7	4	4	2	2	1	6	6	
Switch Phase	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Initial (s)	10.0	21.0	21.0	21.0	21.0	10.0	21.0	21.0	21.0
Minimum Split (s)	33.0	33.0	33.0	60.0	60.0	17.0	77.0	77.0	77.0
Total Split (s)	30.0%	30.0%	30.0%	54.5%	54.5%	15.5%	70.0%	70.0%	70.0%
Total Split (%)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Yellow Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
All-Red Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lost Time Adjust (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Total Lost Time (s)									
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	Min	Min	Min	C-Max	C-Max	Min	C-Max	Min	C-Max
Act Effct Green (s)	28.0	28.0	28.0	55.4	55.4	11.6	72.0	72.0	72.0
Actuated g/C Ratio	0.25	0.25	0.25	0.50	0.50	0.11	0.65	0.65	0.65
v/c Ratio	0.75	1.06	1.06	0.47	0.47	0.19	0.72	0.30	0.30
Control Delay	44.1	87.0	86.3	18.6	18.6	2.8	52.3	2.5	2.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.1	87.0	86.3	18.6	18.6	2.8	52.3	2.5	2.5
LOS	D	F	F	B	B	A	D	A	A
Approach Delay	70.2			16.7			12.7		
Approach LOS	E			B			B		
Intersection Summary									
Cycle Length: 110									
Actuated Cycle Length: 110									
Offset: 90.2 (82%), Referenced to phase 2:NBT and 6:SBT, Start of Green									
Natural Cycle: 55									
Control Type: Actuated-Coordinated									
Maximum v/c Ratio: 1.06									
Intersection Signal Delay: 36.5									
Intersection Capacity Utilization 65.3%									
Analysis Period (min) 15									



2031 AM Peak BUILD Conditions - Existing Geometry
Synchro 10 Report
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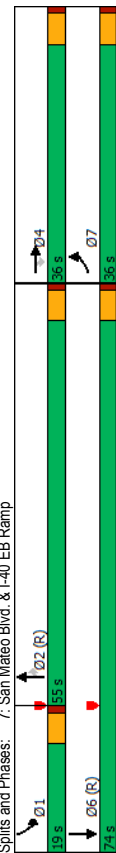
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	586	1	948	0	0	0	0	1095	149	237	922	922
Traffic Volume (veh/h)	586	1	948	0	0	0	0	1095	149	237	922	922
Future Volume (veh/h)	586	1	948	0	0	0	0	1095	149	237	922	922
Initial Q (Ob), 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	1.00	1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No	No	No	No	No	No	No	No	No	No	No	No
Adj Sat Flow, veh/h/ln	1856	1856	1856	0	0	0	0	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	648	0	1031	0	0	0	0	1190	0	258	1002	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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	900	0	801	0	0	0	0	2609	0	322	3316	0
Arrive On Green	0.25	0.00	0.25	0.00	0.00	0.00	0.00	0.52	0.00	0.06	0.44	0.00
Sat Flow, veh/h	3534	0	3145	0	0	0	0	5233	1572	3428	5233	0
Grip Volume(v), veh/h	648	0	1031	0	0	0	0	1190	0	258	1002	0
Grip Sat Flow(s),veh/h/ln	1767	0	1572	0	0	0	0	1689	1572	1714	1689	0
Q Serve(g, s), s	18.4	0.0	28.0	0.0	0.0	0.0	0.0	16.4	0.0	8.2	14.1	0.0
Cycle Q Clear(g, c), s	18.4	0.0	28.0	0.0	0.0	0.0	0.0	16.4	0.0	8.2	14.1	0.0
Prop In Lane	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00
LANE GRIP CAP(C), veh/h	900	0	801	0	0	0	0	2609	0	322	3316	0
VIC Ratio(X)	0.72	0.00	1.29	0.00	0.00	0.00	0.00	0.46	0.00	0.80	0.30	0.00
Avail Cap(c, a), veh/h	900	0	801	0	0	0	0	2609	0	374	3316	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.67	1.00	0.00
Upstream Filter(l)	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.74	0.74	0.00
Uniform Delay (d), s/veh	37.4	0.0	41.0	0.0	0.0	0.0	0.0	16.9	0.0	50.5	14.6	0.0
Incr Delay (d2), s/veh	2.8	0.0	138.9	0.0	0.0	0.0	0.0	0.6	0.0	7.9	0.2	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(95%),veh/ln	12.9	0.0	39.4	0.0	0.0	0.0	0.0	10.5	0.0	6.7	9.3	0.0
Unsig. Movement Delay, s/veh	40.3	0.0	179.9	0.0	0.0	0.0	0.0	17.5	0.0	58.4	14.8	0.0
LnGrip Delay(d),s/veh	D	A	F	A	F	A	A	B	B	E	B	A
LnGrip LOS	D	A	F	A	F	A	A	B	B	E	B	A
Approach Vol, veh/h	1679							1190	A		1260	
Approach Delay, s/veh	126.0							17.5		23.7		
Approach LOS	F							B		C		
Timer - Assigned Phis	1	2	4			6						
Phis Duration (G+Y+Rc), s	15.3	61.7	33.0			77.0						
Change Period (Y+Rc), s	5.0	5.0	5.0			5.0						
Max Green Setting (Gmax), s	12.0	55.0	28.0			72.0						
Max Q Clear Time (g, c+H1), s	10.2	18.4	30.0			16.1						
Green Ext Time (p, c), s	0.2	11.1	0.0			9.3						
Intersection Summary												
HCM 6th Ctrl Delay								63.5				
HCM 6th LOS								E				
Notes												
User approved volume balancing among the lanes for turning movement.												
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.												

2031 AM Peak BUILD Conditions - Existing Geometry
Synchro 10 Report
2031ABX.syn

Timings
7: San Mateo Blvd. & I-40 EB Ramp

Terry O. Brown, PE
06/28/2019

	EBL	EBT	EBR	NBT	NBT	NBR	SBL	SBT
Lane Group	EBL	EBT	EBR	NBT	NBT	NBR	SBL	SBT
Lane Configurations	586	1	948	1095	149	237	922	922
Traffic Volume (vph)	586	1	948	1095	149	237	922	922
Future Volume (vph)	586	1	948	1095	149	237	922	922
Turn Type	Prot	NA	Perm	NA	Perm	Prot	NA	Prot
Protected Phases	7	4	4	2	2	1	6	6
Permitted Phases	7	4	4	2	2	1	6	6
Detector Phase								
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	21.0	21.0	21.0	21.0	10.0	21.0	21.0
Total Split (s)	36.0	36.0	36.0	55.0	55.0	19.0	74.0	74.0
Total Split (%)	32.7%	32.7%	32.7%	50.0%	50.0%	17.3%	67.3%	67.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag				Lag	Lag	Lead		
Lead-Lag Optimize?								
Recall Mode	Min	Min	Min	C-Max	C-Max	Min	C-Max	
Act Effct Green (s)	31.0	31.0	31.0	51.3	51.3	12.7	69.0	
Actuated g/C Ratio	0.28	0.28	0.28	0.47	0.47	0.12	0.63	
v/c Ratio	0.88	1.00	1.00	0.51	0.20	0.66	0.32	
Control Delay	39.3	70.5	70.0	21.7	3.3	48.3	2.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	39.3	70.5	70.0	21.7	3.3	48.3	2.4	
LOS	D	E	E	C	A	D	A	
Approach Delay		58.3		19.5		11.8		
Approach LOS		E		B		B		
Intersection Summary								
Cycle Length: 110								
Actuated Cycle Length: 110								
Offset: 90.2 (82%), Referenced to phase 2:NBT and 6:SBT, Start of Green								
Natural Cycle: 55								
Control Type: Actuated-Coordinated								
Maximum v/c Ratio: 1.00								
Intersection Signal Delay: 32.4								
Intersection Capacity Utilization 65.3%								
Analysis Period (min) 15								



2031 AM Peak BUILD Conditions - Mitigated Conditions
Synchro 10 Report
2031AB_MitSyn

HCM 6th Signalized Intersection Summary
7: San Mateo Blvd. & I-40 EB Ramp

Terry O. Brown, PE
06/28/2019

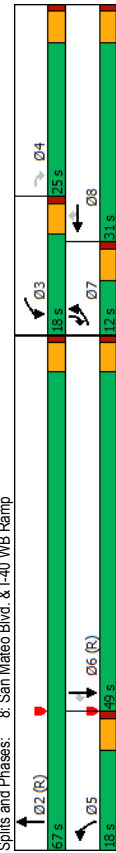
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	586	1	948	0	0	0	0	1095	149	237	922	922
Traffic Volume (veh/h)	586	1	948	0	0	0	0	1095	149	237	922	922
Future Volume (veh/h)	586	1	948	0	0	0	0	1095	149	237	922	922
Initial Q (Ob), 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	1.00	1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No	No	No	No	No	No	No	No	No	No	No	No
Adj Sat Flow, veh/h/in	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	648	0	1031	0	0	0	0	1190	0	258	1002	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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	996	0	886	0	0	0	0	2467	0	325	3178	0
Arrive On Green	0.28	0.00	0.28	0.00	0.00	0.00	0.00	0.49	0.00	0.09	0.63	0.00
Sat Flow, veh/h	3534	0	3145	0	0	0	0	5233	1572	3428	5233	0
Grip Volume(v), veh/h	648	0	1031	0	0	0	0	1190	0	258	1002	0
Grip Sat Flow(s),veh/h/in	1767	0	1572	0	0	0	0	1689	1572	1714	1689	0
Q Serve(g.s), s	17.7	0.0	31.0	0.0	0.0	0.0	0.0	17.3	0.0	8.1	10.1	0.0
Cycle Q Clear(g.c), s	17.7	0.0	31.0	0.0	0.0	0.0	0.0	17.3	0.0	8.1	10.1	0.0
Prop In Lane	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Grip Cap(c), veh/h	996	0	886	0	0	0	0	2467	0	325	3178	0
VIC Ratio(X)	0.65	0.00	1.16	0.00	0.00	0.00	0.00	0.48	0.00	0.79	0.32	0.00
Avail Cap(c,a), veh/h	996	0	886	0	0	0	0	2467	0	325	3178	0
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(l)	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.74	0.74	0.00
Uniform Delay (d), s/veh	34.7	0.0	39.5	0.0	0.0	0.0	0.0	18.9	0.0	48.7	9.5	0.0
Incr Delay (d2), s/veh	1.5	0.0	85.8	0.0	0.0	0.0	0.0	0.7	0.0	5.4	0.2	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(95%),veh/h	12.3	0.0	32.8	0.0	0.0	0.0	0.0	11.1	0.0	6.4	6.3	0.0
Unsig. Movement Delay, s/veh												
LnGrip Delay(d),s/veh	362	0.0	125.3	0.0	0.0	0.0	0.0	19.6	0.0	54.1	9.7	0.0
LnGrip LOS	D	A	F	A	A	A	A	B	B	D	A	A
Approach Vol, veh/h		1679						1190		A		1260
Approach Delay, s/veh		91.0						19.6		B		18.8
Approach LOS		F						B		B		B
Timer - Assigned Phis	1	2	4	6								
Phis Duration (G+Y+Rc), s	15.4	58.6	36.0	74.0								
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0								
Max Green Setting (Gmax), s	14.0	50.0	31.0	69.0								
Max Q Clear Time (g_c+H1), s	10.1	19.3	33.0	12.1								
Green Ext Time (p_c), s	0.3	10.5	0.0	9.3								
Intersection Summary												
HCM 6th Ctrl Delay			48.4									
HCM 6th LOS			D									
Notes												
User approved volume balancing among the lanes for turning movement.												
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.												

2031 AM Peak BUILD Conditions - Mitigated Conditions
Synchro 10 Report
2031AB_MitSyn

Timings
8: San Mateo Blvd. & I-40 WB Ramp

Terry O. Brown, PE
06/28/2019

EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBR
62	188	345	172	406	149	998	1101	114	114
62	188	345	172	406	149	998	1101	114	114
7	4	3	8	8	8	5	2	6	7
7	4	3	8	8	8	5	2	6	7
5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
10.0	21.0	10.0	21.0	10.0	21.0	10.0	21.0	10.0	10.0
12.0	25.0	18.0	31.0	18.0	31.0	18.0	31.0	18.0	12.0
10.9%	22.7%	16.4%	28.2%	16.4%	28.2%	16.4%	28.2%	16.4%	10.9%
4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Min	Min	Min	Min	Min	Min	Min	Min	Min	Min
6.7	19.3	13.0	25.6	25.6	10.5	62.7	47.2	58.9	58.9
0.06	0.18	0.12	0.23	0.23	0.10	0.57	0.43	0.54	0.54
0.32	0.46	0.94	0.44	0.97	0.50	0.38	0.55	0.14	0.14
53.7	9.1	80.0	39.6	66.0	49.5	17.1	25.2	2.9	2.9
53.7	9.1	80.0	39.6	66.0	49.5	17.1	25.2	2.9	2.9
D	A	F	D	E	D	B	C	A	A
66.3	66.3	66.3	66.3	66.3	66.3	66.3	66.3	66.3	66.3
E	E	E	E	E	E	E	E	E	E
C	C	C	C	C	C	C	C	C	C
110	110	110	110	110	110	110	110	110	110
49.5 (45%)	49.5 (45%)	49.5 (45%)	49.5 (45%)	49.5 (45%)	49.5 (45%)	49.5 (45%)	49.5 (45%)	49.5 (45%)	49.5 (45%)
65	65	65	65	65	65	65	65	65	65
Actuated-Coordinated	Actuated-Coordinated	Actuated-Coordinated	Actuated-Coordinated	Actuated-Coordinated	Actuated-Coordinated	Actuated-Coordinated	Actuated-Coordinated	Actuated-Coordinated	Actuated-Coordinated
33.6	33.6	33.6	33.6	33.6	33.6	33.6	33.6	33.6	33.6
59.4%	59.4%	59.4%	59.4%	59.4%	59.4%	59.4%	59.4%	59.4%	59.4%
15	15	15	15	15	15	15	15	15	15



2031 AM Peak BUILD Conditions - Mitigated Conditions

Terry O. Brown, PE
06/28/2019

8: San Mateo Blvd. & I-40 WB Ramp

EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBR
62	188	345	172	406	149	998	1101	114	114
62	188	345	172	406	149	998	1101	114	114
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1856	0	1856	1856	1856	1856	1856	0	0	1856
67	0	204	375	187	441	162	1085	0	0
0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
3	0	3	3	3	3	3	3	0	3
156	0	1122	439	372	227	2947	0	0	2381
0.05	0.00	0.00	0.33	0.24	0.24	0.09	0.77	0.00	0.47
3428	67	3428	1856	1572	3428	5233	0	0	5233
67	53.0	375	187	441	162	1085	0	0	1197
1714	D	1714	1856	1572	1714	1689	0	0	1689
2.1	9.1	9.4	26.0	5.1	7.5	0.0	0.0	18.0	4.6
2.1	9.1	9.4	26.0	5.1	7.5	0.0	0.0	18.0	4.6
1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00
0.43	0.33	0.43	1.19	0.71	0.37	0.00	0.00	0.50	0.15
218	1122	439	372	405	2947	0	0	2381	811
1.00	1.00	1.00	1.00	1.33	1.33	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	0.80	0.80	0.00	0.00	1.00	1.00
51.1	27.9	35.7	42.0	49.1	6.0	0.0	0.0	20.2	14.0
1.9	0.2	0.7	107.9	3.3	0.0	0.0	0.0	0.0	0.4
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1.7	6.7	7.7	31.4	4.0	4.0	4.0	4.0	0.0	11.3
530	28.1	36.3	149.9	52.5	6.3	0.0	0.0	21.0	14.4
D	C	D	F	D	A	A	A	A	B
1003	1003	1003	1003	1003	1003	1003	1003	1003	1003
83.2	83.2	83.2	83.2	83.2	83.2	83.2	83.2	83.2	83.2
F	F	F	F	F	F	F	F	F	F
2	3	3	5	6	7	8	8	8	8
69.0	41.0	12.3	56.7	10.0	31.0	31.0	31.0	31.0	31.0
5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
62.0	13.0	13.0	44.0	7.0	26.0	26.0	26.0	26.0	26.0
9.5	11.1	7.1	20.0	4.1	28.0	28.0	28.0	28.0	28.0
9.8	0.3	0.2	9.7	0.0	0.0	0.0	0.0	0.0	0.0
35.5	35.5	35.5	35.5	35.5	35.5	35.5	35.5	35.5	35.5
D	D	D	D	D	D	D	D	D	D

2031 AM Peak BUILD Conditions - Mitigated Conditions

Intersection						
Int Delay, s/veh	1.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↵	↶	↑↑↑	↶	↵	↑↑↑
Traffic Vol, veh/h	97	66	1563	69	126	1568
Future Vol, veh/h	97	66	1563	69	126	1568
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	30	0	-	115	220	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	105	72	1699	75	137	1704

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	2655	850	0	0	1774
Stage 1	1699	-	-	-	-
Stage 2	956	-	-	-	-
Critical Hdwy	5.76	7.16	-	-	5.36
Critical Hdwy Stg 1	6.66	-	-	-	-
Critical Hdwy Stg 2	6.06	-	-	-	-
Follow-up Hdwy	3.83	3.93	-	-	3.13
Pot Cap-1 Maneuver	*368	*555	-	-	695
Stage 1	*569	-	-	-	-
Stage 2	*569	-	-	-	-
Platoon blocked, %	1	1	-	-	1
Mov Cap-1 Maneuver	*296	*555	-	-	695
Mov Cap-2 Maneuver	*296	-	-	-	-
Stage 1	*569	-	-	-	-
Stage 2	*457	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	19.1	0	0.9
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	296	555	695
HCM Lane V/C Ratio	-	-	0.356	0.129	0.197
HCM Control Delay (s)	-	-	23.7	12.4	11.4
HCM Lane LOS	-	-	C	B	B
HCM 95th %tile Q(veh)	-	-	1.6	0.4	0.7

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection						
Int Delay, s/veh	0.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗ ↑↑↑	↑↑↑ ↘			↑↑↑
Traffic Vol, veh/h	0	31	1565	57	0	1630
Future Vol, veh/h	0	31	1565	57	0	1630
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	34	1701	62	0	1772

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	-	882	0	0	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	7.16	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	3.93	-	-	-
Pot Cap-1 Maneuver	0	*555	-	-	0
Stage 1	0	-	-	-	0
Stage 2	0	-	-	-	0
Platoon blocked, %		1	-	-	-
Mov Cap-1 Maneuver	-	*555	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.9	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	-	555
HCM Lane V/C Ratio	-	-	0.061
HCM Control Delay (s)	-	-	11.9
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0.2

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↑↑	↑↑		↘	
Traffic Vol, veh/h	37	598	492	55	38	26
Future Vol, veh/h	37	598	492	55	38	26
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	80	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	40	650	535	60	41	28

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	595	0	-	0	970
Stage 1	-	-	-	-	565
Stage 2	-	-	-	-	405
Critical Hdwy	4.16	-	-	-	6.86
Critical Hdwy Stg 1	-	-	-	-	5.86
Critical Hdwy Stg 2	-	-	-	-	5.86
Follow-up Hdwy	2.23	-	-	-	3.53
Pot Cap-1 Maneuver	970	-	-	-	*436
Stage 1	-	-	-	-	*530
Stage 2	-	-	-	-	*804
Platoon blocked, %		-	-	-	1
Mov Cap-1 Maneuver	970	-	-	-	*418
Mov Cap-2 Maneuver	-	-	-	-	*418
Stage 1	-	-	-	-	*508
Stage 2	-	-	-	-	*804

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	13.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	970	-	-	-	499
HCM Lane V/C Ratio	0.041	-	-	-	0.139
HCM Control Delay (s)	8.9	-	-	-	13.4
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.5

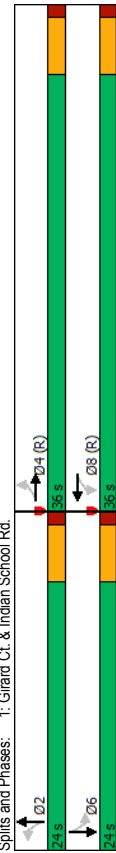
Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

2031 PM Peak Hour
NO BUILD Analyses

Timings
1: Girard Ct. & Indian School Rd.

Terry O. Brown, PE
06/27/2019

EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
31	494	12	681	74	23	78	17
31	494	12	681	74	23	78	17
Perm	NA	Perm	NA	Perm	NA	Perm	NA
4	4	8	8	2	2	6	6
4	4	8	8	2	2	6	6
5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
36.0	36.0	36.0	36.0	24.0	24.0	24.0	24.0
60.0%	60.0%	60.0%	60.0%	40.0%	40.0%	40.0%	40.0%
4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
C-Max	C-Max	C-Max	C-Max	Min	Min	Min	Min
40.9	40.9	40.9	40.9	9.1	9.1	9.1	9.1
0.68	0.68	0.68	0.68	0.15	0.15	0.15	0.15
0.08	0.25	0.02	0.36	0.39	0.10	0.41	0.16
4.7	4.2	4.4	6.0	27.6	19.9	28.1	13.6
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4.7	4.2	4.4	6.0	27.6	19.9	28.1	13.6
A	A	A	A	C	B	C	B
4.2	6.0	6.0	25.7	23.2			
A	A	A	A	C	C	C	C
Intersection Summary							
Cycle Length: 60							
Actuated Cycle Length: 60							
Offset: 22.2 (37%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green							
Natural Cycle: 45							
Control Type: Actuated-Coordinated							
Maximum v/c Ratio: 0.41							
Intersection Signal Delay: 7.9							
Intersection Capacity Utilization: 45.1%							
Analysis Period (min): 15							



2031 PM Peak NOBUILD Conditions - Existing Geometry
Synchro 10 Report
2031PNX.syn

HCM 6th Signalized Intersection Summary
1: Girard Ct. & Indian School Rd.

Terry O. Brown, PE
06/27/2019

EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
31	494	12	681	74	23	78	17
31	494	12	681	74	23	78	17
0	0	0	0	0	0	0	0
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1856	1856	1856	1856	1856	1856	1856	1856
34	537	45	13	740	80	25	2
0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
3	3	3	3	3	3	3	3
574	2359	197	666	302	247	199	16
0.72	0.72	0.72	0.95	0.95	0.12	0.12	0.12
650	3293	275	826	422	1353	1695	136
34	287	295	13	418	422	80	27
650	1763	1806	826	1763	1780	1353	0
1.0	3.3	3.3	0.1	1.0	3.4	0.0	0.8
2.0	3.3	3.3	3.4	1.0	4.8	0.0	0.8
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
574	1262	1293	666	1262	1274	247	0
0.06	0.23	0.23	0.02	0.33	0.32	0.00	0.13
574	1262	1293	666	1262	1274	517	0
1.00	1.00	1.00	1.33	1.33	1.00	1.00	1.00
2.9	2.9	2.9	0.7	0.4	0.4	26.2	0.0
0.2	0.4	0.4	0.4	0.4	0.8	0.0	0.3
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.2	1.1	1.2	0.0	0.5	2.0	0.0	0.6
3.1	3.3	3.3	0.7	0.9	26.9	0.0	24.0
616	853	853	107	26.2	107	26.2	128
3.3	0.9	0.9	26.2	107	26.2	107	258
A	A	A	A	A	A	A	C
A	A	A	A	A	A	A	C
2	4	6	8	8	8	8	8
12.0	48.0	12.0	48.0	48.0	48.0	48.0	48.0
5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
19.0	31.0	19.0	31.0	31.0	31.0	31.0	31.0
6.8	5.3	6.3	5.4	5.4	5.4	5.4	5.4
0.2	3.7	0.3	5.4	5.4	5.4	5.4	5.4
Intersection Summary							
HCM 6th Ctrl Delay: 5.2							
HCM 6th LOS: A							

2031 PM Peak NOBUILD Conditions - Existing Geometry
Synchro 10 Report
2031PNX.syn

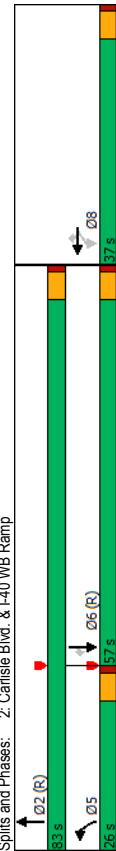
Timings
2: Carlisle Blvd. & I-40 WB Ramp

HCM 6th Signalized Intersection Summary
2: Carlisle Blvd. & I-40 WB Ramp

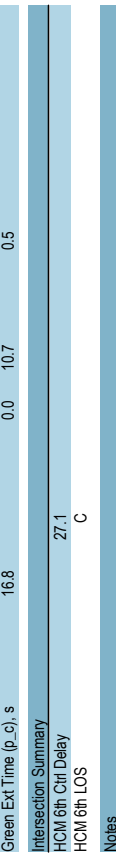
Terry O. Brown, PE
06/27/2019

Terry O. Brown, PE
06/27/2019

Lane Group	WBL	WBT	WBR	NBL	NBT	SBR
Lane Configurations	←	←	←	←	←	←
Traffic Volume (vph)	326	7	352	529	1364	1199
Future Volume (vph)	326	7	352	529	1364	1199
Turn Type	Perm	NA	Perm	Prot	NA	Perm
Protected Phases	8	8	8	5	2	6
Permitted Phases	8	8	8	5	2	6
Detector Phase						
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	21.0	21.0	21.0	10.0	21.0	21.0
Total Split (s)	37.0	37.0	37.0	26.0	83.0	57.0
Total Split (%)	30.8%	30.8%	30.8%	21.7%	69.2%	47.5%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag				Lead	Lag	Lag
Lead-Lag Optimize?						
Recall Mode	Min	Min	Min	Min	C-Max	C-Max
Act Effct Green (s)	31.1	31.1	31.1	21.3	78.9	52.6
Actuated g/C Ratio	0.26	0.26	0.26	0.18	0.66	0.44
v/c Ratio	0.42	0.42	0.94	0.95	0.45	0.59
Control Delay	40.2	40.1	76.7	67.1	9.8	27.0
Queue Delay	0.0	0.0	0.0	0.0	0.3	0.0
Total Delay	40.2	40.1	76.7	67.1	10.1	27.0
LOS	D	D	E	E	B	C
Approach Delay		58.9			26.0	20.2
Approach LOS		E			C	C
Intersection Summary						
Cycle Length: 120						
Actuated Cycle Length: 120						
Offset: 92 (77%), Referenced to phase 2:NBT and 6:SBT, Start of Green						
Natural Cycle: 65						
Control Type: Actuated-Coordinated						
Maximum v/c Ratio: 0.96						
Intersection Signal Delay: 29.0						
Intersection Capacity Utilization 73.3%						
Analysis Period (min) 15						



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations				←	←	←	←	←	←	←	←
Traffic Volume (veh/h)	0	0	0	326	7	352	529	1364	0	0	1199
Future Volume (veh/h)	0	0	0	326	7	352	529	1364	0	0	1199
Initial Q (Ob), veh											
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
Work Zone On Approach				No	No	No	No	No	No	No	No
Adj Sat Flow, veh/h/ln				1856	1856	1856	1856	1856	0	0	1856
Adj Flow Rate, veh/h				360	0	383	575	1483	0	0	1303
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				3	3	3	3	3	0	0	3
Cap, veh/h				916	0	408	600	3331	0	0	2233
Arrive On Green				0.26	0.00	0.26	0.35	1.00	0.00	0.00	0.44
Sat Flow, veh/h				3534	0	1572	3428	5233	0	0	5233
Grip Volume(v), veh/h				360	0	383	575	1483	0	0	1303
Grip Sat Flow(s),veh/h/ln				1767	0	1572	1714	1689	0	0	1689
Q Serve(g, s), s				10.1	0.0	28.6	19.7	0.0	0.0	0.0	23.2
Cycle Q Clear(g, c), s				10.1	0.0	28.6	19.7	0.0	0.0	0.0	23.2
Prop In Lane				1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00
Lane Grip Cap(c), veh/h				916	0	408	600	3331	0	0	2233
V/C Ratio(X)				0.39	0.00	0.94	0.96	0.45	0.00	0.00	0.58
Avail Cap(c, a), veh/h				942	0	419	600	3331	0	0	2233
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(l)				1.00	0.00	1.00	0.79	0.79	0.00	0.00	1.00
Uniform Delay (d), s/veh				36.7	0.0	43.5	38.6	0.0	0.0	0.0	25.3
Incr Delay (d2), s/veh				0.3	0.0	28.8	22.9	0.3	0.0	0.0	1.1
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln				7.8	0.0	20.5	12.9	0.2	0.0	0.0	14.3
Unsig. Movement Delay, s/veh				36.9	0.0	72.4	61.5	0.3	0.0	0.0	26.4
LnGrip Delay(d),s/veh				D	A	E	E	A	A	A	C
LnGrip LOS				D	A	E	E	A	A	A	C
Approach Vol, veh/h				743				2058			1303
Approach Delay, s/veh				55.2				17.4			26.4
Approach LOS				E				B			C
Timer - Assigned Phis				2			5	6		8	
Phis Duration (G+Y+Rc), s				83.9			26.0	57.9		36.1	
Change Period (Y+Rc), s				5.0			5.0	5.0		5.0	
Max Green Setting (Gmax), s				78.0			21.0	52.0		32.0	
Max Q Clear Time (g, c+H1), s				2.0			21.7	25.2		30.6	
Green Ext Time (p, c), s				16.8			0.0	10.7		0.5	
Intersection Summary											
HCM 6th Ctrl Delay				27.1							
HCM 6th LOS				C							
Notes											
User approved volume balancing among the lanes for turning movement.											
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.											



2031 PM Peak NOBUILD Conditions - Existing Geometry
Synchro 10 Report
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2031 PM Peak NOBUILD Conditions - Existing Geometry
Synchro 10 Report
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Timings
3: Carlisle Blvd. & I-40 EB Ramp

HCM 6th Signalized Intersection Summary
3: Carlisle Blvd. & I-40 EB Ramp

Terry O. Brown, PE
06/27/2019

Terry O. Brown, PE
06/27/2019

EBL	EBT	EBR	NBT	NBT	NBR	SBL	SBT
681	15	649	1340	461	439	1047	
681	15	649	1340	461	439	1047	
Perm	NA	Perm	NA	Perm	Prdt	NA	
4	4	4	2	2	1	6	
4	4	4	2	2	1	6	
5.0	5.0	5.0	5.0	5.0	5.0	5.0	
21.0	21.0	21.0	21.0	21.0	10.0	21.0	
38.0	38.0	38.0	54.0	54.0	28.0	82.0	
31.7%	31.7%	31.7%	45.0%	45.0%	23.3%	68.3%	
4.0	4.0	4.0	4.0	4.0	4.0	4.0	
1.0	1.0	1.0	1.0	1.0	1.0	1.0	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	
5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Min	Min	Min	C-Max	C-Max	Min	C-Max	
32.2	32.2	32.2	51.9	51.9	20.9	77.8	
0.27	0.27	0.27	0.43	0.43	0.17	0.65	
0.82	0.62	0.63	0.45	0.52	0.81	0.35	
49.7	46.5	42.6	34.6	11.9	81.6	6.7	
49.7	46.5	42.6	34.6	11.9	81.6	6.8	
D	D	D	C	B	F	A	
46.9			28.8			28.9	
D			C			C	
120							
110.4 (92%)							
60							
Actuated-Coordinated							
0.82							
34.1							
73.3%							
15							
0.1	0.2 (R)	0.5 (S)	0.4	0.5	0.5	0.5	
0.1	0.2 (R)	0.5 (S)	0.4	0.5	0.5	0.5	
0.1	0.2 (R)	0.5 (S)	0.4	0.5	0.5	0.5	

EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
681	15	649	0	0	0	1340	461	439	1047		
681	15	649	0	0	0	1340	461	439	1047		
0	0	0	0	0	0	0	0	0	0	0	0
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	No	No	No	No	No	No	No	No	No
1856	1856	1856	0	0	0	1856	1856	1856	1856	1856	0
751	0	716	0	0	0	1457	501	477	1138	0	0
0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
3	3	3	0	0	0	3	3	3	3	3	0
879	0	1173	0	0	0	3532	739	536	3383	0	0
0.25	0.00	0.25	0.00	0.00	0.00	0.63	0.63	0.31	1.00	0.00	0.00
3534	0	4717	0	0	0	7867	1572	3428	5233	0	0
751	0	716	0	0	0	1457	501	477	1138	0	0
1767	0	1572	0	0	0	1503	1572	1714	1689	0	0
24.3	0.0	16.1	0.0	0.0	0.0	11.8	24.9	15.9	0.0	0.0	0.0
24.3	0.0	16.1	0.0	0.0	0.0	11.8	24.9	15.9	0.0	0.0	0.0
1.00	1.00	1.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00	0.00
879	0	1173	0	0	0	3532	739	536	3383	0	0
0.85	0.00	0.61	0.00	0.00	0.00	0.41	0.68	0.89	0.34	0.00	0.00
972	0	1297	0	0	0	3532	739	657	3383	0	0
1.00	1.00	1.00	1.00	1.00	1.00	1.33	2.00	2.00	1.00	1.00	1.00
1.00	0.00	1.00	0.00	0.00	0.00	0.09	0.09	0.80	0.80	0.00	0.00
43.0	0.0	39.9	0.0	0.0	0.0	14.1	16.6	40.3	0.0	0.0	0.0
7.0	0.0	0.7	0.0	0.0	0.0	0.5	10.3	0.2	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17.0	0.0	10.4	0.0	0.0	0.0	4.4	8.7	9.9	0.1	0.0	0.0
50.0	0.0	40.6	0.0	0.0	0.0	14.2	17.0	50.5	0.2	0.0	0.0
D	A	D	A	D	A	B	B	D	A	A	A
1467						1958				1615	
45.4						14.9				15.1	
D						B				B	
1	2	4	6								
23.8	61.4	34.8	85.2								
5.0	5.0	5.0	5.0								
23.0	49.0	33.0	77.0								
17.9	26.9	26.3	2.0								
0.9	13.3	3.5	10.8								
Intersection Summary											
HCM 6th Ctrl Delay		23.8									
HCM 6th LOS		C									
Notes											
User approved volume balancing among the lanes for turning movement.											

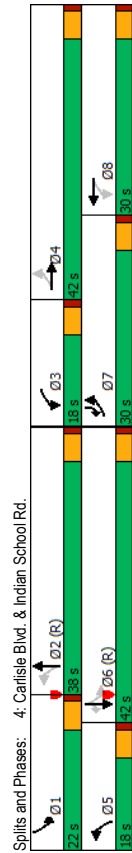
2031 PM Peak NOBUILD Conditions - Existing Geometry
Synchro 10 Report
2031PNX.syn

2031 PM Peak NOBUILD Conditions - Existing Geometry
Synchro 10 Report
2031PNX.syn

Timings
4: Carlisle Blvd. & Indian School Rd.

Terry O. Brown, PE
06/27/2019

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	565	802	75	350	157	1376	242	914	465
Future Volume (vph)	565	802	75	350	157	1376	242	914	465
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+ov
Protected Phases	7	4	3	8	5	2	1	6	7
Permitted Phases	4	4	3	8	2	2	1	6	6
Detector Phase	7	4	3	8	5	2	1	6	7
Switch Phase	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Initial (s)	10.0	21.0	10.0	21.0	10.0	21.0	10.0	21.0	10.0
Minimum Split (s)	30.0	42.0	18.0	30.0	18.0	38.0	22.0	42.0	30.0
Total Split (s)	25.0%	35.0%	15.0%	25.0%	15.0%	31.7%	18.3%	35.0%	25.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Min	Min	Min	Min	Min	Min	Min	Min	Min
Recall Mode	53.2	39.5	31.9	23.2	47.2	35.6	56.1	40.2	70.2
Act Effct Green (s)	0.44	0.33	0.27	0.19	0.39	0.30	0.47	0.34	0.58
Actuated g/C Ratio	1.44	0.88	0.44	0.87	0.74	1.06	0.89	0.85	0.92
v/c Ratio	239.9	47.0	28.9	50.3	49.8	77.9	62.6	45.1	13.6
Control Delay	239.9	47.0	28.9	50.3	49.8	77.9	62.6	45.1	13.6
Queue Delay	F	D	C	D	D	E	E	D	B
Total Delay	120.5	47.9	47.9	75.1	38.7				
Approach Delay									
Approach LOS	F	B	B	D	E	E	D	D	D
Intersection Summary									
Cycle Length: 120									
Actuated Cycle Length: 120									
Offset: 9.6 (8%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green									
Natural Cycle: 100									
Control Type: Actuated-Coordinated									
Maximum v/c Ratio: 1.44									
Intersection Signal Delay: 73.3									
Intersection Capacity Utilization 106.8%									
Analysis Period (min) 15									



2031 PM Peak NOBUILD Conditions - Existing Geometry
Synchro 10 Report
2031PNX.syn

HCM 6th Signalized Intersection Summary
4: Carlisle Blvd. & Indian School Rd.

Terry O. Brown, PE
06/27/2019

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Movement	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (veh/h)	565	802	116	75	350	239	157	1376	68
Future Volume (veh/h)	565	802	116	75	350	239	157	1376	68
Initial Q (Obs), veh	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	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No	No	No	No	No	No	No	No	No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	614	872	126	82	380	260	171	1496	74
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3
Cap, veh/h	442	1116	161	256	415	280	251	1441	71
Arrive On Green	0.42	0.72	0.42	0.05	0.21	0.21	0.08	0.29	0.25
Sat Flow, veh/h	1767	3091	447	1767	2014	1359	1767	4944	245
Grip Volume(v), veh/h	614	497	501	82	332	308	171	1022	548
Grip Sat Flow(s) veh/h/ln	1767	1763	1775	1767	1763	1611	1767	1689	1812
Q Serve(g, s), s	25.0	21.6	21.6	4.3	22.1	22.5	8.0	35.0	35.0
Cycle Q Clear(g, c), s	25.0	21.6	21.6	4.3	22.1	22.5	8.0	35.0	35.0
Prop In Lane	1.00	0.25	1.00	0.84	1.00	0.84	1.00	1.00	1.00
Lane Grip Cap(c), veh/h	442	636	641	256	363	332	251	984	528
Lane Ratio(X)	1.39	0.78	0.78	0.32	0.91	0.93	0.68	1.04	1.04
Avail Cap(c, a), veh/h	442	636	641	353	367	336	293	984	528
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.97	0.97	0.97	0.94	0.94	0.94	0.88	0.88	0.88
Uniform Delay (d), s/veh	21.9	13.7	13.7	34.6	46.6	46.8	29.2	42.5	42.5
Incr Delay (d2), s/veh	187.6	6.1	6.0	0.7	25.4	29.8	4.5	37.3	47.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%), veh/h	44.7	9.3	9.3	3.4	17.5	17.0	6.6	26.8	30.2
Unsig. Movement Delay, s/veh	209.4	19.7	19.7	35.2	72.0	76.6	33.7	79.8	89.5
LnGrip Delay(d), s/veh	F	B	B	D	E	E	C	F	F
LnGrip LOS	F	B	B	D	E	E	C	F	F
Approach Vol, veh/h	1612	92.0	92.0	722	722	1741	1761	252	1761
Approach Delay, s/veh	92.0	92.0	92.0	69.8	78.3	78.3	25.2	25.2	25.2
Approach LOS	F	B	B	E	E	E	C	F	F
Timer - Assigned Phis	1	2	3	4	5	6	7	8	
Phis Duration (G+Y+Rc), s	20.3	40.0	11.4	48.3	15.1	45.1	30.0	29.7	
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Max Green Setting (Gmax), s	17.0	33.0	13.0	37.0	13.0	37.0	25.0	25.0	
Max Q Clear Time (g, c+H1), s	15.1	37.0	6.3	23.6	10.0	27.6	27.0	24.5	
Green Ext Time (p, c), s	0.1	0.0	0.1	5.1	0.1	5.7	0.0	0.2	
Intersection Summary									
HCM 6th Ctrl Delay	65.0								
HCM 6th LOS	E								

2031 PM Peak NOBUILD Conditions - Existing Geometry
Synchro 10 Report
2031PNX.syn

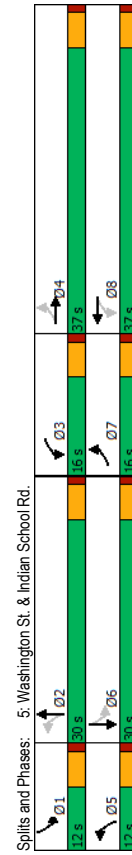
Timings
5: Washington St. & Indian School Rd.

HCM 6th Signalized Intersection Summary
5: Washington St. & Indian School Rd.

Terry O. Brown, PE
06/27/2019

Terry O. Brown, PE
06/27/2019

EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
→	→	←	←	→	→	←	←
187	504	43	312	74	282	54	277
187	504	43	312	74	282	54	277
pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA
7	4	3	8	5	2	1	6
4	8	8	8	2	2	1	6
5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
10.0	21.0	10.0	21.0	10.0	21.0	10.0	21.0
16.0	37.0	16.0	37.0	12.0	30.0	12.0	30.0
16.8%	38.9%	16.8%	38.9%	12.6%	31.6%	12.6%	31.6%
4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Min	Max	Min	Max	Min	Max	Min	Max
0.49	0.38	0.41	0.34	0.34	0.27	0.34	0.26
0.42	0.49	0.14	0.34	0.39	0.76	0.23	0.96
16.1	23.3	13.4	22.7	24.6	42.5	20.9	65.5
16.1	23.3	13.4	22.7	24.6	42.5	20.9	65.5
B	C	B	C	C	D	C	E
21.6	21.8	21.8	21.8	39.3	39.3	60.5	60.5
C	C	C	C	D	D	E	E
45.8	35.5	38.8	32.0	31.8	25.1	31.5	24.9
0.49	0.38	0.41	0.34	0.34	0.27	0.34	0.26
0.42	0.49	0.14	0.34	0.39	0.76	0.23	0.96
16.1	23.3	13.4	22.7	24.6	42.5	20.9	65.5
16.1	23.3	13.4	22.7	24.6	42.5	20.9	65.5
B	C	B	C	C	D	C	E
21.6	21.8	21.8	21.8	39.3	39.3	60.5	60.5
C	C	C	C	D	D	E	E
94	65	65	65	65	65	65	65
0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
65.6%	65.6%	65.6%	65.6%	65.6%	65.6%	65.6%	65.6%
15	15	15	15	15	15	15	15



EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
187	504	87	43	312	63	74	282
187	504	87	43	312	63	74	282
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1856	1856	1856	1856	1856	1856	1856	1856
203	548	95	47	339	68	80	307
0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
3	3	3	3	3	3	3	3
506	1180	204	377	1036	205	191	416
0.09	0.39	0.39	0.06	0.35	0.35	0.06	0.28
1767	3006	519	1767	2932	581	1767	1508
203	321	322	47	202	205	80	0
1767	1763	1762	1767	1763	1751	1767	0
6.4	12.2	12.3	1.5	7.6	7.8	2.9	0.0
6.4	12.2	12.3	1.5	7.6	7.8	2.9	0.0
1.00	0.29	1.00	0.33	1.00	0.33	1.00	0.16
506	692	692	377	623	619	191	0
0.40	0.46	0.47	0.12	0.32	0.33	0.42	0.00
554	692	692	494	623	619	230	0
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
15.7	20.4	20.4	16.7	21.4	21.4	24.5	0.0
0.5	2.2	2.2	0.1	1.4	1.4	1.5	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4.4	8.8	8.8	1.0	5.7	5.8	2.2	0.0
16.2	22.6	22.7	16.9	22.8	22.9	26.0	0.0
B	C	C	B	C	C	A	D
846	846	454	447	447	447	522	522
C	C	C	C	C	C	E	E
1	2	3	4	5	6	7	8
10.0	30.0	10.0	40.6	10.0	30.0	13.6	37.0
5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
7.0	25.0	11.0	32.0	7.0	25.0	11.0	32.0
4.1	18.8	3.5	14.3	4.9	25.7	8.4	9.8
0.0	1.1	0.0	3.5	0.0	0.0	0.1	2.2
32.5	32.5	32.5	32.5	32.5	32.5	32.5	32.5
C	C	C	C	C	C	C	C

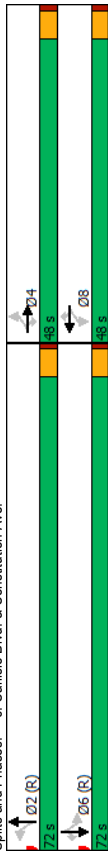
2031 PM Peak NOBUILD Conditions - Existing Geometry
Synchro 10 Report
2031PNX.syn

2031 PM Peak NOBUILD Conditions - Existing Geometry
Synchro 10 Report
2031PNX.syn

Timings
6: Carlisle Blvd. & Constitution Ave.

Terry O. Brown, PE
06/27/2019

EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
226	209	17	84	171	102	19	746	80	634	135
226	209	17	84	171	102	19	746	80	634	135
Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm
4	4	4	8	8	8	2	2	6	6	6
4	4	4	8	8	8	2	2	6	6	6
5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
48.0	48.0	48.0	48.0	48.0	48.0	72.0	72.0	72.0	72.0	72.0
40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	60.0%	60.0%	60.0%	60.0%	60.0%
4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Min	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min
32.9	32.9	32.9	32.9	32.9	32.9	77.1	77.1	77.1	77.1	77.1
0.27	0.27	0.27	0.27	0.27	0.27	0.64	0.64	0.64	0.64	0.64
0.90	0.45	0.04	0.38	0.37	0.22	0.06	0.38	0.25	0.58	0.14
74.6	37.4	10.9	37.7	35.6	6.8	11.3	11.8	6.7	12.1	1.0
74.6	37.4	10.9	37.7	35.6	6.8	11.3	11.8	6.7	12.1	1.0
E	D	B	D	D	A	B	B	A	B	A
E	E	E	C	C	C	B	B	A	9.8	A



HCM 6th Signalized Intersection Summary
6: Carlisle Blvd. & Constitution Ave.

Terry O. Brown, PE
06/27/2019

EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
226	209	17	84	171	102	19	746	39	80	634	135
226	209	17	84	171	102	19	746	39	80	634	135
0	0	0	0	0	0	0	0	0	0	0	0
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
246	227	18	91	186	111	21	811	42	87	689	147
0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
3	3	3	3	3	3	3	3	3	3	3	3
328	603	511	320	603	511	446	2018	105	358	1088	931
0.32	0.32	0.32	0.32	0.32	0.32	0.59	0.59	0.59	1.00	1.00	1.00
1074	1856	1572	1126	1856	1572	652	3410	177	642	1856	1572
246	227	18	91	186	111	21	419	434	87	689	147
1074	1856	1572	1126	1856	1572	652	1763	1824	642	1856	1572
26.8	11.3	0.9	8.1	9.0	6.2	1.6	15.3	15.3	4.5	0.0	0.0
35.8	11.3	0.9	19.4	9.0	6.2	1.6	15.3	15.3	19.8	0.0	0.0
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.10	1.00	1.00	1.00
328	603	511	320	603	511	446	1043	1079	358	1088	931
0.75	0.38	0.04	0.28	0.31	0.22	0.05	0.40	0.40	0.24	0.63	0.16
364	665	563	357	665	563	446	1043	1079	358	1088	931
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
43.8	31.2	27.7	38.6	30.4	29.4	10.3	13.1	13.1	2.1	0.0	0.0
7.6	0.4	0.0	0.5	0.3	0.2	0.2	1.2	1.1	0.8	1.3	0.2
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12.3	8.9	0.7	4.1	7.4	4.3	0.5	10.1	10.4	0.5	0.7	0.1
51.4	31.6	27.7	39.1	30.7	29.6	10.5	14.3	14.2	2.9	1.3	0.2
D	C	C	D	C	C	B	B	B	A	A	A
491	41.4	388	874	32.4	14.2	14.2	14.2	14.2	923	1.3	1.3
D	D	C	D	C	C	B	B	B	A	A	A
2	4	6	8	8	8	8	8	8	8	8	8
76.0	44.0	76.0	44.0	76.0	44.0	44.0	44.0	44.0	44.0	44.0	44.0
5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
67.0	43.0	67.0	43.0	67.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0
17.3	37.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8
6.5	1.2	7.2	1.7	7.2	1.7	7.2	1.7	7.2	1.7	7.2	1.7
17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3
B	B	B	B	B	B	B	B	B	B	B	B



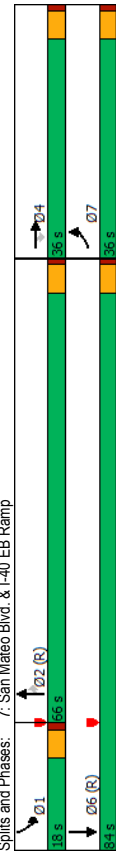
Timings
7: San Mateo Blvd. & I-40 EB Ramp

HCM 6th Signalized Intersection Summary
7: San Mateo Blvd. & I-40 EB Ramp

Terry O. Brown, PE
06/27/2019

Terry O. Brown, PE
06/27/2019

EBL	EBT	EBR	NBT	NBT	NBR	SBL	SBT
413	15	556	1729	387	387	454	1003
413	15	556	1729	387	387	454	1003
7	4	4	2	2	2	1	6
7	4	4	2	2	2	1	6
5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
10.0	21.0	21.0	21.0	21.0	21.0	10.0	21.0
36.0	36.0	36.0	66.0	66.0	18.0	84.0	84.0
30.0%	30.0%	30.0%	55.0%	55.0%	15.0%	70.0%	70.0%
4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Min	Min	Min	C-Max	C-Max	Min	C-Max	C-Max
23.2	23.2	23.2	61.0	61.0	20.8	86.8	86.8
0.19	0.19	0.19	0.51	0.51	0.17	0.72	0.72
0.88	0.80	0.80	0.73	0.73	0.84	0.90	0.90
49.8	42.9	42.4	25.3	29.9	46.4	5.2	5.2
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
49.8	42.9	42.4	25.3	29.9	46.4	5.2	5.2
D	D	D	C	A	D	D	A
45.6	45.6	21.2	C	C	18.0	B	B
Intersection Summary							
Cycle Length: 120							
Actuated Cycle Length: 120							
Offset: 103.2 (66%), Referenced to phase 2:NBT and 6:SBT, Start of Green							
Natural Cycle: 70							
Control Type: Actuated-Coordinated							
Maximum v/c Ratio: 0.84							
Intersection Signal Delay: 25.5							
Intersection Capacity Utilization 71.1%							
Analysis Period (min) 15							



EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
413	15	556	0	0	0	0	1729	387	454	1003	0
413	15	556	0	0	0	0	1729	387	454	1003	0
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	No	No	No	No	No	No	No	No	No
1856	1856	1856	0	0	0	0	1856	1856	1856	1856	0
449	0	615	0	0	0	0	1879	0	493	1090	0
0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
3	3	3	0	0	0	0	3	3	3	3	0
799	0	711	0	0	0	0	2739	0	371	3499	0
0.23	0.00	0.23	0.00	0.00	0.00	0.54	0.00	0.04	0.23	0.00	0.00
3534	0	3145	0	0	0	5233	1572	3428	5233	0	0
449	0	615	0	0	0	1879	0	493	1090	0	0
1767	0	1572	0	0	0	1689	1572	1714	1689	0	0
13.5	0.0	22.6	0.0	0.0	0.0	32.5	0.0	13.0	21.5	0.0	0.0
13.5	0.0	22.6	0.0	0.0	0.0	32.5	0.0	13.0	21.5	0.0	0.0
1.00	1.00	1.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00	0.00
799	0	711	0	0	0	2739	0	371	3499	0	0
0.56	0.00	0.87	0.00	0.00	0.00	0.69	0.00	1.33	0.31	0.00	0.00
913	0	812	0	0	0	2739	0	371	3499	0	0
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	1.00
1.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.44	0.44	0.00	0.00
41.2	0.0	44.7	0.0	0.0	0.0	20.1	0.0	57.9	22.6	0.0	0.0
0.6	0.0	8.8	0.0	0.0	0.0	1.4	0.0	155.5	0.1	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10.0	0.0	14.7	0.0	0.0	0.0	18.6	0.0	20.3	13.1	0.0	0.0
Unsig. Movement Delay, s/veh											
418	0.0	53.5	0.0	0.0	0.0	21.5	0.0	213.4	22.7	0.0	0.0
LnGrip Delay(d)/s/veh											
D	A	D	A	D	A	C	C	F	C	A	A
Approach Vol, veh/h											
1064											
Approach Delay, s/veh											
48.6											
Approach LOS											
D											
Timer - Assigned Phis											
1	2	4	6	6	6	6	6	6	6	6	6
Phis Duration (G+Y+Rc), s											
18.0											
Change Period (Y+Rc), s											
5.0											
Max Green Setting (Gmax), s											
13.0											
Max Q Clear Time (g_c+H1), s											
15.0											
Green Ext Time (p_c), s											
0.0											
Intersection Summary											
HCM 6th Ctrl Delay											
49.1											
HCM 6th LOS											
D											
Notes											
User approved volume balancing among the lanes for turning movement.											
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.											

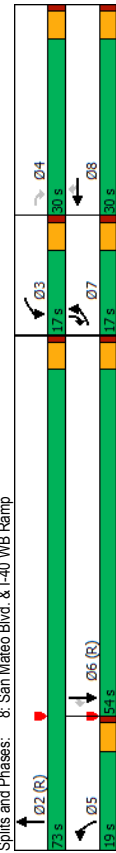
2031 PM Peak NOBUILD Conditions - Existing Geometry
Synchro 10 Report
2031PNX.syn

2031 PM Peak NOBUILD Conditions - Existing Geometry
Synchro 10 Report
2031PNX.syn

Timings
8: San Mateo Blvd. & I-40 WB Ramp

Terry O. Brown, PE
06/27/2019

EBL	EBR	WBL	WBR	NBL	NBT	SBT	SBR
195	524	238	142	315	196	1317	118
195	524	238	142	315	196	1317	118
Prot	Perm	Prot	NA	Perm	Prot	NA	pmt-ov
7	4	3	8	5	2	6	7
7	4	3	8	8	5	2	6
5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
10.0	21.0	10.0	21.0	10.0	21.0	21.0	10.0
17.0	30.0	17.0	30.0	19.0	73.0	54.0	17.0
14.2%	25.0%	14.2%	25.0%	15.8%	60.8%	45.0%	14.2%
4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Min	Min	Min	Min	Min	C-Max	C-Max	Min
11.3	25.2	11.8	25.7	12.3	68.0	50.7	67.0
0.09	0.21	0.10	0.21	0.10	0.57	0.42	0.56
0.86	1.14	0.78	0.39	0.81	0.61	0.50	0.73
62.9	114.4	69.4	44.2	46.8	44.3	12.9	31.6
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
62.9	114.4	69.4	44.2	46.8	44.3	12.9	31.6
E	F	E	D	D	D	B	C
E	F	E	D	D	D	B	C
120							
120							
44.4 (37%)							
90							
Actuated-Coordinated							
1.14							
40.5							
79.2%							
15							



2031 PM Peak NOBUILD Conditions - Existing Geometry
Synchro 10 Report
2031PNX.syn

HCM 6th Signalized Intersection Summary
8: San Mateo Blvd. & I-40 WB Ramp

Terry O. Brown, PE
06/27/2019

EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
195	0	524	238	142	315	196	1317	0	0	1421	118
195	0	524	238	142	315	196	1317	0	0	1421	118
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1856	0	1856	1856	1856	1856	1856	1856	0	0	1856	1856
212	0	570	259	154	342	213	1432	0	0	1545	128
0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
3	0	3	3	3	3	3	3	0	0	3	3
270	0	1127	387	328	277	2978	0	0	2368	856	856
0.08	0.00	0.00	0.33	0.21	0.21	0.03	0.19	0.00	0.00	0.47	0.47
3428	212		3428	1856	1572	3428	5233	0	0	5233	1572
212	63.2		259	154	342	213	1432	0	0	1545	128
1714	E		1714	1856	1572	1714	1689	0	0	1689	1572
7.3			6.6	8.6	25.0	7.4	30.2	0.0	0.0	28.2	4.8
7.3			6.6	8.6	25.0	7.4	30.2	0.0	0.0	28.2	4.8
1.00			1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
270			1127	387	328	277	2978	0	0	2368	856
0.78			0.23	0.40	1.04	0.77	0.48	0.00	0.00	0.66	0.15
343			1127	387	328	400	2978	0	0	2368	856
1.00			1.00	1.00	1.00	0.33	0.33	1.00	1.00	1.00	1.00
1.00			1.00	1.00	1.00	0.62	0.62	0.00	0.00	1.00	1.00
54.3			29.2	41.0	47.5	57.3	32.1	0.0	0.0	24.7	13.6
8.9			0.1	0.7	61.6	3.5	0.3	0.0	0.0	1.4	0.4
0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6.3			4.9	7.2	22.3	5.9	18.5	0.0	0.0	16.7	3.2
63.2			29.3	41.7	109.1	60.8	32.4	0.0	0.0	26.1	13.9
E			C	D	F	E	C	A	A	C	B
E			C	D	F	E	C	A	A	C	B
755			755	68.0			1645			1673	
68.0			68.0				36.1			25.2	
E			E				D			C	
2	3		5	6	7	8					
75.5	44.5		14.7	60.9	14.5	30.0					
5.0	5.0		5.0	5.0	5.0	5.0					
68.0	12.0		14.0	49.0	12.0	25.0					
32.2	8.6		9.4	30.2	9.3	27.0					
13.5	0.3		0.3	11.2	0.2	0.0					
38.8											
D											

2031 PM Peak NOBUILD Conditions - Existing Geometry
Synchro 10 Report
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2031 PM Peak Hour
BUILD Analyses

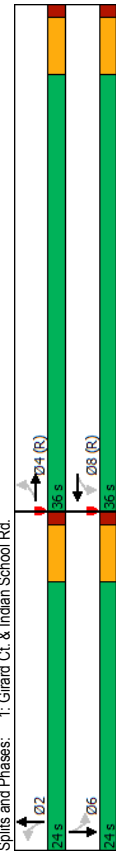
Timings
1 : Girard Ct. & Indian School Rd.

HCM 6th Signalized Intersection Summary
1 : Girard Ct. & Indian School Rd.

Terry O. Brown, PE
06/27/2019

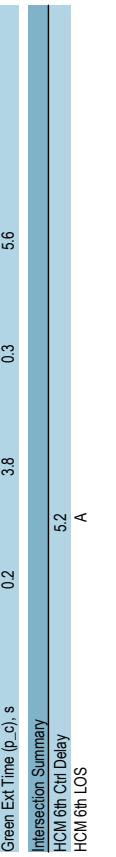
Terry O. Brown, PE
06/27/2019

EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
31	510	15	698	74	23	79	17
31	510	15	698	74	23	79	17
Perm	NA	Perm	NA	Perm	NA	Perm	NA
4	4	8	8	2	2	6	6
4	4	8	8	2	2	6	6
5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
36.0	36.0	36.0	36.0	24.0	24.0	24.0	24.0
60.0%	60.0%	60.0%	60.0%	40.0%	40.0%	40.0%	40.0%
4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
C-Max	C-Max	C-Max	C-Max	Min	Min	Min	Min
40.8	40.8	40.8	40.8	9.2	9.2	9.2	9.2
0.68	0.68	0.68	0.68	0.15	0.15	0.15	0.15
0.09	0.25	0.03	0.37	0.39	0.11	0.42	0.15
4.8	4.3	5.9	27.5	18.7	28.2	13.6	13.6
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4.8	4.3	4.3	5.9	27.5	18.7	28.2	13.6
A	A	A	A	C	B	C	B
4.3	4.3	5.8	5.8	25.1	23.3	23.3	23.3
A	A	A	A	C	C	C	C
Intersection Summary							
Cycle Length: 60							
Actuated Cycle Length: 60							
Offset: 22.2 (37%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green							
Natural Cycle: 45							
Control Type: Actuated-Coordinated							
Maximum v/c Ratio: 0.42							
Intersection Signal Delay: 7.8							
Intersection Capacity Utilization: 45.1%							
Analysis Period (min): 15							



2031 PM Peak BUILD Conditions - Existing Geometry
Synchro 10 Report
2031PBX.syn

EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
31	510	15	698	74	23	79	17
31	510	15	698	74	23	79	17
0	0	0	0	0	0	0	0
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1856	1856	1856	1856	1856	1856	1856	1856
34	554	45	759	101	80	25	5
0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
3	3	3	3	3	3	3	3
565	2364	192	655	2339	298	247	176
0.72	0.72	0.72	0.95	0.95	0.12	0.12	0.12
637	3302	288	813	3127	416	1353	1501
34	295	304	16	428	432	80	0
637	1763	1807	813	1763	1781	1353	0
1.0	3.4	3.4	0.2	1.0	1.0	3.4	0.0
2.0	3.4	3.4	3.6	1.0	1.0	4.8	0.0
1.00	1.00	1.00	1.00	0.23	1.00	0.17	1.00
565	1262	1294	655	1262	1275	247	0
0.06	0.23	0.23	0.02	0.34	0.32	0.00	0.14
565	1262	1294	655	1262	1275	517	0
1.00	1.00	1.00	1.33	1.33	1.00	1.00	1.00
1.00	1.00	1.00	0.62	0.62	1.00	0.00	1.00
2.9	2.9	2.9	0.7	0.4	0.4	26.2	0.0
0.2	0.4	0.4	0.0	0.5	0.4	0.7	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.2	1.2	1.2	0.0	0.5	0.5	2.0	0.0
3.1	3.3	3.3	0.8	0.9	0.9	26.9	0.0
A	A	A	A	A	A	C	C
633	3.3	3.3	876	110	110	26.5	0.0
A	A	A	A	A	A	C	C
2	4	4	6	8	8	8	8
12.0	48.0	48.0	12.0	48.0	48.0	48.0	48.0
5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
19.0	31.0	31.0	19.0	31.0	31.0	31.0	31.0
6.8	5.4	5.4	6.5	6.5	6.5	5.6	5.6
0.2	3.8	3.8	0.3	0.3	0.3	5.6	5.6
Intersection Summary							
HCM 6th Ctrl Delay: 5.2							
HCM 6th LOS: A							



2031 PM Peak BUILD Conditions - Existing Geometry
Synchro 10 Report
2031PBX.syn

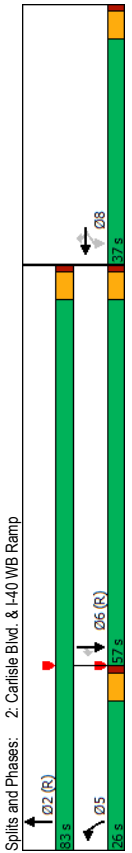
Timings
2: Carlisle Blvd. & I-40 WB Ramp

HCM 6th Signalized Intersection Summary
2: Carlisle Blvd. & I-40 WB Ramp

Terry O. Brown, PE
06/27/2019

Terry O. Brown, PE
06/27/2019

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	363	7	352	540	1432	1267	507
Future Volume (vph)	363	7	352	540	1432	1267	507
Turn Type	Perm	NA	Perm	Prot	NA	NA	Perm
Protected Phases							
Permitted Phases	8	8	8	5	2	6	6
Detector Phase	8	8	8	5	2	6	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	21.0	21.0	21.0	10.0	21.0	21.0	21.0
Total Split (s)	37.0	37.0	37.0	26.0	83.0	57.0	57.0
Total Split (%)	30.8%	30.8%	30.8%	21.7%	69.2%	47.5%	47.5%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag				Lead		Lag	Lag
Lead-Lag Optimize?							
Recall Mode	Min	Min	Min	Min	C-Max	C-Max	C-Max
Act Effct Green (s)	31.1	31.1	31.1	21.7	78.9	52.2	52.2
Actuated g/C Ratio	0.26	0.26	0.26	0.18	0.66	0.44	0.44
v/c Ratio	0.47	0.47	0.94	0.95	0.47	0.63	0.55
Control Delay	41.3	41.3	76.7	67.9	9.6	28.0	4.1
Queue Delay	0.0	0.0	0.0	0.0	0.3	0.0	0.0
Total Delay	41.3	41.3	76.7	67.9	9.9	28.0	4.1
LOS	D	D	E	E	A	C	A
Approach Delay		58.5			25.8	21.2	
Approach LOS		E			C	C	
Intersection Summary							
Cycle Length: 120							
Actuated Cycle Length: 120							
Offset: 92 (77%), Referenced to phase 2:NBT and 6:SBT, Start of Green							
Natural Cycle: 70							
Control Type: Actuated-Coordinated							
Maximum v/c Ratio: 0.96							
Intersection Signal Delay: 29.2							
Intersection Capacity Utilization 75.6%							
Analysis Period (min) 15							



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	363	7	352	540	1432	0	0	1267	507
Future Volume (veh/h)	0	0	0	363	7	352	540	1432	0	0	1267	507
Initial Q (Ob), veh				1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A, pbT)				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking Bus, Adj				No	No	No	No	No	No	No	No	No
Work Zone On Approach												
Adj Sat Flow, veh/h/ln				1856	1856	1856	1856	1856	0	0	1856	1856
Adj Flow Rate, veh/h				401	0	383	587	1557	0	0	1377	0
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				3	3	3	3	3	3	3	3	3
Cap, veh/h				917	0	408	600	3330	0	0	2232	0
Arrive On Green				0.26	0.00	0.26	0.35	1.00	0.00	0.00	0.44	0.00
Sat Flow, veh/h				3534	0	1572	3428	5233	0	0	5233	1572
Grip Volume(v), veh/h				401	0	383	587	1557	0	0	1377	0
Grip Sat Flow(s), veh/h/ln				1767	0	1572	1714	1689	0	0	1689	1572
Q Serve(g, s), s				11.4	0.0	28.6	20.3	0.0	0.0	0.0	25.1	0.0
Cycle Q Clear(g, c), s				11.4	0.0	28.6	20.3	0.0	0.0	0.0	25.1	0.0
Prop In Lane				1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00
Lane Grip Cap(c), veh/h				917	0	408	600	3330	0	0	2232	0
VIC Ratio(X)				0.44	0.00	0.94	0.98	0.47	0.00	0.00	0.62	0.00
Avail Cap(c, a), veh/h				942	0	419	600	3330	0	0	2232	0
HCM Platoon Ratio				1.00	1.00	1.00	2.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)				1.00	0.00	1.00	0.78	0.78	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				37.1	0.0	43.5	38.8	0.0	0.0	0.0	25.8	0.0
Incr Delay (d2), s/veh				0.3	0.0	28.7	27.1	0.4	0.0	0.0	1.3	0.0
Initial Q Delay(Q3), s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%), veh/ln				8.6	0.0	20.5	13.5	0.2	0.0	0.0	15.3	0.0
Unsig. Movement Delay, s/veh				37.5	0.0	72.2	65.8	0.4	0.0	0.0	27.1	0.0
LnGrip Delay(d), s/veh				D	A	E	E	A	A	A	A	C
LnGrip LOS				D	A	E	E	A	A	A	A	C
Approach Vol, veh/h				784			2144				1377	
Approach Delay, s/veh				54.4			18.3				27.1	
Approach LOS				D			B				C	
Timer - Assigned Phis				2			5				6	
Phis Duration (G+Y+Rc), s				83.9			26.0				57.9	
Change Period (Y+Rc), s				5.0			5.0				5.0	
Max Green Setting (Gmax), s				78.0			21.0				52.0	
Max Q Clear Time (g, c+H), s				2.0			22.3				27.1	
Green Ext Time (p, c), s				18.4			0.0				11.1	
Intersection Summary												
HCM 6th Ctrl Delay				27.7			C					
HCM 6th LOS				C								
Notes												
User approved volume balancing among the lanes for turning movement.												
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.												

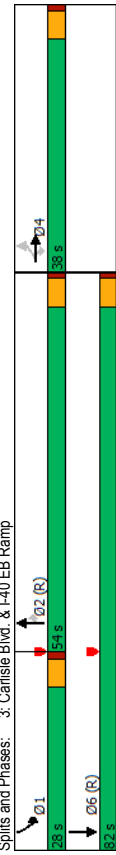
2031 PM Peak BUILD Conditions - Existing Geometry
Synchro 10 Report
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Timings
3: Carlisle Blvd. & I-40 EB Ramp

Terry O. Brown, PE
06/27/2019

	EBL	EBT	EBR	NBT	NBT	NBR	SBL	SBT
Lane Group	EBL	EBT	EBR	NBT	NBT	NBR	SBL	SBT
Lane Configurations	EBL	EBT	EBR	NBT	NBT	NBR	SBL	SBT
Traffic Volume (vph)	691	15	660	1419	498	439	1151	
Future Volume (vph)	691	15	660	1419	498	439	1151	
Turn Type	Perm	NA	Perm	NA	Perm	Prot	NA	
Protected Phases	4	4	4	2	2	1	6	
Permitted Phases	4	4	4	2	2	1	6	
Detector Phase	4	4	4	2	2	1	6	
Switch Phase	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Minimum Initial (s)	21.0	21.0	21.0	21.0	21.0	10.0	21.0	
Minimum Split (s)	38.0	38.0	38.0	54.0	54.0	28.0	82.0	
Total Split (s)	31.7%	31.7%	31.7%	45.0%	45.0%	23.3%	68.3%	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag				Lag	Lag	Lead		
Lead-Lag Optimize?								
Recall Mode	Min	Min	Min	C-Max	C-Max	Min	C-Max	
Act Effct Green (s)	32.2	32.2	32.2	51.9	51.9	20.9	77.8	
Actuated g/C Ratio	0.27	0.27	0.27	0.43	0.43	0.17	0.65	
v/c Ratio	0.82	0.63	0.64	0.48	0.55	0.81	0.38	
Control Delay	49.7	46.8	43.0	34.9	11.3	80.8	7.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.1	
Total Delay	49.7	46.8	43.0	34.9	11.3	80.8	7.3	
LOS	D	D	D	C	B	F	A	
Approach Delay								
Approach LOS	D	D	D	C	C	C	C	
Intersection Summary								
Cycle Length: 120								
Actuated Cycle Length: 120								
Offset: 110.4 (92%), Referenced to phase 2:NBT and 6:SBT, Start of Green								
Natural Cycle: 60								
Control Type: Actuated-Coordinated								
Maximum v/c Ratio: 0.82								
Intersection Signal Delay: 33.5								
Intersection Capacity Utilization 75.6%								
Analysis Period (min) 15								



2031 PM Peak BUILD Conditions - Existing Geometry
Synchro 10 Report
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HCM 6th Signalized Intersection Summary
3: Carlisle Blvd. & I-40 EB Ramp

Terry O. Brown, PE
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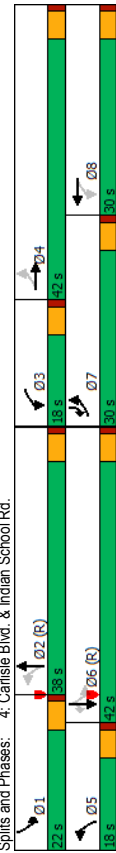
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (veh/h)	691	15	660	0	0	0	0	1419	498	439	1151	0
Future Volume (veh/h)	691	15	660	0	0	0	0	1419	498	439	1151	0
Initial Q (Ob), 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	1.00	1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No	No	No	No	No	No	No	No	No	No	No	No
Adj Sat Flow, veh/h/in	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	751	0	728	0	0	0	0	1542	541	477	1251	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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	880	0	1174	0	0	0	0	3530	739	536	3383	0
Arrive On Green	0.25	0.00	0.25	0.00	0.00	0.00	0.00	0.47	0.47	0.31	1.00	0.00
Sat Flow, veh/h	3534	0	4717	0	0	0	0	7867	1572	3428	5233	0
Grip Volume(v), veh/h	751	0	728	0	0	0	0	1542	541	477	1251	0
Grip Sat Flow(s),veh/h/in	1767	0	1572	0	0	0	0	1503	1572	1714	1689	0
Q Serve(g, s), s	24.3	0.0	16.4	0.0	0.0	0.0	0.0	16.4	33.4	15.9	0.0	0.0
Cycle Q Clear(g, c), s	24.3	0.0	16.4	0.0	0.0	0.0	0.0	16.4	33.4	15.9	0.0	0.0
Prop In Lane	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00
Lane Grip Cap(c), veh/h	880	0	1174	0	0	0	0	3530	739	536	3383	0
V/C Ratio(X)	0.85	0.00	0.62	0.00	0.00	0.00	0.00	0.44	0.73	0.89	0.37	0.00
Avail Cap(c, a), veh/h	972	0	1297	0	0	0	0	3530	739	657	3383	0
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(l)	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	1.00	0.76	0.76	0.00
Uniform Delay (d), s/veh	43.0	0.0	40.0	0.0	0.0	0.0	0.0	21.2	25.7	40.3	0.0	0.0
Incr Delay (d2), s/veh	6.9	0.0	0.8	0.0	0.0	0.0	0.0	0.4	6.3	9.8	0.2	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(95%),veh/h/in	17.0	0.0	10.6	0.0	0.0	0.0	0.0	9.7	19.3	9.8	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrip Delay(d),s/veh	49.9	0.0	40.8	0.0	0.0	0.0	0.0	21.6	32.1	50.1	0.2	0.0
LnGrip LOS	D	A	D	A	D	A	A	C	C	D	A	A
Approach Vol, veh/h	1479							2083			1728	
Approach Delay, s/veh	45.4							24.3			14.0	
Approach LOS	D	D	D	C	C	C	C	C	C	B	B	B
Timer - Assigned Phis	1	2	4	6								
Phis Duration (G+Y+Rc), s	23.8	61.4	34.9	85.1								
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0								
Max Green Setting (Gmax), s	23.0	49.0	33.0	77.0								
Max Q Clear Time (g, c+11), s	17.9	35.4	26.3	2.0								
Green Ext Time (p, c), s	0.9	10.0	3.6	12.5								
Intersection Summary												
HCM 6th Ctrl Delay			26.9									
HCM 6th LOS			C									
Notes												
User approved volume balancing among the lanes for turning movement.												

2031 PM Peak BUILD Conditions - Existing Geometry
Synchro 10 Report
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Timings
4: Carlisle Blvd. & Indian School Rd.

Terry O. Brown, PE
06/27/2019

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	575	813	112	361	157	1482	242	1021	475
Future Volume (vph)	575	813	112	361	157	1482	242	1021	475
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+ov
Protected Phases	7	4	3	8	5	2	1	6	7
Permitted Phases	4	4	3	8	5	2	1	6	6
Detector Phase	7	4	3	8	5	2	1	6	7
Switch Phase	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Initial (s)	10.0	21.0	10.0	21.0	10.0	21.0	10.0	21.0	10.0
Minimum Split (s)	30.0	42.0	18.0	30.0	18.0	38.0	22.0	42.0	30.0
Total Split (s)	25.0%	35.0%	15.0%	25.0%	15.0%	31.7%	18.3%	35.0%	25.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Min	Min	Min	Min	Min	Min	Min	Min	Min
Recall Mode	53.8	38.6	34.1	23.8	46.7	35.0	55.5	39.5	69.5
Act Effct Green (s)	0.45	0.32	0.28	0.20	0.39	0.29	0.46	0.33	0.58
Actuated g/C Ratio	1.47	0.91	0.88	0.87	0.74	1.18	0.89	0.96	0.53
v/c Ratio	251.5	50.9	34.2	51.2	50.2	124.3	62.3	57.4	14.1
Control Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Delay	251.5	50.9	34.2	51.2	50.2	124.3	62.3	57.4	14.1
Total Delay	F	D	C	D	D	F	E	E	B
LOS	F	D	C	D	D	F	E	E	B
Approach Delay	127.6	48.5	48.5	117.6	48.5	117.6	48.5	46.2	46.2
Approach LOS	F	F	D	F	D	F	D	D	D
Intersection Summary									
Cycle Length: 120									
Actuated Cycle Length: 120									
Offset: 9.6 (8%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green									
Natural Cycle: 100									
Control Type: Actuated-Coordinated									
Maximum v/c Ratio: 1.47									
Intersection Signal Delay: 89.8									
Intersection Capacity Utilization 110.5%									
Analysis Period (min) 15									



2031 PM Peak BUILD Conditions - Existing Geometry
Synchro 10 Report
2031PBX.syn

HCM 6th Signalized Intersection Summary
4: Carlisle Blvd. & Indian School Rd.

Terry O. Brown, PE
06/27/2019

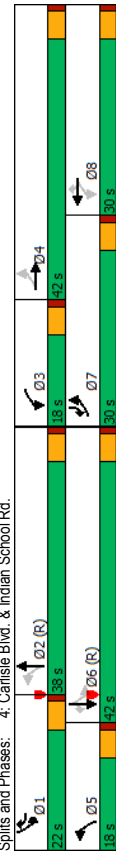
Movement	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (veh/h)	575	813	116	361	157	1482	105	242	1021
Future Volume (veh/h)	575	813	116	361	157	1482	105	242	1021
Initial Q (Obs), veh	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A, pbT)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No	No	No	No	No	No	No	No	No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	625	884	126	392	260	171	1611	114	263
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3
Cap, veh/h	441	1070	152	263	425	278	224	1398	99
Arrive On Green	0.42	0.69	0.69	0.07	0.21	0.21	0.08	0.29	0.25
Sat Flow, veh/h	1767	3097	441	1767	2041	1337	1767	4830	342
Grip Volume(v), veh/h	625	503	507	122	338	314	171	1126	599
Grip Sat Flow(s) veh/h/ln	1767	1763	1776	1767	1763	1615	1767	1689	1794
Q Serve(g, s), s	25.0	24.7	24.7	6.4	22.5	22.9	8.0	34.7	13.1
Cycle Q Clear(g, c), s	25.0	24.7	24.7	6.4	22.5	22.9	8.0	34.7	13.1
Prop In Lane	1.00	0.25	1.00	0.83	1.00	0.83	1.00	0.19	1.00
Line Grip Cap(c), veh/h	441	609	613	263	367	336	224	978	519
VIC Ratio(X)	1.42	0.83	0.83	0.46	0.92	0.93	0.76	1.15	1.15
Avail Cap(c, a), veh/h	441	609	613	329	367	336	286	978	519
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	2.00
Upstream Filter(l)	0.97	0.97	0.97	1.00	1.00	1.00	0.85	0.85	1.00
Uniform Delay (d), s/veh	21.6	16.0	16.0	33.9	46.6	46.7	30.8	42.6	26.9
Incr Delay (d2), s/veh	200.0	8.9	8.9	1.3	28.1	32.6	8.9	78.7	86.6
Initial Q Delay(d3) s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%) veh/h	46.9	10.7	10.8	5.0	18.3	17.7	6.9	35.3	38.7
Unsig. Movement Delay, s/veh	221.7	24.9	24.8	35.1	74.6	79.3	39.7	121.3	129.2
LnGrip Delay(d) s/veh	F	C	C	D	E	E	D	F	E
LnGrip LOS	F	C	C	D	E	E	D	F	E
Approach Vol, veh/h	1636	100.1	774	70.3	1896	116.4	32.3	1889	32.3
Approach Delay, s/veh	100.1	70.3	774	70.3	1896	116.4	32.3	1889	32.3
Approach LOS	F	C	C	D	E	E	D	F	E
Timer - Assigned Phs	1	2	3	4	5	6	7	8	
Phs Duration (G+Y+Rc), s	20.3	39.7	13.5	46.4	15.2	44.9	30.0	30.0	
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Max Green Setting (Gmax), s	17.0	33.0	13.0	37.0	13.0	37.0	25.0	25.0	
Max Q Clear Time (g, c+H1), s	15.1	36.7	8.4	26.7	10.0	36.2	27.0	24.9	
Green Ext Time (p, c), s	0.1	0.0	0.1	4.4	0.1	0.6	0.0	0.0	
Intersection Summary									
HCM 6th Ctrl Delay	80.7								
HCM 6th LOS	F								

2031 PM Peak BUILD Conditions - Existing Geometry
Synchro 10 Report
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Timings
4: Carlisle Blvd. & Indian School Rd.

Terry O. Brown, PE
06/28/2019

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	575	813	112	361	239	157	1482	242	1021
Future Volume (vph)	575	813	112	361	239	157	1482	242	1021
Turn Type	pm+pt	NA	pm+pt	NA	pm+ov	pm+pt	NA	pm+pt	NA
Protected Phases	7	4	3	8	1	5	2	1	6
Permitted Phases	4	4	3	8	8	2	6	6	6
Detector Phase	7	4	3	8	1	5	2	1	6
Switch Phase	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Initial (s)	10.0	21.0	10.0	21.0	10.0	21.0	10.0	21.0	10.0
Minimum Split (s)	30.0	42.0	18.0	30.0	22.0	18.0	38.0	22.0	42.0
Total Split (%)	25.0%	35.0%	15.0%	25.0%	18.3%	31.7%	18.3%	35.0%	25.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Min	Min	Min	Min	Min	Min	Min	Min	Min
Recall Mode	53.7	38.4	33.9	23.7	44.8	46.8	35.2	55.6	39.7
Act Effct Green (s)	0.45	0.32	0.28	0.20	0.37	0.39	0.29	0.46	0.33
Actuated g/C Ratio	1.27	0.91	0.88	0.57	0.40	0.74	1.18	0.89	0.96
v/c Ratio	160.7	51.4	34.0	46.8	16.9	50.5	122.1	61.7	56.8
Control Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Delay	160.7	51.4	34.0	46.8	16.9	50.5	122.1	61.7	56.8
Total Delay	F	D	C	D	B	D	F	E	E
LOS	F	D	C	D	B	D	F	E	E
Approach Delay	93.2	34.7			115.6			46.0	
Approach LOS	F	C			F			D	
Intersection Summary									
Cycle Length: 120									
Actuated Cycle Length: 120									
Offset: 9.6 (8%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green									
Natural Cycle: 110									
Control Type: Actuated-Coordinated									
Maximum v/c Ratio: 1.27									
Intersection Signal Delay: 78.3									
Intersection Capacity Utilization 102.9%									
Analysis Period (min) 15									



2031 PM Peak BUILD Conditions - Mitigated Conditions
Synchro 10 Report
2031PB_MIT.syn

HCM 6th Signalized Intersection Summary
4: Carlisle Blvd. & Indian School Rd.

Terry O. Brown, PE
06/28/2019

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Movement	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (veh/h)	575	813	116	112	361	239	157	1482	1021
Future Volume (veh/h)	575	813	116	112	361	239	157	1482	1021
Initial Q (Obs), veh	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	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No	No	No	No	No	No	No	No	No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	625	884	126	122	392	260	171	1611	114
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3
Cap, veh/h	480	946	135	216	602	469	252	1579	112
Arrive On Green	0.42	0.61	0.61	0.07	0.17	0.08	0.33	0.25	0.75
Sat Flow, veh/h	1767	3097	441	1767	3526	1572	1767	4830	342
Grip Volume(v), veh/h	625	503	507	122	392	260	171	1126	599
Grip Sat Flow(s), veh/h/ln	1767	1763	1776	1767	1763	1572	1767	1689	1794
Q Serve(g, s), s	25.0	31.0	31.0	6.7	12.4	16.7	7.6	39.2	39.2
Cycle Q Clear(g, c), s	25.0	31.0	31.0	6.7	12.4	16.7	7.6	39.2	39.2
Prop In Lane	1.00	0.25	1.00	1.00	1.00	1.00	1.00	0.19	1.00
Line Cap(c, a), veh/h	480	539	543	216	602	469	252	1104	586
V/C Ratio(X)	1.30	0.93	0.93	0.57	0.65	0.55	0.68	1.02	0.92
Avail Cap(c, a), veh/h	480	544	548	277	734	528	300	1104	586
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	2.00
Upstream Filter(l)	0.97	0.97	0.97	1.00	1.00	1.00	0.85	0.85	1.00
Uniform Delay (d), s/veh	26.1	22.2	22.2	38.0	46.4	35.4	27.0	40.4	40.4
Incr Delay (d2), s/veh	150.2	22.9	22.8	2.3	1.5	1.0	4.1	30.2	39.8
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%), veh/ln	42.5	16.1	16.2	5.4	9.3	10.5	6.2	27.7	31.1
Unsig. Movement Delay, s/veh	1763	45.2	45.1	40.3	47.9	36.4	31.1	70.6	80.1
LnGrip Delay(d), s/veh	F	D	D	D	D	D	C	F	F
LnGrip LOS	F	D	D	D	D	D	C	F	F
Approach Vol, veh/h	1636			774				1896	
Approach Delay, s/veh	95.3			42.9				70.0	
Approach LOS	F			D				E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8	
Phs Duration (G+Y+Rc), s	20.3	44.2	13.8	41.7	14.7	49.8	30.0	25.5	
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Max Green Setting (Gmax), s	17.0	33.0	13.0	37.0	13.0	37.0	25.0	25.0	
Max Q Clear Time (g, c+H1), s	15.1	41.2	8.7	33.0	9.6	27.9	27.0	18.7	
Green Ext Time (p, c), s	0.1	0.0	0.1	2.2	0.1	6.0	0.0	1.8	
Intersection Summary									
HCM 6th Ctrl Delay	58.6								
HCM 6th LOS	E								

2031 PM Peak BUILD Conditions - Mitigated Conditions
Synchro 10 Report
2031PB_MIT.syn

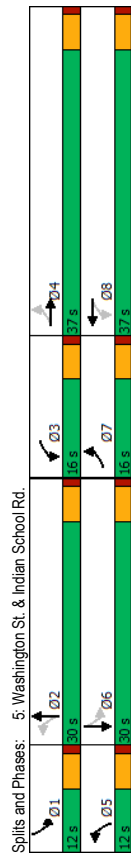
Timings
5: Washington St. & Indian School Rd.

HCM 6th Signalized Intersection Summary
5: Washington St. & Indian School Rd.

Terry O. Brown, PE
06/27/2019

Terry O. Brown, PE
06/27/2019

EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
189	558	43	366	88	282	54	277
189	558	43	366	88	282	54	277
pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA
7	4	3	8	5	2	1	6
4	8	8	8	2	2	1	6
7	4	3	8	5	2	1	6
5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
10.0	21.0	10.0	21.0	10.0	21.0	10.0	21.0
16.0	37.0	16.0	37.0	12.0	30.0	12.0	30.0
16.8%	38.9%	16.8%	38.9%	12.6%	31.6%	12.6%	31.6%
4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Min	Max	Min	Max	Min	Max	Min	Max
45.8	35.5	38.8	32.0	32.1	25.2	31.6	25.0
0.49	0.38	0.41	0.34	0.34	0.27	0.34	0.27
0.46	0.55	0.15	0.40	0.47	0.75	0.23	0.96
16.8	24.3	13.6	23.9	26.7	42.2	20.9	66.1
16.8	24.3	13.6	23.9	26.7	42.2	20.9	66.1
B	C	B	C	C	D	C	E
22.6	22.9	22.9	39.0				61.0
Intersection Summary							
Cycle Length: 95							
Actuated Cycle Length: 94.2							
Natural Cycle: 65							
Control Type: Semi Act-Uncoordinated							
Maximum v/c Ratio: 0.96							
Intersection Signal Delay: 34.1							
Intersection Capacity Utilization 68.1%							
Analysis Period (min) 15							



EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
189	558	43	366	88	282	54	277
189	558	43	366	88	282	54	277
0	0	0	0	0	0	0	0
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1856	1856	1856	1856	1856	1856	1856	1856
205	607	110	47	398	68	96	307
0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
3	3	3	3	3	3	3	3
478	1167	211	347	1058	179	195	422
0.10	0.39	0.39	0.05	0.35	0.06	0.28	0.05
1767	2982	539	1767	3015	511	1767	1508
205	358	359	47	231	235	96	0
1767	1763	1758	1767	1764	1767	0	1802
6.5	14.2	14.2	1.5	8.9	9.1	3.5	0.0
6.5	14.2	14.2	1.5	8.9	9.1	3.5	0.0
1.00	0.31	1.00	1.00	0.29	1.00	0.16	1.00
478	690	688	347	619	619	195	0
0.43	0.52	0.52	0.14	0.37	0.38	0.49	0.00
523	690	688	464	619	619	224	0
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
16.1	21.2	21.2	17.2	22.2	24.7	0.0	29.7
0.6	2.8	2.8	0.2	1.7	1.8	1.9	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4.5	10.0	10.0	1.0	6.8	6.9	2.7	0.0
16.7	24.0	24.0	17.4	23.8	23.9	26.6	0.0
B	C	C	B	C	C	A	C
922				513			463
22.4				23.3			33.2
Approach LOS							
C							
Timer - Assigned Phis							
1	2	3	4	5	6	7	8
10.0	30.5	10.0	40.7	10.5	30.0	13.7	37.0
5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
7.0	25.0	11.0	32.0	7.0	25.0	11.0	32.0
4.1	18.8	3.5	16.2	5.5	26.0	8.5	11.1
0.0	1.1	0.0	3.8	0.0	0.0	0.1	2.5
Intersection Summary							
HCM 6th Ctrl Delay							
33.2							
C							

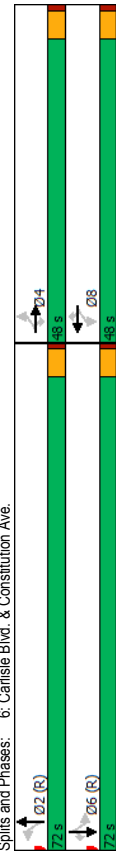
2031 PM Peak BUILD Conditions - Existing Geometry
Synchro 10 Report
2031PBX.syn

2031 PM Peak BUILD Conditions - Existing Geometry
Synchro 10 Report
2031PBX.syn

Timings
6: Carlisle Blvd. & Constitution Ave.

Terry O. Brown, PE
06/27/2019

EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
231	209	17	84	171	122	19	864	100	753	140
231	209	17	84	171	122	19	864	100	753	140
Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm
4	4	4	8	8	8	2	2	6	6	6
4	4	4	8	8	8	2	2	6	6	6
5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
48.0	48.0	48.0	48.0	48.0	48.0	72.0	72.0	72.0	72.0	72.0
40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	60.0%	60.0%	60.0%	60.0%	60.0%
4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Min	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min
33.3	33.3	33.3	33.3	33.3	33.3	76.7	76.7	76.7	76.7	76.7
0.28	0.28	0.28	0.28	0.28	0.28	0.64	0.64	0.64	0.64	0.64
0.90	0.44	0.04	0.37	0.36	0.26	0.08	0.44	0.38	0.69	0.14
74.9	37.1	10.8	37.2	35.2	7.7	12.1	12.7	10.4	15.2	1.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
74.9	37.1	10.8	37.2	35.2	7.7	12.1	12.7	10.4	15.2	1.0
E	D	B	D	D	A	B	B	B	B	A
55.2			26.7			12.7				12.7
E			C			B				B
Intersection Summary										
Cycle Length: 120										
Actuated Cycle Length: 120										
Offset: 69.6 (58%), Referenced to phase 2:NBTL and 6:SBTL - Start of Green										
Natural Cycle: 60										
Control Type: Actuated-Coordinated										
Maximum v/c Ratio: 0.90										
Intersection Signal Delay: 21.7										
Intersection Capacity Utilization 82.3%										
Analysis Period (min) 15										



Splits and Phases: 6: Carlisle Blvd. & Constitution Ave.

Synchro 10 Report
2031PBX.syn

HCM 6th Signalized Intersection Summary
6: Carlisle Blvd. & Constitution Ave.

Terry O. Brown, PE
06/27/2019

EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
231	209	17	84	171	122	19	864	39	100	753
231	209	17	84	171	122	19	864	39	100	753
0	0	0	0	0	0	0	0	0	0	0
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
251	227	18	91	186	133	21	939	42	109	818
0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
3	3	3	3	3	3	3	3	3	3	3
331	616	522	329	616	522	396	2009	90	304	1085
0.33	0.33	0.33	0.33	0.33	0.33	0.58	0.58	0.58	1.00	1.00
1052	1856	1572	1126	1856	1572	575	3437	154	569	1856
251	227	18	91	186	133	21	939	42	109	818
1052	1856	1572	1126	1856	1572	575	3437	154	569	1856
279	112	0.9	8.0	8.9	7.4	1.9	18.7	18.7	9.1	0.0
36.8	11.2	0.9	19.2	8.9	7.4	1.9	18.7	18.7	27.9	0.0
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
331	616	522	329	616	522	396	1030	1069	304	1085
0.76	0.37	0.03	0.28	0.30	0.25	0.05	0.47	0.47	0.36	0.75
359	665	563	359	665	563	396	1030	1069	304	1085
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
43.4	30.5	27.1	37.8	29.7	29.2	10.7	14.2	14.2	3.7	0.0
8.4	0.4	0.0	0.5	0.3	0.3	0.3	1.5	1.5	0.9	1.3
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12.6	8.8	0.6	4.1	7.3	5.1	0.5	12.1	12.4	1.2	0.7
518	30.9	27.1	38.3	30.0	29.5	11.0	15.8	15.7	4.6	1.3
D	C	C	D	C	C	B	B	B	A	A
496			410			1002			1079	
41.3			31.7			15.6			1.5	
D			C			B			A	
2		4	6			8				
75.2		44.8	75.2			44.8				
5.0		5.0	5.0			5.0				
67.0		43.0	67.0			43.0				
20.7		38.8	29.9			21.2				
7.9		1.0	9.4			1.8				
Intersection Summary										
HCM 6th Ctrl Delay										
17.0										
B										

Synchro 10 Report
2031PBX.syn

2031 PM Peak BUILD Conditions - Existing Geometry

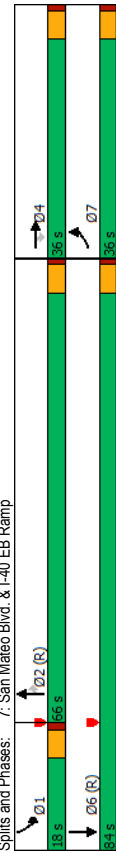
Timings
7: San Mateo Blvd. & I-40 EB Ramp

HCM 6th Signalized Intersection Summary
7: San Mateo Blvd. & I-40 EB Ramp

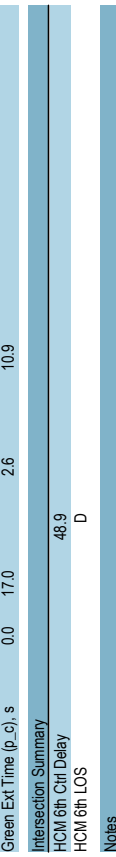
Terry O. Brown, PE
06/27/2019

Terry O. Brown, PE
06/27/2019

EBL	EBT	EBR	NBT	NBT	NBR	SBL	SBT
436	15	556	1752	391	454	1029	
436	15	556	1752	391	454	1029	
7	4	4	2	2	1	6	
7	4	4	2	2	1	6	
5.0	5.0	5.0	5.0	5.0	5.0	5.0	
10.0	21.0	21.0	21.0	21.0	10.0	21.0	
36.0	36.0	36.0	66.0	66.0	18.0	84.0	
30.0%	30.0%	30.0%	55.0%	55.0%	15.0%	70.0%	
4.0	4.0	4.0	4.0	4.0	4.0	4.0	
1.0	1.0	1.0	1.0	1.0	1.0	1.0	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	
5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Min	Min	Min	C-Max	C-Max	Min	C-Max	
23.7	23.7	23.7	61.0	61.0	20.3	86.3	
0.20	0.20	0.20	0.51	0.51	0.17	0.72	
0.71	0.80	0.80	0.74	0.82	0.86	0.31	
50.3	43.4	43.0	25.6	2.9	48.1	5.4	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	
50.3	43.4	43.0	25.6	2.9	48.1	5.4	
D	D	D	C	A	D	A	
46.3			21.5		18.5		
D			C		B		
Intersection Summary							
Cycle Length: 120							
Actuated Cycle Length: 120							
Offset: 103.2 (66%), Referenced to phase 2:NBT and 6:SBT, Start of Green							
Natural Cycle: 75							
Control Type: Actuated-Coordinated							
Maximum v/c Ratio: 0.86							
Intersection Signal Delay: 25.9							
Intersection Capacity Utilization 71.7%							
Analysis Period (min) 15							



EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
436	15	556	0	0	0	1752	391	454	1029		
436	15	556	0	0	0	1752	391	454	1029		
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	No	No	No	No	No	No	No	No	No
1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
474	0	615	0	615	0	1904	0	493	1118	0	493
0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
3	3	3	3	3	3	3	3	3	3	3	3
800	0	712	0	712	0	2737	0	371	3497	0	371
0.23	0.00	0.23	0.00	0.23	0.00	0.54	0.00	0.04	0.23	0.00	0.04
3534	0	3145	0	3145	0	5233	1572	3428	5233	0	3428
474	0	615	0	615	0	1904	0	493	1118	0	493
1767	0	1572	0	1689	1572	1714	1689	0	1714	1689	0
14.4	0.0	22.6	0.0	33.2	0.0	13.0	22.1	0.0	13.0	22.1	0.0
14.4	0.0	22.6	0.0	33.2	0.0	13.0	22.1	0.0	13.0	22.1	0.0
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
800	0	712	0	712	0	2737	0	371	3497	0	371
0.59	0.00	0.86	0.00	0.70	0.00	0.70	0.00	1.33	0.32	0.00	1.33
913	0	812	0	2737	0	2737	0	371	3497	0	371
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	0.00	1.00	0.00	1.00	0.00	0.43	0.43	0.00	0.43	0.00	0.43
41.5	0.0	44.6	0.0	20.3	0.0	57.9	22.9	0.0	57.9	22.9	0.0
0.8	0.0	8.7	0.0	1.5	0.0	155.3	0.1	0.0	155.3	0.1	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10.5	0.0	14.7	0.0	18.9	0.0	20.2	13.4	0.0	20.2	13.4	0.0
42.3	0.0	53.4	0.0	21.8	0.0	213.2	23.0	0.0	213.2	23.0	0.0
D	A	D	A	D	A	C	F	C	F	C	A
1089			1904			1611			1611		
48.5			21.8			81.2			81.2		
D			C			F			F		
1	2	4	6								
18.0	69.8	32.2	87.8								
5.0	5.0	5.0	5.0								
13.0	61.0	31.0	79.0								
15.0	35.2	24.6	24.1								
0.0	17.0	2.6	10.9								



Notes
User approved volume balancing among the lanes for turning movement.
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

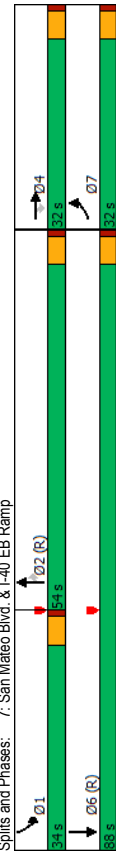
2031 PM Peak BUILD Conditions - Existing Geometry
Synchro 10 Report
2031PBX.syn

2031 PM Peak BUILD Conditions - Existing Geometry
Synchro 10 Report
2031PBX.syn

Timings
7: San Mateo Blvd. & I-40 EB Ramp

Terry O. Brown, PE
06/28/2019

	EBL	EBT	EBR	NBT	NBT	NBR	SBL	SBT
Lane Group	EBL	EBT	EBR	NBT	NBT	NBR	SBL	SBT
Lane Configurations	436	15	556	1752	391	454	1029	
Traffic Volume (vph)	436	15	556	1752	391	454	1029	
Future Volume (vph)	436	15	556	1752	391	454	1029	
Turn Type	Prot	NA	Perm	NA	Perm	Prot	NA	
Protected Phases	7	4	4	2	2	1	6	
Permitted Phases	7	4	4	2	2	1	6	
Detector Phase								
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	10.0	21.0	21.0	21.0	21.0	10.0	21.0	
Total Split (s)	32.0	32.0	32.0	54.0	54.0	34.0	86.0	
Total Split (%)	26.7%	26.7%	26.7%	45.0%	45.0%	28.3%	73.3%	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag				Lag	Lag	Lead	Lead	
Lead-Lag Optimize?								
Recall Mode	Min	Min	Min	C-Max	C-Max	Min	C-Max	
Act Effct Green (s)	22.5	22.5	22.5	60.0	60.0	22.6	87.5	
Actuated g/C Ratio	0.19	0.19	0.19	0.50	0.50	0.19	0.73	
v/c Ratio	0.75	0.81	0.80	0.76	0.43	0.77	0.30	
Control Delay	53.3	43.2	42.7	28.1	3.5	47.2	2.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	53.3	43.2	42.7	28.1	3.5	47.2	2.2	
LOS	D	D	D	C	A	D	A	
Approach Delay								
Approach LOS	D	D	D	C	C	B	B	
Intersection Summary								
Cycle Length: 120								
Actuated Cycle Length: 120								
Offset: 103.2 (86%), Referenced to phase 2:NBT and 6:SBT, Start of Green								
Natural Cycle: 75								
Control Type: Actuated-Coordinated								
Maximum v/c Ratio: 0.81								
Intersection Signal Delay: 26.3								
Intersection Capacity Utilization 71.7%								
Analysis Period (min) 15								



2031 PM Peak BUILD Conditions - Mitigated Conditions
Synchro 10 Report
2031PB_MIT.syn

HCM 6th Signalized Intersection Summary
7: San Mateo Blvd. & I-40 EB Ramp

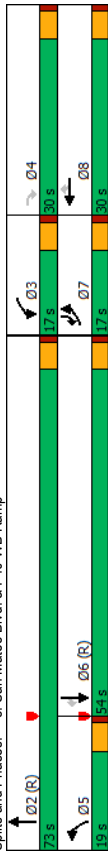
Terry O. Brown, PE
06/28/2019

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	436	15	556	0	0	0	0	1752	391	454	1029	0
Traffic Volume (veh/h)	436	15	556	0	0	0	0	1752	391	454	1029	0
Future Volume (veh/h)	436	15	556	0	0	0	0	1752	391	454	1029	0
Initial Q (Ob), 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	1.00	1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No	No	No	No	No	No	No	No	No	No	No	No
Adj Sat Flow, veh/h/in	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	474	0	615	0	0	0	0	1904	0	493	1118	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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	764	0	680	0	0	0	0	2487	0	576	3548	0
Arrive On Green	0.22	0.00	0.22	0.00	0.00	0.00	0.00	0.49	0.00	0.17	0.70	0.00
Sat Flow, veh/h	3534	0	3145	0	0	0	0	5233	1572	3428	5233	0
Grip Volume(v), veh/h	474	0	615	0	0	0	0	1904	0	493	1118	0
Grip Sat Flow(s),veh/h/in	1767	0	1572	0	0	0	0	1689	1572	1714	1689	0
Q Serve(g, s), s	14.6	0.0	22.9	0.0	0.0	0.0	0.0	36.8	0.0	16.8	10.2	0.0
Cycle Q Clear(g, c), s	14.6	0.0	22.9	0.0	0.0	0.0	0.0	36.8	0.0	16.8	10.2	0.0
Prop In Lane	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Grip Cap(c), veh/h	764	0	680	0	0	0	0	2487	0	576	3548	0
VIC Ratio(X)	0.62	0.00	0.90	0.00	0.00	0.00	0.00	0.77	0.00	0.86	0.32	0.00
Avail Cap(c, a), veh/h	795	0	708	0	0	0	0	2487	0	629	3548	0
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(l)	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.36	0.36	0.00
Uniform Delay (d), s/veh	42.6	0.0	45.8	0.0	0.0	0.0	0.0	24.9	0.0	48.5	6.9	0.0
Incr Delay (d2), s/veh	1.4	0.0	14.8	0.0	0.0	0.0	0.0	2.3	0.0	2.4	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	10.7	0.0	15.5	0.0	0.0	0.0	0.0	21.2	0.0	10.0	5.2	0.0
Unsig. Movement Delay, s/veh	44.0	0.0	60.7	0.0	0.0	0.0	0.0	27.2	0.0	50.9	7.0	0.0
LnGrip Delay(d),s/veh												
LnGrip LOS	D	A	E	A	A	A	A	C	C	D	A	A
Approach Vol, veh/h	1089							1904	A	D	1611	
Approach Delay, s/veh	53.4							27.2	A	20.4		
Approach LOS	D	D	D	D	D	D	D	C	C	C	C	C
Timer - Assigned Phis	1	2	4	6								
Phis Duration (G+Y+Rc), s	25.2	63.9	30.9	89.1								
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0								
Max Green Setting (Gmax), s	29.0	49.0	27.0	83.0								
Max Q Clear Time (g, c+1), s	18.8	38.8	24.9	12.2								
Green Ext Time (p, c), s	1.4	8.2	1.1	11.1								
Intersection Summary												
HCM 6th Ctrl Delay			31.0									
HCM 6th LOS			C									
Notes												
User approved volume balancing among the lanes for turning movement.												
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.												

2031 PM Peak BUILD Conditions - Mitigated Conditions
Synchro 10 Report
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Timings Terry O. Brown, PE
8: San Mateo Blvd. & I-40 WB Ramp 06/27/2019

EBL	EBR	WBL	WBR	NBL	NBT	SBT	SBR
195	524	242	142	315	196	1362	1444
195	524	242	142	315	196	1362	1444
7	4	3	8	8	5	2	6
7	4	3	8	8	5	2	6
5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
10.0	21.0	10.0	21.0	10.0	21.0	21.0	10.0
17.0	30.0	17.0	30.0	19.0	73.0	54.0	17.0
14.2%	25.0%	14.2%	25.0%	15.8%	60.8%	45.0%	14.2%
4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Min	Min	Min	Min	Min	C-Max	C-Max	Min
11.3	25.2	11.8	25.7	12.3	68.0	50.7	67.0
0.09	0.21	0.10	0.21	0.10	0.57	0.42	0.56
0.86	1.15	0.79	0.39	0.81	0.61	0.52	0.74
62.9	115.5	70.2	44.2	46.8	44.7	12.9	31.9
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
62.9	115.5	70.2	44.2	46.8	44.7	12.9	31.9
E	F	E	D	D	D	B	C
E	F	E	D	D	D	B	C
54.4					16.9	29.4	
Intersection Summary							
Cycle Length: 120							
Actuated Cycle Length: 120							
Offset: 44.4 (37%), Referenced to phase 2:NBT and 6:SBT, Start of Green							
Natural Cycle: 80							
Control Type: Actuated-Coordinated							
Maximum v/c Ratio: 1.15							
Intersection Signal Delay: 40.3							
Intersection LOS: D							
Intersection Capacity Utilization 79.7%							
Analysis Period (min) 15							



Splits and Phases: 8: San Mateo Blvd. & I-40 WB Ramp

2031 PM Peak BUILD Conditions - Existing Geometry

Synchro 10 Report
2031PBX.syn

HCM 6th Signalized Intersection Summary Terry O. Brown, PE
8: San Mateo Blvd. & I-40 WB Ramp 06/27/2019

EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
195	0	524	242	142	315	196	1362	0	0	1444	141
195	0	524	242	142	315	196	1362	0	0	1444	141
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1856	0	1856	1856	1856	1856	1856	1856	0	0	1856	1856
212	0	570	263	154	342	213	1480	0	0	1570	153
0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
3	0	3	3	3	3	3	3	0	0	3	3
270	0	1127	387	328	277	2978	0	0	0	2368	856
0.08	0.00	0.00	0.33	0.21	0.21	0.03	0.19	0.00	0.00	0.47	0.47
3428	212		3428	1856	1572	3428	5233	0	0	5233	1572
212	63.2		263	154	342	213	1480	0	0	1570	153
1714	E		1714	1856	1572	1714	1689	0	0	1689	1572
7.3			6.7	8.6	25.0	7.4	31.3	0.0	0.0	28.8	5.9
7.3			6.7	8.6	25.0	7.4	31.3	0.0	0.0	28.8	5.9
1.00			1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
270			1127	387	328	277	2978	0	0	2368	856
0.78			0.23	0.40	1.04	0.77	0.50	0.00	0.00	0.67	0.18
343			1127	387	328	400	2978	0	0	2368	856
1.00			1.00	1.00	1.00	0.33	1.00	1.00	1.00	1.00	1.00
1.00			1.00	1.00	1.00	0.60	0.60	0.00	0.00	1.00	1.00
54.3			29.3	41.0	47.5	57.3	32.5	0.0	0.0	24.8	13.8
8.9			0.1	0.7	61.6	3.4	0.4	0.0	0.0	1.5	0.5
0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6.3			5.0	7.2	22.3	5.8	19.0	0.0	0.0	17.1	3.9
63.2			29.4	41.7	109.1	60.7	32.9	0.0	0.0	26.4	14.3
E			C	D	F	E	C	A	A	C	B
E			C	D	F	E	C	A	A	C	B
759			759	67.8			1693			1723	
67.8			67.8				36.4			25.3	
E			E			D				C	
2	3		5	6	7	8					
75.5	44.5		14.7	60.9	14.5	30.0					
5.0	5.0		5.0	5.0	5.0	5.0					
68.0	12.0		14.0	49.0	12.0	25.0					
33.3	8.7		9.4	30.8	9.3	27.0					
14.0	0.3		0.3	11.2	0.2	0.0					
Intersection Summary											
HCM 6th Ctrl Delay 38.8											
HCM 6th LOS D											

2031 PM Peak BUILD Conditions - Existing Geometry

Synchro 10 Report
2031PBX.syn

Intersection						
Int Delay, s/veh	3.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑↑↑	↗	↘	↑↑↑
Traffic Vol, veh/h	186	118	2206	72	187	1580
Future Vol, veh/h	186	118	2206	72	187	1580
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	30	0	-	115	220	-
Veh in Median Storage, #	2	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	202	128	2398	78	203	1717

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	3491	1199	0	0	2476
Stage 1	2398	-	-	-	-
Stage 2	1093	-	-	-	-
Critical Hdwy	5.76	7.16	-	-	5.36
Critical Hdwy Stg 1	6.66	-	-	-	-
Critical Hdwy Stg 2	6.06	-	-	-	-
Follow-up Hdwy	3.83	3.93	-	-	3.13
Pot Cap-1 Maneuver	*203	*390	-	-	*489
Stage 1	*400	-	-	-	-
Stage 2	*555	-	-	-	-
Platoon blocked, %	1	1	-	-	1
Mov Cap-1 Maneuver	*~ 119	*390	-	-	*489
Mov Cap-2 Maneuver	*262	-	-	-	-
Stage 1	*400	-	-	-	-
Stage 2	*325	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	40	0	1.9
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	262	390	* 489
HCM Lane V/C Ratio	-	-	0.772	0.329	0.416
HCM Control Delay (s)	-	-	53.5	18.7	17.5
HCM Lane LOS	-	-	F	C	C
HCM 95th %tile Q(veh)	-	-	5.7	1.4	2

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection						
Int Delay, s/veh	0.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗ ↑↑↑	↑↑↑ ↘			↑↑↑
Traffic Vol, veh/h	0	58	2190	105	0	1738
Future Vol, veh/h	0	58	2190	105	0	1738
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	63	2380	114	0	1889

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	-	1247	0	0	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	7.16	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	3.93	-	-	-
Pot Cap-1 Maneuver	0	*411	-	-	0
Stage 1	0	-	-	-	0
Stage 2	0	-	-	-	0
Platoon blocked, %	-	1	-	-	-
Mov Cap-1 Maneuver	-	*411	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.3	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	-	411
HCM Lane V/C Ratio	-	-	0.153
HCM Control Delay (s)	-	-	15.3
HCM Lane LOS	-	-	C
HCM 95th %tile Q(veh)	-	-	0.5

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection						
Int Delay, s/veh	2.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	75	1084	647	87	100	65
Future Vol, veh/h	75	1084	647	87	100	65
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	80	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	82	1178	703	95	109	71

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	798	0	-	0	1504 399
Stage 1	-	-	-	-	751 -
Stage 2	-	-	-	-	753 -
Critical Hdwy	4.16	-	-	-	6.86 6.96
Critical Hdwy Stg 1	-	-	-	-	5.86 -
Critical Hdwy Stg 2	-	-	-	-	5.86 -
Follow-up Hdwy	2.23	-	-	-	3.53 3.33
Pot Cap-1 Maneuver	814	-	-	-	*303 598
Stage 1	-	-	-	-	*424 -
Stage 2	-	-	-	-	*606 -
Platoon blocked, %		-	-	-	1
Mov Cap-1 Maneuver	814	-	-	-	*272 598
Mov Cap-2 Maneuver	-	-	-	-	*272 -
Stage 1	-	-	-	-	*381 -
Stage 2	-	-	-	-	*606 -

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	26.1
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	814	-	-	-	346
HCM Lane V/C Ratio	0.1	-	-	-	0.518
HCM Control Delay (s)	9.9	-	-	-	26.1
HCM Lane LOS	A	-	-	-	D
HCM 95th %tile Q(veh)	0.3	-	-	-	2.8

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Traffic Count Data Sheet

Year Counts Taken: **2019** E-W Street: **Indian School Rd.** Speed Limit (Indian School Rd.)=**40** MPH
 N-S Street: **Girard Ct.** Speed Limit (Girard Ct.)=**30** MPH
6/5/19

Signalized

Begin Time	End Time	Eastbound (Indian School Rd.)			Westbound (Indian School Rd.)			Northbound (Girard Ct.)			Southbound (Girard Ct.)		
		L	T	R	L	T	R	L	T	R	L	T	R
7:00 AM	7:15 AM	1	34	0	0	51	6	0	3	3	1	0	0
7:15 AM	7:30 AM	4	32	2	0	69	20	0	9	9	0	14	5
7:30 AM	7:45 AM	7	53	2	0	111	9	0	7	4	0	17	4
7:45 AM	8:00 AM	2	61	10	0	127	9	0	10	3	0	17	6
8:00 AM	8:15 AM	3	59	4	0	78	13	0	9	4	0	23	4
8:15 AM	8:30 AM	8	55	5	0	70	14	0	17	0	0	12	4
8:30 AM	8:45 AM	3	55	5	0	86	7	0	10	6	0	13	0
8:45 AM	9:00 AM	3	48	6	0	81	33	1	9	11	1	21	6
AM Peak Hour Volumes		20	228	21	0	386	45	0	43	11	0	69	18
% of Total Traffic		2.3%	26.0%	2.4%	0.0%	44.1%	5.1%	0.0%	4.9%	1.3%	0.0%	7.9%	2.1%
% Directional		30.7%				50.0%				6.2%			13.1%
AM Peak Hour Factor		Intersection 0.87											
		0.80											
		0.92											

Begin Time	End Time	Eastbound (Indian School Rd.)			Westbound (Indian School Rd.)			Northbound (Girard Ct.)			Southbound (Girard Ct.)		
		L	T	R	L	T	R	L	T	R	L	T	R
4:00 PM	4:15 PM	6	83	5	0	77	9	1	11	3	2	15	5
4:15 PM	4:30 PM	10	107	8	0	101	15	0	23	4	0	16	9
4:30 PM	4:45 PM	3	106	8	0	80	18	0	29	4	0	14	3
4:45 PM	5:00 PM	5	91	10	0	120	12	1	13	6	1	19	4
5:00 PM	5:15 PM	6	146	10	0	97	20	0	24	5	0	20	2
5:15 PM	5:30 PM	9	116	5	0	104	16	0	22	5	1	15	4
5:30 PM	5:45 PM	9	113	14	0	143	15	0	11	6	0	20	6
5:45 PM	6:00 PM	7	85	5	0	138	10	0	11	3	0	13	3
PM Peak Hour Volumes		29	466	39	0	464	63	1	70	22	2	6	16
% of Total Traffic		2.3%	36.4%	3.0%	0.0%	36.2%	4.9%	0.2%	5.5%	1.7%	0.2%	5.8%	1.2%
% Directional		41.7%				41.8%				7.3%			8.7%
PM Peak Hour Factor		Intersection 0.92											
		0.84											
		0.81											

Traffic Count Data Sheet (Demand Adjusted)

Year Counts Taken: **2019** E-W Street: **I-40 N. Ramp** Speed Limit (I-40 N. Ramp)= **30** MPH
 N-S Street: **Carlisle Blvd.** Speed Limit (Carlisle Blvd.)= **35** MPH
5/19/19

Signalized

Begin Time	Eastbound (I-40 N. Ramp)			Westbound (I-40 N. Ramp)			Northbound (Carlisle Blvd.)			Southbound (Carlisle Blvd.)		
	L	T	R	L	T	R	L	T	R	L	T	R
7:00 AM	0	0	0	63	7	64	79	164	0	0	129	68
7:15 AM	0	0	0	78	0	98	79	224	0	0	128	68
7:30 AM	0	0	0	96	2	102	81	223	0	0	173	58
7:45 AM	0	0	0	84	5	95	118	296	0	1	218	62
8:00 AM	0	0	0	74	1	71	103	268	0	1	176	82
8:15 AM	0	0	0	69	2	68	89	230	0	0	179	60
8:30 AM	0	0	0	102	0	78	108	229	0	0	176	77
8:45 AM	0	0	0	98	2	81	102	285	0	0	163	65
AM Peak Hour Volumes	0	0	0	329	8	312	418	1023	0	2	749	281
Percent Approach			50.7%	1.2%	48.1%	29.0%	71.0%	0.0%	0.0%	72.7%	27.3%	

Intersection

Begin Time	Eastbound (I-40 N. Ramp)			Westbound (I-40 N. Ramp)			Northbound (Carlisle Blvd.)			Southbound (Carlisle Blvd.)		
	L	T	R	L	T	R	L	T	R	L	T	R
4:00 PM	0	0	0	62	0	71	157	261	0	0	243	129
4:15 PM	0	0	0	51	2	86	104	287	0	0	259	129
4:30 PM	0	0	0	64	0	55	144	284	0	0	243	105
4:45 PM	0	0	0	78	0	66	91	332	0	0	270	111
5:00 PM	0	0	0	47	2	60	142	309	0	0	291	130
5:15 PM	0	0	0	58	1	73	113	349	0	0	307	122
5:30 PM	0	0	0	63	2	67	153	297	0	0	226	100
5:45 PM	0	0	0	81	7	62	86	230	0	0	225	96
PM Peak Hour Volumes	0	0	0	246	5	266	499	1287	0	0	1094	463
Percent Approach			47.6%	1.0%	51.5%	27.9%	72.1%	0.0%	0.0%	70.3%	29.7%	

Intersection

Begin Time	Eastbound (I-40 N. Ramp)			Westbound (I-40 N. Ramp)			Northbound (Carlisle Blvd.)			Southbound (Carlisle Blvd.)		
	L	T	R	L	T	R	L	T	R	L	T	R
AM Peak Hour Raw Count	0	0	0	330	8	313	414	1014	0	0	749	281
% Change	N/A	N/A	N/A	0%	0%	0%	1%	1%	N/A	N/A	0%	0%
AM Peak Hour Raw Count	0	0	0	249	5	270	495	1278	0	0	1094	463
% Change	N/A	N/A	N/A	-1%	0%	-1%	1%	1%	N/A	N/A	0%	0%

Traffic Count Data Sheet (Demand Adjusted)

Year Counts Taken: **2019** E-W Street: **I-40 S. Ramp** Speed Limit (I-40 S. Ramp)= **30** MPH
 N-S Street: **Carlisle Blvd.** Speed Limit (Carlisle Blvd.)= **35** MPH
5/21/19

Signalized

Begin Time	Eastbound (I-40 S. Ramp)			Westbound (I-40 S. Ramp)			Northbound (Carlisle Blvd.)			Southbound (Carlisle Blvd.)		
	L	T	R	L	T	R	L	T	R	L	T	R
7:00 AM	122	3	119	0	0	0	0	130	29	37	150	0
7:15 AM	142	1	126	0	0	0	0	173	43	31	181	0
7:30 AM	126	0	138	0	0	0	0	184	60	32	228	0
7:45 AM	153	1	163	0	0	0	0	257	73	52	239	0
8:00 AM	136	1	142	0	0	0	0	217	69	41	216	0
8:15 AM	111	1	99	0	0	0	0	195	51	44	219	0
8:30 AM	123	2	135	4	0	0	0	209	61	50	199	0
8:45 AM	127	1	142	0	0	0	0	251	69	42	221	0
AM Peak Hour Volumes	523	5	539	4	0	0	0	878	254	187	873	0
Percent Approach	49.0%	0.5%	50.5%	0.0%	0.0%	22.4%	77.6%	17.6%	82.4%	0.0%	0.0%	

AM Peak Hour Factor **0.84**

Intersection **0.87**

Begin Time	Eastbound (I-40 S. Ramp)			Westbound (I-40 S. Ramp)			Northbound (Carlisle Blvd.)			Southbound (Carlisle Blvd.)		
	L	T	R	L	T	R	L	T	R	L	T	R
4:00 PM	122	2	144	0	0	0	0	304	84	95	199	0
4:15 PM	132	2	123	0	0	0	0	267	81	77	229	0
4:30 PM	128	2	128	0	0	0	0	292	102	84	230	0
4:45 PM	117	4	119	0	0	0	0	320	99	83	248	0
5:00 PM	110	0	102	0	0	0	0	322	121	125	225	0
5:15 PM	153	5	128	0	0	0	0	330	113	109	252	0
5:30 PM	121	2	117	0	0	0	0	296	100	90	217	0
5:45 PM	93	3	131	1	0	0	0	248	73	63	235	0
PM Peak Hour Volumes	508	11	477	14	0	0	0	1264	435	401	955	0
Percent Approach	51.0%	1.1%	47.9%	0.0%	0.0%	25.6%	74.4%	29.6%	70.4%	0.0%	0.0%	

PM Peak Hour Factor **0.87**

Intersection **0.96**

AM Peak Hour Raw Count	525	5	540	0	0	0	0	878	254	187	875	0
% Change	0%	0%	0%	N/A	N/A	N/A	N/A	0%	0%	0%	0%	N/A
AM Peak Hour Raw Count	510	11	480	0	0	0	0	1251	431	401	955	0
% Change	0%	0%	-1%	N/A	N/A	N/A	N/A	1%	1%	0%	0%	N/A

Traffic Count Data Sheet

Year Counts Taken: **2019** E-W Street: **Indian School Rd.** Speed Limit (Indian School Rd.)=**40** MPH
 N-S Street: **Carlisle Blvd.** Speed Limit (Carlisle Blvd.)=**35** MPH
5/14/19

Signalized

Begin Time	End Time	Eastbound (Indian School Rd.)			Westbound (Indian School Rd.)			Northbound (Carlisle Blvd.)			Southbound (Carlisle Blvd.)		
		L	T	R	L	T	R	L	T	R	L	T	R
7:00 AM	7:15 AM	67	34	40	11	53	26	21	101	6	30	137	66
7:15 AM	7:30 AM	67	50	15	12	68	26	19	132	11	47	174	90
7:30 AM	7:45 AM	79	65	10	13	67	28	14	137	7	48	187	124
7:45 AM	8:00 AM	90	67	11	11	98	30	14	172	13	61	202	145
8:00 AM	8:15 AM	78	44	7	16	59	36	16	149	4	51	201	136
8:15 AM	8:30 AM	80	43	14	13	67	29	20	150	9	53	180	102
8:30 AM	8:45 AM	97	59	10	11	62	32	16	141	9	56	170	123
8:45 AM	9:00 AM	98	64	10	16	58	33	14	154	14	52	216	108
AM Peak Hour Volumes		345	213	42	51	286	127	66	612	35	221	753	506
% of Total Traffic		10.6%	6.5%	1.3%	1.6%	8.8%	3.9%	2.0%	18.8%	1.1%	6.8%	23.1%	15.5%
% Directional		18.4%				14.2%			21.9%			45.4%	
AM Peak Hour Factor		Intersection 0.89											
		0.89											

Begin Time	End Time	Eastbound (Indian School Rd.)			Westbound (Indian School Rd.)			Northbound (Carlisle Blvd.)			Southbound (Carlisle Blvd.)		
		L	T	R	L	T	R	L	T	R	L	T	R
4:00 PM	4:15 PM	88	119	23	22	81	57	23	213	13	53	155	85
4:15 PM	4:30 PM	98	105	10	11	60	46	32	220	32	60	225	96
4:30 PM	4:45 PM	103	113	13	13	65	59	40	198	18	56	207	96
4:45 PM	5:00 PM	104	104	22	18	60	56	22	232	19	49	214	113
5:00 PM	5:15 PM	85	157	17	22	102	78	31	224	4	60	195	101
5:15 PM	5:30 PM	101	152	17	13	80	49	22	275	12	55	252	118
5:30 PM	5:45 PM	95	133	23	18	88	42	33	214	12	64	201	107
5:45 PM	6:00 PM	90	85	9	14	70	34	27	196	14	54	204	101
PM Peak Hour Volumes		385	546	79	71	330	225	108	945	47	228	862	439
% of Total Traffic		9.0%	12.8%	1.9%	1.7%	7.7%	5.3%	2.5%	22.1%	1.1%	5.3%	20.2%	10.3%
% Directional		23.7%				14.7%			25.8%			35.8%	
PM Peak Hour Factor		Intersection 0.93											
		0.94											

Traffic Count Data Sheet

Year Counts Taken: **2019** E-W Street: **Indian School Rd.** Speed Limit (Indian School Rd.)= **40** MPH
 N-S Street: **Washington St.** Speed Limit (Washington St.)= **30** MPH
5/22/19 Signalized

Begin Time	End Time	Eastbound (Indian School Rd.)			Westbound (Indian School Rd.)			Northbound (Washington St.)			Southbound (Washington St.)				
		L	T	R	L	T	R	L	T	R	L	T	R		
7:00 AM	7:15 AM	11	24	18	2	34	5	0	14	27	4	2	24	22	1
7:15 AM	7:30 AM	20	51	20	3	47	5	3	17	23	3	4	29	28	2
7:30 AM	7:45 AM	17	64	14	3	45	4	0	12	31	8	9	27	29	0
7:45 AM	8:00 AM	21	63	6	2	92	14	0	20	45	11	10	28	42	3
8:00 AM	8:15 AM	9	52	7	4	37	7	1	17	45	7	13	33	35	0
8:15 AM	8:30 AM	14	36	12	9	54	9	0	17	45	10	6	31	39	0
8:30 AM	8:45 AM	22	56	6	5	54	6	0	13	33	8	0	34	19	2
8:45 AM	9:00 AM	16	67	9	5	38	4	0	18	44	8	0	36	31	0
AM Peak Hour Volumes		61	215	39	2	228	34	1	66	166	36	0	119	145	3
% of Total Traffic		5.2%	18.4%	3.3%	1.5%	19.5%	2.9%		5.7%	14.2%	3.1%	3.3%	10.2%	12.4%	
% Directional			27.0%			24.0%		Intersection		22.9%			25.9%		
AM Peak Hour Factor			0.83			0.65		0.82		0.88			0.93		

Begin Time	End Time	Eastbound (Indian School Rd.)			Westbound (Indian School Rd.)			Northbound (Washington St.)			Southbound (Washington St.)				
		L	T	R	L	T	R	L	T	R	L	T	R		
4:00 PM	4:15 PM	41	77	11	5	63	2	0	8	64	7	1	57	31	0
4:15 PM	4:30 PM	51	108	20	5	59	7	0	13	73	7	0	52	38	2
4:30 PM	4:45 PM	39	106	14	15	63	11	0	18	69	9	0	64	20	0
4:45 PM	5:00 PM	55	126	17	7	73	15	0	15	61	11	0	59	43	1
5:00 PM	5:15 PM	41	117	26	15	87	18	0	17	62	16	0	74	41	0
5:15 PM	5:30 PM	41	126	25	4	71	15	0	20	74	16	0	64	37	0
5:30 PM	5:45 PM	46	80	22	9	55	16	0	15	59	8	0	67	31	0
5:45 PM	6:00 PM	32	64	23	8	65	13	0	24	51	5	0	57	26	0
PM Peak Hour Volumes		176	475	82	0	294	59	0	70	266	52	0	261	141	1
% of Total Traffic		8.9%	24.1%	4.2%	2.1%	14.9%	3.0%		3.6%	13.5%	2.6%	2.6%	13.3%	7.2%	
% Directional			37.2%			20.0%		Intersection		19.7%			23.0%		
PM Peak Hour Factor			0.93			0.82		0.93		0.88			0.88		

Traffic Count Data Sheet

Year Counts Taken: **2019** E-W Street: **Constitution Ave.** Speed Limit (Constitution Ave.)=**30** MPH
 N-S Street: **Carlisle Blvd.** Speed Limit (Carlisle Blvd.)=**35** MPH
5/16/19

Signalized

Begin Time	End Time	Eastbound (Constitution Ave.)			Westbound (Constitution Ave.)			Northbound (Carlisle Blvd.)			Southbound (Carlisle Blvd.)		
		L	T	R	L	T	R	L	T	R	L	T	R
7:00 AM	7:15 AM	8	10	1	5	14	13	1	2	62	14	91	18
7:15 AM	7:30 AM	19	12	3	4	15	10	2	4	91	10	109	39
7:30 AM	7:45 AM	23	17	3	8	36	15	4	4	114	16	123	45
7:45 AM	8:00 AM	19	23	4	10	37	18	2	6	139	11	112	65
8:00 AM	8:15 AM	23	26	3	15	36	15	2	2	109	5	137	54
8:15 AM	8:30 AM	27	14	1	10	28	15	0	2	105	4	123	55
8:30 AM	8:45 AM	29	24	6	9	22	19	1	4	112	0	141	29
8:45 AM	9:00 AM	28	18	3	14	21	19	2	6	112	7	141	29
AM Peak Hour Volumes		98	87	14	44	123	67	5	14	465	20	513	203
% of Total Traffic		5.7%	5.1%	0.8%	2.6%	7.2%	3.9%	0.8%	0.8%	27.0%	1.2%	29.8%	11.8%
% Directional		11.6%	11.6%			13.6%				29.0%		45.5%	
AM Peak Hour Factor		Intersection 0.93											
		0.84											

Begin Time	End Time	Eastbound (Constitution Ave.)			Westbound (Constitution Ave.)			Northbound (Carlisle Blvd.)			Southbound (Carlisle Blvd.)		
		L	T	R	L	T	R	L	T	R	L	T	R
4:00 PM	4:15 PM	35	33	5	11	27	22	0	7	181	15	146	34
4:15 PM	4:30 PM	29	36	3	27	37	17	2	6	180	14	118	24
4:30 PM	4:45 PM	57	45	5	8	35	16	0	1	185	9	160	34
4:45 PM	5:00 PM	40	41	0	23	39	31	1	6	161	10	122	26
5:00 PM	5:15 PM	64	49	6	13	21	14	0	8	184	8	169	38
5:15 PM	5:30 PM	52	62	5	18	32	15	1	3	174	10	147	29
5:30 PM	5:45 PM	26	51	3	19	38	21	1	6	156	10	155	30
5:45 PM	6:00 PM	26	24	7	4	22	14	0	3	150	8	147	28
PM Peak Hour Volumes		213	197	16	12	127	76	2	18	704	37	598	127
% of Total Traffic		9.4%	8.7%	0.7%	2.7%	5.6%	3.4%	0.8%	0.8%	31.1%	1.6%	26.4%	5.6%
% Directional		18.8%	18.8%			11.7%				33.6%		35.4%	
PM Peak Hour Factor		Intersection 0.96											
		0.89											

Traffic Count Data Sheet (Demand Adjusted)

Year Counts Taken: **2019** E-W Street: **I-40 S. Ramp** Speed Limit (I-40 S. Ramp)= **30** MPH
 N-S Street: **San Mateo Blvd.** Speed Limit (San Mateo Blvd.)= **40** MPH
5/23/19 Signalized

Begin Time	Eastbound (I-40 S. Ramp)			Westbound (I-40 S. Ramp)			Northbound (San Mateo Blvd.)			Southbound (San Mateo Blvd.)			
	L	T	R	L	T	R	L	T	R	L	T	R	
7:00 AM	57	3	187	0	0	0	0	191	24	0	141	0	
7:15 AM	121	0	191	0	0	0	0	211	26	0	204	0	
7:30 AM	115	1	183	0	0	0	0	277	28	0	196	0	
7:45 AM	113	0	180	0	0	0	0	255	36	0	251	0	
8:00 AM	92	0	162	0	0	0	0	279	49	0	200	0	
8:15 AM	94	0	136	0	0	0	0	238	53	0	193	0	
8:30 AM	95	0	182	0	0	0	0	228	40	0	205	0	
8:45 AM	134	0	171	0	0	0	0	254	34	0	225	0	
AM Peak Hour Volumes	441	1	716	0	0	0	0	1022	139	0	851	0	
Percent Approach	38.1%	0.1%	61.8%	#DIV/0!	#DIV/0!	#DIV/0!	0.0%	88.0%	12.0%	0.0%	20.8%	79.2%	0.0%

AM Peak Hour Factor **0.93** Intersection **0.94**

Begin Time	Eastbound (I-40 S. Ramp)			Westbound (I-40 S. Ramp)			Northbound (San Mateo Blvd.)			Southbound (San Mateo Blvd.)			
	L	T	R	L	T	R	L	T	R	L	T	R	
4:00 PM	98	2	141	0	0	0	0	460	78	0	225	0	
4:15 PM	106	0	145	0	0	0	0	401	53	0	27	0	
4:30 PM	81	7	122	0	0	0	0	445	74	0	224	0	
4:45 PM	101	1	95	0	0	0	0	364	93	0	121	0	
5:00 PM	64	1	95	0	0	0	0	463	119	3	114	254	
5:15 PM	66	2	108	0	0	0	0	359	79	4	100	235	
5:30 PM	83	0	121	0	0	0	0	387	74	0	108	263	
5:45 PM	81	0	133	0	0	0	0	281	54	0	101	241	
PM Peak Hour Volumes	312	11	420	0	0	0	0	1631	365	7	428	946	
Percent Approach	42.0%	1.5%	56.5%	#DIV/0!	#DIV/0!	#DIV/0!	0.0%	81.7%	18.3%	0.0%	31.1%	68.9%	0.0%

PM Peak Hour Factor **0.88** Intersection **0.93**

AM Peak Hour Raw Count	443	1	719	0	0	0	0	1027	140	0	223	849	0
% Change	0%	0%	0%	N/A	N/A	N/A	N/A	0%	-1%	0%	0%	0%	N/A
AM Peak Hour Raw Count	315	11	424	0	0	0	0	1631	365	0	430	950	0
% Change	-1%	0%	-1%	N/A	N/A	N/A	N/A	0%	0%	0%	0%	0%	N/A

Traffic Count Data Sheet (Demand Adjusted)

Year Counts Taken: **2019** E-W Street: **I-40 N. Ramp** Speed Limit (I-40 N. Ramp)= **30** MPH
 N-S Street: **San Mateo Blvd.** Speed Limit (San Mateo Blvd.)= **40** MPH
 Signalized **5/23/19**

Begin Time	Eastbound (I-40 N. Ramp)			Westbound (I-40 N. Ramp)			Northbound (San Mateo Blvd.)			Southbound (San Mateo Blvd.)			
	L	T	R	L	T	R	L	T	R	L	T	R	
7:00 AM	2	0	33	35	24	51	19	143	0	0	172	7	0
7:15 AM	4	0	37	52	23	42	42	184	0	0	209	17	0
7:30 AM	5	0	39	51	28	69	38	245	0	0	237	26	0
7:45 AM	14	0	38	57	41	67	40	211	0	0	328	27	0
8:00 AM	14	0	31	76	23	63	32	240	0	0	260	19	2
8:15 AM	14	0	34	72	37	105	31	223	0	0	197	19	2
8:30 AM	10	0	48	74	30	96	33	22	0	0	212	16	0
8:45 AM	13	0	37	72	35	103	33	274	0	1	212	13	0
AM Peak Hour Volumes	47	0	142	256	129	304	141	919	0	0	1022	91	4
Percent Approach	24.9%	0.0%	75.1%	37.2%	18.7%	44.1%	13.3%	86.7%	0.0%	0.0%	91.8%	8.2%	

Intersection

Begin Time	Eastbound (I-40 N. Ramp)			Westbound (I-40 N. Ramp)			Northbound (San Mateo Blvd.)			Southbound (San Mateo Blvd.)			
	L	T	R	L	T	R	L	T	R	L	T	R	
4:00 PM	27	0	81	46	44	72	56	306	0	0	323	33	0
4:15 PM	35	0	73	39	22	47	48	313	0	0	359	35	0
4:30 PM	31	0	92	54	22	60	48	321	0	0	299	21	0
4:45 PM	29	0	104	51	29	57	45	288	0	0	340	29	1
5:00 PM	52	0	127	34	33	72	44	320	0	3	343	26	0
5:15 PM	29	0	71	42	24	62	37	287	0	1	386	22	1
5:30 PM	20	0	89	48	36	61	36	292	0	0	342	25	1
5:45 PM	28	0	82	41	27	43	35	233	0	0	354	29	0
PM Peak Hour Volumes	147	0	396	178	106	236	185	1242	0	3	1341	111	1
Percent Approach	27.1%	0.0%	72.9%	34.2%	20.4%	45.4%	13.0%	87.0%	0.0%	0.0%	92.4%	7.6%	

Intersection

Begin Time	Eastbound (I-40 N. Ramp)			Westbound (I-40 N. Ramp)			Northbound (San Mateo Blvd.)			Southbound (San Mateo Blvd.)			
	L	T	R	L	T	R	L	T	R	L	T	R	
AM Peak Hour Raw Count	47	0	143	255	129	303	141	919	0	0	1022	91	4
% Change	0%	N/A	-1%	0%	0%	0%	0%	0%	N/A	0%	0%	0%	0%
PM Peak Hour Raw Count	131	0	394	172	120	248	162	1189	0	0	1418	103	1
% Change	12%	N/A	1%	3%	-12%	-5%	14%	4%	N/A	N/A	-5%	8%	8%

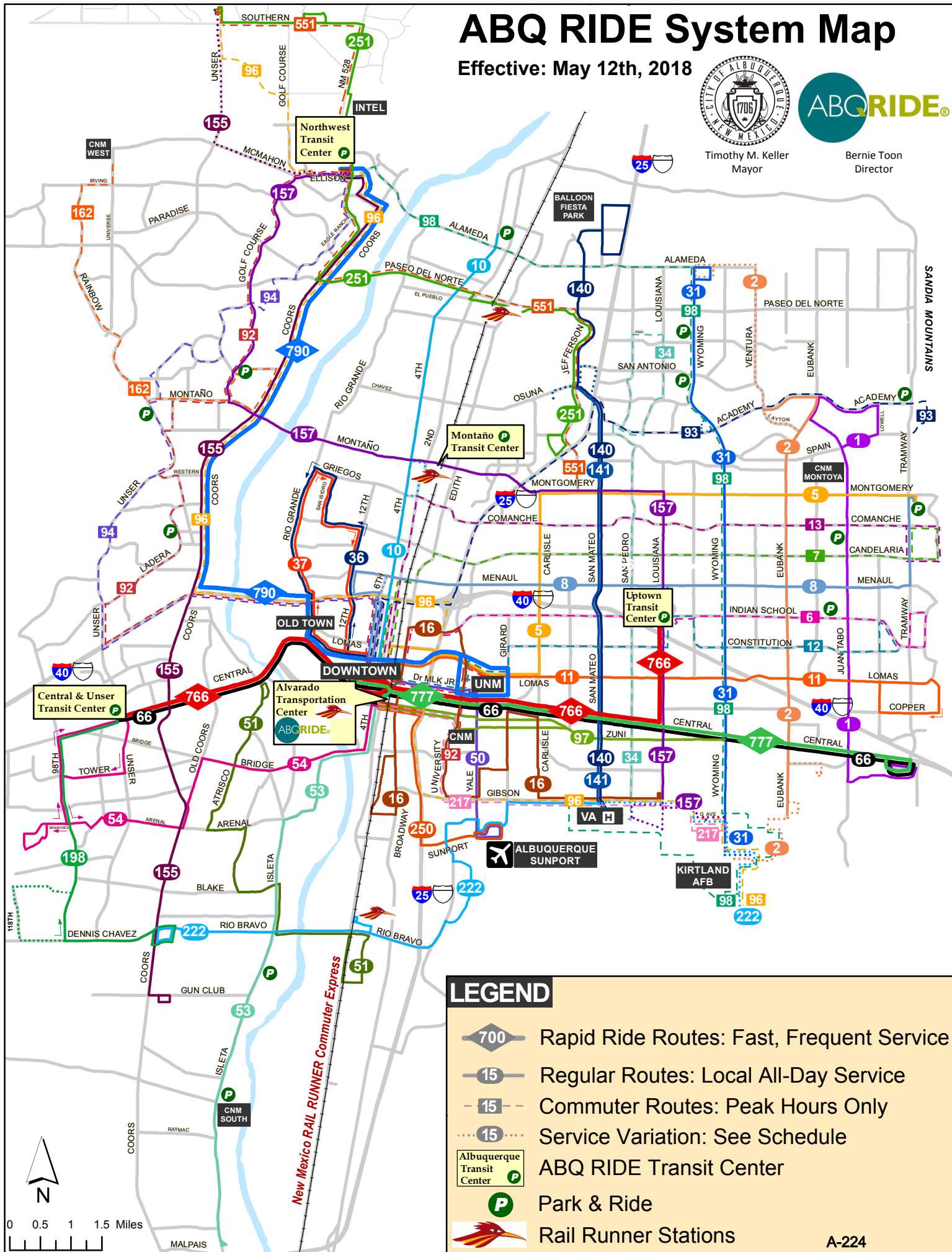
ABQ RIDE System Map

Effective: May 12th, 2018



Timothy M. Keller
Mayor

Bernie Toon
Director



LEGEND

- Rapid Ride Routes: Fast, Frequent Service
- Regular Routes: Local All-Day Service
- Commuter Routes: Peak Hours Only
- Service Variation: See Schedule
- Albuquerque Transit Center
- Park & Ride
- Rail Runner Stations

SCOPE OF TRAFFIC IMPACT STUDY (TIS)

TO: Terry Brown

MEETING DATE: May 13, 2019

ATTENDEES: Consultant Team; COA Transportation Development Review; NMDOT

PROJECT: Old K-Mart Site Carlisle and I-40, H-16,17

REQUESTED CITY ACTION: ___ Zone Change X Site Development Plan

___ Subdivision ___ Building Permit ___ Sector Plan ___ Sector Plan Amendment

___ Curb Cut Permit ___ Conditional Use ___ Annexation ___ Site Plan Amendment

ASSOCIATED APPLICATION: Proposed redevelopment to include supermarket, fast food w/drive-thru and shopping center for total 123,405 sf of building space.

SCOPE OF REPORT:

The Traffic Impact Study should follow the standard report format, which is outlined in the DPM. The following supplemental information is provided for the preparation of this specific study.

1. Trip Generation - Use Trip Generation Manual, 10th Edition.
Local data may be used for certain land use types as determined by staff.
Consultant to provide.

2. Appropriate study area:
Signalized Intersections;
 - a. Carlisle and both I-40 ramps
 - b. San Mateo and both I-40 ramps
 - c. Indian School and Carlisle
 - d. Washington and Indian School
 - e. Carlisle and Constitution

Unsignalized Intersections;

- a. Girard and Indian School

Driveway Intersections: all site drives.

3. Intersection turning movement counts
Study Time – 7-9 a.m. peak hour, 4-6 p.m. peak hour
Consultant to provide for all intersections listed above.
4. Type of intersection progression and factors to be used.
Type III arrival type (see “2016 Highway Capacity Manual” or equivalent as approved by staff). Unless otherwise justified, peak hour factors and % heavy commercial should be taken directly from the MRCOG turning movement data provided or as calculated from current count data by consultant.
5. Boundaries of area to be used for trip distribution.
City Wide - residential, office or industrial;

3 mile radius – commercial;
Interstate or to be determined by consultant - motel/hotel
APS district boundary mapping for each school and bus routes

6. Basis for trip distribution.

Residential – Use inverse relationship based upon distance and employment. Use employment data from 2040 Socioeconomic Forecasts, MRCOG – See MRCOG website for most current data.

Office/Industrial - Use inverse relationship based upon distance and population. Use population data from 2040 Socioeconomic Forecasts, MRCOG – See MRCOG website for most current data.

Commercial - Use relationship based upon population. Use population data from 2040 Socioeconomic Forecasts, MRCOG – See MRCOG website for most current data.

Residential - $T_s = (T_t) (S_e / D) / (S_e / D)$
Ts = Development to Individual Subarea Trips
Tt = Total Trips
Se = Subarea Employment
D = Distance from Development to Subarea

Office/Industrial - $T_s = (T_t) (S_p / D) / (S_p / D)$
Ts = Development to Individual Subarea Trips
Tt = Total Trips
Sp = Subarea Population
D = Distance from Development to Subarea

Commercial -
 $T_s = (T_t) (S_p) / (S_p)$
Ts = Development to Individual Subarea Trips
Tt = Total Trips
Sp = Subarea Population

7. Traffic Assignment. Logical routing on the major street system.

8. Proposed developments which have been approved but not constructed that are to be Included in the analyses. Projects in the area include:
a. None

9. Method of intersection capacity analysis - planning or operational (see “2016 Highway Capacity Manual” or equivalent [i.e. HCS, Synchro, Teapac, etc.] as approved by staff). Must use latest version of design software and/or current edition of design manual.
Implementation Year: 2021

10. Traffic conditions for analysis:

- a. Existing analysis X yes ___ no - year (xxxx);
- b. Phase implementation year(s) without proposed development – 2021
- c. Phase implementation year(s) with proposed development – 2021
- d. Project completion year without proposed development – 2031
- e. Project completion year with proposed development – 2031
- f. Other –

11. Background traffic growth.
Method: use 10-year historical growth based on standard data from the MRCOG Traffic Flow Maps. Minimum growth rate to be used is 1/2%.
12. Planned (programmed) traffic improvements.
List planned CIP improvements in study area and projected project implementation year:
 - a. Project – Location (Implementation Year)
13. Items to be included in the study:
 - a. Intersection analysis.
 - b. Signal progression - An analysis is required if the driveway analysis indicates a traffic signal is possibly warranted. Analysis Method:
 - c. Arterial LOS analysis;
 - d. Recommended street, intersection and signal improvements. Show existing signal timing
 - e. Site design features such as turning lanes, median cuts, queuing requirements and site circulation, including driveway signalization and visibility.
 - f. Transportation system impacts.
 - g. Other mitigating measures.
 - h. Accident analyses yes no; Location(s):Intersections in study
 - i. Weaving analyses yes no; Location(s):
14. Other: Discuss truck traffic location and flows

SUBMITTAL REQUIREMENTS:

1. Number of copies of report required
 - a. 1 paper copy
 - b. 1 digital copy
2. Submittal Fee – \$1300 for up to 3 reviews

The Traffic Impact Study for this development proposal, project name, shall be performed in accordance with the above criteria. If there are any questions regarding the above items, please contact me at 924-3633.

Ernest Armijo, P.E.
Senior Engineer for
Transportation Development Section

May 15, 2019
Date

via: email
C: TIS Task Force Attendees, file