Traffic Impact Study for the Cookies Retail Project

Prepared for the City of Santa Rosa

Submitted by
W-Trans

June 10, 2021

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Executive Summary

The proposed Cookies Retail Project is a cannabis dispensary with a delivery service to be located in an existing commercial suite at 1937 Santa Rosa Avenue in the City of Santa Rosa. The project would take access from an existing driveway opposite the stop-controlled Costco driveway approximately 500 feet south of Colgan Avenue. Based on data collected at other local dispensaries in the North Bay, the proposed project would be expected to generate 381 daily trips on average with 95 trips during the weekday p.m. peak hour. After accounting for existing trips associated with the hair salon that would be replaced by the project, the dispensary would be expected to result in 316 new daily trips on average with 89 new p.m. peak hour trips.

Analysis indicates that the study intersections of Santa Rosa Avenue/Baker Avenue and Santa Rosa Avenue/ Colgan Avenue-US 101 North Ramps both operate acceptably per the applicable City standards under Existing and Baseline Conditions and would continue to do so with the addition of project traffic.

As of the date of this analysis, the City of Santa Rosa has not yet adopted thresholds of significance related to VMT, though the City has outlined guidelines, as contained in the *Vehicle Miles Traveled (VMT) Guidelines Final Draft*, dated June 5, 2020. Under this guidance, the project would be classified as local-serving retail since the total floor area is less than 10,000 square feet and can therefore be screened from further analysis and presumed to have a less-than-significant transportation impact on VMT.

Existing pedestrian, bicycle, and transit facilities in the project vicinity, including sidewalks, Class II bike lanes on Santa Rosa Avenue, and Santa Rosa CityBus and Sonoma County Transit routes within a walkable distance, provide adequate access for these modes; however, bicycle parking is not identified on the site plan. A single bicycle parking space would be required under City Code, though it is recommended that two bicycle parking spaces be provided on-site to enhance access for cyclists.

Sight lines are currently adequate at the project driveway to accommodate all turns into and out of the site. In an effort to maintain existing sight lines, it is recommended that any new signage to be installed along the project frontage be placed outside of the vision triangle of a driver waiting on the driveway. No changes are proposed to existing access or on-site circulation, which are anticipated to function in an acceptable manner for standard passenger vehicles as well as emergency response vehicles.

Upon the change in land use from a beauty salon to a dispensary, there would be no change in the number of vehicle parking spaces required for the project site and the existing shared parking supply of 89 spaces would continue to meet the reduced City requirements approved for the site.

Introduction

This report presents an analysis of the potential transportation impacts and operational effects that would be associated with the proposed dispensary to be located at 1937 Santa Rosa Avenue in the City of Santa Rosa. The traffic study was completed in accordance with the criteria established by the City of Santa Rosa, reflects a scope of work requested by City staff, and is consistent with standard traffic engineering techniques.

Prelude

The purpose of a traffic impact study is to provide City staff and policy makers with data that they can use to make an informed decision regarding the potential transportation impacts of a proposed project, and any associated improvements that would be required in order to mitigate these impacts to an acceptable level under CEQA, the City's General Plan, or other policies. Impacts relative to access for pedestrians, bicyclists, and to transit are addressed in the context of the CEQA criteria. Consistent with SB 743, the project's transportation impacts were analyzed using VMT. While no longer a part of the CEQA review process, vehicular traffic service levels at key intersections were evaluated for consistency with General Plan policies by determining the number of new trips that the proposed use would be expected to generate, distributing these trips to the surrounding street system based on anticipated travel patterns specific to the proposed project, then analyzing the effect the new traffic would be expected to have on the study intersections.

Project Profile

The proposed project is a dispensary and delivery service and would be housed in an existing commercial suite of approximately 4,475 square feet currently occupied by the Beauty Connection Salon. All access to the site would occur via the existing driveway on Santa Rosa Avenue. The site has use of 89 parking spaces that are shared with adjacent businesses. The location of the project site is shown in Figure 1.

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Traffic Impact Study for the Cookies Retail Project

Figure 1 – Study Area and Existing Lane Configurations

Transportation Setting

Operational Analysis

Study Area and Periods

The study area selected with input from City staff consists of the following two intersections:

1. Santa Rosa Avenue/Baker Avenue
2. Santa Rosa Avenue/Colgan Avenue-US 101 North Ramps

Operating conditions during the weekday p.m. peak period were evaluated to capture the highest potential impacts for the proposed project as well as the highest volumes on the local transportation network. The p.m. peak hour occurs between 4:00 and 6:00 p.m. and typically reflects the highest level of congestion during the homeward bound commute. It is noted that the a.m. peak hour was not evaluated as dispensaries in the City are not permitted to open for business until 9:00 a.m. or later which is after the morning peak period of 7:00 to 9:00 a.m. so the dispensary would be expected to generate few trips during the morning peak hour.

Study Intersections

Santa Rosa Avenue/Baker Avenue is a four-legged, signalized intersection with protected left-turn phasing on the northbound and southbound Santa Rosa Avenue approaches; the eastbound and westbound approaches have split phasing. The west leg of the intersection is the Baker Avenue overcrossing, which intersects Santa Rosa Avenue at a skewed angle and the east leg is a driveway to Les Schwab Tire Center. There are marked crosswalks on the north and west legs.

Santa Rosa Avenue/Colgan Avenue-US 101 North Ramps is a four-legged, signalized intersection with protected left-turn phasing on all approaches. The north and south legs are Santa Rosa Avenue, the east leg is Colgan Avenue, and the west leg is composed of the US 101 North off- and on-ramps. The east and west legs are offset and intersect Santa Rosa Avenue at a skewed angle. There are marked crosswalks on the north, east, and west legs.

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

Study Roadway

Santa Rosa Avenue runs parallel to US 101 in a generally north-south alignment between Third Street in Santa Rosa and Golf Course Drive in Rohnert Park. The section along the project frontage has two northbound travel lanes, a center two-way left-turn lane (TWLTL), and three southbound travel lanes though one of these lanes becomes a dedicated left-turn lane for the Santa Rosa Marketplace intersection to the south of the project driveway. The roadway has a total width of approximately 84 feet and a posted speed limit of 35 miles per hour (mph). Class II bike lanes are striped in both directions. Based on data collected in February 2019, the roadway has an average daily traffic (ADT) volume of approximately 24,100 vehicles per day between Colgan Avenue and the Santa Rosa Marketplace.

Collision History

The collision history for the study area was reviewed to determine any trends or patterns that may indicate a safety issue. Collision rates were calculated based on records available from the California Highway Patrol (CHP) as

published in their Statewide Integrated Traffic Records System (SWITRS) reports. The most current five-year period available is October 1, 2015 through September 30, 2020.

As presented in Table 1, the calculated collision rates for the study intersections were compared to average collision rates for similar facilities statewide, as indicated in *2016 Collision Data on California State Highways*, California Department of Transportation (Caltrans). Collision rates for both study intersections were above the statewide average so the records were further reviewed, as discussed below. Copies of the collision rate calculations are provided in Appendix A.

Table 1 – Collision Rates at the Study Intersections

Study Intersection	Number of Collisions (2015-2019)	Calculated Collision Rate (c/mve)	Statewide Average Collision Rate (c/mve)
1. Santa Rosa Ave/Baker Ave	31	**0.57**	0.24
2. Santa Rosa Ave/Colgan Ave-US 101 N Ramps	27	**0.43**	0.24

Note: c/mve = collisions per million vehicles entering; **bold** text = rate is higher than the statewide average

At Santa Rosa Avenue/Baker Avenue, there were 14 rear-ends, five sideswipes, five broadsides, four head-on, and three hit objects collisions. Nine out of 13 rear-end collisions occurred on the southbound approach and were attributed to unsafe speed. Rear-end collisions are common at signalized intersections during periods of congestion and in this case the speeding aspect is likely attributed the fact that the nearest controlled intersection to the north is at Barham Avenue approximately 1,650 feet away so southbound motorists have nearly one-third of a mile to accelerate between controlled intersections. It is suggested that the City consider the need for increased speed enforcement on this stretch of Santa Rosa Avenue.

Collisions recorded at Santa Rosa Avenue/Colgan Avenue-US 101 North Ramps included 13 broadsides, five rear-ends, three hit object and head-on collisions each, two sideswipes, and one vehicle-pedestrian collision. The broadside collisions were attributed to right-of-way violations, improper turning, and "traffic signal and sign" violations. Given that broadside collisions were the primary collision type, it is suggested that the City review the signal timing and consider the need for increased clearance times.

Alternative Modes

Pedestrian Facilities

Pedestrian facilities include sidewalks, crosswalks, pedestrian signal phases, curb ramps, curb extensions, and various streetscape amenities such as lighting, benches, etc. A network of sidewalks, crosswalks, pedestrian signals, and curb ramps provide adequate access for pedestrians in the vicinity of the project site. Full sidewalk connectivity exists along both sides of Santa Rosa Avenue and intersections with major and minor streets near the project site include marked crosswalks and curb ramps. Lighting is provided by overhead streetlights along both sides of the street.

Bicycle Facilities

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

- **Class I Multi-Use Path** – a completely separated right-of-way for the exclusive use of bicycles and pedestrians with cross flows of motorized traffic minimized.
- **Class II Bike Lane** – a striped and signed lane for one-way bike travel on a street or highway.

- **Class III Bike Route** – signing only for shared use with motor vehicles within the same travel lane on a street or highway.
- **Class IV Bikeway** – also known as a separated bikeway, a Class IV Bikeway is for the exclusive use of bicycles and includes a separation between the bikeway and the motor vehicle traffic lane. The separation may include, but is not limited to, grade separation, flexible posts, inflexible physical barriers, or on-street parking.

There are existing Class II bike lanes in both directions on Santa Rosa Avenue. Further, future bicycle facilities are planned along several streets in the surrounding vicinity. Table 2 summarizes the existing and planned bicycle facilities in the project vicinity, as contained in the *City of Santa Rosa Bicycle & Pedestrian Master Plan Update 2018.*

Table 2 – Bicycle Facility Summary

Status Facility	Class	Length (miles)	Begin Point	End Point
Existing				
Santa Rosa Ave	II	3.68	Todd Rd	3rd St
Colgan Creek Trail	I	0.60	Colgan Ave	Petaluma Hill Rd
Kawana Springs Rd	II	0.50	Petaluma Hill Rd	Brookwood Ave
Kawana Springs Rd (WB only)	II	0.50	Santa Rosa Ave	Petaluma Hill Rd
Petaluma Hill Rd	II	1.10	Pressley St	Yolanda Ave
Planned				
Kawana Springs Creek Restoration	I	0.44	Petaluma Hill Rd/Lumas Ct	Santa Rosa Plaza
Kawana Springs Rd	I	0.61	Kawana Ter	Turquoise Wy
Santa Rosa Creek Trail	I	0.27	Santa Rosa Ave	E St
Southwest Community Trail	I	0.88	Hearn Ave	Colgan Creek Trail
Hearn Ave	II	0.42	Whitewood Dr	Santa Rosa Ave
Kawana Springs Rd	II	0.33	Brookwood Ave	Kawana Ter
Petaluma Hill Rd (Buffer)	II	2.01	Yolanda Ave	Barham Ave/Pressley St
Yolanda Ave	II	0.50	Petaluma Hill Rd	Santa Rosa Ave
Colgan Ave	III	0.35	Santa Rosa Ave	Petaluma Hill Rd

Source: *City of Santa Rosa Bicycle & Pedestrian Master Plan Update 2018*, City of Santa Rosa, 2018; WB = westbound

Transit Facilities

Transit services in the City of Santa Rosa, and throughout Sonoma County, are provided by Santa Rosa "CityBus" and Sonoma County Transit (SCT) respectively. CityBus Route 3 provides service along the Santa Rosa Avenue corridor between the Downtown Transit Mall and Elsa Drive. There are bus stops for this route near the intersections of Santa Rosa Avenue with the Santa Rosa Marketplace and Colgan Avenue, which are both within an acceptable walking distance (one-quarter mile) of the project site. The buses for this route operate from 6:00 a.m. to 7:00 p.m. during weekdays and 10:00 a.m. to 4:00 p.m. during weekend days with one-hour headways.

There is a pull-out bus bay on the opposite side of Santa Rosa Avenue in the northbound direction approximately 450 feet south of the project site, which is served by SCT Routes 42, 44, and 48. The buses for Route 42 provide service between the Santa Rosa Downtown Transit Mall and West Robles Avenue/ Standish Avenue in the City of Santa Rosa between 7:10 a.m. to 5:30 p.m. with one-hour headways. The buses for Routes 44 and 48 provide

regional service to destinations throughout Santa Rosa and Petaluma from 6:15 a.m. to 10:47 p.m. with hourly headways.

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

Dial-a-ride, also known as paratransit, or door-to-door service, is available for those who are unable to independently use the transit system due to a physical or mental disability. SCT Paratransit is designed to serve the needs of individuals with disabilities within Sonoma and the greater County of Sonoma area.

Capacity Analysis

Intersection Level of Service Methodologies

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

The study intersections were analyzed using the "Signalized" methodology published in the *Highway Capacity Manual* (HCM), Transportation Research Board, 6th Edition, 2018. This methodology is based on factors including traffic volumes, green time for each movement, phasing, whether the signals are coordinated or not, truck traffic, and pedestrian activity. Average stopped delay per vehicle in seconds is used as the basis for evaluation in this LOS methodology. Delays were calculated using actual signal timing sheets obtained from City staff.

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

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

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

Traffic Operation Standards

City of Santa Rosa

Section 5.8 Transportation Goals & Policy of the City of Santa Rosa General Plan states:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Reporting of Peak Hour Delay

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

Caltrans

Caltrans does not have a standard of significance relative to operation as this is no longer a CEQA issue. The new *Vehicle Miles Traveled-Focused Transportation Impact Study Guide* (TISG), published in May 2020, replaced the *Guide for the Preparation of Traffic Impact Studies*, 2002. As indicated in the TISG, the Department is transitioning away from requesting LOS or other vehicle operations analyses of land use projects and will instead focus on Vehicle Miles Traveled (VMT). Therefore, although Baker Avenue is a US 101 overcrossing and the west leg of Santa Rosa Avenue/Colgan Avenue is comprised of freeway ramps, the City's operational standard was applied to both intersections.

Existing Conditions

The Existing Conditions scenario provides an evaluation of current operation based on existing traffic volumes during the weekday p.m. peak period. This condition does not include project-generated traffic volumes. Count data for the intersection of Santa Rosa Avenue/Baker Avenue was collected on February 19, 2019 and data for Santa Rosa Avenue/Colgan Avenue was collected on January 8, 2020. The data was collected during clear weather and while local schools were in session.

It should be noted that the counts were collected prior to the shelter-in-place directives associated with the ongoing COVID-19 public health pandemic so the Existing Conditions analysis is representative of typical conditions before the pandemic and could represent volumes that are maintained for years to come as many businesses have transitioned to remote work in the near-term and plan to continue in some fashion indefinitely. Many industries are still operating at reduced levels and others have been shut down entirely so it could be some time before volumes return to pre-pandemic levels as businesses recover from the financial fallout associated with the pandemic.

Under Existing Conditions, both study intersections operate acceptably at LOS B or C during the p.m. peak hour. It should be noted that the delay of 27.7 seconds with LOS C calculated for Santa Rosa Avenue/Colgan Avenue is lower than the delay of 45 seconds with LOS D reported in the *Traffic Impact Study for the Kawana Springs Apartments*, W-Trans, March 19, 2020, which used the same count data. This difference is because the adaptive signal timing employed by the City was modeled in this analysis by coordinating the timing of the two study intersections, which resulted in a reduction in calculated delay. The Existing traffic volumes are shown in Figure 2. A summary of the intersection Level of Service calculations is contained in Table 4, and copies of the calculations for all evaluated scenarios are provided in Appendix B.

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Figure 2 – Existing Traffic Volumes

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Table 4 – Existing Peak Hour Intersection Levels of Service		
Study Intersection	**PM Peak**	
	Delay	**LOS**
1. Santa Rosa Ave/Baker Ave	19.5	B
2. Santa Rosa Ave/Colgan Ave-US 101 N Ramps	27.7	C

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

Baseline Conditions

Baseline (Existing plus Approved) operating conditions were assessed with traffic from approved projects in and near the study area added to the Existing volumes. The following eight projects contained in the *Citywide Summary of Pending Development Report* were included in the evaluation of Baseline Conditions. Unless stated otherwise, the same trip generation and distribution assumptions used in the traffic studies for the various projects, where available, were used in this analysis.

Kawana Springs Apartments is an approved 151-unit affordable multifamily residential development that would be located at 400-500 Kawana Springs Road. As contained in the *Traffic Impact Study for the Kawana Springs Apartments* prepared by W-Trans in March 2020, the project is expected to generate a total of 821 trips per day on average, including 66 trips during the p.m. peak hour.

Taylor Mountain Estates is an approved 5-unit single-family residential development that would be located at 2800 Petaluma Hill Road. The *Traffic Impact Study for the Taylor Mountain Estates*, W-Trans, August 2017, indicates that the project is expected to generate a total of 48 trips per day, including five trips during the p.m. peak hour.

Kawana Meadows is an approved 64-unit single-family residential development that would be located at 1162 Kawana Springs Road. The project was evaluated as an approved project in the *Traffic Impact Study for the Taylor Mountain Estates*. As contained in the traffic study, the project is expected to generate a total of 609 trips per day, including 64 trips during the p.m. peak hour.

Residences at Taylor Mountain is an approved 93-unit multifamily residential development that would be located at 2880 Franz Kafka Ave. This project was also evaluated as an approved project in the *Traffic Impact Study for the Taylor Mountain Estates*. Per the traffic study, the project is expected to generate a total of 658 trips per day, including 61 trips during the p.m. peak hour.

Kawana Springs Apartment Homes is an approved 120-unit multifamily residential development that would be located at 2604 Petaluma Hill Road. As indicated in the *Traffic Impact Study for the Kawana Springs Apartments*, W-Trans, May 2017, the project is expected to generate a total of 798 trips per day, including 74 trips during the p.m. peak hour.

The Inn at Santa Rosa is an approved 100-room hotel to be located at 111 Commercial Court. The *Traffic Impact Study for the Inn at Santa Rosa*, W-Trans, November 2016, indicates that the project is expected to generate a total of 817 trips per day, including 60 trips during the p.m. peak hour.

Yolanda Apartments is an approved 252-unit multifamily residential development that would be located at 325 Yolanda Avenue. A 3,867 square-foot In-N-Out Burger fast food restaurant is also an approved development project that would be located at the same site. As contained in the *Traffic Impact Study for the Yolanda Apartments*, prepared by W-Trans in February 2019, the project is expected to generate a total of 3,630 trips per day, including 279 trips during the p.m. peak hour.

Kawana Town Center is an approved 138-unit multifamily residential development that would be located at 2450 Brookwood Avenue. Since a traffic study was not prepared for this project, the trip generation was calculated using standard rates published by the Institute of Transportation Engineers (ITE) in the *Trip Generation Manual*, 10th Edition and the trip distribution assumptions applied in the traffic study for the Taylor Mountain Estates applied due to their proximity and both being residential projects. Based on the use of ITE rates, the project would be expected to generate 653 daily trips on average, with 53 trips during the evening peak period.

Intersection Levels of Service

Upon adding trips from the approved projects to Existing volumes, the study intersections are expected to continue operating acceptably at the same service levels during the p.m. peak hour as under Existing Conditions. These results are summarized in Table 5 and Baseline volumes are shown in Figure 3.

Table 5 – Baseline Peak Hour Intersection Levels of Service

Study Intersection	PM Peak	
	Delay	LOS
1. Santa Rosa Ave/Baker Ave	19.7	B
2. Santa Rosa Ave/Colgan Ave-US 101 N Ramps	29.1	C

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

Consideration was given to including trips associated with Phase II of the 38 Degrees North residential project, which is pending and would be located on the southeast corner of the Petaluma Hill Road/Kawana Springs Road intersection, but since the project has not yet been approved it could still change in some form so was assessed qualitatively. Based on its location, it is likely that many of the 38 Degrees North Phase II trips would be to the north on Petaluma Hill Road and to the west on Kawana Springs Road to the ramps at Hearn Avenue and Colgan Avenue. As indicated by the results shown in Table 5, it is reasonable to conclude that there is adequate capacity to accommodate these trips at both study intersections.

Project Description

The proposed project includes the conversion of an existing commercial suite of approximately 4,475 square feet from a hair salon into a cannabis dispensary with a delivery service. All access to the site would occur via the existing driveway on Santa Rosa Avenue. The site has use of 89 parking spaces that are shared with adjacent businesses. No changes are proposed to the existing parking supply or on-site circulation. The project site plan is shown in Figure 4.

Trip Generation

The trip generation for the existing use of the space was estimated using standard rates published by the Institute of Transportation Engineers (ITE) in *Trip Generation Manual*, 10th Edition, 2017 for "Hair Salon" (LU #918). The Manual does not include a daily trip generation rate for Hair Salon, so the daily rate was assumed to be ten times the p.m. peak hour rate as is typical industry practice.

While the *Trip Generation Manual* includes rates for "Marijuana Dispensary" (LU #882), these rates were collected at sites in Colorado during the early years of such sales being legal, so local data was relied upon to estimate the trip generation potential of the proposed project. Over the last two years, W-Trans has collected data at seven dispensaries in the North Bay Area, including four in the City of Santa Rosa. This data collection effort has identified that local rates are generally consistent with those published by ITE for the p.m. peak hour, though are considerably less over the course of an entire day. Our data collection effort has identified that local dispensaries

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Figure 3 – Baseline Traffic Volumes

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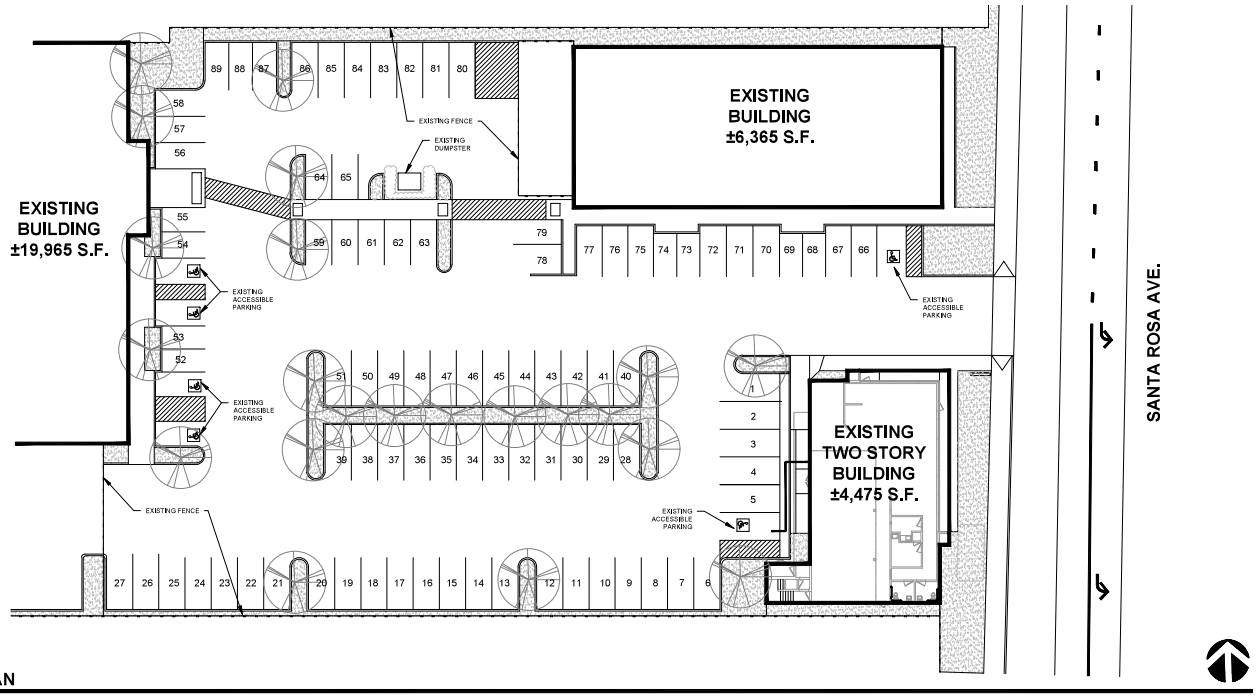
Traffic Impact Study for the Cookies Retail Project

Figure 4 – Site Plan



SITE PLAN
SCALE: 1/16" = 1'-0"

TENANT IMPROVEMENTS

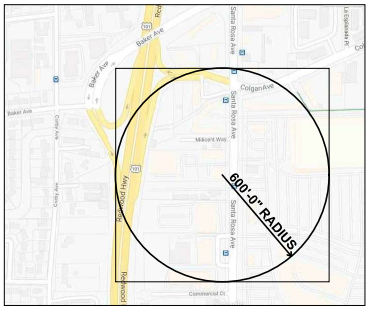
- REPAINT FACADE OF THE BUILDING
- NEW LIGHTING (SEE LIGHTING SHEET)
- NEW SIGNAGE (SEE SIGNAGE SHEET)

LEGEND

——— ACCESSIBLE ROUTE

BUSINESS OF OPERATION

WILL CARRY BOTH (A) ADULT & (M) MEDICAL LICENSES



VICINITY MAP
SCALE: N.T.S.

APPLICANT:
CR Santa Rosa, LLC
4675 MacArthur Ct, Suite 1500
Newport Beach, CA 92660
714-272-9213
Contact:
STEVE JONES

DESIGN:
Temeka Group
9073 Pulsar Ct. Suite B
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PLANS FOR CONDITIONAL USE PERMIT AT SANTA ROSA, CA
1937 SANTA ROSA AVE.
SANTA ROSA, CA 95407
CANNABIS RETAIL

PROJECT TITLE:
CUP
09.09.2020

SITE PLAN

SITE

Source: Temeka Group 2/17

are expected to generate about 85 vehicle trips per day per 1,000 square feet of gross floor area with about 21 trips per 1,000 square feet during the weekday p.m. peak hour. A spreadsheet summarizing the local trip generation data and resulting rates is contained in Appendix C.

Based on application of these rates and assumptions, the proposed project would be expected to generate an average of 381 trips per day at the project driveway, including 95 trips during the p.m. peak hour. After accounting for the existing trips associated with the salon that would cease with the project, the dispensary would be expected to result in 316 new daily trips on average with 89 new p.m. peak hour trips. These results are summarized in Table 6.

Table 6 – Trip Generation Summary

Land Use	Units	Daily		PM Peak Hour			
		Rate	Trips	Rate	Trips	In	Out
Existing							
Hair Salon	4.475 ksf	14.50	65	1.45	6	1	5
Proposed							
Marijuana Dispensary	4.475 ksf	*85.12	381	*21.27	95	50	45
Net New Trips			**316**		**89**	**49**	**40**

Note: ksf = 1,000 square feet; * = North Bay rate based on local data

Pass-by Potential

Given the location of the project site on Santa Rosa Avenue, a primary arterial in the City with an average daily traffic (ADT) volume of approximately 24,100 and a predominantly southbound directionality during the p.m. peak hour, it is reasonable to expect that a portion of the project trips will be pass-by rather than primary. Pass-by trips are not considered new trips since they consist of drivers who are already driving on the adjacent street and choose to make an interim stop. In the case of the proposed project, many trips would be captured from traffic already travelling on Santa Rosa Avenue. This is especially relevant as dispensaries have now been approved in different quadrants of the City so many customers no longer have to travel as far out of their way to reach a dispensary.

While the *Trip Generation Handbook*, 3rd Edition, 2014, does not include pass-by percentages for dispensaries, the *Handbook* does include pass-by rates for shopping centers, which reflects the retail nature of the project so was determined to be a good fit. Based on a review of pass-by entries for shopping centers adjacent to a roadway with an ADT similar to Santa Rosa Avenue, it is likely that the proposed project would experience a pass-by rate of 39 percent during the p.m. peak hour, which would reduce the net new trips during this period from 89 to 52 trips. While the potential for pass-by deductions was estimated, this result is provided for informational purposes only and the operational analysis was assessed based on the net new trips without accounting for the project's pass-by potential per staff direction and to achieve a conservative analysis.

Delivery Consideration

Two of the seven dispensaries that were subject of the data collection effort had delivery services operating at the time the data was collected so the trip generation characteristics for those two individual dispensaries were reviewed and it was determined that such a service may reasonably be expected to reduce the trip generation potential of a dispensary, not increase it. Deliveries are intended to serve multiple customers in one trip so the trips associated with several customers that would otherwise visit the site individually are replaced by a single round trip made by the delivery vehicle. The trip generation data collected at the two dispensaries with a delivery

service experienced an average trip rate of 7.92 trips per 1,000 square feet during the weekday p.m. peak hour compared to the combined average rate of 21.27 trips per 1,000 square feet. The delivery service rate as sampled was approximately 63 percent lower than the combined rate, making application of the combined rate conservative.

Because only two dispensaries had an operational delivery service, it is preferred that data be collected at additional local dispensaries with a delivery service to confirm the rates before using them to estimate the trip generation potential of a proposed project. However, the data indicates that the presence of a delivery service could be expected to reduce the trip generating potential of a dispensary.

Trip Distribution

The pattern used to allocate new project trips to the street network was based on a review of existing turning movements at the study intersections and knowledge of the area and surrounding region, including previous analyses prepared for other projects in the vicinity. The applied distribution assumptions are shown in Table 7.

Table 7 – Trip Distribution Assumptions

Route	Percent
From/to North via US 101 at Colgan Ave/Baker Ave	40%
From/to South via US 101 at Colgan Ave/Baker Ave	20%
From/to North via Santa Rosa Ave	25%
From/to South via Santa Rosa Ave	10%
From/to East via Colgan Ave	5%
TOTAL	**100%**

Intersection Operation

Existing plus Project Conditions

Upon the addition of project-related traffic to the Existing volumes, the study intersections are expected to continue operating at LOS B or C during the p.m. peak hour. These results are summarized in Table 8 and Project traffic volumes are shown in Figure 5.

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

Study Intersection	Existing Conditions PM Peak		Existing plus Project PM Peak	
	Delay	LOS	Delay	LOS
1. Santa Rosa Ave/Baker Ave	19.5	B	19.7	B
2. Santa Rosa Ave/Colgan Ave-US 101 N Ramps	27.7	C	27.8	C

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

Finding – The study intersections are expected to continue operating acceptably at the same service levels as under Existing Conditions upon the addition of project-generated traffic.

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Traffic Impact Study for the Cookies Retail Project

Figure 5 – Project Traffic Volumes and Trip Distribution

Baseline plus Project Conditions

With project-related traffic added to Baseline volumes, the study intersections are expected to continue operating acceptably at LOS C during the p.m. peak hour. These results are summarized in Table 9.

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

Study Intersection	Baseline Conditions PM Peak		Baseline plus Project PM Peak	
	Delay	LOS	Delay	LOS
1. Santa Rosa Ave/Baker Ave	19.7	B	19.8	C
2. Santa Rosa Ave/Colgan Ave-US 101 N Ramps	29.1	C	29.2	C

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

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

Vehicle Miles Traveled

Background and Threshold of Significance

Senate Bill (SB) 743 established a change in the metric to be applied for determining transportation impacts associated with development projects. Rather than the delay-based criteria associated with a Level of Service (LOS) analysis, the increase in Vehicle Miles Traveled (VMT) as a result of a project is now the basis for determining California Environmental Quality Act (CEQA) impacts with respect to transportation and traffic. As of the date of this analysis, the City of Santa Rosa has not yet adopted thresholds of significance related to VMT, though the City has outlined guidelines, as contained in the *Vehicle Miles Traveled (VMT) Guidelines Final Draft*, dated June 5, 2020. As a result, the project-related VMT impacts were assessed based on this guidance.

Project Impact

The City's draft VMT guidelines identify several criteria that may be used to identify certain types of projects that are unlikely to have a significant VMT impact and can be "screened" from further analysis. One of these screening criteria pertains to local-serving retail, which the City defines as having up to 10,000 square feet of gross floor area. The theory behind this criteria is that while a larger retail project may generate interregional trips that increase a region's total VMT, small retail establishments do not necessarily add new trips to a region, but change where existing customers shop within the region, and often shorten trip lengths. The proposed cannabis dispensary is a total of 4,475 square feet, which is well below the City's local-serving retail threshold of 10,000 square feet; therefore, it is reasonable to conclude that the project would have a *less-than-significant* transportation impact on VMT.

Finding – Based on the draft screening criteria published by the City of Santa Rosa, the project is anticipated to result in a less-than-significant transportation impact on VMT.

Alternative Modes

Pedestrian Facilities

Given the proximity to surrounding commercial uses and residential neighborhoods further east, it is reasonable to assume that some project patrons and employees will want to walk and/or use transit to reach their destinations. Sidewalks exist along Santa Rosa Avenue, including the project frontage, as well as on cross streets including Colgan Avenue and Kawana Springs Road. Further, minor street approaches are equipped with crosswalks and curb ramps and there are opportunities to cross Santa Rosa Avenue at the signalized intersections with Colgan Avenue and Santa Rosa Marketplace. As a result, the existing network of sidewalks and crosswalks provide adequate access for pedestrians.

Finding – Pedestrian facilities serving the project site are adequate.

Bicycle Facilities

Existing bike lanes on Santa Rosa Avenue along with numerous planned future bicycle facilities in the vicinity would provide adequate access for bicyclists. Employees and customers would be able to use the bike lanes on Santa Rosa Avenue to connect to many of the primary bicycle facilities in the City and numerous commercial uses along Santa Rosa Avenue.

Bicycle Storage

The required bicycle parking supply was calculated to ensure adequacy under City requirements. Santa Rosa City Code requires cannabis retail uses to provide bicycle parking at a rate of one space for every 5,000 square feet of floor area. Based on this ratio, a single bicycle parking space would be required, though because many cyclists travel in pairs it is recommended that at least two spaces for bicycles be provided on-site. The project site plan does not identify the provision of bicycle parking or storage facilities so it is recommended that the location and amount of bicycle parking be added to the site plan.

Finding – Existing bicycle facilities in the surrounding vicinity are considered adequate and are anticipated to improve further upon completion of the bicycle projects identified in the City's *Bicycle and Pedestrian Master Plan*. However, there are no bicycle parking spaces identified on the site plan.

Recommendation – Although only a single bicycle parking space would be required for the project, it is recommended that two bicycle parking spaces be provided on-site. The second space would not be needed to result in adequate facilities for bicyclists but would be considered a benefit to the project.

Transit

Existing transit routes, including Santa Rosa CityBus Route 3 and SCT Routes 42, 44, and 48 are adequate to accommodate project-generated transit trips and the stops are within an acceptable walking distance of the site.

Finding – Transit facilities serving the project site are adequate.

Access and Circulation

Site Access

The proposed cannabis dispensary would be accessed via an existing driveway on the west side of Santa Rosa Avenue, which is slightly offset from the stop-controlled driveway for Costco on the opposite side of the street. Along the project frontage, Santa Rosa Avenue has six travel lanes including two for northbound traffic, three for southbound traffic, and a center two-way left turn lane (TWLTL), which accommodates northbound left turns into the project site as well as two-stage left turns out of the project site.

The collision history for the project driveway and the Costco driveway on the opposite side of Santa Rosa Avenue was reviewed to determine if there are any existing safety concerns associated with motorists entering and exiting the project site that could be exacerbated by increased traffic at the driveway. During the same five-year study period used for the intersection collision rate calculations there were 11 collisions reported on Santa Rosa Avenue in the vicinity of the project driveway, two of which involved motorists using the project driveway while six involved motorists using the Costco driveway. One of the two collisions at the project driveway was a broadside collision between a motorist making a left turn out of the driveway and a northbound motorist continuing straight on Santa Rosa Avenue. The other collision involved a northbound motorist making a left-turn into the project driveway and a southbound bicyclist continuing straight in the bike lane. Both collisions resulted in injuries, though a total of two collisions within a five-year period is within the range that would be expected for the ADT volume on Santa Rosa Avenue.

While six collisions occurred at the Costco driveway, there is limited potential for conflicts between project traffic and those using the Costco driveway since there is an existing TWLTL that facilitates left-turn movements into the Costco driveway and exiting turning movements are restricted to right turns only at the Costco driveway; this is evidenced by the fact that no collisions were reported between a motorist turning into or out of the project driveway with a motorist turning into or out of the Costco driveway. Based on this review it appears that the driveway is operating within normal safety parameters. It should also be noted that although not incorporated into the operational analysis in order to provide a conservative assessment of the project's potential effects at the study intersections to the north of the project site, a portion of the p.m. peak hour traffic would be expected to be pass-by trips, which would enter from the predominant southbound direction and continue in that direction after visiting the site. These pass-by trips would result in only right turns at the project driveway both in and out; therefore, although the operational analysis assigned 90 percent of the project trips to the north, the actual percentage of left-turns out of the project driveway would be expected to be substantially less and the project driveway can reasonably be expected to continue operating acceptably.

Finding – Site access would be expected to function acceptably for vehicles.

Sight Distance

Sight distances along Santa Rosa Avenue at the project access point were field measured and evaluated based on sight distance criteria contained in the *Highway Design Manual* published by Caltrans. The recommended sight distances for minor street approaches that are either a private road or a driveway are based on stopping sight distance with approach travel speed used as the basis for determining the recommended sight distance.

For the posted 35-mph speed limit, the minimum stopping sight distance needed is 250 feet. Based on a review of field conditions, sight lines to and from the project driveway extend more than 400 feet in each direction, which is more than adequate for the posted speed limit and the existing signage adjacent to the driveway is set back far enough from the street to be out of a driver's line of sight. Sight lines are also clear to the Costco driveway on the opposite side of Santa Rosa Avenue slightly north of the project driveway so motorists turning left from either

location can check activity at the opposing driveway prior to initiating their left turn. To maintain existing adequate sight lines, and to avoid a situation where motorists have to creep into the sidewalk area or bicycle lane to obtain clear sight lines before turning onto Santa Rosa Avenue, it is recommended that any new project signage be placed outside of the vision triangle of a driver waiting on the driveway. The vision triangle is denoted graphically in Plate 1; the Intersection Sight Distance (ISD) length should be a minimum of 250 feet.

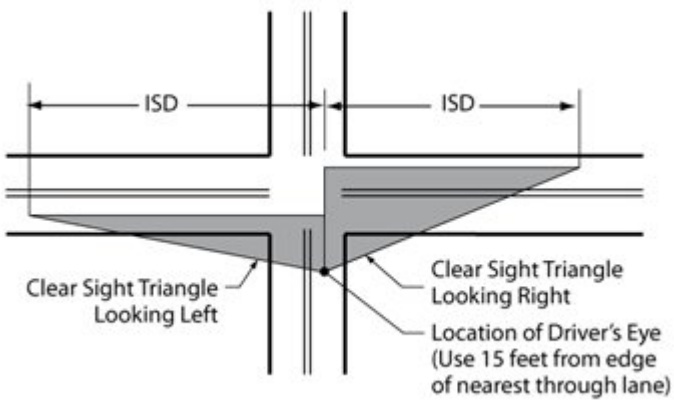

Plate 1 Vision Triangle Graphic

Additionally, due to the straight and flat roadway geometry of Santa Rosa Avenue, adequate stopping sight distance is available for a following driver to notice and react to a preceding motorist slowing to turn right into the project site from the southbound direction, though drivers can use the bike lane to move to their right and allow through traffic to proceed. Northbound left turns would be accommodated in the TWLTL so the flow of through traffic would not be impacted by these movements.

Finding – Adequate sight distance is available to accommodate all turning movements into and out of the project site.

Recommendation – Any new signage to be located along the project frontage should be placed outside of the vision triangle of a driver waiting on the driveway.

Emergency Access

The existing access point to the project on Santa Rosa Avenue satisfies City design standards that require buildings of one or two stories to provide a driveway and drive aisle with a minimum width of 20 feet. To determine if emergency response vehicles would be able to navigate the site as intended, the AutoTURN application of AutoCAD was used to model on-site circulation for the largest anticipated vehicle, a 43-foot long firetruck. As designed, there would be no anticipated issues with firetrucks accessing the project site. Exhibits showing the expected travel paths are provided in Appendix D.

Finding – Site access and on-site circulation is expected to function acceptably for emergency response vehicles.

Parking

Parking was evaluated to determine if the proposed supply would be adequate to satisfy City requirements upon the change in land use. The project site has a total of 89 parking spaces that are shared with adjacent businesses; no changes are proposed to the existing supply. Being a commercial development with multiple uses, there are no assigned parking stalls on-site so that the supply can meet the changing demand for the various uses over the course of the day.

Section 20-36.040 of the Santa Rosa City Code requires vehicle parking at a rate of one space for every 250 square feet of floor area for cannabis retail uses as well as the other shopping center uses on-site. Additionally, the existing hair salon would fall under the Personal Services category, which is also required to provide parking at a rate of one space for every 250 square feet meaning that the parking requirements for the proposed project would remain unchanged from the previous use. Based on these rates, a total of 123 parking spaces are required for the site as a whole, including 18 parking spaces for the proposed dispensary of 4,475 square feet and 105 parking spaces for the adjacent businesses with a total of 26,330 square feet of floor space. However, the project site previously received a 34-space parking reduction when it was approved, resulting in a required supply of 89 spaces. Therefore, the existing parking supply would continue to be adequate to satisfy the reduced City requirements. Again, it is noted that the proposed dispensary use requires parking under the City's code at the same ratio as the existing beauty salon, so there would be no changes required to the currently approved number of parking spaces provided on-site as a result of the change in land use.

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

Table 10 – Parking Analysis

Land Use	Units	Rate	Parking Spaces
City Required Parking			
Cannabis Dispensary - Retail	4,475 ksf	1 space/250 sf	18
Shopping Center	26,330 ksf		105
Total City Requirements			123
Parking Reduction			-34
Reduced City Requirements			**89**
Proposed Parking Supply			*89*

Notes: ksf = 1,000 square feet; sf = square foot

It should be noted that the project site is located on a connected pedestrian and bicycle network and is within one-quarter mile of transit stops for both Santa Rosa CityBus and Sonoma County Transit so the anticipated parking demand would reasonably be expected to be lower than would be typical for a site without good pedestrian, bicycle, or transit access.

Finding – The change in land use does not translate to any change in the parking requirements under the City's Code. The existing vehicle parking supply for the entire site would therefore continue to meet the reduced City requirements upon the change in land use from hair salon to cannabis dispensary.

Conclusions and Recommendations

Conclusions

- The proposed project would be expected to result in 316 new daily trips on average, including 89 new p.m. peak hour trips without considering the potential for pass-by trips.
- Under Existing, Existing plus Project, Baseline, and Baseline plus Project Conditions, both study intersections are expected to operate acceptably at LOS C or better during the p.m. peak hour.
- The proposed project is classified as local-serving retail under the City's draft VMT screening criteria and can therefore be presumed to have a less-than-significant transportation impact on VMT.
- Pedestrian and transit facilities serving the project site are adequate.
- Existing and planned bicycle facilities in the project vicinity are also considered adequate; however, no bicycle parking is identified on the project site plan.
- Site access and on-site circulation are expected to function acceptably for passenger vehicles as well as emergency response vehicles.
- Adequate sight distance is available at the existing driveway to accommodate all turning movements into and out of the project site.
- Upon the change in land use from a beauty salon to a dispensary, there would be no change in the number of parking spaces required for the project site and the existing vehicle parking supply of 89 spaces would continue to meet the reduced City requirements approved for the project site.

Recommendations

- A single bicycle parking space would be required under City Code, though it is recommended that two bicycle parking spaces be provided on-site.
- Any new signage should be placed so that it is outside of the vision triangle at the project driveway to maintain existing sight lines.

Study Participants and References

Study Participants

Principal in Charge	Dalene J. Whitlock, PE, PTOE
Associate Engineer	Cameron Nye, EIT
Assistant Engineer	Jade Kim
Graphics	Cameron Wong
Editing/Formatting	Alex Scrobonia, Cameron Wong
Quality Control	Dalene J. Whitlock, PE, PTOE

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Appendix A

Collision Rate Calculations

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Intersection Collision Rate Calculations

Cookies Retail TIS

Intersection # 1: Santa Rosa Avenue & Baker Avenue
Date of Count: Tuesday, February 19, 2019

Number of Collisions: 31
Number of Injuries: 17
Number of Fatalities: 0
ADT: 29600
Start Date: October 1, 2015
End Date: September 30, 2020
Number of Years: 5

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

$$\text{collision rate} = \frac{\text{Number of Collisions} \times 1 \text{ Million}}{\text{ADT} \times 365 \text{ Days per Year} \times \text{Number of Years}}$$

$$\text{collision rate} = \frac{31 \times 1{,}000{,}000}{29{,}600 \times 365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	**0.57 c/mve**	**0.0%**	**54.8%**
Statewide Average*	**0.24 c/mve**	**0.5%**	**44.6%**

ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2013 Collision Data on California State Highways, Caltrans

Intersection # 2: Santa Rosa Avenue & Colgan Avenue-US 101 North Ramps
Date of Count: Wednesday, January 8, 2020

Number of Collisions: 27
Number of Injuries: 12
Number of Fatalities: 0
ADT: 34300
Start Date: October 1, 2015
End Date: September 30, 2020
Number of Years: 5

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

$$\text{collision rate} = \frac{\text{Number of Collisions} \times 1 \text{ Million}}{\text{ADT} \times 365 \text{ Days per Year} \times \text{Number of Years}}$$

$$\text{collision rate} = \frac{27 \times 1{,}000{,}000}{34{,}300 \times 365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	**0.43 c/mve**	**0.0%**	**44.4%**
Statewide Average*	**0.24 c/mve**	**0.5%**	**44.6%**

ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2013 Collision Data on California State Highways, Caltrans

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Appendix B

Intersection Level of Service Calculations

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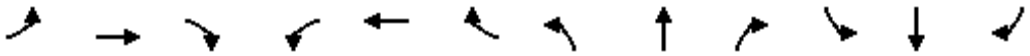
HCM 6th Signalized Intersection Summary
1: Santa Rosa Avenue & Baker Avenue

02/18/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	212	2	597	8	2	5	197	751	10	4	739	436
Future Volume (veh/h)	212	2	597	8	2	5	197	751	10	4	739	436
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	213	0	597	8	2	5	197	751	10	4	739	436
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	319	0	973	15	4	9	387	2684	36	74	1929	898
Arrive On Green	0.09	0.00	0.09	0.02	0.02	0.02	0.43	1.00	1.00	0.04	0.57	0.57
Sat Flow, veh/h	3563	0	3170	918	230	574	1781	3591	48	1781	3404	1585
Grp Volume(v), veh/h	213	0	597	15	0	0	197	372	389	4	739	436
Grp Sat Flow(s),veh/h/ln	1781	0	1585	1721	0	0	1781	1777	1862	1781	1702	1585
Q Serve(g_s), s	6.9	0.0	0.0	1.0	0.0	0.0	9.6	0.0	0.0	0.3	14.4	19.7
Cycle Q Clear(g_c), s	6.9	0.0	0.0	1.0	0.0	0.0	9.6	0.0	0.0	0.3	14.4	19.7
Prop In Lane	1.00		1.00	0.53		0.33	1.00		0.03	1.00		1.00
Lane Grp Cap(c), veh/h	319	0	973	28	0	0	387	1328	1392	74	1929	898
V/C Ratio(X)	0.67	0.00	0.61	0.53	0.00	0.00	0.51	0.28	0.28	0.05	0.38	0.49
Avail Cap(c_a), veh/h	802	0	1403	330	0	0	401	1328	1392	134	1929	898
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	0.83	0.83	0.83	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.9	0.0	35.5	58.6	0.0	0.0	29.2	0.0	0.0	55.2	14.4	15.5
Incr Delay (d2), s/veh	0.9	0.0	0.2	5.7	0.0	0.0	0.3	0.4	0.4	0.1	0.1	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	0.0	7.5	0.5	0.0	0.0	3.6	0.2	0.2	0.1	5.5	7.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.8	0.0	35.7	64.2	0.0	0.0	29.6	0.4	0.4	55.3	14.5	15.9
LnGrp LOS	D	A	D	E	A	A	C	A	A	E	B	B
Approach Vol, veh/h		810			15			958			1179	
Approach Delay, s/veh		40.5			64.2			6.4			15.2	
Approach LOS		D			E			A			B	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		13.7	29.7	71.6		5.0	8.0	93.3				
Change Period (Y+Rc), s		3.0	3.6	* 3.6		3.0	3.0	3.6				
Max Green Setting (Gmax), s		27.0	27.0	* 30		23.0	9.0	48.4				
Max Q Clear Time (g_c+I1), s		8.9	11.6	21.7		3.0	2.3	2.0				
Green Ext Time (p_c), s		1.8	0.2	5.0		0.0	0.0	5.6				

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

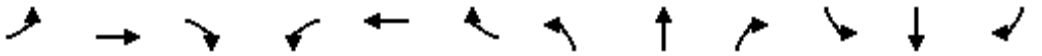
Notes

User approved volume balancing among the lanes for turning movement.

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

HCM 6th Signalized Intersection Summary
2: Santa Rosa Avenue & US 101 NB Ramps/Colgan Avenue

02/18/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	109	35	36	103	178	74	594	863	99	120	986	236
Future Volume (veh/h)	109	35	36	103	178	74	594	863	99	120	986	236
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	109	35	36	103	178	74	594	863	99	120	986	236
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	174	49	51	283	216	90	971	1803	207	147	1498	358
Arrive On Green	0.05	0.06	0.06	0.16	0.17	0.17	0.28	0.56	0.56	0.16	0.73	0.73
Sat Flow, veh/h	3456	833	857	1781	1247	518	3456	3204	368	1781	4113	982
Grp Volume(v), veh/h	109	0	71	103	0	252	594	479	483	120	816	406
Grp Sat Flow(s),veh/h/ln	1728	0	1690	1781	0	1765	1728	1777	1794	1781	1702	1692
Q Serve(g_s), s	3.7	0.0	5.0	6.2	0.0	16.5	17.9	19.3	19.3	7.8	15.0	15.1
Cycle Q Clear(g_c), s	3.7	0.0	5.0	6.2	0.0	16.5	17.9	19.3	19.3	7.8	15.0	15.1
Prop In Lane	1.00		0.51	1.00		0.29	1.00		0.20	1.00		0.58
Lane Grp Cap(c), veh/h	174	0	100	283	0	306	971	1000	1010	147	1240	616
V/C Ratio(X)	0.63	0.00	0.71	0.36	0.00	0.82	0.61	0.48	0.48	0.82	0.66	0.66
Avail Cap(c_a), veh/h	490	0	231	401	0	388	971	1000	1010	184	1240	616
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.75	0.75	0.75
Uniform Delay (d), s/veh	55.9	0.0	55.4	45.0	0.0	47.9	37.5	15.7	15.7	49.3	12.4	12.4
Incr Delay (d2), s/veh	5.2	0.0	8.8	0.8	0.0	11.0	1.1	1.6	1.6	15.9	1.0	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 BackOfQ(50%),veh/ln	1.7	0.0	2.4	2.8	0.0	8.2	7.7	8.1	8.2	3.9	3.7	3.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.1	0.0	64.2	45.8	0.0	58.8	38.6	17.3	17.3	65.1	13.4	14.4
LnGrp LOS	E	A	E	D	A	E	D	B	B	E	B	B
Approach Vol, veh/h		180			355			1556			1342	
Approach Delay, s/veh		62.3			55.0			25.5			18.3	
Approach LOS		E			E			C			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	22.7	10.7	37.3	49.3	9.0	24.4	15.5	71.1
Change Period (Y+Rc), s	3.6	* 3.6	3.6	5.6	3.0	3.6	5.6	3.6
Max Green Setting (Gmax), s	27.0	* 16	28.4	32.4	17.0	26.4	12.4	48.4
Max Q Clear Time (g_c+I1), s	8.2	7.0	19.9	17.1	5.7	18.5	9.8	21.3
Green Ext Time (p_c), s	0.2	0.2	1.6	7.5	0.3	0.9	0.1	7.1

Intersection Summary	
HCM 6th Ctrl Delay	27.7
HCM 6th LOS	C

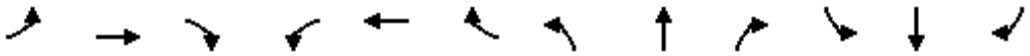
Notes

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

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

HCM 6th Signalized Intersection Summary
1: Santa Rosa Avenue & Baker Avenue

02/18/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	212	2	617	8	2	5	206	762	10	4	752	436
Future Volume (veh/h)	212	2	617	8	2	5	206	762	10	4	752	436
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	213	0	617	8	2	5	206	762	10	4	752	436
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	320	0	973	15	4	9	387	2683	35	74	1929	898
Arrive On Green	0.09	0.00	0.09	0.02	0.02	0.02	0.43	1.00	1.00	0.04	0.57	0.57
Sat Flow, veh/h	3563	0	3170	918	230	574	1781	3592	47	1781	3404	1585
Grp Volume(v), veh/h	213	0	617	15	0	0	206	377	395	4	752	436
Grp Sat Flow(s),veh/h/ln	1781	0	1585	1721	0	0	1781	1777	1862	1781	1702	1585
Q Serve(g_s), s	6.9	0.0	0.0	1.0	0.0	0.0	10.2	0.0	0.0	0.3	14.7	19.7
Cycle Q Clear(g_c), s	6.9	0.0	0.0	1.0	0.0	0.0	10.2	0.0	0.0	0.3	14.7	19.7
Prop In Lane	1.00		1.00	0.53		0.33	1.00		0.03	1.00		1.00
Lane Grp Cap(c), veh/h	320	0	973	28	0	0	387	1327	1391	74	1929	898
V/C Ratio(X)	0.67	0.00	0.63	0.53	0.00	0.00	0.53	0.28	0.28	0.05	0.39	0.49
Avail Cap(c_a), veh/h	802	0	1402	330	0	0	401	1327	1391	134	1929	898
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	0.82	0.82	0.82	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.9	0.0	35.8	58.6	0.0	0.0	29.5	0.0	0.0	55.2	14.5	15.5
Incr Delay (d2), s/veh	0.9	0.0	0.3	5.7	0.0	0.0	0.5	0.4	0.4	0.1	0.1	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	0.0	7.8	0.5	0.0	0.0	3.8	0.2	0.2	0.1	5.6	7.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.8	0.0	36.0	64.2	0.0	0.0	29.9	0.4	0.4	55.3	14.6	16.0
LnGrp LOS	D	A	D	E	A	A	C	A	A	E	B	B
Approach Vol, veh/h		830			15			978			1192	
Approach Delay, s/veh		40.6			64.2			6.6			15.2	
Approach LOS		D			E			A			B	

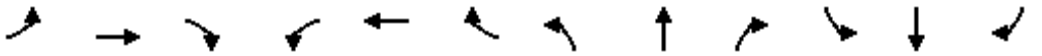
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		13.8	29.7	71.6		5.0	8.0	93.2				
Change Period (Y+Rc), s		3.0	3.6	* 3.6		3.0	3.0	3.6				
Max Green Setting (Gmax), s		27.0	27.0	* 30		23.0	9.0	48.4				
Max Q Clear Time (g_c+I1), s		8.9	12.2	21.7		3.0	2.3	2.0				
Green Ext Time (p_c), s		1.8	0.2	5.0		0.0	0.0	5.7				

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

Notes

User approved volume balancing among the lanes for turning movement.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	109	35	46	106	178	74	612	883	101	120	1019	236
Future Volume (veh/h)	109	35	46	106	178	74	612	883	101	120	1019	236
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	109	35	46	106	178	74	612	883	101	120	1019	236
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	174	48	63	272	216	90	958	1804	206	147	1523	352
Arrive On Green	0.05	0.07	0.07	0.15	0.17	0.17	0.28	0.56	0.56	0.16	0.74	0.74
Sat Flow, veh/h	3456	722	949	1781	1247	518	3456	3205	367	1781	4142	958
Grp Volume(v), veh/h	109	0	81	106	0	252	612	490	494	120	837	418
Grp Sat Flow(s),veh/h/ln	1728	0	1672	1781	0	1765	1728	1777	1795	1781	1702	1696
Q Serve(g_s), s	3.7	0.0	5.7	6.4	0.0	16.5	18.7	20.0	20.0	7.8	15.4	15.4
Cycle Q Clear(g_c), s	3.7	0.0	5.7	6.4	0.0	16.5	18.7	20.0	20.0	7.8	15.4	15.4
Prop In Lane	1.00		0.57	1.00		0.29	1.00		0.20	1.00		0.56
Lane Grp Cap(c), veh/h	174	0	110	272	0	306	958	1000	1010	147	1252	624
V/C Ratio(X)	0.63	0.00	0.74	0.39	0.00	0.82	0.64	0.49	0.49	0.82	0.67	0.67
Avail Cap(c_a), veh/h	490	0	228	401	0	388	958	1000	1010	184	1252	624
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.75	0.75	0.75
Uniform Delay (d), s/veh	55.9	0.0	55.0	45.8	0.0	47.9	38.1	15.8	15.8	49.3	12.1	12.1
Incr Delay (d2), s/veh	5.2	0.0	9.1	0.9	0.0	11.0	1.4	1.7	1.7	15.9	1.0	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	0.0	2.7	2.9	0.0	8.2	8.1	8.4	8.5	3.9	3.7	3.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.1	0.0	64.2	46.7	0.0	58.8	39.5	17.5	17.5	65.1	13.1	14.2
LnGrp LOS	E	A	E	D	A	E	D	B	B	E	B	B
Approach Vol, veh/h		190			358			1596			1375	
Approach Delay, s/veh		62.4			55.2			26.0			18.0	
Approach LOS		E			E			C			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.9	11.5	36.9	49.7	9.0	24.4	15.5	71.1
Change Period (Y+Rc), s	3.6	* 3.6	3.6	5.6	3.0	3.6	5.6	3.6
Max Green Setting (Gmax), s	27.0	* 16	28.4	32.4	17.0	26.4	12.4	48.4
Max Q Clear Time (g_c+I1), s	8.4	7.7	20.7	17.4	5.7	18.5	9.8	22.0
Green Ext Time (p_c), s	0.2	0.2	1.5	7.6	0.3	0.9	0.1	7.3

Intersection Summary	
HCM 6th Ctrl Delay	27.8
HCM 6th LOS	C

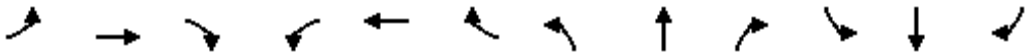
Notes

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

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

HCM 6th Signalized Intersection Summary
1: Santa Rosa Avenue & Baker Avenue

02/18/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	212	2	624	8	2	5	215	779	10	4	780	436
Future Volume (veh/h)	212	2	624	8	2	5	215	779	10	4	780	436
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	213	0	624	8	2	5	215	779	10	4	780	436
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	321	0	971	15	4	9	385	2684	34	74	1931	899
Arrive On Green	0.09	0.00	0.09	0.02	0.02	0.02	0.43	1.00	1.00	0.04	0.57	0.57
Sat Flow, veh/h	3563	0	3170	918	230	574	1781	3593	46	1781	3404	1585
Grp Volume(v), veh/h	213	0	624	15	0	0	215	385	404	4	780	436
Grp Sat Flow(s),veh/h/ln	1781	0	1585	1721	0	0	1781	1777	1862	1781	1702	1585
Q Serve(g_s), s	6.9	0.0	0.0	1.0	0.0	0.0	10.8	0.0	0.0	0.3	15.4	19.7
Cycle Q Clear(g_c), s	6.9	0.0	0.0	1.0	0.0	0.0	10.8	0.0	0.0	0.3	15.4	19.7
Prop In Lane	1.00		1.00	0.53		0.33	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	321	0	971	28	0	0	385	1327	1391	74	1931	899
V/C Ratio(X)	0.66	0.00	0.64	0.53	0.00	0.00	0.56	0.29	0.29	0.05	0.40	0.48
Avail Cap(c_a), veh/h	802	0	1399	330	0	0	401	1327	1391	134	1931	899
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	0.80	0.80	0.80	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.8	0.0	35.9	58.6	0.0	0.0	29.7	0.0	0.0	55.2	14.6	15.5
Incr Delay (d2), s/veh	0.9	0.0	0.3	5.7	0.0	0.0	0.7	0.4	0.4	0.1	0.1	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	0.0	7.9	0.5	0.0	0.0	4.0	0.2	0.2	0.1	5.9	7.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.7	0.0	36.2	64.2	0.0	0.0	30.4	0.4	0.4	55.3	14.7	15.9
LnGrp LOS	D	A	D	E	A	A	C	A	A	E	B	B
Approach Vol, veh/h		837			15			1004			1220	
Approach Delay, s/veh		40.7			64.2			6.9			15.3	
Approach LOS		D			E			A			B	

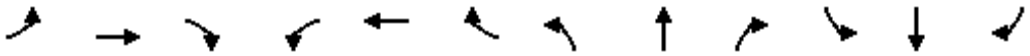
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		13.8	29.6	71.7		5.0	8.0	93.2				
Change Period (Y+Rc), s		3.0	3.6	* 3.6		3.0	3.0	3.6				
Max Green Setting (Gmax), s		27.0	27.0	* 30		23.0	9.0	48.4				
Max Q Clear Time (g_c+I1), s		8.9	12.8	21.7		3.0	2.3	2.0				
Green Ext Time (p_c), s		1.9	0.3	5.1		0.0	0.0	5.9				

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

Notes

User approved volume balancing among the lanes for turning movement.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	109	35	36	103	191	84	602	899	99	133	1041	236
Future Volume (veh/h)	109	35	36	103	191	84	602	899	99	133	1041	236
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	109	35	36	103	191	84	602	899	99	133	1041	236
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	174	49	51	302	225	99	950	1756	193	159	1497	339
Arrive On Green	0.05	0.06	0.06	0.17	0.18	0.18	0.27	0.55	0.55	0.18	0.72	0.72
Sat Flow, veh/h	3456	833	857	1781	1224	538	3456	3219	355	1781	4161	942
Grp Volume(v), veh/h	109	0	71	103	0	275	602	496	502	133	851	426
Grp Sat Flow(s),veh/h/ln	1728	0	1690	1781	0	1762	1728	1777	1797	1781	1702	1699
Q Serve(g_s), s	3.7	0.0	5.0	6.1	0.0	18.1	18.4	21.1	21.1	8.7	16.8	16.9
Cycle Q Clear(g_c), s	3.7	0.0	5.0	6.1	0.0	18.1	18.4	21.1	21.1	8.7	16.8	16.9
Prop In Lane	1.00		0.51	1.00		0.31	1.00		0.20	1.00		0.55
Lane Grp Cap(c), veh/h	174	0	100	302	0	323	950	969	980	159	1225	611
V/C Ratio(X)	0.63	0.00	0.71	0.34	0.00	0.85	0.63	0.51	0.51	0.84	0.70	0.70
Avail Cap(c_a), veh/h	490	0	231	401	0	388	950	969	980	184	1225	611
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.75	0.75	0.75
Uniform Delay (d), s/veh	55.9	0.0	55.4	43.9	0.0	47.4	38.2	17.2	17.2	48.5	13.1	13.1
Incr Delay (d2), s/veh	5.2	0.0	8.8	0.7	0.0	14.3	1.4	1.9	1.9	19.5	1.3	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(50%),veh/ln	1.7	0.0	2.4	2.8	0.0	9.2	7.9	9.0	9.1	4.4	4.1	4.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.1	0.0	64.2	44.6	0.0	61.7	39.6	19.1	19.1	67.9	14.4	15.7
LnGrp LOS	E	A	E	D	A	E	D	B	B	E	B	B
Approach Vol, veh/h		180			378			1600			1410	
Approach Delay, s/veh		62.3			57.0			26.8			19.9	
Approach LOS		E			E			C			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	23.9	10.7	36.6	48.8	9.0	25.6	16.3	69.0
Change Period (Y+Rc), s	3.6	* 3.6	3.6	5.6	3.0	3.6	5.6	3.6
Max Green Setting (Gmax), s	27.0	* 16	28.4	32.4	17.0	26.4	12.4	48.4
Max Q Clear Time (g_c+I1), s	8.1	7.0	20.4	18.9	5.7	20.1	10.7	23.1
Green Ext Time (p_c), s	0.2	0.2	1.5	7.2	0.3	0.8	0.1	7.3

Intersection Summary	
HCM 6th Ctrl Delay	29.1
HCM 6th LOS	C

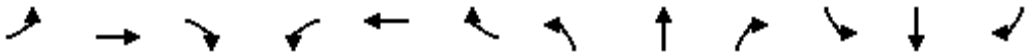
Notes

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

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

HCM 6th Signalized Intersection Summary
1: Santa Rosa Avenue & Baker Avenue

02/18/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	212	2	644	8	2	5	224	790	10	4	793	436
Future Volume (veh/h)	212	2	644	8	2	5	224	790	10	4	793	436
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	213	0	644	8	2	5	224	790	10	4	793	436
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	322	0	971	15	4	9	385	2683	34	74	1931	899
Arrive On Green	0.09	0.00	0.09	0.02	0.02	0.02	0.43	1.00	1.00	0.04	0.57	0.57
Sat Flow, veh/h	3563	0	3170	918	230	574	1781	3594	45	1781	3404	1585
Grp Volume(v), veh/h	213	0	644	15	0	0	224	391	409	4	793	436
Grp Sat Flow(s),veh/h/ln	1781	0	1585	1721	0	0	1781	1777	1862	1781	1702	1585
Q Serve(g_s), s	6.9	0.0	0.0	1.0	0.0	0.0	11.5	0.0	0.0	0.3	15.8	19.7
Cycle Q Clear(g_c), s	6.9	0.0	0.0	1.0	0.0	0.0	11.5	0.0	0.0	0.3	15.8	19.7
Prop In Lane	1.00		1.00	0.53		0.33	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	322	0	971	28	0	0	385	1326	1390	74	1931	899
V/C Ratio(X)	0.66	0.00	0.66	0.53	0.00	0.00	0.58	0.29	0.29	0.05	0.41	0.48
Avail Cap(c_a), veh/h	802	0	1398	330	0	0	401	1326	1390	134	1931	899
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	0.79	0.79	0.79	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.8	0.0	36.2	58.6	0.0	0.0	30.0	0.0	0.0	55.2	14.7	15.5
Incr Delay (d2), s/veh	0.9	0.0	0.3	5.7	0.0	0.0	1.0	0.4	0.4	0.1	0.1	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	0.0	8.2	0.5	0.0	0.0	4.3	0.2	0.2	0.1	6.0	7.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.7	0.0	36.5	64.2	0.0	0.0	30.9	0.4	0.4	55.3	14.8	15.9
LnGrp LOS	D	A	D	E	A	A	C	A	A	E	B	B
Approach Vol, veh/h		857			15			1024			1233	
Approach Delay, s/veh		40.8			64.2			7.1			15.3	
Approach LOS		D			E			A			B	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		13.9	29.5	71.7		5.0	8.0	93.2				
Change Period (Y+Rc), s		3.0	3.6	* 3.6		3.0	3.0	3.6				
Max Green Setting (Gmax), s		27.0	27.0	* 30		23.0	9.0	48.4				
Max Q Clear Time (g_c+I1), s		8.9	13.5	21.7		3.0	2.3	2.0				
Green Ext Time (p_c), s		1.9	0.3	5.2		0.0	0.0	6.0				

Intersection Summary	
HCM 6th Ctrl Delay	19.8
HCM 6th LOS	B

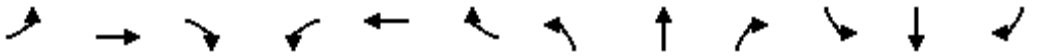
Notes

User approved volume balancing among the lanes for turning movement.

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

HCM 6th Signalized Intersection Summary
2: Santa Rosa Avenue & US 101 NB Ramps/Colgan Avenue

02/18/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	109	35	46	106	191	84	620	919	101	133	1074	236
Future Volume (veh/h)	109	35	46	106	191	84	620	919	101	133	1074	236
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	109	35	46	106	191	84	620	919	101	133	1074	236
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	174	48	63	290	225	99	937	1756	193	159	1522	334
Arrive On Green	0.05	0.07	0.07	0.16	0.18	0.18	0.27	0.55	0.55	0.18	0.73	0.73
Sat Flow, veh/h	3456	722	949	1781	1224	538	3456	3220	354	1781	4188	919
Grp Volume(v), veh/h	109	0	81	106	0	275	620	507	513	133	873	437
Grp Sat Flow(s),veh/h/ln	1728	0	1672	1781	0	1762	1728	1777	1797	1781	1702	1703
Q Serve(g_s), s	3.7	0.0	5.7	6.4	0.0	18.1	19.1	21.8	21.8	8.7	17.3	17.3
Cycle Q Clear(g_c), s	3.7	0.0	5.7	6.4	0.0	18.1	19.1	21.8	21.8	8.7	17.3	17.3
Prop In Lane	1.00		0.57	1.00		0.31	1.00		0.20	1.00		0.54
Lane Grp Cap(c), veh/h	174	0	110	290	0	323	937	969	980	159	1237	619
V/C Ratio(X)	0.63	0.00	0.74	0.37	0.00	0.85	0.66	0.52	0.52	0.84	0.71	0.71
Avail Cap(c_a), veh/h	490	0	228	401	0	388	937	969	980	184	1237	619
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.74	0.74	0.74
Uniform Delay (d), s/veh	55.9	0.0	55.0	44.7	0.0	47.4	38.8	17.4	17.4	48.5	12.8	12.8
Incr Delay (d2), s/veh	5.2	0.0	9.1	0.8	0.0	14.3	1.7	2.0	2.0	19.3	1.4	2.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	0.0	2.7	2.9	0.0	9.2	8.3	9.2	9.3	4.4	4.1	4.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.1	0.0	64.2	45.5	0.0	61.7	40.6	19.4	19.4	67.7	14.2	15.5
LnGrp LOS	E	A	E	D	A	E	D	B	B	E	B	B
Approach Vol, veh/h		190			381			1640			1443	
Approach Delay, s/veh		62.4			57.2			27.4			19.5	
Approach LOS		E			E			C			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	23.1	11.5	36.2	49.2	9.0	25.6	16.3	69.0
Change Period (Y+Rc), s	3.6	* 3.6	3.6	5.6	3.0	3.6	5.6	3.6
Max Green Setting (Gmax), s	27.0	* 16	28.4	32.4	17.0	26.4	12.4	48.4
Max Q Clear Time (g_c+I1), s	8.4	7.7	21.1	19.3	5.7	20.1	10.7	23.8
Green Ext Time (p_c), s	0.2	0.2	1.5	7.3	0.3	0.8	0.1	7.5

Intersection Summary	
HCM 6th Ctrl Delay	29.2
HCM 6th LOS	C

Notes

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

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

Appendix C

Dispensary Trip Generation Rates

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NORTH BAY DISPENSARY RATES

					DAILY		AM PEAK HOUR (7-9)								PM PEAK HOUR (4-6)							
LOCATION	No. of Units	Units	DATE	Setting/Location	Trip Rate per Unit	Total Trips	Trip Rate per Unit	Number of Trips	In (%)	In (Rate)	In (Trips)	Out (%)	Out (Rate)	Out (Trips)	Trip Rate per Unit	Number of Trips	In (%)	In (Rate)	In (Trips)	Out (%)	Out (Rate)	Out (Trips)
Dispensary 1	3.8	ksf	12/18/2018	General Urban/Suburban			4.47	17	88%	3.95	15	12%	0.53	2	20.00	76	42%	8.42	32	58%	11.58	44
Santa Rosa	3.8	ksf	12/19/2018	General Urban/Suburban			4.21	16	94%	3.95	15	6%	0.26	1	23.68	90	44%	10.53	40	56%	13.16	50
				AVERAGE			*4.34*		*91%*	*3.95*		*9%*	*0.39*		*21.84*		*43%*	*9.47*		*57%*	*12.37*	
Dispensary 2	1.17	ksf	12/12/2018	General Urban/Suburban			1.71	2	100%	1.71	2	0%	0.00	0	48.72	57	53%	25.64	30	47%	23.08	27
Santa Rosa	1.17	ksf	12/17/2018	General Urban/Suburban			1.71	2	100%	1.71	2	0%	0.00	0	53.85	63	54%	29.06	34	46%	24.79	29
				AVERAGE			*1.71*		*100%*	*1.71*		*0%*	*0.00*		*51.28*		*53%*	*27.35*		*47%*	*23.93*	
Dispensary 3	4.8	ksf	12/18/2018	General Urban/Suburban			1.46	7	86%	1.25	6	14%	0.21	1	14.58	70	54%	7.92	38	46%	6.67	32
Santa Rosa	4.8	ksf	12/19/2018	General Urban/Suburban			0.83	4	100%	0.83	4	0%	0.00	0	15.00	72	56%	8.33	40	44%	6.67	32
				AVERAGE			*1.15*		*93%*	*1.04*		*7%*	*0.10*		*14.79*		*55%*	*8.13*		*45%*	*6.67*	
Dispensary 4	1.508	ksf	8/6/2019	General Urban/Suburban											43.10	65	51%	21.88	33	49%	21.22	32
Sebastopol	1.508	ksf	8/15/2019	General Urban/Suburban											39.12	59	49%	19.23	29	51%	19.89	30
				AVERAGE											*41.11*		*50%*	*20.56*		*50%*	*20.56*	
Dispensary 5	5.79	ksf	8/7/2019	General Urban/Suburban											24.18	140	51%	12.44	72	49%	11.74	68
Cotati	5.79	ksf	8/12/2019	General Urban/Suburban											26.94	156	49%	13.13	76	51%	13.82	80
				AVERAGE											*25.56*		*50%*	*12.78*		*50%*	*12.78*	
Dispensary 6	3.454	ksf	9/30/2020	General Urban/Suburban	75.85	262	0.87	3	67%	0.58	2	33%	0.29	1	6.95	24	58%	4.05	14	42%	2.90	10
Santa Rosa	3.454	ksf	10/1/2020	General Urban/Suburban	87.43	302	0.58	2	50%	0.29	1	50%	0.29	1	7.53	26	54%	4.05	14	46%	3.47	12
	3.454	ksf	10/2/2020	General Urban/Suburban	92.07	318	3.18	11	55%	1.74	6	45%	1.45	5	6.66	23	48%	3.18	11	52%	3.47	12
				AVERAGE	*85.12*		*1.54*		*57%*	*0.87*		*43%*	*0.68*		*7.04*		*53%*	*3.76*		*47%*	*3.28*	
Dispensary 7	2.5	ksf	9/30/2020	General Urban/Suburban	21.60	54	0.00	0	0%	0.00	0	0%	0.00	0	2.80	7	71%	2.00	5	29%	0.80	2
Napa	2.5	ksf	10/1/2020	General Urban/Suburban	22.40	56	0.00	0	0%	0.00	0	0%	0.00	0	2.00	5	60%	1.20	3	40%	0.80	2
	2.5	ksf	10/2/2020	General Urban/Suburban	19.20	48	0.00	0	0%	0.00	0	0%	0.00	0	5.20	13	46%	2.40	6	54%	2.80	7
				AVERAGE	*21.07*		*0.00*		*0.00*	*0.00*		*0.00*	*0.00*		*3.33*		*59%*	*1.87*		*41%*	*1.47*	
				ITE RATES (LU#882) -	**252.70**		**10.44**		**56%**	**5.85**		**44%**	**4.59**		**21.83**		**50%**	**10.92**		**50%**	**10.92**	
				AVERAGE LOCAL RATES -	**85.12**		**1.59**		**82%**	**1.33**		**18%**	**0.25**		**21.27**		**53%**	**10.84**		**47%**	**10.43**	

Appendix D

Emergency Vehicle Access Exhibits

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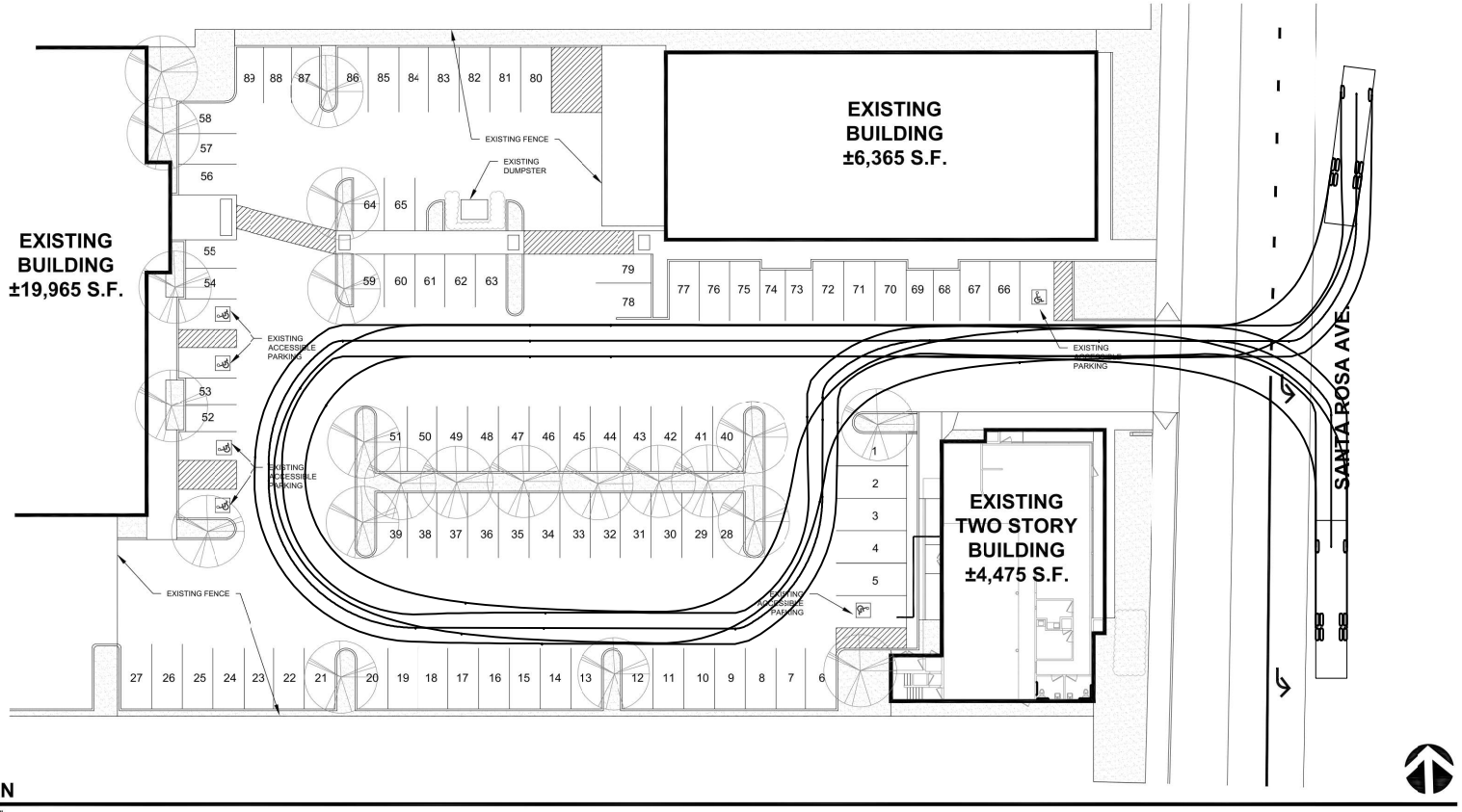
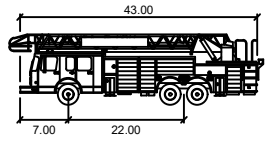


SITE PLAN

SCALE: 1/16" = 1'-0"



Aerial Fire Truck

	feet
Width	: 8.50
Track	: 8.50
Lock to Lock Time	: 6.0
Steering Angle	: 33.3