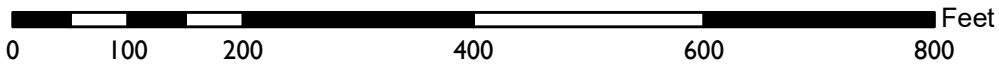
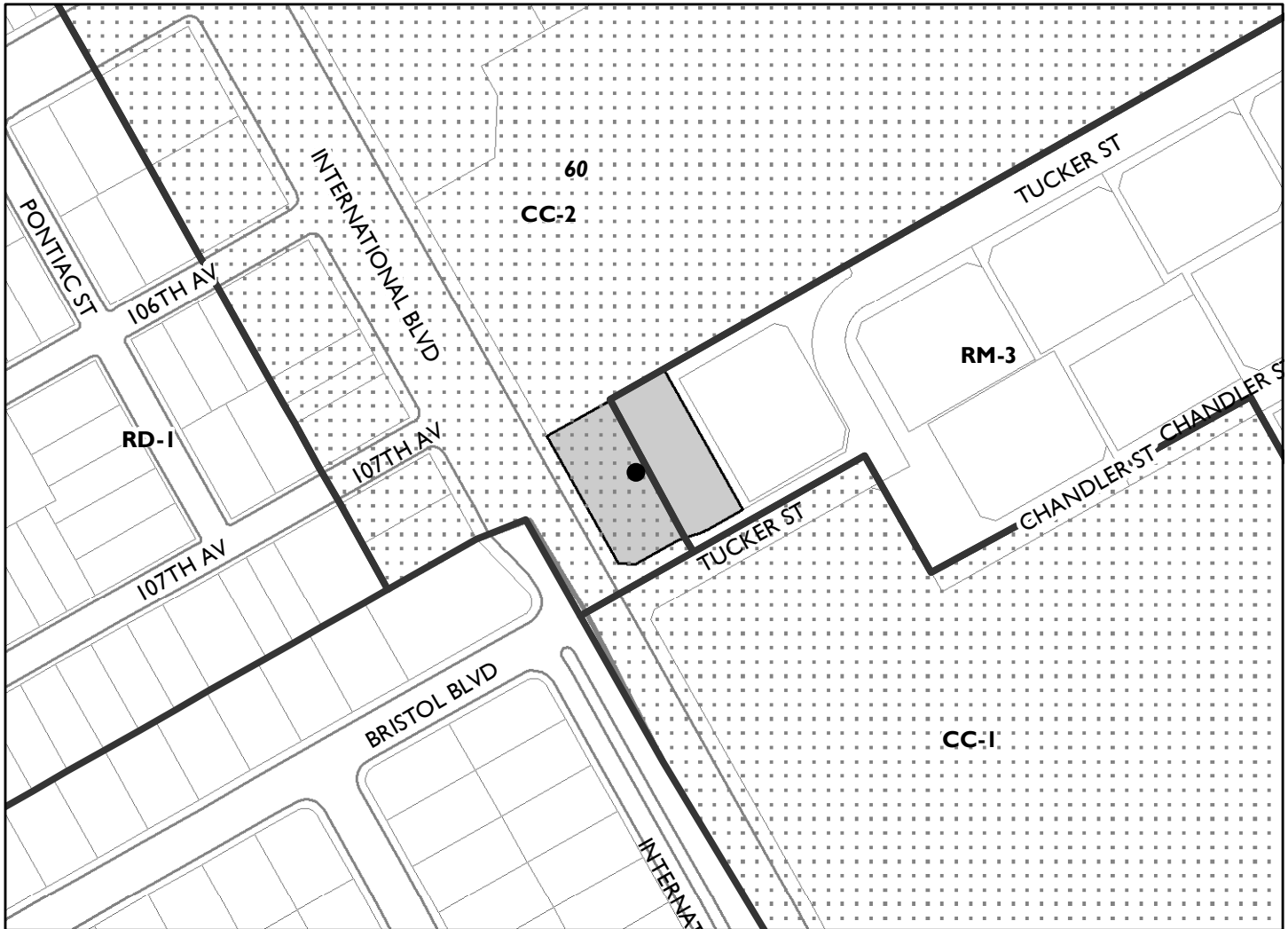


<b>Location:</b>	Surface parking lot on 0 Tucker Street (APN 047 -5596-005-00) (see map on reverse)
<b>Proposal:</b>	Construction of a one-story, 2,200 square-foot commercial building, drive-through, and associated site improvements.
<b>Applicant:</b>	Durant Commercial, LLC
<b>Phone Number:</b>	Frank Coda / Green Farrow (914) 393-8293
<b>Owner:</b>	Durant Commercial, LLC
<b>General Plan:</b>	Community Commercial
<b>Zoning:</b>	CC-2 Community Commercial-2 Zone / RM-2 Mixed Housing Types Residential-2 Zone
<b>Environmental Determination:</b>	Pending
<b>Historic Status:</b>	Not a Potential Designated Historic Property (PDHP)
<b>City Council District:</b>	7
<b>Date Filed:</b>	May 11, 2020
<b>Action to be Taken:</b>	Review proposed design
<b>Staff Recommendation:</b>	Provide design recommendations and refer to Planning Commission
<b>For Further Information:</b>	Contact case planner <b>Jose M. Herrera-Preza</b> at (510) 238-3808 or <a href="mailto:jherrera@oaklandca.gov">jherrera@oaklandca.gov</a>

**SUMMARY**

Staff requests the Design Review Committee review the proposed site plan options for a one-story Starbucks café building and drive-through. The proposed 2,200 square-foot commercial building will be on a 19,904 square-foot parcel, currently used as a surface parking lot. The subject property is on the corner of Tucker Street and International Blvd, which is one of the primary entrances to a residential neighborhood, and the Durant Square Commercial Center. The project sponsor has provided two distinct site plans options that affect both the location and orientation of the building, and the vehicular and pedestrian movement on the site. Staff requests design comments from the committee and recommendations for forwarding to the full Planning Commission.

# CITY OF OAKLAND PLANNING COMMISSION



Case File: PLN20074  
Applicant: Frank Coda / Green Farrow  
Address: Surface Parking lot on Tucker Street  
Zone: CC-2 Community Commercial 2 Zone  
RM-2 Mixed Housing Types Residential 2 Zone  
Height Area: 60 ft

## **PROPERTY DESCRIPTION**

The site is a 19,904 square-foot, flat parcel at the north-east corner of International Boulevard and Tucker Street, adjacent to the historic Durant Square Commercial Shopping Center to the South, the Alameda-Contra Costa Transit District (AC Transit) Maintenance Facility to the north, and multi-family residential buildings to the east. Nearby properties include one-to-two story commercial buildings occupied by various small-scale neighborhood businesses, civic activities and residential buildings typical of a primary commercial corridor.

This area of International Boulevard in East Oakland is characterized by small-scale ground floor commercial spaces under upper-story residential units and freestanding commercial and civic buildings. Residential buildings along and behind the commercial area include two-story apartments, as well as newer five-story residential buildings. Construction materials in the area include primarily stucco buildings with glass transoms and tile roof details; brick with wood details, wood shiplap and shingle walls with composite roofs, and other early-to- mid-20<sup>th</sup> Century materials.

Both properties adjacent to the site on International Boulevard contain parking in front of buildings that were originally constructed for industrial activities that have been converted for retail use. These buildings are set back approximately 30 feet from their front property line.

## **BACKGROUND**

On August 5<sup>th</sup>, 2020, Planning staff presented to project to the Planning Commission. The item was referred to the Design Review Committee based on the factors listed below:

1. The applicant presented additional information at the hearing that the Planning Commission did not have sufficient time to review.
2. The Commission advised the applicant to engage the nearby neighborhood through a community outreach/community meeting effort.
3. Outstanding issues related to site and façade design.

On September 30<sup>th</sup>, 2020, the item was presented to the Design Review Committee (DRC) for design input and recommendations. The DRC, made the following recommendations:

1. The applicant shall engage the community and receive feedback.
2. The applicant shall continue to study driveway option #2.

At the September 30<sup>th</sup>, 2020 DRC hearing, the applicant also agreed to engage a consultant, to, under City direction, produce a traffic study that would study the following:

1. Impacts to the vehicle queuing at International and Tucker.
2. Multi-modal access to the site.
3. Alternative travel routes to the site.
4. Analysis of the drive-through proposal and potential vehicle queuing during peak times.

On December 2, 2020, the applicant, project sponsor, and Starbucks representatives engaged the community. The applicant received the following comments.

- 1) Address the community concerns regarding the potential traffic and circulation impacts.

- 2) Provide the public all the data on trip generation and queuing on sites with similar standalone stores.
- 3) Address the concern that public safety vehicle access to the abutting residential neighborhood will be impacted by the proposal.
- 4) Provide a plan to address homeless issues at the site.
- 5) Provide measures to limit noise nuisances on the residential neighborhood from the parking lot and drive-through.

On July 13, 2021, TJKM Consultants, completed a Traffic Impact Analysis Report (see Attachment B). The report concluded the following:

1. TJKM examined the project site plan to evaluate the adequacy of on-site vehicle circulation including delivery trucks and emergency vehicles. The project's access will be via one driveway along Tucker Street. Based on the evaluation, the proposed on-site vehicle circulation is adequate and should not result in significant impacts on City streets.
2. Based on TJKM's experience with queuing at Starbucks drive thru locations, the project is will have adequate space to accommodate on-site queuing. Because queues are not exceeded and the level of service analysis shows that traffic will move at close to free-flow conditions, it is highly unlikely that new project traffic will impede resident or emergency access.
3. The project is expected to have a less than significant impact at the studied intersection under existing plus conditions
4. The project driveway is expected to operate at an acceptable level of service and the 95<sup>th</sup> percentile queuing is expected to be minimal.
5. The proposed project does not conflict with existing and planned pedestrian or bicycle facilities.

## **PROJECT DESCRIPTION**

The primary objective of the project is to construct a free-standing, one-story 2,200 square-foot Starbucks café building and associate drive-through. The subject parcel is a remainder from the Durant Square Planned Unit Development (PUDF00-60) that was originally to be developed with a commercial building but instead was developed as an open surface parking lot.

### Building Design

The proposed commercial building has a contemporary design in keeping with the most recent developments in the Durant Square Shopping Center. Some key elements of the proposed design include decorative brick details and steel storefront. Attachments C and D contain architectural and landscape plans for the project.

The proposed building is sited parallel to International Boulevard towards the center of the property. The front façade would have limited window space facing International Boulevard. According to the applicant, this creates the most efficient internal floor plan; however, it also orients the active customer space toward the parking lot. The proposed plan includes a vehicle exit and entrance on Tucker Street, with a drive-through lane that loops in front of the proposed building and a pedestrian entrance facing the parking lot. This issue is further discussed in the "Key Issues and Impacts" section of the report. The location of the ordering screen would be on the north side of the building further away from the residential properties and not require a "sound isolation tube". The drinks and food would be served in the front of the building adjacent to International Boulevard. Parking would be behind the building. The drive-through lane would accommodate ten cars, with more cars potentially accommodated that spill over into the ten-car parking lot.

Exiting onto International Boulevard is not feasible due to existing street infrastructure such as mature street trees, utilities, and underground transformers. These site constraints make it infeasible to site the building

adjacent to the front property line, which is generally the preferred siting of commercial buildings. Unfortunately, this configuration requires the drive-through lane to loop in front of the building to access the Tucker Street exit. However, staff believes the proposed 33-foot building setback is satisfactory in this case due to the context of the adjacent commercial buildings and the significant landscaping proposed in front of the building.

Both site plan options would include a full landscape and a signage plan. New signs would include wall and monument signs, parking area signs, and order boards near the drive-through lanes. Both designs conform to the proposed Bus Rapid Transit (BRT) route by maintaining all existing bus stops and bus shelters on International Boulevard.

### Landscaping

The proposal would maintain all of the large existing London Plane trees and the five smaller trees on the site. The preservation of the existing trees was paramount in the landscape design, which will further incorporate three new 24” box trees and complimentary shrubs and ground covers. A four-foot tall brick site wall will be constructed the along International Boulevard sidewalk edge that will serve as a screen for the “Drive-Through” and replicate a historic brick element found at Durant Square.

## **GENERAL PLAN ANALYSIS**

The property is in the Community Commercial Land Use category of the Land Use and Transportation Element (LUTE) of the General Plan. This designation is intended “to create, maintain and enhance areas suitable for a wide variety of commercial and institutional operations along the City's major corridors and in shopping districts or centers.” International Boulevard is a “Growth and Change” corridor under the LUTE designation. The application is consistent with the following LUTE policies:

LUTE Policy I/C1.2 states that “Existing Businesses and jobs within Oakland which are consistent with the long-range objectives of this Plan should, whenever possible, be retained.”

Policy I/C3.4 states that “The vitality of existing neighborhood mixed use and community commercial areas should be strengthened and preserved.”

Staff finds that the proposed café is consistent with the intent of the General Plan because it implements these policies and intent.

## **ZONING ANALYSIS**

The property has a split zone designation. The first 75’ of frontage from International Boulevard is located within the CC-2 Community Commercial-2 Zoning District and the remaining 50’ of the parcel is within the RM-2 Mixed Housing Type Residential-2 Zone. The proposed café and drive-through is not generally permitted in the RM-2 Zone. However, in cases of split zoning, the Planning Code conditionally permits generally prohibited activities that are permitted or conditionally permitted in an adjacent zone. In this case, the drive-through is conditionally permitted and the café is permitted by right in CC-2 Zone, which allows the proposal to be conditionally permitted in the RM-2 Zone area of the lot.

The proposed free-standing commercial building and drive-through facilities are conditionally permitted in the CC-2 Zone and are subject to Planning Commission review. The uses are consistent with the intent of the zone to allow a wide range of commercial activities.

The project requires the following planning permits:

- Regular Design Review for new construction in the CC-2 Zone;

- Major Conditional Use Permit for a Drive-Through Non-Residential Facility;
- Minor Conditional Use Permit to allow activities listed as prohibited but permitted or conditionally permitted on nearby lots in an adjacent zone (17.35.01).
- Minor Variance to allow a 20' front setback, where there is a maximum 10' required.

### **KEY DESIGN ISSUES**

The proposed building will not have a significant window presence facing International Boulevard but the applicant has intentionally designed “window like” architectural expressions to occupy the previously blank walls. The proposed building remains completely oriented toward the rear parking lot. The building orientation would deactivate the street edge, but the applicant has proposed a defined entrance that faces the street and proposed an outdoor seating area that creates activity along the street.

The Traffic Impact Analysis Report and the Oakland Department of Transportation staff determined that the proposed project and anticipated traffic and vehicle queueing will not block Tucker Street or be an impediment to emergency vehicles.

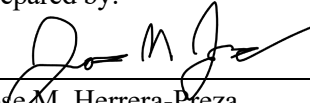
Therefore, staff recommends the DRC to confirm the proposed site and building design.

The proposed site plan reflects the changes recommended by the DRC that include more windows facing the street and outdoor seating viewable from International Boulevard. These features provide a better façade treatment and a greater connection between the street and the activities associated with a café. However, staff remains concerned about the building’s orientation toward the parking lot and not the street.

### **RECOMENDATION**

Staff requests the Design Review Committee review the project, provide design recommendations to the applicant and staff, and refer the project to the full Planning Commission with recommendations.

Prepared by:



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Jose M. Herrera-Preza,  
Planner III

Approved for forwarding to the  
Design Review Committee:



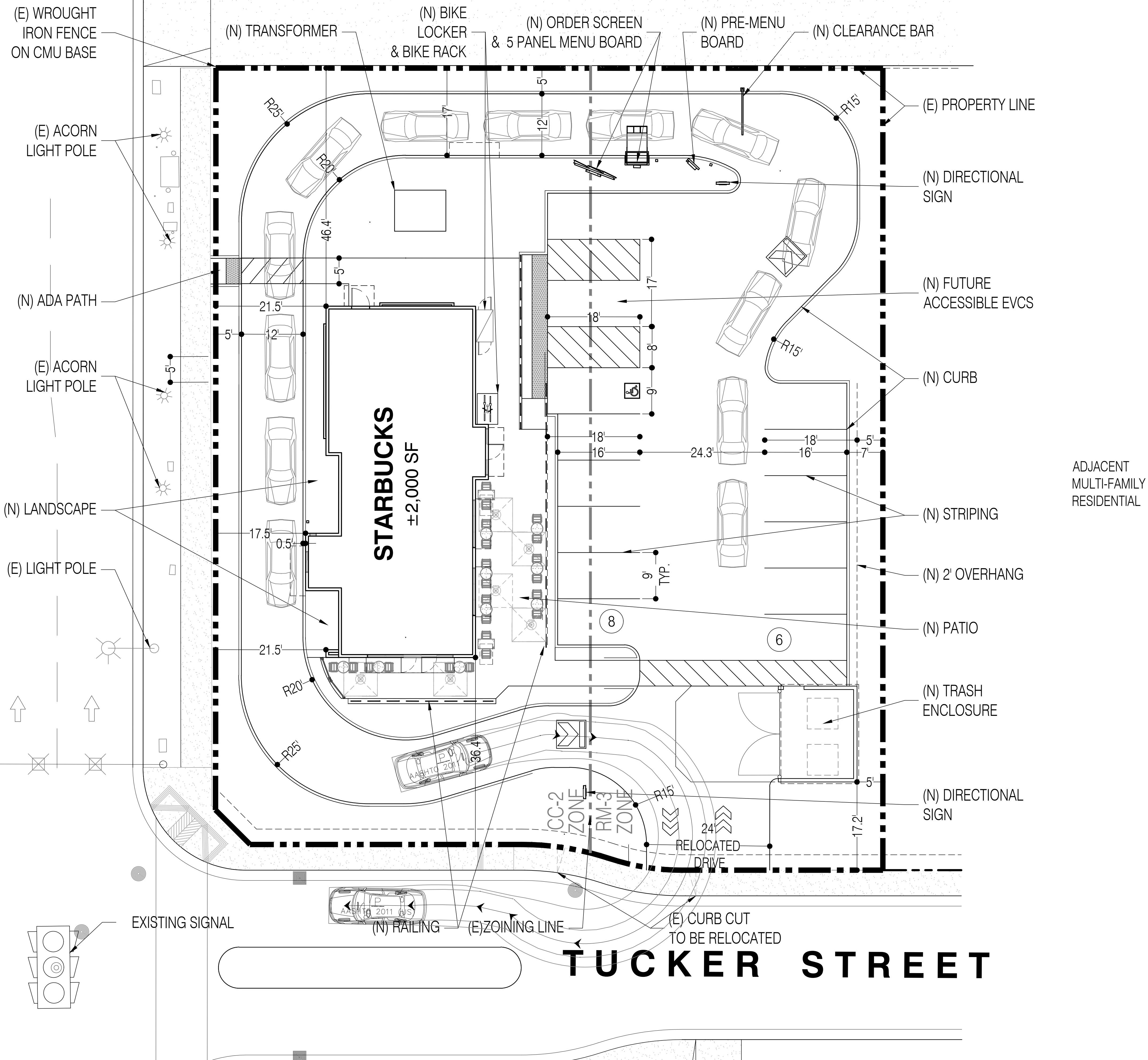
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Robert D. Merkamp  
Zoning Manager

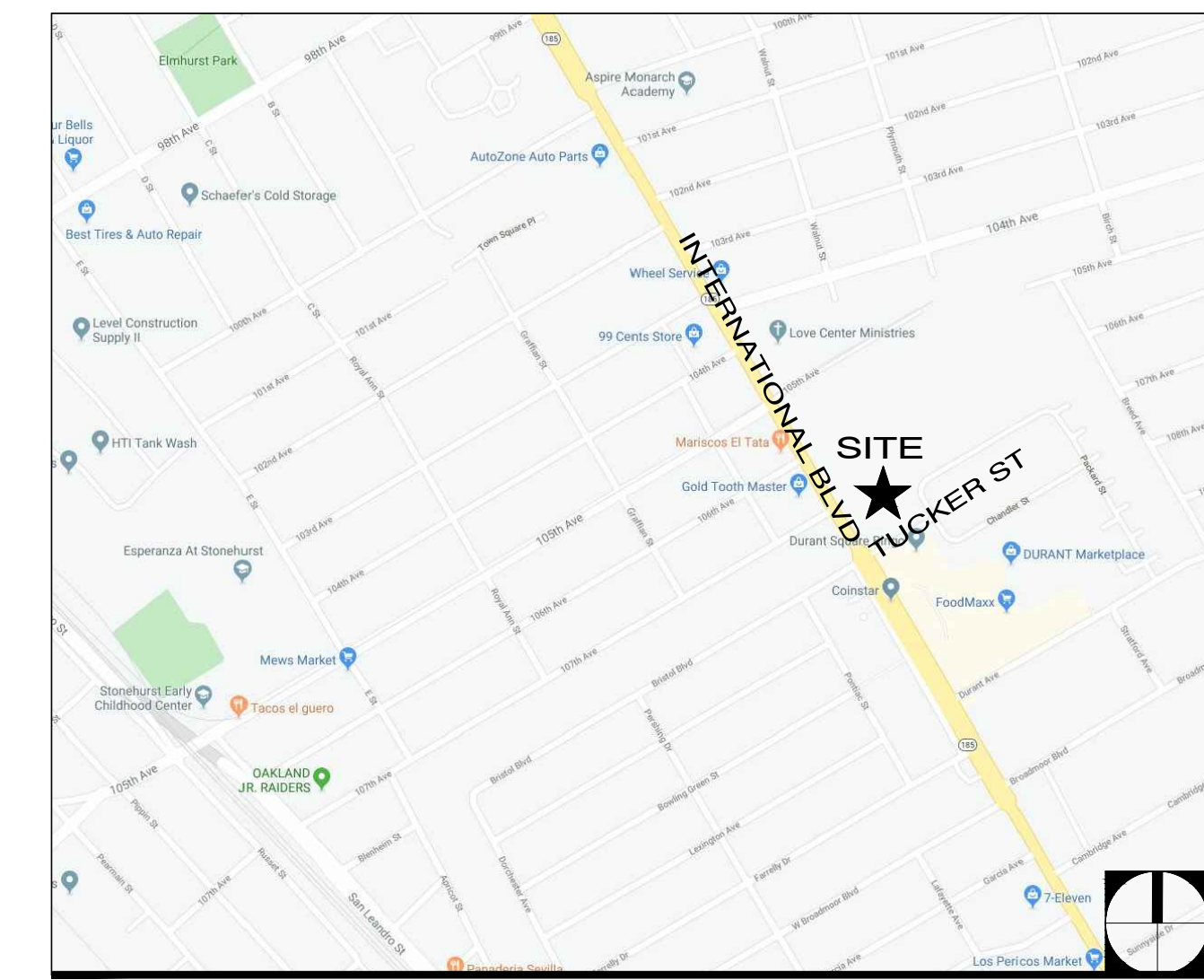
**ATTACHMENTS:**

- A. Project Plans
- B. TJKM Consultants - Traffic Impact Analysis Report dated July 13, 2021
- C. Parking Agreement

**INTERNATIONAL BLVD**



ADJACENT  
MULTI-FAMILY  
RESIDENTIAL



KEY MAP

**PROJECT INFORMATION**

<b>ZONING CLASSIFICATION</b>	
JURISDICTION	CITY OF OAKLAND, CA
EXISTING ZONE	CC-2 (COMMUNITY COMMERCIAL) & RM-3 (MIXED HOUSING)
REQUIRED ZONE	CC-2 (COMMUNITY COMMERCIAL)

<b>SITE AREA</b>	
STARBUCKS TOTAL SITE AREA:	± 0.457 AC

<b>BUILDING INFORMATION</b>	
STARBUCKS BUILDING AREA	2,000 SF
SITE COVERAGE	± 10.05 % (± 4,376 SF/AC)

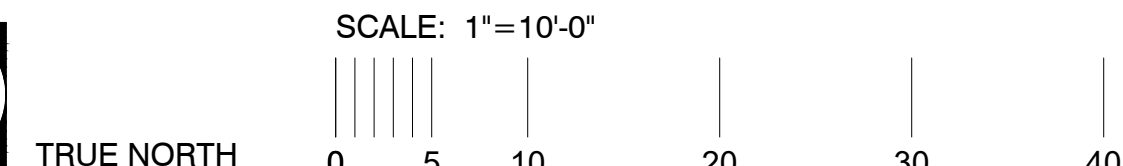
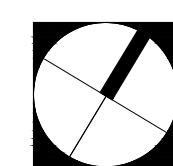
<b>PARKING SUMMARY</b>			
USER	RATIO REQUIRED	SPACES REQUIRED	SPACES PROVIDED
STARBUCKS	0 REQUIRED	0	12
STANDARD			1+1
ACCESSIBLE			
TOTAL			14
TOTAL STACKING PROVIDED:			10 VEHICLES

**DRAWING ISSUE/REVISION RECORD**

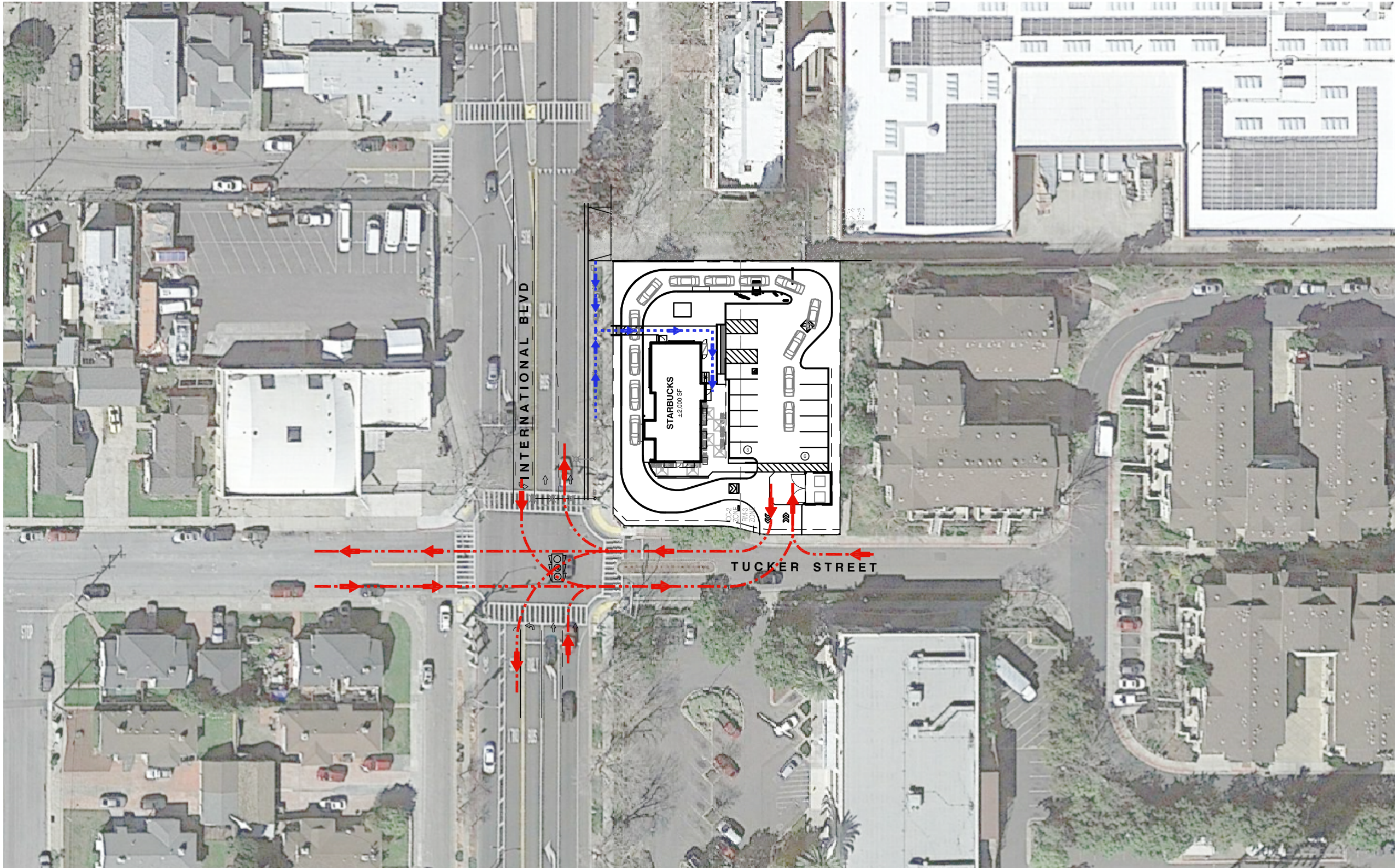
DATE	NARRATIVE	INITIALS
11.26.2019	PREP SP-1	AM
02.14.2020	PREP SP-2	JN
04.02.2020	PREP SP-3	JN
07.21.2020	PREP SP-4	II
06.18.2021	PREP SP-4-REV	BP

**GREENBERG FARROW CONTACTS**

PROJECT MANAGER	I.BRAHIMBEGOVIC
SITE DEV. COORDINATOR	F. CODA





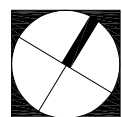


**LEGEND**

-  VEHICLES ACCESS
-  PEDESTRIANS ACCESS



30 Executive Park, Suite 100  
 Irvine, CA 92614  
 t: 949 296 0450 f: 949 296 0479



TRUE NORTH

SCALE: 1"=60'-0"

**STARBUCKS**  
 NEC INTERNATIONAL BLVD & TUCKER ST  
 OAKLAND, CA

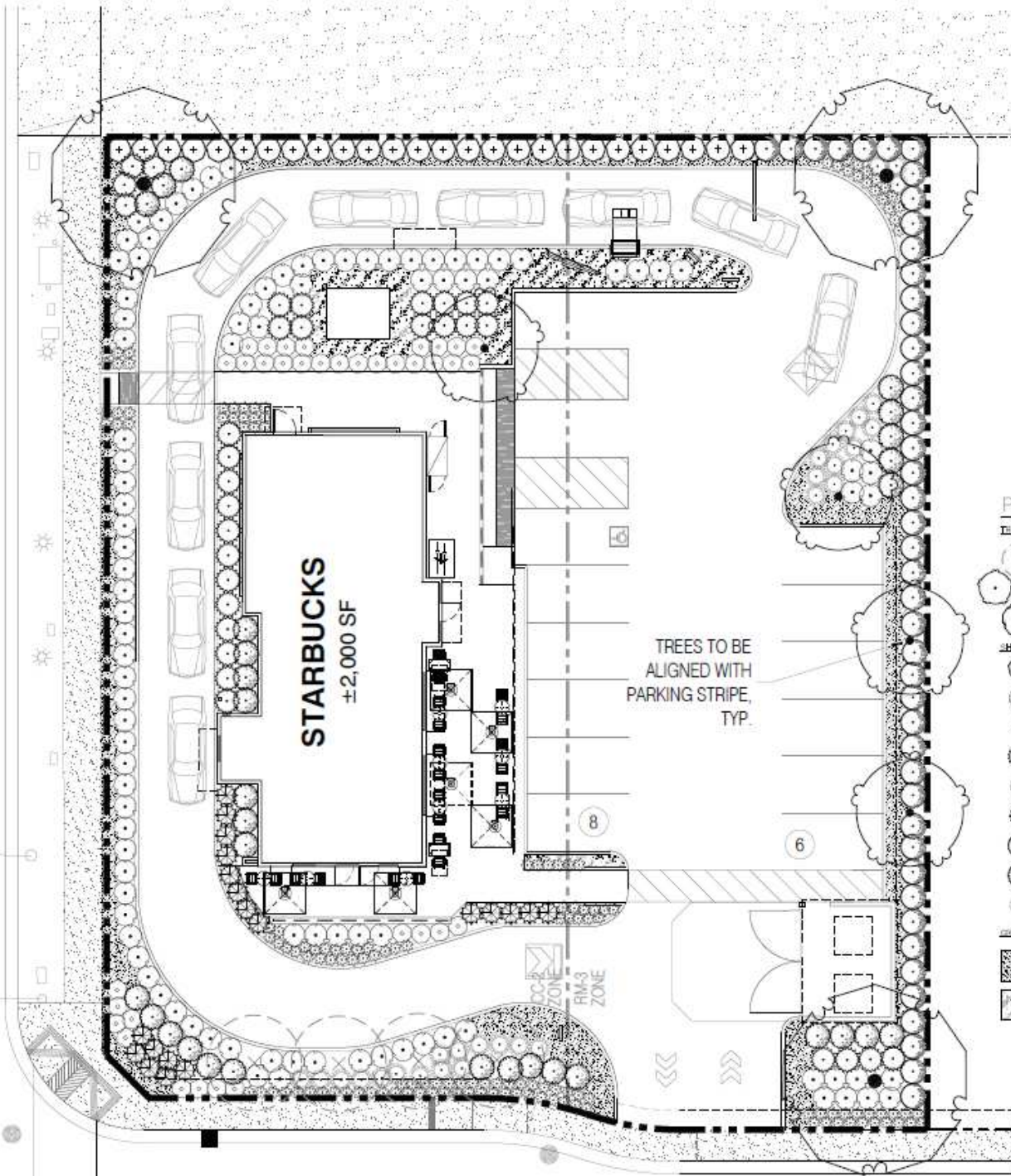
20191416.0

**SITE PLAN**

**ACCESS EXHIBIT**

06.18.2021

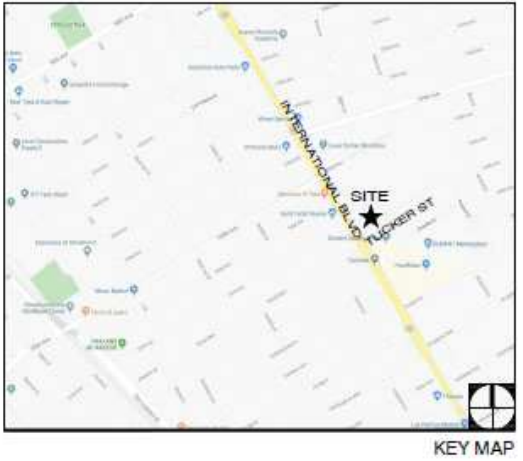
INTERNATIONAL BLVD



TREES TO BE ALIGNED WITH PARKING STRIPE, TYP.

PLANT SCHEDULE

TYPE	BOTANICAL NAME	COMMON NAME	CONT.	SIZE @ PLANT
Tree	Abutilon x 'Warner'	Abutilon Shrublet	8"high	Protect in Place
Tree	Cercis canadensis 'Oklahoma'	Oklahoma Redbud	24"low	M
Tree	Parthenocercis 'Kerf Davey'	Kerf Davey Chinese Parrotia	24"low	L
Shrub	Arctostaphylos x 'Sunset'	Sunset Manzanita	5 gal	L
Shrub	Calliandra verticillata 'Little John'	Dwarf Weeping Bottlebrush	5 gal	L
Shrub	Dalmanella 'Cedric's Runner'	Fortnight Lil	5 gal	L
Shrub	Muhlenbergia rigida	Beak Grass	1 gal	L
Shrub	Myrica carolinensis 'Compacta'	Dwarf Myrtle	5 gal	L
Shrub	Phormium tenax 'Rubrum'	New Zealand Flax	1 gal	L
Shrub	Podocarpus neriifolius 'Maui'	Maui Shealdy Yew Podocarpus	5 gal	M
Shrub	Rhapidozys indica 'Clara'	Clara Indian Hawthorn	5 gal	L
Shrub	Salsa laurandria 'Molokai'	Molokai Bush Sage	5 gal	L
Ground Cover	Arctostaphylos uva-ursi 'Carmel Sea'	Carmel Sea Manzanita	1 gal	L
Ground Cover	Lantana camara 'Rainbow' TM	Rainbow Lantana	1 gal	L



PROJECT INFORMATION

**ZONING CLASSIFICATION**  
 JURISDICTION: CITY OF OAKLAND, CA  
 EXISTING ZONE: CC-2 (COMMUNITY COMMERCIAL) & RM-3 (MIXED HOUSING)  
 REQUIRED ZONE: CC-2 (COMMUNITY COMMERCIAL)

**SITE AREA**  
 STARBUCKS TOTAL SITE AREA: ±0.457 AC

**BUILDING INFORMATION**  
 STARBUCKS BUILDING AREA: 2,000 SF  
 SITE COVERAGE: ±10.05% (=4,376 SF/AC)

**LANDSCAPE SUMMARY**  
 CITY OF OAKLAND LANDSCAPE REQUIREMENTS:  
 -SHADE TREES SHALL BE PROVIDED AT A RATIO ONE (1) TREE FOR EVERY TEN (10) SPACES THROUGHOUT PARKING LOT  
 -A MINIMUM OF TEN PERCENT (10%) OF SURFACE PARKING LOT SHALL BE LANDSCAPED

**CALCULATIONS:**  
 REQUIRED:  
 -14 PARKING SPACES / 1 TREE FOR EVERY 10 PARKING SPACES = 2 TREES NEEDED  
 -2,070 SQ.FT. OF SURFACE PARKING X .10 = 207 SQ.FT. OF PARKING LANDSCAPE NEEDED  
 PROVIDED:  
 -4 TREES THROUGHOUT PARKING LOT  
 -476 SQ.FT. OF LANDSCAPED PARKING AREA  
 TOTAL LANDSCAPE AREA: ±5,405 SF

**NOTES:**  
 ALL LANDSCAPE AREAS SHALL RECEIVE AUTOMATIC IRRIGATION SYSTEM. ALL LANDSCAPE INSTALLATION SHALL BE PERMANENTLY MAINTAINED.

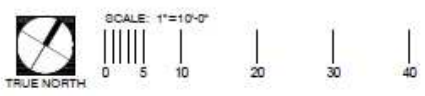
A LANDSCAPE DOCUMENT PACKAGE AS PER A.B. 1881 SHALL BE PROVIDED.  
 PLANT MATERIAL NOT LISTED MAY BE USED, SUBJECT TO APPROVAL OF THE CITY.  
 ALL LANDSCAPE PLANS AND INSTALLATIONS SHALL ADHERE TO CITY DESIGN GUIDELINES, CODES AND REGULATIONS.  
 WHERE TREES ARE WITHIN 5' OF WALKWAYS AND / OR PAVING SURFACES, ROOT BARRIERS SHALL BE INSTALLED.  
 ON-SITE AND PARKWAY LANDSCAPE SHALL BE MAINTAINED BY BUSINESS OWNERS.

**DRAWING ISSUE/REVISION RECORD**

DATE	NARRATIVE	INITIALS
11.25.19	PREP SP-1	AM

**GREENBERG FARROW CONTACTS**  
 PROJECT MANAGER: LIBRAHIMBEGOVIC  
 SITE DEV. COORDINATOR: F. CODA

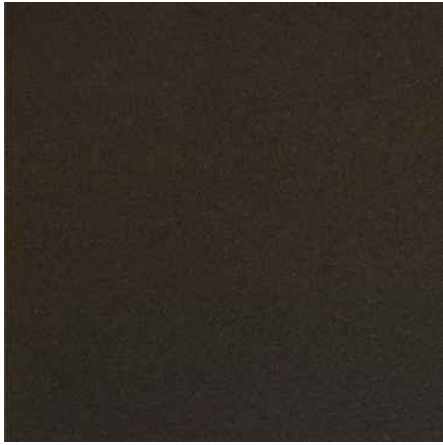
NOTE: This document is prepared in reliance on the information provided by the client and is not intended to constitute an offer of any financial product or service. The client is responsible for obtaining all necessary permits and approvals from the appropriate governmental agencies. The client is responsible for obtaining all necessary permits and approvals from the appropriate governmental agencies.





FINISH SCHEDULE	
FINISH MATERIAL	
1	THIN BRICK VENEER - CORONADO STONE; BELGIAN BRICK; BROOKSIDE
2	PAINT-CEMENT PLASTER(FIELD) - SW7507; STONE LION
3	PAINT-CEMENT PLASTER (TRIM) - SW7551; GREEK VILLA
4	STOREFRONT SYSTEM - DARK BRONZE
5	METAL AWNING
6	METAL CANOPY/METAL TRIM
7	HOLLOW METAL DOOR - PAINT TO MATCH SW7507; STONE LION
8	LIGHT FIXTURE





STOREFRONT: ANODIZED-DARK BRONZE



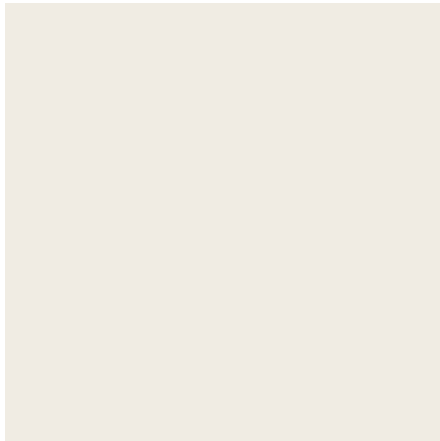
CLEAR INSULATED GLASS WINDOWS



METAL AWNING  
(CANOPY SOUTH OF PROJECT)



CEMENT PLASTER(FIELD) –  
SW7507 STONE LION



CEMENT PLASTER(TRIM) –  
SW7551 GREEK VILLA



THIN BRICK VENEER –  
CORONADO STONE: BELGIAN  
BRICK – BROOKSIDE

Traffic Impact Analysis Report

**Proposed Starbucks at International Blvd.  
And Tucker St.**

City of Oakland, California

Revised: July 13, 2021



## Contents

<b>Executive Summary</b> .....	<b>1</b>
<b>Introduction</b> .....	<b>4</b>
Study Intersections and Scenarios.....	4
<b>Study Methodology</b> .....	<b>7</b>
Level of Service Analysis Methodology.....	7
Significant Impact Criteria/Level of Service Standards.....	9
<b>Existing Conditions</b> .....	<b>10</b>
Existing Setting and Roadway System.....	10
Existing Pedestrian Facilities.....	10
Existing Bicycle Facilities.....	10
Existing Transit Facilities.....	11
Existing Peak Hour Traffic Volumes.....	11
Intersection Level of Service Analysis – Existing Conditions.....	14
<b>Existing plus Project Conditions</b> .....	<b>16</b>
Proposed Project Location and Description.....	16
Project Trip Generation.....	16
Project Trip Distribution and Assignment.....	18
Intersection Level of Service Analysis – Existing plus Project Conditions.....	20
<b>Queuing and Driveway Analysis</b> .....	<b>22</b>
Queuing Analysis at Study Intersections.....	22
Queuing and Level of Service Analysis at Project Driveway.....	23
<b>Additional Analysis</b> .....	<b>24</b>
Site Access.....	24
On-Site Circulation and Drive-Through Queuing Analysis.....	25
Parking Analysis.....	25
Travel Time Runs.....	26
<b>Conclusions</b> .....	<b>28</b>

**Tables**

Table ES 1: Intersection Levels of Service Summary.....3  
Table 1: Level of Service Definitions for Signalized Intersections ..... 8  
Table 2: Unsignalized Intersection Delay and LOS Definitions..... 8  
Table 3: Existing Transit Services..... 11  
Table 4: Intersection Level of Service Analysis – Existing Conditions..... 14  
Table 5: Project Trip Generation..... 17  
Table 6: Intersection Level of Service Analysis – Existing plus Project Conditions..... 20  
Table 7: 95<sup>th</sup> Percentile Queues at Turn Pockets Affected by Project Traffic..... 22  
Table 8: 95<sup>th</sup> Percentile Queues and Level of Service at Project Driveways ..... 23  
Table 9: Travel Time Results ..... 26

**Figures**

Figure 1: Vicinity Map..... 5  
Figure 2: Project Site Plan ..... 6  
Figure 3: Existing Pedestrian, Bicycle, and Transit Facilities..... 12  
Figure 4: Existing Lane Geometry and Traffic Controls ..... 13  
Figure 5: Existing Conditions Traffic Volumes..... 15  
Figure 6: Project Trip Assignment and Distribution..... 19  
Figure 7: Existing plus Project Conditions Peak Hour Traffic Volumes ..... 21

**Appendices**

- Appendix A – Traffic Counts Sheets
- Appendix B – Existing Conditions Intersections Level of Service Worksheets
- Appendix C – Existing plus Project Conditions Intersections Level of Service Worksheets

## EXECUTIVE SUMMARY

This report summarizes the results of the Traffic Impact Analysis (TIA) conducted for the proposed coffee shop development located at the northeast corner of the intersection of International Blvd. & Tucker Street/Bristol Blvd. in the City of Oakland. The proposed project includes the removal of an existing parking lot with a total of 46 spaces, and the construction of a 2,000 square foot coffee shop with drive-through use and parking. The proposed access to the project site would be from one driveway along Tucker Avenue approximately 125 feet east of the intersection with International Blvd.

To evaluate the impacts on the transportation infrastructure due to the addition of traffic from the proposed project, two study intersections and one study segment were evaluated during the weekday morning and evening peak hours under two study scenarios. The study intersections were evaluated under Existing Conditions, and under Existing plus Project Conditions No Project and plus Project scenarios for Existing, and Background Conditions. The study intersections and segment were evaluated according to the standards of the City of Oakland.

The report also includes evaluations and recommendations concerning project site access and on-site circulation for vehicles, bicycles, and pedestrians; evaluation of on-site vehicle parking supply; and queuing analyses at the driveways and study intersections.

### **Project Trip Generation**

The proposed project is expected to generate a net of 1,510 daily trips in which 91 net trips are generated during the a.m. peak hour and 43 net trips are generated during the p.m. peak hour. The proposed trip generation includes discounts for peak hour pass-by trip reduction as per the Institute of Transportation Engineer's (ITE) *Trip Generation 10<sup>th</sup> Edition* (2017).

### **Existing Conditions**

Although Level of Service is no longer considered a significant impact, consultation of a past TIA report<sup>1</sup> in the City of Oakland showed that the City's LOS standard is LOS D for all un-signalized intersections and LOS E for all signalized intersections. All the study intersections operate within these standards or better during the a.m. and p.m. peak hours.

### **Existing plus Project Conditions**

After project trips are added, all the study intersections operate within standards of the City of Oakland. The project is expected to have a *less-than-significant* impact at the study intersections under Existing plus Project Conditions. Additionally, TJKM expects that the impact of the project on nearby Chandler Street in the Durant Square neighborhood will be negligible.

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<sup>1</sup> Traffic Impact Study for 1800 San Pablo Avenue, Oakland (2014)



**Queuing and Driveway Analysis**

The proposed project *does not create a significant impact* to the expected left-turn or right-turn queues at the study intersections. The project driveways are expected to operate at an acceptable LOS and the 95<sup>th</sup> percentile queuing at the outbound approach of the project driveways is expected to be minimal.

**Pedestrian, Bicycle and Transit Impacts**

The proposed project does not conflict with existing and planned pedestrian or bicycle facilities. The proposed project will add very few trips to the existing transit facilities, which can be accommodated by the existing transit capacity. Therefore, the impact to the pedestrian, bicycle and transit facilities is *less-than-significant*.

**On-Site Circulation**

TJKM examined the project site plan in order to evaluate the adequacy of on-site vehicle circulation including delivery trucks and emergency vehicles. Based on the evaluation, the proposed on-site vehicle circulation is adequate and should not result in significant impacts on City streets. Sight distance at the project driveway was reviewed and determined to be adequate for eastbound conflicting traffic. For westbound conflicting traffic, the shrubs in the median on Tucker Street may affect visibility; in this case TJKM recommends trimming the shrubs below the sight line of the driver.

**Parking**

According to the City of Oakland’s Planning Code, Chapter 17.116.080, the proposed project would be required to provide 4 parking spaces. A total of 14 spaces are planned, therefore the project is providing adequate parking.

**Table ES 1: Intersection Levels of Service Summary**

Intersection	Control	Peak Hour <sup>1</sup>	Existing Conditions			Existing plus Project Conditions		
			Average Delay <sup>2</sup>	LOS <sup>3</sup>	V/C <sup>4</sup>	Average Delay <sup>2</sup>	LOS <sup>3</sup>	V/C <sup>4</sup>
International Blvd/Tucker Street	Signalized	AM	5.3	A	0.26	12.0	B	0.34
		PM	7.2	A	0.57	9.0	A	0.58
Tucker Street/Project Driveway	Two-Way Stop	AM	7.2	A	0.01	8.7	A	0.01
		PM	8.9	A	0.01	9.9	A	0.01

Notes:

<sup>1</sup> AM – morning peak hour, PM – evening peak hour

<sup>2</sup> Average intersection delay expressed in seconds per vehicle for signalized intersections.

<sup>3</sup> LOS = Level of Service

<sup>4</sup> Volume/Capacity Ratio

**Bold** indicates unacceptable level of service

## INTRODUCTION

This report summarizes the results of the TIA for the proposed development located at the intersection of International Blvd. at Tucker Street/Bristol Blvd. in the City of Oakland. The proposed project includes the removal of an existing 47 space parking lot and the construction of a 2,000 square foot coffee shop with drive-through use.

Proposed access to the project site would be one driveway on Tucker Street approximately 125 feet east of the intersection with International Blvd.

This chapter discusses the TIA purpose, project study area, analysis scenarios and methods, and criteria used to identify significant impacts.

### STUDY INTERSECTIONS AND SCENARIOS

TJKM evaluated traffic conditions at two study intersections during the a.m. and p.m. peak hours for a typical weekday. The peak periods observed were between 7 - 9 a.m. and 4 - 6 p.m. The highest single one hour recorded for each period was used in the analysis. TJKM collected the counts at the study intersections during the a.m. and p.m. peak hours, during normal traffic days (notwithstanding the current COVID-19 pandemic). The study intersections and associated traffic controls are as follows:

1. International Blvd at Tucker St/Bristol Blvd (Signalized)
2. Tucker St at Project Driveway (Non-Signalized)

In addition, one 24-hour count was taken in the Durant Square residential development directly to the east of the project. The purpose was to measure potential cut through traffic along Chandler Street in response to resident concerns. The 24-hour count was taken at the following location:

1. Chandler St approximately 200 feet southeast of the intersection with Tucker St

**Figure 1** illustrates the study intersections/segment and the vicinity map of the proposed project. **Figure 2** shows the proposed project site plan. This study addresses the following two traffic scenarios:

- **Existing Conditions** – This scenario evaluates the study intersections based on existing traffic volumes, lane geometry and traffic controls.
- **Existing plus Project Conditions** – This scenario is identical to Existing Conditions, but with the addition of traffic from the proposed project.

Figure 1 : Vicinity Map

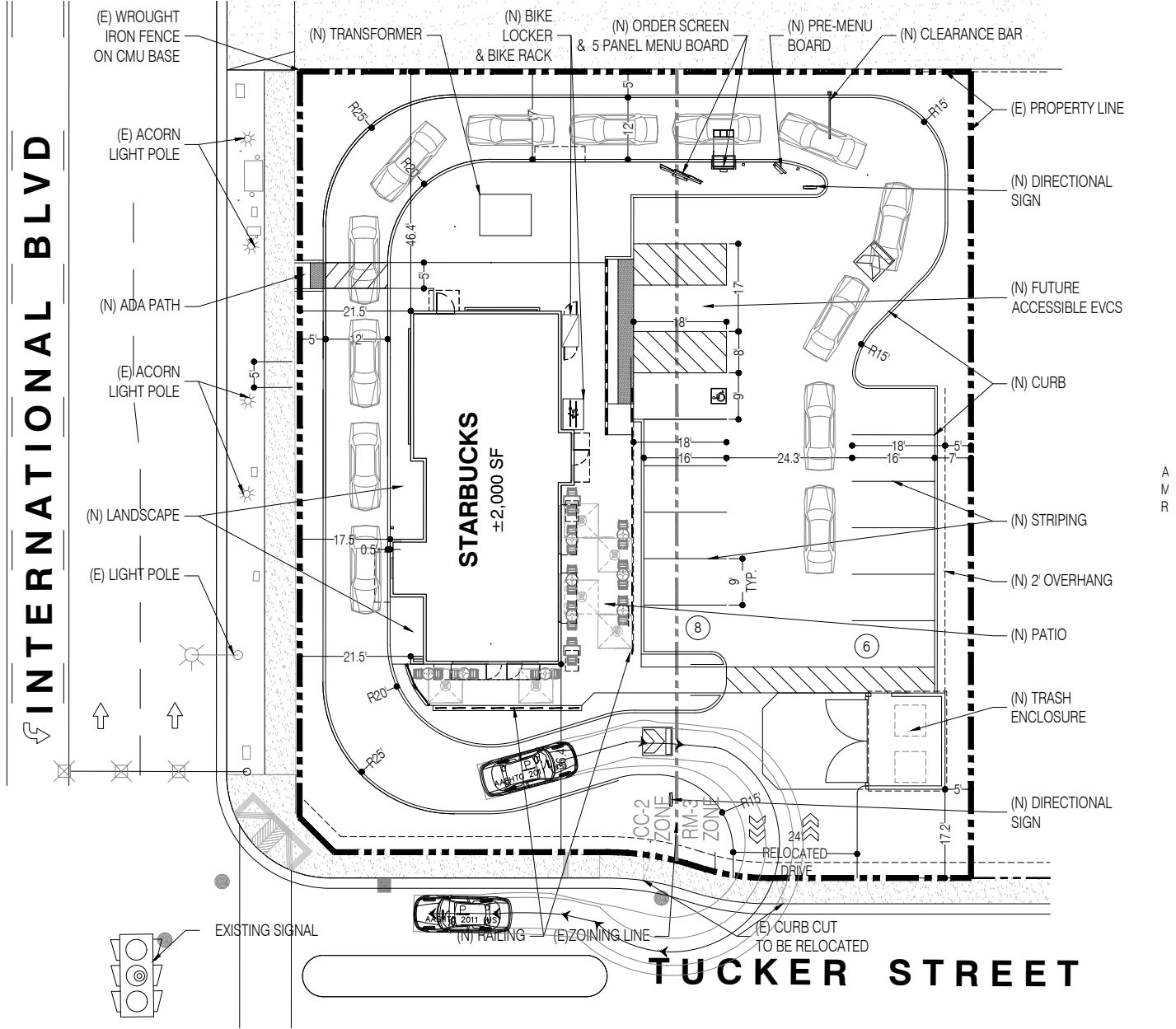


LEGEND

- Project Site
- Study Intersection
- Road Tube Traffic Count



Figure 2 : Project Site Plan



## STUDY METHODOLOGY

### LEVEL OF SERVICE ANALYSIS METHODOLOGY

LOS is a qualitative measure that describes operational conditions as they relate to the traffic stream and perceptions by motorists and passengers. LOS generally describes these conditions in terms of such factors as speed and travel time, delays, freedom to maneuver, traffic interruptions, comfort, convenience, and safety. The operational LOS are given letter designations from A to F, with A representing the best operating conditions (free-flow) and F the worst (severely congested flow with high delays). Intersections generally are the capacity-controlling locations with respect to traffic operations on arterial and collector streets in urban areas.

#### **Signalized Intersections**

The study intersections under traffic signal control was analyzed using the 2000 Highway Capacity Manual (HCM) Operations Methodology for signalized intersections described in Chapter 16 (HCM 2000), due to HCM 2010 not supporting exclusive pedestrian or hold phases at the one signalized study intersection. This methodology determines LOS based on average control delay per vehicle for the overall intersection during peak hour intersection operating conditions. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. The average control delay for signalized intersections was calculated using Synchro 10 analysis software and was correlated to a LOS designation as shown in **Table 1**.

#### **Unsignalized Intersections**

The study intersections under stop control (unsignalized) were analyzed using the 2010 HCM Operations Methodology for unsignalized intersections described in Chapter 20 (HCM 2010). LOS ratings for stop-sign controlled intersections are based on the average control delay expressed in seconds per vehicle. At the side street, one-way or two-way stop controlled intersections, the control delay is calculated for each movement, not for the intersection as a whole. For approaches composed of a single lane, the control delay is computed as the average of all movements in that lane. The average control delay for unsignalized intersections was calculated using Synchro 10 analysis software and was correlated to a LOS designation as shown in **Table 2**.

**Table 1: Level of Service Definitions for Signalized Intersections**

Level of Service	Description
A	Very low control delay, up to 10 seconds per vehicle. Progression is extremely favorable, and most vehicles arrive during the green phase. Many vehicles do not stop at all. Short cycle lengths may tend to contribute to low delay values.
B	Control delay greater than 10 and up to 20 seconds per vehicle. There is good progression or short cycle lengths or both. More vehicles stop causing higher levels of delay.
C	Control delay greater than 20 and up to 35 seconds per vehicle. Higher delays are caused by fair progression or longer cycle lengths or both. Individual cycle failures may begin to appear. Cycle failure occurs when a given green phase does not serve queued vehicles, and overflow occurs. The number of vehicles stopping is significant, though many still pass through the intersection without stopping.
D	Control delay greater than 35 and up to 55 seconds per vehicle. The influence of congestions becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volumes. Many vehicles stop, the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.
E	Control delay greater than 55 and up to 80 seconds per vehicle. The limit of acceptable delay. High delays usually indicate poor progression, long cycle lengths, and high volumes. Individual cycle failures are frequent.
F	Control delay in excess of 80 seconds per vehicle. Unacceptable to most drivers. Oversaturation, arrival flow rates exceed the capacity of the intersection. Many individual cycle failures. Poor progression and long cycle lengths may also be contributing factors to higher delay.

Source: Highway Capacity Manual 2000

**Table 2: Unsignalized Intersection Delay and LOS Definitions**

Level of Service	Description	Average Control Delay
A	Little or no traffic delay	≤10
B	Short Traffic delays	>10 – 15
C	Average traffic delays	>15 – 25
D	Long traffic delays	>25 – 35
E	Very long traffic delays	>35 – 50
F	Extreme traffic delays	>50

Source: Highway Capacity Manual 2010, Chapter 20 (Transportation Research Board, 2010)  
Average Control Delay per Vehicle in seconds

## **Roadway Segment**

Roadway segment level of service standards are generally used as long-range planning guidelines to determine the functional classification of roadways and are not always accurate indicators of roadway performance. Typically, the performance and level of service of a roadway segment is heavily influenced by the ability of intersections to accommodate peak hour volumes. Therefore, peak hour signalized and unsignalized intersections within the study area are the focus of the project traffic analysis summarized in this report since intersections control the movement of vehicles along road segments. The roadway segment volumes provided in this report are for information only.

## **SIGNIFICANT IMPACT CRITERIA/LEVEL OF SERVICE STANDARDS**

### **Signalized & Unsignalized Intersections**

The City of Oakland no longer has established LOS standards as it is no longer considered a significant impact under CEQA. However, consultation of a past TIA report<sup>2</sup> in the City of Oakland showed that the City's LOS standard is LOS D for all un-signalized intersections and LOS E for all signalized intersections. All the study intersections operate within these standards or better during the a.m. and p.m. peak hours.

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<sup>2</sup> Traffic Impact Study for 1800 San Pablo Avenue, Oakland (2014)



## EXISTING CONDITIONS

This section describes existing conditions in the immediate project site vicinity, including roadway facilities, bicycle and pedestrian facilities, and available transit service. In addition, existing traffic volumes and operations was presented for the study intersections, including the results of LOS calculations.

### EXISTING SETTING AND ROADWAY SYSTEM

Important roadways adjacent to the project site are discussed below:

**International Blvd. (SR-185)** within the project vicinity is a four-lane, north-south arterial. Two of the four lanes are dedicated bus-only lanes. International Blvd begins at Lake Merritt in downtown Oakland and continues until the San Leandro border, where it becomes E. 14<sup>th</sup> St.

**Tucker Street** within the project vicinity is a two-lane minor collector roadway. The roadway provides access from International Blvd. to the Durant Square residential development directly to the east.

**Chandler Street** within the project vicinity is a two-lane minor collector roadway. This roadway begins at Tucker Street and ends at Packard Street. It is used to access the Durant Square residential development.

### EXISTING PEDESTRIAN FACILITIES

Walkability is defined as the ability to travel easily and safely between various origins and destinations without having to rely on automobiles or other motorized travel. The ideal “walkable” community includes wide sidewalks, a mix of land uses such as residential, employment, and shopping opportunities, a limited number of conflict points with vehicle traffic, and easy access to transit facilities and services.

Pedestrian facilities include crosswalks, sidewalks, pedestrian signals, and off-street paths, which provide safe and convenient routes for pedestrians to access the destinations such as institutions, businesses, public transportation, and recreation facilities.

In the project vicinity, there are sidewalks available on International Blvd., Tucker Street, and Chandler Street. Crosswalks are available on all four legs of the International Blvd/Tucker Street intersection, along with pedestrian activated push buttons.

The existing pedestrian facilities in the study area are shown in **Figure 3**.

### EXISTING BICYCLE FACILITIES

Bicycle facilities include the following:

- Bike Paths (Class I) – Paved trails that are separated from roadways
- Bike Lanes (Class II) – Lanes on roadways designated for use by bicycles through striping, pavement legends and signs
- Buffered Bike Lanes (Class IIB) – Lanes on roadways designated for use by bicycles through striping, pavement legends, and signs, with painted buffers between the bike lane and travel lanes

- Bike Routes (Class III) – Designated roadways for bicycle use by signs or other markings which may or may not include additional pavement width for cyclists
- Protected Bike Lanes (Class IV) – Bike lanes with vertical delineation separating it from the travel lanes

Bicycle sharrow markings are provided on SB International Blvd towards San Leandro in the project vicinity. No dedicated bicycle facilities are provided on Tucker St or Chandler St.

The existing bicycle facilities in the study area are shown in **Figure 3**.

**EXISTING TRANSIT FACILITIES**

AC Transit operates bus service in the City of Oakland. The proposed project site is served by AC Transit Routes 1T and 45. The nearest 1T stops are at International Blvd. /Durant Street and International Blvd. /104<sup>th</sup> Avenue. The nearest Line 45 stop is at International Blvd at 105<sup>th</sup> Ave. These routes run on the weekdays and weekends. International Blvd in the project vicinity has two dedicated north-south bus lanes in the median of the roadway that serve Line 1T. The existing transit facilities are shown in **Figure 3**.

**Table 3** describes the services and frequency during the week and weekend for AC Transit bus routes.

**Table 3: Existing Transit Services**

Route	From	To	Weekdays		Weekends	
			Operating Hours	Headway (minutes)	Operating Hours	Headway (minutes)
1T	Uptown Oakland	San Leandro BART	24 hours	10-60	24 hours	10-30
45	Eastmont TC	Foothill Square	6:00 a.m.–10:59 p.m.	40	6:00 a.m.–10:59 p.m.	40

Source: AC Transit website

**EXISTING PEAK HOUR TRAFFIC VOLUMES**

The existing operations at the study intersections are evaluated for the highest one-hour volumes during weekday morning and evening peak periods. The peak periods observed were between 7 - 9 a.m. and 4 – 6 p.m. The highest single one hour recorded for each period was used in the analysis. TJKM collected the counts in March 2021 at the study intersection of International Blvd at Tucker St during both the a.m. and p.m. peak hours. Counts at Tucker Street at Project Driveway were conducted during the a.m. peak hour to determine volumes going in and out of the Goodwill/Foodmaxx driveway, then balanced with the counts taken at the intersection of International Blvd./Tucker Street just 125’ to the west. Counts in the p.m. peak hour for the Tucker Street/Project Driveway intersection were developed based on counts at the adjacent International Blvd. /Tucker Street intersection, and estimates of traffic expected to enter and exit the Foodmaxx shopping center. TJKM also collected one 24-hour count on Chandler Street approximately 200’ south of its intersection with Tucker Street.

**Appendix A** includes all the data sheets for the collected vehicular traffic counts. **Figure 4** illustrates the existing conditions lane geometry, traffic control and peak hour traffic volumes at the study intersections that were used in the analysis.

Figure 3 : Pedestrian, Bicycle and Transit Facility



LEGEND













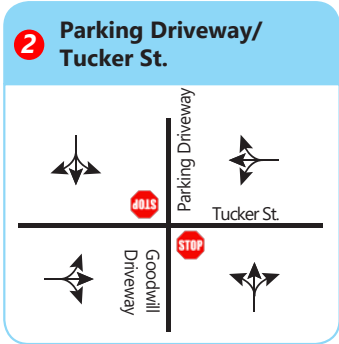
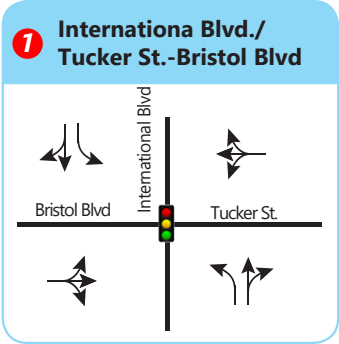
- |  |   |   |
|--|---|---|
|  Project Site       |  Existing Class III Bike Route |  Proposed Class II-B Bike Lane |
|  Study Intersection |  Proposed Class III Bike Route |  Bus Route No.                 |
|  Sidewalk           |  Existing Class II Bike Lane   |  Bus Route                     |
|  Crosswalk          |  Proposed Class II Bike Lane   |  Bus Stop                      |



Figure 4 : Existing Lane Geometry and Traffic Control



LEGEND

- Project Site
- X Study Intersection
- Traffic Signal
- Stop Sign
- Road Tube Traffic Count



INTERSECTION LEVEL OF SERVICE ANALYSIS – EXISTING CONDITIONS

The existing operations of the study intersections were evaluated for the highest one-hour volume during the weekday morning and evening peak periods. In accordance with City of Oakland guidelines, a peak hour factor of 1.00 was used at the study intersections for the existing analysis. The results of the LOS analysis using the Synchro software program for Existing Conditions are summarized in **Table 4**. **Figure 5** illustrates the existing vehicle turning movement volumes at the study intersections.

Under this scenario, both study intersections operate within City of Oakland standards during the a.m. and p.m. peak hours. LOS worksheets are provided in **Appendix B**.

**Table 4: Intersection Level of Service Analysis – Existing Conditions**

Intersection	Control	Peak Hour <sup>1</sup>	Existing Conditions		
			Average Delay <sup>2</sup>	LOS <sup>3</sup>	V/C <sup>4</sup>
International Blvd./Tucker Street	Signalized	AM	5.3	A	0.26
		PM	7.2	A	0.57
Tucker Street/Project Driveway	Two-Way Stop	AM	7.2	A	0.01
		PM	8.9	A	0.01

Notes:

<sup>1</sup>AM – morning peak hour, PM – evening peak hour

<sup>2</sup>Average intersection delay expressed in seconds per vehicle for signalized intersections.

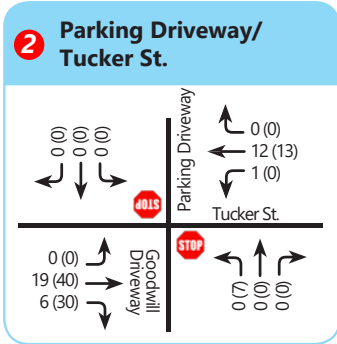
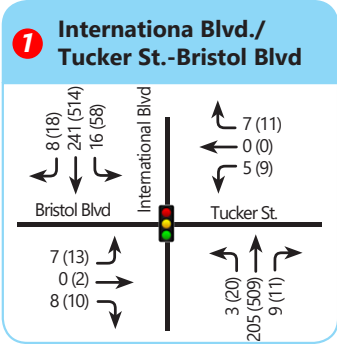
<sup>3</sup>LOS = Level of Service

<sup>4</sup>V/C - Volume-to-Capacity ratio

**Bold** indicates unacceptable level of service

In addition to the intersection LOS presented above, the 24-hour traffic count on Chandler Street observed a bi-directional total of 208 vehicles.

Figure 5 : Existing Conditions Traffic Volumes



LEGEND

- Project Site
- Traffic Signal
- Study Intersection
- Stop Sign
- Road Tube Traffic Count



## EXISTING PLUS PROJECT CONDITIONS

This analysis scenario presents the impacts of the proposed development at the study intersections and surrounding roadway system. This scenario is similar to Existing Conditions, but with the addition of traffic from the proposed project.

### PROPOSED PROJECT LOCATION AND DESCRIPTION

The proposed development is located at the northeast corner of the intersection of International Blvd at Tucker St/Bristol Blvd in the City of Oakland. The proposed project includes the removal of an existing 47 space parking lot and the construction of a 2,000 square foot coffee shop with drive-through use.

### PROJECT TRIP GENERATION

TJKM developed estimated project trip generation for the proposed project based on published trip generation rates from the ITE publication *Trip Generation (10<sup>th</sup> Edition)*. TJKM applied trip discounts to the proposed project trip generation that are consistent with City of Oakland standards.

Pass-by trips are made as intermediate stops on the way from an origin to a primary trip destination without a route diversion. Pass-by trips are attracted from traffic passing the site on an adjacent street or roadway that offers direct access to the generator. Pass-by trips are not diverted from another roadway. TJKM applied pass-by trip reduction as per ITE Trip Generation Manual, 9th Edition and ITE Trip Generation Manual, 9th Edition Volume 1: User's Guide and Handbook for coffee/donut shop with drive-thru window (ITE 937) a similar land use to the proposed project.

TJKM used published trip rates for the ITE land use Coffee/Donut Shop with Drive-Through Window (ITE Code 937) for this project. **Table 5** shows the trip generation expected to be generated by the proposed project. The proposed project is expected to generate a net 91 weekday a.m. peak hour trips (46 inbound trips, 44 outbound trips) and 43 weekday p.m. peak hour trips (21 inbound trips, 22 outbound trips).

**Table 5: Project Trip Generation**

	Land Use (ITE Code)	Size	Unit	Daily		A.M. Peak Hour				P.M. Peak Hour					
				Rate	Trips	Rate	In:Out	In	Out	Total	Rate	In:Out	In	Out	Total
<b>Proposed</b>	Coffee/Donut Shop with Drive-Through Window (937)	2	KSF	820.38	1,641	88.99	51:49	91	87	178	43.38	50:50	43	43	86
	Pass-by Trip Discount for Starbucks with Drive Through Window <sup>1</sup>				131	49%		44	43	87	50%		22	22	44
<b>Proposed Land Use Trips (A)</b>					<b>1,510</b>			<b>46</b>	<b>44</b>	<b>91</b>			<b>21</b>	<b>22</b>	<b>43</b>

Notes: Source - Institute of Transportation Engineers (ITE) Trip Generation Manual, 10th Edition, 2017;

KSF - Thousand Square Feet

<sup>1</sup>Pass-by Trip Discount used is based on fast-food restaurants with drive-thru window at similar land uses to the proposed project.



## PROJECT TRIP DISTRIBUTION AND ASSIGNMENT

Trip distribution is a process that determines in what proportion vehicles would be expected to travel between the project site and various destinations outside the project study area. Assignment determines the various routes that vehicles would take from the project site to each destination using the calculated trip distribution.

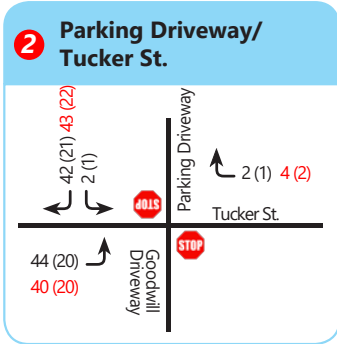
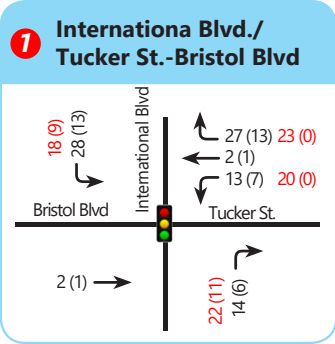
Trip distribution assumptions for the proposed project were developed based on the existing travel patterns and TJKM's knowledge of the study area.

The distribution assumptions are as follows:

- 60 percent to/from International Blvd north of project site
- 30 percent to/from International Blvd south of project site
- 5 percent to/from Tucker St east of project site
- 5 percent to/from Bristol Blvd west of project site

**Figure 6** illustrates the trip distribution percentages and trip assignment project volumes developed for the proposed project. The assigned project trips were then added to traffic volumes under Existing Conditions to generate Existing plus Project Conditions traffic demands.

Figure 6 : Trip Distribution & Assignment



LEGEND

- Project Site
- Traffic Signal
- AM Peak Hour Volumes
- AM Peak Pass-by Trips
- Road Tube Traffic Count
- Study Intersection
- Stop Sign
- PM Peak Hour Volumes
- PM Peak Pass-by Trips
- Trip Distribution



INTERSECTION LEVEL OF SERVICE ANALYSIS – EXISTING PLUS PROJECT CONDITIONS

Intersection levels of service were calculated with the addition of new traffic projected to be added by the proposed project to existing volumes to evaluate operating conditions at the study intersections and identify potential impacts to the roadway system. The results of the intersection level of service analysis for Existing plus Project Conditions are summarized in **Table 6**. Detailed calculation sheets for Existing plus Project Conditions are contained in **Appendix C**. The results for Existing Conditions are included for comparison purposes, along with the projected increases in delay and V/C ratios. The changes in delay between Existing and Existing plus Project Conditions are used to identify significant impacts. **Figure 7** shows projected turning movement volumes at the study intersection for Existing plus Project Conditions.

Under this scenario, both of the study intersections operate within acceptable standards. The project is expected to have a less-than-significant impact at the study intersections.

The results for Existing Conditions are included for comparison purposes, along with the projected increases in delay and V/C ratios.

**Table 6: Intersection Level of Service Analysis – Existing plus Project Conditions**

Intersection	Control	Peak Hour <sup>1</sup>	Existing Conditions			Existing plus Project Conditions			Change in Delay	Change in V/C
			Average Delay <sup>2</sup>	LOS <sup>3</sup>	V/C <sup>4</sup>	Average Delay <sup>2</sup>	LOS <sup>3</sup>	V/C <sup>4</sup>		
International Blvd./Tucker Street	Signalized	AM	5.3	A	0.26	12.0	B	0.34	6.7	0.08
		PM	7.2	A	0.57	9.0	A	0.58	1.8	0.01
Tucker Street/Project Driveway	Two-Way Stop	AM	7.2	A	0.01	8.7	A	0.08	1.5	0.07
		PM	8.9	A	0.01	9.9	A	0.01	1.0	0

Notes:

<sup>1</sup>AM – morning peak hour, PM – evening peak hour

<sup>2</sup>Average intersection delay expressed in seconds per vehicle for signalized intersections

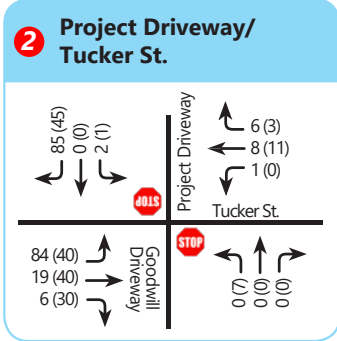
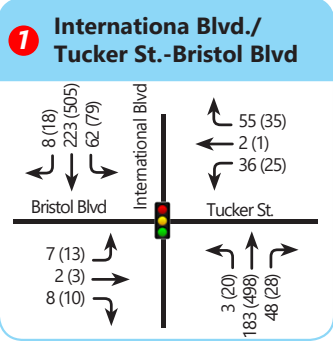
<sup>3</sup>LOS = Level of Service

<sup>4</sup>Volume/Capacity Ratio

**Bold** indicates unacceptable level of service

In addition to the LOS results presented above, TJKM observed that during the a.m. peak hour, a two-way total of 15 cars were observed on Chandler Street. It is expected that up to nine additional trips may be added to Chandler Street as a result of this project. In the p.m. peak hour, a bi-directional volume of 19 cars was observed; and up to eight trips may be added by the project. TJKM expects that the impact will be negligible due to the available capacity on this roadway.

Figure 7 : Existing plus Project Conditions Traffic Volumes



LEGEND

- Project Site
- Traffic Signal
- XX AM Peak Hour Volumes
- Road Tube Traffic Count
- Study Intersection
- Stop Sign
- (XX) PM Peak Hour Volumes
- Trip Distribution



## QUEUING AND DRIVEWAY ANALYSIS

### QUEUING ANALYSIS AT STUDY INTERSECTIONS

TJKM conducted a vehicle queuing and storage analysis for all exclusive left turn or right-turn pockets at the study intersections where project traffic is added under Existing plus Project Conditions. The 95<sup>th</sup> percentile (maximum) queues were analyzed using the HCM 2000 Queue methodology contained in Synchro software. Detailed calculations are included in the LOS appendices corresponding to each analysis scenario. **Table 7** summarizes the 95<sup>th</sup> percentile queue lengths at the study intersections under Existing and Existing plus Project Conditions scenarios.

**Table 7: 95<sup>th</sup> Percentile Queues at Turn Pockets Affected by Project Traffic**

Intersection	Lane Group	Storage Length per Lane	Existing Conditions		Existing plus Project Conditions		Change	
			AM	PM	AM	PM	AM	PM
International Blvd/Tucker St	EBLTR	-	0	20	15	23	15	3
	WBLTR	-	0	0	39	36	39	36
	NBL	85	6	19	6	21	0	2
	NBTR	-	64	184	74	214	10	30
	SBL	95	16	40	40	56	24	16
	SBTR	-	74	187	72	215	-2	28

Notes: Storage length and 95<sup>th</sup> percentile queue is expressed in feet per lane  
**Bold** indicates overflow

QUEUING AND LEVEL OF SERVICE ANALYSIS AT PROJECT DRIVEWAY

TJKM conducted a vehicle queuing and LOS analysis at the project driveway at Tucker Street. The 95<sup>th</sup> percentile (maximum) queues were analyzed using the HCM 2000 Queue methodology contained in Synchro software for the project driveway (as opposed to LOS, where HCM 2010 was used). **Table 8** summarizes the 95<sup>th</sup> percentile queue length and LOS at the project driveway under Existing plus Project scenario. As shown in **Table 8**, under Existing plus Project Conditions project driveways are expected to operate at an acceptable LOS. In addition, the 95th percentile queuing at the outbound approach of project driveways is expected to be minimal.

**Table 8: 95<sup>th</sup> Percentile Queues and Level of Service at Project Driveways**

Intersection	Control	Existing plus Project Conditions					
		AM			PM		
		Delay <sup>1</sup>	LOS <sup>2</sup>	95 <sup>th</sup> Percentile Queue (ft.) <sup>3</sup>	Delay <sup>1</sup>	LOS <sup>2</sup>	95 <sup>th</sup> Percentile Queue (ft.) <sup>3</sup>
Tucker Street at Project Driveway	Two-Way Stop	8.7	A	7	9.9	A	4

Notes:

<sup>1</sup>Delay = Average control delay in seconds per vehicle

<sup>2</sup>LOS = Level of Service

<sup>3</sup>Reported values of 95<sup>th</sup> percentile queues are for the outbound movements at the project driveways

## ADDITIONAL ANALYSIS

The following sections provide additional analyses of other transportation issues associated with the project site, including:

- Site access and impacts;
- On-site circulation and drive through queuing analysis
- Parking analysis;
- Travel Time runs

### SITE ACCESS

This section analyzes site access and internal circulation for vehicles, pedestrians and bicycles based on the site plan presented in **Figure 2** (dated July 21, 2020). TJKM reviewed internal and external access for the project site for vehicles, pedestrians, and bicycles.

#### Vehicle Access

Site access would be provided via one 26 foot wide driveway along Tucker Street relocated slightly to the east from the existing parking lot driveway. As shown in **Table 8** the access driveways are expected to be adequate for passenger vehicles accessing the site and the project driveways are expected to operate at an acceptable level of service. In addition, the 95<sup>th</sup> percentile queueing at the outbound approach of the project driveways is expected to be minimal. Sight distance for vehicles exiting the project driveway was evaluated. Based on prevailing speeds of 25 mph, the minimum required sight distance based on HCM Chapter 200 is 150 feet. Sight distance is adequate at the project driveway for westbound conflicting traffic. For eastbound conflicting traffic, sight distance may be partially obstructed by shrubs in the existing median on Tucker Street. Similarly, eastbound traffic approaching the driveway may have their view of the driveway partially obstructed due to the shrubs in the median of Tucker Street. However, it should be noted that as the driveway will only be slightly moved to the east, the project would not worsen existing sight distance issues. TJKM recommends that the shrubs be pruned to remove visual obstructions for vehicles exiting the driveway. Vehicle access to the project site is considered adequate and would not result in any significant impacts to the nearby roadways.

TJKM also examined the project site plan (**Figure 2**) in order to evaluate the adequacy of on-site circulation for vehicles, garbage trucks, delivery trucks and emergency vehicles. All circulation aisles accommodate two-way travel and the turning radii appears to be adequate for the garbage trucks and delivery trucks. Emergency vehicles can access the project via the proposed driveway on Tucker Street. Overall, the proposed on-site vehicle circulation is adequate and should not result in any significant impacts on City streets.

#### Pedestrian Access

Existing sidewalks on International Blvd and Tucker Street will facilitate pedestrian access to the project site. In the project vicinity, the study intersection of International Blvd at Tucker Street has crosswalks. There are continuous sidewalks present on International Blvd, Tucker Street, and Chandler Street along

both sides within the project vicinity. There is adequate street lighting in the vicinity. All the bus stops are accessible to and from the project site via existing sidewalks and crosswalks within the vicinity of the project site.

A significant impact occurs if the proposed project conflicts with applicable or adopted policies, plans or programs related to pedestrians facilities or otherwise decrease the performance or safety of pedestrian facilities. The proposed project will not result in any significant impacts to existing or planned pedestrian facilities in the immediate project vicinity because of the absence of such conflicts.

### **Bicycle Access**

In terms of bicycle access to the project site, bicycle sharrows are provided along SB International Blvd toward San Leandro. No dedicated bicycle facilities exist on Tucker Street and Chandler Street. Additionally, the project is providing an ADA accessible connection from the sidewalk on International Blvd, and bike racks/locker. An impact to bicyclists occurs if the proposed project disrupt existing bicycle facilities; or conflict or create inconsistencies with adopted bicycle system plans, guidelines, and policies. A significant impact occurs if the proposed project conflicts with applicable or adopted policies, plans or programs related to bicycle facilities or otherwise decrease the performance or safety of bicycle facilities. The proposed project will not result in any significant impacts to existing or planned bicycle facilities in the immediate vicinity of the project because of the absence of such conflicts.

### **Transit**

A proposed project is considered to have a significant impact on transit if it conflicts with existing or planned transit facilities, or is expected to generate additional transit trips and does not provide adequate facilities for pedestrians and bicyclists to access transit routes and stops. The project site is adequately served by the transit service. Spread among multiple bus routes, the existing transit service can accommodate the proposed demand. Additional trips generated by the proposed project could be accommodated by existing bus services. Therefore, impacts to transit service are expected to be *less than significant*.

### **ON-SITE CIRCULATION AND DRIVE-THROUGH QUEUING ANALYSIS**

The proposed access will be via one 26-foot wide driveway along Tucker Street, relocated slightly to the east from the existing parking lot driveway. The vehicles will be entering the proposed project by making right or left turns and exiting by making right or left turns at the proposed driveway on Tucker Street. The proposed project provides a single drive through lane as shown in the site plan in **Figure 2**. The entrance to the drive thru will be at the north-end of the parking lot, and the exit will be directly adjacent to the project driveway at Tucker Street on the south side of the coffee shop building. As shown in the site plan, the drive-through accommodates nine vehicles total, with space for an additional seven vehicles to queue before spilling out of the full access driveway onto Tucker Street (though these seven vehicles could temporarily block Starbucks parking spaces).

TJKM has conducted queuing studies of similar existing facilities throughout northern California. The studies were made in Dixon, Vacaville, Fairfield, Fremont, Newark, Marin City, Palo Alto and Sunnyvale. Thirteen observations were made at nine locations in these eight cities and were surveyed during various



times of the day, Observations were conducted at five or ten minute intervals with the maximum length of queue recorded. In all surveys, the peak time of the day is typically between 7:15 and 8:45 a.m. An estimated total of about 264 separate observations were made. In some locations TJKM observed vehicles served during the observations. More than 800 vehicles passed through the drive up windows during the surveys, at an estimated service time per vehicle of 68 seconds. The average maximum queue observed during all observations was 11.5 vehicles. During these 264 observations, there were only seven instances where the queue was greater than 12 vehicles. This included two instances of 15-vehicle queues, three at 14 vehicles, and two at 13 vehicles. Because of these observations, TJKM typically recommends space for 12 vehicles. In this case, it is estimated that up to 16 vehicles (nine in the driveway itself and an additional seven in the parking lot) can queue before spilling out of the driveway onto Tucker Street. Therefore, on-site queueing should be adequate.

### PARKING ANALYSIS

TJKM reviewed the proposed number of parking spaces to ensure that they meet the minimum City requirements. According to the City of Oakland’s Planning Code, Chapter 17.116.080, the proposed project would be required to provide 4 parking spaces. A total of 14 spaces are planned, therefore the project is providing adequate parking.

### TRAVEL TIME RUNS

To assess potential travel times of cut-through traffic through the Durant Square residential development directly to the east of the proposed project, TJKM conducted travel time runs of two potential routes to the proposed Starbucks. Both routes begin at the corner of Durant Ave and Breed Ave. Route A includes utilizing Durant Ave and International Blvd to access the project site, while Route B utilizes Packard Street, Chandler Street, and Tucker Street to access the project site. Five runs in each direction on each route were conducted during the AM peak period when the proposed Starbucks would normally be busy. **Table 9** shows the results for informational purposes:

**Table 9: Travel Time Results**

Route	Inbound Time (Min:Sec)	Outbound Time (Min:Sec)
Route A (Durant & International)	1:19	2:53
Route B (Packard, Chandler, and Tucker)	1:25	1:39

It should be noted that TJKM feels the main utilization of each route will be the inbound movement, therefore there is not a time savings advantage to using the residential streets to access the proposed project site. It can also be observed that most traffic will be coming from International Blvd, not local side streets as shown in the existing volumes in **Figure 5**. This should minimize any cut-through traffic using the neighborhood streets to the east of the site.

## SUMMARY OF SITE CONDITIONS

At this location, it would require 16 vehicles for the vehicle queue in the drive-thru to reach Tucker Street. In 264 observations of existing Starbucks drive-thru locations, TJKM has never observed a queue greater than 15 vehicles (A summary of TJKM's eight-city survey is described on pages 25 and 26). Given these observations, and because this project will not generate enough traffic to create excess vehicle queues on either Tucker Street or International Boulevard, it is unlikely that the project would cause an obstruction of Tucker Street. As noted in Table 6 on page 20 of this report the addition of project traffic at Tucker and International will add between two and seven seconds of delay to existing traffic patterns (LOS B) at Tucker and International, and the intersection of Tucker and the project driveway will continue to operate with free-flowing traffic conditions (LOS A). Page 22 also shows that new project traffic will not exceed available road space in travel lane queue areas. Because queues are not exceeded and because the LOS analysis shows that traffic will move at close to free-flow conditions, it is highly unlikely that new project traffic will impede resident or emergency access.

## CONCLUSIONS

- The proposed project is expected to generate a net of 1,510 daily trips in which 91 net trips are generated during the a.m. peak hour and 43 net trips are generated during the p.m. peak hour. The proposed trip generation includes discounts for existing site use and peak hour pass-by trip reduction as per the Institute of Transportation Engineer's (ITE) *Trip Generation 10<sup>th</sup> Edition* (2017).
- Under Existing Conditions, all the study intersections operate within standards of the City of Oakland or better during the a.m. and p.m. peak hours.
- Under Existing plus Project Conditions, study intersections operate within appropriate standards during both the a.m. and p.m. peak hours.
- Based on the City of Oakland standards, the project is expected to have a *less-than-significant* impact at the study intersections under Existing plus Project Conditions.
- The project driveway is expected to operate at an acceptable LOS and the 95<sup>th</sup> percentile queueing at the outbound approach of project driveway is expected to be minimal.
- The proposed project does not conflict with existing and planned pedestrian or bicycle facilities. The proposed project will add very few trips to the existing transit facilities, which can be accommodated by the existing transit capacity. The project proposes to include bicycle racks and a locker. Therefore, the impact to the pedestrian, bicycle and transit facilities is *less-than-significant*.
- TJKM examined the project site plan in order to evaluate the adequacy of on-site vehicle circulation including delivery trucks and emergency vehicles. The project's access will be via one driveway along Tucker Street. Based on the evaluation, the proposed on-site vehicle circulation is adequate and should not result in significant impacts on City streets.
- Based on TJKM's experience with queueing at Starbucks drive thru locations, the project is expected to have adequate space to accommodate on-site queueing. Because queues are not exceeded and because the LOS analysis shows that traffic will move at close to free-flow conditions, it is highly unlikely that new project traffic will impede resident or emergency access.
- Based on the project site plan, 14 parking spaces will be provided for the proposed project. The City of Oakland Planning Code requires 4 spaces, therefore the number of proposed parking spaces will be adequate.
- Travel time runs were conducted on two potential routes to the Starbucks from the adjacent residential area to the east. The most critical utilization will be the inbound route, where it was shown to be faster to utilize International Blvd via Durant Street rather than residential side streets.
- In order to improve the sight distance near the driveway the existing shrubs in the median along Tucker Street may need to be trimmed to a maximum height of three feet.

**Appendix A – Traffic Counts Sheets**

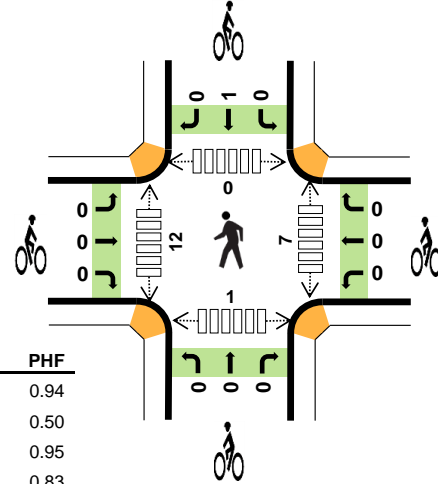
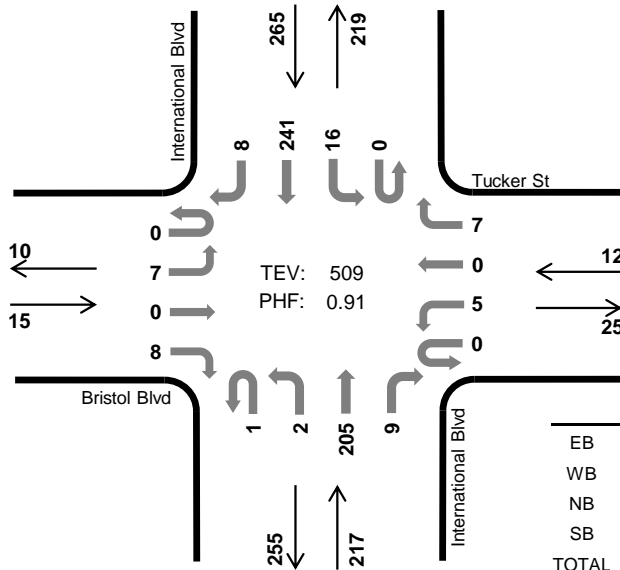
### International Blvd Tucker St



Date: 03-02-2021

Count Period: 7:00 AM to 9:00 AM

Peak Hour: 8:00 AM to 9:00 AM



	HV %:	PHF
EB	0.0%	0.94
WB	0.0%	0.50
NB	6.5%	0.95
SB	6.4%	0.83
TOTAL	6.1%	0.91

#### Two-Hour Count Summaries

Interval Start	Bristol Blvd				Tucker St				International Blvd				International Blvd				15-min Total	Rolling One Hour	
	Eastbound				Westbound				Northbound				Southbound						
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT			
7:00 AM	0	0	0	3	0	1	0	1	0	1	29	1	0	2	41	0	79	0	
7:15 AM	0	0	0	3	0	3	0	1	0	0	36	1	0	0	52	0	96	0	
7:30 AM	0	1	0	2	0	2	0	2	0	0	49	2	0	1	56	0	115	0	
7:45 AM	0	2	0	5	0	2	1	3	0	1	41	2	0	5	75	0	137	427	
<b>8:00 AM</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>2</b>	<b>47</b>	<b>4</b>	<b>0</b>	<b>3</b>	<b>56</b>	<b>0</b>	<b>122</b>	<b>470</b>	
8:15 AM	0	3	0	1	0	1	0	3	0	0	52	3	0	3	53	2	121	495	
8:30 AM	0	1	0	3	0	0	0	2	0	0	52	0	0	2	63	3	126	506	
<b>8:45 AM</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>54</b>	<b>2</b>	<b>0</b>	<b>8</b>	<b>69</b>	<b>3</b>	<b>140</b>	<b>509</b>	
Count Total	0	10	0	21	0	13	1	14	1	4	360	15	0	24	465	8	936	0	
Peak Hour	All	0	7	0	8	0	5	0	7	1	2	205	9	0	16	241	8	509	0
	HV	0	0	0	0	0	0	0	0	0	0	14	0	0	0	17	0	31	0
	HV%	-	0%	-	0%	-	0%	-	0%	0%	0%	7%	0%	-	0%	7%	0%	6%	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	0	0	2	1	3	0	0	0	2	2	0	0	0	0	0
7:15 AM	0	0	3	4	7	0	1	2	0	3	0	6	0	0	6
7:30 AM	0	0	5	3	8	0	0	0	1	1	1	3	0	0	4
7:45 AM	0	0	3	3	6	0	0	0	0	0	0	3	1	0	4
<b>8:00 AM</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>3</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>2</b>
8:15 AM	0	0	4	3	7	0	0	0	0	0	3	4	0	0	7
8:30 AM	0	0	5	5	10	0	0	0	0	0	4	3	0	0	7
<b>8:45 AM</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>6</b>	<b>9</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>4</b>
Count Total	0	0	27	28	55	0	1	2	4	7	8	24	1	1	34
Peak Hour	0	0	14	17	31	0	0	0	1	1	7	12	0	1	20

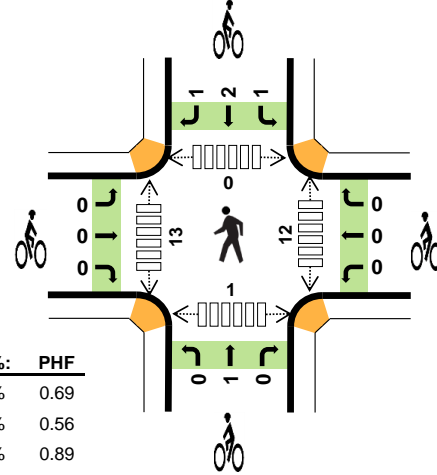
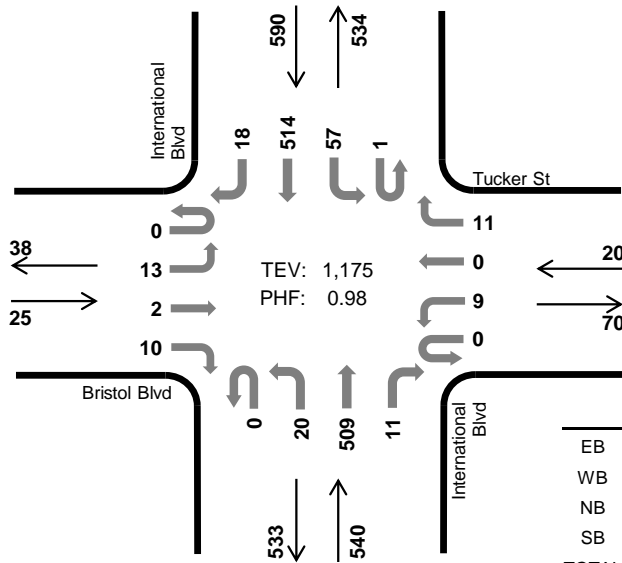
<b>Two-Hour Count Summaries - Heavy Vehicles</b>																		
Interval Start	Bristol Blvd				Tucker St				International Blvd				International Blvd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	3	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	4	0	7	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	5	0	0	0	3	0	8	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	0	6	24
8:00 AM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	3	0	5	26
8:15 AM	0	0	0	0	0	0	0	0	0	0	4	0	0	0	3	0	7	26
8:30 AM	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	10	28
8:45 AM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	6	0	9	31
Count Total	0	0	0	0	0	0	0	0	0	0	27	0	0	0	28	0	55	0
Peak Hour	0	0	0	0	0	0	0	0	0	0	14	0	0	0	17	0	31	0
<b>Two-Hour Count Summaries - Bikes</b>																		
Interval Start	Bristol Blvd			Tucker St			International Blvd			International Blvd			15-min Total	Rolling One Hour				
	Eastbound			Westbound			Northbound			Southbound								
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT						
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	0		
7:15 AM	0	0	0	0	0	1	0	2	0	0	0	0	0	0	3	0		
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0		
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6		
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4		
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1		
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1		
Count Total	0	0	0	0	0	1	0	2	0	0	3	1	7	0				
Peak Hour	0	0	0	0	0	0	0	0	0	0	1	0	1	0				
<i>Note: U-Turn volumes for bikes are included in Left-Turn, if any.</i>																		

## International Blvd Tucker St



Peak Hour

Date: 03-02-2021  
Count Period: 4:00 PM to 6:00 PM  
Peak Hour: 4:45 PM to 5:45 PM



	HV %:	PHF
EB	0.0%	0.69
WB	0.0%	0.56
NB	1.7%	0.89
SB	1.4%	0.89
TOTAL	1.4%	0.98

### Two-Hour Count Summaries

Interval Start	Bristol Blvd				Tucker St				International Blvd Northbound				International Blvd Southbound				15-min Total	Rolling One Hour	
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT			
4:00 PM	0	4	0	2	0	7	0	1	0	8	138	2	1	8	120	2	293	0	
4:15 PM	0	4	0	3	0	3	0	4	0	3	110	4	0	10	131	5	277	0	
4:30 PM	0	5	0	2	0	3	0	0	0	6	119	3	1	10	109	3	261	0	
4:45 PM	0	3	1	2	0	1	0	2	0	4	137	3	0	9	127	2	291	1,122	
5:00 PM	0	3	0	3	0	2	0	2	0	8	115	2	1	16	145	4	301	1,130	
5:15 PM	0	5	1	3	0	4	0	5	0	2	112	5	0	18	130	6	291	1,144	
5:30 PM	0	2	0	2	0	2	0	2	0	6	145	1	0	14	112	6	292	1,175	
5:45 PM	0	4	0	3	0	4	0	5	0	3	120	4	0	15	115	4	277	1,161	
Count Total	0	30	2	20	0	26	0	21	0	40	996	24	3	100	989	32	2,283	0	
Peak Hour	All	0	13	2	10	0	9	0	11	0	20	509	11	1	57	514	18	1,175	0
	HV	0	0	0	0	0	0	0	0	0	0	8	1	0	0	8	0	17	0
	HV%	-	0%	0%	0%	-	0%	-	0%	-	0%	2%	9%	0%	0%	2%	0%	1%	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	0	2	3	5	0	0	0	1	1	2	4	1	0	7
4:15 PM	0	0	3	2	5	0	0	0	1	1	3	3	0	3	9
4:30 PM	0	0	3	2	5	0	2	2	1	5	4	2	0	0	6
4:45 PM	0	0	2	3	5	0	0	1	0	1	1	4	0	0	5
5:00 PM	0	0	2	2	4	0	0	0	2	2	6	2	0	1	9
5:15 PM	0	0	3	2	5	0	0	0	0	0	2	4	0	0	6
5:30 PM	0	0	2	1	3	0	0	0	2	2	3	3	0	0	6
5:45 PM	0	0	2	4	6	0	0	0	0	0	5	2	1	6	14
Count Total	0	0	19	19	38	0	2	3	7	12	26	24	2	10	62
Peak Hour	0	0	9	8	17	0	0	1	4	5	12	13	0	1	26

<b>Two-Hour Count Summaries - Heavy Vehicles</b>																		
Interval Start	Bristol Blvd				Tucker St				International Blvd				International Blvd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	3	0	5	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	2	0	5	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	2	0	5	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	3	0	5	20
5:00 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	4	19
5:15 PM	0	0	0	0	0	0	0	0	0	0	2	1	0	0	2	0	5	19
5:30 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	3	17
5:45 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	3	1	6	18
Count Total	0	0	0	0	0	0	0	0	0	0	18	1	0	0	18	1	38	0
Peak Hour	0	0	0	0	0	0	0	0	0	0	8	1	0	0	8	0	17	0
<b>Two-Hour Count Summaries - Bikes</b>																		
Interval Start	Bristol Blvd			Tucker St			International Blvd			International Blvd			15-min Total	Rolling One Hour				
	Eastbound			Westbound			Northbound			Southbound								
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT						
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	
4:30 PM	0	0	0	0	1	1	0	2	0	0	1	0	0	1	0	5	0	
4:45 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	8	
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	9	
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	5	
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	
Count Total	0	0	0	0	1	1	0	3	0	0	1	4	2	12	0	12	0	
Peak Hour	0	0	0	0	0	0	0	1	0	0	1	2	1	5	0	5	0	
<i>Note: U-Turn volumes for bikes are included in Left-Turn, if any.</i>																		





Location: Chandler St, South of Tucker St  
 Date Range: 3/2/2021 - 3/8/2021  
 Site Code: 01

Time	Tuesday			Wednesday			Thursday			Friday			Saturday			Sunday			Monday			Mid-Week Average					
	3/2/2021			3/3/2021			3/4/2021			3/5/2021			3/6/2021			3/7/2021			3/8/2021								
	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total			
12:00 AM	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0
1:00 AM	0	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	2	2
2:00 AM	0	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	1	1
3:00 AM	0	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	3	3
4:00 AM	1	0	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0	1
5:00 AM	1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	2
6:00 AM	1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	2
7:00 AM	8	6	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	6	14
8:00 AM	7	8	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7	8	15
9:00 AM	3	4	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	4	7
10:00 AM	1	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	3	4
11:00 AM	6	7	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	7	13
12:00 PM	5	6	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	6	11
1:00 PM	8	8	16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	8	16
2:00 PM	6	13	19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	13	19
3:00 PM	11	8	19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11	8	19
4:00 PM	4	7	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	7	11
5:00 PM	8	13	21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	13	21
6:00 PM	6	10	16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	10	16
7:00 PM	4	13	17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	13	17
8:00 PM	1	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	3	4
9:00 PM	3	2	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	2	5
10:00 PM	1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	2
11:00 PM	1	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2	3
Total	86	122	208	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	86	122	208
Percent	41%	59%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	41%	59%	-
AM Peak	07:00	08:00	08:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	07:00	08:00	08:00
Vol.	8	8	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	8	15
PM Peak	15:00	14:00	17:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15:00	14:00	17:00
Vol.	11	13	21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11	13	21

1. Mid-week average includes data between Tuesday and Thursday.

# Vehicle Classification Report Summary



**Location:** Chandler St, South of Tucker St  
**Count Direction:** Northbound / Southbound  
**Date Range:** 3/2/2021 to 3/2/2021  
**Site Code:** 01

	FHWA Vehicle Classification													Total Volume
	1	2	3	4	5	6	7	8	9	10	11	12	13	
<b>Study Total</b>														
<b>Northbound</b>	1	75	7	0	3	0	0	0	0	0	0	0	0	86
<b>Percent</b>	1.2%	87.2%	8.1%	0.0%	3.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100%
<b>Southbound</b>	3	101	16	0	2	0	0	0	0	0	0	0	0	122
<b>Percent</b>	2.5%	82.8%	13.1%	0.0%	1.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100%
<b>Total</b>	4	176	23	0	5	0	0	0	0	0	0	0	0	208
<b>Percent</b>	1.9%	84.6%	11.1%	0.0%	2.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100%

<b>FHWA Vehicle Classification</b>	
Class 1 - Motorcycles	Class 8 - Four or Fewer Axle Single-Trailer Trucks
Class 2 - Passenger Cars	Class 9 - Five-Axle Single-Trailer Trucks
Class 3 - Other Two-Axle, Four-Tire Single Unit Vehicles	Class 10 - Six or More Axle Single-Trailer Trucks
Class 4 - Buses	Class 11 - Five or fewer Axle Multi-Trailer Trucks
Class 5 - Two-Axle, Six-Tire, Single-Unit Trucks	Class 12 - Six-Axle Multi-Trailer Trucks
Class 6 - Three-Axle Single-Unit Trucks	Class 13 - Seven or More Axle Multi-Trailer Trucks
Class 7 - Four or More Axle Single-Unit Trucks	

**Location:** Chandler St, South of Tucker St  
**Date Range:** 3/2/2021 to 3/2/2021  
**Site Code:** 01

**Tuesday, March 2, 2021**  
**Northbound**

Time	FHWA Vehicle Classification													Total Volume	
	1	2	3	4	5	6	7	8	9	10	11	12	13		
12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
5:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
6:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
7:00 AM	0	8	0	0	0	0	0	0	0	0	0	0	0	0	8
8:00 AM	0	7	0	0	0	0	0	0	0	0	0	0	0	0	7
9:00 AM	0	2	1	0	0	0	0	0	0	0	0	0	0	0	3
10:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
11:00 AM	0	4	2	0	0	0	0	0	0	0	0	0	0	0	6
12:00 PM	0	5	0	0	0	0	0	0	0	0	0	0	0	0	5
1:00 PM	0	7	0	0	1	0	0	0	0	0	0	0	0	0	8
2:00 PM	0	5	0	0	1	0	0	0	0	0	0	0	0	0	6
3:00 PM	0	9	1	0	1	0	0	0	0	0	0	0	0	0	11
4:00 PM	0	4	0	0	0	0	0	0	0	0	0	0	0	0	4
5:00 PM	1	6	1	0	0	0	0	0	0	0	0	0	0	0	8
6:00 PM	0	5	1	0	0	0	0	0	0	0	0	0	0	0	6
7:00 PM	0	4	0	0	0	0	0	0	0	0	0	0	0	0	4
8:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
9:00 PM	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
10:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
11:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
<b>Total</b>	<b>1</b>	<b>75</b>	<b>7</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>86</b>
<b>Percent</b>	<b>1.2%</b>	<b>87.2%</b>	<b>8.1%</b>	<b>0.0%</b>	<b>3.5%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	

**Location:** Chandler St, South of Tucker St  
**Date Range:** 3/2/2021 to 3/2/2021  
**Site Code:** 01

**Tuesday, March 2, 2021**  
**Southbound**

Time	FHWA Vehicle Classification													Total Volume	
	1	2	3	4	5	6	7	8	9	10	11	12	13		
12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 AM	0	1	1	0	0	0	0	0	0	0	0	0	0	0	2
2:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
3:00 AM	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
4:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
6:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
7:00 AM	0	6	0	0	0	0	0	0	0	0	0	0	0	0	6
8:00 AM	0	7	1	0	0	0	0	0	0	0	0	0	0	0	8
9:00 AM	0	3	1	0	0	0	0	0	0	0	0	0	0	0	4
10:00 AM	0	1	2	0	0	0	0	0	0	0	0	0	0	0	3
11:00 AM	0	6	1	0	0	0	0	0	0	0	0	0	0	0	7
12:00 PM	0	5	1	0	0	0	0	0	0	0	0	0	0	0	6
1:00 PM	0	7	0	0	1	0	0	0	0	0	0	0	0	0	8
2:00 PM	1	10	2	0	0	0	0	0	0	0	0	0	0	0	13
3:00 PM	0	7	1	0	0	0	0	0	0	0	0	0	0	0	8
4:00 PM	0	6	1	0	0	0	0	0	0	0	0	0	0	0	7
5:00 PM	2	9	1	0	1	0	0	0	0	0	0	0	0	0	13
6:00 PM	0	9	1	0	0	0	0	0	0	0	0	0	0	0	10
7:00 PM	0	12	1	0	0	0	0	0	0	0	0	0	0	0	13
8:00 PM	0	1	2	0	0	0	0	0	0	0	0	0	0	0	3
9:00 PM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
10:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
11:00 PM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
<b>Total</b>	<b>3</b>	<b>101</b>	<b>16</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>122</b>
<b>Percent</b>	<b>2.5%</b>	<b>82.8%</b>	<b>13.1%</b>	<b>0.0%</b>	<b>1.6%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	

**Location:** Chandler St, South of Tucker St  
**Date Range:** 3/2/2021 to 3/2/2021  
**Site Code:** 01

**Total Study Average**  
**Northbound**

Time	FHWA Vehicle Classification													Total Volume	
	1	2	3	4	5	6	7	8	9	10	11	12	13		
12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
5:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
6:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
7:00 AM	0	8	0	0	0	0	0	0	0	0	0	0	0	0	8
8:00 AM	0	7	0	0	0	0	0	0	0	0	0	0	0	0	7
9:00 AM	0	2	1	0	0	0	0	0	0	0	0	0	0	0	3
10:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
11:00 AM	0	4	2	0	0	0	0	0	0	0	0	0	0	0	6
12:00 PM	0	5	0	0	0	0	0	0	0	0	0	0	0	0	5
1:00 PM	0	7	0	0	1	0	0	0	0	0	0	0	0	0	8
2:00 PM	0	5	0	0	1	0	0	0	0	0	0	0	0	0	6
3:00 PM	0	9	1	0	1	0	0	0	0	0	0	0	0	0	11
4:00 PM	0	4	0	0	0	0	0	0	0	0	0	0	0	0	4
5:00 PM	1	6	1	0	0	0	0	0	0	0	0	0	0	0	8
6:00 PM	0	5	1	0	0	0	0	0	0	0	0	0	0	0	6
7:00 PM	0	4	0	0	0	0	0	0	0	0	0	0	0	0	4
8:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
9:00 PM	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
10:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
11:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
<b>Total</b>	<b>1</b>	<b>75</b>	<b>7</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>86</b>
<b>Percent</b>	<b>1.2%</b>	<b>87.2%</b>	<b>8.1%</b>	<b>0.0%</b>	<b>3.5%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	

Note: Average only considered on days with 24-hours of data.

**Location:** Chandler St, South of Tucker St  
**Date Range:** 3/2/2021 to 3/2/2021  
**Site Code:** 01

**Total Study Average**  
**Southbound**

Time	FHWA Vehicle Classification													Total Volume	
	1	2	3	4	5	6	7	8	9	10	11	12	13		
12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 AM	0	1	1	0	0	0	0	0	0	0	0	0	0	0	2
2:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
3:00 AM	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
4:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
6:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
7:00 AM	0	6	0	0	0	0	0	0	0	0	0	0	0	0	6
8:00 AM	0	7	1	0	0	0	0	0	0	0	0	0	0	0	8
9:00 AM	0	3	1	0	0	0	0	0	0	0	0	0	0	0	4
10:00 AM	0	1	2	0	0	0	0	0	0	0	0	0	0	0	3
11:00 AM	0	6	1	0	0	0	0	0	0	0	0	0	0	0	7
12:00 PM	0	5	1	0	0	0	0	0	0	0	0	0	0	0	6
1:00 PM	0	7	0	0	1	0	0	0	0	0	0	0	0	0	8
2:00 PM	1	10	2	0	0	0	0	0	0	0	0	0	0	0	13
3:00 PM	0	7	1	0	0	0	0	0	0	0	0	0	0	0	8
4:00 PM	0	6	1	0	0	0	0	0	0	0	0	0	0	0	7
5:00 PM	2	9	1	0	1	0	0	0	0	0	0	0	0	0	13
6:00 PM	0	9	1	0	0	0	0	0	0	0	0	0	0	0	10
7:00 PM	0	12	1	0	0	0	0	0	0	0	0	0	0	0	13
8:00 PM	0	1	2	0	0	0	0	0	0	0	0	0	0	0	3
9:00 PM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
10:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
11:00 PM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
<b>Total</b>	<b>3</b>	<b>101</b>	<b>16</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>122</b>
<b>Percent</b>	<b>2.5%</b>	<b>82.8%</b>	<b>13.1%</b>	<b>0.0%</b>	<b>1.6%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	

Note: Average only considered on days with 24-hours of data.

**Location:** Chandler St, South of Tucker St  
**Date Range:** 3/2/2021 to 3/2/2021  
**Site Code:** 01

**3-Day (Tuesday - Thursday) Average**  
**Northbound**

Time	FHWA Vehicle Classification													Total Volume
	1	2	3	4	5	6	7	8	9	10	11	12	13	
12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	1
5:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	1
6:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	1
7:00 AM	0	8	0	0	0	0	0	0	0	0	0	0	0	8
8:00 AM	0	7	0	0	0	0	0	0	0	0	0	0	0	7
9:00 AM	0	2	1	0	0	0	0	0	0	0	0	0	0	3
10:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	1
11:00 AM	0	4	2	0	0	0	0	0	0	0	0	0	0	6
12:00 PM	0	5	0	0	0	0	0	0	0	0	0	0	0	5
1:00 PM	0	7	0	0	1	0	0	0	0	0	0	0	0	8
2:00 PM	0	5	0	0	1	0	0	0	0	0	0	0	0	6
3:00 PM	0	9	1	0	1	0	0	0	0	0	0	0	0	11
4:00 PM	0	4	0	0	0	0	0	0	0	0	0	0	0	4
5:00 PM	1	6	1	0	0	0	0	0	0	0	0	0	0	8
6:00 PM	0	5	1	0	0	0	0	0	0	0	0	0	0	6
7:00 PM	0	4	0	0	0	0	0	0	0	0	0	0	0	4
8:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	1
9:00 PM	0	3	0	0	0	0	0	0	0	0	0	0	0	3
10:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	1
11:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	1
<b>Total</b>	<b>1</b>	<b>75</b>	<b>7</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>86</b>
<b>Percent</b>	<b>1.2%</b>	<b>87.2%</b>	<b>8.1%</b>	<b>0.0%</b>	<b>3.5%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	



**Location:** Chandler St, South of Tucker St  
**Date Range:** 3/2/2021 to 3/2/2021  
**Site Code:** 01

**3-Day (Tuesday - Thursday) Average**  
**Southbound**

Time	FHWA Vehicle Classification													Total Volume	
	1	2	3	4	5	6	7	8	9	10	11	12	13		
12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 AM	0	1	1	0	0	0	0	0	0	0	0	0	0	0	2
2:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
3:00 AM	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
4:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
6:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
7:00 AM	0	6	0	0	0	0	0	0	0	0	0	0	0	0	6
8:00 AM	0	7	1	0	0	0	0	0	0	0	0	0	0	0	8
9:00 AM	0	3	1	0	0	0	0	0	0	0	0	0	0	0	4
10:00 AM	0	1	2	0	0	0	0	0	0	0	0	0	0	0	3
11:00 AM	0	6	1	0	0	0	0	0	0	0	0	0	0	0	7
12:00 PM	0	5	1	0	0	0	0	0	0	0	0	0	0	0	6
1:00 PM	0	7	0	0	1	0	0	0	0	0	0	0	0	0	8
2:00 PM	1	10	2	0	0	0	0	0	0	0	0	0	0	0	13
3:00 PM	0	7	1	0	0	0	0	0	0	0	0	0	0	0	8
4:00 PM	0	6	1	0	0	0	0	0	0	0	0	0	0	0	7
5:00 PM	2	9	1	0	1	0	0	0	0	0	0	0	0	0	13
6:00 PM	0	9	1	0	0	0	0	0	0	0	0	0	0	0	10
7:00 PM	0	12	1	0	0	0	0	0	0	0	0	0	0	0	13
8:00 PM	0	1	2	0	0	0	0	0	0	0	0	0	0	0	3
9:00 PM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
10:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
11:00 PM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
<b>Total</b>	<b>3</b>	<b>101</b>	<b>16</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>122</b>
<b>Percent</b>	<b>2.5%</b>	<b>82.8%</b>	<b>13.1%</b>	<b>0.0%</b>	<b>1.6%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	

## Vehicle Speed Report Summary

**Location:** Chandler St, South of Tucker St  
**Count Direction:** Northbound / Southbound  
**Date Range:** 3/2/2021 to 3/2/2021  
**Site Code:** 01

	Speed Range (mph)																	Total Volume
	0 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	40 - 45	45 - 50	50 - 55	55 - 60	60 - 65	65 - 70	70 - 75	75 - 80	80 - 85	85 +	
<b>Study Total</b>																		
<b>Northbound</b>	16	38	27	5	0	0	0	0	0	0	0	0	0	0	0	0	0	86
<b>Percent</b>	18.6%	44.2%	31.4%	5.8%	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%	100%
<b>Southbound</b>	20	44	48	8	2	0	0	0	0	0	0	0	0	0	0	0	0	122
<b>Percent</b>	16.4%	36.1%	39.3%	6.6%	1.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100%
<b>Total</b>	36	82	75	13	2	0	0	0	0	0	0	0	0	0	0	0	0	208
<b>Percent</b>	17.3%	39.4%	36.1%	6.3%	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%	100%

Total Study Percentile Speed Summary		Total Study Speed Statistics	
<b>Northbound</b>		<b>Northbound</b>	
50th Percentile (Median)	13.5 mph	Mean (Average) Speed	13.6 mph
85th Percentile	17.9 mph	10 mph Pace	8.5 - 18.5 mph
95th Percentile	20.1 mph	Percent in Pace	84.9 %
<b>Southbound</b>		<b>Southbound</b>	
50th Percentile (Median)	14.9 mph	Mean (Average) Speed	14.7 mph
85th Percentile	19.0 mph	10 mph Pace	10.8 - 20.8 mph
95th Percentile	20.8 mph	Percent in Pace	77.9 %

Location: Chandler St, South of Tucker St  
 Date Range: 3/2/2021 to 3/2/2021  
 Site Code: 01



Tuesday, March 2, 2021  
 Northbound

Time	Speed Range (mph)																	Total Volume	
	0 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	40 - 45	45 - 50	50 - 55	55 - 60	60 - 65	65 - 70	70 - 75	75 - 80	80 - 85	85 +		
12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:00 AM	1	2	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:00 AM	2	1	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:00 AM	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
10:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
11:00 AM	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12:00 PM	1	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1:00 PM	1	5	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2:00 PM	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3:00 PM	3	4	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:00 PM	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:00 PM	2	4	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6:00 PM	2	3	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:00 PM	0	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:00 PM	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
10:00 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
11:00 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<b>Total</b>	<b>16</b>	<b>38</b>	<b>27</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>86</b>
<b>Percent</b>	<b>18.6%</b>	<b>44.2%</b>	<b>31.4%</b>	<b>5.8%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>

Daily Percentile Speed Summary		Speed Statistics	
50th Percentile (Median)	13.5 mph	Mean (Average) Speed	13.6 mph
85th Percentile	17.9 mph	10 mph Pace	8.5 - 18.5 mph
95th Percentile	20.1 mph	Percent in Pace	84.9 %

Location: Chandler St, South of Tucker St  
 Date Range: 3/2/2021 to 3/2/2021  
 Site Code: 01



Tuesday, March 2, 2021  
 Southbound

Time	Speed Range (mph)																	Total Volume	
	0 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	40 - 45	45 - 50	50 - 55	55 - 60	60 - 65	65 - 70	70 - 75	75 - 80	80 - 85	85 +		
12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1:00 AM	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2:00 AM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	
3:00 AM	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6:00 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:00 AM	1	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:00 AM	0	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:00 AM	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
10:00 AM	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
11:00 AM	2	0	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12:00 PM	2	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1:00 PM	1	5	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2:00 PM	4	4	3	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	
3:00 PM	1	5	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:00 PM	1	4	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:00 PM	4	5	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6:00 PM	1	5	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:00 PM	1	2	9	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:00 PM	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:00 PM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
10:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
11:00 PM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<b>Total</b>	<b>20</b>	<b>44</b>	<b>48</b>	<b>8</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>122</b>
<b>Percent</b>	<b>16.4%</b>	<b>36.1%</b>	<b>39.3%</b>	<b>6.6%</b>	<b>1.6%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>

Daily Percentile Speed Summary		Speed Statistics	
50th Percentile (Median)	14.9 mph	Mean (Average) Speed	14.7 mph
85th Percentile	19.0 mph	10 mph Pace	10.8 - 20.8 mph
95th Percentile	20.8 mph	Percent in Pace	77.87 %

Location: Chandler St, South of Tucker St  
 Date Range: 3/2/2021 to 3/2/2021  
 Site Code: 01



**Total Study Average  
Northbound**

Time	Speed Range (mph)																	Total Volume	
	0 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	40 - 45	45 - 50	50 - 55	55 - 60	60 - 65	65 - 70	70 - 75	75 - 80	80 - 85	85 +		
12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:00 AM	1	2	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:00 AM	2	1	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:00 AM	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
10:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
11:00 AM	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12:00 PM	1	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1:00 PM	1	5	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2:00 PM	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3:00 PM	3	4	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:00 PM	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:00 PM	2	4	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6:00 PM	2	3	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:00 PM	0	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:00 PM	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
10:00 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
11:00 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<b>Total</b>	<b>16</b>	<b>38</b>	<b>27</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>86</b>
<b>Percent</b>	<b>18.6%</b>	<b>44.2%</b>	<b>31.4%</b>	<b>5.8%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>

Note: Average only considered on days with 24-hours of data.

Total Study Percentile Speed Summary		Total Study Speed Statistics	
50th Percentile (Median)	13.5 mph	Mean (Average) Speed	13.6 mph
85th Percentile	17.9 mph	10 mph Pace	8.5 - 18.5 mph
95th Percentile	20.1 mph	Percent in Pace	84.9 %

Location: Chandler St, South of Tucker St  
 Date Range: 3/2/2021 to 3/2/2021  
 Site Code: 01



**Total Study Average  
 Southbound**

Time	Speed Range (mph)																	Total Volume	
	0 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	40 - 45	45 - 50	50 - 55	55 - 60	60 - 65	65 - 70	70 - 75	75 - 80	80 - 85	85 +		
12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1:00 AM	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2:00 AM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	
3:00 AM	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6:00 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:00 AM	1	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:00 AM	0	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:00 AM	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
10:00 AM	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
11:00 AM	2	0	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12:00 PM	2	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1:00 PM	1	5	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2:00 PM	4	4	3	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	
3:00 PM	1	5	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:00 PM	1	4	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:00 PM	4	5	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6:00 PM	1	5	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:00 PM	1	2	9	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:00 PM	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:00 PM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
10:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
11:00 PM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<b>Total</b>	<b>20</b>	<b>44</b>	<b>48</b>	<b>8</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>122</b>
<b>Percent</b>	<b>16.4%</b>	<b>36.1%</b>	<b>39.3%</b>	<b>6.6%</b>	<b>1.6%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>

Note: Average only considered on days with 24-hours of data.

Total Study Percentile Speed Summary		Total Study Speed Statistics	
50th Percentile (Median)	14.9 mph	Mean (Average) Speed	14.7 mph
85th Percentile	19.0 mph	10 mph Pace	10.8 - 20.8 mph
95th Percentile	20.8 mph	Percent in Pace	77.9 %

**Appendix B – Existing Conditions Intersections  
Level of Service Worksheets**

Queues

1: International Blvd & Bristol Blvd

Existing Conditions

Timing Plan: A.M. Peak



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	15	12	3	214	16	249
v/c Ratio	0.04	0.03	0.01	0.14	0.06	0.16
Control Delay	0.2	0.2	14.7	3.3	14.9	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.2	0.2	14.7	3.3	14.9	3.4
Queue Length 50th (ft)	0	0	1	0	2	0
Queue Length 95th (ft)	0	0	6	64	16	74
Internal Link Dist (ft)	661	45		400		678
Turn Bay Length (ft)			85		95	
Base Capacity (vph)	1143	1148	1061	1750	1061	1752
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.01	0.00	0.12	0.02	0.14
<b>Intersection Summary</b>						





















# HCM Signalized Intersection Capacity Analysis

Existing Conditions

## 1: International Blvd & Bristol Blvd

Timing Plan: A.M. Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	0	8	5	0	7	3	205	9	16	241	8
Future Volume (vph)	7	0	8	5	0	7	3	205	9	16	241	8
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.7			4.7		4.7	5.1		4.7	5.1	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frbp, ped/bikes		0.99			1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.93			0.92		1.00	0.99		1.00	1.00	
Flt Protected		0.98			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1704			1715		1703	1779		1703	1782	
Flt Permitted		1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1744			1750		1703	1779		1703	1782	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	7	0	8	5	0	7	3	205	9	16	241	8
RTOR Reduction (vph)	0	15	0	0	12	0	0	1	0	0	1	0
Lane Group Flow (vph)	0	0	0	0	0	0	3	213	0	16	248	0
Confl. Peds. (#/hr)			1						7			12
Confl. Bikes (#/hr)												1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	6%	6%	6%	6%	6%	6%
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4								
Actuated Green, G (s)		0.8			0.8		0.8	24.6		0.8	24.6	
Effective Green, g (s)		0.8			0.8		0.8	24.6		0.8	24.6	
Actuated g/C Ratio		0.02			0.02		0.02	0.60		0.02	0.60	
Clearance Time (s)		4.7			4.7		4.7	5.1		4.7	5.1	
Vehicle Extension (s)		0.2			0.2		0.2	0.2		0.2	0.2	
Lane Grp Cap (vph)		34			34		33	1075		33	1077	
v/s Ratio Prot							0.00	c0.12		0.01	c0.14	
v/s Ratio Perm		c0.00			0.00							
v/c Ratio		0.01			0.01		0.09	0.20		0.48	0.23	
Uniform Delay, d1		19.6			19.6		19.6	3.6		19.7	3.7	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.0			0.0		0.4	0.0		4.0	0.0	
Delay (s)		19.6			19.6		20.0	3.7		23.8	3.7	
Level of Service		B			B		C	A		C	A	
Approach Delay (s)		19.6			19.6			3.9			4.9	
Approach LOS		B			B			A			A	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			5.3				HCM 2000 Level of Service			A		
HCM 2000 Volume to Capacity ratio			0.26									
Actuated Cycle Length (s)			40.7				Sum of lost time (s)			16.5		
Intersection Capacity Utilization			27.0%				ICU Level of Service			A		
Analysis Period (min)			15									
c	Critical Lane Group											

HCM 2010 TWSC  
 2: Goodwill Driveway/Project Driveway & Tucker St

Existing Conditions  
 Timing Plan: A.M. Peak

Intersection												
Int Delay, s/veh	1.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	6	19	0	1	12	0	0	0	0	0	0	0
Future Vol, veh/h	6	19	0	1	12	0	0	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	19	0	1	12	0	0	0	0	0	0	0

Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	12	0	0	19	0	0	45	45	19	45	45	12
Stage 1	-	-	-	-	-	-	31	31	-	14	14	-
Stage 2	-	-	-	-	-	-	14	14	-	31	31	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1607	-	-	1597	-	-	957	847	1059	957	847	1069
Stage 1	-	-	-	-	-	-	986	869	-	1006	884	-
Stage 2	-	-	-	-	-	-	1006	884	-	986	869	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1607	-	-	1597	-	-	953	843	1059	953	843	1069
Mov Cap-2 Maneuver	-	-	-	-	-	-	953	843	-	953	843	-
Stage 1	-	-	-	-	-	-	982	866	-	1002	883	-
Stage 2	-	-	-	-	-	-	1005	883	-	982	866	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	1.7		0.6		0		0	
HCM LOS					A		A	

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1607	-	-	1597	-	-	-
HCM Lane V/C Ratio	-	0.004	-	-	0.001	-	-	-
HCM Control Delay (s)		0	7.2	0	-	7.3	0	0
HCM Lane LOS		A	A	A	-	A	A	A
HCM 95th %tile Q(veh)		-	0	-	-	0	-	-

Queues

1: International Blvd & Bristol Blvd

Existing Conditions

Timing Plan: P.M. Peak



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	25	20	20	520	58	532
v/c Ratio	0.08	0.05	0.07	0.35	0.19	0.32
Control Delay	13.2	0.2	14.8	5.8	15.4	4.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.2	0.2	14.8	5.8	15.4	4.2
Queue Length 50th (ft)	1	0	2	0	5	0
Queue Length 95th (ft)	20	0	19	184	40	187
Internal Link Dist (ft)	661	45		400		678
Turn Bay Length (ft)			85		95	
Base Capacity (vph)	1154	1189	1143	1795	1154	1808
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.02	0.02	0.29	0.05	0.29



















Intersection Summary

# HCM Signalized Intersection Capacity Analysis

Existing Conditions

## 1: International Blvd & Bristol Blvd

Timing Plan: P.M. Peak

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	13	2	10	9	0	11	20	509	11	58	514	18	
Future Volume (vph)	13	2	10	9	0	11	20	509	11	58	514	18	
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		4.7			4.7		4.7	5.1		4.7	5.1		
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00		
Frbp, ped/bikes		0.99			1.00		1.00	1.00		1.00	1.00		
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00		
Frt		0.95			0.93		1.00	1.00		1.00	0.99		
Flt Protected		0.97			0.98		0.95	1.00		0.95	1.00		
Satd. Flow (prot)		1737			1720		1770	1855		1787	1869		
Flt Permitted		1.00			1.00		0.95	1.00		0.95	1.00		
Satd. Flow (perm)		1782			1759		1770	1855		1787	1869		
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	13	2	10	9	0	11	20	509	11	58	514	18	
RTOR Reduction (vph)	0	10	0	0	20	0	0	0	0	0	1	0	
Lane Group Flow (vph)	0	15	0	0	0	0	20	520	0	58	531	0	
Confl. Peds. (#/hr)			1						12			13	
Confl. Bikes (#/hr)									1			2	
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	2%	2%	2%	1%	1%	1%	
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA		
Protected Phases		8			4		1	6		5	2		
Permitted Phases	8			4									
Actuated Green, G (s)		0.7			0.7		0.9	23.2		2.0	24.3		
Effective Green, g (s)		0.7			0.7		0.9	23.2		2.0	24.3		
Actuated g/C Ratio		0.02			0.02		0.02	0.57		0.05	0.60		
Clearance Time (s)		4.7			4.7		4.7	5.1		4.7	5.1		
Vehicle Extension (s)		0.2			0.2		0.2	0.2		0.2	0.2		
Lane Grp Cap (vph)		30			30		39	1065		88	1124		
v/s Ratio Prot							0.01	c0.28		0.03	c0.28		
v/s Ratio Perm		c0.01			0.00								
v/c Ratio		0.51			0.01		0.51	0.49		0.66	0.47		
Uniform Delay, d1		19.7			19.5		19.5	5.1		18.9	4.5		
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00		
Incremental Delay, d2		4.8			0.1		4.7	0.1		12.8	0.1		
Delay (s)		24.5			19.6		24.2	5.2		31.6	4.6		
Level of Service		C			B		C	A		C	A		
Approach Delay (s)		24.5			19.6			5.9			7.3		
Approach LOS		C			B			A			A		
<b>Intersection Summary</b>													
HCM 2000 Control Delay			7.2									HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.57										
Actuated Cycle Length (s)			40.4									Sum of lost time (s)	16.5
Intersection Capacity Utilization			49.1%									ICU Level of Service	A
Analysis Period (min)			15										
c	Critical Lane Group												

HCM 2010 TWSC  
 2: Goodwill Driveway/Project Driveway & Tucker St

Existing Conditions  
 Timing Plan: P.M. Peak

Intersection												
Int Delay, s/veh	0.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	40	30	0	13	0	7	0	0	0	0	0
Future Vol, veh/h	0	40	30	0	13	0	7	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	40	30	0	13	0	7	0	0	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	13	0	0	70	0	0	68	68	55	68	83	13
Stage 1	-	-	-	-	-	-	55	55	-	13	13	-
Stage 2	-	-	-	-	-	-	13	13	-	55	70	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1606	-	-	1531	-	-	925	823	1012	925	807	1067
Stage 1	-	-	-	-	-	-	957	849	-	1007	885	-
Stage 2	-	-	-	-	-	-	1007	885	-	957	837	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1606	-	-	1531	-	-	925	823	1012	925	807	1067
Mov Cap-2 Maneuver	-	-	-	-	-	-	925	823	-	925	807	-
Stage 1	-	-	-	-	-	-	957	849	-	1007	885	-
Stage 2	-	-	-	-	-	-	1007	885	-	957	837	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0			8.9			0		
HCM LOS							A			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	925	1606	-	-	1531	-	-	-
HCM Lane V/C Ratio	0.008	-	-	-	-	-	-	-
HCM Control Delay (s)	8.9	0	-	-	0	-	-	0
HCM Lane LOS	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	-

**Appendix C – Existing plus Project Conditions Intersections  
Level of Service Worksheets**

Queues

Existing plus Project Conditions

1: International Blvd & Bristol Blvd

Timing Plan: A.M. Peak



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	17	93	3	231	62	231
v/c Ratio	0.06	0.30	0.01	0.22	0.22	0.19
Control Delay	12.4	11.2	15.7	7.6	16.1	5.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.4	11.2	15.7	7.6	16.1	5.7
Queue Length 50th (ft)	1	4	0	15	6	16
Queue Length 95th (ft)	15	39	6	74	40	72
Internal Link Dist (ft)	661	45		400		678
Turn Bay Length (ft)			85		95	
Base Capacity (vph)	1041	1032	1103	1686	1103	1743
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.09	0.00	0.14	0.06	0.13



















Intersection Summary

# HCM Signalized Intersection Capacity Analysis

Existing plus Project Conditions

## 1: International Blvd & Bristol Blvd

Timing Plan: A.M. Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	2	8	36	2	55	3	183	48	62	223	8
Future Volume (vph)	7	2	8	36	2	55	3	183	48	62	223	8
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.7			4.7		4.7	5.1		4.7	5.1	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frbp, ped/bikes		0.99			1.00		1.00	0.99		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.94			0.92		1.00	0.97		1.00	0.99	
Flt Protected		0.98			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1726			1715		1703	1726		1703	1781	
Flt Permitted		0.91			0.89		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1605			1565		1703	1726		1703	1781	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	7	2	8	36	2	55	3	183	48	62	223	8
RTOR Reduction (vph)	0	7	0	0	51	0	0	8	0	0	1	0
Lane Group Flow (vph)	0	10	0	0	42	0	3	223	0	62	230	0
Confl. Peds. (#/hr)			1						7			12
Confl. Bikes (#/hr)												1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	6%	6%	6%	6%	6%	6%
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4								
Actuated Green, G (s)		3.1			3.1		0.7	18.5		1.8	19.6	
Effective Green, g (s)		3.1			3.1		0.7	18.5		1.8	19.6	
Actuated g/C Ratio		0.08			0.08		0.02	0.49		0.05	0.52	
Clearance Time (s)		4.7			4.7		4.7	5.1		4.7	5.1	
Vehicle Extension (s)		0.2			0.2		0.2	0.2		0.2	0.2	
Lane Grp Cap (vph)		131			128		31	842		80	921	
v/s Ratio Prot							0.00	c0.13		c0.04	0.13	
v/s Ratio Perm		0.01			c0.03							
v/c Ratio		0.07			0.33		0.10	0.26		0.78	0.25	
Uniform Delay, d1		16.1			16.4		18.3	5.7		17.8	5.1	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.1			0.6		0.5	0.1		33.7	0.1	
Delay (s)		16.2			17.0		18.8	5.8		51.6	5.1	
Level of Service		B			B		B	A		D	A	
Approach Delay (s)		16.2			17.0			5.9			15.0	
Approach LOS		B			B			A			B	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			12.0				HCM 2000 Level of Service				B	
HCM 2000 Volume to Capacity ratio			0.34									
Actuated Cycle Length (s)			37.9				Sum of lost time (s)			16.5		
Intersection Capacity Utilization			36.6%				ICU Level of Service			A		
Analysis Period (min)			15									
c	Critical Lane Group											



HCM 2010 TWSC  
 2: Goodwill Driveway/Project Driveway & Tucker St

Existing plus Project Conditions  
 Timing Plan: A.M. Peak

Intersection												
Int Delay, s/veh	6.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	84	19	6	1	8	6	0	0	0	2	0	85
Future Vol, veh/h	84	19	6	1	8	6	0	0	0	2	0	85
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	84	19	6	1	8	6	0	0	0	2	0	85

















Major/Minor	Major1		Major2			Minor1			Minor2			
Conflicting Flow All	14	0	0	25	0	0	246	206	22	203	206	11
Stage 1	-	-	-	-	-	-	190	190	-	13	13	-
Stage 2	-	-	-	-	-	-	56	16	-	190	193	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1604	-	-	1589	-	-	708	691	1055	755	691	1070
Stage 1	-	-	-	-	-	-	812	743	-	1007	885	-
Stage 2	-	-	-	-	-	-	956	882	-	812	741	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1604	-	-	1589	-	-	625	654	1055	724	654	1070
Mov Cap-2 Maneuver	-	-	-	-	-	-	625	654	-	724	654	-
Stage 1	-	-	-	-	-	-	769	704	-	954	884	-
Stage 2	-	-	-	-	-	-	879	881	-	769	702	-

Approach	EB		WB			NB			SB		
HCM Control Delay, s	5.7		0.5			0			8.7		
HCM LOS						A			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1604	-	-	1589	-	-	1058
HCM Lane V/C Ratio	-	0.052	-	-	0.001	-	-	0.082
HCM Control Delay (s)	0	7.4	0	-	7.3	0	-	8.7
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	-	0.2	-	-	0	-	-	0.3

HCM Unsignalized Intersection Capacity Analysis  
2: Goodwill Driveway/Project Driveway & Tucker St

Existing plus Project Conditions  
Timing Plan: A.M. Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	84	19	6	1	8	6	0	0	0	2	0	85
Future Volume (Veh/h)	84	19	6	1	8	6	0	0	0	2	0	85
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	84	19	6	1	8	6	0	0	0	2	0	85
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)		125										
pX, platoon unblocked												
vC, conflicting volume	14			25			288	206	22	203	206	11
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	14			25			288	206	22	203	206	11
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	95			100			100	100	100	100	100	92
cM capacity (veh/h)	1604			1589			587	654	1055	725	654	1070
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	109	15	0	87								
Volume Left	84	1	0	2								
Volume Right	6	6	0	85								
cSH	1604	1589	1700	1058								
Volume to Capacity	0.05	0.00	0.00	0.08								
Queue Length 95th (ft)	4	0	0	7								
Control Delay (s)	5.8	0.5	0.0	8.7								
Lane LOS	A	A	A	A								
Approach Delay (s)	5.8	0.5	0.0	8.7								
Approach LOS			A	A								
Intersection Summary												
Average Delay			6.6									
Intersection Capacity Utilization			24.7%		ICU Level of Service				A			
Analysis Period (min)			15									

Queues

Existing plus Project Conditions

1: International Blvd & Bristol Blvd

Timing Plan: P.M. Peak



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	26	61	20	526	79	523
v/c Ratio	0.10	0.23	0.08	0.46	0.30	0.39
Control Delay	16.7	14.3	19.1	10.6	21.2	6.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.7	14.3	19.1	10.6	21.2	6.9
Queue Length 50th (ft)	3	5	4	96	16	45
Queue Length 95th (ft)	23	36	21	214	56	215
Internal Link Dist (ft)	661	45		400		678
Turn Bay Length (ft)			85		95	
Base Capacity (vph)	957	926	908	1643	908	1648
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.07	0.02	0.32	0.09	0.32



















Intersection Summary

# HCM Signalized Intersection Capacity Analysis

# Existing plus Project Conditions

## 1: International Blvd & Bristol Blvd

Timing Plan: P.M. Peak

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	13	3	10	25	1	35	20	498	28	79	505	18	
Future Volume (vph)	13	3	10	25	1	35	20	498	28	79	505	18	
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		4.7			4.7		4.7	5.1		4.7	5.1		
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00		
Frbp, ped/bikes		0.99			1.00		1.00	1.00		1.00	1.00		
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00		
Frt		0.95			0.92		1.00	0.99		1.00	0.99		
Flt Protected		0.98			0.98		0.95	1.00		0.95	1.00		
Satd. Flow (prot)		1743			1718		1703	1775		1703	1781		
Flt Permitted		1.00			0.97		0.95	1.00		0.95	1.00		
Satd. Flow (perm)		1787			1704		1703	1775		1703	1781		
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	13	3	10	25	1	35	20	498	28	79	505	18	
RTOR Reduction (vph)	0	9	0	0	33	0	0	1	0	0	1	0	
Lane Group Flow (vph)	0	17	0	0	28	0	20	525	0	79	522	0	
Confl. Peds. (#/hr)			1						7			12	
Confl. Bikes (#/hr)												1	
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	6%	6%	6%	6%	6%	6%	
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA		
Protected Phases		8			4		1	6		5	2		
Permitted Phases	8			4									
Actuated Green, G (s)		2.9			2.9		1.3	24.9		3.4	27.0		
Effective Green, g (s)		2.9			2.9		1.3	24.9		3.4	27.0		
Actuated g/C Ratio		0.06			0.06		0.03	0.54		0.07	0.59		
Clearance Time (s)		4.7			4.7		4.7	5.1		4.7	5.1		
Vehicle Extension (s)		0.2			0.2		0.2	0.2		0.2	0.2		
Lane Grp Cap (vph)		113			108		48	967		126	1052		
v/s Ratio Prot							0.01	c0.30		0.05	c0.29		
v/s Ratio Perm		0.01			c0.02								
v/c Ratio		0.15			0.26		0.42	0.54		0.63	0.50		
Uniform Delay, d1		20.2			20.4		21.8	6.7		20.5	5.4		
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00		
Incremental Delay, d2		0.2			0.5		2.1	0.3		6.8	0.1		
Delay (s)		20.5			20.9		24.0	7.1		27.4	5.5		
Level of Service		C			C		C	A		C	A		
Approach Delay (s)		20.5			20.9			7.7			8.4		
Approach LOS		C			C			A			A		
<b>Intersection Summary</b>													
HCM 2000 Control Delay			9.0									HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.58										
Actuated Cycle Length (s)			45.7									Sum of lost time (s)	16.5
Intersection Capacity Utilization			49.1%									ICU Level of Service	A
Analysis Period (min)			15										
c	Critical Lane Group												

Intersection												
Int Delay, s/veh	4.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	40	40	30	0	11	3	7	0	0	1	0	45
Future Vol, veh/h	40	40	30	0	11	3	7	0	0	1	0	45
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	40	40	30	0	11	3	7	0	0	1	0	45

















Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	14	0	0	70	0	0	170	149	55	148	163	13
Stage 1	-	-	-	-	-	-	135	135	-	13	13	-
Stage 2	-	-	-	-	-	-	35	14	-	135	150	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1604	-	-	1531	-	-	794	743	1012	820	729	1067
Stage 1	-	-	-	-	-	-	868	785	-	1007	885	-
Stage 2	-	-	-	-	-	-	981	884	-	868	773	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1604	-	-	1531	-	-	746	724	1012	804	710	1067
Mov Cap-2 Maneuver	-	-	-	-	-	-	746	724	-	804	710	-
Stage 1	-	-	-	-	-	-	845	765	-	981	885	-
Stage 2	-	-	-	-	-	-	940	884	-	845	753	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.7	0	9.9	8.6
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	746	1604	-	-	1531	-	-	1059
HCM Lane V/C Ratio	0.009	0.025	-	-	-	-	-	0.043
HCM Control Delay (s)	9.9	7.3	0	-	0	-	-	8.6
HCM Lane LOS	A	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	0	0.1	-	-	0	-	-	0.1

HCM Unsignalized Intersection Capacity Analysis  
2: Goodwill Driveway/Project Driveway & Tucker St

Existing plus Project Conditions  
Timing Plan: P.M. Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	40	30	0	11	3	7	0	0	1	0	45
Future Volume (Veh/h)	40	40	30	0	11	3	7	0	0	1	0	45
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	43	43	33	0	12	3	8	0	0	1	0	49
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)		125										
pX, platoon unblocked												
vC, conflicting volume	15			76			208	160	60	159	176	14
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	15			76			208	160	60	159	176	14
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			100			99	100	100	100	100	95
cM capacity (veh/h)	1603			1523			700	712	1006	790	699	1067
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	119	15	8	50								
Volume Left	43	0	8	1								
Volume Right	33	3	0	49								
cSH	1603	1523	700	1059								
Volume to Capacity	0.03	0.00	0.01	0.05								
Queue Length 95th (ft)	2	0	1	4								
Control Delay (s)	2.8	0.0	10.2	8.6								
Lane LOS	A		B	A								
Approach Delay (s)	2.8	0.0	10.2	8.6								
Approach LOS			B	A								
Intersection Summary												
Average Delay			4.4									
Intersection Capacity Utilization			23.9%		ICU Level of Service				A			
Analysis Period (min)			15									

## PARKING LICENSE AGREEMENT

THIS PARKING LICENSE AGREEMENT (this "License") is made as of February 11, 2009, between **Signature Properties, Inc.**, a California corporation ("Licensor") and **Durant Square Owners Association**, a California non-profit mutual benefit corporation ("Licensee").

1. Grant of License. Licensor hereby grants to Licensee a license to use, in accordance with the provisions hereof, the parking area at Durant Square, located adjacent to International Boulevard and shown as cross-hatched on the diagram attached hereto as Exhibit A (the "Licensed Area"). Licensor may, for any reason or no reason, revoke this License upon not less than 30 days' prior written notice to Licensee.

2. Use, Parking Permits, Towing Policy.

2.1 The Licensed Area shall be used for parking non-commercial vehicles, subject to the terms hereof. Licensee shall have the right to allow its members to access and use the Licensed Area from 6:00 p.m. to 9:00 a.m., seven days per week, 365 days per year.

2.2 Licensee shall enforce the limitations on use hereunder by implementing a parking permit/sticker program, requiring parking permits/stickers to be displayed on vehicles authorized hereunder to park in the Licensed Area. In compliance with applicable law, Licensee shall install signage in such places around the Licensed Area as approved by Licensor to ensure the exclusive use of the Licensed Area by Licensee and its members.

2.3 Licensor may, in its sole discretion and at Licensee's expense, tow any vehicle parked in the Licensed Area in violation of this Agreement. Licensee shall ensure that its members are aware of the foregoing towing policy.

3. Repairs. Licensee agrees to make all repairs, and to maintain and keep the Licensed Area in good condition and repair during the term of this License. If the Licensed Area shall be destroyed, or be so injured by the elements or any other cause as to be unsuitable or unfit for Licensee's normal usage, and such elements or causes are not out of the fault or negligence of Licensee, its members, or guests of its members, then Licensee may thereupon at its option quit and surrender use of the Licensed Area, and this License shall terminate as of the date of the injury or destruction; but Licensee may, if it so desires, upon completion of the repairs or restoration of the Licensed Area by Licensee, at its own expense, reoccupy the same upon the terms and conditions herein set forth. Nothing herein shall obligate Licensor to make any repair or restoration to the Licensed Premises.

4. Environmental.

4.1 Licensee will not cause or permit the storage, treatment or disposal of any Hazardous Materials in, on, or about the Licensed Area or any part of the Licensed Area by Licensee, its agents, employees or contractors. Licensee will not permit the Licensed Area to be used or operated in a manner that may cause the Licensed Area or any part of the Licensed Area to be contaminated by any Hazardous Materials in violation of any Environmental Laws, or which causes there to be any liability under any Environmental Law.

4.2 Licensee will be solely responsible for and will defend, indemnify, and hold Licensor, its agents, and employees harmless from and against any and all direct claims, costs, and liabilities, including attorney's fees and costs, arising out of or in connection with Licensee's introduction of Hazardous Materials to the Licensed Area or arising out of or in connection with Licensee's breach of its obligations in this section.

4.3 Each party will promptly notify the other party of (1) any and all enforcement, cleanup, remedial, removal, or other governmental or enforcement cleanup or other governmental or regulatory actions instituted, completed or threatened pursuant to any Environmental Laws relating to any Hazardous Materials effecting any part of the Licensed Area; and (2) all claims made or threatened by any third party against Licensee, Licensor or any part of the Licensed Area relating to damage, contribution, cost recovery, compensation, loss or injury resulting from any Hazardous Materials on or about the Licensed Area or any part of the Licensed Area.

4.4 Licensor may, from time to time during the term of the License, conduct such environmental assessments or tasks as Licensor deems necessary, provided that Licensor will give Licensee reasonable prior notice of its entry on the Licensed Area for such purposes and will cooperate in minimizing any disruption of Licensee's use of the Licensed Area as a result of such activity. Licensor will make available to Licensee copies of any reports or assessments so obtained by Licensor.

4.5 "Hazardous Materials" means asbestos and the group of organic compounds known as polychlorinated biphenyls, and any substances or materials that are regulated, controlled or prohibited under the Resource Conservation and Recovery Act of 1976 ("RCRA"), 42 U.S.C. §690, the Comprehensive Environmental Response, Compensation and Liability Act of 1980 ("CERCLA"), 42 U.S.C. Sections 9601-9657, as amended by the Superfund Amendments and Reauthorization Act of 1986 ("SARA"), or any similar state law or local ordinance or any other environmental law, the Federal Water Pollution Control Act, 33 U.S.C. §1251, the Clean Air Act, 42 U.S.C. §7401, the Toxic Substances Control Act ("TCSA"), 15 U.S.C. §2601, or any similar state law or local ordinance, or any other federal, state or local environmental statutes, regulations, ordinances or other environmental regulatory requirements now or at any time hereinafter in effect (collectively, "Environmental Laws").

4.6 The obligations of this section shall survive the expiration or other termination of this License.

5. Insurance. Licensee agrees throughout the term of this License, at Licensee's sole cost and expense, to procure and maintain in full force and effect an insurance policy or policies providing for comprehensive bodily injury and property damage insurance with limits of \$2,000,000 per occurrence, covering (a) Licensee's entry and activities and the entry and activities of Licensee's members, representatives, agents, contractors, subcontractors and employees on the Licensed Area, and (b) Licensee's defense, indemnity and hold harmless obligations set forth in Section 6, below. Such insurance shall be primary and non-contributing with any other insurance available to any such insureds and additional insureds, shall contain a full waiver of subrogation clause, and shall be written on an occurrence (and not a claims made) basis. Either an original certificate or a copy of the insurance policy shall be provided upon Licensor's written request.



6. Indemnification. Licensee shall defend, indemnify and hold harmless Licensor from any claim, damage, cost or liability incurred by Licensor as a result of or relating to this License.

7. Taxes. Licensor shall pay all real property taxes and assessments levied by the appropriate local authorities against the property upon which the Licensed Area is located.

8. Assignment. Licensee shall not have the right to assign any of its rights nor delegate any of its duties under this License.

9. Notification. Any notice or other communication required or permitted under this License must be in writing and delivered via: (a) personal delivery, (b) a nationally recognized overnight carrier that routinely issues receipts, or (c) the United States Postal Service, postage prepaid, certified mail, return receipt requested, addressed to the party for whom it is intended at its address set forth below. Notifications shall be deemed given when received or rejected by the addressee:

If to Licensor: **Signature Properties, Inc.**  
4670 Willow Rd, Suite 200  
Pleasanton, CA 94588  
Attn: Michael Richards

Copy to: **Signature Properties, Inc.**  
1322 Blue Oaks Blvd, Suite 100  
Roseville, CA 95678  
Attn: General Counsel

If to Licensee: **Durant Square Owners Association**

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\_\_\_\_\_  
\_\_\_\_\_

Either Licensor or Licensee may add additional addresses or change its address for purposes of receipt of any such communication by giving 10 days' prior written notice of such change to the other party in the manner prescribed in this section.

10. Amendment. This License may not be altered, amended or modified other than by an agreement in writing signed by the parties hereto.

11. Binding. This License shall inure to the benefit of and be binding upon the parties hereto, and their respective successor and assigns.

12. Severability. If any provision of this License proves to be illegal, invalid or unenforceable, the remainder of this License will not be affected by such finding, and in lieu of

each provision of this License that is illegal, invalid or unenforceable, a provision will be added as a part of this License as similar in terms to such illegal, invalid or unenforceable provision as may be possible and be legal, valid and enforceable.

13. Quiet Enjoyment. Licensor agrees that Licensee, on performing the covenants contained herein, shall and may peacefully and quietly have, hold and enjoy the Licensed Area for the term of this License.

14. Governing Law. This License will be governed by and construed pursuant to the laws of the State of California.

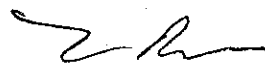
15. Facsimile/Counterparts. This License may be executed in multiple counterparts, each of which (or any combination of which) when signed and delivered by all of the parties shall be deemed an original, but all of which when taken together shall constitute one agreement. This License may be signed and delivered by facsimile and the same facsimile signatures shall constitute original signature signatures hereof with all force and effect of law.

IN WITNESS WHEREOF, Licensor and Licensee have executed this License as of the date first set forth above.

LICENSOR:

Signature Properties, Inc.,  
a California corporation

By

  
Name Michael Richards  
Title DIRECTOR of OA.

2/11/09

LICENSEE:

Durant Square Owners Association,  
a California non-profit mutual benefit  
corporation

By

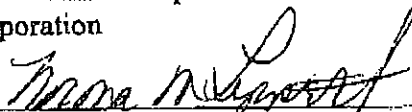
  
Name NORMA M. LEPPERT  
Title PRESIDENT, DURANT HOA

Exhibit A  
Licensed Area

