Oakland City Planning Commission STAFF REPORT

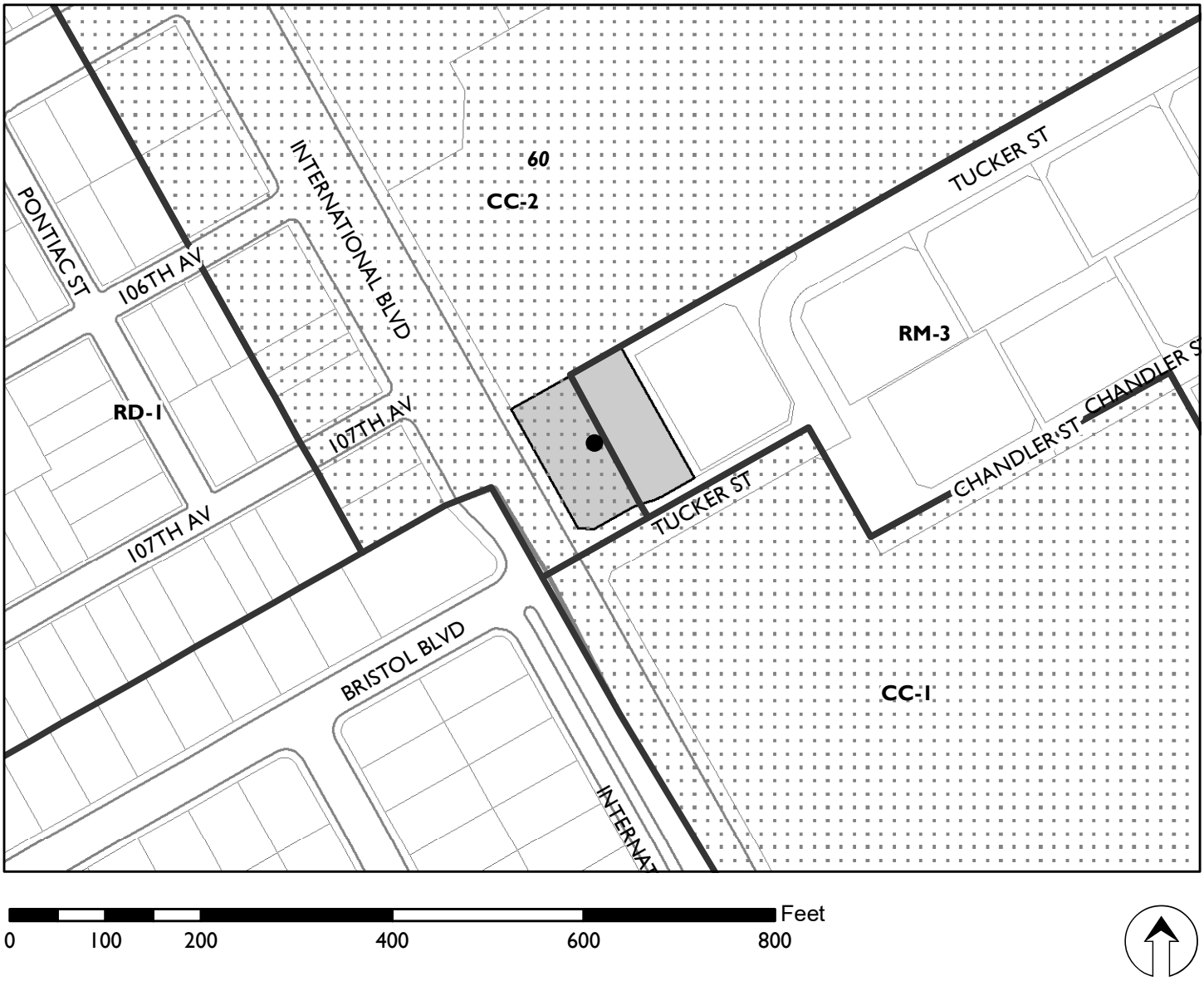
Case File Number PLN20074 **October 20, 2021**

Location:	**Surface parking lot on 0 Tucker Street (at the corner of Tucker Street and International Boulevard) (see map on reverse)**
Assessor's Parcel Number	**047 -5596-005-00**
Proposal:	Construction of a one-story, 2,000 square-foot commercial building, drive-through, and associated site improvements.
Applicant:	Frank Coda / Greenberg Farrow
Phone Number:	(914) 393-8293
Owner:	Durant Commercial, LLC
Case File Number:	PLN20074
Planning Permits Required:	Regular Design Review for new construction (O.P.C.17.136.050(B)). Major Conditional Use Permit for a "Drive-Through Non-Residential Facility (O.P.C.17.134.020 (A) (2)(b). Minor Conditional Use Permit to allow activities listed as prohibited but permitted or conditionally permitted on nearby lots in adjacent zone (17.35.01). Minor Variance to allow a 33' front setback where 10' is the maximum allowable (17.148.050).
General Plan:	Community Commercial
Zoning:	CC-2 Community Commercial 2 Zone / RM-2 Mixed Housing Types Residential 2 Zone
Environmental Determination:	Categorically Exempt under California Environmental Quality Act (CEQA) Guidelines Section 15303, New Construction Small Structures; 15183, Projects consistent with community plan, general plan or zoning
Historic Status:	Not Potential Designated Historic Property (PDHP)
City Council district:	VII
Status:	Pending
Staff Recommendation	Approve with Conditions
Finality of Decision:	Appealable to City Council within 10 days
For further information:	Contact **Jose M. Herrera-Preza** at **(510) 238-3808 or** jherrera@oaklandca.gov

SUMMARY

The applicant proposes to demolish an existing 19,904 square-foot open surface parking lot and construct a free-standing, one-story 2,000 square-foot commercial building. Site improvements include a reconfiguring of the site circulation to accommodate a "Drive-Through Non-Residential Facility, repaving of the site, and installing new landscaping and signage. The subject property is located at the north-east corner of the intersection of International Boulevard and Tucker Street adjacent to the Durant Square Commercial Shopping Center**.**

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

BACKGROUND

On August 5th, 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 30th, 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 an alternative driveway option.

At the September 30th, 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 analysis of data of queueing at Starbucks drive thru locations, the project will

have adequate space to accommodate on-site queueing.

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 95th percentile queueing is expected to be minimal.
5. The proposed project does not conflict with existing and planned pedestrian or bicycle facilities.

On September 22, 2021, the item was presented to the DRC and was granted the motion to move forward to the Planning Commission with comments related to following:

1. Pedestrian access from North to South.
2. Enhanced Trash/Litter maintenance.
3. Relocation of Trash Enclosure.
4. Signage for noise.

These items have been addressed in the design plans or reflected within the project specific conditions of approval.

PROJECT DESCRIPTION

The project is to construct a free-standing, one-story 2,000 square-foot "Starbucks" cafe. The subject parcel is a remainder from the Durant Square Planned Unit Development (PUDF00-60) that was to be developed with a commercial building but instead was developed as an open surface parking lot. 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. Landscape improvements would include a low (4-foot tall) brick wall with decorative columns that echoes the building designs along International Boulevard, new lighting, perimeter plantings, street trees, and plantings in the parking lot. Attachments C and D contain architectural and landscape plans for the project.

The building would be parallel to International Boulevard and 33 feet from the front property line, and the primary entrance would face the parking lot. Generally, a better design for commercial buildings is to be close to the sidewalk with an entrance facing the street, but this is not practical due to site constraints. This issue is further discussed in the "Key Issues and Impacts" section of this report.

The proposed development would continue to utilize the existing curb cut and driveway on Tucker Street. The drive-through would start at the eastern portion of the lot, travel between the front of the café and the International Boulevard right of way, and loop to the Tucker Street curb cut. Site circulation and parking areas would be repaved, and a full landscape and signage plan would be implemented. New signs include wall and monument signs, parking area signs, and order boards near the drive-through lanes.

The proposal would contain ten parking spaces (no parking is required in the CC-2 zone). In addition, the drive-through will not create queuing into the street because it provides spaces for thirteen vehicles. The driveways will have the same site configuration as existing, with one, 24' wide entry and exit point onto adjacent to Tucker Street. This design conforms to the proposed Bus Rapid Transit route on International Boulevard by maintaining all existing bus stops and bus shelters on the route on International Boulevard.

The site includes a landscape plan that incorporates all of the large existing London Plane trees and 5 smaller trees on the site. The preservation of the existing trees was paramount in the landscape design which will further incorporate three 24-inch box trees and complimentary shrubs and ground covers. As part of the landscape plan, a four-foot brick site wall will be constructed along International Boulevard that will serve as a screen for the Drive-Through and replicate a historic brick element found at Durant Square.

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 activities occupied by various small-scale neighborhood businesses, civic activities and residential buildings typical of a primary commercial corridor.

This part 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-20th Century materials.

Both properties adjacent to the site contain parking in front of buildings originally constructed for industrial activities that have been converted for retail use.

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 feet from International Boulevard is located within the CC-2 Community Commercial-2 Zoning District and the remaining 50 feet of the parcel is within the RM-2 Mixed Housing Type Residential-2 Zone. The proposed café and drive-through is not 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 adjacent zone (17.35.01).
- Minor Variance to allow a 20' front setback, where there is a maximum 10' required.

Further analysis is described in the "Key Issues and Impacts" Section of the report below. The findings required for approval of these permits are set forth in Attachment A.

KEY ISSUES AND IMPACTS

Design

The applicant has revised the plans to increase the fenestration on the International Boulevard façade. The proposed building remains oriented toward the rear parking lot but has incorporated different design elements to increase engagement with the public right-of-way. While the building orientation would minimize engagement with pedestrian traffic, the applicant has proposed a defined pedestrian entrance that would face the street and an outdoor seating area that creates activity along the street.

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.

Staff recommends approval of the design of the project due to the site constraints described above. Further, the neighboring converted industrial buildings are setback from the from the front property line similar to that proposed. As described above, the landscaping will be a significant improvement to the property.

Traffic

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.

At the time of the writing of this report, the applicant has not evaluated the removal of the central median on Tucker Street with other regulatory agencies. Therefore, staff has included a condition of approval requiring study of this option to allow traffic to pass if a queue reaches Tucker Street.

Front Setback

The CC-2 Zone requires a maximum 10-foot front setback new construction because the site is on a primary commercial corridor where the City desires a street edge and commercial presence for pedestrians. The applicant has demonstrated that site constraints require the café to be setback 33' from the front property line. Staff believes this setback is acceptable because it is consistent with the neighboring converted industrial buildings to the north and south of the site.

ENVIRONMENTAL DETERMINATION

The project is categorically exempt under Section 15303 of the California Environmental Quality Act Guidelines for construction of small structures and Section 15183, projects consistent with a community plan, general plan or zoning.

RECOMMENDATIONS:

For approvals:
1. Affirm staff's environmental determination.
2. Approve the Regular Design Review, Conditional Use Permit, and Variance subject to the attached findings and conditions.

Prepared by:

Jose M. Herrera-Preza
Planner III

Reviewed by:

Robert D. Merkamp, Zoning Manager
Bureau of Planning

Approved for forwarding to the Planning Commission:

Ed Manasse, Deputy Director
Bureau of Planning

ATTACHMENTS:
A. Plans dated September 23, 2021
B. Findings Approval
B. Conditions for Approval

FINDINGS FOR APPROVAL

This proposal meets all the required findings as set forth below and which are required to approve your application. Required findings are shown in **bold** type; reasons your proposal satisfies them are shown in normal type.

Section 17.136.050(B) Regular Design Review Criteria, Nonresidential Facilities:

1. **That the proposal will help achieve or maintain a group of facilities which are well related to one another and which, when taken together, will result in a well-composed design, with consideration given to site, landscape, bulk, height, arrangement, texture, materials, colors, and appurtenances; the relation of these factors to other facilities in the vicinity; and the relation of the proposal to the total setting as seen from key points in the surrounding area. Only elements of design which have some significant relationship to outside appearance shall be considered, except as otherwise provided in Section1 17.136.060:**

   The proposed contemporary façade is consistent with other buildings on International Boulevard and directly relates to elements from the Durant Square through the incorporation of steel storefronts, metal awnings and brick details at the bulkhead and parapet marquees.

   A low brick wall with decorative columns at the front of the lot, perimeter plantings, street trees, and plantings in the parking lot would also significantly improve the site and provide an edge to the street.

2. **That the proposed design will be of a quality and a character which harmonizes with, and serves to protect the value of, private and public investments in the area.**

   The proposed project will enhance an area of East Oakland through the investment in a parcel intended for commercial development. The development is designed to occupy a cafe that draws customers to the Durant Square shopping district. The proposed building is incorporating high quality materials and significant landscaping to improve the site. The proposal will not conflict with the Bus Rapid Transit (BRT) line currently being constructed on International Boulevard.

3. **That the proposal conforms in all significant respects with the Oakland General Plan and with any other applicable design review guidelines or criteria, district plan or development control map which has been adopted by the Planning Commission or City Council.**

   Fulfillment of General Plan and Zoning criteria is demonstrated by the "General Plan Analysis Section," above.

Section 17.134.050 General Use Permit Criteria:

A. **That the location, size, design, and operating characteristics of the proposed development will be compatible with and will not adversely affect the livability or appropriate development of abutting properties and the surrounding neighborhood, with consideration to be given to harmony in scale, bulk, coverage, and density; to the availability of civic facilities and utilities; to harmful effect, if any, upon desirable neighborhood character; to the generation of traffic and the capacity of surrounding streets; and to any other relevant impact of the development.**

   The Conditional Use Permit is for the proposed Drive-Through Nonresidential Facility. The design accommodates thirteen cars, which will prevent queueing into the street. This design will also not

conflict the Bus Rapid Transit route on International Boulevard because it will not interfere with existing bus stops or infrastructure in the public right-of-way. The relatively small, 2,200 square-foot facility will not generate a significant amount of traffic.

B. That the location, design, and site planning of the proposed development will provide a convenient and functional living, working, shopping, or civic environment, and will be as attractive as the nature of the use and its location and setting warrant.

The drive-through will avoid on-street queuing by accommodating thirteen cars and the geometry of the drive-through lane will allow for the turns required to travel in and out of the facility. The proposed setback will be consistent with properties to the north and south of the site. Landscaping will significantly upgrade the appearance of the site.

C. That the proposed development will enhance the successful operation of the surrounding area in its basic community functions, or will provide an essential service to the community or region.

Construction of a cafe will increase the vitality of the area as a shopping district and enhance the commercial corridor as a dining and social gathering destination for the neighborhood.

D. That the proposal conforms to all applicable design review criteria set forth in the design review procedure at Section 17.136.050(B) for non-residential facilities.

See Design Review Criteria, below.

E That the proposal conforms in all significant respects with the Oakland General Plan and with any other applicable plan or development control map which has been adopted by the City Council.

Fulfillment of General Plan and Zoning criteria is demonstrated by the "General Plan Analysis Section," above.

Section 17.102.290: Drive-through Nonresidential Facilities Findings

A.1. The proposed facility will not impair a generally continuous wall of building facades.

This section of International Boulevard does not contain a continuous wall of building facades. Adjacent lots contain buildings that are setback from the front property line to create a parking area.

A.2. The proposed facility will not result in weakening the concentration and continuity of retail facilities at ground level, and will not impair the retention or creation of a shopping frontage.

The proposal will not impair a consistent shopping frontage because the buildings on adjacent properties are significantly set back from the street. The surrounding area contains automotive oriented commercial uses.

A.3. The proposed facility will not directly result in a significant reduction in the circulation level of service of adjacent streets.

The existing site has one, existing 24-foot curb cut and driveway from Tucker Street, without noticeable reduction in circulation levels of adjacent streets. International Boulevard has non-residential uses near the site at this end of its right-of-way. The relatively small increase in vehicle

traffic to the site would be adequately absorbed by International Boulevard.

B. Standards. A driveway serving as a vehicle stacking or queuing lane for a drive-through window shall be separated from parking areas and shall not be the only entry or exit lane on the premises. Such facility shall be so situated that any vehicle overflow from it shall not spill onto public streets or the major circulation aisles of any parking lot. Such facility shall have durable, all-weather surface; shall have reasonable disposal of surface waters by grading and drainage; and shall be permanently maintained in good condition.

The driveways for stacking or queuing lanes for the drive-through windows are separated from parking areas and are not the only entry or exit lanes on the premises. Vehicles not using the drive-through lane can completely bypass that portion of the site and use non-dedicated parking spaces. The overflow will not spill into public streets because the drive through will accommodate a queue of eight cars. The surface will be durable and all-weather, well drained and maintained as required.

C. Dimensions. Each vehicle space comprising a stacking or queuing lane for a drive-through window shall be a minimum of ten (10) feet in width by twenty (20) feet in length. Such a stacking or queuing lane shall have a maximum capacity of eight (8) vehicles.

The project contains eight vehicle spaces between the order stations and the merchandise pickup station and a total of thirteen spaces for vehicle queuing. The drive-through aisle is approximately 12 feet in width and 140 feet in length.

Section 17.148.050 - Variance Criteria:

A) Strict compliance with the specified regulations would result in practical difficulty or unnecessary hardship inconsistent with the purpose of the Zoning Regulations, due to unique physical or topographic circumstances or conditions of design; or, as an alternative in the case of a minor variance, that such strict compliance would preclude an effective design solution improving livability, operational efficiency, or appearance:

The Variance is required because the proposed free-standing 2,000 square-foot commercial building is sited 33 feet from the front property line, which is 23 feet beyond the 10-foot maximum setback required by the Planning Code. Strict compliance would require the building to be setback much less than those on adjacent parcels, which would create a discontinuity in the streetscape. Further, due to site constraints, compliance with the regulation would require an exit to International Boulevard, which is infeasible due to the existing infrastructure in the right of way.

B) Strict compliance with the regulations would deprive the applicant of privileges enjoyed by owners of similarly zoned property; or as an alternative in the case of a minor variance, that such strict compliance would preclude an effective design solution fulfilling the basic intent of the applicable regulation:

Strict compliance would deprive the applicant of privileges enjoyed by adjacent properties, which have buildings with similar setbacks as that proposed.

C) The variance, if granted, will not adversely affect the character, livability, or appropriate development of abutting properties or the surrounding area, and will not be detrimental to the public welfare or contrary to adopted plans or development policy:

The subject property is surrounded by commercial buildings or commercial activities in an urban setting. The proposed building will not adversely affect the character of the neighborhood or the commercial corridor. The proposal will allow the operators to provide a much-needed upgrade to the existing facilities while providing a restaurant option for the community.

D) The variance will not constitute a grant of special privilege inconsistent with limitations imposed on similarly zoned properties or inconsistent with the purposes of the Zoning Regulations:

The purpose of the regulation is to provide a consistent street "wall" of commercial storefronts. This street design is not feasible in for this project because adjacent buildings are significantly setback from the street. Setting the building back to be consistent with the neighboring buildings would provide the most effective streetscape.

E) That the elements of the proposal requiring the variance (e.g. elements such as buildings, walls, fences, driveways, garages and carports, etc.) conform with Regular Design review Criteria set forth in the design review procedures at section 17.136.050:

As shown above, the proposed project meets all the required regular design review criteria set forth in chapter 17.136.050.

CONDITIONS OF APPROVAL

The proposal is hereby approved subject to the following Conditions of Approval:

1. Approved Use

The project shall be constructed and operated in accordance with the authorized use as described in the approved application materials, and the approved plans **February 17, 2020**, as amended by the following conditions of approval and mitigation measures, if applicable ("Conditions of Approval" or "Conditions").

2. Effective Date, Expiration, Extensions and Extinguishment

This Approval shall become effective immediately, unless the Approval is appealable, in which case the Approval shall become effective in ten (10) calendar days unless an appeal is filed. Unless a different termination date is prescribed, this Approval shall expire **two years** from the Approval date, or from the date of the final decision in the event of an appeal, unless within such period a complete building permit application has been filed with the Bureau of Building and diligently pursued towards completion, or the authorized activities have commenced in the case of a permit not involving construction or alteration. Upon written request and payment of appropriate fees submitted no later than the expiration date of this Approval, the Director of City Planning or designee may grant a one-year extension of this date, with additional extensions subject to approval by the approving body. Expiration of any necessary building permit or other construction-related permit for this project may invalidate this Approval if said Approval has also expired. If litigation is filed challenging this Approval, or its implementation, then the time period stated above for obtaining necessary permits for construction or alteration and/or commencement of authorized activities is automatically extended for the duration of the litigation.

3. Compliance with Other Requirements

The project applicant shall comply with all other applicable federal, state, regional, and local laws/codes, requirements, regulations, and guidelines, including but not limited to those imposed by the City's Bureau of Building, Fire Marshal, Department of Transportation, and Public Works Department. Compliance with other applicable requirements may require changes to the approved use and/or plans. These changes shall be processed in accordance with the procedures contained in Condition #4.

4. Minor and Major Changes

a. Minor changes to the approved project, plans, Conditions, facilities, or use may be approved administratively by the Director of City Planning

b. Major changes to the approved project, plans, Conditions, facilities, or use shall be reviewed by the Director of City Planning to determine whether such changes require submittal and approval of a revision to the Approval by the original approving body or a new independent permit/approval. Major revisions shall be reviewed in accordance with the procedures required for the original permit/approval. A new independent permit/approval shall be reviewed in accordance with the procedures required for the new permit/approval.

5. Compliance with Conditions of Approval

a. The project applicant and property owner, including successors, (collectively referred to hereafter as the "project applicant" or "applicant") shall be responsible for compliance with all the Conditions of Approval and any recommendations contained in any submitted and approved technical report at his/her sole cost and expense, subject to review and approval by the City of Oakland.

b. The City of Oakland reserves the right at any time during construction to require certification by a licensed professional at the project applicant's expense that the as-built project conforms to all applicable requirements, including but not limited to, approved maximum heights and minimum setbacks. Failure to construct the project in accordance with the Approval may result in remedial reconstruction, permit revocation, permit modification, stop work, permit suspension, or other corrective action.

c. Violation of any term, Condition, or project description relating to the Approval is unlawful, prohibited, and a violation of the Oakland Municipal Code. The City of Oakland reserves the right to initiate civil and/or criminal enforcement and/or abatement proceedings, or after notice and public hearing, to revoke the Approval or alter these Conditions if it is found that there is violation of any of the Conditions or the provisions of the Planning Code or Municipal Code, or the project operates as or causes a public nuisance. This provision is not intended to, nor does it, limit in any manner whatsoever the ability of the City to take appropriate enforcement actions. The project applicant shall be responsible for paying fees in accordance with the City's Master Fee Schedule for inspections conducted by the City or a City-designated third-party to investigate alleged violations of the Approval or Conditions.

6. Signed Copy of the Approval/Conditions

A copy of the Approval letter and Conditions shall be signed by the project applicant, attached to each set of permit plans submitted to the appropriate City agency for the project, and made available for review at the project job site at all times.

7. Blight/Nuisances

The project site shall be kept in a blight/nuisance-free condition. Any existing blight or nuisance shall be abated within sixty (60) days of approval, unless an earlier date is specified elsewhere.

8. Indemnification

a. To the maximum extent permitted by law, the project applicant shall defend (with counsel acceptable to the City), indemnify, and hold harmless the City of Oakland, the Oakland City Council, the Oakland Redevelopment Successor Agency, the Oakland City Planning Commission, and their respective agents, officers, employees, and volunteers (hereafter collectively called "City") from any liability, damages, claim, judgment, loss (direct or indirect), action, causes of action, or proceeding (including legal costs, attorneys' fees, expert witness or consultant fees, City Attorney or staff time, expenses or costs) (collectively called "Action") against the City to attack, set aside, void or annul this Approval or implementation of this Approval. The City may elect, in its sole discretion, to participate in the defense of said Action and the project applicant shall reimburse the City for its reasonable legal costs and attorneys' fees.

b. Within ten (10) calendar days of the filing of any Action as specified in subsection (a) above, the project applicant shall execute a Joint Defense Letter of Agreement with the

City, acceptable to the Office of the City Attorney, which memorializes the above obligations. These obligations and the Joint Defense Letter of Agreement shall survive termination, extinguishment, or invalidation of the Approval. Failure to timely execute the Letter of Agreement does not relieve the project applicant of any of the obligations contained in this Condition or other requirements or Conditions of Approval that may be imposed by the City.

9. Severability

The Approval would not have been granted but for the applicability and validity of each and every one of the specified Conditions, and if one or more of such Conditions is found to be invalid by a court of competent jurisdiction this Approval would not have been granted without requiring other valid Conditions consistent with achieving the same purpose and intent of such Approval.

10. Special Inspector/Inspections, Independent Technical Review, Project Coordination and Monitoring

The project applicant may be required to cover the full costs of independent third-party technical review and City monitoring and inspection, including without limitation, special inspector(s)/inspection(s) during times of extensive or specialized plan-check review or construction, and inspections of potential violations of the Conditions of Approval. The project applicant shall establish a deposit with Engineering Services and/or the Bureau of Building, if directed by the Director of Public Works, Building Official, Director of City Planning, Director of Transportation, or designee, prior to the issuance of a construction-related permit and on an ongoing as-needed basis.

11. Public Improvements

The project applicant shall obtain all necessary permits/approvals, such as encroachment permits, obstruction permits, curb/gutter/sidewalk permits, and public improvement ("p-job") permits from the City for work in the public right-of-way, including but not limited to, streets, curbs, gutters, sidewalks, utilities, and fire hydrants. Prior to any work in the public right-of-way, the applicant shall submit plans for review and approval by the Bureau of Planning, the Bureau of Building, Engineering Services, Department of Transportation, and other City departments as required. Public improvements shall be designed and installed to the satisfaction of the City.

12. Regulatory Permits and Authorizations from Other Agencies

Requirement: The project applicant shall obtain all necessary regulatory permits and authorizations from applicable resource/regulatory agencies including, but not limited to, the Regional Water Quality Control Board, Bay Area Air Quality Management District, Bay Conservation and Development Commission, California Department of Fish and Wildlife, U. S. Fish and Wildlife Service, and Army Corps of Engineers and shall comply with all requirements and conditions of the permits/authorizations. The project applicant shall submit evidence of the approved permits/authorizations to the City, along with evidence demonstrating compliance with any regulatory permit/authorization conditions of approval.

When Required: Prior to activity requiring permit/authorization from regulatory agency

Initial Approval: Approval by applicable regulatory agency with jurisdiction; evidence of approval submitted to Bureau of Planning

Monitoring/Inspection: Applicable regulatory agency with jurisdiction

13. Trash and Blight Removal

Requirement: The project applicant and his/her successors shall maintain the property free of blight, as defined in chapter 8.24 of the Oakland Municipal Code. For nonresidential and multi-family residential projects, the project applicant shall install and maintain trash receptacles near public entryways as needed to provide sufficient capacity for building users.

When Required: Ongoing

Initial Approval: N/A

Monitoring/Inspection: Bureau of Building

14. Graffiti Control

Requirement:

a. During construction and operation of the project, the project applicant shall incorporate best management practices reasonably related to the control of graffiti and/or the mitigation of the impacts of graffiti. Such best management practices may include, without limitation:
   i. Installation and maintenance of landscaping to discourage defacement of and/or protect likely graffiti-attracting surfaces.
   ii. Installation and maintenance of lighting to protect likely graffiti-attracting surfaces.
   iii. Use of paint with anti-graffiti coating.
   iv. Incorporation of architectural or design elements or features to discourage graffiti defacement in accordance with the principles of Crime Prevention Through Environmental Design (CPTED).
   v. Other practices approved by the City to deter, protect, or reduce the potential for graffiti defacement.

b. The project applicant shall remove graffiti by appropriate means within seventy-two (72) hours. Appropriate means include the following:
   i. Removal through scrubbing, washing, sanding, and/or scraping (or similar method) without damaging the surface and without discharging wash water or cleaning detergents into the City storm drain system.
   ii. Covering with new paint to match the color of the surrounding surface.
   iii. Replacing with new surfacing (with City permits if required).

When Required: Ongoing

Initial Approval: N/A

Monitoring/Inspection: Bureau of Building

15. Landscape Plan

a. Landscape Plan Required

- Requirement: The project applicant shall submit a final Landscape Plan for City review and approval that is consistent with the approved Landscape Plan. The Landscape Plan shall be included with the set of drawings submitted for the construction-related permit and shall comply with the landscape requirements of chapter 17.124 of the Planning Code. Proposed plants shall be predominantly drought-tolerant. Specification of any street trees shall comply with the Master Street Tree List and Tree Planting Guidelines (which can be viewed at http://www2.oaklandnet.com/oakca1/groups/pwa/documents/report/oak042662.pdf and http://www2.oaklandnet.com/oakca1/groups/pwa/documents/form/oak025595.pdf, respectively), and with any applicable streetscape plan.

When Required: Prior to approval of construction-related permit

Initial Approval: Bureau of Planning

Monitoring/Inspection: N/A

b. Landscape Installation

Requirement: The project applicant shall implement the approved Landscape Plan unless a bond, cash deposit, letter of credit, or other equivalent instrument acceptable to the Director of City Planning, is provided. The financial instrument shall equal the greater of $2,500 or the estimated cost of implementing the Landscape Plan based on a licensed contractor's bid.

When Required: Prior to building permit final

Initial Approval: Bureau of Planning

Monitoring/Inspection: Bureau of Building

c. Landscape Maintenance

Requirement: All required planting shall be permanently maintained in good growing condition and, whenever necessary, replaced with new plant materials to ensure continued compliance with applicable landscaping requirements. The property owner shall be responsible for maintaining planting in adjacent public rights-of-way. All required fences, walls, and irrigation systems shall be permanently maintained in good condition and, whenever necessary, repaired or replaced.

When Required: Ongoing

Initial Approval: N/A

Monitoring/Inspection: Bureau of Building

16. Lighting

Requirement: Proposed new exterior lighting fixtures shall be adequately shielded to a point below the light bulb and reflector to prevent unnecessary glare onto adjacent properties.

When Required: Prior to building permit final

Initial Approval: N/A

Monitoring/Inspection: Bureau of Building

17. Dust Controls – Construction Related

Requirement: The project applicant shall implement all of the following applicable dust control measures during construction of the project:

a. Water all exposed surfaces of active construction areas at least twice daily. Watering should be sufficient to prevent airborne dust from leaving the site. Increased watering frequency may be necessary whenever wind speeds exceed 15 miles per hour. Reclaimed water should be used whenever feasible.
b. Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least two feet of freeboard (i.e., the minimum required space between the top of the load and the top of the trailer).
c. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
d. Limit vehicle speeds on unpaved roads to 15 miles per hour.
e. All demolition activities (if any) shall be suspended when average wind speeds exceed 20 mph.
f. All trucks and equipment, including tires, shall be washed off prior to leaving the site.
g. Site accesses to a distance of 100 feet from the paved road shall be treated with a 6 to 12 inch compacted layer of wood chips, mulch, or gravel.

When Required: During construction

Initial Approval: N/A

Monitoring/Inspection: Bureau of Building

18. Criteria Air Pollutant Controls - Construction Related

Requirement: The project applicant shall implement all of the following applicable basic control measures for criteria air pollutants during construction of the project as applicable:

a. Idling times on all diesel-fueled commercial vehicles over 10,000 lbs. shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to two minutes (as required by the California airborne toxics control measure Title 13, Section 2485, of the California Code of Regulations). Clear signage to this effect shall be provided for construction workers at all access points.
b. Idling times on all diesel-fueled off-road vehicles over 25 horsepower shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to two minutes and fleet operators must develop a written policy as required by Title 23, Section 2449, of the California Code of Regulations ("California Air Resources Board Off-Road Diesel Regulations").
c. All construction equipment shall be maintained and properly tuned in accordance with the manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation. Equipment check documentation should be kept at the construction site and be available for review by the City and the Bay Area Air Quality District as needed.
d. Portable equipment shall be powered by grid electricity if available. If electricity is not available, propane or natural gas generators shall be used if feasible. Diesel engines shall only be used if grid electricity is not available and propane or natural gas generators cannot meet the electrical demand.
e. Low VOC (i.e., ROG) coatings shall be used that comply with BAAQMD Regulation 8, Rule 3: Architectural Coatings.

f. All equipment to be used on the construction site shall comply with the requirements of Title 13, Section 2449, of the California Code of Regulations ("California Air Resources Board Off-Road Diesel Regulations") and upon request by the City (and the Air District if specifically requested), the project applicant shall provide written documentation that fleet requirements have been met.

When Required: During construction

Initial Approval: N/A

Monitoring/Inspection: Bureau of Building

19. Archaeological and Paleontological Resources – Discovery During Construction

Requirement: Pursuant to CEQA Guidelines section 15064.5(f), in the event that any historic or prehistoric subsurface cultural resources are discovered during ground disturbing activities, all work within 50 feet of the resources shall be halted and the project applicant shall notify the City and consult with a qualified archaeologist or paleontologist, as applicable, to assess the significance of the find. In the case of discovery of paleontological resources, the assessment shall be done in accordance with the Society of Vertebrate Paleontology standards. If any find is determined to be significant, appropriate avoidance measures recommended by the consultant and approved by the City must be followed unless avoidance is determined unnecessary or infeasible by the City. Feasibility of avoidance shall be determined with consideration of factors such as the nature of the find, project design, costs, and other considerations. If avoidance is unnecessary or infeasible, other appropriate measures (e.g., data recovery, excavation) shall be instituted. Work may proceed on other parts of the project site while measures for the cultural resources are implemented.

In the event of data recovery of archaeological resources, the project applicant shall submit an Archaeological Research Design and Treatment Plan (ARDTP) prepared by a qualified archaeologist for review and approval by the City. The ARDTP is required to identify how the proposed data recovery program would preserve the significant information the archaeological resource is expected to contain. The ARDTP shall identify the scientific/historic research questions applicable to the expected resource, the data classes the resource is expected to possess, and how the expected data classes would address the applicable research questions. The ARDTP shall include the analysis and specify the curation and storage methods. Data recovery, in general, shall be limited to the portions of the archaeological resource that could be impacted by the proposed project. Destructive data recovery methods shall not be applied to portions of the archaeological resources if nondestructive methods are practicable. Because the intent of the ARDTP is to save as much of the archaeological resource as possible, including moving the resource, if feasible, preparation and implementation of the ARDTP would reduce the potential adverse impact to less than significant. The project applicant shall implement the ARDTP at his/her expense.

In the event of excavation of paleontological resources, the project applicant shall submit an excavation plan prepared by a qualified paleontologist to the City for review and approval. All significant cultural materials recovered shall be subject to scientific analysis, professional museum curation, and/or a report prepared by a qualified paleontologist, as appropriate, according to current professional standards and at the expense of the project applicant.

When Required: During construction

Initial Approval: N/A

Monitoring/Inspection: Bureau of Building

20. Human Remains – Discovery During Construction

Requirement: Pursuant to CEQA Guidelines section 15064.5(e)(1), in the event that human skeletal remains are uncovered at the project site during construction activities, all work shall immediately halt and the project applicant shall notify the City and the Alameda County Coroner. If the County Coroner determines that an investigation of the cause of death is required or that the remains are Native American, all work shall cease within 50 feet of the remains until appropriate arrangements are made. In the event that the remains are Native American, the City shall contact the California Native American Heritage Commission (NAHC), pursuant to subdivision (c) of section 7050.5 of the California Health and Safety Code. If the agencies determine that avoidance is not feasible, then an alternative plan shall be prepared with specific steps and timeframe required to resume construction activities. Monitoring, data recovery, determination of significance, and avoidance measures (if applicable) shall be completed expeditiously and at the expense of the project applicant.

When Required: During construction

Initial Approval: N/A

Monitoring/Inspection: Bureau of Building

21. Construction-Related Permit(s)

Requirement: The project applicant shall obtain all required construction-related permits/approvals from the City. The project shall comply with all standards, requirements and conditions contained in construction-related codes, including but not limited to the Oakland Building Code and the Oakland Grading Regulations, to ensure structural integrity and safe construction.

When Required: Prior to approval of construction-related permit

Initial Approval: Bureau of Building

Monitoring/Inspection: Bureau of Building

22. Hazardous Materials Related to Construction

Requirement: The project applicant shall ensure that Best Management Practices (BMPs) are implemented by the contractor during construction to minimize potential negative effects on groundwater, soils, and human health. These shall include, at a minimum, the following:

a. Follow manufacture's recommendations for use, storage, and disposal of chemical products used in construction;
b. Avoid overtopping construction equipment fuel gas tanks;
c. During routine maintenance of construction equipment, properly contain and remove grease and oils;
d. Properly dispose of discarded containers of fuels and other chemicals;
e. Implement lead-safe work practices and comply with all local, regional, state, and federal requirements concerning lead (for more information refer to the Alameda County Lead Poisoning Prevention Program); and
f. If soil, groundwater, or other environmental medium with suspected contamination is encountered unexpectedly during construction activities (e.g., identified by odor or visual

staining, or if any underground storage tanks, abandoned drums or other hazardous materials or wastes are encountered), the project applicant shall cease work in the vicinity of the suspect material, the area shall be secured as necessary, and the applicant shall take all appropriate measures to protect human health and the environment. Appropriate measures shall include notifying the City and applicable regulatory agency(ies) and implementation of the actions described in the City's Standard Conditions of Approval, as necessary, to identify the nature and extent of contamination. Work shall not resume in the area(s) affected until the measures have been implemented under the oversight of the City or regulatory agency, as appropriate.

When Required: During construction

Initial Approval: N/A

Monitoring/Inspection: Bureau of Building

23. Site Design Measures to Reduce Stormwater Runoff

Requirement: Pursuant to Provision C.3 of the Municipal Regional Stormwater Permit issued under the National Pollutant Discharge Elimination System (NPDES), the project applicant is encouraged to incorporate appropriate site design measures into the project to reduce the amount of stormwater runoff. These measures may include, but are not limited to, the following:

a. Minimize impervious surfaces, especially directly connected impervious surfaces and surface parking areas;
b. Utilize permeable paving in place of impervious paving where appropriate;
c. Cluster structures;
d. Direct roof runoff to vegetated areas;
e. Preserve quality open space; and
f. Establish vegetated buffer areas.

When Required: Ongoing

Initial Approval: N/A

Monitoring/Inspection: N/A

24. Source Control Measures to Limit Stormwater Pollution

Requirement: Pursuant to Provision C.3 of the Municipal Regional Stormwater Permit issued under the National Pollutant Discharge Elimination System (NPDES), the project applicant is encouraged to incorporate appropriate source control measures to limit pollution in stormwater runoff. These measures may include, but are not limited to, the following:

a. Stencil storm drain inlets "No Dumping – Drains to Bay;"
b. Minimize the use of pesticides and fertilizers;
c. Cover outdoor material storage areas, loading docks, repair/maintenance bays and fueling areas;
d. Cover trash, food waste, and compactor enclosures; and
e. Plumb the following discharges to the sanitary sewer system, subject to City approval:
    i. Discharges from indoor floor mats, equipment, hood filter, wash racks, and, covered outdoor wash racks for restaurants;

ii. Dumpster drips from covered trash, food waste, and compactor enclosures;
iii. Discharges from outdoor covered wash areas for vehicles, equipment, and accessories;
iv. Swimming pool water, if discharge to on-site vegetated areas is not feasible; and
v. Fire sprinkler teat water, if discharge to on-site vegetated areas is not feasible.

When Required: Ongoing
Initial Approval: N/A
Monitoring/Inspection: N/A

25. NPDES C.3 Stormwater Requirements for Regulated Projects

a. Post-Construction Stormwater Management Plan Required

Requirement: The project applicant shall comply with the requirements of Provision C.3 of the Municipal Regional Stormwater Permit issued under the National Pollutant Discharge Elimination System (NPDES). The project applicant shall submit a Post-Construction Stormwater Management Plan to the City for review and approval with the project drawings submitted for site improvements, and shall implement the approved Plan during construction. The Post-Construction Stormwater Management Plan shall include and identify the following:

i. Location and size of new and replaced impervious surface;
ii. Directional surface flow of stormwater runoff;
iii. Location of proposed on-site storm drain lines;
iv. Site design measures to reduce the amount of impervious surface area;
v. Source control measures to limit stormwater pollution;
vi. Stormwater treatment measures to remove pollutants from stormwater runoff, including the method used to hydraulically size the treatment measures; and
vii. Hydromodification management measures, if required by Provision C.3, so that post-project stormwater runoff flow and duration match pre-project runoff.

When Required: Prior to approval of construction-related permit
Initial Approval: Bureau of Planning; Bureau of Building
Monitoring/Inspection: Bureau of Building

b. Maintenance Agreement Required

Requirement: The project applicant shall enter into a maintenance agreement with the City, based on the Standard City of Oakland Stormwater Treatment Measures Maintenance Agreement, in accordance with Provision C.3, which provides, in part, for the following:

i. The project applicant accepting responsibility for the adequate installation/construction, operation, maintenance, inspection, and reporting of any on-site stormwater treatment measures being incorporated into the project until the responsibility is legally transferred to another entity; and
ii. Legal access to the on-site stormwater treatment measures for representatives of the City, the local vector control district, and staff of the Regional Water Quality Control Board, San Francisco Region, for the purpose of verifying the implementation, operation, and maintenance of the on-site stormwater treatment measures and to take corrective action if necessary.

The maintenance agreement shall be recorded at the County Recorder's Office at the applicant's expense.

When Required: Prior to building permit final

Initial Approval: Bureau of Building

Monitoring/Inspection: Bureau of Building

26. Construction Days/Hours

Requirement: The project applicant shall comply with the following restrictions concerning construction days and hours:

a. Construction activities are limited to between 7:00 a.m. and 7:00 p.m. Monday through Friday, except that pier drilling and/or other extreme noise generating activities greater than 90 dBA shall be limited to between 8:00 a.m. and 4:00 p.m.

b. Construction activities are limited to between 9:00 a.m. and 5:00 p.m. on Saturday. In residential zones and within 300 feet of a residential zone, construction activities are allowed from 9:00 a.m. to 5:00 p.m. only within the interior of the building with the doors and windows closed. No pier drilling or other extreme noise generating activities greater than 90 dBA are allowed on Saturday.

c. No construction is allowed on Sunday or federal holidays.

Construction activities include, but are not limited to, truck idling, moving equipment (including trucks, elevators, etc.) or materials, deliveries, and construction meetings held on-site in a non-enclosed area.

Any construction activity proposed outside of the above days and hours for special activities (such as concrete pouring which may require more continuous amounts of time) shall be evaluated on a case-by-case basis by the City, with criteria including the urgency/emergency nature of the work, the proximity of residential or other sensitive uses, and a consideration of nearby residents'/occupants' preferences. The project applicant shall notify property owners and occupants located within 300 feet at least 14 calendar days prior to construction activity proposed outside of the above days/hours. When submitting a request to the City to allow construction activity outside of the above days/hours, the project applicant shall submit information concerning the type and duration of proposed construction activity and the draft public notice for City review and approval prior to distribution of the public notice.

When Required: During construction

Initial Approval: N/A

Monitoring/Inspection: Bureau of Building

27. Construction Noise

Requirement: The project applicant shall implement noise reduction measures to reduce noise impacts due to construction. Noise reduction measures include, but are not limited to, the following:

a. Equipment and trucks used for project construction shall utilize the best available noise control techniques (e.g., improved mufflers, equipment redesign, use of intake silencers, ducts, engine enclosures and acoustically-attenuating shields or shrouds) wherever feasible.

b. Except as provided herein, impact tools (e.g., jack hammers, pavement breakers, and rock drills) used for project construction shall be hydraulically or electrically powered to avoid noise associated with compressed air exhaust from pneumatically powered tools. However, where use of pneumatic tools is unavoidable, an exhaust muffler on the compressed air exhaust shall be used; this muffler can lower noise levels from the exhaust by up to about 10 dBA. External jackets on the tools themselves shall be used, if such jackets are commercially available, and this could achieve a reduction of 5 dBA. Quieter procedures shall be used, such as drills rather than impact equipment, whenever such procedures are available and consistent with construction procedures.

c. Applicant shall use temporary power poles instead of generators where feasible.

d. Stationary noise sources shall be located as far from adjacent properties as possible, and they shall be muffled and enclosed within temporary sheds, incorporate insulation barriers, or use other measures as determined by the City to provide equivalent noise reduction.

e. The noisiest phases of construction shall be limited to less than 10 days at a time. Exceptions may be allowed if the City determines an extension is necessary and all available noise reduction controls are implemented.

When Required: During construction

Initial Approval: N/A

Monitoring/Inspection: Bureau of Building

28. Operational Noise

Requirement: Noise levels from the project site after completion of the project (i.e., during project operation) shall comply with the performance standards of chapter 17.120 of the Oakland Planning Code and chapter 8.18 of the Oakland Municipal Code. If noise levels exceed these standards, the activity causing the noise shall be abated until appropriate noise reduction measures have been installed and compliance verified by the City.

When Required: Ongoing

Initial Approval: N/A

Monitoring/Inspection: Bureau of Building

29. Capital Improvements Impact Fee

Requirement: The project applicant shall comply with the requirements of the City of Oakland Capital Improvements Fee Ordinance (chapter 15.74 of the Oakland Municipal Code).

When Required: Prior to issuance of building permit

Initial Approval: Bureau of Building

Monitoring/Inspection: N/A

30. Construction Activity in the Public Right-of-Way

a. Obstruction Permit Required

Requirement: The project applicant shall obtain an obstruction permit from the City prior to placing any temporary construction-related obstruction in the public right-of-way, including City streets, sidewalks, bicycle facilities, and bus stops.

When Required: Prior to approval of construction-related permit

Initial Approval: Department of Transportation

Monitoring/Inspection: Department of Transportation

b. Traffic Control Plan Required

Requirement: In the event of obstructions to vehicle or bicycle travel lanes, bus stops, or sidewalks, the project applicant shall submit a Traffic Control Plan to the City for review and approval prior to obtaining an obstruction permit. The project applicant shall submit evidence of City approval of the Traffic Control Plan with the application for an obstruction permit. The Traffic Control Plan shall contain a set of comprehensive traffic control measures for auto, transit, bicycle, and pedestrian accommodations (or detours, if accommodations are not feasible), including detour signs if required, lane closure procedures, signs, cones for drivers, and designated construction access routes. The Traffic Control Plan shall be in conformance with the City's Supplemental Design Guidance for Accommodating Pedestrians, Bicyclists, and Bus Facilities in Construction Zones. The project applicant shall implement the approved Plan during construction.

Initial Approval: Department of Transportation

Monitoring/Inspection: Department of Transportation

c. Repair of City Streets

Requirement: The project applicant shall repair any damage to the public right-of way, including streets and sidewalks, caused by project construction at his/her expense within one week of the occurrence of the damage (or excessive wear), unless further damage/excessive wear may continue; in such case, repair shall occur prior to approval of the final inspection of the construction-related permit. All damage that is a threat to public health or safety shall be repaired immediately.

When Required: Prior to building permit final

Initial Approval: N/A

Monitoring/Inspection: Department of Transportation

31. Bicycle Parking

Requirement: The project applicant shall comply with the City of Oakland Bicycle Parking Requirements (chapter 17.118 of the Oakland Planning Code). The project drawings submitted for construction-related permits shall demonstrate compliance with the requirements.

When Required: Prior to approval of construction-related permit

Initial Approval: Bureau of Planning

Monitoring/Inspection: Bureau of Building

32. Transportation Impact Fee

Requirement: The project applicant shall comply with the requirements of the City of Oakland Transportation Impact Fee Ordinance (chapter 15.74 of the Oakland Municipal Code).

When Required: Prior to issuance of building permit

Initial Approval: Bureau of Building

Monitoring/Inspection: N/A

33. Construction and Demolition Waste Reduction and Recycling

Requirement: The project applicant shall comply with the City of Oakland Construction and Demolition Waste Reduction and Recycling Ordinance (chapter 15.34 of the Oakland Municipal Code) by submitting a Construction and Demolition Waste Reduction and Recycling Plan (WRRP) for City review and approval, and shall implement the approved WRRP. Projects subject to these requirements include all new construction, renovations/alterations/modifications with construction values of $50,000 or more (except R-3 type construction), and all demolition (including soft demolition) except demolition of type R-3 construction. The WRRP must specify the methods by which the project will divert construction and demolition debris waste from landfill disposal in accordance with current City requirements. The WRRP may be submitted electronically at www.greenhalosystems.com or manually at the City's Green Building Resource Center. Current standards, FAQs, and forms are available on the City's website and in the Green Building Resource Center.

When Required: Prior to approval of construction-related permit

Initial Approval: Public Works Department, Environmental Services Division

Monitoring/Inspection: Public Works Department, Environmental Services Division

34. Underground Utilities

Requirement: The project applicant shall place underground all new utilities serving the project and under the control of the project applicant and the City, including all new gas, electric, cable, and telephone facilities, fire alarm conduits, street light wiring, and other wiring, conduits, and similar facilities. The new facilities shall be placed underground along the project's street frontage and from the project structures to the point of service. Utilities under the control of other agencies, such as PG&E, shall be placed underground if feasible. All utilities shall be installed in accordance with standard specifications of the serving utilities.

When Required: During construction

Initial Approval: N/A

Monitoring/Inspection: Bureau of Building

35. Recycling Collection and Storage Space

Requirement: The project applicant shall comply with the City of Oakland Recycling Space Allocation Ordinance (chapter 17.118 of the Oakland Planning Code). The project drawings submitted for construction-related permits shall contain recycling collection and storage areas in compliance with the Ordinance. For residential projects, at least two (2) cubic feet of storage and collection space per residential unit is required, with a minimum of ten (10) cubic feet. For nonresidential projects, at least two (2) cubic feet of storage and collection space

per 1,000 square feet of building floor area is required, with a minimum of ten (10) cubic feet.

When Required: Prior to approval of construction-related permit

Initial Approval: Bureau of Planning

Monitoring/Inspection: Bureau of Building

36. Water Efficient Landscape Ordinance (WELO)

Requirement: The project applicant shall comply with California's Water Efficient Landscape Ordinance (WELO) in order to reduce landscape water usage. For the specific ordinance requirements, see the link below:

http://www.water.ca.gov/wateruseefficiency/landscapeordinance/docs/Title%2023%20extract%20-%20Official%20CCR%20pages.pdf

For any landscape project with an aggregate (total noncontiguous) landscape area equal to 2,500 sq. ft. or less, the project applicant may implement either the Prescriptive Measures or the Performance Measures, of, and in accordance with the California's Model Water Efficient Landscape Ordinance. For any landscape project with an aggregate (total noncontiguous) landscape area over 2,500 sq. ft., the project applicant shall implement the Performance Measures in accordance with the WELO.

a. **Prescriptive Measures:** Prior to construction, the project applicant shall submit the Project Information (detailed below) and documentation showing compliance with Appendix D of California's Model Water Efficient Landscape Ordinance (see website below starting on page 38.14(g) in the link above):

b. **Performance Measures:** Prior to construction, the project applicant shall prepare and submit a Landscape Documentation Package for review and approval, which includes the following

i. Project Information:

- Date,
- Applicant and property owner name,
- Project address,
- Total landscape area,
- Project type (new, rehabilitated, cemetery, or home owner installed),
- Water supply type and water purveyor,
- Checklist of documents in the package,
- Project contacts, and
- Applicant signature and date with the statement: "I agree to comply with the requirements of the water efficient landscape ordinance and submit a complete Landscape Documentation Package."

ii. Water Efficient Landscape Worksheet

- Hydrozone Information Table
- Water Budget Calculations with Maximum Applied Water Allowance (MAWA) and EstimatedTotal Water Use

iii. Soil Management Report
iv. Landscape Design Plan
v. Irrigation Design Plan, and
vi. Grading Plan

Upon installation of the landscaping and irrigation systems, and prior to the final of a construction-related permit, the Project applicant shall submit a Certificate of Completion (see page 38.6 in the link above) and landscape and irrigation maintenance schedule for review and approval by the City. The Certificate of Completion shall also be submitted to the local water purveyor and property owner or his or her designee.

For the specific requirements within the Water Efficient Landscape Worksheet, Soil Management Report, Landscape Design Plan, Irrigation Design Plan and Grading Plan, see the link below:

When Required: Prior to approval of construction-related permit

Initial Approval: Bureau of Planning

Monitoring/Inspection: Bureau of Building

37. Employee Rights

Requirement: The project applicant and business owners in the project shall comply with all state and federal laws regarding employees' right to organize and bargain collectively with employers and shall comply with the City of Oakland Minimum Wage Ordinance (chapter 5.92 of the Oakland Municipal Code).

When Required: Ongoing

Initial Approval: N/A

Monitoring/Inspection: N/A

38. Public Art for Private Development

Requirement: The project is subject to the City's Public Art Requirements for Private Development, adopted by Ordinance No. 13275 C.M.S. ("Ordinance"). The public art contribution requirements are equivalent to one-half percent (0.5%) for the "residential" building development costs, and one percent (1.0%) for the "non-residential" building development costs.

The contribution requirement can be met through: 1) the installation of freely accessible art at the site; 2) the installation of freely accessible art within one-quarter mile of the site; or 3) satisfaction of alternative compliance methods described in the Ordinance, including, but not limited to, payment of an in-lieu fee contribution. The applicant shall provide proof of full payment of the in-lieu contribution and/or provide plans, for review and approval by the Planning Director, showing the installation or improvements required by the Ordinance prior to issuance of a building permit.

Proof of installation of artwork, or other alternative requirement, is required prior to the City's issuance of a final certificate of occupancy for each phase of a project unless a separate, legal binding instrument is executed ensuring compliance within a timely manner subject to City approval.

When Required: Payment of in-lieu fees and/or plans showing fulfillment of public art requirement – Prior to Issuance of Building permit

Installation of art/cultural space – Prior to Issuance of a Certificate of Occupancy.

Initial Approval: Bureau of Planning

Monitoring/Inspection: Bureau of Building

Project Specific Conditions of Approval

39. Business Hours

Requirement: The hours of operation shall be limited to 5:00 AM to 12:00 AM. The City Planning Commission reserves the right to modify the hours of operation after holding a public hearing to consider said modification.

When Required: After the issuance of a certificate of occupancy.

Initial Approval: Bureau of Planning

Monitoring/Inspection: Bureau of Planning

40. Loitering Signs

Requirement: The applicant shall post at least five "No Loitering" signs on the building façade and other strategic locations around the site. Signs shall be of a permanent nature and have letters a minimum of 2 inches in height. The owner, manager, and employees of this establishment shall make appropriate efforts to discourage loitering from the premises including calling the police to ask that they remove loiters who refuse to leave. Persons loitering in the vicinity of the exterior of the establishment with no apparent business for more than ten minutes shall be asked to leave. Techniques discussed in the manual entitled "Loitering: Business and Community Based Solutions" may be used and are recommended by the Alcoholic Beverage Action Team.

When Required: After the issuance of a certificate of occupancy.

Initial Approval: Bureau of Planning

Monitoring/Inspection: Bureau of Planning

41. Parking Lot Lighting

Requirement: The exterior lighting fixtures which serve the parking area shall be equipped with daylight sensors that will automatically turn the lights on at dusk and off at sunrise, and shall be adequately shielded to a point below the bulb and reflector and shall prevent unnecessary glare onto adjacent properties. Generally at least 2 ½ lumens, with an average of at least 5 lumens, but no more than an average of 10 lumens, shall light the entire parking lot.

When Required: Issuance of a final building permit.

Initial Approval: Bureau of Planning

Monitoring/Inspection: Bureau of Building

42. Drive-Through Lane/Pedestrian Crossing

Requirement: The applicant shall submit for Zoning Manager approval a plan to improve the drive-through lane/ pedestrian crossing, including but not limited to marked and raised paving surfaces for the pedestrian paths as a speed-hump. The building permits shall be modified accordingly.

When Required: Prior to issuance of a final permit.

Initial Approval: Bureau of Planning

Monitoring/Inspection: Bureau of Building

43. Facility Management

A. Requirement: Trash and Litter

The licensees/property owners shall clear the gutter and sidewalks along Tucker Street and International Blvd Avenue plus twenty feet beyond the property lines along both street of litter twice daily or as needed to control litter. In addition to the requirements of B&P Code Section 25612.5 (sweep or mechanically clean weekly), the licensee shall clean the sidewalk with steam or equivalent measures once per month.

When Required: After the issuance of a certificate of occupancy.

Initial Approval: Bureau of Planning

Monitoring/Inspection: Bureau of Planning

B. Requirement: Noise.

The City Noise Ordinance (OMC Sec. 8.18.010) and Performance Standards (OMC Sec. 17.20.050) shall be observed for noise emanating from within the establishment from any source of recorded music and from patrons as well as from outdoor noise from patrons**.**

When Required: After the issuance of a certificate of occupancy.

Initial Approval: Bureau of Planning

Monitoring/Inspection: Bureau of Planning

44. Rodent Control

Requirement: The Project applicant shall submit a rodent control plan during construction to the City for its review and approval. City staff shall forward the plan to Alameda County Vector Control for their review and comment. The Project applicant shall implement the city approved Vector Control's recommended measures.

When Required: Prior to the issuance of a building permit.

Initial Approval: Bureau of Planning

Monitoring/Inspection: Bureau of Planning

45. Relocating Trash Room

Requirement: Applicant to study the feasibility of relocating the trash room further toward the rear of building (south edge of building) and shall submit the written feasibility study to the City. If the City determines relocation is feasible, the trash room shall be relocated as approved by the City. If relocation is determined to be unfeasible appropriate measures to reduce and contain odors shall be incorporated.

When Required: Prior to the issuance of a building permit.

Initial Approval: Bureau of Planning

Monitoring/Inspection: Bureau of Planning

46. Right-of-Way Improvements

Requirement: Applicant to study the feasibility of modifying or altering the central median located at the International Boulevard and Tucker Street intersection if queuing related to the business affect traffic patterns.

When Required: After the issuance of a certificate of occupancy.

Initial Approval: Bureau of Planning

Monitoring/Inspection: Bureau of Planning

Applicant Statement

I have read and accept responsibility for the Conditions of Approval. I agree to abide by and conform to the Conditions of Approval, as well as to all provisions of the Oakland Planning Code and Oakland Municipal Code pertaining to the project.

_____

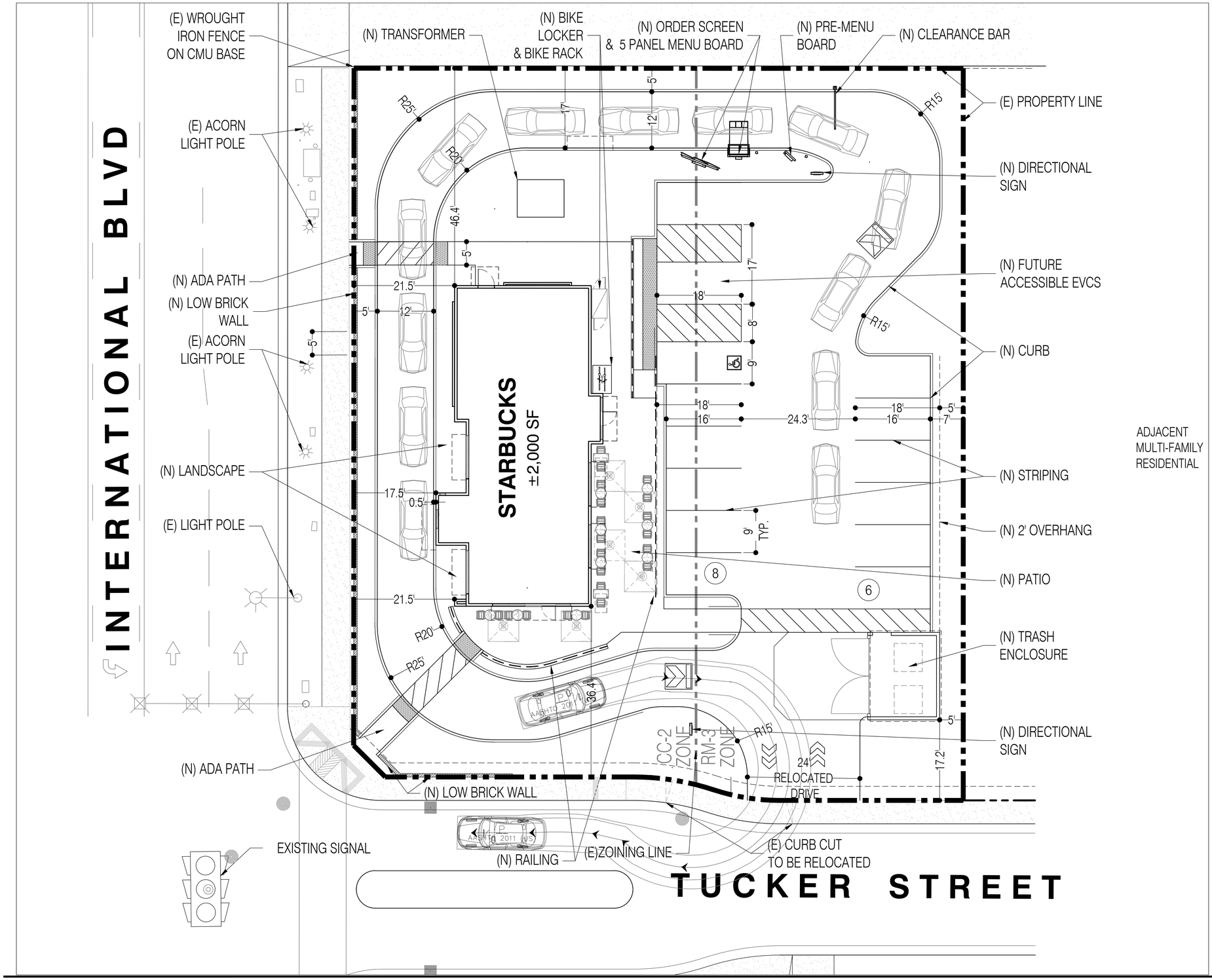
Name of Project Applicant

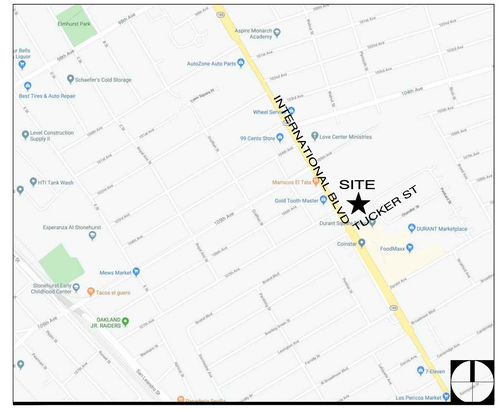
_____

Signature of Project Applicant

_____

Date





KEY MAP

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)

PARKING SUMMARY

USER	RATIO REQUIRED	SPACES REQUIRED	SPACES PROVIDED
STARBUCKS	0 REQUIRED	0	
STANDARD		0	12
ACCESSIBLE			1+1
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
09.23.2021	PREP SP-5	BP

GREENBERG FARROW CONTACTS

PROJECT MANAGER	**I.IBRAHIMBEGOVIC**
SITE DEV. COORDINATOR	**F. CODA**

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

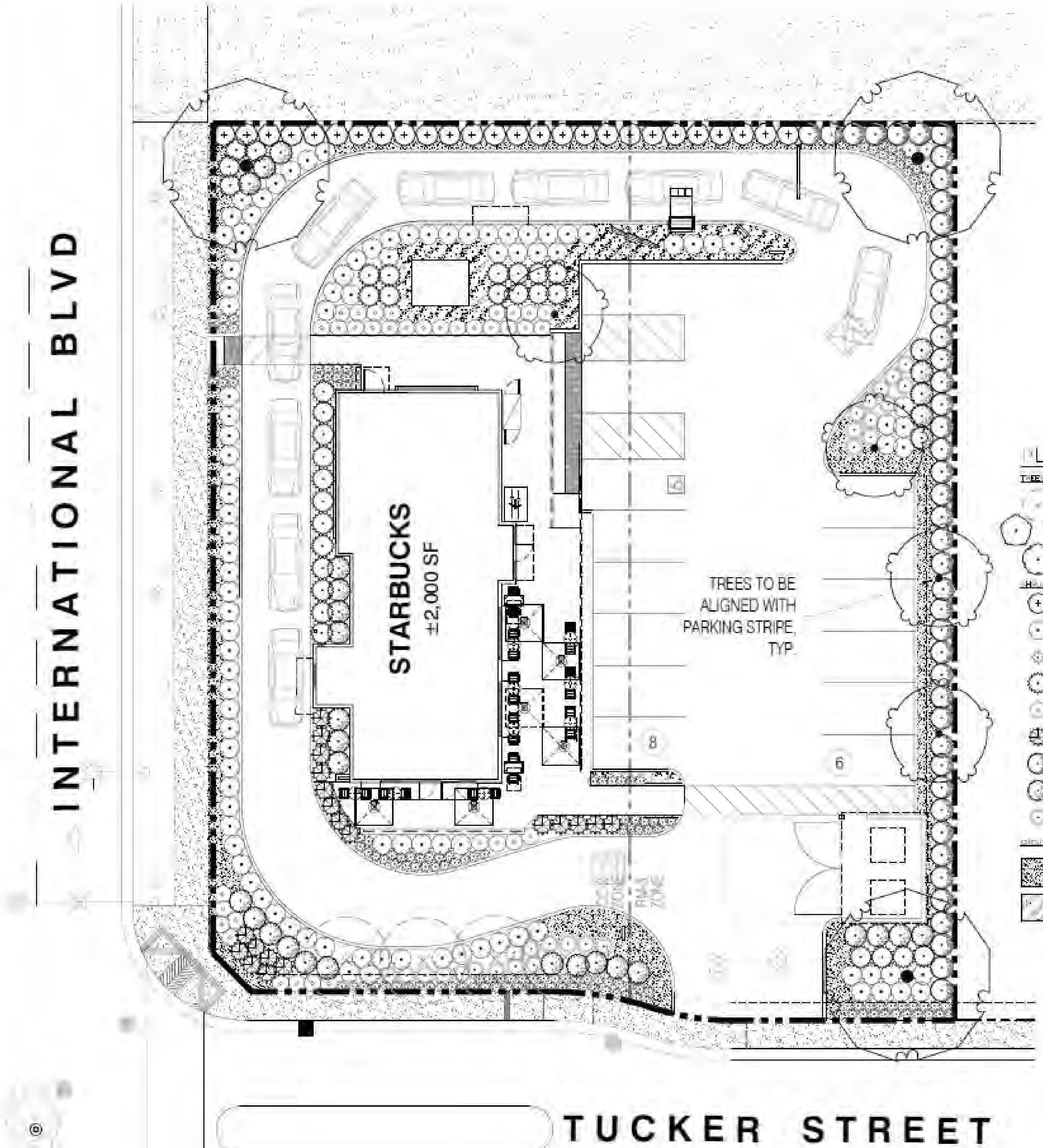
TRUE NORTH

SCALE: 1"=10'-0"

0 5 10 20 30 40

STARBUCKS
NEC INTERNATIONAL BLVD & TUCKER ST
OAKLAND, CA
20191416.0

SITE PLAN
SP-5
09.23.2021



KEY MAP

PLANT SCHEDULE

TREES	BOTANICAL NAME	COMMON NAME	CONT.	WUCOLS IV	
	[illegible]	Albizia Standard	Existing	Protect in Place	
	Cercis canadensis 'Oklahoma'	Oklahoma Redbud	24"box	M	
	Pistacia chinensis 'Keith Davey'	Keith Davey Chinese Pistache	24"box	L	
SHRUBS	**BOTANICAL NAME**	**COMMON NAME**	**CONT.**	**WUCOLS**	
	Arctostaphylos x 'Sunset'	Sunset Manzanita	5 gal	L	
	Callistemon viminalis 'Little John'	Dwarf Weeping Bottlebrush	5 gal	L	
	Dietes iridioides [illegible]	Fortnight Lily	5 gal	L	
	Muhlenbergia rigens	Deer Grass	1 gal	L	
	Myrtus communis 'Compacta'	Dwarf Myrtle	5 gal	L	
	Phormium tenax [illegible]	New Zealand Flax	1 gal	L	
	Podocarpus macrophyllus 'Maki'	Maki Shrubby Yew Podocarpus	5 gal	M	
	Rhaphiolepis indica 'Clara'	Clara Indian Hawthorn	5 gal	L	
	Salvia leucantha 'Midnight'	Mexican Bush Sage	5 gal	L	
GROUND COVERS	**BOTANICAL NAME**	**COMMON NAME**	**ROOT**	**WUCOLS**	**SPACING**
	Arctostaphylos edmundsii 'Carmel Sur'	Carmel Sur Manzanita	1 gal	L	60" o.c.
	Lantana camara 'Rainbow' TM	Rainbow Lantana	1 gal	L	15" o.c.

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 THROUGH 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 = 270 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	I.IBRAHIMBEGOVIC
SITE DEV. COORDINATOR	F. CODA

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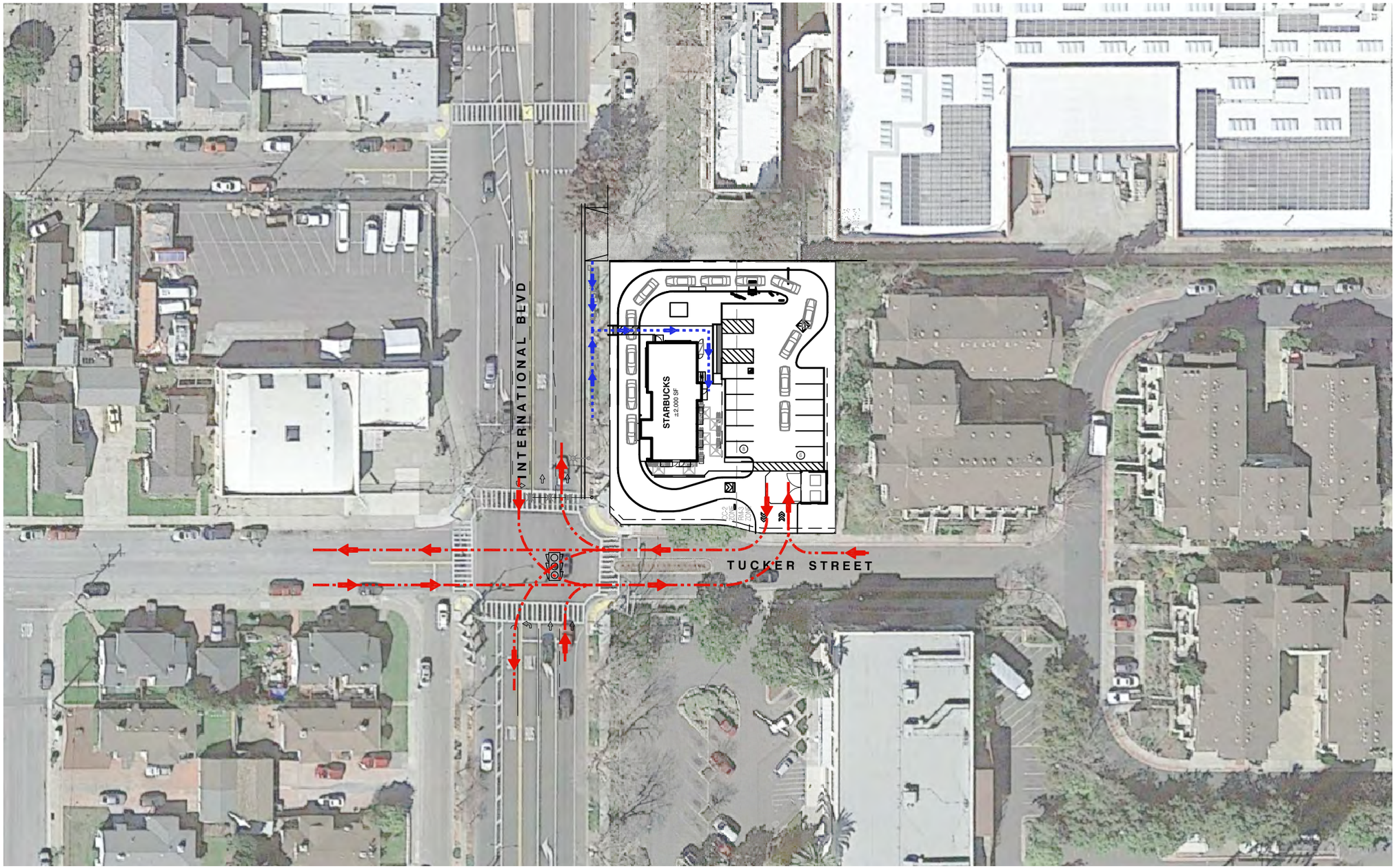
t: 949 296 0450 f: 949 296 0479

TRUE NORTH SCALE: 1"=10'-0" 0 5 10 20 30 40

DURANT COMMERCIAL, L.L.C / STARBUCKS
NEC INTERNATIONAL BLVD & TUCKER ST.
OAKLAND, CA
20191416.0

LANDSCAPE CONCEPTUAL PLAN
LCP-1
09.29.2020



LEGEND

VEHICLES ACCESS

PEDSTRIANS ACCESS

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

TRUE NORTH

SCALE: 1"=60'-0"

STARBUCKS

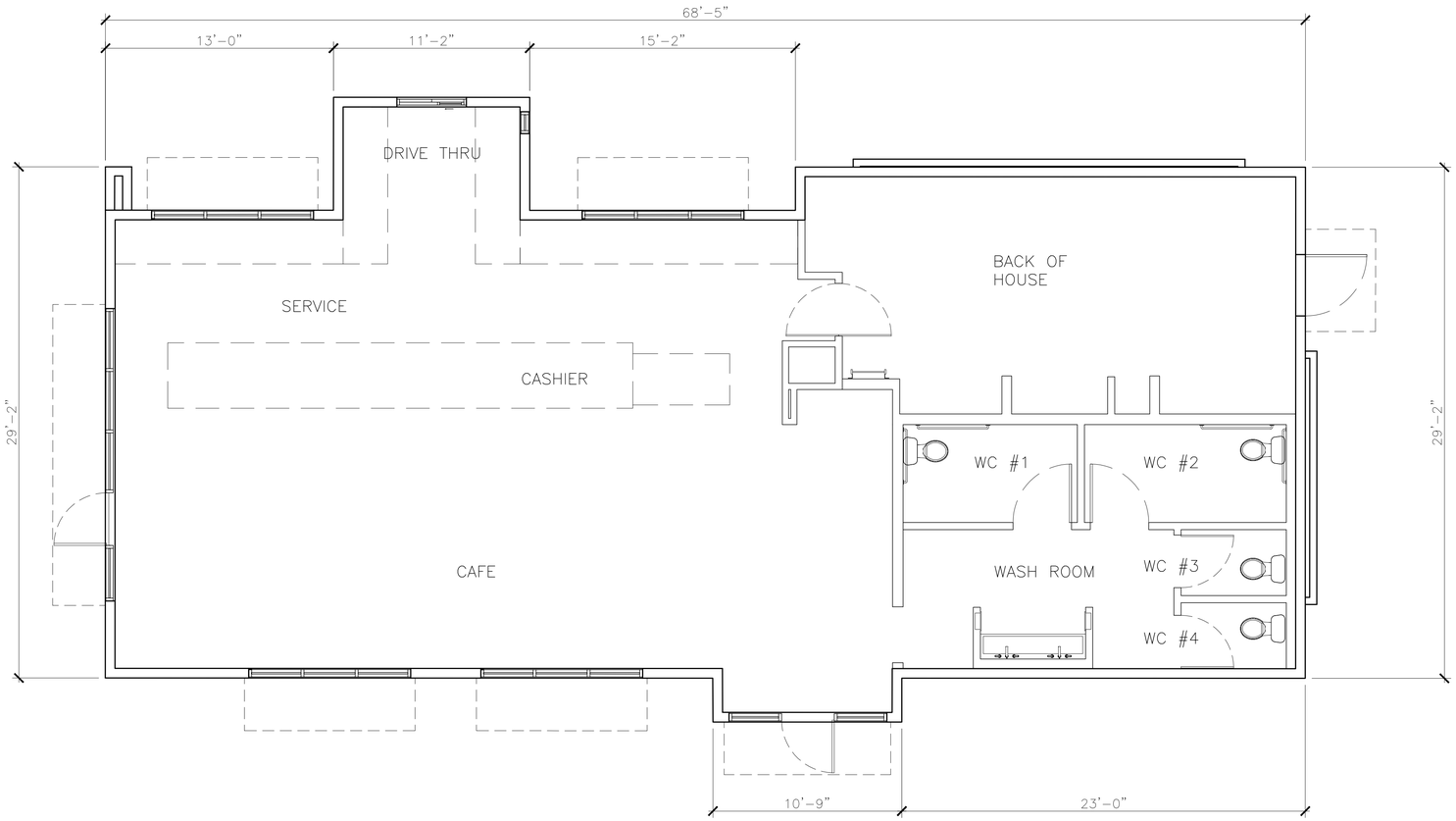
NEC INTERNATIONAL BLVD & TUCKER ST
OAKLAND, CA

20191416.0

SITE PLAN

ACCESS EXHIBIT

06.18.2021



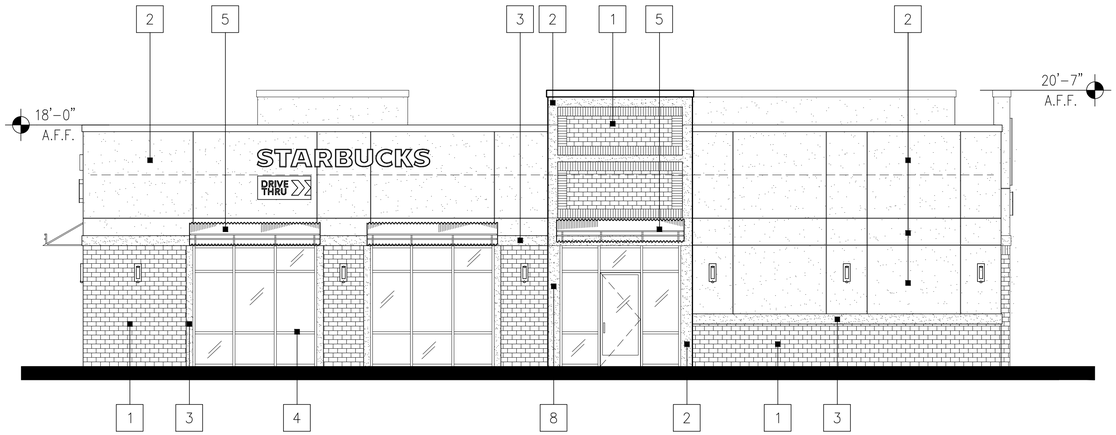
1 FLOOR PLAN
Scale: 1/4"= 1'-0"

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

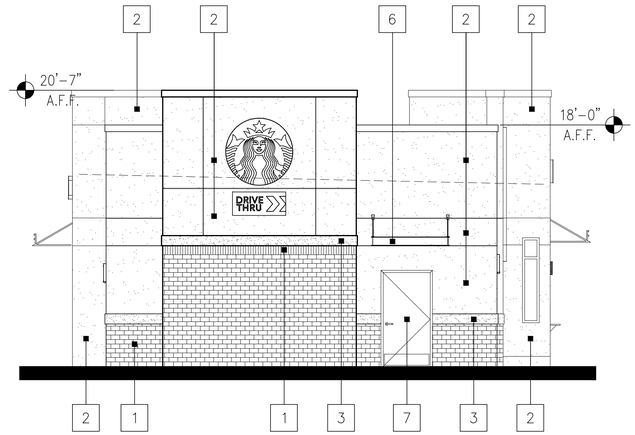
STARBUCKS
INTERNATIONAL BLVD & TUCKER ST
OAKLAND, CA
201914160

FLOOR PLAN
SCALE: AS NOTED

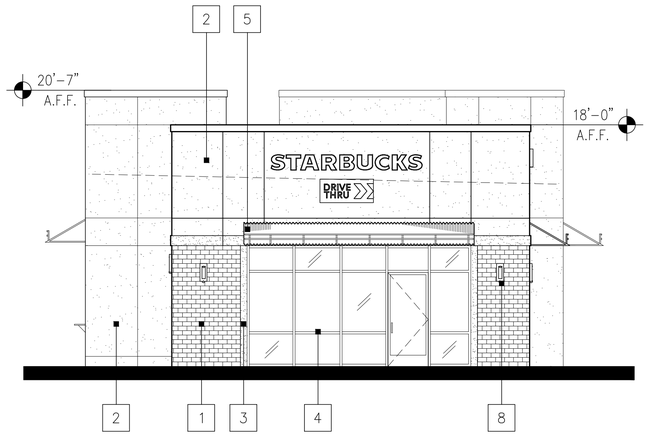
09-23-2021



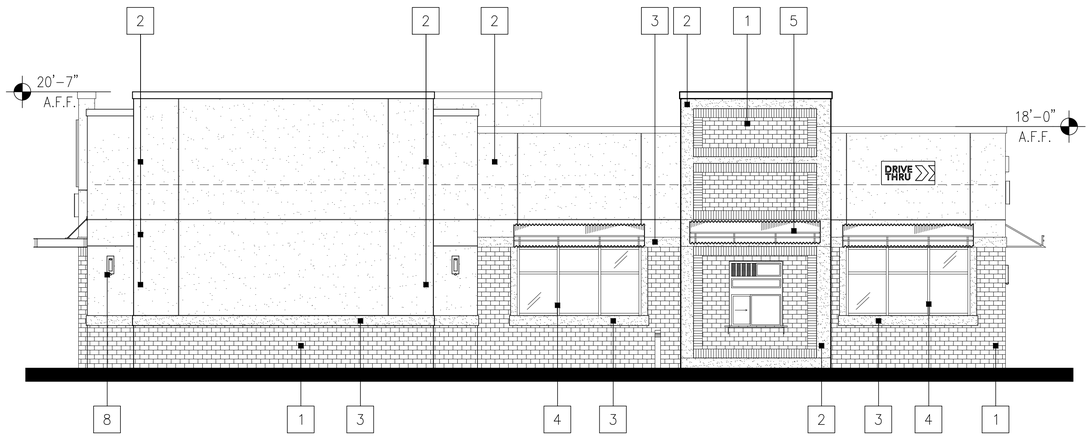
1 EAST ELEVATION
Scale: 3/16"= 1'-0"



2 NORTH ELEVATION
Scale: 3/16"= 1'-0"

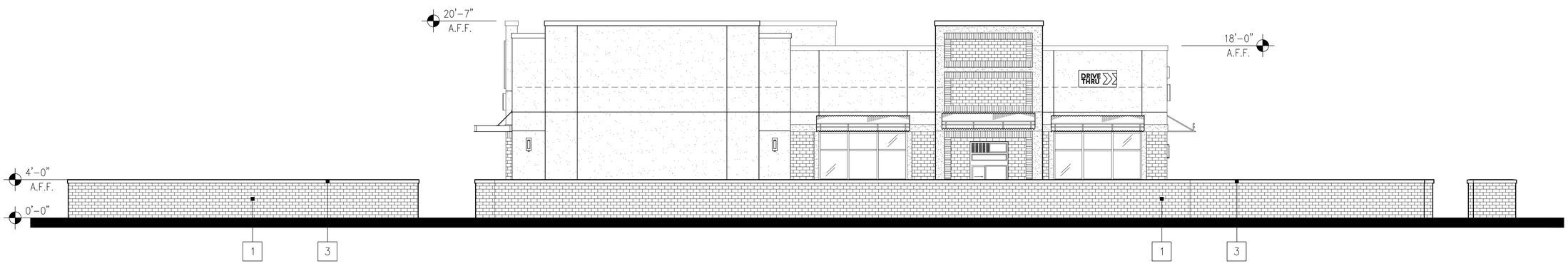


3 SOUTH ELEVATION
Scale: 3/16"= 1'-0"



4 WEST ELEVATION
Scale: 3/16"= 1'-0"

3A SOUTH ELEVATION - STREET VIEW
Scale: 3/16"= 1'-0"



4A WEST ELEVATION - STREET VIEW
Scale: 3/16"= 1'-0"

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

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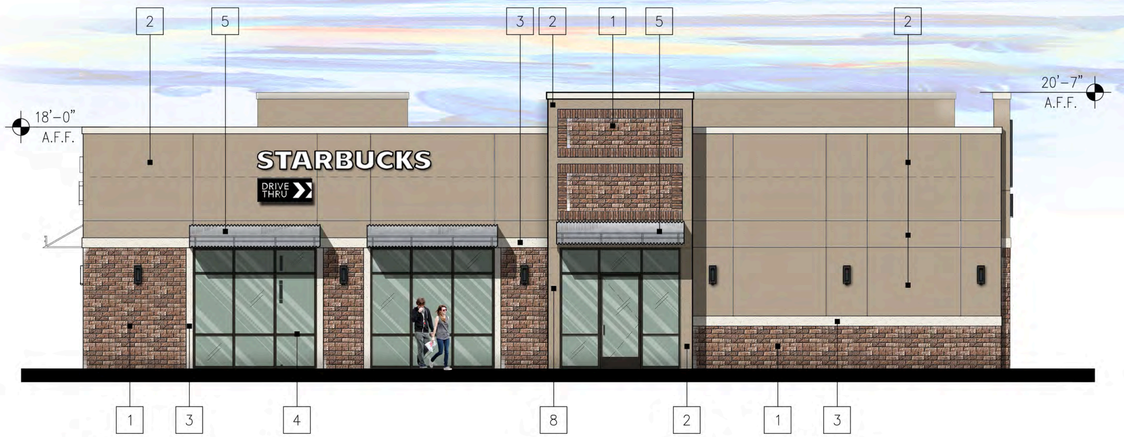
STARBUCKS
INTERNATIONAL BLVD & TUCKER ST
OAKLAND, CA
201914160

EXTERIOR ELEVATIONS
SCALE: AS NOTED

09-24-2021



1 EAST ELEVATION
Scale: 3/16"= 1'-0"

2 NORTH ELEVATION
Scale: 3/16"= 1'-0"

3 SOUTH ELEVATION
Scale: 3/16"= 1'-0"

4 WEST ELEVATION
Scale: 3/16"= 1'-0"

3A SOUTH ELEVATION - STREET VIEW
Scale: 3/16"= 1'-0"

4A WEST ELEVATION - STREET VIEW
Scale: 3/16"= 1'-0"

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

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STARBUCKS
INTERNATIONAL BLVD & TUCKER ST
OAKLAND, CA
201914160

EXTERIOR ELEVATIONS
SCALE: AS NOTED

09-24-2021

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

GreenbergFarrow
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Irvine, CA 92614
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STARBUCKS | **COLOR & MATERIAL BOARD**
INTERNATIONAL BLVD & TUCKER ST
OAKLAND, CA
201914160 | 02/17/2020

Traffic Impact Analysis Report

Proposed Starbucks at International Blvd. And Tucker St.

City of Oakland, California

Revised: July 13, 2021

TJKM

Contents

Tables

Figures

Appendices

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 10th Edition* (2017).

Existing Conditions

Although Level of Service is no longer considered a significant impact, consultation of a past TIA report[1] 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.

[1] 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 95th percentile queueing 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[1]	Existing Conditions			Existing plus Project Conditions		
			Average Delay[2]	LOS[3]	V/C[4]	Average Delay[2]	LOS[3]	V/C[4]
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:
[1.] AM – morning peak hour, PM – evening peak hour
[2.] Average intersection delay expressed in seconds per vehicle for signalized intersections.
[3.] LOS = Level of Service
[4.] 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:

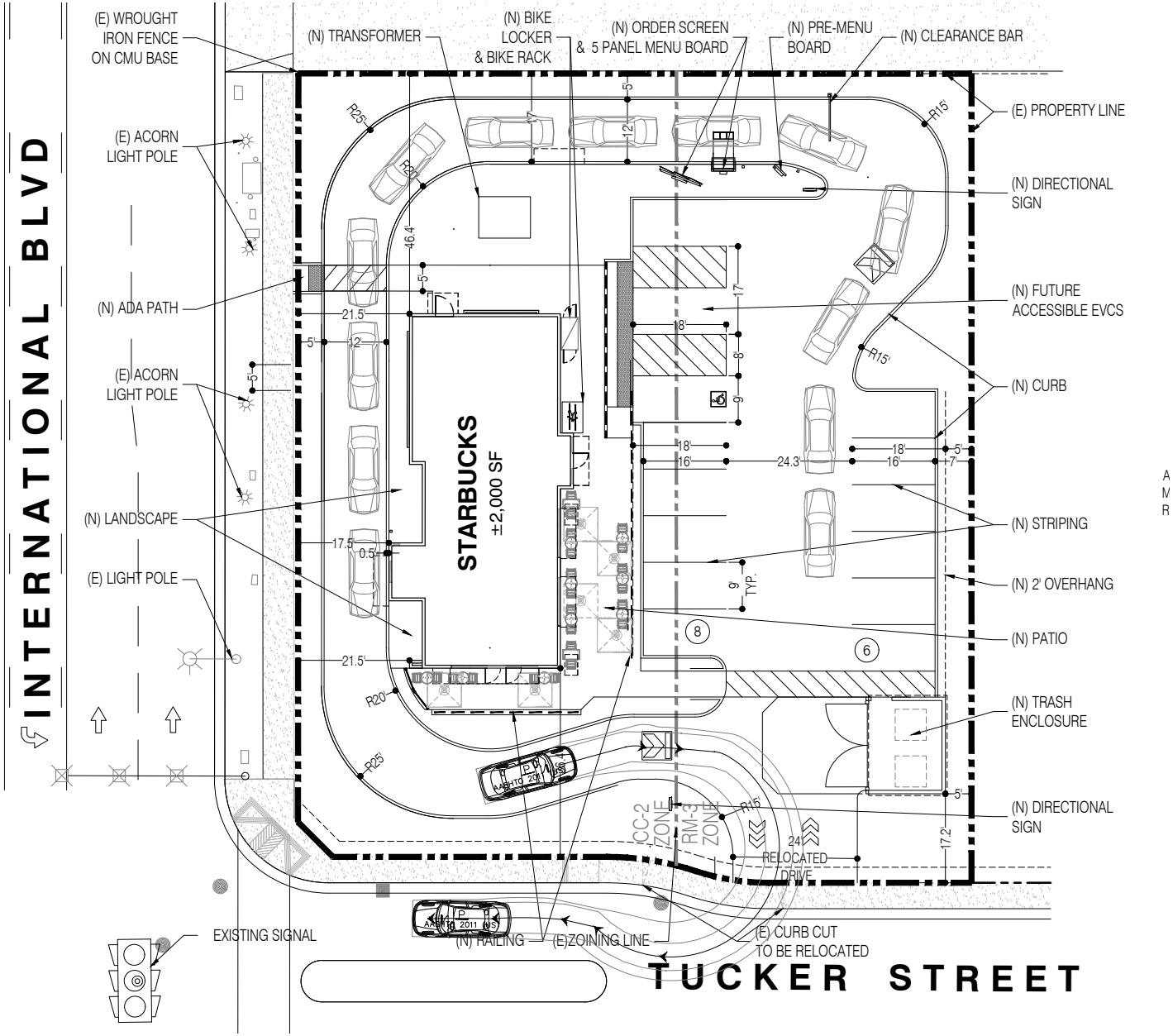
1. Chandler St approximately 200 feet southeast of the intersection with Tucker St

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

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[2] 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.

[2] 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. 14th 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. /104th Avenue. The nearest Line 45 stop is at International Blvd at 105th 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

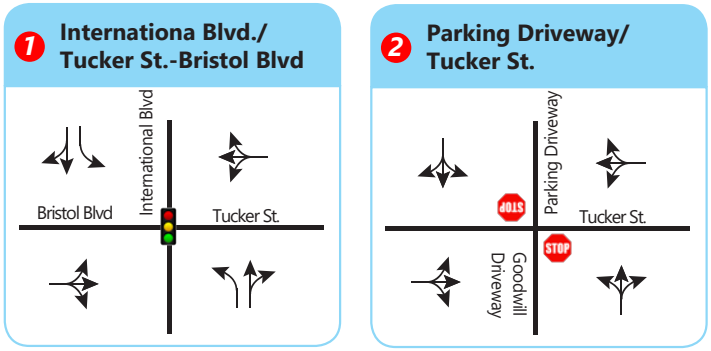
Existing Peak Hour Traffic Volumes

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 : Pedestrain, Bicycle and Transit Facility

Figure 4 : Existing Lane Geometry and Traffic Control



LEGEND

- Project Site
- 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**.

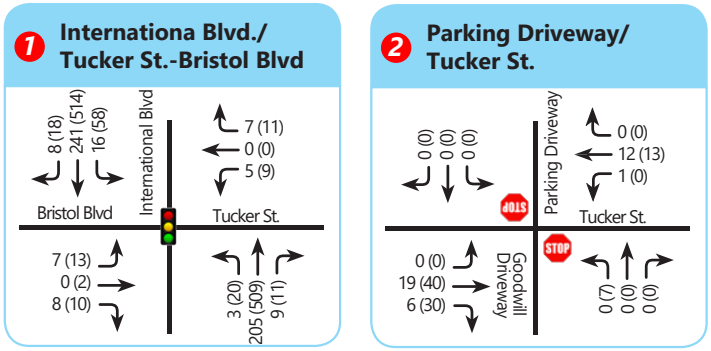
Table 4: Intersection Level of Service Analysis – Existing Conditions

Intersection	Control	Peak Hour[1]	Existing Conditions		
			Average Delay[2]	LOS[3]	V/C[4]
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:
[1]AM – morning peak hour, PM – evening peak hour
[2]Average intersection delay expressed in seconds per vehicle for signalized intersections.
[3]LOS = Level of Service
[4]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
- Study Intersection
- Traffic Signal
- 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* (10th *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
Proposed	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[1]				131	49%		44	43	87	50%		22	22	44
	Proposed Land Use Trips (A)				**1,510**			**46**	**44**	**91**			**21**	**22**	**43**

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

KSF - Thousand Square Feet

[1]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

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.

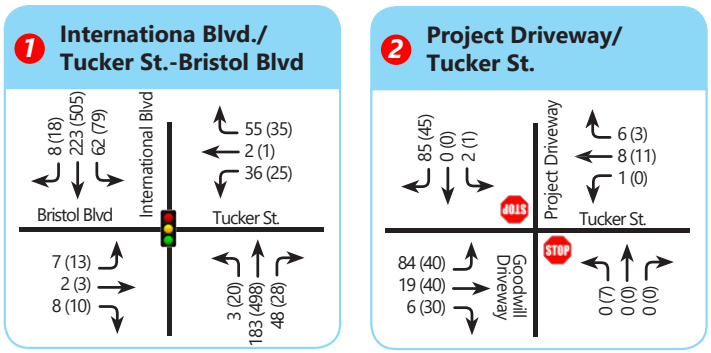
Table 6: Intersection Level of Service Analysis – Existing plus Project Conditions

Intersection	Control	Peak Hour[1]	Existing Conditions			Existing plus Project Conditions			Change in Delay	Change in V/C
			Average Delay[2]	LOS[3]	V/C[4]	Average Delay[2]	LOS[3]	V/C[4]		
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:
[1]AM – morning peak hour, PM – evening peak hour
[2]Average intersection delay expressed in seconds per vehicle for signalized intersections
[3]LOS = Level of Service
[4]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
- Study Intersection
- Traffic Signal
- Stop Sign
- XX AM Peak Hour Volumes
- (XX) PM Peak Hour Volumes
- Road Tube Traffic Count
- XX% Trip Distribution

N

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 95th 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 95th percentile queue lengths at the study intersections under Existing and Existing plus Project Conditions scenarios.

Table 7: 95th 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 95th 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 95th 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 95th 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: 95th Percentile Queues and Level of Service at Project Driveways

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

Notes:
[1]Delay = Average control delay in seconds per vehicle
[2]LOS = Level of Service
[3]Reported values of 95th 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 95th 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 existing 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 queueing 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

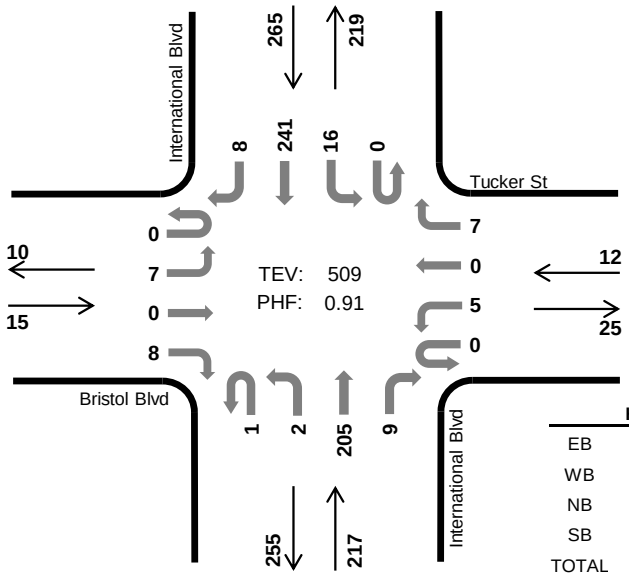
- The proposed project is expected to generate a net of 1,510 daily trips in which 91 net trips are generated during the a.m. peak hour and 43 net trips are generated during the p.m. peak hour. The proposed trip generation includes discounts for existing site use and peak hour pass-by trip reduction as per the Institute of Transportation Engineer's (ITE) *Trip Generation 10th 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 95th 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

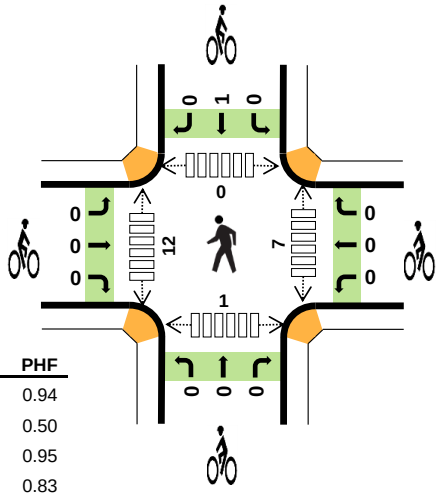
International Blvd
Tucker St

Date: 03-02-2021
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 8:00 AM to 9:00 AM

Peak Hour



	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 Eastbound				Tucker St Westbound				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		
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
8:00 AM	**0**	**2**	**0**	**2**	**0**	**4**	**0**	**2**	**0**	**2**	**47**	**4**	**0**	**3**	**56**	**0**	**122**	470
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
8:45 AM	**0**	**1**	**0**	**2**	**0**	**0**	**0**	**0**	**1**	**0**	**54**	**2**	**0**	**8**	**69**	**3**	**140**	**509**
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**
Peak Hour HV	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**14**	**0**	**0**	**0**	**17**	**0**	**31**	**0**
Peak Hour 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*
8:00 AM	**0**	**0**	**2**	**3**	***5***	**0**	**0**	**0**	**0**	***0***	**0**	**1**	**0**	**1**	*2*
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*
8:45 AM	**0**	**0**	**3**	**6**	***9***	**0**	**0**	**0**	**1**	***1***	**0**	**4**	**0**	**0**	***4***
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***

Two-Hour Count Summaries - Heavy Vehicles

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**

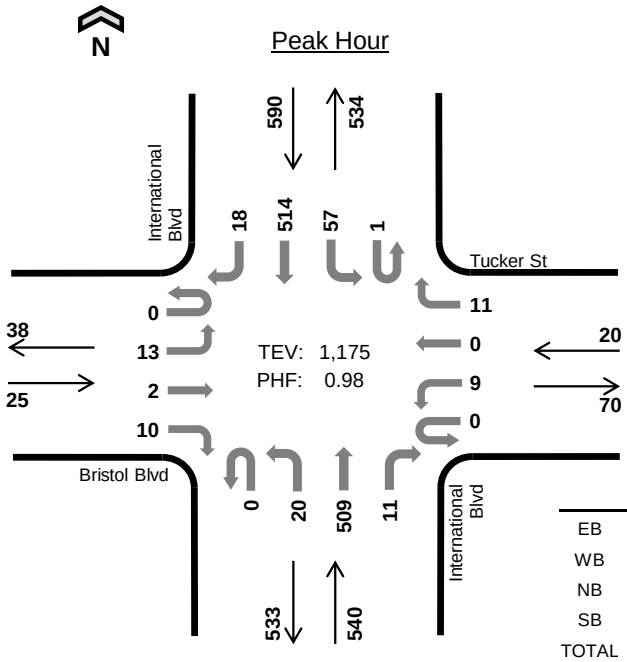
Two-Hour Count Summaries - Bikes

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	1	1	2	0
7:15 AM	0	0	0	0	0	1	0	2	0	0	0	0	3	0
7:30 AM	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	6
8:00 AM	**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**	1
8:30 AM	**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**	**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**

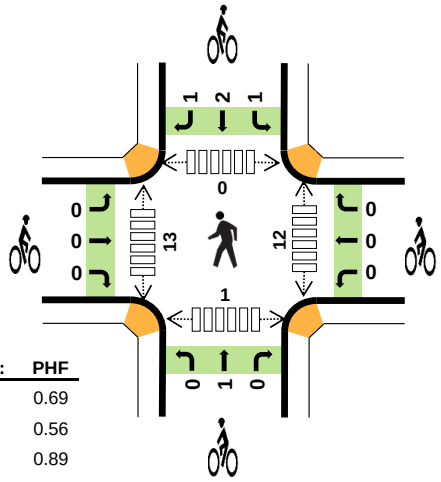
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

International Blvd
Tucker St

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 Eastbound				Tucker St Westbound				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**
Peak Hour HV	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**8**	**1**	**0**	**0**	**8**	**0**	**17**	**0**
Peak Hour 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***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Bristol Blvd Eastbound				Tucker St Westbound				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	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**

Two-Hour Count Summaries - Bikes

Interval Start	Bristol Blvd Eastbound			Tucker St Westbound			International Blvd Northbound			International Blvd Southbound			15-min Total	Rolling One Hour
	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	1	1	0
4:15 PM	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	5	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	8
5:00 PM	**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**	8
5:30 PM	**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	4
Count Total	0	0	0	0	1	1	0	3	0	1	4	2	12	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**2**	**1**	**5**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Tucker Street at Project Driveway Counts

	Tucker			Goodwill Dwy			Tucker			Project Dwy				
Time Period	Eastbound			Northbound			Westbound			Southbound				
From To	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		Total
SURVEY DATA														
7:45 AM -- 8:00 AM	0	0	0	0	0	0	0	2	0	0	0	0		2
8:00 AM -- 8:15 AM	0	1	1	0	0	0	0	5	0	0	0	0		7
8:15 AM -- 8:30 AM	0	3	3	0	0	0	0	1	0	0	0	0		7
8:30 AM -- 8:45 AM	0	2	2	0	0	0	0	2	0	1	0	0		7
8:45 AM -- 9:00 AM	0	3	0	0	0	0	1	4	0	0	0	1		9
9:00 AM -- 9:15 AM	0	2	0	0	0	0	1	4	0	0	0	1		8
														0
														0

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

	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					
Time	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.

Project Manager: (415) 310-6469
project.manager.ca@idaxdata.com

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
	1	2	3	4	5	6	7	8	9	10	11	12	13	Volume
Study Total														
Northbound	1	75	7	0	3	0	0	0	0	0	0	0	0	86
Percent	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%
Southbound	3	101	16	0	2	0	0	0	0	0	0	0	0	122
Percent	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%
Total	4	176	23	0	5	0	0	0	0	0	0	0	0	208
Percent	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%

FHWA Vehicle Classification	
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	

Project Manager: (415) 310-6469
project.manager.ca@idaxdata.com

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**
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**
Total	**1**	**75**	**7**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**86**
Percent	**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%**	

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**
1:00 AM	0	1	1	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	**1**
3:00 AM	0	3	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**
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	6	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	**8**
9:00 AM	0	3	1	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	**3**
11:00 AM	0	6	1	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	**6**
1:00 PM	0	7	0	0	1	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	**13**
3:00 PM	0	7	1	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	**7**
5:00 PM	2	9	1	0	1	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	**10**
7:00 PM	0	12	1	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	**3**
9:00 PM	0	2	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	**1**
11:00 PM	0	2	0	0	0	0	0	0	0	0	0	0	0	**2**
Total	**3**	**101**	**16**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**122**
Percent	**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%**	

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**
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**
Total	**1**	**75**	**7**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**86**
Percent	**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%**	

Note: Average only condsidered 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**
1:00 AM	0	1	1	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	**1**
3:00 AM	0	3	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**
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	6	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	**8**
9:00 AM	0	3	1	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	**3**
11:00 AM	0	6	1	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	**6**
1:00 PM	0	7	0	0	1	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	**13**
3:00 PM	0	7	1	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	**7**
5:00 PM	2	9	1	0	1	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	**10**
7:00 PM	0	12	1	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	**3**
9:00 PM	0	2	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	**1**
11:00 PM	0	2	0	0	0	0	0	0	0	0	0	0	0	**2**
Total	**3**	**101**	**16**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**122**
Percent	**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%**	

Note: Average only condsidered 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**
Total	**1**	**75**	**7**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**86**
Percent	**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%**	

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**
1:00 AM	0	1	1	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	**1**
3:00 AM	0	3	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**
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	6	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	**8**
9:00 AM	0	3	1	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	**3**
11:00 AM	0	6	1	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	**6**
1:00 PM	0	7	0	0	1	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	**13**
3:00 PM	0	7	1	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	**7**
5:00 PM	2	9	1	0	1	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	**10**
7:00 PM	0	12	1	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	**3**
9:00 PM	0	2	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	**1**
11:00 PM	0	2	0	0	0	0	0	0	0	0	0	0	0	**2**
Total	**3**	**101**	**16**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**122**
Percent	**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%**	

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
	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 +	Volume
Study Total																		
Northbound	16	38	27	5	0	0	0	0	0	0	0	0	0	0	0	0	0	86
Percent	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%
Southbound	20	44	48	8	2	0	0	0	0	0	0	0	0	0	0	0	0	122
Percent	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%
Total	36	82	75	13	2	0	0	0	0	0	0	0	0	0	0	0	0	208
Percent	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		
Northbound		
50th Percentile (Median)	13.5	mph
85th Percentile	17.9	mph
95th Percentile	20.1	mph
Southbound		
50th Percentile (Median)	14.9	mph
85th Percentile	19.0	mph
95th Percentile	20.8	mph

Total Study Speed Statistics		
Northbound		
Mean (Average) Speed	13.6	mph
10 mph Pace	8.5 - 18.5	mph
Percent in Pace	84.9	%
Southbound		
Mean (Average) Speed	14.7	mph
10 mph Pace	10.8 - 20.8	mph
Percent in Pace	77.9	%

Project Manager: (415) 310-6469
project.manager.ca@idaxdata.com

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	**1**
5:00 AM	0	1	0	0	0	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	0	0	0	**1**
7:00 AM	1	2	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	**8**
8:00 AM	2	1	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**7**
9:00 AM	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	**3**
10:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**
11:00 AM	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**6**
12:00 PM	1	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**5**
1:00 PM	1	5	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**8**
2:00 PM	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**6**
3:00 PM	3	4	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	**11**
4:00 PM	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**4**
5:00 PM	2	4	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**8**
6:00 PM	2	3	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	**6**
7:00 PM	0	1	2	1	0	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	0	0	0	**1**
9:00 PM	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**3**
10:00 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**
11:00 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**
Total	**16**	**38**	**27**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**86**
Percent	**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%**	

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	**2**
2:00 AM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	**1**
3:00 AM	0	0	3	0	0	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	0	0	**0**
5:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**
6:00 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**
7:00 AM	1	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**6**
8:00 AM	0	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**8**
9:00 AM	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**4**
10:00 AM	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**3**
11:00 AM	2	0	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	**7**
12:00 PM	2	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**6**
1:00 PM	1	5	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**8**
2:00 PM	4	4	3	1	1	0	0	0	0	0	0	0	0	0	0	0	0	**13**
3:00 PM	1	5	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**8**
4:00 PM	1	4	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**7**
5:00 PM	4	5	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	**13**
6:00 PM	1	5	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**10**
7:00 PM	1	2	9	1	0	0	0	0	0	0	0	0	0	0	0	0	0	**13**
8:00 PM	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	**3**
9:00 PM	0	0	2	0	0	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	0	0	0	**1**
11:00 PM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**2**
Total	**20**	**44**	**48**	**8**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**122**
Percent	**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%**	

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	%

Project Manager: (415) 310-6469
project.manager.ca@idaxdata.com

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	**1**
5:00 AM	0	1	0	0	0	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	0	0	0	**1**
7:00 AM	1	2	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	**8**
8:00 AM	2	1	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**7**
9:00 AM	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	**3**
10:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**
11:00 AM	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**6**
12:00 PM	1	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**5**
1:00 PM	1	5	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**8**
2:00 PM	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**6**
3:00 PM	3	4	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	**11**
4:00 PM	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**4**
5:00 PM	2	4	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**8**
6:00 PM	2	3	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	**6**
7:00 PM	0	1	2	1	0	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	0	0	0	**1**
9:00 PM	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**3**
10:00 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**
11:00 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**
Total	**16**	**38**	**27**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**86**
Percent	**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%**	

Note: Average only condsidered 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
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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	**2**
2:00 AM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	**1**
3:00 AM	0	0	3	0	0	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	0	0	**0**
5:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**
6:00 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**
7:00 AM	1	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**6**
8:00 AM	0	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**8**
9:00 AM	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**4**
10:00 AM	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**3**
11:00 AM	2	0	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	**7**
12:00 PM	2	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**6**
1:00 PM	1	5	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**8**
2:00 PM	4	4	3	1	1	0	0	0	0	0	0	0	0	0	0	0	0	**13**
3:00 PM	1	5	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**8**
4:00 PM	1	4	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**7**
5:00 PM	4	5	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	**13**
6:00 PM	1	5	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**10**
7:00 PM	1	2	9	1	0	0	0	0	0	0	0	0	0	0	0	0	0	**13**
8:00 PM	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	**3**
9:00 PM	0	0	2	0	0	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	0	0	0	**1**
11:00 PM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**2**
Total	**20**	**44**	**48**	**8**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**122**
Percent	**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%**	

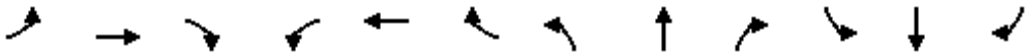
Note: Average only condsidered on days with 24-hours of data.

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

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

Intersection Summary



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 (vphpl)	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	
Frpb, 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	

Intersection Summary			
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			

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

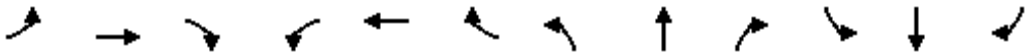
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	12	0	0	19	0	0	45	45	19	45	45	12
Stage 1	-	-	-	-	-	-	31	31	-	14	14	-
Stage 2	-	-	-	-	-	-	14	14	-	31	31	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy 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	-	-	-

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



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 (vphpl)	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	
Frpb, 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	

Intersection Summary			
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			

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	-

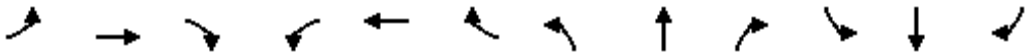
Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	8.9	0
HCM LOS			A	A

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

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



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 (vphpl)	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	
Frpb, 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	

Intersection Summary			
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			

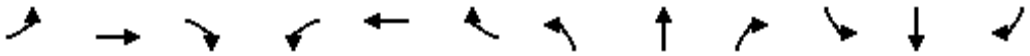
Intersection	
Int Delay, s/veh	6.6

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



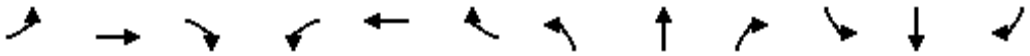
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	84	19	6	1	8	6	0	0	0	2	0	85
Future Volume (Veh/h)	84	19	6	1	8	6	0	0	0	2	0	85
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	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			

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



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 (vphpl)	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	
Frpb, 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	

Intersection Summary			
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			

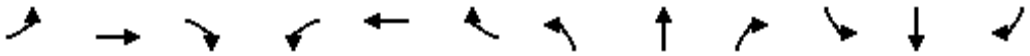
Intersection	
Int Delay, s/veh	4.3

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



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			